BIOMECHANICAL FEEDBACK SYSTEM FOR CANADA'S HIGH PERFORMANCE DIVERS

FINAL REPORT TO SPORT CANADA

by

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Abstract

While the limited number of diving coaches who have a solid background in sport science look forward to receiving information of a technical nature on various aspects of their sport, the majority of coaches who do not have the benefit of this formal training, have questioned the value of such material as either something they would not understand or as information which would not have direct or immediate bearing upon improving the performance of their athletes. In the summer of 1988, we undertook a Sport Canada-sponsored project related to this issue.

The basic question addressed in the research was whether a feedback system could be designed which would provide timely and meaningful biomechanics information and which would be used by the coaches of Canada's elite divers to assist them in evaluating the performances of their athletes. It was hypothesized that, given the type of feedback on biomechanical aspects of performance which can be provided with modern computerized video digitizing systems, coaches would be more predisposed to use this information in the training of their divers and, as a result, performances would improve more rapidly than without such feedback.

The project, which focused on 3-m springboard take-offs, was designed to gain the interest and hold the attention of the coaches of Canada's elite divers by providing them with rapid and relevant biomechanics feedback on their own athletes. Beginning with the Canadian Olympic Trials in 1988, the 3-m takeoffs of all divers at six national and two international meets were videotaped. The performances of the top 10 male and top 10 female divers in the finals were reduced using a Peak Performance computerized video digitizing system and further processed with custom software. Output conveyed to the coaches included stick figure 'event' sequences of the hurdle and take-off, individual diver cumulative performance summaries, a descriptive statistical analysis of selected biomechanical variable values for each competition, interrelationships between height and rotation in flight and frame-by-frame analysis of selected takeoffs to produce position and linear/angular velocity-time profiles. The output was provided on 3-hole punched pages to permit coaches to reorganize the data as they saw fit, set up individual progress notebooks for their divers and/or allow them to make comparisons across dives by placing sheets side by side or by superimposing them. In accordance with the unanimous request of coaches at the outset of the project, one report containing data from all divers was prepared

following each meet. The report, along with a composite videotape of the competition, was completed and distributed by courier to the coaches approximately three weeks after the particular meet at which the data had been collected.

Over the course of the project, the reports, averaging some 200 pages in length, were distributed to a total of 24 Canadian coaches (5 women and 19 men) with an average of 15 reports going out after each meet. The performances 40 Canadian divers (21 women and 19 men) were analyzed. Data were also obtained on some 22 international competitors for comparative purposes.

Coaches involved in this rapid feedback project were enthusiastic in their reception of the content and format of the reports they received. To formally assess their perceptions of the effectiveness of the project, evaluative questionnaires were administered at the 1989 Summer Nationals and the 1991 Winter Nationals. Response rates of 13 and 15 out of 16 were obtained. Coaches indicated that the components of the report were presented in a clear manner. In both evaluations, the importance of the stick figure sequences was evident. The value of having comparative data on top international divers was also highly rated. The majority of coaches rated the various report components as either good or excellent. All but one or two of the respondents indicated that the reports provided them with new information or new insights and also confirmed some things they already knew or suspected. Approximately half the coaches completing the first questionnaire found the reports useful in providing feedback to their divers and in increasing their understanding of some aspects of biomechanics. This number increased to 13 of the 15 respondents on the final evaluation.

It was concluded that the feedback system developed in the study and designed to convey meaningful and timely biomechanical information to coaches was effective in gaining their interest and in increasing their understanding of the application of biomechanics to diving performance. With perhaps one exception, the feedback was employed and supported by all the coaches of Canada's top divers. While the effect of the rapid biomechanical feedback project on the divers could not be isolated because of the complex interaction of factors influencing dive execution, input from their coaches inferred that it was positive. A comparison of the performance histories of these divers at the end of the current Olympic training cycle (1988-92), with those their counterparts in the preceding cycle (1984-88) may shed additional light on this question.

BIOMECHANICAL FEEDBACK SYSTEM FOR CANADA'S HIGH PERFORMANCE DIVERS

INTRODUCTION

Background

In 1982, we began what was to be an extended series of studies based upon data collected in national and international diving meets (see References). In the 1982 Canadian Championships in Vancouver, Silvie Bernier was one of the competitors analyzed (her performances in practice had also been the subject of an earlier study). In United States Sports Festival V held in 1983, particular emphasis was placed on Greg Louganis' medal-winning techniques. These studies focused upon the approach and take-off characteristics of American and Canadian 3-m divers. The results of this type of research, however, were more useful in increasing the general level of understanding of this aspect of the performance and in developing a frame of reference with respect to specific variables characterizing the execution of dives by elite competitors than in improving the technique of specific divers. Consequently, it is unlikely that these reports had a widespread impact on diving coaches in general.

At least two major factors for this lack of impact can be postulated. The first may be attributed to technological limitations. It simply took too long to complete biomechanical analysis of the 16-mm films for that analysis to be of use to most of the coaches. The labor intensive nature of biomechanical analysis also placed severe limitations upon the number of dives which could be studied in detail. Consequently, information often focused on single performances of a few elite divers. The second factor may have been related to the perception of many coaches that such information was not particularly relevant to improving the performances of their own athletes. In some cases, it assumed a level of expertise which most coaches did not possess. And in other instances, the publications were not accessible to them.

The potential for such information's being useful to coaches and having a positive effect upon performance, however, was indicated by Donald Dion's acknowledgment of his use of our analysis of Sylvie Bernier at the 1982 Winter Nationals and contained in our report to the CADA in June of 1982. It is significant to note that Dion had earned a master's degree in biomechanics, routinely applied scientific information in his coaching and was dealing with data directly related to one of his divers who would eventually win the gold medal in the 3-m competition at the 1988 Olympics in Los Angeles.

It was from this background that the proposal for the current project developed.

Statement of the Problem

The basic question addressed in the research was whether a feedback system could be designed which would provide timely and meaningful biomechanics information and which would be used by the coaches of Canada's elite divers to assist them in evaluating the performances of their athletes.

Hypotheses

It was hypothesized that, given the type of meaningful and timely feedback on biomechanical aspects of performance which can be provided with modern computerized video digitizing systems, coaches would be more predisposed to use this information in the training of their divers and, as a result, performances would improve more rapidly than they would without such feedback. It was also hypothesized that coaches who were exposed to this information on a regular basis would become more knowledgable in the application of biomechanical principles to their sport.

Approach

In the summer of 1988, when funding was received from Sport Canada with some matching financial support from the University of Western Ontario, we began a three-year project aimed at providing feedback to Canadian diving coaches on selected biomechanical aspects of the performances of their divers. The strategy adopted basically centred around combating the two previously identified factors which seemed to prevent or hinder such communication namely technological limitations and coach resistance.

Technological Factors. The initiation of the project coincided not only with advances in video cameras, video recorders and microcomputers which made them suitable tools for biomechanical research but also with the reduction in the price of this technology bringing it within reach of tight university research budgets. First, the modern video camera with its electronic shutter produces sharp images and makes it possible to collect data unobtrusively at major competitions. It is also considerably less expensive to operate and more

convenient to use than its predecessor, 16 mm film. Further, videotapes, unlike film, are immediately available for qualitative viewing and quantitative analysis. Secondly, the microcomputer with its increased speed and memory capability can now be employed to digitize video images right in the lab again providing convenience and the potential for a rapid turn-around between data collection and completion of the analysis.

Given the technology capable of furnishing rapid feedback on biomechanical aspects of the diving performance, it was necessary to gain and retain the interest of a large number of coaches in using this information. This was accomplished by providing coaches with data on their own divers which was readily understandable and meaningful to coaches of varying backgrounds. Because we felt that it was crucial to provide reasonable turn-around between data collection and the dissemination of these results, we sent out the reports containing the biomechancal feedback by courier within three weeks of the competition at which the data were obtained.

References

Miller, D.I. A study of the feasibility of using ExpertVision to assess springboard diving performance. Final Report to the Canadian Amateur Diving Association, March 30, 1987 (28 pp.).

Miller, D.I. Factors limiting springboard diving performance: historical and biomechanical perspectives. The Academy Papers 18: 101-105, 1985.

Miller, D.I. Biomechanical characteristics of the final approach step, hurdle and take-off of elite American springboard divers. Journal of Human Movement Studies 10 (4): 189-212, 1984.

Miller, D.I. Springboard reaction torque patterns during nontwisting dive take-offs. Biomechanics VIII B: 822-827, 1983.

Miller, D.I. Springboard approach, hurdle and take-off - data from National Sports Festival V. In D. Golden (Ed.) Proceedings of the United States Diving Sports Science Seminar, 1983 (pp.15-34).

Miller, D.I. Arm contributions to springboard dive take-offs. Human Locomotion II: 24-25, 1982.

Miller, D.I. What the biomechanics researcher tells the diving coach and what the coach tells the researcher. In J. Terauds (Ed.). Biomechanics in Sports. Academic Publishers: Del Mar, 1982 (pp. 31-36).

Miller, D.I. Total body momentum considerations during springboard diving take-offs. In D. Golden (Ed.). Proceedings of the 1981 United States Diving Sports Science Seminar, 1982 (pp. 83-108).

Miller, D.I. Biomechanical analysis of springboard take-offs of elite Canadian divers. Final Report to the Canadian Amateur Diving Association, June 15, 1982 (146 pp.)

Miller, D.I. Body segment contributions of female athletes to translational and rotational requirements of non-twisting springboard dive take-offs. In J. Borms et al. (Eds.). The Female Athlete. Karger: Basil, 1981 (pp. 206-215).

Miller, D.I. A comparative analysis of the take-off employed in springboard dives from the forward and reverse groups. Biomechanics IV: 223-228, 1974.

Miller, D.I., Jones, I.C. and Pizzimenti, M.A. Taking off: Greg Louganis' diving style. Soma: Engineering for the Human Body 2(4): 20-28, 1988.

Miller, D.I. & Munro, C.F. Body segment contributions to height achieved during the flight of a springboard dive. Medicine and Science in Sport and Exercise 16 (3): 234-242, 1984.

Miller, D.I. & Munro, C.F. Greg Louganis' springboard take-off: I. Temporal and joint position analysis. International Journal of Sport Biomechanics 1 (3): 209-220, 1985.

Miller, D.I. & Munro, C.F. Greg Louganis' springboard take-off: II. Linear and angular momentum considerations. International Journal of Sport Biomechanics 1 (4): 288-307, 1985.

METHODOLOGY

During the period of the grant, the preliminaries and finals of at least two 3-m national or international competitions were videotaped each year. They were as follows:

1988 Canadian Olympic Trials, Nepean, August 4-6

1989 Canadian Winter Nationals, Quebec City, February 17-19

1989 FINA Cup (World Diving Cup VI), Indianapolis, May 3-7

1989 Canadian Summer Nationals, Calgary, June 15-18

1989 Commonwealth Games Trials, Edmonton, December 15-17

1990 Dive Canada Meet, Nepean, May 2-6

1990 Canadian World Diving Trials, Winnipeg, November 23-25

1991 Canadian Winter National Championships, Etobicoke, March 21-24

A Panasonic PV-330 VHS camera recorded these performances. It was positioned (usually in the balcony) level and stationary and even with the ends of the 3-m boards. Two pieces of contrasting (usually black) tape attached 3 and 6 feet from the board tip served as a linear scale for subsequent data reduction and analysis. The electronic shutter was set at either 1/250 or 1/500 second depending on the level of illumination provided by the CBC lighting. The time-date function was superimposed on the image for ease of later identification of dives performed by specific competitors. Records of each diver's height, weight, date of birth, fulcrum setting, club and dive scores were also obtained.

The video records of the top ten women and the top ten men in the finals were analyzed using a Peak Performance 2D computerized video digitizing system. Statistical information on individual divers and on specific competitions was processed using LOTUS 123 software.

The feedback package furnished the coaches included a composite videotape of the competition, stick figure sequences of the hurdle and take-off, quantitative analysis of temporal, distance and velocity aspects of the take-off, group statistics on these variables, height-rotation information related to the flight and linear and angular velocity data from selected dive take-offs. Details of the analysis and resulting output are furnished subsequent sections in this report.

Because at the beginning of the project the coaches were unanimous in their desire to have access to the data on all the divers, a composite report was prepared at the end of each competition. The output was provided on three-hole punched paper so that coaches could rearrange the content as desired. This format allowed coaches to set up individual notebooks for their own divers adding more information each successive competition. It also made it possible for coaches to do almost unlimited comparisons both within and between divers.

Two evaluative questionnaires were administered to coaches involved in the project, one midway through and the other at the end of the three year period.

VIDEOTAPES AND INDIVIDUAL COMMENTS

Composite videotapes of the dives recorded in the competition were prepared and copied for distribution to the coaches. Although the view was limited to that required for the quantitative analysis, it was hoped that this video might provide a different perspective than the coaches might have taped at the meet. When the project began in 1988, only a few coaches were making use of video in their practices or to record competitive performances. At that time, however, the electronic shutter was just being introduced into the commercial market making it possible for the first time to obtain clear images on frame-by-frame playback. Frame-by-frame video players were also just being introduced.

In addition to the 'quantitative' videos, qualitative videos of different views or of platform dives were taken whenever possible depending upon the competition schedule and camera position. For example, in one competition, the women's 1-m finals were videotaped from the front. This view revealed that several of the divers were either off balance or not positioned in the centre of the board during their take-offs. At another competition, entries of the men's 10-m finals were recorded indicating both rips and non-rips in rapid succession.

Comments of a qualitative nature related to a particular diver based on observations made during the digitizing process were passed along to the coach of that individual. These comments were not extensive or meant to be exhaustive and may or may not have provided new information to the coach. In some cases they may have provided additional evidence to convince a diver of a particular technique fault. It was evident, for example, that many of our divers needed to focus more attention on the finer points of the feet (no pun intended). A number were not completely plantarflexing their ankles at the end of inward somersaulting take-offs. It was also common for some divers to slide their feet back off the board with their ankles dorsiflexed thereby missing the final push down and back into the board. Further, there seemed to be a near epidemic of 'claw foot', a condition in which the diver curls the toes in flight but does not extend (i.e., plantarflex) the ankles. The 'half claw', involving only one foot, was also rather popular among our divers at all levels.

FEEDBACK RELATED TO 'EVENT' FRAMES

The reference points and joint coordinates digitized from the hurdle, take-off 'event' frames and approximately every fifth flight frame (1/6 s) were processed to determine position, time and velocity characteristics of the individual dives. These results were expressed in terms of stick figure sequences, selected numerical values characterizing individual dives, group statistics for the top ten male and female divers at each competition and selected height-rotation comparisons.

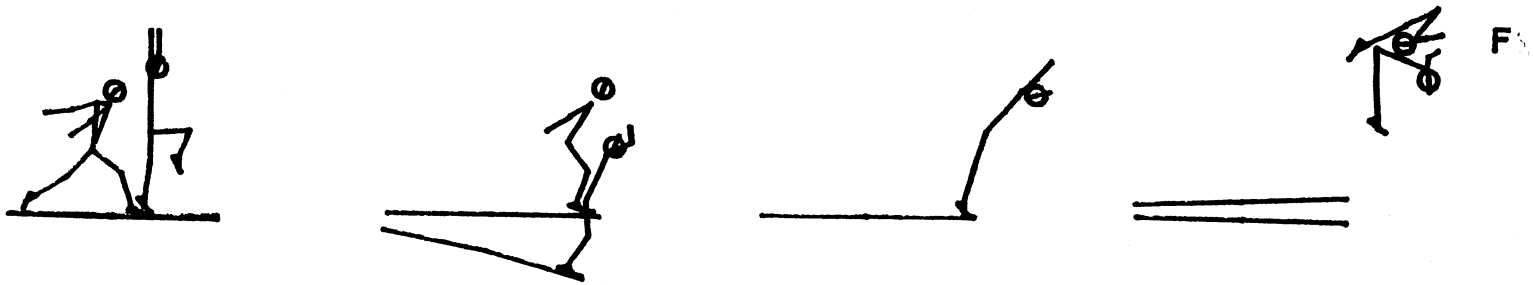
Stick Figure Sequences

The stick figure sequences for dives with a running approach included springboard and body positions at hurdle initial and final contact; take-off initial contact, maximum springboard depression and last contact; and two positions at the beginning of the flight which were commonly (but not always) the 5th and 10th video frames after final contact. In the case of dives with a standing approach, the highest board position before final springboard depression was shown. These sequences, which were highly rated by the coaches, allowed ready comparisons to be made among divers and among dives of a given diver. Because both sides of the body were digitized, asymmetries in body segment positions were evident in the graphic output.

As an example of this type of feedback, the stick figure sequences of dives performed in the 1991 Canadian Winter Nationals by Mary DePiero and David Bedard are provided on the pages immediately following. Similar data for Annie Pelletier, Paige Gordon, Mark Rourke and Chris LePoole can be found in Appendix A.

MARY DEPIERO: Canadian Winter Nationals, 1991

103B.



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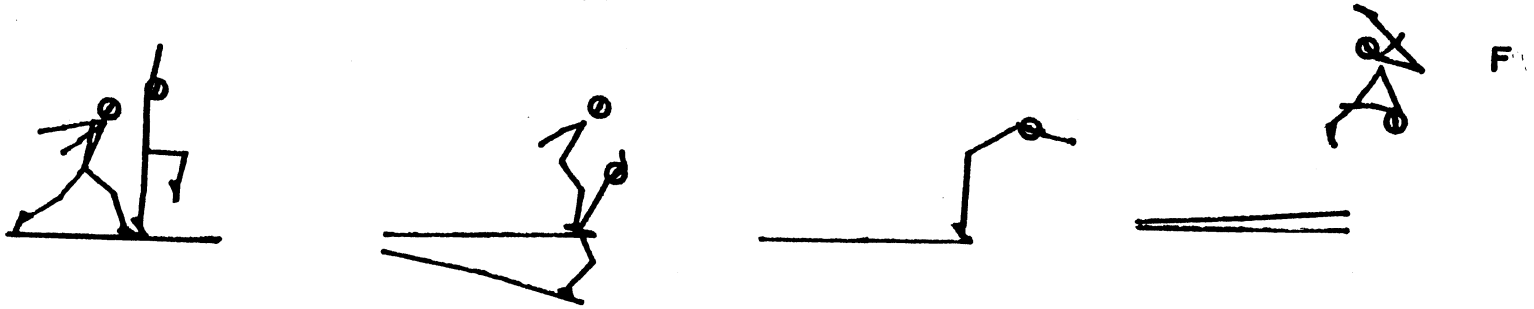

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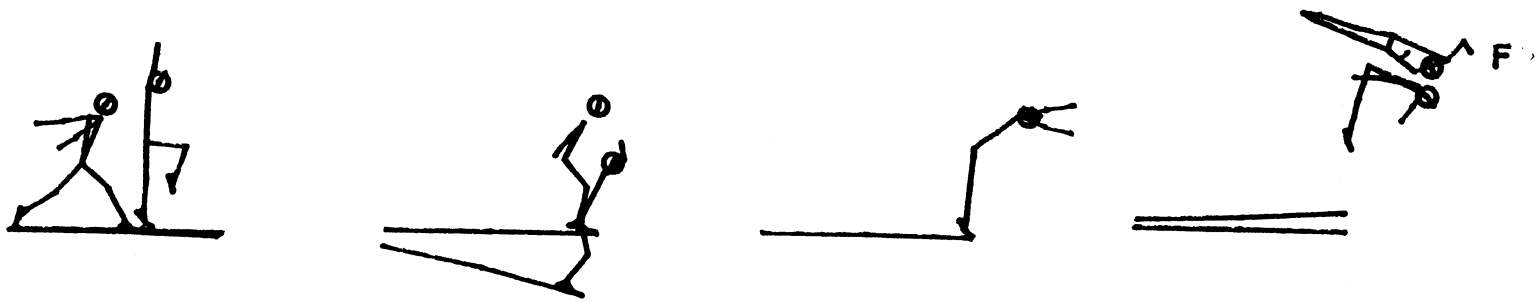

MARY DEPIERO: Canadian Winter Nationals, 1991

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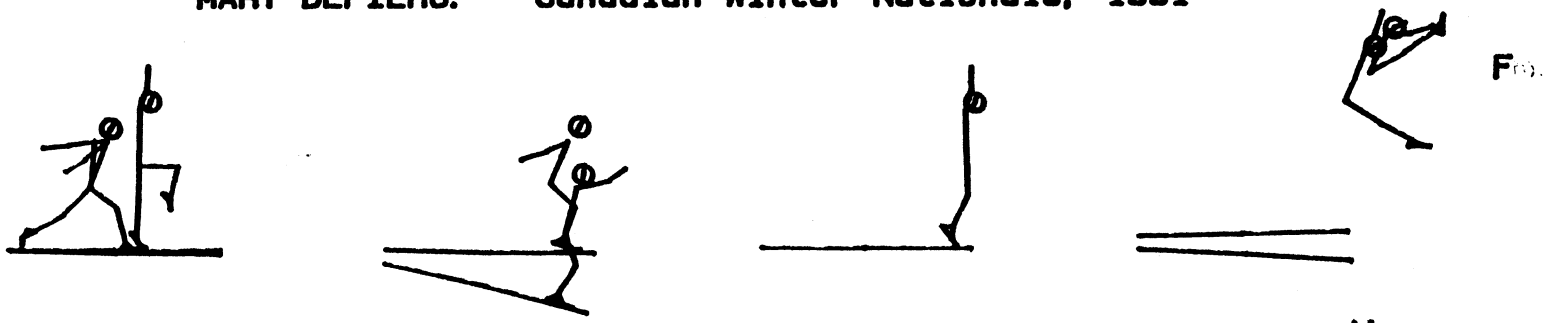

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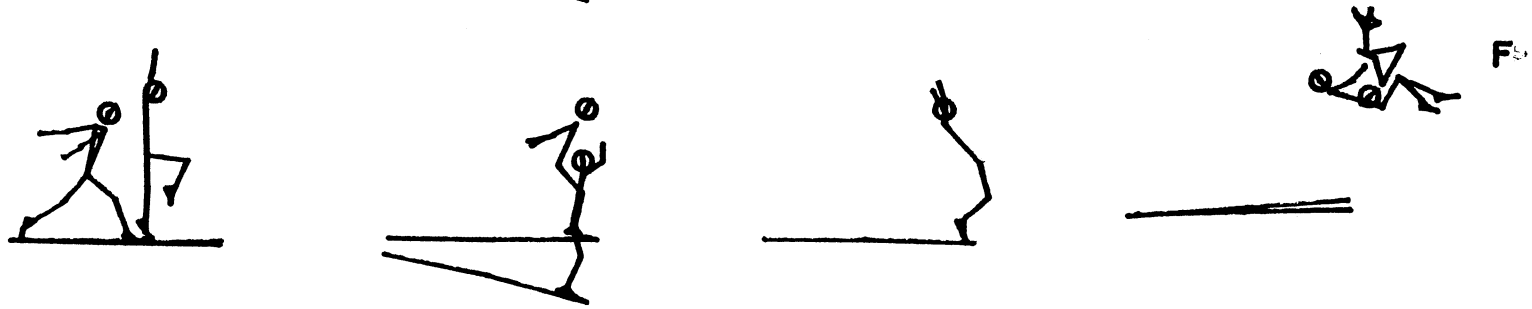

MARY DEPIERO: Canadian Winter Nationals, 1991

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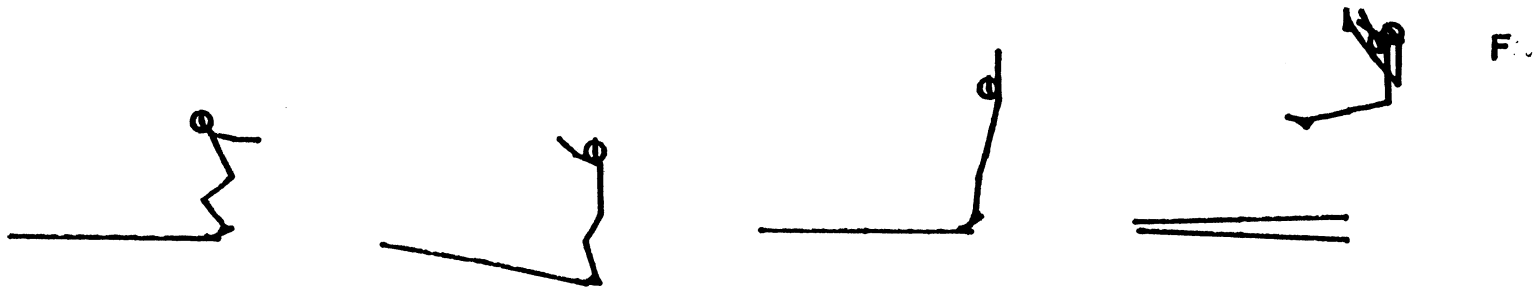

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5235D.

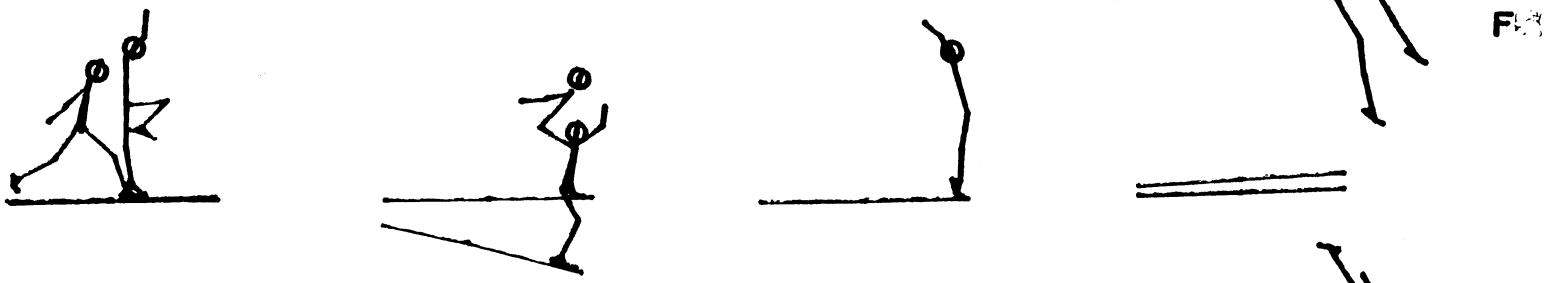
MARY DEPIERO: Canadian Winter Nationals, 1991

403B.

405B.

DAVID BEDARD: Canadian Winter Nationals, 1991

301A.



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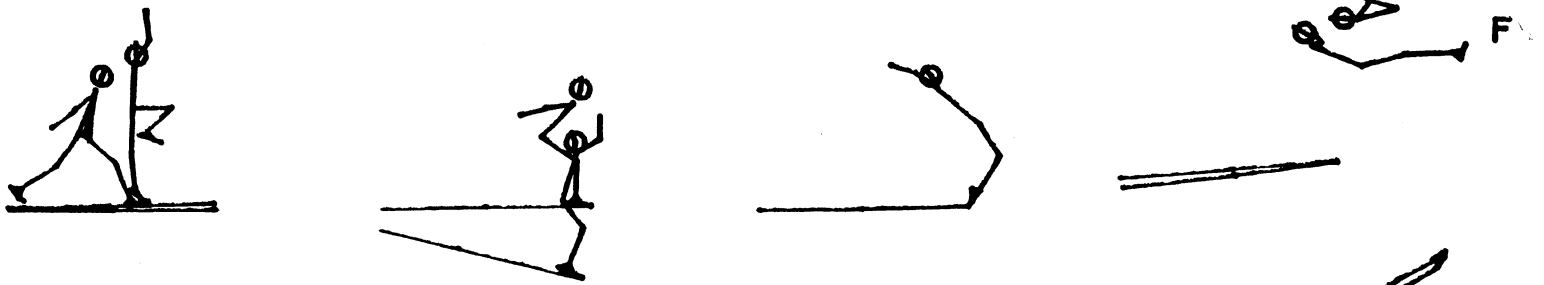

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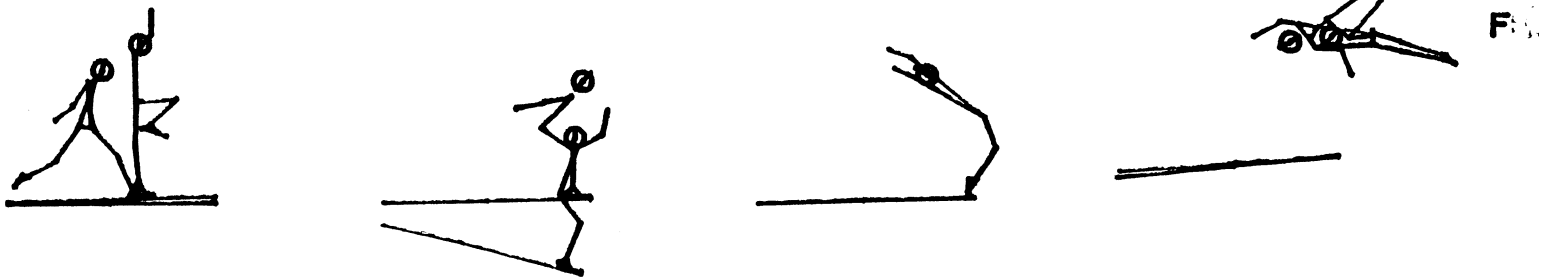

DAVID BEDARD: Canadian Winter Nationals, 1991

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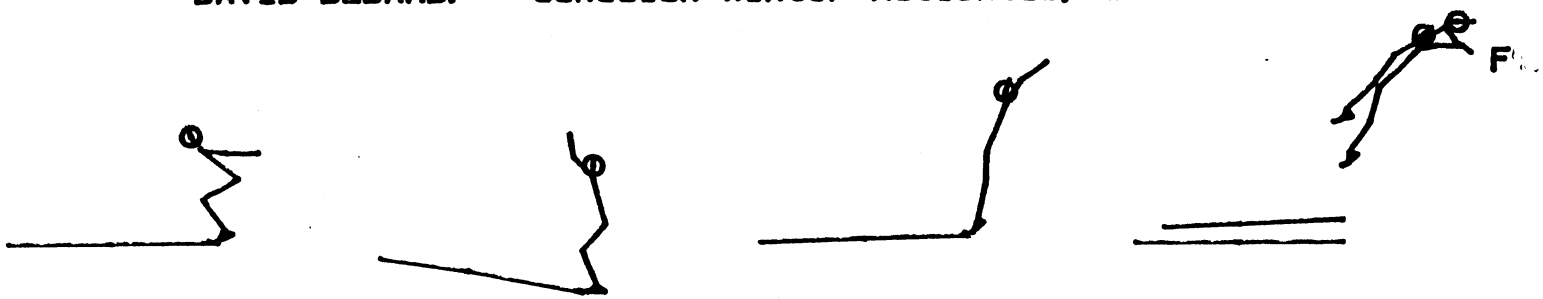

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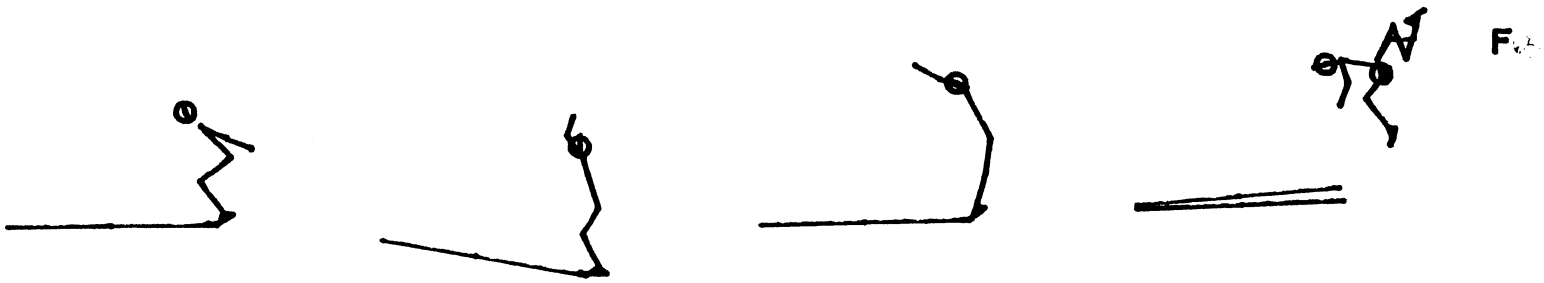

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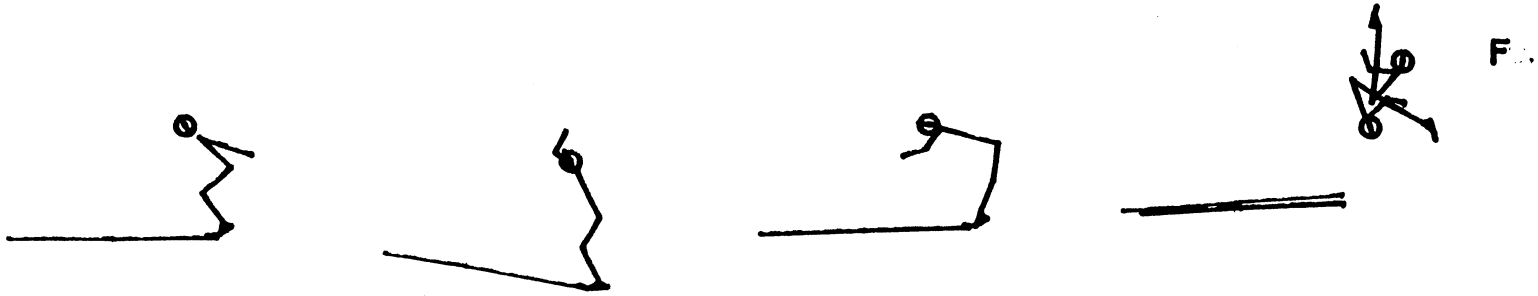


Cumulative Individual Statistics

The values reported for selected aspects of the approach, hurdle and take-off of each dive were as follows:

Dive - number Preliminary and Final

Score - average judges' score out of 10 (disregarding DD)

Hurdle - L length in metres (m) measured from the toe at last contact in the hurdle to toe on landing for the take-off

- T time in the air in seconds (s) - the greater the time in the air, the higher the hurdle

- HV horizontal velocity of the centre of gravity in metres per second (m/s)

Take-off - defined as including springboard depression and recoil

- DIS distance of the toes from the end of the board in m measured the first contact frame of the take-off in running dives and the frame at the beginning of final depression in standing dives. Negative numbers indicate that the toes were over the end of the board

- MD maximum depression of the tip of the springboard in m

- T total time for the take-off (depression + recoil) in s

- DT depression time expressed as a percent of total time

Last Contact - joint angles in degrees can be verified by examining stick figures or looking directly at the video (Figure 1)

- H hip angle measured from knee to hip to C-7 - values of approximately 90 deg indicated a strong pike, around 180 deg a straight body position and over 180 deg hyperextension of the hip (i.e., back arch)

- S shoulder angle measured from hip to shoulder to elbow - values of around 90 deg indicated the arms were nearly at right angles to the trunk, approximately 180 deg in direct line with the trunk over the head, and angles over 180 deg designated the arms were behind the line of the trunk with the shoulders in hyperextension

- LC last contact angle defined as the angle measured from right horizontal to a line joining the metatarsal with the centre of gravity at the last instant of contact. Values less than 90 deg indicated the CG was in front of the metatarsals (balls of the feet)

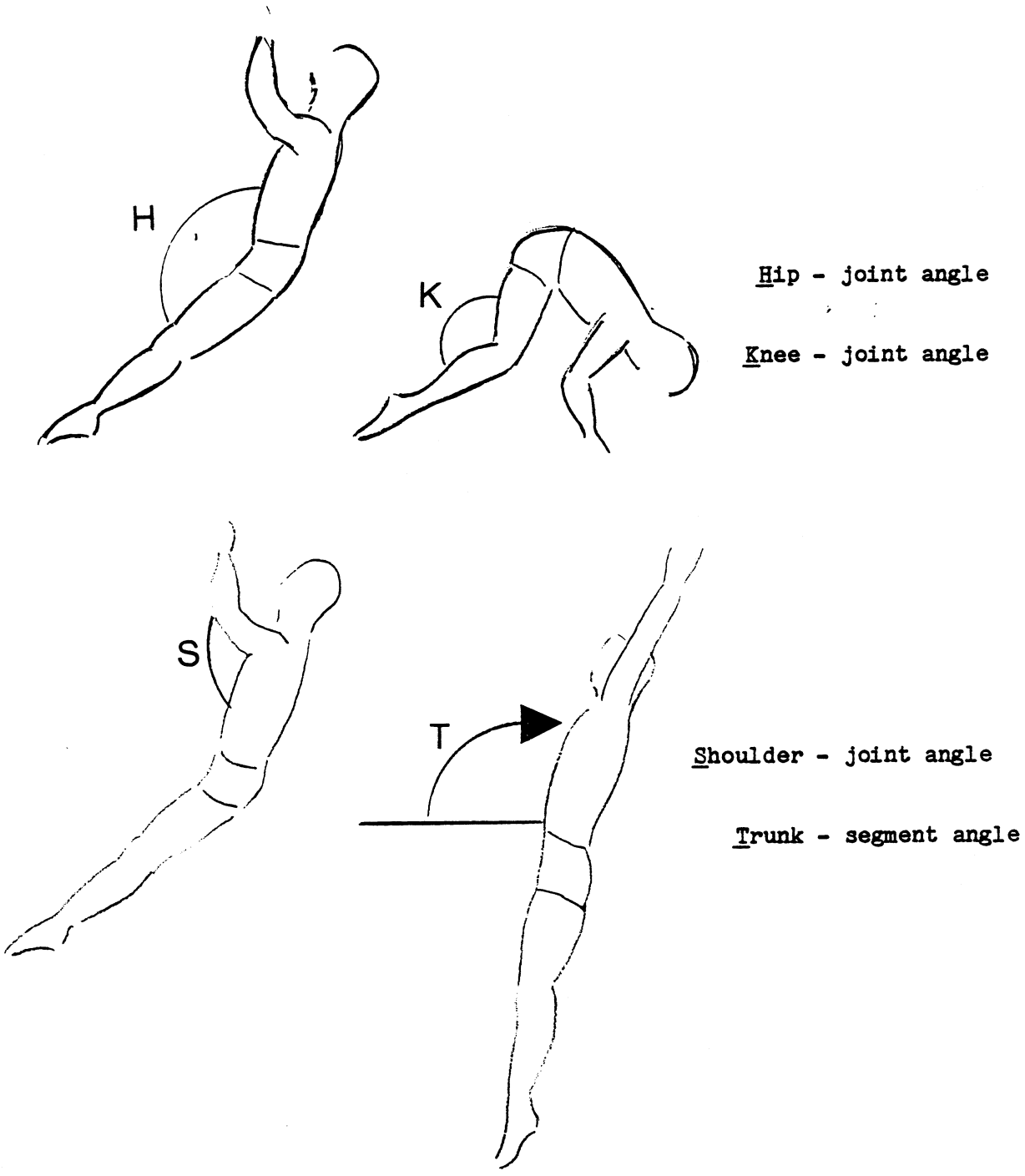


Figure 1. Designation of body segment and joint angles.

- VELOCITY of the centre of gravity in metres per second at the last instant of contact with the board and thus the beginning of the flight. The higher the vertical velocity (VV), the greater the height of the dive and the longer the time in the air. The greater the horizontal velocity (HV), the greater the board clearance and distance from the board at entry. The resultant velocity (RV) gives the magnitude of the last contact velocity along the line of projection.

Competition (COMP) - individual results were listed in reverse chronological order with the most recent competition first:

0 - Canadian Olympic Trials - Nepean - 1988	COT88
1 - Canadian Winter Nationals - Quebec City - 1989	QWN89
2 - FINA Cup - Indianapolis - 1989	FINA89
3 - Canadian Summer Nationals - Calgary - 1989	CSN89
4 - Commonwealth Games Trials - Edmonton - 1989	ECT89
5 - Dive Canada - Nepean - 1990	DVC90
6 - World Diving Trials - Winnipeg - 1990	WDT90
7 - Canadian Winter Nationals - Etobicoke - 1991	TWN91
8 - World Diving Cup VII - Winnipeg - 1991	WDC91

Personal information - year of birth, height, weight and fulcrum settings were self-reported values obtained at each competition

Exemplary individual cumulative summaries for Mary DePiero and David Bedard follow. Comparable data on Paige Gordon, Annie Pelletier, Mark Rourke and Chris LePoole are provided in Appendix B.

Comparison of a diver's performances over time and against those of top international competitors provided interesting and useful insights into the diver's strengths, weaknesses and relative consistency in competition. Midway through the study, approximately half the coaches (7/13) rated these individual data tables as excellent while two-thirds (10/15) gave them an excellent rating at the end of the study. This was slightly below their assessment of the value of the stick figure 'event' sequences which were ranked excellent by 9/13 and 13/15 at the midpoint and end of the study, respectively.

3M SPRINGBOARD DIVING MARY DEPIERO

DIVE		SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV	COMP
103B	F	7.6	0.52	0.68	0.6	0.05	0.63	0.45	56	151	173	72	4.8	1.2	4.9	TWN91
103B	F	7.4	0.60	0.67	0.7	0.08	0.57	0.43	58	147	173	75	5.0	1.1	5.1	WDT90
103B	F	8.0	0.55	0.63	0.6	0.03	0.62	0.48	56	141	163	74	4.7	1.0	4.8	ECT89
103B	F	7.8	0.67	0.63	0.7	0.04	0.62	0.45	56	152	186	75	4.6	1.1	4.7	CSN89
103B	P	7.2	0.59	0.62	0.6	0.04	0.61	0.45	62	157	159	76	5.0	1.0	5.1	FINA89
103B	F	6.7	0.47	0.67	0.6	0.08	0.59	0.40	50	132	137	70	4.4	1.6	4.7	QWN89
105B	F	8.0	0.61	0.68	0.6	0.02	0.65	0.45	56	127	119	73	4.8	0.7	4.8	TWN91
105B	F	8.0	0.65	0.67	0.7	0.01	0.59	0.42	52	129	121	74	4.5	1.0	4.6	WDT90
105B	Q	6.4	0.68	0.65	0.7	0.01	0.64	0.45	56	136	111	68	4.6	1.2	4.7	DVC90
105B	S	7.4	0.65	0.63	0.7	0.01	0.65	0.45	56	137	109	72	4.6	1.0	4.7	DVC90
105B	F	8.2	0.54	0.67	0.6	0.03	0.67	0.45	56	122	115	75	4.6	0.7	4.7	ECT89
105B	F	6.7	0.67	0.63	0.7	0.08	0.61	0.43	63	128	123	75	4.5	0.9	4.6	CSN89
105B	P	7.2	0.60	0.65	0.7	0.08	0.64	0.45	56	128	114	71	4.5	1.0	4.6	FINA89
105B	Q	6.9	0.61	0.67	0.7	0.05	0.66	0.43	53	125	122	75	4.7	0.7	4.8	FINA89
105B	P	7.5	0.47	0.65	0.6	0.06	0.63	0.42	52	116	130	75	4.9	0.6	4.9	QWN89
105B	F	7.1	0.47	0.65	0.6	0.07	0.60	0.42	52	112	107	75	4.3	0.8	4.4	QWN89
301B	F	8.2	0.54	0.68	0.5	0.13	0.65	0.42	52	175	166	82	4.9	0.9	5.0	TWN91
301B	F	7.7	0.65	0.70	0.7	0.00	0.59	0.40	50	171	178	81	5.0	1.1	5.1	WDT90
301B	F	7.2	0.43	0.65	0.5	0.12	0.67	0.45	51	183	175	78	4.8	1.3	5.0	ECT89
301B	F	7.7	0.68	0.62	0.7	0.02	0.63	0.45	56	188	180	84	4.9	1.0	5.0	CSN89
301B	P	5.9	0.66	0.63	0.6	-0.01	0.60	0.43	63	178	178	82	4.9	1.0	5.0	FINA89
301B	F	6.9	0.46	0.62	0.5	0.10	0.58	0.43	53	181	195	87	4.5	0.9	4.6	QWN89
305C	F	7.5	0.55	0.67	0.5	0.06	0.65	0.42	60	197	138	89	4.6	1.1	4.7	TWN91
305C	F	6.6	0.66	0.67	0.7	0.00	0.63	0.42	55	180	165	86	4.8	1.0	4.9	WDT90
305C	Q	6.5	0.67	0.63	0.7	-0.02	0.64	0.43	58	190	189	85	4.8	1.2	4.9	DVC90
305C	S	6.5				-0.01	0.70	0.45	56	182	179	87	4.5	1.1	4.6	DVC90
305C	F	4.5	0.57	0.67	0.5	-0.01	0.67	0.43	53	186	169	91	4.8	0.9	4.9	ECT89
305C	F	7.5	0.69	0.63	0.8	0.02	0.67	0.42	55	191	187	84	4.7	1.2	4.9	CSN89
305C	P	6.3	0.62	0.63	0.6	0.05	0.64	0.45	56	185	158	90	4.5	0.7	4.5	FINA89
305C	Q	6.8	0.60	0.63	0.6	0.03	0.63	0.43	63	191	180	88	4.8	1.1	4.9	FINA89
305C	P	5.8	0.50	0.63	0.5	0.05	0.66	0.38	58	192	186	90	4.6	1.0	4.7	QWN89
305C	F	6.2	0.50	0.63	0.5	0.04	0.61	0.42	52	176	195	91	4.5	0.9	4.6	QWN89
5132D	F	8.0	0.59	0.67	0.6	0.01	0.64	0.43	53	137	109	74	4.9	0.8	5.0	TWN91
5132D	F	7.5	0.57	0.70	0.7	0.07	0.61	0.40	42	132	112	76	4.6	0.8	4.6	WDT90
5132D	F	7.4	0.56	0.67	0.6	0.03	0.66	0.47	57	136	99	76	4.9	0.7	4.9	ECT89
5132D	F	7.4	0.56	0.65	0.7	0.04	0.58	0.43	53	144	100	76	4.7	1.0	4.8	CSN89
5132D	P	6.4				0.05	0.63	0.45	51	130	80	75	4.5	1.0	4.7	FINA89
5132D	F	7.2	0.47	0.62	0.6	0.08	0.62	0.43	53	127	99	78	4.4	0.9	4.5	QWN89
5134D	F	7.3	0.67	0.67	0.7	0.05	0.55	0.40	58	144	112	73	4.5	1.1	4.6	CSN89
5134D	P	6.8	0.65	0.63	0.7	0.00	0.61	0.43	58	135	93	71	4.6	0.9	4.7	FINA89
5134D	Q	5.9	0.60	0.67	0.7	0.03	0.64	0.43	53	122	88	77	4.7	0.7	4.8	FINA89
5134D	P	6.8	0.53	0.63	0.6	-0.02	0.63	0.43	53	122	102	78	4.6	0.8	4.6	QWN89
5134D	F	7.3	0.62	0.65	0.5	0.09	0.59	0.40	58	121	100	80	4.5	0.8	4.6	QWN89

3M SPRINGBOARD DIVING MARY DEPIERO

DIVE		SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY VV	VELOCITY HV	VELOCITY (m/s) RV	COMP
201B	F	8.3				0.09	0.50	0.48	58	169	167	81	4.1	0.7	4.2	TWN91
201B	F	7.8				0.11	0.50	0.48	56	166	171	80	4.0	0.9	4.1	WDT90
201B	F	7.1				0.09	0.40	0.48	56	168	171	73	3.6	1.1	3.8	ECT89
201B	F	7.3				0.06	0.48	0.47	57	176	181	79	3.8	0.9	3.9	CSN89
201B	P	6.7				0.09	0.47	0.43	63	175	175	78	3.8	1.1	3.9	FINA89
201B	F	7.7				0.09	0.39	0.50	56	177	176	79	3.6	0.8	3.7	QWN89
205B	F	6.0				0.13	0.54	0.48	58	215	140	69	4.0	0.8	4.0	TWN91
205B	F	7.0				0.07	0.50	0.45	60	206	147	66	3.7	1.2	3.9	WDT90
205B	Q	5.8				0.06	0.46	0.43	63	210	142	68	3.7	1.1	3.9	DVC90
205B	S	7.0				0.09	0.49	0.47	60	208	155	66	3.8	1.1	3.9	DVC90
205B	F	7.5				0.09	0.44	0.47	64	207	166	69	3.7	1.0	3.9	ECT89
205B	F	5.8				0.07	0.46	0.40	62	216	184	70	3.8	1.3	4.0	CSN89
205B	P	6.1				0.11	0.41	0.43	58	200	217	65	3.5	1.2	3.7	FINA89
205B	Q	6.0				0.09	0.46	0.43	58	205	193	65	3.6	1.2	3.8	FINA89
205B	P	6.0				0.10	0.44	0.40	58	208	189	72	3.7	1.0	3.8	QWN89
205B	F	5.9				0.11	0.41	0.47	60	212	207	67	3.5	1.2	3.7	QWN89
403B	F	7.6				0.08	0.53	0.47	57	114	157	87	3.8	0.9	3.9	TWN91
403B	F	8.5				0.11	0.50	0.48	56	122	175	91	3.9	0.8	4.0	WDT90
403B	F	8.0				0.07	0.44	0.48	63	124	171	84	3.7	0.9	3.8	ECT89
403B	F	8.0				0.05	0.48	0.43	58	121	141	88	3.7	0.9	3.8	CSN89
403B	P	7.4				0.06	0.48	0.42	55	116	139	89	3.5	0.8	3.6	FINA89
403B	F	7.4				0.06	0.41	0.43	51	113	126	84	3.2	1.1	3.4	QWN89
405B	F	7.0				0.08	0.49	0.42	55	89	84	89	3.3	1.0	3.4	TWN91
405B	F	7.4				0.08	0.44	0.43	53	92	75	90	3.1	1.0	3.3	ECT89
405C	F	5.4				0.08	0.49	0.47	57	85	93	88	3.2	0.9	3.3	WDT90
405C	Q	6.7				0.06	0.44	0.43	53	125	116	87	3.5	1.0	3.6	DVC90
405C	S	5.9				0.04	0.43	0.47	57	114	100	87	3.2	1.0	3.3	DVC90
405C	F	4.6				0.06	0.41	0.40	58	135	112	90	3.4	0.9	3.5	CSN89
405C	P	5.6				0.05	0.50	0.42	55	118	104	82	3.3	1.2	3.5	FINA89
405C	Q	7.0				0.09	0.47	0.42	48	107	97	90	3.3	0.9	3.4	FINA89
405C	P	6.5				0.07	0.44	0.42	52	111	90	85	3.0	1.1	3.2	QWN89
405C	F	7.0				0.10	0.46	0.42	55	92	91	89	3.1	1.0	3.3	QWN89

3M SPRINGBOARD DIVING MARY DEPIERO

DIVE	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV	COMP
5235D F	7.5				0.13	0.53	0.45	56	220	168	70	4.1	0.9	4.2	TWN91
5235D F	7.0				0.08	0.50	0.47	57	224	273	63	3.6	1.4	3.9	WDT90
5235D Q	6.8				0.07	0.44	0.43	53	208	291	60	3.6	1.5	3.9	DVC90
5235D S	6.2				0.08	0.44	0.45	60	225	184	61	3.7	1.3	3.9	DVC90
5235D F	6.4				0.10	0.44	0.47	64	208	279	63	3.6	1.4	3.9	ECT89

COMPETITION	HEIGHT (m)	MASS (kg)	CLUB	PLACING & SCORE PRELIMS	QUARTERS	SEMIS	FINALS	FULCRUM SETTINGS R	S
TWN91	1.61	57.7	T.B.D.C.	6TH 261.60			1ST 527.64	6.0	6.0
WDT90	1.61	59.1	T.B.D.C.	1ST 492.18			1ST 489.21	6.0	6.0
DIVC90	1.61	59.0	CANADA	12TH 403.59	2ND 263.43	4TH 270.75		7.0	5.0
ECT89	1.61	58.2	T.B.D.C.	4TH 450.48			1ST 499.50	6.0	4.0
CSN89	1.60	59.1	T.B.D.C.	1ST 469.15			1ST 472.68	6.25	4.25
FINA89	1.60	57.3	CANADA	7TH 447.33	3RD 261.75			6.0	4.0
QWN89	1.60	56.8	T.B.D.C.	2ND 458.26			1ST 471.00	7.5	5.5

YEAR OF BIRTH
1968

3M SPRINGBOARD DIVING DAVID BEDARD

DIVE		SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY VV	VV	HV	RV	COMP
101A	F	8.2	0.59	0.77	0.6	0.08	0.78	0.45	51	172	180	85	5.7	0.5	5.7		TWN91
101A	F	7.5	0.56	0.73	0.6	0.06	0.75	0.47	49	170	160	78	5.3	0.9	5.4		WDT90
101A	P	7.6	0.41	0.77	0.4	0.02	0.79	0.48	56	167	149	81	5.6	0.8	5.7		ECT89
101A	F	8.2	0.49	0.77	0.5	-0.02	0.85	0.48	52	169	169	85	5.7	0.5	5.7		CSN89
101A	F	7.6	0.49	0.78	0.5	0.03	0.81	0.45	49	174	164	84	5.5	0.5	5.5		QWN89
101A	P	7.6	0.43	0.75	0.5	0.11	0.85	0.48	52	173	153	80	5.7	0.9	5.7		COT88
101A	F	7.5	0.38	0.78	0.4	0.13	0.79	0.47	49	165	158	82	5.6	0.7	5.6		COT88
107B	F	7.4	0.00	0.00	0.0	0.07	0.81	0.42	60	88	108	61	4.6	1.3	4.8		TWN91
107B	F	6.1	0.59	0.77	0.6	0.03	0.73	0.42	52	83	101	65	4.6	1.3	4.7		WDT90
107B	P	5.7	0.48	0.77	0.5	-0.01	0.80	0.45	56	72	99	62	4.3	1.0	4.4		ECT89
107B	F	7.9	0.46	0.80	0.5	-0.02	0.84	0.45	51	87	91	72	5.0	0.8	5.0		CSN89
107B	Q	6.3	0.41	0.78	0.5	0.04	0.78	0.43	53	87	93	67	4.7	0.9	4.8		FINA89
107B	S	4.7	0.40	0.78	0.5	0.07	0.82	0.43	53	95	84	64	4.7	1.0	4.8		FINA89
107B	P	7.0	0.47	0.78	0.6	0.08	0.80	0.43	53	78	95	68	4.6	0.9	4.7		QWN89
107B	F	6.0	0.49	0.78	0.5	0.01	0.86	0.43	53	75	102	64	4.6	1.1	4.7		QWN89
107B	P	6.4	0.46	0.78	0.6	0.00	0.84	0.43	51	83	104	62	4.6	1.4	4.8		COT88
107B	F	6.1	0.52	0.78	0.6	0.04	0.86	0.43	53	93	112	71	4.8	1.1	4.9		COT88
301A	F	8.6	0.56	0.75	0.6	0.07	0.80	0.45	56	197	188	88	5.6	0.7	5.6		TWN91
301A	F	7.5	0.57	0.72	0.5	0.03	0.72	0.50	54	193	195	85	5.3	1.1	5.4		WDT90
301A	P	7.6	0.44	0.75	0.4	0.07	0.79	0.47	53	192	195	86	5.4	1.0	5.4		ECT89
301A	F	8.2	0.54	0.73	0.5	-0.04	0.86	0.50	56	199	197	88	5.7	0.8	5.7		CSN89
301A	F	7.9	0.50	0.77	0.5	0.07	0.73	0.45	56	191	193	87	5.5	0.8	5.5		QWN89
301A	P	8.1	0.47	0.75	0.5	0.08	0.81	0.48	48	194	181	85	5.3	1.1	5.4		COT88
301A	F	8.6	0.45	0.78	0.4	0.04	0.80	0.48	48	195	187	88	5.4	1.0	5.5		COT88
305B	F	8.3	0.59	0.77	0.5	0.00	0.77	0.43	53	192	187	96	5.2	1.1	5.3		TWN91
305B	F	7.1	0.63	0.72	0.6	-0.03	0.81	0.45	60	199	196	90	5.0	1.2	5.1		WDT90
305B	P	7.6	0.48	0.75	0.4	-0.03	0.80	0.43	58	196	188	91	5.3	1.0	5.4		ECT89
305B	F	8.1	0.49	0.75	0.5	-0.01	0.84	0.45	56	208	200	89	5.2	1.0	5.3		CSN89
305B	Q	7.6	0.42	0.77	0.4	0.03	0.78	0.45	60	207	197	90	5.2	1.3	5.3		FINA89
305B	S	6.4	0.45	0.78	0.4	0.00	0.87	0.42	55	205	192	91	5.4	1.1	5.5		FINA89
305B	P	6.7	0.51	0.78	0.5	0.00	0.86	0.42	55	205	182	89	5.3	1.2	5.4		QWN89
305B	F	7.3	0.50	0.77	0.5	-0.04	0.87	0.42	60	208	190	93	5.4	1.0	5.5		QWN89
305B	P	7.1	0.50	0.77	0.5	-0.03	0.83	0.43	53	213	180	89	5.2	1.2	5.3		COT88
305B	F	6.6	0.57	0.78	0.5	-0.03	0.88	0.42	60	218	189	89	5.3	1.2	5.5		COT88
307C	F	7.1	0.45	0.77	0.4	-0.02	0.83	0.47	60	194	200	93	5.6	0.7	5.7		CSN89
5111A	F	8.0	0.66	0.75	0.6	0.02	0.85	0.45	51	170	174	84	5.6	0.6	5.7		TWN91
5111A	F	7.7	0.67	0.73	0.7	0.03	0.75	0.48	52	179	160	78	5.4	0.9	5.5		WDT90
5111A	P	7.7	0.40	0.77	0.4	0.05	0.75	0.47	49	172	164	82	5.4	0.6	5.4		ECT89
5111A	F	8.5	0.47	0.78	0.5	0.04	0.85	0.48	48	169	170	81	5.4	0.8	5.5		CSN89
5111A	F	8.0	0.47	0.77	0.5	0.02	0.78	0.45	51	170	152	84	5.5	0.6	5.5		QWN89
5111A	P	7.9	0.49	0.73	0.5	0.01	0.83	0.50	54	159	156	83	5.3	0.7	5.4		COT88
5111A	F	7.7	0.54	0.75	0.6	0.01	0.83	0.50	54	165	163	82	5.5	0.8	5.6		COT88

3M SPRINGBOARD DIVING DAVID BEDARD

DIVE	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV	COMP
5136D F	8.0	0.57	0.80	0.6	0.07	0.81	0.42	55	128	127	81	5.4	0.6	5.4	TWN91
5136D P	7.4	0.46	0.77	0.5	0.01	0.80	0.47	53	124	107	81	5.3	0.6	5.4	ECT89
5136D Q	6.5	0.46	0.78	0.5	-0.02	0.83	0.47	49	117	120	78	5.3	0.7	5.3	FINA89
5136D S	5.9	0.44	0.75	0.5	0.03	0.84	0.48	52	121	118	75	5.3	0.7	5.4	FINA89
5136D P	7.8	0.45	0.77	0.5	0.04	0.84	0.43	53	125	132	82	5.4	0.6	5.4	QWN89
5136D F	7.2	0.49	0.78	0.5	0.37	0.06		63	109	107	81	5.1	0.7	5.2	QWN89
5136D P	7.7	0.49	0.78	0.5	0.03	0.83			121	102	76	5.4	0.8	5.5	COT88
5136D F	8.4	0.52	0.78	0.6	0.00	0.87	0.47	53	109	121	75	5.1	1.0	5.2	COT88
5152D P	6.8	0.41	0.78	0.5	0.06	0.84	0.45	49	90	109	66	4.7	1.1	4.8	COT88
5152D F	7.6	0.53	0.78	0.5	-0.01	0.82	0.43	53	85	107	73	4.8	0.9	4.9	COT88
5337D F	6.7	0.53	0.77	0.5	0.01	0.78	0.43	51	208	181	94	5.1	0.8	5.2	TWN91
5337D F	6.7	0.66	0.75	0.6	0.01	0.77	0.45	56	194	204	88	5.0	1.1	5.1	WDT90
5337D P	6.4	0.44	0.75	0.4	0.04	0.78	0.43	58	201	182	85	5.1	1.3	5.2	ECT89
5337D F	6.9	0.43	0.75	0.4	0.00	0.81	0.43	58	212	181	87	5.6	1.1	5.7	CSN89
5337D Q	7.0	0.43	0.78	0.4	0.02	0.83	0.42	55	207	174	86	5.3	1.4	5.5	FINA89
5337D S	6.1	0.47	0.78	0.4	-0.06	0.78	0.43	63	207	178	89	5.5	1.3	5.6	FINA89
5337D F	7.2	0.51	0.78	0.5	0.02	0.81	0.42	52	210	190	89	5.4	1.2	5.5	QWN89
201A F	7.7				0.08	0.55	0.50	56	193	190	79	4.4	1.1	4.6	TWN91
201A F	7.9				0.06	0.57	0.50	54	192	190	79	4.3	0.8	4.3	WDT90
201A P	8.0				0.09	0.56	0.53	57	187	197	81	4.4	1.0	4.5	ECT89
201A F	8.0				0.05	0.58	0.50	54	198	200	82	4.6	0.8	4.6	CSN89
201A F	7.7				0.09	0.57	0.50	54	198	195	81	4.4	0.9	4.4	QWN89
201A P	8.1				0.06	0.59	0.57	56	201	181	79	4.1	0.8	4.2	COT88
201A F	7.8				0.06	0.63	0.50	54	195	198	81	4.4	0.8	4.4	COT88
205B F	7.0				0.09	0.60	0.47	57	202	194	72	4.2	1.0	4.4	TWN91
205B F	7.9				0.15	0.56	0.50	60	210	200	73	4.3	1.0	4.4	WDT90
205B P	7.5				0.12	0.59	0.45	60	203	194	70	4.2	0.9	4.3	ECT89
205B F	7.1				0.05	0.60	0.47	57	218	199	74	4.2	1.0	4.3	CSN89
205B Q	5.9				0.08	0.62	0.50	60	213	200	66	4.2	1.1	4.3	FINA89
205B S	7.3				0.08	0.59	0.47	57	210	203	72	4.3	1.1	4.4	FINA89
205B P	6.7				0.17	0.65	0.47	57	210	200	63	4.2	1.2	4.3	QWN89
205B F	6.8				0.15	0.61	0.47	57	218	187	70	4.3	1.2	4.5	QWN89
205B P	6.4				0.04	0.62	0.50	56	218	193	69	4.0	1.0	4.1	COT88
205B F	7.9				0.07	0.61	0.50	60	222	186	69	4.2	1.1	4.3	COT88
403C F	7.3				0.08	0.52	0.48	58	153	139	88	4.4	1.0	4.5	TWN91
403C F	7.3				0.10	0.53	0.52	54	145	139	89	4.2	0.8	4.3	WDT90
403C P	7.3				0.08	0.58	0.48	52	150	132	88	4.4	0.7	4.4	ECT89
403C F	7.8				0.04	0.55	0.50	54	137	135	90	4.3	0.7	4.3	CSN89
403C F	7.9				0.06	0.61	0.52	54	129	135	88	4.2	0.9	4.3	QWN89
403C P	7.1				0.07	0.62	0.52	58	137	128	84	4.2	1.0	4.3	COT88
403C F	7.5				0.07	0.61	0.48	63	149	132	83	4.5	1.2	4.6	COT88

3M SPRINGBOARD DIVING DAVID BEDARD

DIVE	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV	COMP
405B F	8.3				0.08	0.54	0.47	57	104	102	94	3.8	1.0	3.9	TWN91
405B F	5.2				0.09	0.63	0.42	52	107	85	84	3.7	1.2	3.9	WDT90
405B P	7.4				0.06	0.56	0.45	60	101	93	90	3.5	1.0	3.7	ECT89
405B F	6.8				0.05	0.57	0.47	57	108	104	91	3.8	1.0	4.0	CSN89
405B Q	7.3				0.07	0.58	0.47	57	103	79	92	3.7	0.9	3.8	FINA89
405B S	7.5				0.07	0.60	0.45	56	103	85	95	3.7	1.0	3.8	FINA89
405B P	6.2				0.05	0.59	0.48	56	94	70	86	3.3	1.3	3.6	QWN89
405B F	6.8				0.06	0.59	0.47	57	102	94	90	3.5	1.1	3.7	QWN89
405B P	7.1				0.06	0.54	0.43	53	129	104	88	3.8	1.3	4.0	COT88
405B F	5.2				0.04	0.59	0.48	56	106	88	85	3.6	1.3	3.8	COT88
5237D F	4.1				0.09	0.56	0.52	58	227	188	69	4.1	0.7	4.2	WDT90

COMPETITION	HEIGHT (m)	MASS (kg)	CLUB	PLACING & SCORE PRELIMS		FINALS		FULCRUM SETTINGS RUNNING	STANDING
TWN91	1.70	70.5	P.C.D.C.	1ST	399.54	1ST	632.61	8.0	7.0
WDT90	1.70	71.4	P.C.D.C.	8TH	495.84	8TH	558.06	7.2	6.2
ECT89	1.70	71.8	P.C.D.C.	1ST	598.74	2ND	627.06	7.5	6.5
CSN89	1.70	72.7	P.C.D.C.	1ST	628.70	1ST	643.05	7.0	6.0
FINA89	1.70	72.7	CANADA	6TH	574.83	‡2ND ‡‡4TH	371.64 345.36	7.0	6.0
QWN89	1.70	71.4	P.C.D.C.	2ND	575.30	2ND	598.62	7.5	7.0
COT88	1.70	70.5	P.C.D.C.	1ST	587.37	1ST	603.13	8.0	7.5

YEAR OF BIRTH 1965

‡ INDICATES QUARTER-FINAL SCORE
‡‡ INDICATES SEMI-FINAL SCORE

The following comments, which focus on a comparison between Canadian divers and international divers participating in the 1989 FINA Cup competition, illustrate the kind of information which was drawn to the attention of the coaches in conjunction with this type of feedback. Coaches were encouraged to be aware of the limitations in precision of the measurements and to explore questions of relevance to their particular divers.

Temporal Information

Unforunately, the video camera does not provide the desired precision in differentiating contact and flight time differences among dives and performers. The conventional rate is 30 frames per second. The system used in analyzing the videos for the current project, however, effectively doubled this to 60 frames per second by separating the odd and even scans. Nevertheless, one can anticipate an error in the neighbourhood of 0.03 s in the estimation of the time of hurdle flight and of take-off time. In addition, it was sometimes difficult to locate the exact final frame before the board began its final downward motion in standing take-offs. Therefore, a discrepancy of 0.03 s in times between one dive and another for a given competitor may not represent a real difference. Having acknowledged this, however, we must also recognize that if the trend is consistent (e.g., always a shorter board contact time of 0.03 s for dives without limit as compared to their with limit counterpart), the difference may indeed be real. Likewise when examining group averages (presented in the next section of this report), an observed difference of 0.03 s most likely is a true difference rather than simply due to imprecision in measurement.

Hurdle Flight. The longer the hurdle flight time, the greater the height and the larger the diver's downward velocity on contacting the board for the take-off. While it is evident that the women's 3-m semifinalists in the 1989 FINA Cup averaged longer hurdle flight times than the Canadian women finalists, it should be realized that there was considerable variability among the FINA Cup competitors. It is therefore of interest to note that their individual values were as follows:

Zhang Yuping	0.82 - 0.83 s
Gao Min	0.77 - 0.80 s
Irina Lashko	0.77 - 0.82 s
Svetlana Alexeeva	0.68 - 0.71 s
Daphne Jongejans	0.70 s

Wendy Lucero	0.68 - 0.70 s
Maria Jose Alcala	0.67 - 0.68 s
Kelly McCormick	0.65 - 0.68 s

Three of the Canadian women finalists in the 1989 FINA Cup competition achieved hurdle flight times of 0.70 s or longer.

For the male semifinalists in the FINA Cup, the variability was not as great:

Jose Luis Rocha	0.83 - 0.85 s
Kent Ferguson	0.80 - 0.83 s
Tan Liangde	0.80 - 0.82 s
Mark Bradshaw	0.80 - 0.82 s
Jesus Mena	0.80 - 0.82 s
Li Deliang	0.80 s
Albin Killat	0.78 - 0.82 s

Four Canadian male finalists equalled or exceeded these hurdle flight times.

While there is a positive relationship between hurdle height (and thus hurdle flight time) and board depression (since the greater the height the greater the kinetic energy transferred from the diver to the board), the diver's active push downward against the board during it depression is also important factor in determining how far the board will be depressed.

Take-off Time. Despite the shorter hurdle flights of the Canadian women and the smaller maximum springboard depression magnitudes, their time in contact with the board during the take-off was not measurably different from that of the FINA Cup women (i.e., within the measurement capabilities of the video technology utilized in making the assessment). There was a trend for the contact time to be shorter for the dives without limit for a given dive group than the dives with limit in the same group. This trend can be observed in the individual statistics sheets of both the male and female Canadian divers. If the take-off time for the higher DD dive in a specific group is less, the discrepancy should not be more than 0.03 s (one video frame). Losses in excess of 0.03 s suggest that the diver is rushing the take-off of the more difficult dive and losing last contact vertical velocity as a result.

Last Contact Velocity

But what are realistic expectations for individual divers in terms of vertical velocity at the end of the take-off? If it is assumed that the diver is proficient in performing his or her dives with limit, then the vertical velocity achieved in these basic dives serves as a measuring stick for gaining some insight into the diver's potential in the dives without limit. THERE SHOULD NOT BE A LARGE DISCREPANCY IN THE VALUES OF THE LAST CONTACT VERTICAL VELOCITIES FOR DIVES WITH AND WITHOUT LIMIT FOR A GIVEN DIVE GROUP.

Table 1 may be useful in getting a feeling for the magnitude of velocity loss which may be expected when changing the number of somersaults and the position of the dive. If both dives are done in the same position, a greater loss will be expected than if the diver does the dive with limit in pike and the one without limit in tuck. In the latter case, the loss should be no more than perhaps 0.1 to 0.2 m/s. It was interesting to note in the Canadian Summer Nationals that Bedard had a higher vertical velocity for his 307C (5.6 m/s) than his 305B (5.2 m/s).

Relationship to Flight Distances and Times

On the basis of data collected at the 1989 FINA Cup and at the 1986 World Diving Championships in Madrid, Table 2 was constructed. It was intended to assist coaches, divers and officials appreciate the interrelationships among take-off height, vertical velocity and horizontal velocity at last contact, board/platform clearance, total time in the air and entry velocity.

Table 1. Comparison of averages for selected variables of dive performances from the FINA Cup women's (FW) semifinalists (1989) with those of the finalists from the women's (CW) and men's (CM) 3-m competition at the Canadian Summer Nationals (1989)[1].

Dive	Divers	N	Ave Score	Hurdle Flight (s)	Bd Max Depr (m)	Take-off Time (s)	Last Contact Hip Angles (deg)		Last Contact Shldr Angles (deg)		Last Contact Vert Velocities (m/s)	Last Contact Horiz Velocities (m/s)
103B	FW*	4	6.5	0.80	0.68	0.42	154		142		5.0	1.0
	CW	3	7.4	0.67	0.64	0.42	144		161		4.7	1.1
	CM	4	6.9	0.69	0.81	0.45	158		148		5.7	1.0
105B	FW*	6	7.3	0.71	0.62	0.39	126		111		4.4	0.9
	CW	10	6.9	0.67	0.61	0.38	124		111		4.2	0.9
301B	FW*	5	7.4	0.75	0.65	0.43	182		175		4.9	1.0
	CW	6	7.1	0.66	0.62	0.43	191		167		4.7	1.0
	CM	7	7.1	0.79	0.84	0.46	188		179		5.7	1.0
305C	FW*	5	6.8	0.70	0.65	0.40	185		176		4.7	1.1
	CW	10	6.0	0.67	0.61	0.38	186		157		4.4	1.1
201B	FW*	5	7.2		0.49	0.44	176		184		3.9	0.8
	CW	7	6.8		0.40	0.45	178		178		3.9	0.8
	CM	7	7.0		0.57	0.51	177		176		4.6	0.8
205C	FW*	5	7.1		0.48	0.42	186		179		3.8	0.8
	CW	8	5.7		0.40	0.39	186		171		3.6	0.9
205B	FW*	3	6.0		0.49	0.41	212		214		3.7	1.0
	CW	2	5.6		0.43	0.40	217		173		3.6	1.0
	CM	9	5.9		0.60	0.47	192		184		4.2	1.0
403B	FW*	6	7.4		0.49	0.42	135		120		3.7	0.9
	CW	10	7.2		0.38	0.41	123		116		3.2	1.0
	CM	7	7.3		0.55	0.47	135		119		4.2	0.9
405C	FW*	7	6.9		0.47	0.41	125		101		3.4	1.1
	CW	10	6.0		0.38	0.40	121		102		3.1	0.9
	CM	5	6.9		0.52	0.46	123		106		3.9	0.9

[1]Because of differenees in the number and calibre of divers included in the various categories, this table provides a general rather than an exact comparison of performance. Nevertheless, certain important trends are evident.

Table 2. Interrelationships among flight characteristics of dives from springboard and tower. Total flight times (s) are indicated in square brackets in line with the corresponding vertical velocity[1].

Velocity		Ht	Horiz CG	Resultant Velocity at Entry From				
Vert	Horiz	Above	Clearance	1 m	3 m	5 m	7.5 m	10 m
m/s	m/s	m	m	m/s	m/s	m/s	m/s	m/s
1.0		0.05				[1.12]	[1.34]	[1.53]
	0.7		0.28			10.0	12.2	14.1
	1.0		0.41			10.0	12.2	14.1
	1.3		0.53			10.0	12.2	14.1
1.5		0.11				[1.17]	[1.40]	[1.59]
	0.7		0.33			10.0	12.2	14.1
	1.0		0.48			10.1	12.3	14.1
	1.3		0.62			10.1	12.3	14.1
2.0		0.20				[1.23]	[1.46]	[1.65]
	0.7		0.39			10.1	12.3	14.2
	1.0		0.55			10.2	12.3	14.2
	1.3		0.72			10.2	12.4	14.2
2.5		0.31				[1.30]	[1.52]	[1.71]
	0.7		0.45			10.2	12.4	14.2
	1.0		0.64			10.3	12.4	14.3
	1.3		0.83			10.3	12.5	14.3
3.0		0.46		[0.85]	[1.14]	[1.36]	[1.58]	[1.77]
	0.7		0.51	5.4	8.3	10.4	12.5	14.3
	1.0		0.72	5.4	8.3	10.4	12.5	14.4
	1.3		0.94	5.5	8.3	10.4	12.6	14.4
3.5		0.62		[0.93]	[1.22]	[1.43]	[1.64]	[1.83]
	0.7		0.57	5.7	8.5	10.5	12.6	14.5
	1.0		0.81	5.7	8.5	10.6	12.7	14.5
	1.3		1.06	5.8	8.5	10.6	12.7	14.5
4.0		0.82		[1.02]	[1.29]	[1.50]	[1.71]	[1.89]
	0.7		0.63	6.0	8.7	10.7	12.8	14.6
	1.0		0.91	6.1	8.7	10.7	12.8	14.6
	1.3		1.18	6.1	8.7	10.8	12.8	14.6
4.5		1.03		[1.10]	[1.37]			
	0.7		0.70	6.4	8.9			
	1.0		1.00	6.4	9.0			
	1.3		1.30	6.4	9.0			

Table 2 (con't)

Velocity Vert m/s	Velocity Horiz m/s	Ht Above m	Horiz CG Clearance m	Resultant Velocity at Entry From 1 m m/s	3 m m/s	5 m m/s	7.5 m m/s	10 m m/s
5.0		1.27		[1.19]	[1.44]			
	0.7		0.77	6.7	9.2			
	1.0		1.09	6.8	9.2			
	1.3		1.42	6.8	9.2			
5.5		1.54		[1.28]	[1.52]			
	0.7		0.83	7.1	9.5			
	1.0		1.19	7.1	9.5			
	1.3		1.55	7.2	9.5			
6.0		1.83		[1.37]	[1.60]			
	0.7		0.90	7.5	9.8			
	1.0		1.29	7.5	9.8			
	1.3		1.67	7.6	9.8			
6.5		2.15		[1.46]	[1.69]			
	0.7		0.97	7.9	10.1			
	1.0		1.38	7.9	10.1			
	1.3		1.80	8.0	10.1			

[1]It is assumed that the diver's centre of gravity (CG) is 0.8 m above the diving surface at the last instant of contact and that air resistance is negligible. The velocity components in the first two columns indicate the diver's velocity at last contact with the diving surface. 'Ht Above' refers to the maximum height the diver's CG reaches above its starting position. 'Horiz CG Clearance' represents the horizontal distance the CG has moved out away from its starting position as it passes board or tower level. Clearance of the CG (located in the region of the pelvis) does not guarantee clearance of the various parts of the diver's body. Men performing dive 405B at the 1989 FINA Cup were observed to be in pike position with their legs horizontal as they passed the board thereby requiring a clearance distance approximately equivalent to leg length.

Competition Statistical Summaries

Group descriptive statistical summaries (mean, standard deviation, maximum and minimum) for each competition were provided in the same format in which the individual values were reported. For the purpose of illustration, the summaries of the women's and men's 3-m competitions from the 1991 Canadian Winter Nationals held in Etobicoke are included here. Summaries from the other competitions analyzed can be found in Appendix C.

WOMEN'S COMPETITION — WINTER NATIONALS (ETOBICOKE) 1991

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
101A	1	MEAN	6.5				0.02	0.66	0.43	53	178	162	75	4.5	1.0	4.6
		S.D.														
		MAX														
		MIN														
101B	2	MEAN	7.4	0.60	0.67	0.7	0.03	0.67	0.46	54	170	172	78	4.8	0.9	4.9
		S.D.														
		MAX														
		MIN														
101C	3	MEAN	7.0	0.56	0.64	0.6	0.04	0.58	0.43	54	167	148	78	4.6	0.9	4.7
		S.D.	0.5	0.07	0.04	0.1	0.02	0.02	0.01	2	0	3	1	0.0	0.1	0.0
		MAX	7.6	0.65	0.68	0.8	0.06	0.60	0.45	56	167	150	79	4.6	1.0	4.7
		MIN	6.3	0.47	0.58	0.6	0.02	0.56	0.42	52	166	144	77	4.6	0.8	4.7
103B	4	MEAN	7.4	0.55	0.67	0.6	0.07	0.62	0.43	54	144	152	74	4.6	1.1	4.7
		S.D.	0.3	0.16	0.03	0.2	0.02	0.03	0.01	1	5	14	2	0.1	0.1	0.1
		MAX	7.7	0.75	0.70	0.8	0.10	0.66	0.45	56	151	173	77	4.8	1.2	4.9
		MIN	7.0	0.30	0.62	0.4	0.04	0.59	0.42	53	138	138	72	4.5	0.9	4.6
105B	10	MEAN	6.9	0.51	0.59	0.6	0.05	0.61	0.42	52	119	104	70	4.2	0.9	4.3
		S.D.	1.1	0.09	0.03	0.1	0.04	0.04	0.03	3	10	13	2	0.3	0.2	0.3
		MAX	8.7	0.70	0.70	0.9	0.11	0.65	0.47	56	132	124	73	4.8	1.1	4.8
		MIN	5.0	0.44	0.60	0.6	0.00	0.56	0.38	47	106	80	66	3.7	0.7	3.8
301A	4	MEAN	6.4	0.53	0.68	0.5	0.03	0.61	0.44	54	202	187	83	4.4	1.0	4.6
		S.D.	0.7	0.05	0.02	0.1	0.05	0.07	0.01	3	2	11	2	0.3	0.1	0.3
		MAX	7.1	0.59	0.70	0.6	0.09	0.70	0.45	58	204	198	86	4.9	1.1	5.0
		MIN	5.6	0.48	0.67	0.5	-0.04	0.53	0.43	51	199	168	80	4.1	0.9	4.2
301B	6	MEAN	7.4	0.55	0.65	0.6	0.05	0.63	0.44	54	181	175	82	4.7	1.0	4.8
		S.D.	0.6	0.14	0.04	0.1	0.04	0.03	0.03	3	7	6	1	0.2	0.1	0.2
		MAX	8.2	0.77	0.70	0.8	0.13	0.66	0.50	60	194	183	84	5.0	1.1	5.1
		MIN	6.8	0.32	0.58	0.4	0.01	0.58	0.42	51	170	166	81	4.4	0.9	4.5
305B	1	MEAN	6.8	0.48	0.68	0.5	0.06	0.56	0.37	54	225	176	91	4.0	1.0	4.1
		S.D.														
		MAX														
		MIN														
305C	9	MEAN	5.6	0.58	0.66	0.6	0.03	0.65	0.42	58	186	168	86	4.5	1.2	4.7
		S.D.	1.2	0.14	0.03	0.2	0.03	0.03	0.02	3	9	19	2	0.1	0.1	0.2
		MAX	7.5	0.80	0.70	0.9	0.10	0.70	0.45	63	197	197	89	4.7	1.4	4.8
		MIN	4.1	0.35	0.60	0.4	-0.01	0.60	0.40	55	169	138	82	4.2	1.0	4.4
5132D	7	MEAN	7.1	0.60	0.65	0.7	0.05	0.61	0.43	52	130	117	71	4.3	1.0	4.4
		S.D.	0.7	0.11	0.03	0.1	0.04	0.04	0.02	2	6	33	3	0.3	0.1	0.3
		MAX	8.0	0.83	0.68	1.0	0.13	0.65	0.47	55	139	160	74	4.9	1.2	5.0
		MIN	6.3	0.47	0.60	0.6	0.00	0.55	0.40	49	123	60	66	4.0	0.8	4.2

WOMEN'S COMPETITION

WINTER NATIONALS (ETOBICOKE) 1991

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
5331D	2	MEAN	7.3	0.37	0.70	0.5	0.02	0.67	0.44	52	210	185	83	4.7	1.3	4.8
		S.D.														
		MAX														
		MIN														
5335D	3	MEAN	7.1	0.54	0.69	0.6	-0.01	0.62	0.40	57	215	189	87	4.3	1.2	4.5
		S.D.	0.2	0.01	0.01	0.0	0.00	0.06	0.02	3	12	88	1	0.1	0.1	0.1
		MAX	7.4	0.56	0.70	0.6	0.00	0.69	0.43	61	232	313	88	4.5	1.4	4.7
		MIN	6.8	0.53	0.68	0.5	-0.01	0.55	0.38	53	205	125	85	4.2	1.0	4.4
201A	3	MEAN	6.9				0.08	0.38	0.43	52	188	191	76	3.5	1.0	3.6
		S.D.	0.6				0.00	0.03	0.02	2	3	7	2	0.1	0.1	0.1
		MAX	7.6				0.08	0.41	0.45	55	192	201	79	3.6	1.1	3.7
		MIN	6.2				0.08	0.34	0.40	51	186	184	74	3.4	0.8	3.5
201B	7	MEAN	6.9				0.08	0.44	0.45	57	177	172	80	3.9	0.8	4.0
		S.D.	0.7				0.01	0.04	0.03	4	9	6	2	0.1	0.1	0.1
		MAX	8.3				0.09	0.50	0.50	64	191	182	84	4.1	1.0	4.2
		MIN	5.8				0.06	0.39	0.42	52	168	167	78	3.6	0.5	3.7
205B	2	MEAN	6.5				0.15	0.48	0.46	58	217	161	67	3.6	0.8	3.7
		S.D.														
		MAX														
		MIN														
205C	8	MEAN	5.8				0.10	0.40	0.42	59	184	170	72	3.7	1.0	3.8
		S.D.	1.2				0.04	0.05	0.02	3	8	16	2	0.2	0.1	0.2
		MAX	8.1				0.16	0.48	0.45	63	197	185	74	3.9	1.1	4.0
		MIN	3.4				0.06	0.32	0.40	53	172	141	68	3.4	0.9	3.6
401A	1	MEAN	6.6				0.09	0.42	0.43	51	155	146	84	3.3	0.8	3.4
		S.D.														
		MAX														
		MIN														
403B	9	MEAN	7.2				0.07	0.40	0.42	55	129	113	86	3.3	1.0	3.4
		S.D.	0.4				0.02	0.07	0.04	5	9	23	3	0.3	0.1	0.3
		MAX	7.8				0.11	0.53	0.47	67	140	157	89	3.8	1.2	3.9
		MIN	6.8				0.05	0.30	0.37	49	114	67	79	2.8	0.8	3.0
405B	2	MEAN	7.1				0.08	0.44	0.39	53	94	90	90	3.0	1.0	3.2
		S.D.														
		MAX														
		MIN														
405C	7	MEAN	5.9				0.08	0.38	0.41	55	115	96	88	3.0	1.0	3.2
		S.D.	1.1				0.02	0.06	0.02	3	8	18	2	0.2	0.1	0.2
		MAX	7.1				0.12	0.44	0.43	61	129	119	92	3.5	1.1	3.6
		MIN	4.4				0.05	0.27	0.37	52	106	60	86	2.8	0.8	3.0

WOMEN'S COMPETITION

WINTER NATIONALS (ETOBICOKE) 1991

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
5233D	3	MEAN	6.5				0.12	0.41	0.46	62	212	148	70	3.6	0.9	3.7
		S.D.	0.2				0.03	0.00	0.02	1	8	95	2	0.2	0.1	0.2
		MAX	6.8				0.14	0.42	0.48	63	221	256	72	3.9	0.9	3.9
		MIN	6.2				0.07	0.41	0.43	60	202	25	68	3.4	0.8	3.5
5235D	4	MEAN	6.6				0.12	0.44	0.41	57	212	189	70	3.7	0.9	3.9
		S.D.	1.0				0.05	0.06	0.03	2	7	42	1	0.3	0.1	0.2
		MAX	7.5				0.19	0.53	0.45	58	220	261	70	4.1	1.1	4.2
		MIN	5.0				0.07	0.38	0.37	54	200	157	68	3.4	0.8	3.5

MEN'S COMPETITION

WINTER NATIONALS (ETOBICOKE) 1991

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
101A	3	MEAN	7.2	0.42	0.78	0.4	0.08	0.78	0.46	52	174	171	84	5.7	0.6	5.7
		S.D.	0.8	0.12	0.04	0.1	0.01	0.04	0.01	3	5	8	1	0.1	0.1	0.1
		MAX	8.2	0.59	0.83	0.6	0.09	0.83	0.47	57	181	180	85	5.8	0.7	5.8
		MIN	6.2	0.31	0.73	0.3	0.07	0.73	0.45	49	170	161	83	5.6	0.5	5.6
103B	4	MEAN	7.4	0.53	0.81	0.5	0.06	0.81	0.45	51	151	141	80	5.7	0.9	5.8
		S.D.	0.3	0.06	0.02	0.1	0.02	0.05	0.02	3	5	7	1	0.2	0.1	0.2
		MAX	7.8	0.61	0.83	0.6	0.09	0.86	0.47	57	160	153	81	5.9	1.0	5.9
		MIN	7.0	0.46	0.80	0.5	0.03	0.72	0.42	48	146	135	78	5.5	0.7	5.5
103C	3	MEAN	7.6	0.56	0.77	0.6	0.03	0.79	0.46	55	154	151	79	5.5	1.0	5.6
		S.D.	0.3	0.03	0.05	0.1	0.04	0.01	0.01	3	10	4	1	0.3	0.0	0.3
		MAX	8.0	0.60	0.80	0.6	0.07	0.79	0.47	57	168	157	80	5.9	1.1	6.0
		MIN	7.2	0.52	0.70	0.5	-0.03	0.78	0.45	51	146	147	77	5.1	1.0	5.2
105B	1	MEAN	7.30	0.43	0.73	0.5	0.20	0.71	0.43	53	123	124	74	4.6	1.0	4.7
		S.D.														
		MAX														
		MIN														
107B	5	MEAN	6.9	0.43	0.80	0.5	0.10	0.79	0.42	58	101	97	68	4.9	1.1	5.0
		S.D.	0.5	0.14	0.03	0.2	0.04	0.08	0.03	7	9	10	4	0.2	0.1	0.2
		MAX	7.4	0.67	0.83	0.8	0.17	0.91	0.47	70	115	108	72	5.2	1.3	5.2
		MIN	6.3	0.32	0.77	0.4	0.06	0.68	0.38	47	88	81	61	4.6	1.0	4.8
107C	5	MEAN	6.7	0.54	0.81	0.6	0.07	0.81	0.43	51	129	113	74	5.3	1.0	5.3
		S.D.	0.8	0.12	0.03	0.1	0.09	0.09	0.03	2	8	9	2	0.3	0.1	0.2
		MAX	8.1	0.68	0.87	0.7	0.22	0.95	0.47	53	139	129	77	5.6	1.1	5.7
		MIN	5.8	0.34	0.77	0.4	-0.03	0.67	0.40	49	116	104	72	4.8	0.9	5.0
301A	6	MEAN	7.1	0.52	0.75	0.5	0.09	0.80	0.47	54	201	169	87	5.6	0.9	5.6
		S.D.	0.8	0.03	0.03	0.1	0.02	0.07	0.02	3	6	14	2	0.3	0.2	0.2
		MAX	8.6	0.57	0.78	0.6	0.12	0.93	0.50	57	211	188	89	5.9	1.4	5.9
		MIN	6.1	0.48	0.68	0.4	0.05	0.70	0.45	49	191	150	82	5.0	0.7	5.2
301B	4	MEAN	7.2	0.37	0.77	0.4	0.05	0.80	0.48	53	185	179	86	5.7	0.8	5.8
		S.D.	0.3	0.01	0.01	0.0	0.04	0.02	0.03	2	6	9	1	0.2	0.1	0.2
		MAX	7.5	0.38	0.78	0.4	0.09	0.82	0.52	56	194	193	86	6.0	1.0	6.0
		MIN	6.8	0.35	0.75	0.3	-0.01	0.77	0.45	50	180	167	84	5.5	0.7	5.6
305B	8	MEAN	6.3	0.53	0.79	0.5	0.04	0.82	0.43	56	196	192	90	5.2	1.1	5.3
		S.D.	1.4	0.09	0.04	0.1	0.05	0.05	0.02	3	7	31	3	0.2	0.1	0.2
		MAX	8.3	0.66	0.85	0.6	0.13	0.88	0.45	63	208	262	96	5.6	1.4	5.7
		MIN	4.0	0.38	0.75	0.4	0.00	0.73	0.40	53	186	164	86	4.9	1.1	5.1
305C	1	MEAN	5.80	0.52	0.77	0.5	0.05	0.74	0.37	49	190	153	81	4.9	1.7	5.1
		S.D.														
		MAX														
		MIN														

MEN'S COMPETITION

WINTER NATIONALS (ETOBICOKE) 1991

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
307C	1	MEAN	4.10	0.52	0.78	0.5	0.07	0.79	0.43	63	189	157	90	5.5	1.0	5.6
		S.D.														
		MAX														
		MIN														
5111A	2	MEAN	7.3	0.61	0.75	0.6	0.06	0.84	0.46	50	167	179	81	5.5	0.7	5.5
		S.D.														
		MAX														
		MIN														
5132D	5	MEAN	7.3	0.49	0.77	0.5	0.10	0.79	0.44	55	145	138	78	5.4	1.0	5.5
		S.D.	0.4	0.09	0.04	0.1	0.06	0.08	0.03	3	8	11	2	0.4	0.1	0.4
		MAX	8.0	0.64	0.83	0.6	0.18	0.87	0.47	58	154	151	80	5.8	1.1	5.9
		MIN	6.8	0.40	0.73	0.4	0.03	0.65	0.38	51	131	122	75	4.7	0.8	4.8
5136D	4	MEAN	6.5	0.57	0.80	0.6	0.05	0.83	0.46	55	127	117	77	5.4	0.8	5.4
		S.D.	1.5	0.05	0.03	0.1	0.03	0.02	0.02	2	10	32	4	0.3	0.1	0.3
		MAX	8.0	0.63	0.85	0.7	0.09	0.86	0.47	57	135	161	81	5.6	0.9	5.7
		MIN	4.2	0.50	0.77	0.5	0.00	0.81	0.42	53	110	72	70	4.9	0.6	5.0
5152D	4	MEAN	7.1	0.53	0.79	0.6	0.07	0.83	0.44	53	112	99	73	5.1	1.0	5.2
		S.D.	0.8	0.08	0.04	0.1	0.04	0.06	0.01	2	5	8	2	0.3	0.1	0.3
		MAX	7.8	0.62	0.85	0.6	0.11	0.91	0.45	56	118	105	74	5.3	1.1	5.4
		MIN	5.7	0.39	0.75	0.5	0.01	0.77	0.43	51	106	85	71	4.6	0.9	4.7
5331D	2	MEAN	7.2	0.48	0.79	0.5	0.08	0.87	0.48	55	213	160	90	5.6	0.9	5.6
		S.D.														
		MAX														
		MIN														
5333D	1	MEAN	6.60	0.34	0.73	0.3	0.07	0.78	0.45	60	211	183	93	5.4	0.9	5.5
		S.D.														
		MAX														
		MIN														
5335D	3	MEAN	7.1	0.49	0.76	0.5	0.07	0.83	0.45	58	211	179	94	5.3	0.9	5.4
		S.D.	0.1	0.11	0.01	0.1	0.01	0.07	0.02	1	5	15	2	0.1	0.0	0.1
		MAX	7.2	0.59	0.77	0.6	0.09	0.91	0.47	60	218	196	96	5.4	1.0	5.5
		MIN	7.0	0.34	0.75	0.4	0.06	0.75	0.43	57	206	159	92	5.2	0.9	5.3
5337D	4	MEAN	6.6	0.44	0.80	0.4	0.05	0.78	0.43	52	208	175	92	5.2	0.9	5.3
		S.D.	0.1	0.09	0.02	0.1	0.05	0.03	ERR	1	8	5	3	0.1	0.2	0.1
		MAX	6.7	0.53	0.83	0.5	0.13	0.81	0.43	53	221	181	97	5.4	1.2	5.5
		MIN	6.4	0.30	0.77	0.3	0.00	0.74	0.43	51	201	168	88	5.1	0.8	5.2

MEN'S COMPETITION — WINTER NATIONALS (ETOBICOKE) 1991

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
201A	5	MEAN	7.1				0.10	0.59	0.50	57	189	177	80	4.6	1.0	4.7
		S.D.	0.4				0.03	0.05	0.03	2	3	14	2	0.2	0.2	0.2
		MAX	7.7				0.13	0.68	0.55	60	193	194	83	4.9	1.2	5.0
		MIN	6.6				0.06	0.53	0.47	55	184	156	79	4.4	0.8	4.6
201B	5	MEAN	7.1				0.09	0.56	0.49	58	178	172	82	4.5	0.9	4.6
		S.D.	0.3				0.02	0.07	0.03	1	7	11	2	0.2	0.1	0.2
		MAX	7.7				0.13	0.66	0.53	60	191	189	84	4.8	1.1	4.9
		MIN	6.7				0.06	0.49	0.45	57	169	156	79	4.2	0.7	4.3
205B	10	MEAN	5.6				0.09	0.59	0.46	59	199	175	73	4.3	1.1	4.5
		S.D.	1.1				0.03	0.06	0.03	3	9	24	2	0.3	0.1	0.3
		MAX	7.7				0.13	0.70	0.50	63	211	215	77	4.7	1.4	4.9
		MIN	4.1				0.05	0.47	0.42	53	185	129	71	3.7	0.9	3.9
401B	1	MEAN	6.8				0.08	0.54	0.42	55	159	165	84	4.6	1.0	4.7
		S.D.														
		MAX														
		MIN														
403B	5	MEAN	7.1				0.09	0.56	0.46	57	139	132	88	4.3	0.9	4.4
		S.D.	0.5				0.02	0.10	0.02	3	8	9	2	0.3	0.2	0.3
		MAX	7.5				0.12	0.69	0.48	63	150	147	91	4.5	1.2	4.6
		MIN	6.2				0.08	0.46	0.43	53	127	121	84	3.7	0.8	3.9
403C	4	MEAN	7.3				0.09	0.59	0.49	58	156	140	89	4.6	0.9	4.7
		S.D.	0.1				0.04	0.06	0.03	1	5	3	2	0.2	0.2	0.2
		MAX	7.5				0.14	0.68	0.55	58	164	143	92	4.9	1.1	4.9
		MIN	7.1				0.04	0.52	0.47	57	150	136	86	4.4	0.6	4.5
405B	9	MEAN	7.2				0.10	0.59	0.46	58	111	105	91	3.9	1.1	4.0
		S.D.	0.7				0.03	0.06	0.03	2	11	9	3	0.2	0.1	0.2
		MAX	8.3				0.16	0.70	0.50	63	130	119	95	4.3	1.3	4.5
		MIN	5.8				0.07	0.50	0.40	56	98	89	88	3.5	0.9	3.7
405C	1	MEAN	6.5				0.10	0.44	0.43	53	136	103	86	3.5	1.1	3.6
		S.D.														
		MAX														
		MIN														
5235D	2	MEAN	7.0				0.11	0.64	0.50	59	210	151	75	4.6	1.0	4.7
		S.D.														
		MAX														
		MIN														
5237D	1	MEAN	5.6				0.13	0.68	0.47	57	206	311	73	4.4	0.9	4.5
		S.D.														
		MAX														
		MIN														

Height-Rotation Graphs

Data obtained by digitizing approximately every fifth frame (1/6 s) during the flight provided the basis for constructing a graph of centre of gravity (CG) height as a function of trunk rotation in the flight. This height-rotation relationship served as a diagnostic tool and a useful way of comparing across dives and divers.

Centre of Gravity

The CG height which was used to represent the height of the diver is influenced by the relative positions of the segments in direct proportion to their relative masses as follows: lower extremities 2 x 16 = 32%; upper extremities 2 x 5 = 10%; and head and torso 1 x 58 = 58%. When free in the air during the flight (of the hurdle as well as the dive), the CG follows a parabolic flight path which cannot be changed by anything the diver does in the air (assuming air resistance is not a significant factor). Thus, if the diver's velocity at the end of the take-off is known, the path of the CG can be predicted throughout the flight.

Height (vertical axis)

The height of a diver's CG above the board (in metres) was computed from the vertical velocity of the diver's CG at the end of the take-off. The latter, in turn, had been back-calculated from CG position and time information determined during the flight. All but the first two velocity estimates were averaged to get the best estimate of last contact vertical velocity for use in predicting CG height as a function of time in the flight. Zero on the vertical axis represented board level.

Rotation (horizontal axis)

A 4th degree polynomial was fitted to the five to nine trunk angle (hip to C7) measurements during the flight to obtain a representation of total body rotation as a function of time. Zero on the vertical axis represented an upright or vertical trunk position. To facilitate inter-dive comparisons, all rotations were shown as increasing to the right on the graph, rotation was expressed in somersaults and vertical reference lines were inserted to indicate the completion of one and two somersaults. The horizontal axis then indicated the amount of rotation in somersaults as indicated by the angle of the trunk.

Time

Elapsed time was designated by diver identification symbols or solid circles being indicated every 0.25 second. The former were plotted at 0.25 and 0.75 s and the latter at 0.50 and 1.00 seconds, respectively. In addition, although not as evident, each plotted line segment represented 0.10 second.

Identification

An eight letter identification code is located in the upper right corner of each graph. It included the diver (3), dive (3) and competition (2).

Diver: Divers were identified by a three letter code (the first letter of the first name and the first two letters of the surname eliminating 'de', 'di', 'le' or 'la' if these occur at the beginning of the surname). For example, the graphs which follow contain data from dives of:

MPI - Mary DePiero	APE - Annie Pelletier	LPA - Laura Payne
DBE - David Bedard	CPO - Chris LePoole	MRO - Mark Rourke
PGO - Paige Gordon	ILA - Irina Lashko	

Dive Number and Position: The FINA dive number and position designations were employed for nontwisting dives with the middle zero in the dive number being omitted. Thus, 17B is a forward 3 1/2 somersault pike (107B); 35C represents a reverse 2 1/2 somersault tuck (305C); 25B is the designation for a back 2 1/2 somersault pike (205B); and 45B is an inward 2 1/2 pike (405B).

Competition Identification: The seventh digit signified the particular level of a given competition. They are different for men and women:

	Women	Men
Preliminaries	P	E
Quarter finals	Q	U
Semifinals	S	D
Finals	F	M

The final digit in the code was used to designate the specific competition which were as follows:

0 - Canadian Olympic Trials - Nepean - 1988	COT88
1 - Canadian Winter Nationals - Quebec City - 1989	QWN89
2 - FINA Cup - Indianapolis - 1989	FINA89
3 - Canadian Summer Nationals - Calgary - 1989	CSN89
4 - Commonwealth Games Trials - Edmonton - 1989	ECT89
5 - Dive Canada - Nepean - 1990	DVC90
6 - World Diving Trials - Winnipeg - 1990	WDT90
7 - Canadian Winter Nationals - Etobicoke - 1991	TWN91
8 - World Diving Cup VII - Winnipeg - 1991	WDC91

Score: As in the individual and competition statistical tables, score indicated the average score out of 10 awarded by the judges. Degree of difficulty was not taken into consideration.

Rotation Rate

In addition to the graphs of the diver's CG height as a function of rotation (trunk angle indicated in somersaults), a listing of angular velocities (in somersaults per second) at 0.10 second intervals during the first second of flight were provided. Participants in the 1990 Annual Canadian Diving Coaches Symposium felt that this information would be a useful addition to the report since it would give a rough indication of how a diver's angular momentum might be changing from dive to dive or competition to competition. Also for a given angular momentum of a specific diver, the tighter the tuck or pike, the greater the angular velocity or spinning rate. To facilitate comparisons, tables containing somersaulting rate information were organized according to the order in which the height-rotation graphs were included in the report.

Coaches were encouraged to take note of the following in examining these height-rotation relationships:

(1) trunk position at the beginning of the flight - how far is it rotated from the vertical?

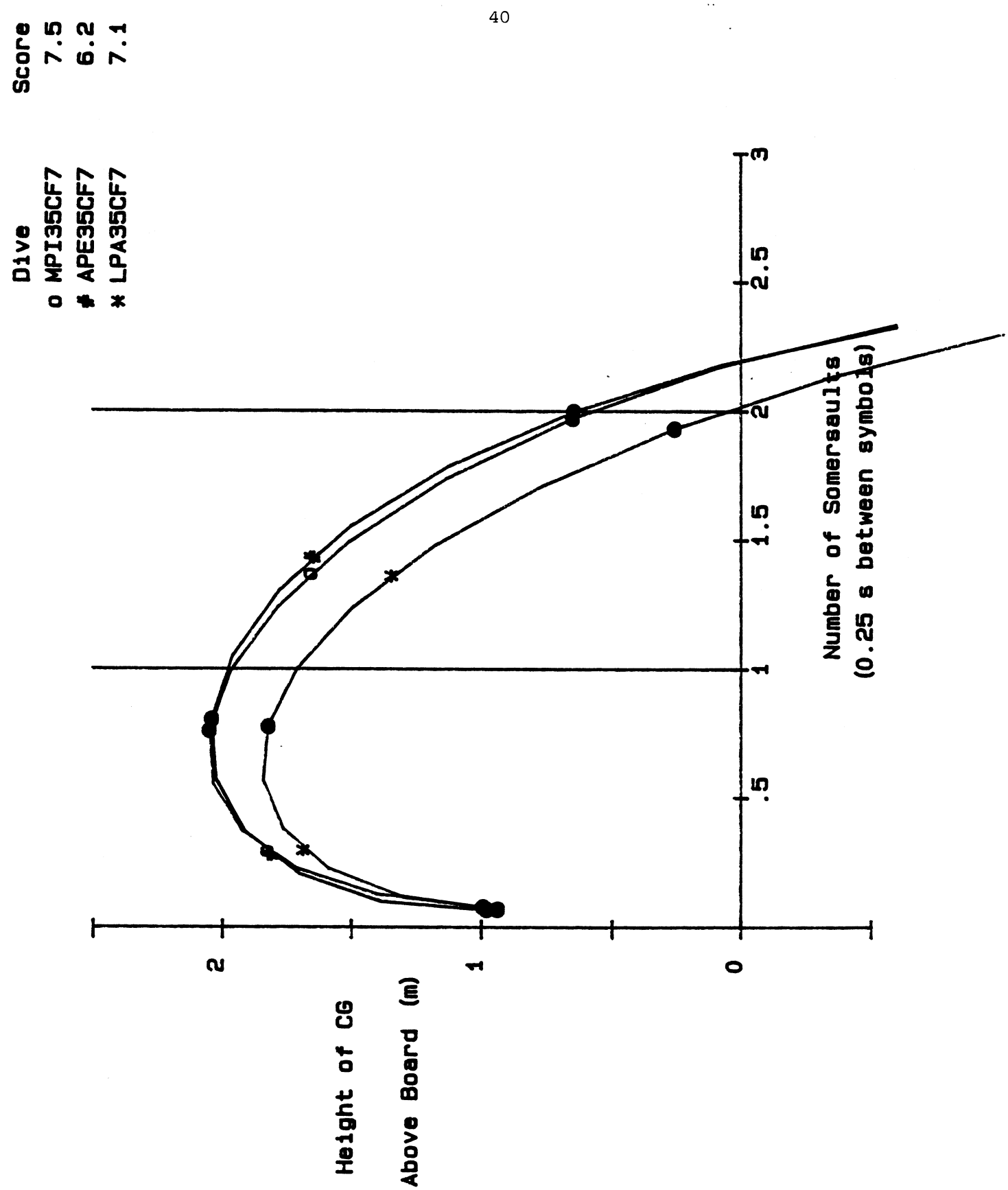
(2) maximum height achieved in the flight as it is directly related to the vertical velocity at the end of the take-off

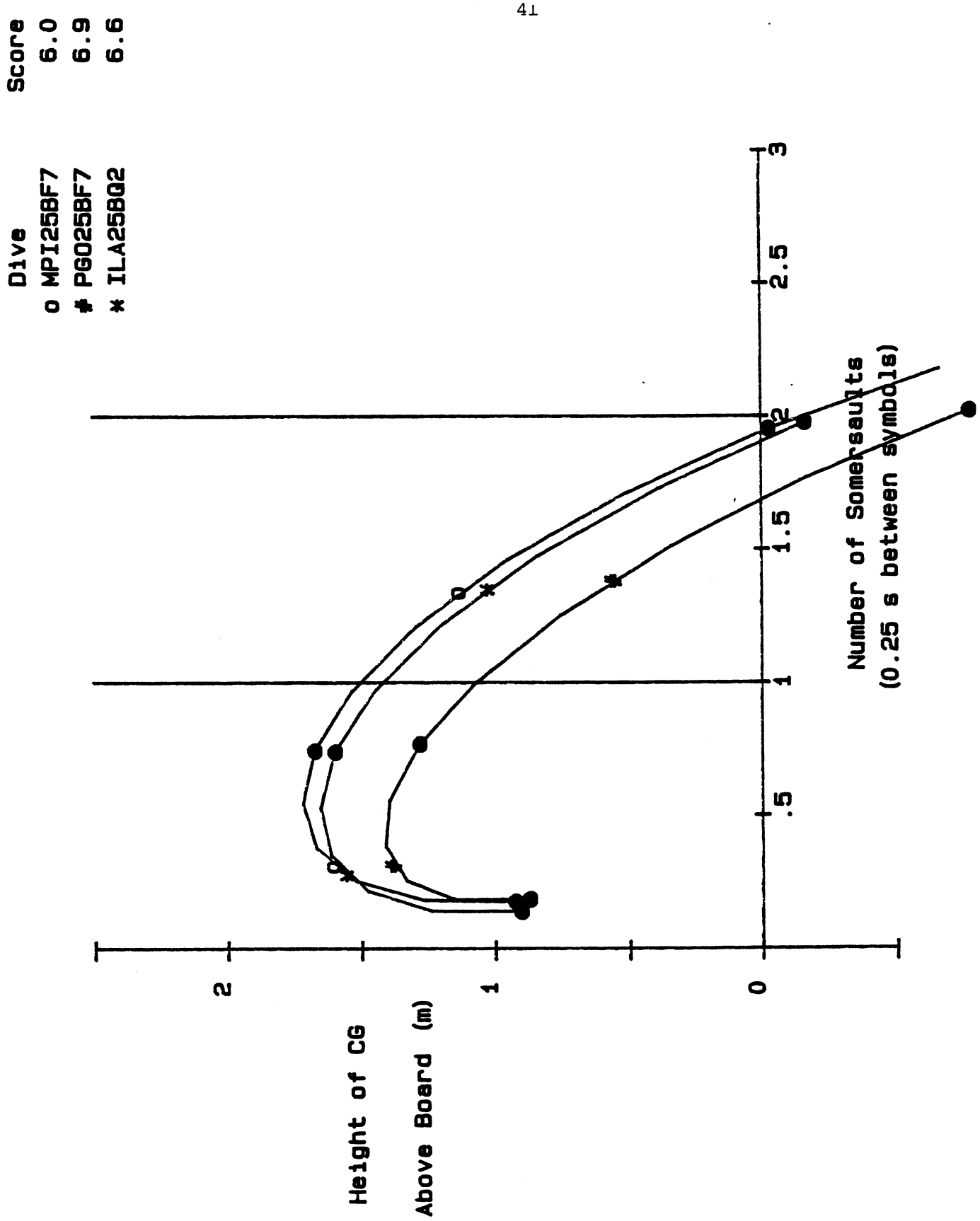
(3) the number of somersaults completed by the peak of the dive and when passing board level

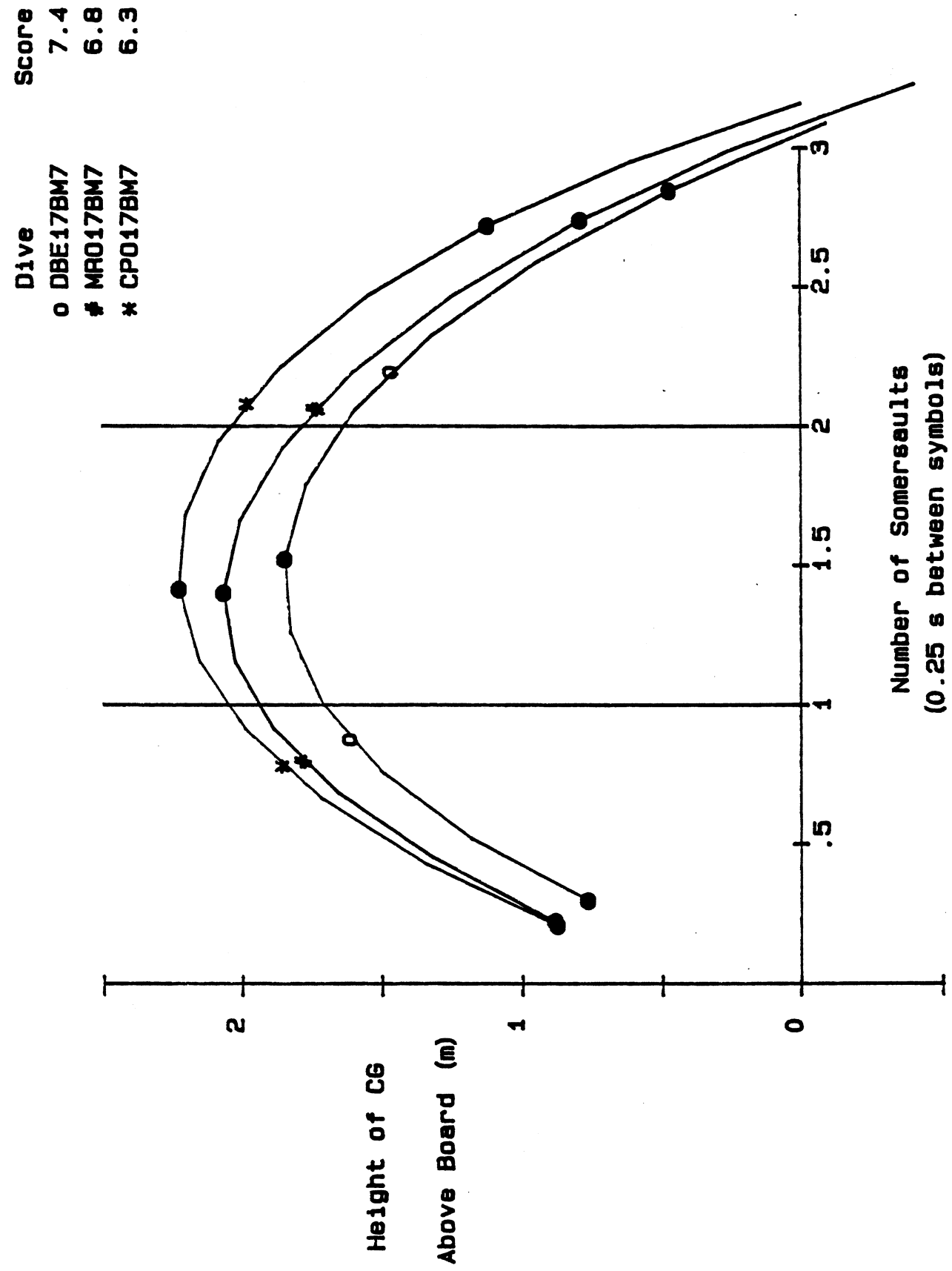
(4) the number of somersaults completed in 1 second. This could be estimated by dropping a vertical line down from the second solid dot and reading the value off the horizontal axis

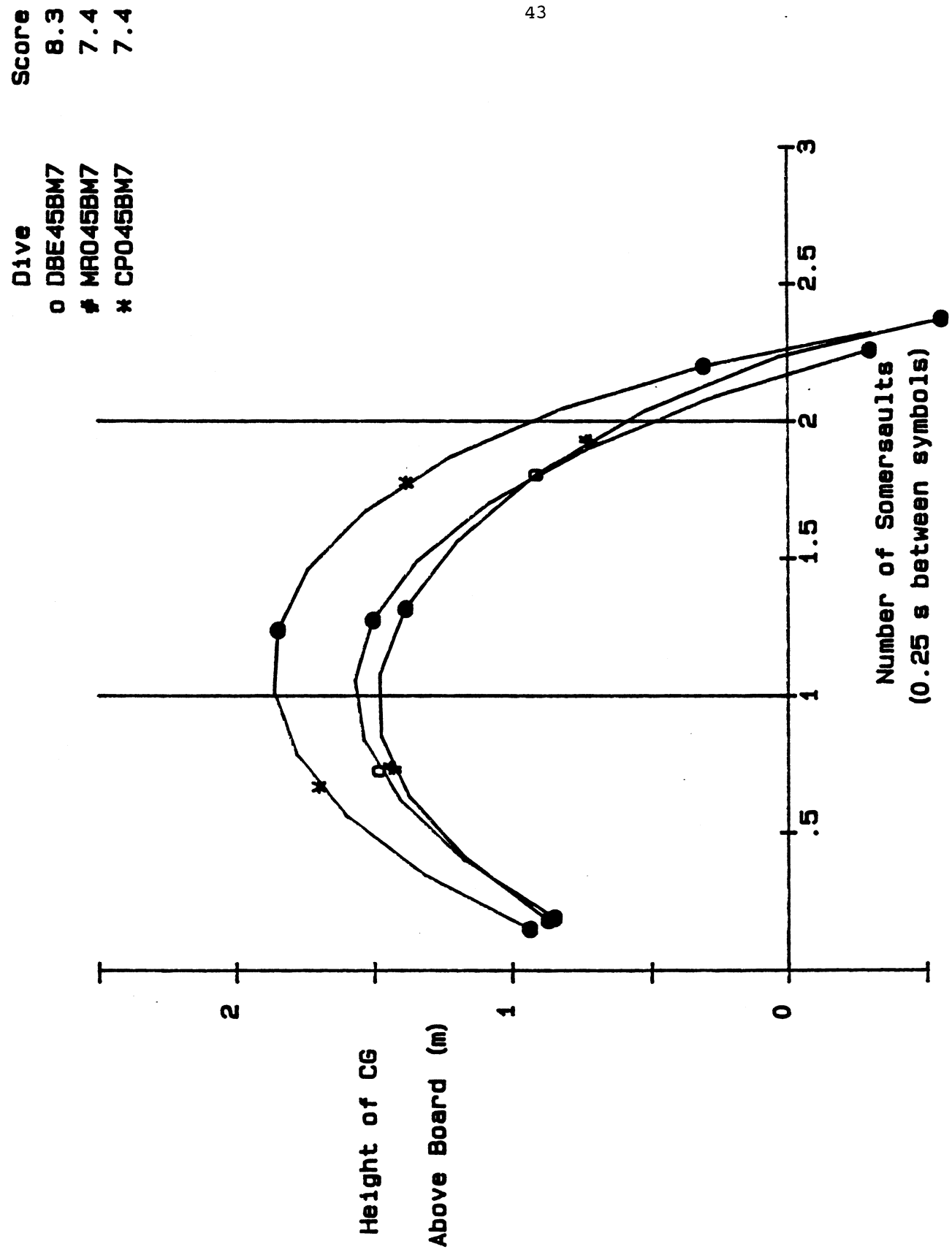
(5) height and rotation in comparison to top international performances. To compare dives from different graphs, coaches were instructed to put one page behind the other, hold them up to the light and align the axes.

It is important to note that these height-rotation graphs do not represent the parabolic flight path of the diver as the diver's horizontal velocity is not taken into account.


Dive
o MPI35CF7
APE35CF7
* LPA35CF7
Score
7.5
6.2
7.1
Height of CG
Above Board (m)
2
1
0
.5
1
1.5
2
2.5
3
Number of Somersaults
(0.25 s between symbols)


Dive
Score
o MPI25BF7 6.0
PG025BF7 6.9
* ILA25BQ2 6.6
Height of CG
Above Board (m)
0
1
2
.5
1
1.5
2
2.5
3
Number of Somersaults
(0.25 s between symbols)


Dive
o DBE17BM7
MRO17BM7
* CPO17BM7
Score
7.4
6.8
6.3
Height of CG
Above Board (m)
0
1
2
.5
1
1.5
2
2.5
3
Number of Somersaults
(0.25 s between symbols)


Dive
o DBE45BM7
MR045BM7
* CP045BM7
Score
8.3
7.4
7.4
Height of CG
Above Board (m)
0
1
2
.5
1
1.5
2
2.5
3
Number of Somersaults
(0.25 s between symbols)

ANGULAR VELOCITIES — CANADIAN WINTER NATIONALS, ETOBICOKE, 1991.

Dive	Score	Comp.	Angular Velocity (SS/s) at given time (s) past last contact 0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	Max (SS/s)
MPI 105B F	8.0	TWN91W	1.9	2.1	2.2	2.2	2.2	2.1	2.0	1.8	1.6	1.3	2.2
APE 105B F	8.7	TWN91W	2.1	2.2	2.3	2.2	2.1	2.0	1.8	1.6	1.5	1.4	2.3
LPA 105B F	7.5	TWN91W	1.9	2.1	2.2	2.2	2.1	2.0	1.9	1.7	1.6	1.5	2.2
GVB 105B F	7.2	TWN91W	1.9	1.9	2.0	2.1	2.2	2.2	2.2	2.1	1.9	1.5	2.2
BAM 105B F	6.8	TWN91W	1.8	2.0	2.2	2.3	2.3	2.2	2.1	1.9	1.7	1.3	2.3
LTU 105B F	6.9	TWN91W	1.9	2.0	2.1	2.2	2.3	2.3	2.2	2.0	1.7	1.1	2.3
AGI 105B F	7.2	TWN91W	1.9	2.0	2.2	2.2	2.2	2.2	2.1	1.9	1.7	1.4	2.2
SSU 105B F	5.6	TWN91W	2.0	1.9	1.9	2.0	2.1	2.2	2.2	2.1	1.9	1.6	2.2
CFO 105B F	6.0	TWN91W	2.0	2.3	2.4	2.4	2.3	2.1	1.9	1.7	1.5	1.3	2.4
MPI 305C F	7.5	TWN91W	0.7	1.2	1.6	2.0	2.2	2.4	2.5	2.5	2.4	2.2	2.5
▷ APE 305C F	6.2	TWN91W	0.7	1.3	1.8	2.2	2.4	2.5	2.5	2.4	2.2	2.0	2.5
LPA 305C F	7.1	TWN91W	0.8	1.3	1.7	2.0	2.2	2.3	2.4	2.4	2.3	2.1	2.4
AGI 305C F	4.3	TWN91W	0.7	1.2	1.6	1.9	2.0	2.1	2.2	2.2	2.2	2.2	2.2
SSU 305C F	4.2	TWN91W	0.9	1.2	1.6	1.9	2.1	2.3	2.4	2.4	2.3	2.1	2.4
CFO 305C F	6.2	TWN91W	0.6	1.1	1.6	1.9	2.2	2.4	2.5	2.5	2.4	2.2	2.5
MPI 205B F	6.0	TWN91W	0.4	1.0	1.4	1.8	2.1	2.3	2.5	2.5	2.5	2.3	2.5
▷ PGO 205B F	6.9	TWN91W	0.3	1.0	1.5	1.9	2.2	2.4	2.5	2.6	2.5	2.0	2.6
ILA 205B Q	6.6	FINA89W	0.4	1.0	1.6	2.0	2.2	2.4	2.5	2.5	2.5	2.2	2.5
APE 205C F	8.1	TWN91W	0.8	1.4	1.9	2.3	2.5	2.6	2.6	2.4	2.2	1.9	2.6
LPA 205C F	6.8	TWN91W	0.9	1.5	1.9	2.2	2.4	2.5	2.5	2.4	2.3	2.0	2.5
GVB 205C F	5.7	TWN91W	1.0	1.5	1.8	2.1	2.2	2.3	2.3	2.3	2.2	2.2	2.3
BAM 205C F	3.4	TWN91W	0.5	1.0	1.4	1.8	2.2	2.4	2.6	2.7	2.6	2.4	2.7
LTU 205C F	5.8	TWN91W	0.8	1.2	1.6	2.0	2.2	2.4	2.6	2.6	2.5	1.8	2.6
AGI 205C F	5.8	TWN91W	0.7	1.4	1.9	2.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4
SSU 205C F	5.6	TWN91W	0.8	1.3	1.7	2.0	2.2	2.4	2.4	2.4	2.3	2.1	2.4
CFO 205C F	5.4	TWN91W	0.7	1.3	1.8	2.1	2.4	2.5	2.6	2.5	2.4	2.2	2.6
MPI 405B F	7.0	TWN91W	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.1	1.8	###.#	2.3
PGO 405B F	7.2	TWN91W	2.1	2.2	2.3	2.4	2.4	2.4	2.3	2.3	1.7	###.#	2.4
APE 405C F	6.6	TWN91W	1.8	2.0	2.1	2.3	2.4	2.4	2.4	2.2	2.0	###.#	2.4
LPA 405C F	6.7	TWN91W	1.8	2.1	2.3	2.5	2.6	2.6	2.6	2.4	1.1	###.#	2.6
GVB 405C F	6.6	TWN91W	1.9	2.0	2.2	2.3	2.4	2.5	2.5	2.4	1.5	###.#	2.5
BAM 405C F	7.1	TWN91W	1.6	1.9	2.2	2.4	2.6	2.7	2.6	2.5	2.1	###.#	2.7
LTU 405C F	4.6	TWN91W	1.8	2.1	2.3	2.4	2.5	2.6	2.6	2.6	2.1	###.#	2.6
AGI 405C F	5.0	TWN91W	1.7	1.9	2.1	2.2	2.4	2.5	2.5	2.5	2.6	###.#	2.6
CFO 405C F	4.4	TWN91W	1.9	2.2	2.4	2.6	2.6	2.6	2.5	2.3	2.1	###.#	2.6

###.# values not calculated

ANGULAR VELOCITIES

CANADIAN WINTER NATIONALS, ETOBICOKE, 1991.

Dive	Score	Comp.	Angular Velocity (SS/s) at given time (s) past last contact 0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	Max (SS/s)
IKO 107C F	5.8	TWN91M	1.8	2.0	2.1	2.3	2.5	2.6	2.7	2.8	2.8	2.7	2.8
JBA 107C F	6.5	TWN91M	1.9	2.2	2.4	2.6	2.8	3.0	3.1	3.0	2.9	2.6	3.1
JNA 107C F	8.1	TWN91M	2.0	2.3	2.6	2.8	2.9	3.0	3.0	2.9	2.7	2.5	3.0
NBA 107C F	7.2	TWN91M	1.8	2.1	2.3	2.4	2.5	2.6	2.7	2.7	2.6	2.5	2.7
TPA 107C F	6.0	TWN91M	1.8	2.1	2.3	2.6	2.7	2.9	3.0	3.0	2.9	2.8	3.0
JNA 107C F	8.1	TWN91M	2.0	2.3	2.6	2.8	2.9	3.0	3.0	2.9	2.7	2.5	3.0
DBE 107B F	7.4	TWN91M	2.3	2.4	2.5	2.6	2.7	2.7	2.7	2.7	2.6	2.5	2.7
▷ MRO 107B F	6.8	TWN91M	2.3	2.3	2.4	2.4	2.5	2.6	2.7	2.7	2.7	2.6	2.7
CPO 107B F	6.3	TWN91M	2.3	2.4	2.5	2.6	2.6	2.7	2.7	2.6	2.5	2.4	2.7
RBA 107B F	6.5	TWN91M	2.4	2.4	2.4	2.5	2.6	2.7	2.7	2.7	2.6	2.4	2.7
PVA 107B F	7.4	TWN91M	2.3	2.3	2.4	2.5	2.6	2.6	2.7	2.7	2.6	2.6	2.7
CPO 107B F	6.3	TWN91M	2.3	2.4	2.5	2.6	2.6	2.7	2.7	2.6	2.5	2.4	2.7
DBE 205B F	7.0	TWN91M	0.5	1.1	1.6	2.0	2.3	2.5	2.6	2.6	2.4	2.0	2.6
MRO 205B F	7.7	TWN91M	0.3	1.0	1.6	2.0	2.3	2.4	2.5	2.4	2.4	2.3	2.5
CPO 205B F	6.3	TWN91M	0.4	0.9	1.4	1.8	2.0	2.2	2.4	2.4	2.3	2.2	2.4
PVA 205B F	5.4	TWN91M	0.5	1.0	1.5	1.9	2.2	2.4	2.5	2.5	2.4	2.2	2.5
RBA 205B F	4.7	TWN91M	0.4	1.0	1.5	1.9	2.1	2.3	2.4	2.4	2.4	2.3	2.4
JNA 205B F	4.8	TWN91M	0.2	1.2	1.8	2.1	2.1	2.1	2.0	2.0	2.1	2.6	2.6
IKO 205B F	5.6	TWN91M	0.5	0.9	1.3	1.7	1.9	2.1	2.2	2.3	2.3	2.3	2.3
JBA 205B F	4.1	TWN91M	0.5	1.0	1.4	1.7	2.0	2.1	2.2	2.3	2.3	2.3	2.3
NBA 205B F	6.2	TWN91M	0.3	0.9	1.5	1.8	2.1	2.3	2.3	2.3	2.2	2.1	2.3
TPA 205B F	4.2	TWN91M	0.2	1.0	1.5	1.9	2.1	2.3	2.3	2.3	2.3	2.3	2.3
DBE 305B F	8.3	TWN91M	0.4	0.9	1.3	1.7	2.0	2.2	2.4	2.4	2.4	2.2	2.4
MRO 305B F	7.6	TWN91M	0.4	0.9	1.4	1.7	2.0	2.2	2.4	2.4	2.4	2.2	2.4
CPO 305B F	6.6	TWN91M	0.3	0.8	1.2	1.5	1.8	2.0	2.1	2.2	2.2	2.2	2.2
PVA 305B F	7.4	TWN91M	0.3	0.9	1.3	1.7	2.0	2.2	2.3	2.4	2.3	2.2	2.4
RBA 305B F	6.8	TWN91M	0.4	0.9	1.3	1.7	2.0	2.2	2.3	2.4	2.4	2.2	2.4
NBA 305B F	5.0	TWN91M	0.3	0.9	1.3	1.7	1.9	2.1	2.2	2.3	2.2	2.1	2.3
DBE 305B F	8.3	TWN91M	0.4	0.9	1.3	1.7	2.0	2.2	2.4	2.4	2.4	2.2	2.4
IKO 305B F	5.0	TWN91M	0.3	0.8	1.2	1.6	1.8	2.0	2.1	2.2	2.2	2.2	2.2
JBA 305B F	4.0	TWN91M	0.6	1.0	1.3	1.6	1.9	2.2	2.4	2.5	2.5	2.4	2.5
DBE 405B F	8.3	TWN91M	2.1	2.2	2.2	2.2	2.2	2.1	2.1	1.9	1.8	***.*	2.2
▷ MRO 405B F	7.4	TWN91M	2.2	2.2	2.2	2.3	2.4	2.5	2.4	2.1	1.7	***.*	2.5
CPO 405B F	7.4	TWN91M	2.0	2.2	2.3	2.3	2.3	2.2	2.0	1.9	1.6	1.4	2.3
PVA 405B F	7.1	TWN91M	2.0	2.2	2.3	2.3	2.4	2.3	2.2	2.0	1.7	1.2	2.4
RBA 405B F	7.6	TWN91M	2.1	2.1	2.1	2.1	2.1	2.1	2.0	1.9	1.7	1.5	2.1
JNA 405B F	7.2	TWN91M	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.0	1.7	1.2	2.3
IKO 405B F	6.1	TWN91M	1.8	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.0	1.8	2.1
JBA 405B F	7.5	TWN91M	2.2	2.1	2.2	2.2	2.3	2.3	2.3	2.1	1.8	1.3	2.3
NBA 405B F	5.8	TWN91M	1.9	2.0	2.1	2.2	2.2	2.2	2.1	2.0	1.7	1.4	2.2

***.* values not calculated

FEEDBACK RELATED TO DETAILED ANALYSIS OF THE TAKE-OFF

Beginning with the Commonwealth Games Trials in December 1989, one dive group was chosen for a detailed frame-by-frame analysis of the take-off including a stick figure sequence plotted at 3/60 second intervals throughout the take-off, CG and board tip linear velocities and knee, hip and shoulder angular velocities as functions of time. Following that meet, a different dive group was the focus of attention and the resulting analysis was added to the existing feedback package. This type of information was the most labor-intensive to obtain as it required digitizing, digital filtering (5 Hz), reducing and processing the information from 60 frames (1 s) per dive. While it holds the greatest potential for providing detailed information on the mechanics of the take-off, from a coach's perspective, it is also reasonably sophisticated in terms of its biomechanics content. Consequently, this particular form of feedback still requires further work to make it more palatable for general coaching consumption.

Exemplary data from the performances of Evelyne Boisvert at the 1990 World Diving Trials are presented here. Similar data from Larry Flewwelling can be found in Appendix D. Also included is the type of explanation provided to assist coaches in the interpretation of the graphic output. Data from the forward 2 1/2 pike of Olympic gold medallist Gao Min (People's Republic of China) and outstanding international diver Irina Lashko (U.S.S.R.) in the 1989 FINA Cup are supplied for comparative purposes. Figure 1 is repeated to clarify the definition and measurement of the knee, hip, shoulder and trunk angles.

Coaches were instructed to begin their study of the output with a detailed examination of the stick figure sequence and were also encouraged to check the videotape record of the particular dive if they identified or suspected there might be a problem in technique.

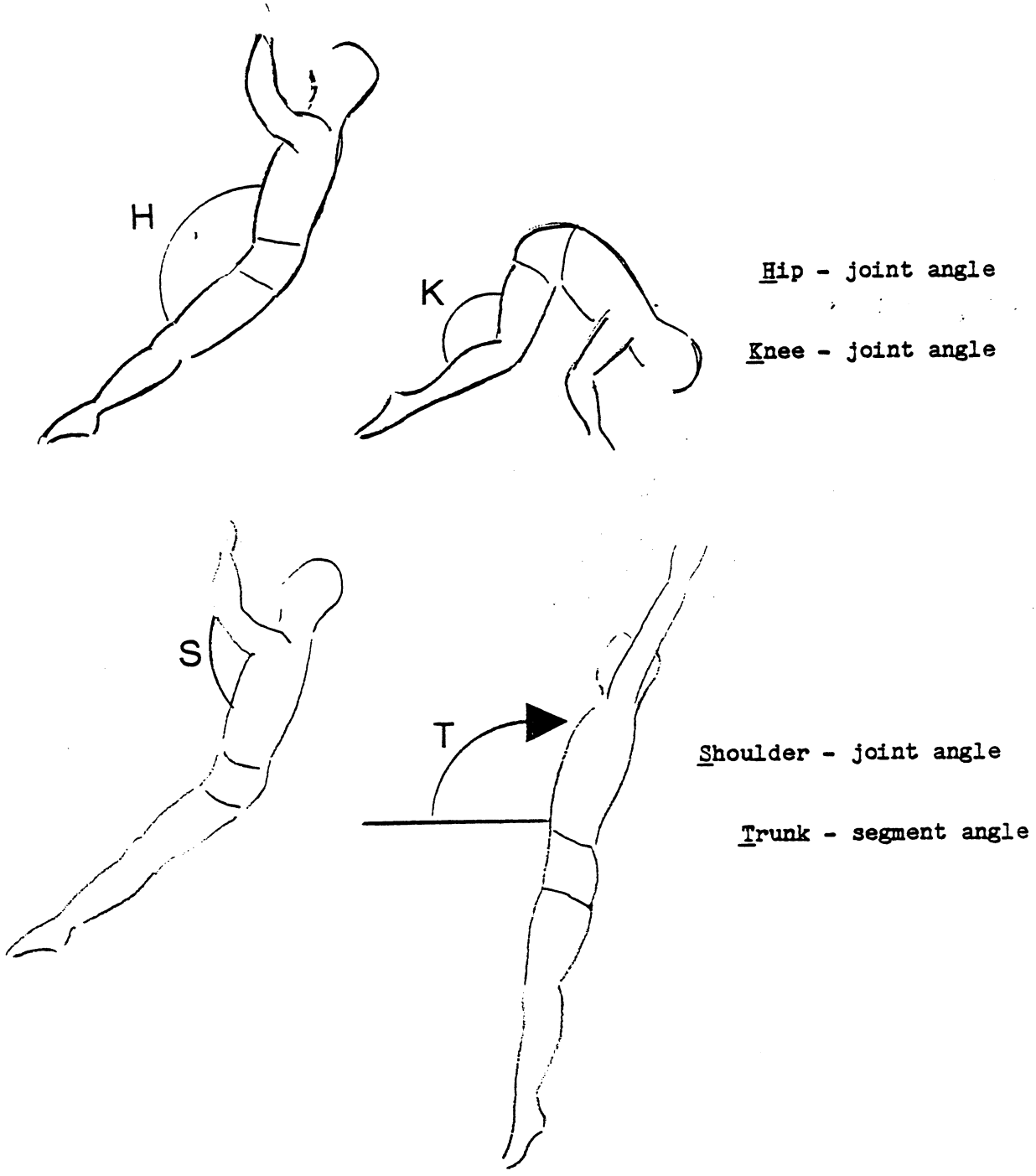


Figure 1. Designation of body segment and joint angles.

Forward Take-offs

Stick figure sequences have been plotted at 3/60 second intervals which represents every third frame digitized.

Vertical Velocity of the CG and Board Tip

The vertical velocity-time histories of the board tip and the diver's CG are divided into three phases:

(1) the end of the hurdle (from the beginning of the graph to the vertical dashed line)

a) theoretically, the diver's vertical velocity should be a straight line sloping downward as s/he is in free fall subject only to the force of gravity. Variations from that straight line are the result of digitizing error since only one side of the body was digitized and the diver's position may not have been perfectly symmetrical during the hurdle.

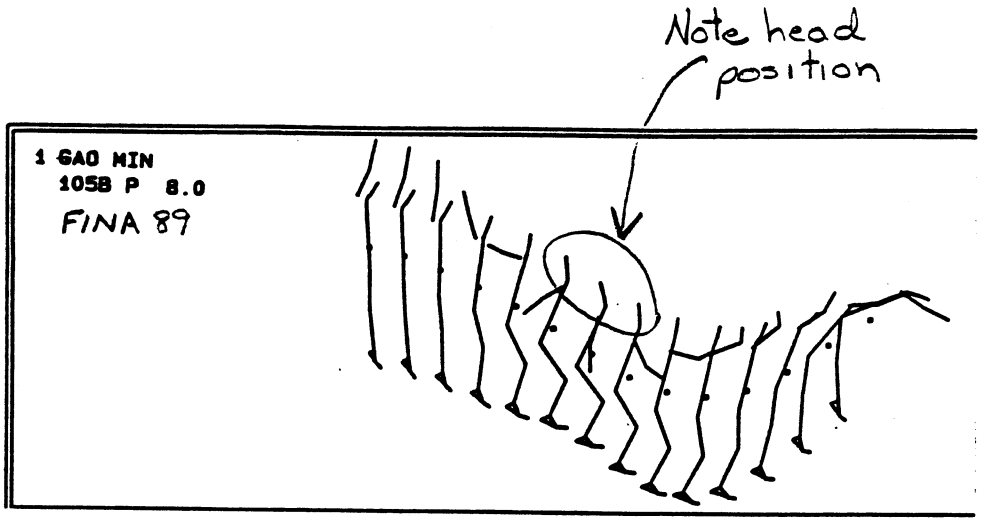
b) the lowest vertical board velocity during its free movement may be evident at the very beginning of the curve.

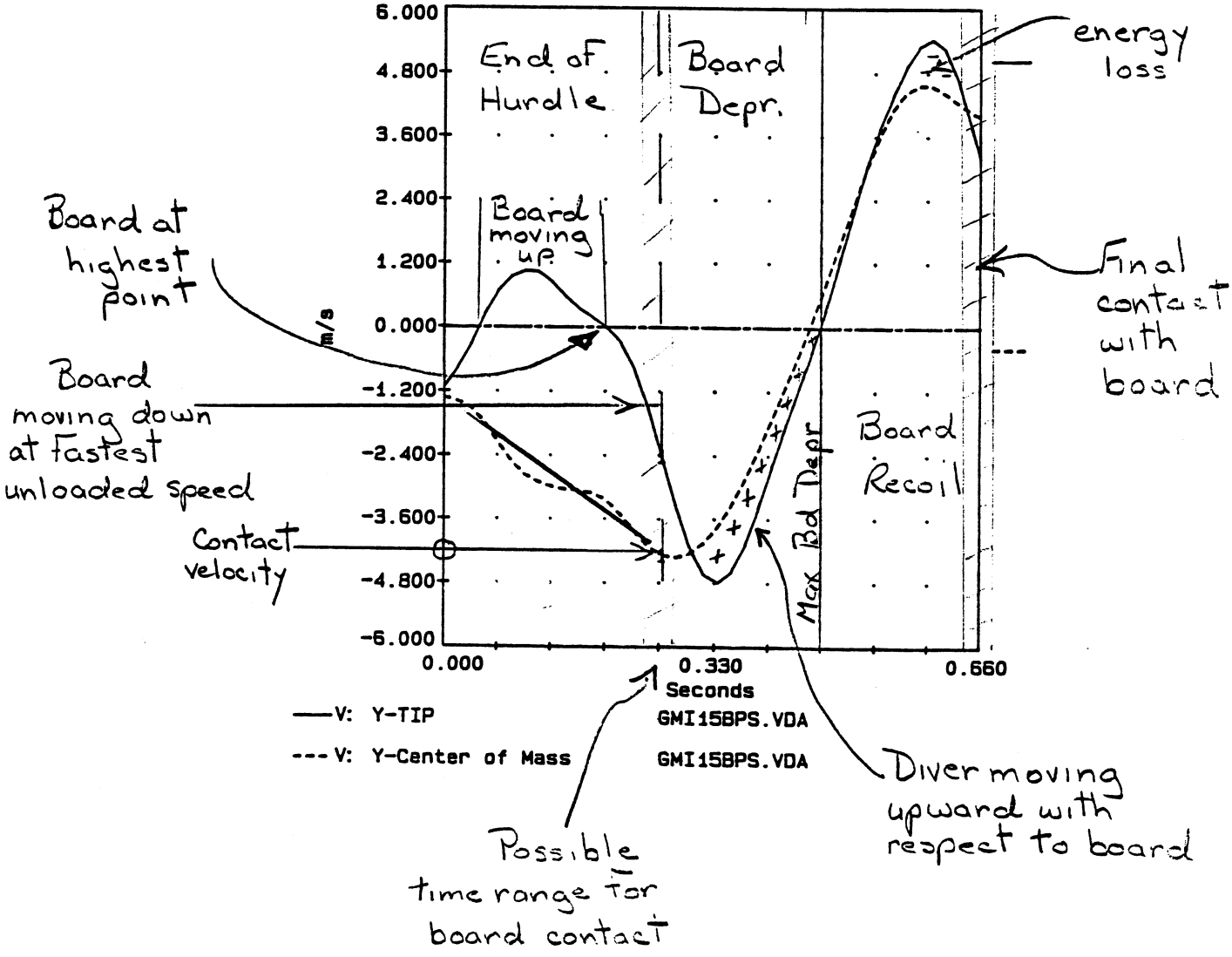
c) a positive excursion of the springboard velocity indicates that the board is moving upward. When the velocity curve is negative, the board is moving downward.

(2) springboard depression (between the vertical dashed and solid lines)

a) the diver's downward velocity on contact with the springboard can be determined by the intersection of the dashed curve with the dashed vertical line.

b) if the diver makes contact with the board when the board velocity is zero, this indicates that the board is at its highest point. If contact is made when the board velocity is negative, the board is moving downward. Compare the maximum unloaded velocity (at the beginning of the board if present) with the velocity with which the diver contacts the board. Theoretically, it would seem reasonable to assume that the diver should be contacting the board when it is at or near its maximum downward velocity. It should be realized, however, that there is a possibility of a $\pm$ 1/60 second error in locating the contact time (i.e., an error of one digitized video frame).


Note head position
1 GAO MIN
105B P 8.0
FINA 89


6.000
4.800
3.600
2.400
1.200
0.000
-1.200
-2.400
-3.600
-4.800
-6.000
m/s
0.000
0.330
0.660
Seconds
End of Hurdle
Board Depr.
Board moving up
Board Recoil
Max Bd Depr
energy loss
Final contact with board
Board at highest point
Board moving down at fastest unloaded speed
Contact velocity
—V: Y-TIP GMI15BPS.VDA
---V: Y-Center of Mass GMI15BPS.VDA
Possible time range for board contact
Diver moving upward with respect to board

c) when the diver's vertical velocity (dashed line) is higher than that of the board (solid line), the diver is moving upward with respect to the board likely as the result of knee and hip extension.

d) the diver's lowest position occurs when the diver's vertical velocity curve (dashed) crosses the zero line. This usually occurs slightly before maximum board depression indicating that the diver is moving upward (relative to the board) while the board is still completing its downward excursion.

(3) recoil of the springboard (between the vertical line designating maximum springboard depression (by definition, zero springboard velocity) and the next solid vertical line (usually at the end of the graph)

a) if the vertical velocity of the board and diver are superimposed, this indicates that the diver is "riding" the board as they are both moving upward at the same speed.

b) toward the end, the vertical velocity of the diver will be less than the board indicating that some of the board's energy is being lost as the diver generates the necessary angular momentum for the dive. Some of this energy loss is unavoidable. However, it should not be 'excessive' as indicated by a very large discrepancy in the curves at the end.

c) last contact is taken to be the last visible contact of any kind between the diver and the board - including the toenails! Thus, the final effective contact may be assumed to be slightly earlier than the end of the graph.

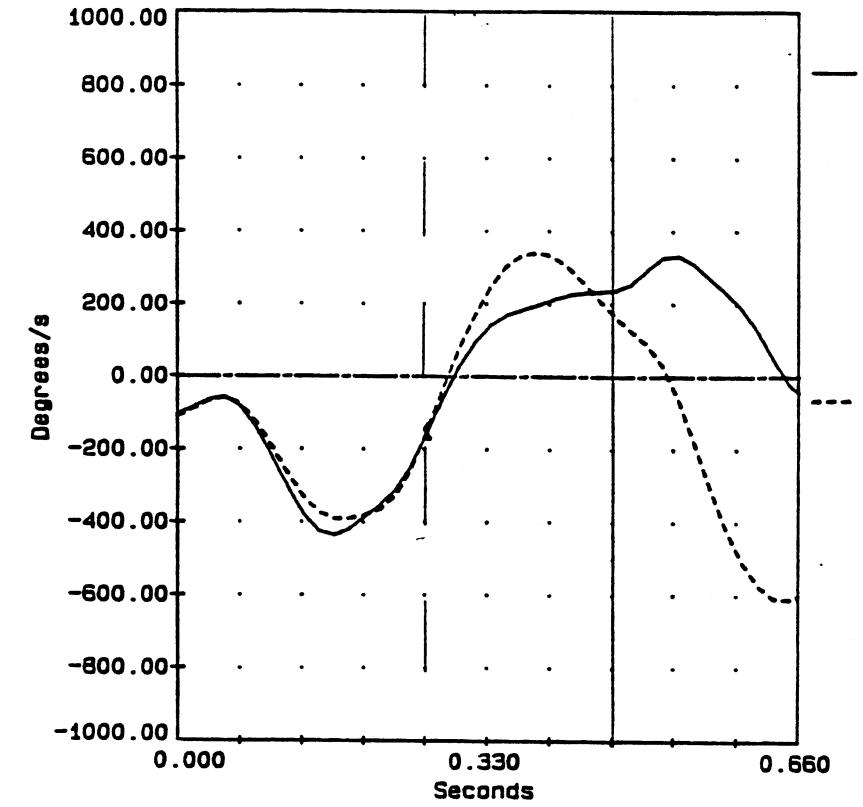
Angular Velocity of the Knee and Hip

Negative angular velocity of the knee and hip indicates joint flexion whereas positive angular velocity indicates extension of these joints.

Angular Velocity of the Shoulders and Trunk

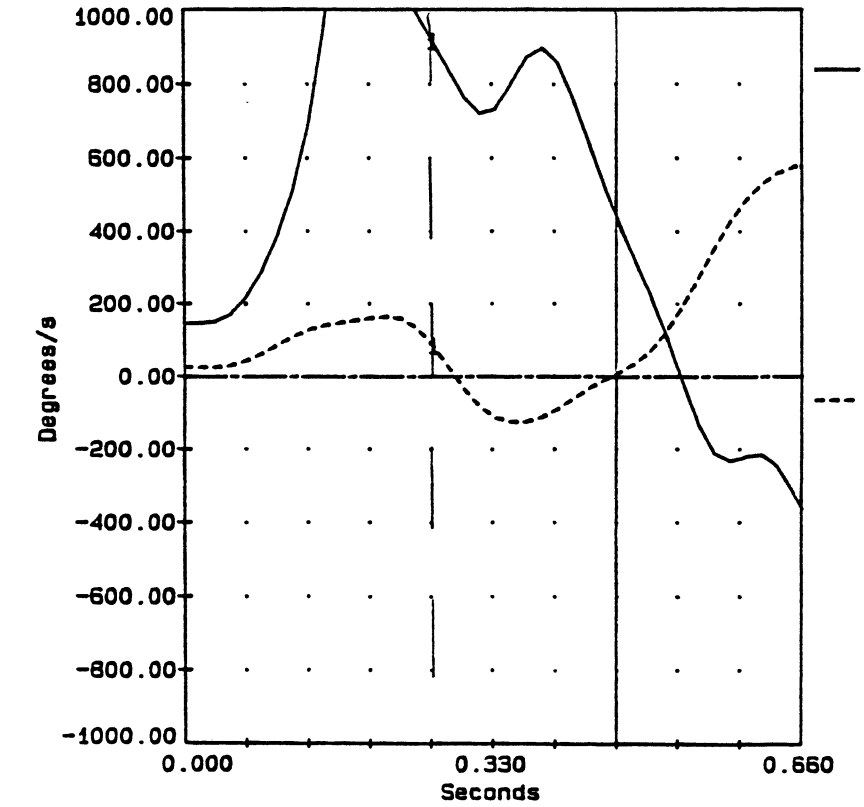
Positive angular velocity of the trunk designates forward trunk rotation (as would be expected during recoil of the springboard) whereas negative angular velocity designates backward trunk rotation.

Positive angular velocity of the shoulders indicates upward rotation of the arms (as in a back somersault). Ignore the excessively high values at the beginning of the curve where the arms are out of the major plane of the motion. Negative angular velocity of the shoulders indicates that the arms are now rotating downward in the direction of a forward somersault (as would be expected by the end of recoil).



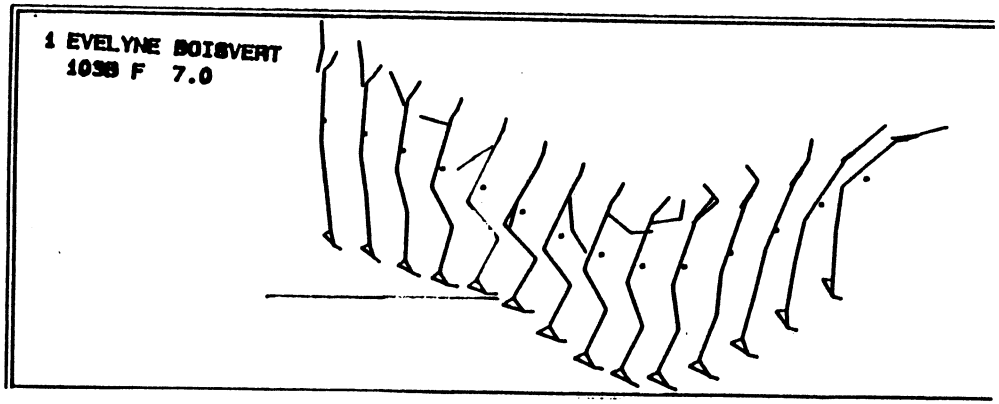
——V: KNEE GMI15BPS.WDA

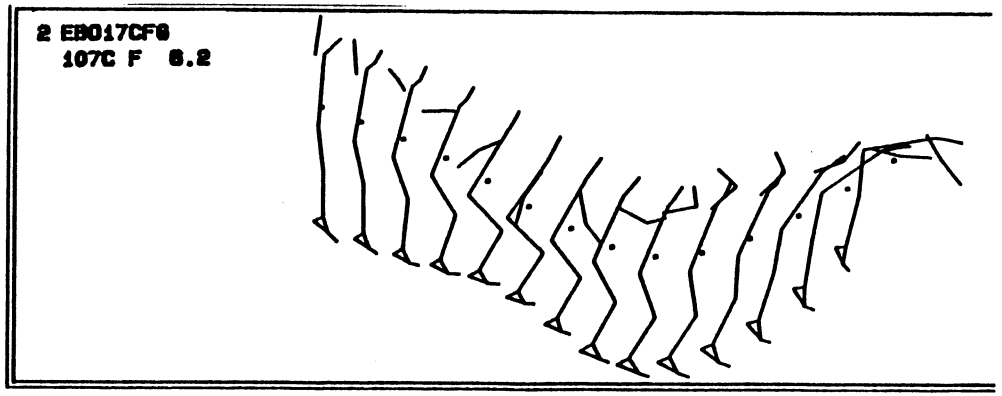
--- V: HIP GMI15BPS.WDA



——V: SHOULDER GMI15BPS.WDA

--- V: TRUNK GMI15BPS.WDA


1 EVELYNE BOISVERT
1038 F 7.0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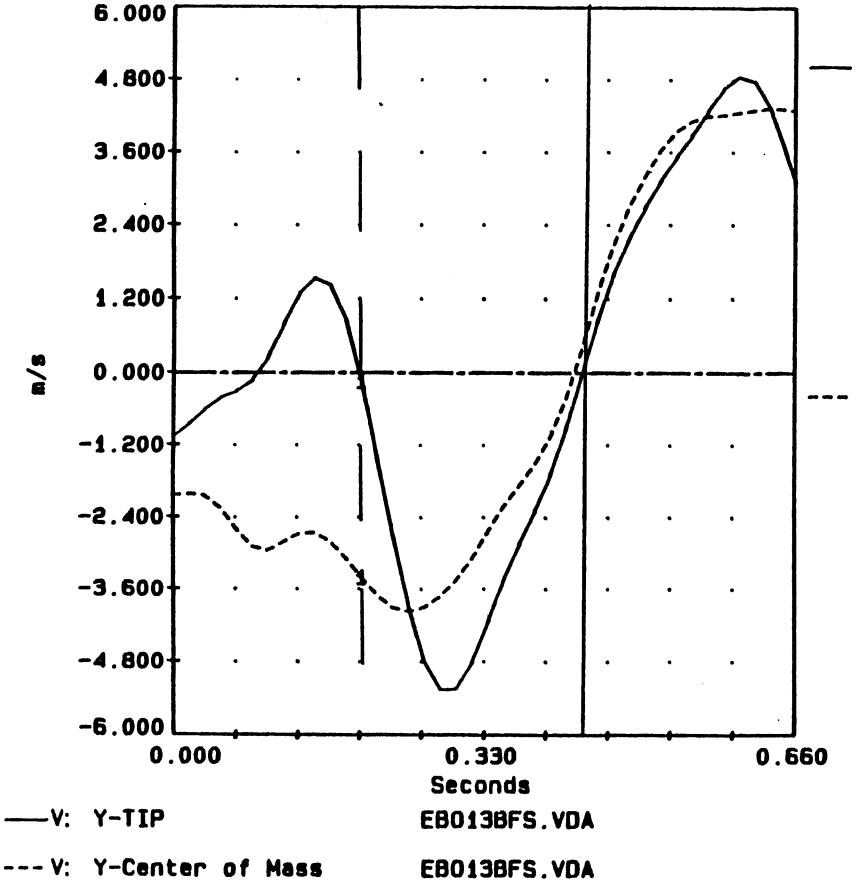
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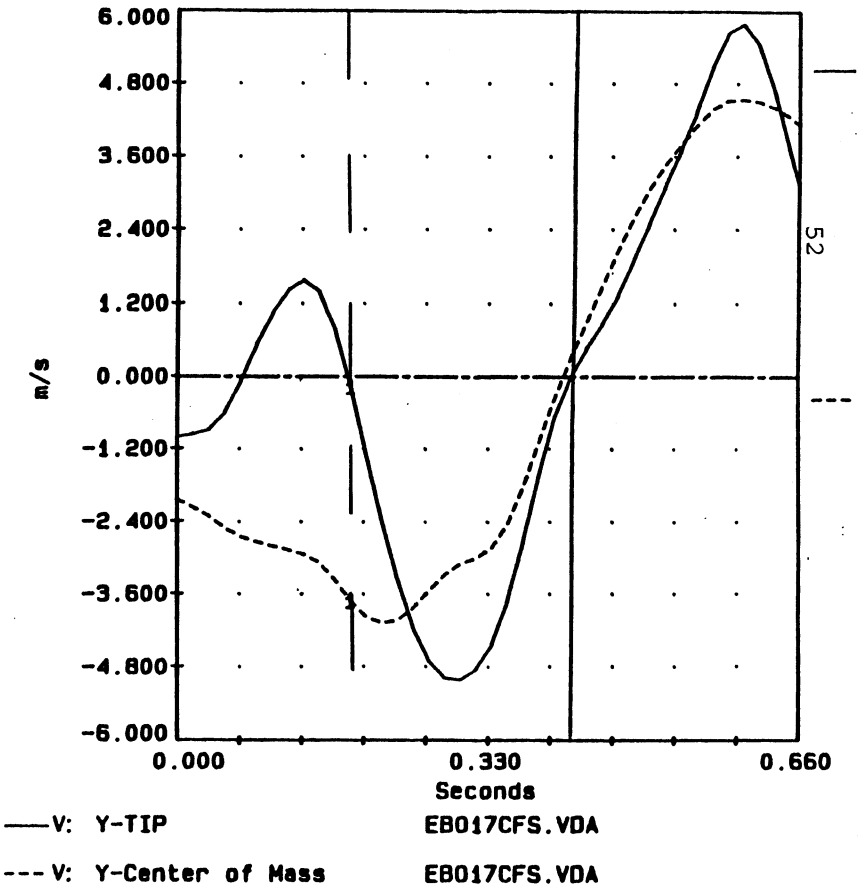
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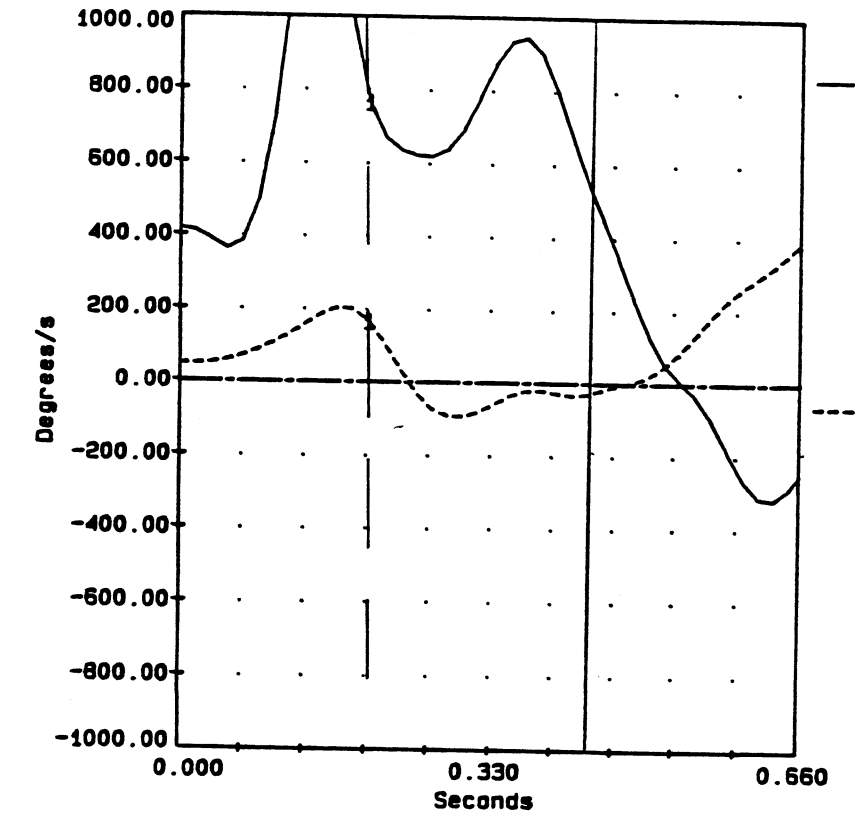

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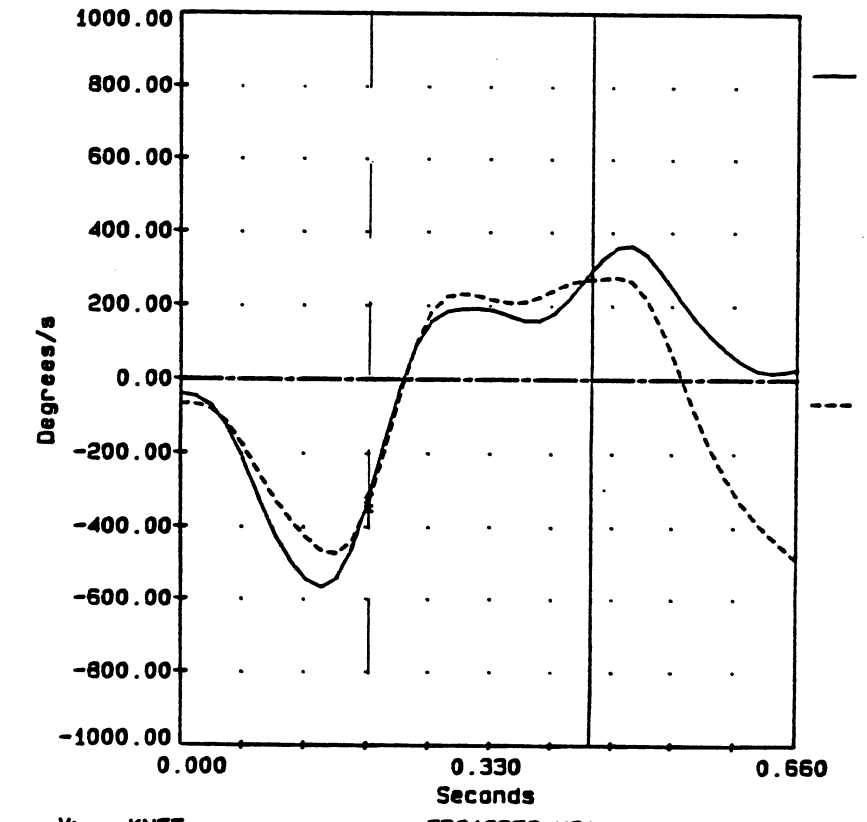

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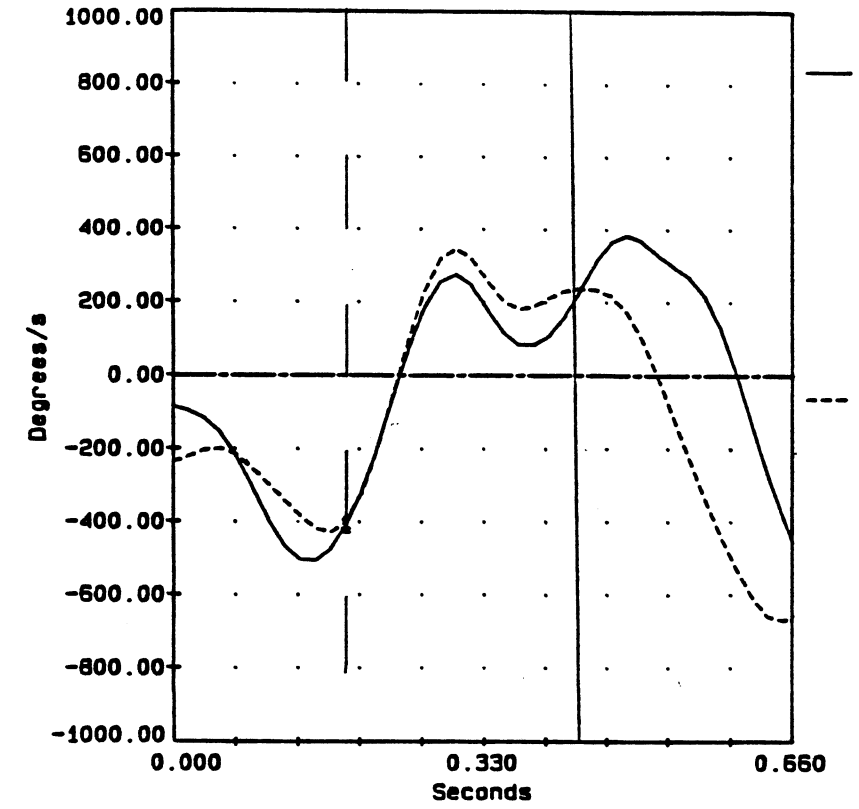

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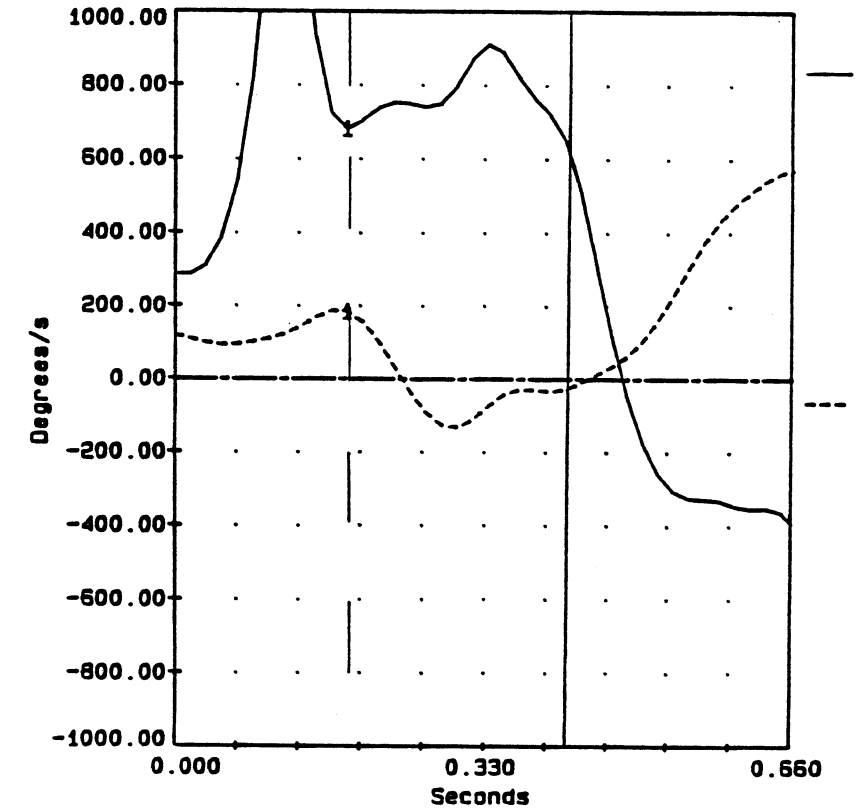

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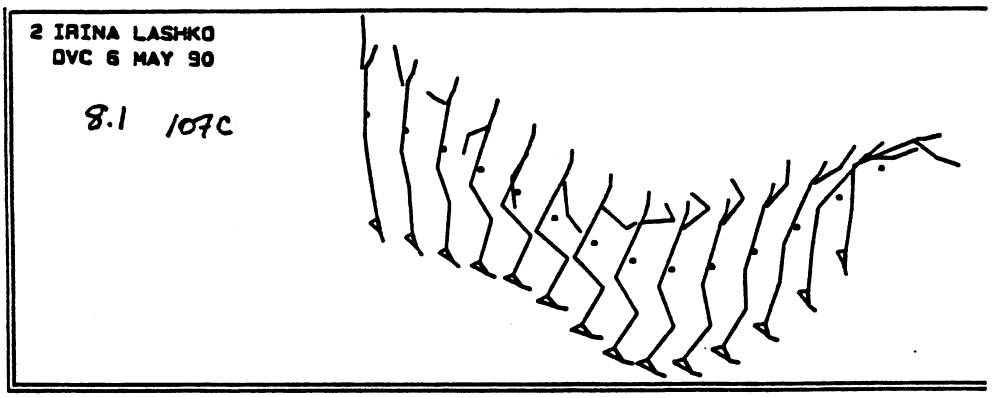
2 IRINA LASHKO
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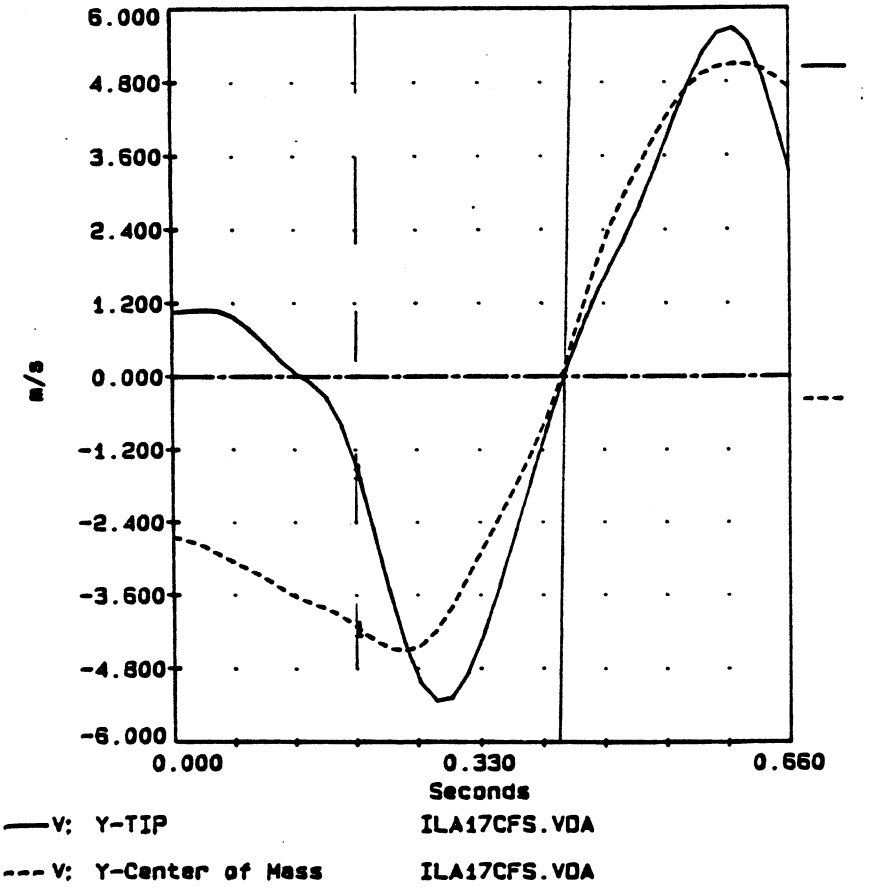
8.1 107C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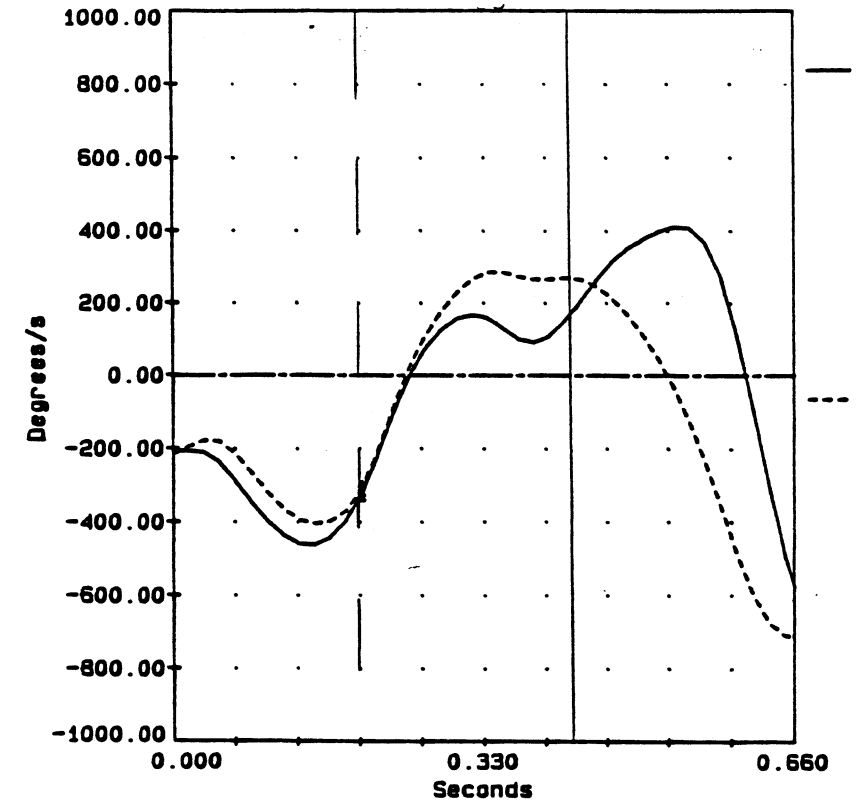
V: Y-Center of Mass ILA17CFS.VDA



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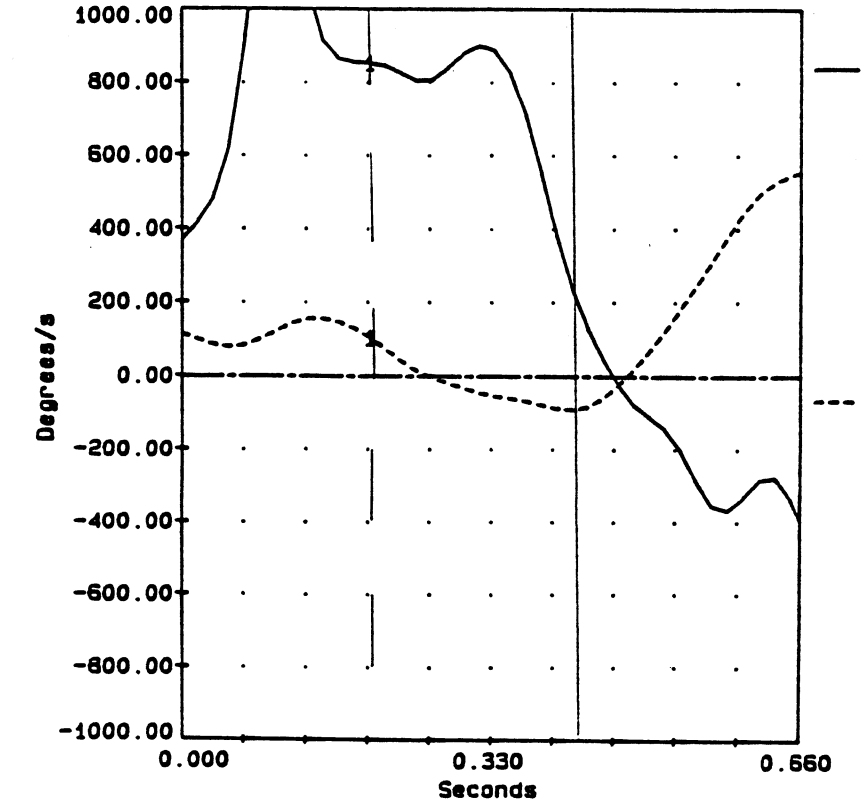


—— V: SHOULDER ILA17CFS.WDA

--- V: TRUNK ILA17CFS.WDA

Inward Take-offs

Stick Figure Sequence

The stick figure sequence shows 14 of the diver's positions at even intervals during the final 0.66 s of the take-off up to and including final contact with the springboard.

a) Although the outline of the board is not drawn, the feet indicate vertical board position.

b) Note the ankle position at last contact. It will reveal whether or not the diver is coming off the board flat-footed. If you suspect there is a problem, you can check the video tape to be sure.

c) The small square in the hip region represents the position of the diver's center of mass (i.e., centre of gravity).

Vertical Velocity of the CG and Board Tip

The vertical velocity of the end of the springboard and of the diver's centre of gravity are superimposed. The velocity units are metres/second (m/s).

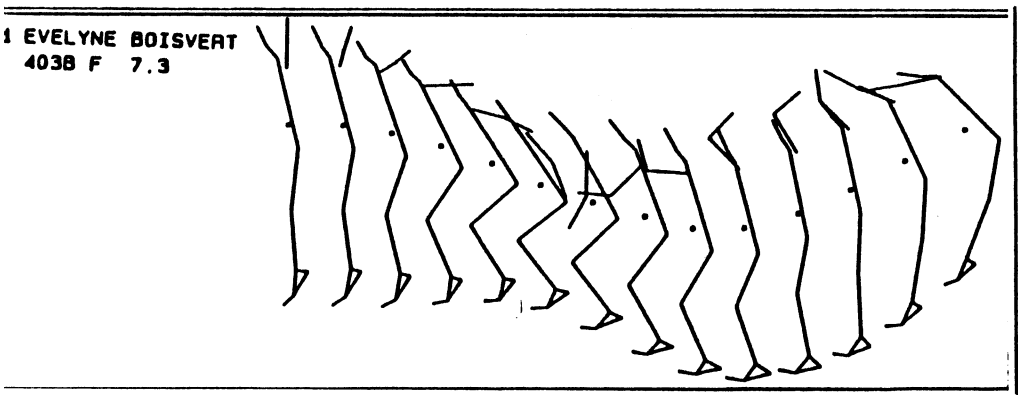
a) If the curves are positive (above the zero line), the diver/board is moving upward. If the curves are negative (below the zero line), the diver/board is moving downward.

b) Maximum springboard depression occurs where the board velocity curve crosses the zero line. A vertical line has been drawn through this point on the graph for your convenience. It is also included on the other graphs.

c) The diver should begin to move upward before the board does. In other words, the vertical velocity of the diver's centre of gravity will cross the zero line just ahead of that of the springboard.

d) It is natural for the diver's vertical velocity to decrease slightly just prior to last contact. The vertical velocity of the diver's centre of gravity at last contact (where the dashed line ends) will determine the diver's height and time in the air.

e) If there is a large discrepancy (open area) between the vertical velocity of the board and that of the diver during recoil, this may indicate that the diver is absorbing an excessive amount of energy from the springboard and thus reducing the vertical velocity at the beginning of the flight.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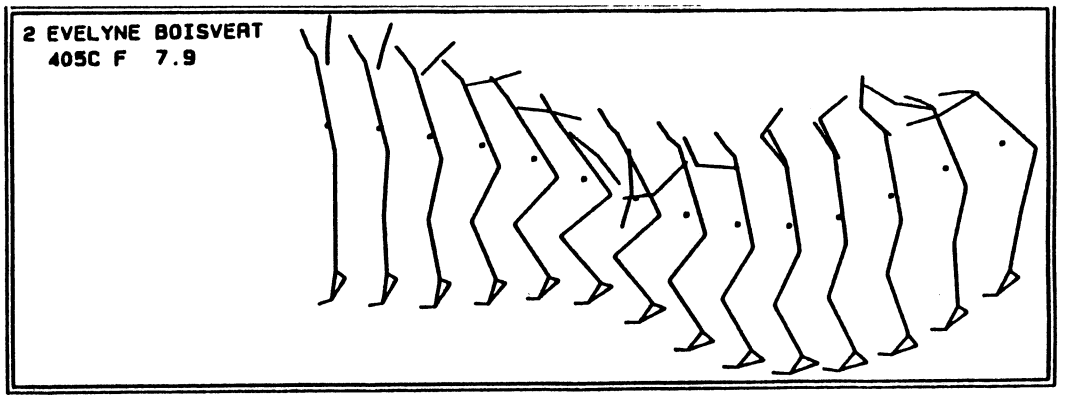
4038 F 7.3


2 EVELYNE BOISVERT
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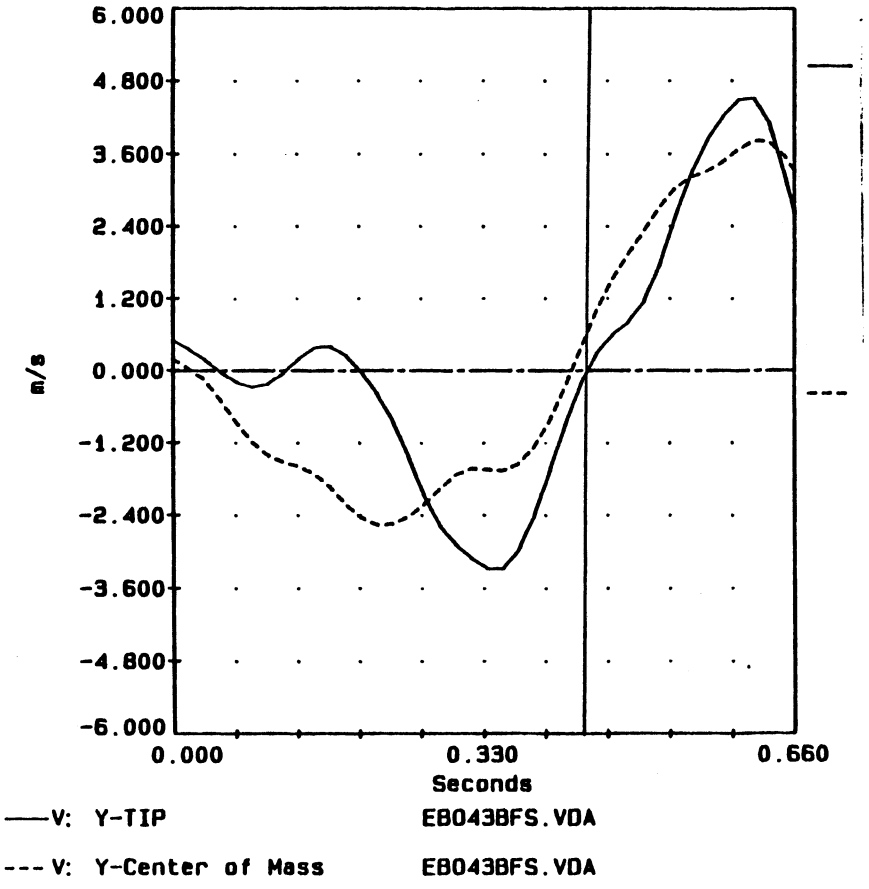
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Seconds
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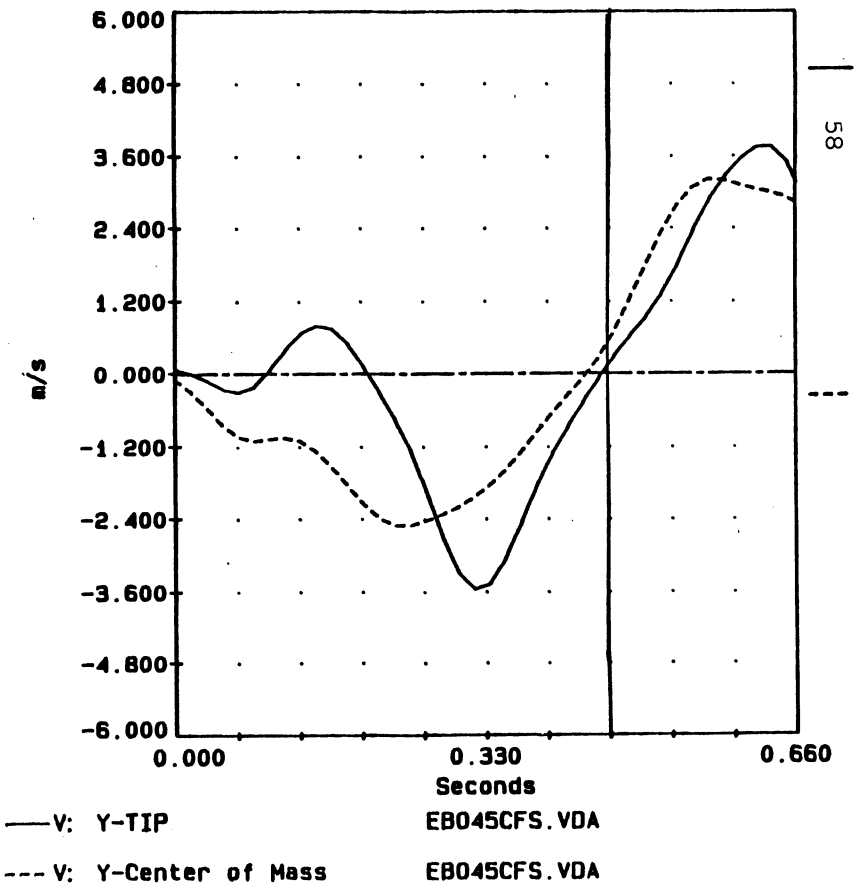
--- V: Y-Center of Mass EB043BFS.VDA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Seconds
——V: Y-TIP EB045CFS.VDA
--- V: Y-Center of Mass EB045CFS.VDA

Angular Velocity of the Knee and Hip

The angular velocity-time patterns of the knee and hip joints are compared on the same graph. The time and velocity scales are the same as for the shoulder and trunk. And, as in the case for the other graphs, the stick figure sequences can be lined up with the toes of the first and last stick figure on the beginning and end of the velocity-time curves.

a) The knee is defined as the angle between the thigh and lower leg. When the angular velocity of the knee joint is positive (above the zero line), the knee is extending. When the angular velocity of the knee joint is negative, the knee is flexing. Many divers begin flexing their knees prior to final contact with the springboard. Is the amount excessive???

b) The hip is defined as the angle between the trunk and the thigh. When the hip joint angular velocity is positive, the hip joint is extending. When the hip joint angular velocity is negative, as just prior to last contact, the hips are flexing.

c) Compare the beginning of knee extension and hip flexion with maximum depression of the springboard (indicated by the vertical line).

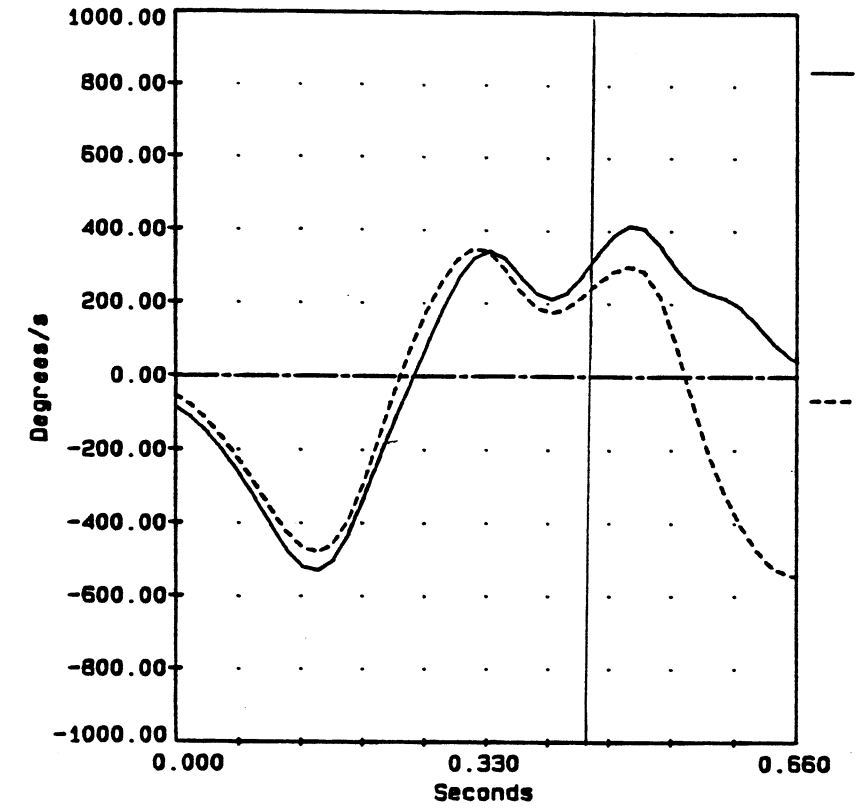
Angular Velocity of the Shoulder and Trunk

The angular velocity-time patterns of the shoulder and trunk are compared on the same graph. The units of angular velocity are degrees/second.

a) The trunk is defined by a line from the hip to mid-neck at the level of the 7th cervical vertebra.

b) Trunk angular velocities which are positive (above the zero line) indicate that the trunk is rotating backwards (as in a back somersault). If the trunk angular velocity remains on or near the zero line, the trunk is maintaining a nearly constant position. Consult the stick figure sequence to see what this position is. Trunk angular velocities which are negative (below the zero line), as is the case prior to last contact, indicate that the trunk is rotating forward in the direction of an inward somersault.

c) The shoulder is defined as the angle between the upper arm (nearest the camera) and the trunk.



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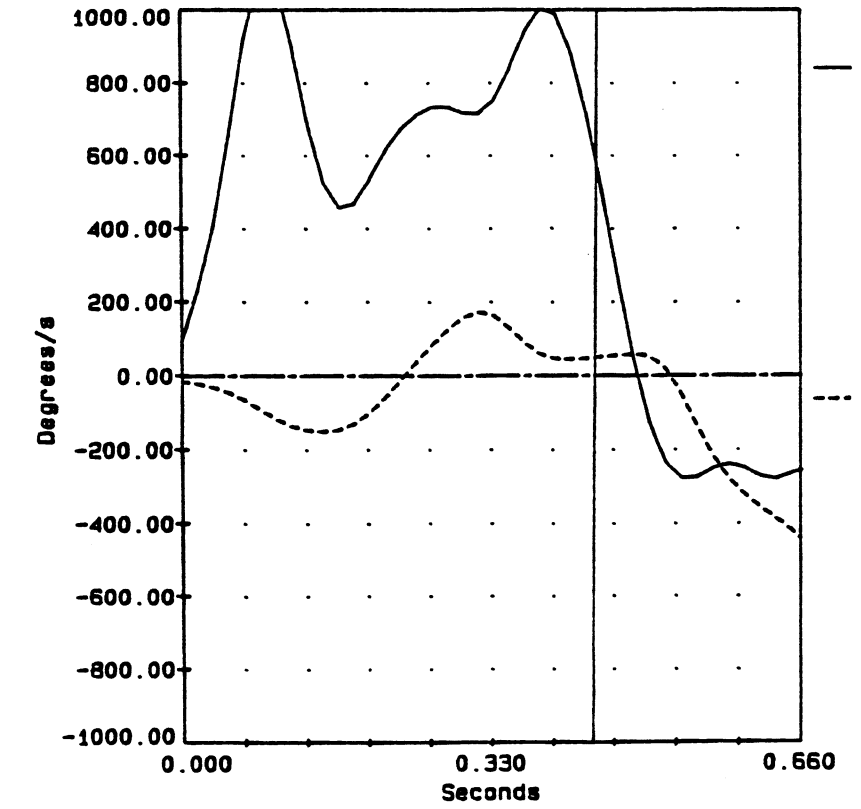

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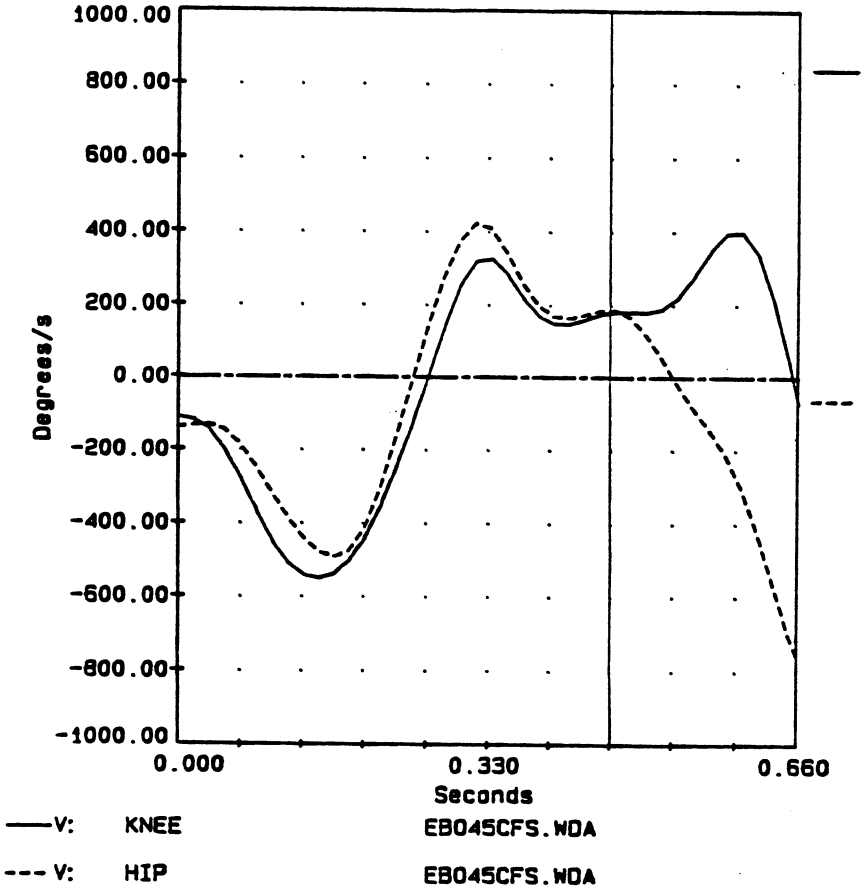
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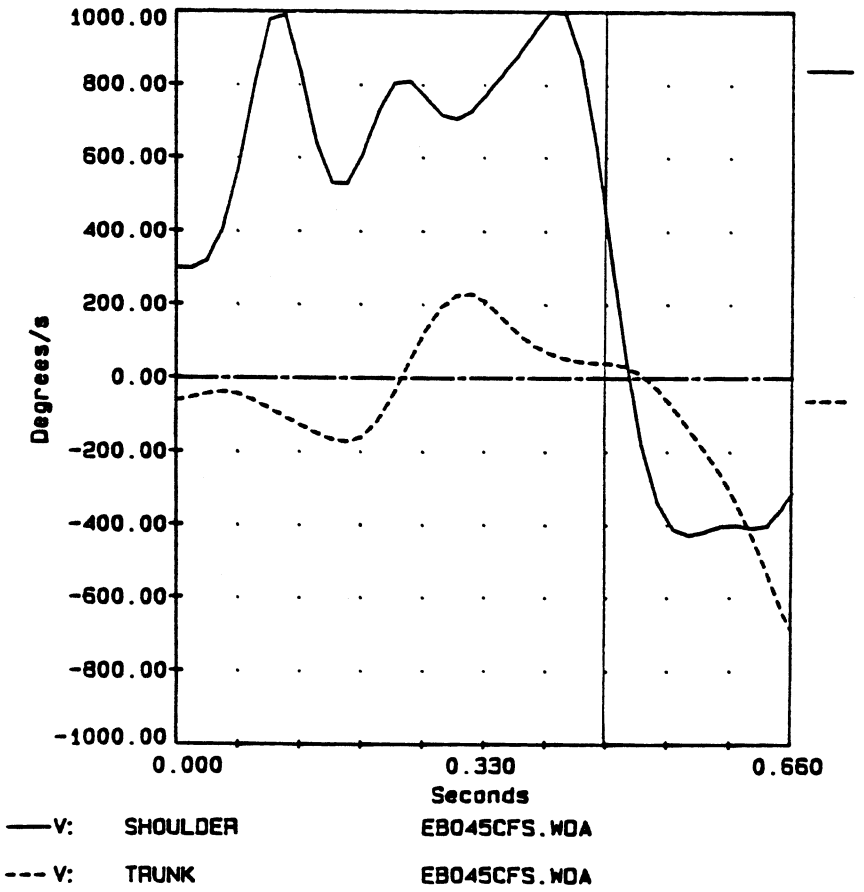
—— V: KNEE EB045CFS.WDA
--- V: HIP EB045CFS.WDA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Seconds
—— V: SHOULDER EB045CFS.WDA
--- V: TRUNK EB045CFS.WDA

d) If the shoulder angular velocity is positive (above the zero line), this indicates that the arms are swinging upward with respect to the trunk. If the shoulder angular velocity is negative (below the zero line), the arms are swinging downward with respect to the trunk. Note where the direction of the armswing changes in relation to maximum depression of the springboard (indicated by the vertical line).

e) Because the arms are frequently out of the major plane of the motion near the beginning of the take-off, their angle cannot be measured accurately during this period from the single camera view with which we are working. This problem, if present, is evident in the stick figure sequence. If the arms are coming out toward the camera, they appear to be shorter in length than later in the swing. Consequently, shoulder angular velocities may appear falsely high near the beginning of the take-off. If so, please disregard this region of their angular velocity curve.

Inter-Dive/Diver Comparison

Because the scales are consistent across divers, one can be compared directly with another. Remove the desired pages from the report. Place one on top of the other, align the axes and hold up to the light (the latest in 'hi-tech' data comparison).

Back Take-offs

The stick figure sequence corresponds to the velocity graphs provided for each diver. The final figure shown is last contact (even if by the toe nails!) with the springboard. The small square near the hip represents the position of the centre of gravity.

The solid vertical line in all three graphs indicates the instant of maximum springboard depression.

Vertical Velocity of the CG and Board Tip

Graph 1, below the stick figure sequenence, shows the vertical velocity of the end of the springboard (solid line) and the vertical velocity of the diver's centre of gravity (dashed line). The velocity is given in meters/second (m/s).

When the velocity is positive (above the zero horizontal reference line), the diver or board are moving upward. When the velocity is negative, the diver or board are moving downward.

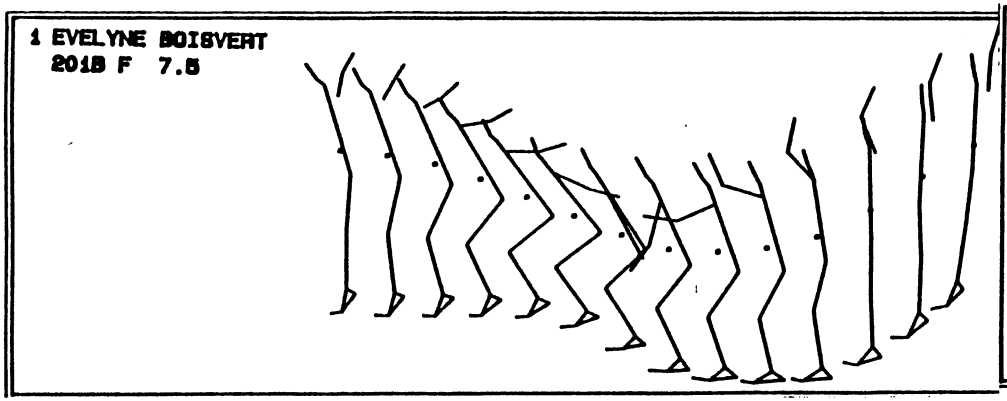
The diver begins to move upward before the board reaches maximum depression - note that the dotted line (diver) is positive while the solid line (board) is just crossing zero.

It is important to examine the relationship between the vertical velocity of the board and of the diver at the end of recoil. The earlier the vertical velocity of the board (solid line) moves above that of the diver (dashed line) and the more difference between these two, the more energy is being LOST by the diver prior to last contact. This is usually accompanied by knee flexion prior to leaving the board as evident in the stick figures.

Angular Velocity of the Knee and Hip

Graph 2, at the top of the second page for each diver, shows the angular velocity (in deg/s) of the knee (solid line) and hip (dashed line) angles.

When these curves are positive (above the zero line), they indicate that the respective joints are extending. When they are negative, they indicate that the joints are flexing. Thus in the 205B take-off both the hips and knees initially flex in prepration for pushing the board down. As the board is depressed, they extend and continue to extend during at least the first part of recoil (positive curves).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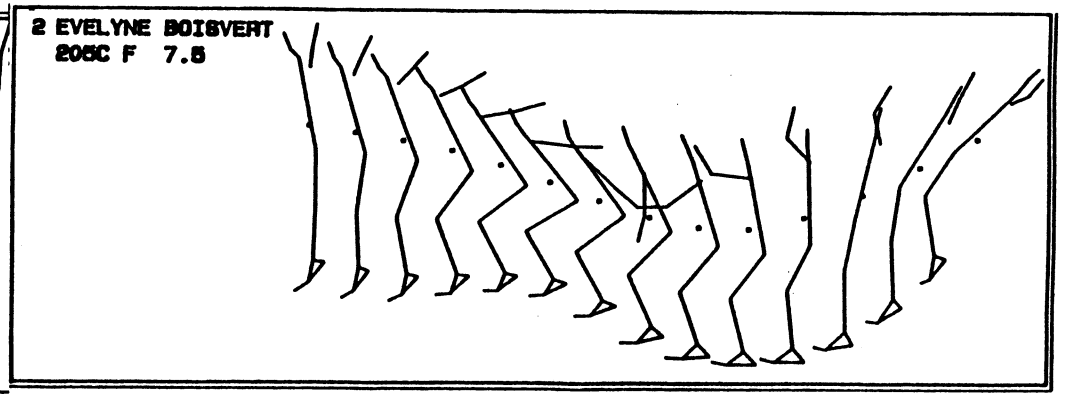
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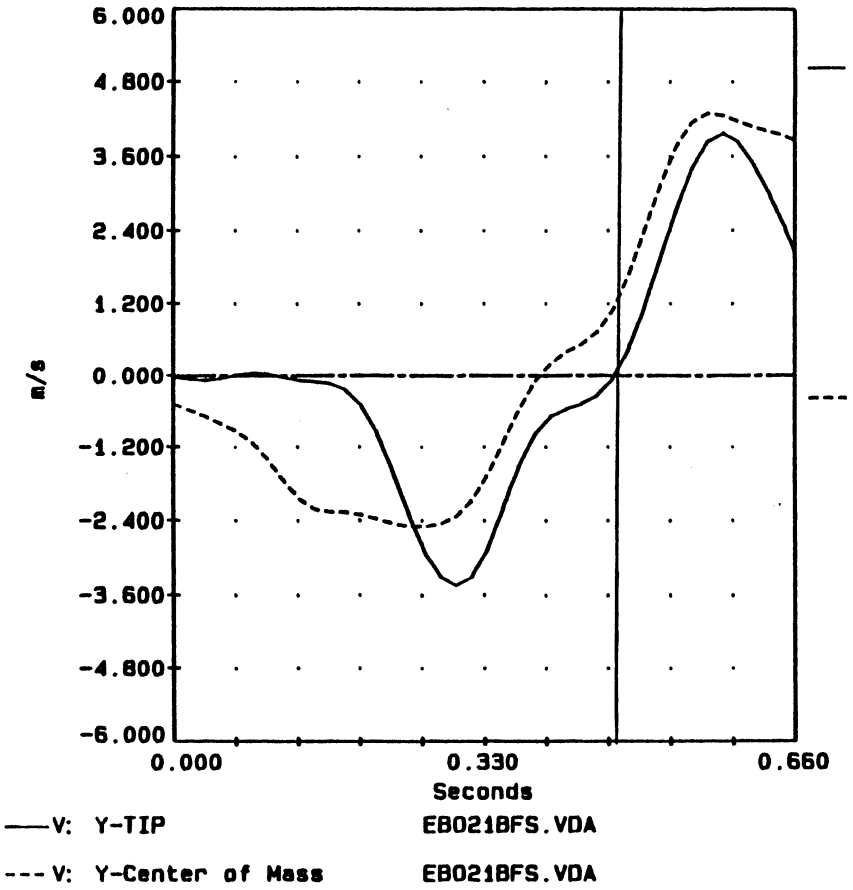
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m/s
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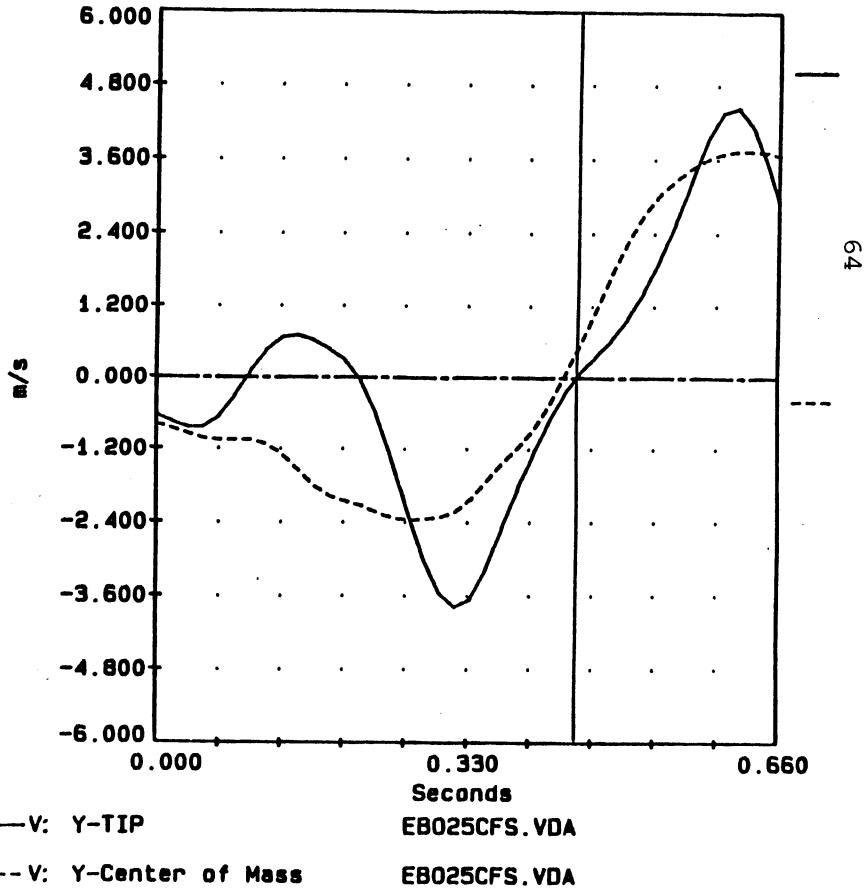
Seconds
—V: Y-TIP EB021BFS.VDA
---V: Y-Center of Mass EB021BFS.VDA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-6.000
m/s
0.000
0.330
0.660
Seconds
—V: Y-TIP EB025CFS.VDA
---V: Y-Center of Mass EB025CFS.VDA

Toward the end of recoil, differences in performances are evident in these graphs. In the case of all four Canadian women executing a 205C, both the hip and knee joints begin to flex prior to last contact with the board. In the case of the 205B, the hips of the Canadian divers and Kent Ferguson (USA) were already flexing prior to last contact (dashed line negative - below the zero horizontal reference) whereas the hips of their other international competitors were approaching zero angular velocity and have not yet begun to flex.

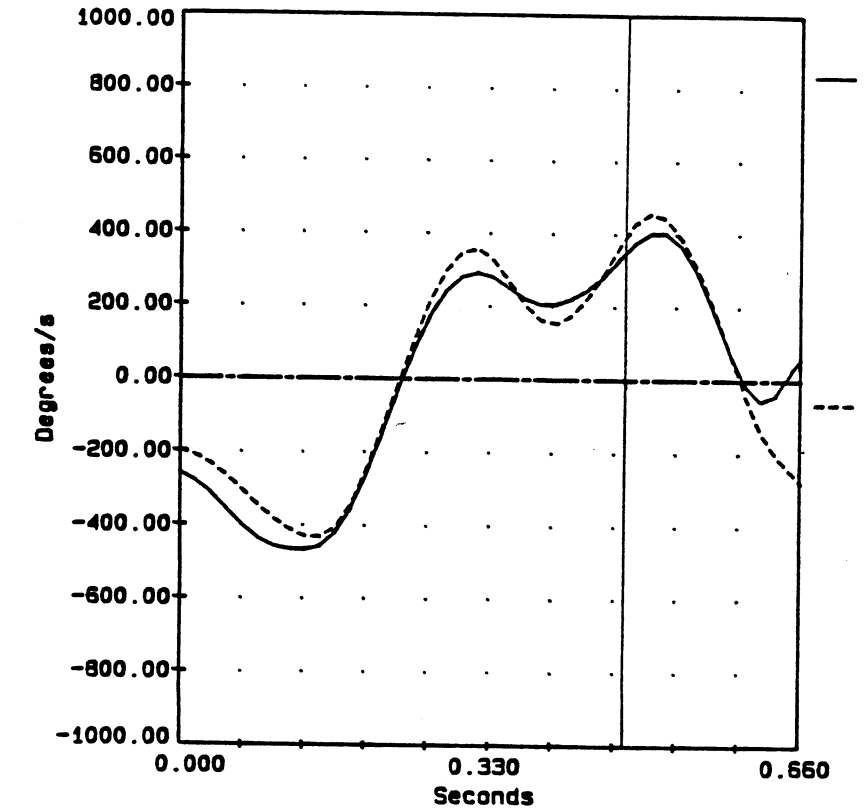
Angular Velocity of the Shoulder and Trunk

Graph 3, at the bottom of the second page for each diver, the shoulder angle is measured between the trunk and the upper arm assuming both are in the plane of the diver's motion. The trunk angle is measured with respect to the vertical and, unlike the hip, knee and shoulder, is an 'absolute' (rather than a 'relative' or 'included' angle).

Caution must be exercised when attempting to interpret the shoulder angular velocity graphs because the diver's arm is frequently out of the major plane of the motion at the beginning of the take-off and also at the end. Consequently, the angular velocities which are calculated may be of unrealistic magnitudes and even go off the scale. Therefore, it is best to ignore the shoulder angular velocities at the beginning and end of the takeoff.

When shoulder angular velocities (solid line) are positive, the arms are singing forward as is the case from the beginning of the take-off to at least part way through recoil if not throughout the entire recoil period. When shoulder angular velocities are negative, the arms have revered their direction of motion and are rotating back toward the legs.

A positive angular velocity of the trunk indicates that the trunk is rotating in the direction of a backward somersault whereas a negative trunk angular velocity signifies that the trunk is rotating in the direction of a forward somersault.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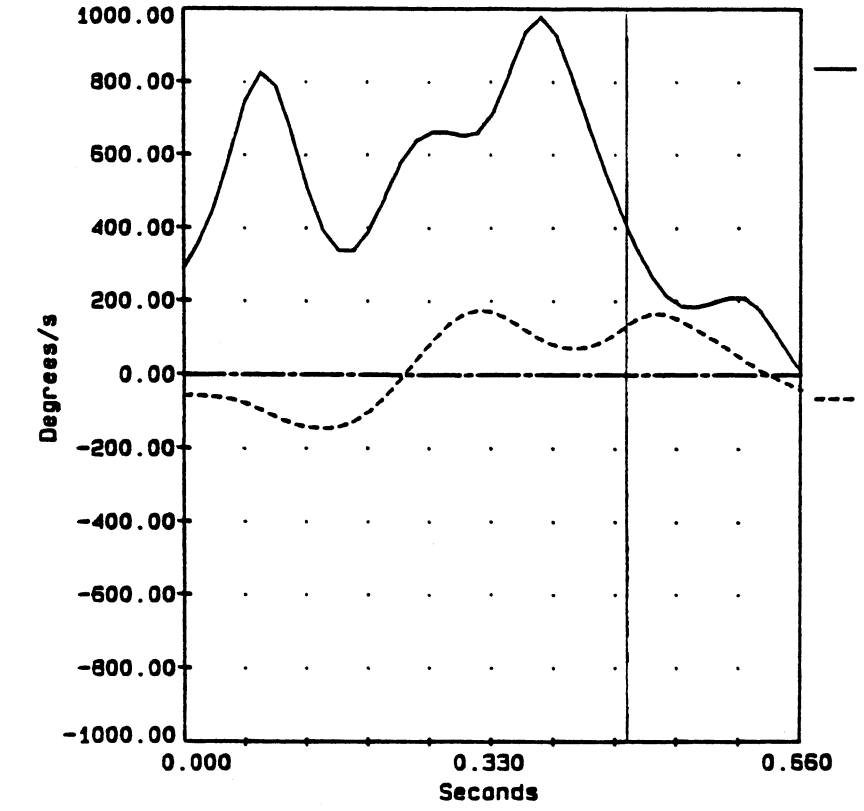
Seconds
—— V: KNEE EB0218FS.WOA
--- V: HIP EB0218FS.WOA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Degrees/s
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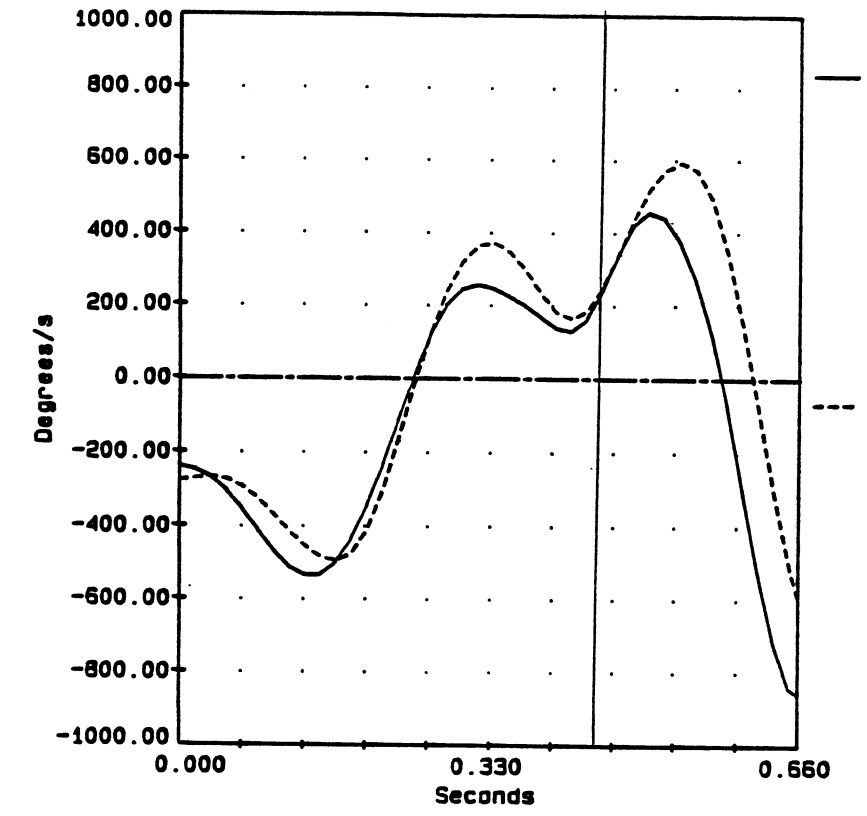
Seconds
—— V: SHOULDER EB0218FS.WOA
--- V: TRUNK EB0218FS.WOA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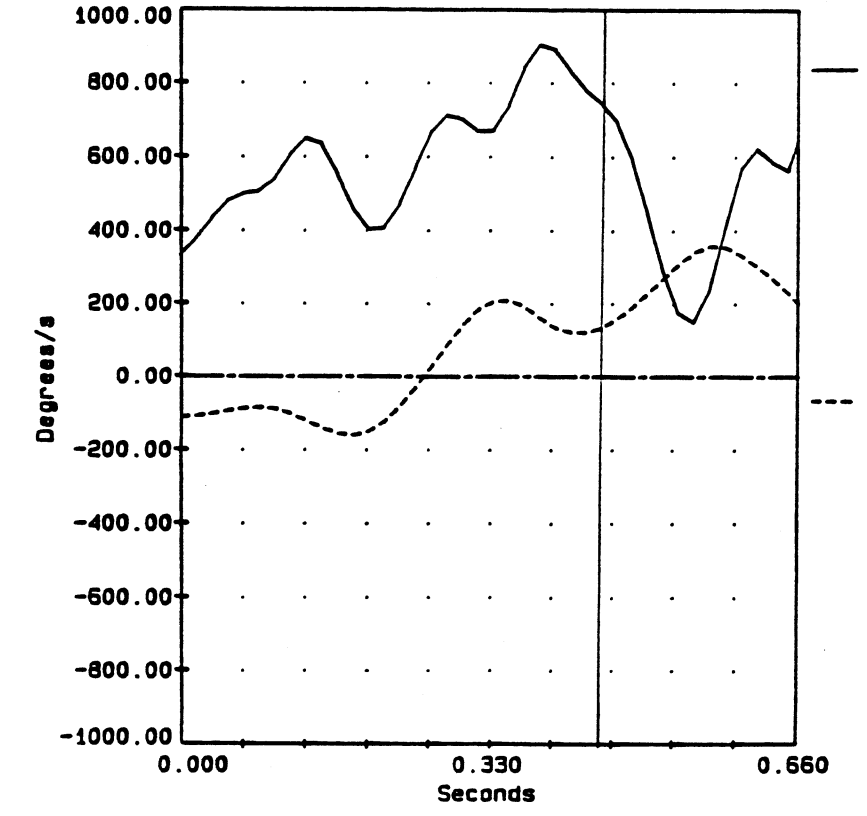
Seconds
——V: KNEE EB025CFS.WDA
--- V: HIP EB025CFS.WDA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Degrees/s
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0.660
Seconds
——V: SHOULDER EB025CFS.WDA
--- V: TRUNK EB025CFS.WDA

Reverse Take-offs

Vertical Velocity of the CG and Board Tip

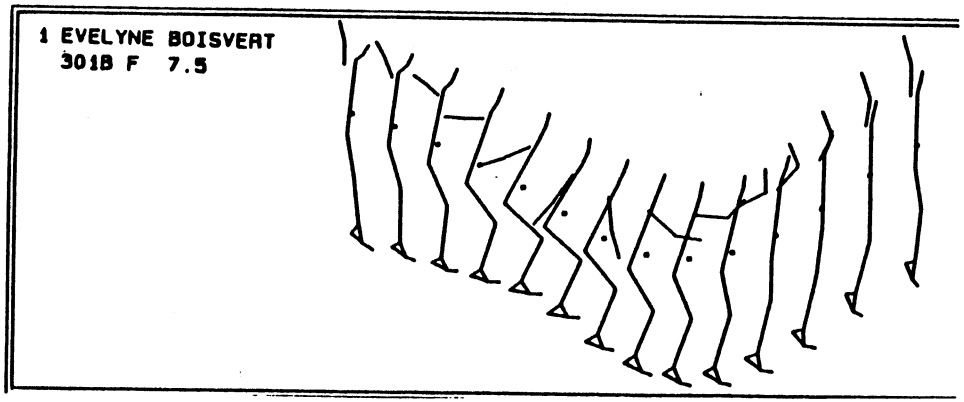
In the case of reverse take-offs, the instant of initial contact with the board following the hurdle is designated by a vertical dashed line. Thus approximately the first third of the graph is indicative of the end of the hurdle. Between the vertical dashed and the vertical solid line, the springboard is being depressed. The last section of the graphs (following the vertical solid line) is associated with recoil.

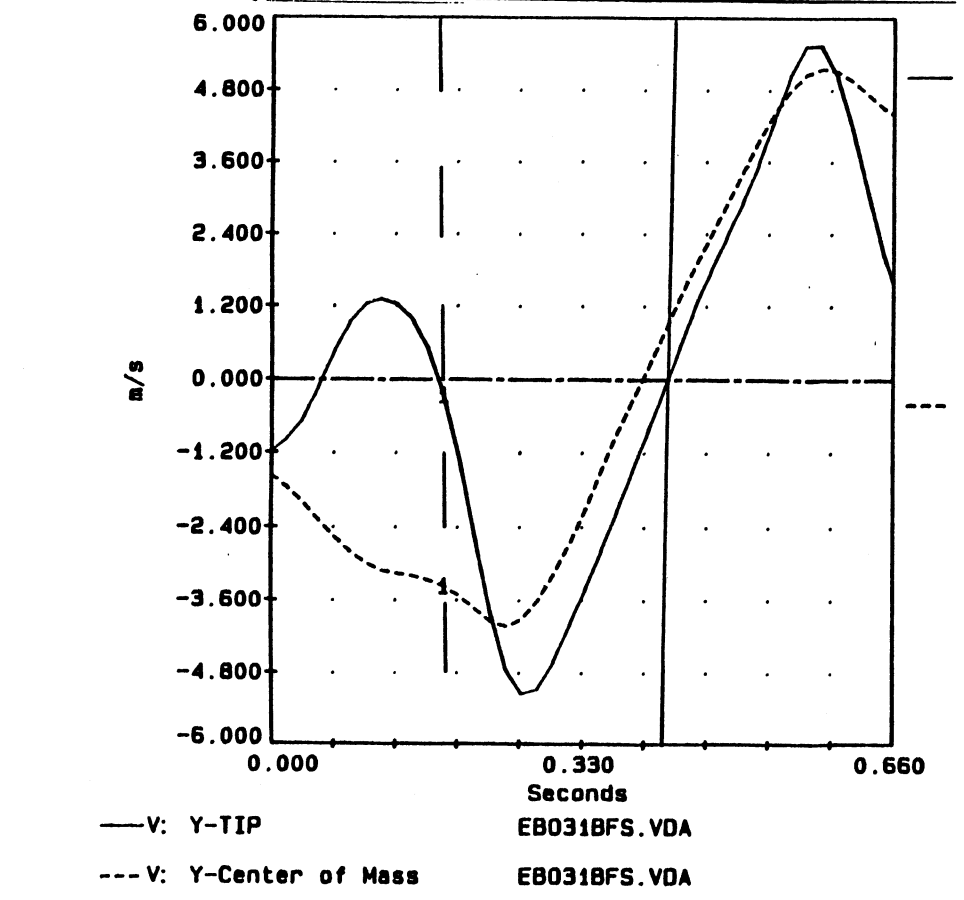
The diver's downward velocity at the end of the hurdle can be assessed by reading the velocity value at the intersection of the vertical velocity of the diver's centre of gravity (dashed line) and the vertical dashed line (initial board contact). The more negative this value, the further the diver has dropped in the hurdle.

Angular Velocity of the Shoulder and Trunk

Because the diver is rotating in the opposite direction to that of a back take-off and because the trunk angle is measured in absolute terms, a positive trunk angular velocity (as near the beginning of take-off) indicates that the diver's trunk is rotating in the direction of a forward somersault whereas a negative angular velocity (during most of depression and all of recoil) indicates that the diver's trunk is rotating in the direction of a reverse somersault.

Negative angular velocity of the trunk indicates rotation of the trunk in the direction of an inward somersault whereas positive trunk angular velocity specifies that the trunk is rotating in the direction of a backward somersault.


1 EVELYNE BOISVERT
301B F 7.5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m/s
0.000
0.330
0.660
Seconds
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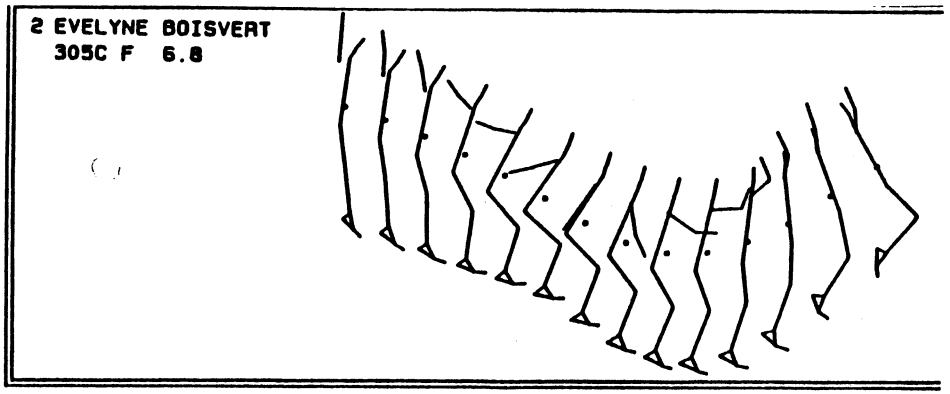
--- V: Y-Center of Mass EB031BFS.VDA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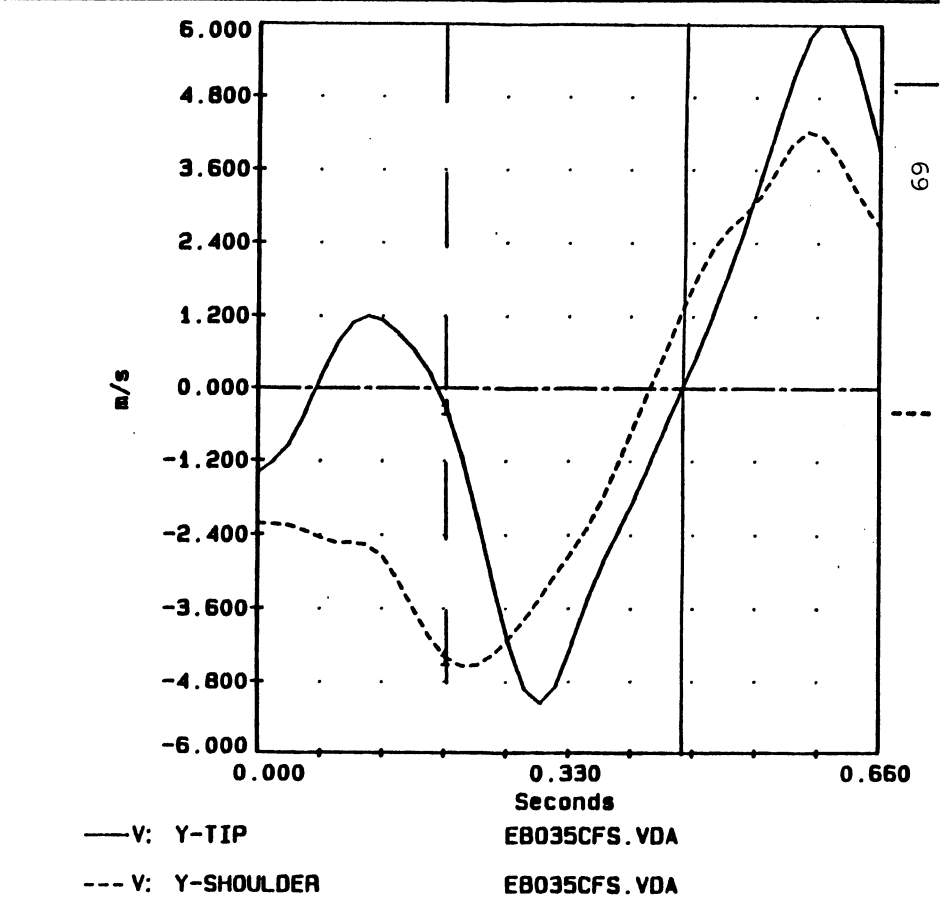
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3.600
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-2.400
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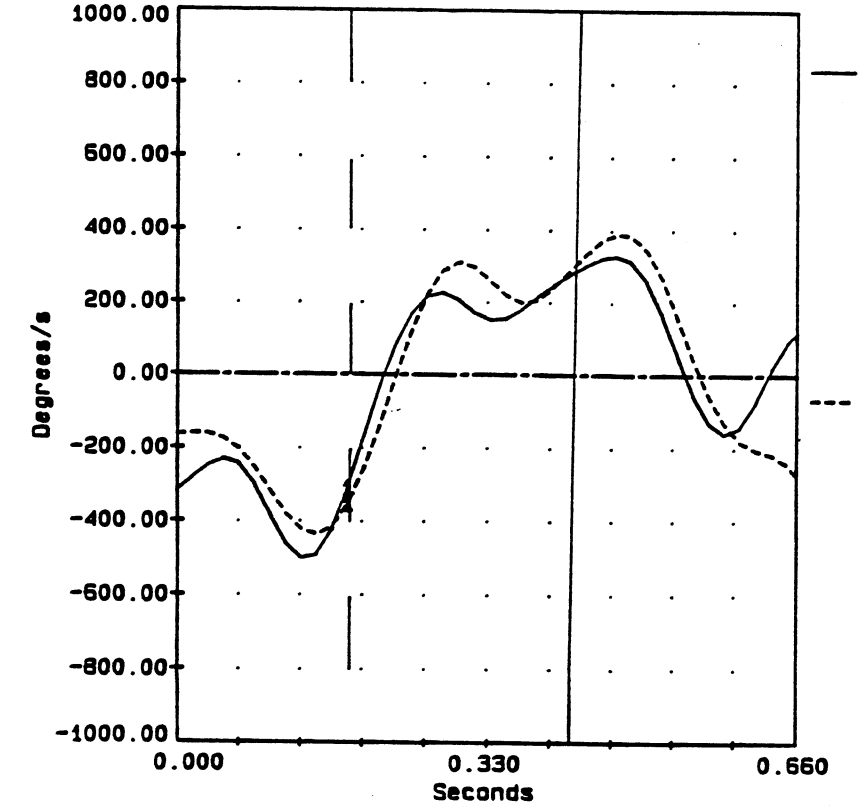

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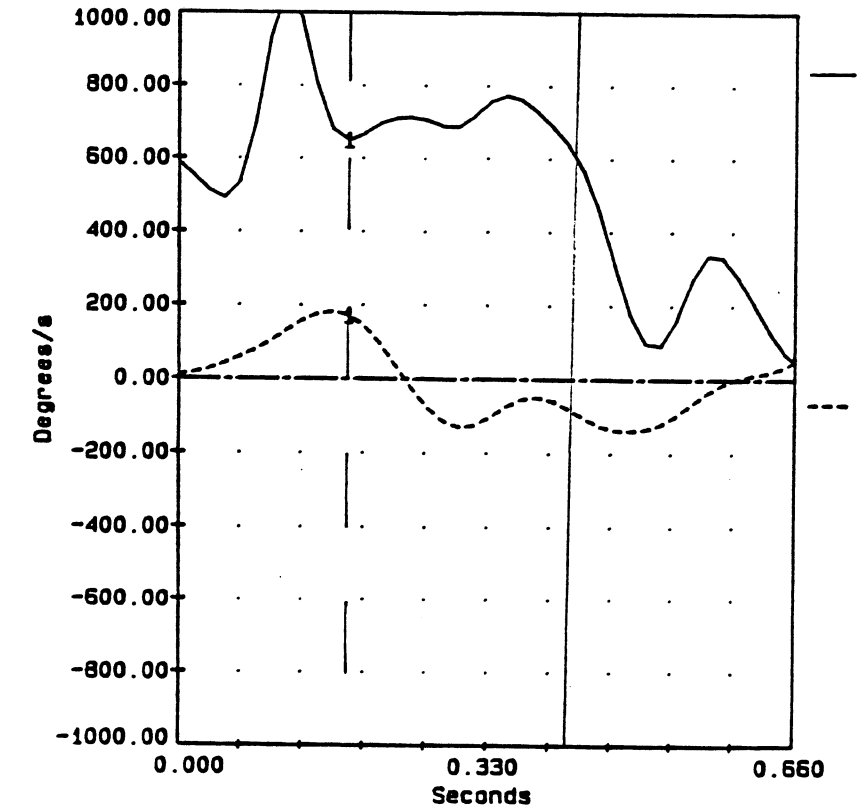

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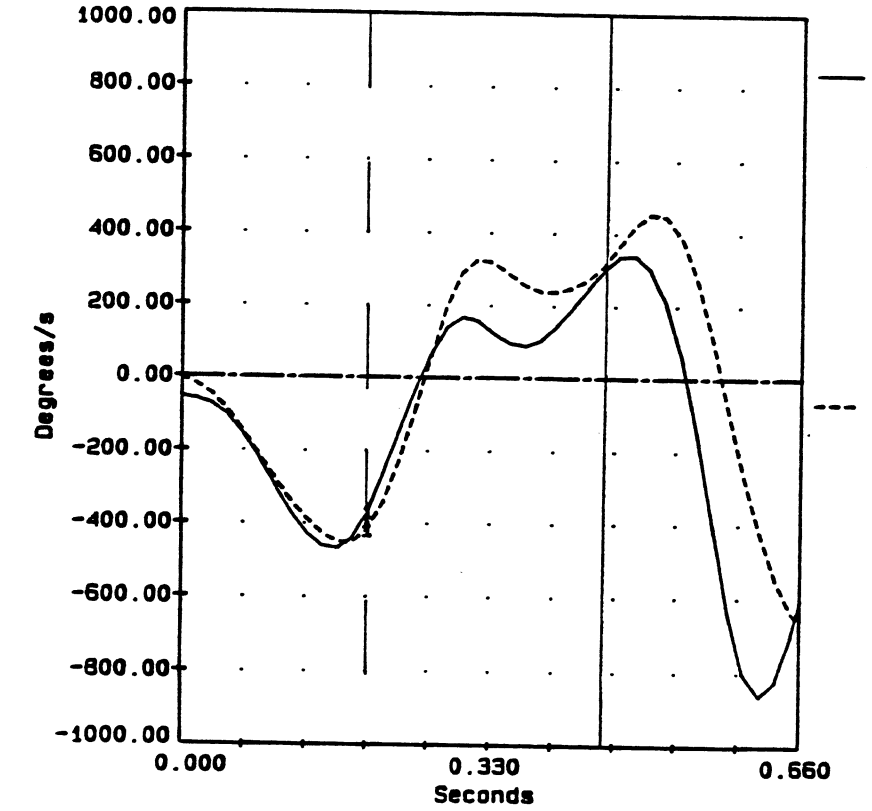

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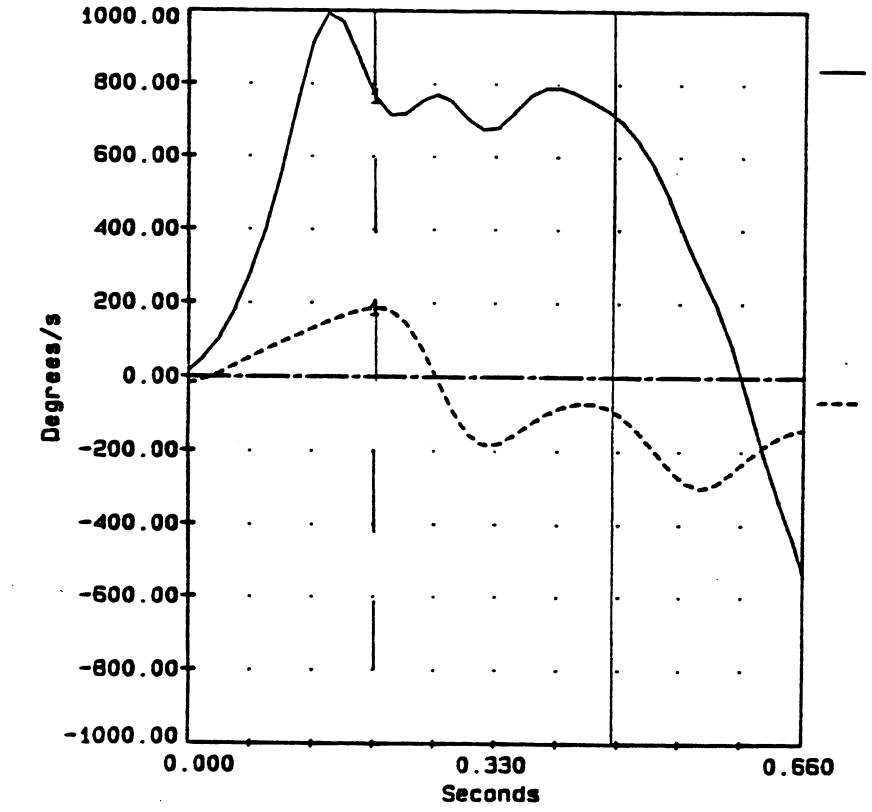

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COACH/DIVER INVOLVEMENT AND EVALUATION

Coach Involvement

In the original proposal, the concern was that performance information on a given diver was the purview of that individual's coach. When this view was presented to the coaches at the beginning of the project, however, they unanimously agreed that they wanted access to the information on all the divers - not just their own. And they in turn were more than willing to share data on their divers with the other coaches. As a result, a composite report on the top 10 3-m male and female competitors was prepared for distribution to all coaches after each meet. Over the period of the grant, one or more reports were sent to a total of 24 Canadian diving coaches:

*Irene MacDonald	BC	Michel Larouche	PQ
Boxi Liang	BC	Don Webb	PQ
#Gun Odegard	BC	*Liz Jack	PQ
Herb Flewwelling	AB	Dany Boulanger	PQ
Glen Music	AB	#Robert Breau	NS
Porfeiro Becerril	AB	*Jill Brewer	NF
Alison Godfrey	AB	Brad Robeson	NF
Brent Grisdale	SK	Donald Dion	CADA
Jim Lambie	MN	Ian Moss	CADA
James Henderson	ON	*John Dickinson	ON
Skip Phoenix	ON	*Mike Gaffney	ON
Randy Sageman	ON	*Grant Hotchkiss	ON

Of this number, six (*) are no longer active in coaching elite Canadian divers and two (#) were interested in the project but were not elite level coaches. As of the 1991 Canadian Winter National Diving Championships, 15 active coaches, including all those coaching the top ten male and female divers in Canada, and 2 administrators (CADA) receive the reports.

In order to formally assess the coaches' perceptions of the effectiveness of the project, two questionnaires were administered, one at the midpoint and the other at the end of the grant period. The response rate on the first which was distributed at the 1989 Summer Nationals was 13 of 16. One of the nonrespondents had retired from coaching and the other two no longer had divers in the top ten and so were not in attendance at the Championships. The response rate on the second questionnaire, distributed at the 1991 Winter Nationals in March, was 15 out of 16. The nonrespondent was a coach who did not show much interest in the project and likely did not make use of the information provided. Copies of both questionnaires with tabulated responses to the various items are included in Appendix E.

The wholehearted support of the coaches for the project was evident in their responses to both questionnaires. This enthusiastic reception included the reactions of established coaches some of whom had hitherto remained aloof from a 'scientific' approach to the analysis of diving performance.

The objectives of the project from the standpoint of the coaches were that they would understand and be able to interpret and apply the information being presented in the reports. The latter was particularly important since, the limited time between the competition and the distribution of the results, was not adequate to undertake detailed analyses of specific dives for each competitor. In addition, it was felt that coaches who understood what was being presented would be in an ideal position to interpret the particular significance of the data for their own divers. Evidence that these objectives were apparently being achieved was furnished in the responses of the coaches to the two evaluative questionnaires.

In answering the first questionnaire, coaches indicated that the components of the report were presented in a clear manner. In both evaluations, the importance of the stick figure sequences was evident. The value of having comparative data on top international divers was also highly rated. The majority of coaches rated the various report components as either good or excellent. No components of the report were considered poor. Nor did any of the coaches suggest that any of the report components should be omitted.

All but one or two of the respondents to both questionnaires indicated that the reports provided them with new information or new insights and also confirmed some things they already knew or suspected. Approximately half of the coaches completing the first questionnaire found the reports useful in providing feedback to their divers and also increased their understanding of some aspects of biomechanics and this number increased to 13 of the 15 respondents on the final questionnaire.

Coaches answering the final evaluative questionnaire overwhelmingly favoured continuation of the study and all wanted to be included should the study be extended. Thus, with one possible exception, all of the coaches of Canada's elite divers have been actively involved in the current project and wish to remain involved.

Diver Involvement

Over the three year period of the grant, the performances of 40 divers (21 women and 19 men) were analyzed. An overview of the scores and placings in the various meets included in the study is presented in the following two summaries, one for the men and the other for the women. The men's scores are based on 11 dives and the women's on 10.

Analysis of the summaries indicated that the divers could be placed into one of the following three categories:

(1) competitive internationally and holding - for the men this would mean meet scores over 600 and for the women, over 500

(2) improving consistently toward the international standard - increases of between 70 and 100 points per meet over the three year period

(3) below or well below the international standard and holding

Need for improved consistency in performance was evident for all divers.

While the effect of the rapid biomechanical feedback project on these divers cannot be isolated because of the complex interaction of factors influencing their performances, input from their coaches would lead us to infer that it was positive. At the end of the current Olympic training cycle (1988-92), the performance histories of these divers will be compared with their counterparts in the preceding Olympic training cycle (1984-88).

General Evaluation

Attrition in coaches and constant juggling for position among the divers over the three year period underlined the importance of having a broad base of participation in a study such as this. To have included only carded athletes and national coaches would have severely limited the impact and restricted the insights gained.

DIVER SUMMARY

MEN'S 3M COMPETITIONS

Name		Birth	COT88 Final	COT88 Place	QWN89 Final	QWN89 Place	WDC89 Team	WDC89 Place	CSN89 Final	CSN89 Place	ECT89 Final	ECT89 Place	DVC90 Team	DVC90 Place	WDT90 Final	WDT90 Place	TWN91 Final	TWN91 Place	WDC91 Team	WDC91 Place
BEDARD	David	1965	602.22	1	598.62	2	574.83	S 4	643.05	1	627.06	2			558.06	8	632.61	1	576.87	Q 3
FLEWWELLING	Larry	1965	545.79	2	621.06	1	561.57	Q 3	524.85	4	622.29	3	511.02	Q 3	588.18	1				
FOURNIER	Bruno	1967	538.77	3	496.35	6									534.72	4				
ROURKE	Mark	1968	525.03	4					572.25	2	632.46	1			576.09	2	617.82	2		
HAYES	Bill	1968	546.45	5	553.02	4			525.39	5	487.14	9			541.32	7				
HIRST	Jeff	1963	522.18	6																
STRIFLER	Lee-Jay	1969	519.15	7							595.71	4								
CHAMCHUK	Perry		492.28	8																
NAPPER	Jason	1972	459.96	9					492.90	6	527.73	6	501.30	13	535.80	6	547.71	6		
VALCARCEL	Pierre	1971	476.67	10					465.91	9	511.95	8			510.75	9	564.48	4		
BARIBAULT	Robert	1965	455.58	11	562.32	3			554.61	3	529.02	5			553.26	3	561.66	5		
LEPOOLE	Chris	1972	426.30	12	477.33	8									539.58	5	566.19	3	552.09	S 4
KOPECKY	Igor	1971			427.23	10									470.28	10	525.60	7		
BLACK	Steve	1966			485.58	7														
ANDERSON	Doug	1970			461.94	9														
BACON	Jeff	1970			526.41	5			505.45	8	538.86	7					503.52	8		
BARRETT	Neil	1972							496.98	7	492.48	10					502.38	9		
MCLEOD	Tommy	1970							481.86	10										
PALMATIER	Trevor	1969															478.92	10		

COMPETITION CODES:

COT88	1988 Canadian Olympic Trials, Nepean, Ontario.
QWN89	1989 Canadian Winter National Championships, Quebec City, Quebec.
WDC89	1989 World Diving Cup (F.I.N.A.), Indianapolis, Indiana.
CSN89	1989 Canadian Summer National Championships, Calgary, Alberta.
ECT89	1989 Canadian Commonwealth Games Trials, Edmonton, Alberta.
DVC90	1990 Dive Canada Competition, Nepean, Ontario.
WDT90	1990 World Diving Trials, Winnipeg, Manitoba.
TWN91	1991 Canadian Winter National Championships, Etobicoke, Ontario.
WDC91	1991 World Diving Cup VII (F.I.N.A.), Winnipeg, Manitoba.

S indicates semi-final
Q indicates quarter-final

DIVER SUMMARY

WOMEN'S 3M COMPETITIONS

Name		Birth	QWN89 Final	QWN89 Place	WDC89 Team	WDC89 Place	CSN89 Final	CSN89 Place	ECT89 Final	ECT89 Place	DVC90 Team	DVC90 Place	WDT90 Final	WDT90 Place	TWN91 Final	TWN91 Place	WDC91 Team	WDC91 Place
DEPIERO	Mary	1968	461.00	1	447.33	Q 3	472.68	1	499.50	1	403.59	S 4	489.21	1	527.64	1	454.83	Q 3
BOISVERT	Evelyne	1970	463.50	2	455.34	Q 4	446.88	4	418.89	5			508.29	2				
BEAVIS	Ann-Marie	1967	457.77	3			421.62	9										
WADSWORTH	Mary	1968	444.48	4			430.72	8	426.93	8								
MONTMINY	Anne	1975	434.91	5			458.70	3	428.31	6								
DACYSHYN	Anna	1969	440.94	6					413.85	9								
LAFOREST	Chantal	1970	432.84	7									415.41	8	401.13	10		
GORDON	Paige	1973	433.86	8			423.66	6	443.19	4	437.43	F 4	461.43	4	496.86	3		
VROOMAN	Kelly	1971	420.50	9														
GIBSON	Aurelie	1969	418.56	10											417.36	8		
BUSH	Barbara	1964					482.37	2	455.79	2								
PELLETIER	Annie	1973					443.43	5	445.11	7			496.95	3	516.27	2	472.38	S 4
PAYNE	Laura	1972					433.35	7	463.62	3					482.10	4		
TURNER	Lianna	1973					417.81	10							421.92	7		
GORDON	Megan	1971							406.74	10								
VANBERKUM	Grace	1973											417.24	5	451.53	5		
MACPHERSON	B.A.	1974											421.56	6	425.19	6		
ENNIS	Pam	1971											392.01	7				
NELSON	Laurie	1972											381.72	9				
DERYKERE	Marni	1973											364.86	10				
SUMMERTON	Sheryl	1973													409.29	9		

COMPETITION CODES:

QWN89	1989 Canadian Winter National Championships, Quebec City, Quebec.
WDC89	1989 World Diving Cup (F.I.N.A.), Indianapolis, Indiana.
CSN89	1989 Canadian Summer National Championships, Calgary, Alberta.
ECT89	1989 Canadian Commonwealth Games Trials, Edmonton, Alberta.
DVC90	1990 Dive Canada Competition, Nepean, Ontario.
WDT90	1990 World Diving Trials, Winnipeg, Manitoba.
TWN91	1991 Canadian Winter National Championships, Etobicoke, Ontario.
WDC91	1991 World Diving Cup VII (F.I.N.A.), Winnipeg, Manitoba.

F indicates final
S indicates semi-final
Q indicates quarter-final

DISSEMINATION OF INFORMATION RELATED TO THE GRANT

During the three-year period of the grant, the Principal Investigator was available for informal consultation with coaches and CADA officials at the 2-3 national/international meets per year at which data were collected. Within three weeks following these meets, reports on the biomechanical analysis of the performances of the top 10 male and the top 10 female competitors were provided to the coaches. Each of these reports of approximately 200 pages in length was accompanied by a composite video of the dives analyzed so that coaches could cross-reference the biomechanical data with the actual performances of their divers. Copies of the reports were also circulated to the CADA Technical Coordinator and to selected members of the Sport Science Support Committee. Based upon the results contained in these reports, the Principal Investigator presented sessions at the 1989 and 1990 symposia for diving coaches and contributed to The Art and Science of Consultation in Sport, a seminar sponsored by the High Performance Committee of CASS on Coaches Day at the 1990 CASS Conference. These three methods of communication (informal consultation at meets, rapid turn-around reports and presentations at coaches and professional meetings) proved to be effective as indicated by widespread support of the project by CADA coaches.

Presentations

Miller, D.I. Review of a decade of biomechanics research in diving. Kinesiology Faculty Seminar presented at Dalhousie University, Halifax, April 12, 1991.

Miller, D.I. Consultation in sport biomechanics: the Canadian diving experience. Invited presentation at the High Performance Sport Symposium of the Canadian Association of Sports Sciences Conference, Minaki, Ontario, September 29, 1991.

Miller, D.I. Rapid feedback in the biomechanics of diving: overview, content and update. Presentation to the 6th Annual Canadian Diving Coaches Symposium, Ottawa, 1990

Miller, D.I. Interpreting biomechanical feedback. Presentation at the 5th Annual Canadian Diving Coaches Symposium, Ottawa, September 28 - October 1, 1989.

Miller, D.I. Biomechanical feedback of elite diving performance. Faculty Seminar Penn State University, October 17, 1989.

Miller, D.I., Pizzimenti, M.A. & Jones, I.C. Taking-off: biomechanics research applied to elite diving performance. Invited lecture presented at the First IOC World Congress on Sports Sciences, Colorado Springs, CO, November 2, 1989.

Thesis

Jones, Ian C. Biomechanical factors affecting height achieved by female competitors during forward and reverse dives. Master of Arts Thesis, University of Western Ontario, 1991.

Publications

Miller, D.I., Jones, I.C., Pizzimenti, M.A., Hennig, E. & Nelson, R.C. Kinematic and kinetic characteristics of 10-m platform performances of elite divers: II - Reverse take-offs. International Journal of Sport Biomechanics 6(3): 283-308, 1990. [This paper includes data from David Bedard's performances at the 1989 FINA Cup Competition in Indianapolis.]

Golden, D. & Miller, D.I. Biomechanics of safe diving. In J. Gabriel (Ed.). U.S. Diving Safety Manual. Indianapolis: U.S. Diving Publications, 1990 (pp. 117-134). [This chapter is based on cumulative research over the years supported by Sport Canada, CADA, USOC, US Diving and the IOC. The manual is being used by the CADA in the education of coaches.]

Miller, D.I., Pizzimenti, M.A. & Jones, I.C. Taking off: Biomechanics research applied to elite diving performance. Proceedings of the First IOC World Congress on Sport Sciences, Colorado Springs, CO., October 28-November 3, 1989 (pp. 249-253).

Reports[1]

Miller, D.I. and Jones, I.C. Biomechanical feedback system for Canada's high performance divers. Report on the 3-m competitions at the 1991 Canadian Winter National Championships held in Etobicoke March 21-24, 1991 and at the World Diving Cup VII held in Winnipeg, May 1-5, 1991. Report submitted to CADA Coaches, May 30, 1991 (256 pp.)

Miller, D.I., Jones, I.C., & Pizzimenti, M.A. Biomechanical feedback system forCanada's high performance divers. Report on the 3-m competitions at the 1991 World Diving Trials held in Winnipeg, Manitoba, November 23-25, 1990. Report submitted to CADA Coaches, December 19, 1990 (210 pp.).

Miller, D.I., Jones, I.C., & Pizzimenti, M.A. Biomechanical feedback system for Canada's high performance divers. Report on 3-m springboard competitions at the 1990 Dive Canada Meet held in Nepean, Ontario, May 2-6, 1990. Report submitted to CADA Coaches, May 29, 1990 (202 pp.).

Miller, D.I., Pizzimenti, M.A., & Jones, I.C. Biomechanical feedback system for Canada's high performance divers. Report on the 3-m springboard competitions at the 1990 Commonwealth Games Trials held in Edmonton, Alberta, December 15-17, 1989. Report submitted to CADA Coaches, January 9, 1990 (185 pp.).

Miller, D.I., Jones, I.C. & Pizzimenti, M.A. Biomechanical feedback system for Canada's high performance divers. Report on 3-m springboard competitions at the 1989 Canadian Summer National Championships, Calgary, Alberta, June 15-18, 1989. Report submitted to CADA Coaches, July 7, 1989 (130 pp.).

Miller, D.I., Pizzimenti, M.A. & Jones, I.C. Biomechanical feedback system for Canada's high performance divers. Report on 3-m springboard competitions at the 1989 FINA Cup, Indianapolis, Indiana, May 3-7, 1989. Report submitted to CADA Coaches, June 14, 1989 (142 pp.).

Miller, D.I., Jones, I.C. & Pizzimenti, M.A. Biomechanical feedback system for Canada's high performance divers. Report on 3-m springboard competitions at the 1988 Canadian Summer Nationals and Olympic Trials, Nepean, August 4-6, 1988 (men's results) and the 1989 Canadian Winter Nationals, Quebec City, February 17-19, 1989 (women's and men's results). Report submitted to CADA Coaches, April 3, 1989 (227 pp.).

Miller, D.I. A study of the feasibility of using ExpertVision to assess springboard diving performance. Final Report to the Canadian Amateur Diving Association, March 30, 1987 (28 pp.).

[1]In the original Sport Science Research proposal for the project, the time schedule was based upon receiving funding June 1, 1989 (the designated start of the grant period) for the purchase of equipment and having the summer months to work on software development and modification while analyzing the 1988 Olympic Trials conducted in August. Unfortunately, the funding was not received until August thereby delaying the ordering and delivery of the various components of the computerized video digitizing and analysis system. Although a video camera was obtained to record the dives performed at the Olympic Trials, the final part of the analysis system was not delivered until the beginning of November. This put the project substantially behind schedule. As a result, it was decided to combine the analysis of the men's take-offs from the Olympic Trials with the report on the 1989 Canadian Winter Nationals held in Quebec City, February 17-19. That report was distributed on April 3, 1989.

Subsequently, reports on the various national and international competitions were sent out by courier to the diving coaches approximately three weeks after the meet. Assurance of funding in advance of the fiscal year for the second two years of the grant period made this possible.

The request to continue this research for an additional three year period (1991-94) so that the Olympic training cycle could be completed and the accumulated data analyzed longitudinally and cross-sectionally was submitted February 6, 1991. Although the budget period was to officially begin April 1st, notification of the continuation of funding was not received until May 3rd and cash flow did not begin until May 22nd (and that was accelerated). This hiatus in funding meant a significant delay in getting reports out to the coaches. Although data had to be (and were) collected during this period when continued funding was uncertain, analysis was necessarily delayed thus somewhat defeating the aim of the project to get feedback to the coaches in a timely manner within three weeks of the competition.

On the basis of these two experiences, it is recommended that notification of grant funding be made no later than the beginning of the designated budget/grant period and if possible a month in advance of the official beginning of the grant period.

SUMMARY AND CONCLUSIONS

The current project, which focused on 3-m springboard take-offs, was designed to gain the interest and hold the attention of the coaches of Canada's elite divers by providing them with rapid and relevant biomechanics feedback on their own athletes. Beginning with the Canadian Olympic Trials in 1988, the 3-m takeoffs of all divers at six national and two international meets were videotaped. The performances of the top 10 male and top 10 female divers in the finals were reduced using a Peak Performance computerized video digitizing system and further processed with custom software. Output conveyed to the coaches included stick figure 'event' sequences of the hurdle and take-off, individual diver cumulative performance summaries, a descriptive statistical analysis of selected biomechanical variable values for each competition, height-rotation relationships in the flight and detailed frame-by-frame analysis of selected takeoffs to produce position and linear/angular velocity-time profiles. The output was provided on 3-hole punched pages to permit coaches to reorganize the data as they saw fit, set up individual progress notebooks for their divers and/or allow them to make comparisons across dives by placing sheets side by side or by superimposing them.

In accordance with the unanimous request of coaches at the outset of the project, a single report containing data from all divers was prepared following each meet. It, along with a composite videotape of the competition, was completed and sent by courier to the coaches approximately three weeks after the particular meet at which the data had been collected. These reports, averaging some 200 pages in length, were distributed to a total of 24 Canadian coaches (5 women and 19 men) with an average of 15 reports going out after each meet.

During the course of the project, the amount and complexity of the information contained in the reports were gradually and progressively increased. Inclusion of the FINA Cup and Dive Canada meets in the study made it possible to obtain comparative information on 22 international divers including some of the best in the world. This kind of feedback was particularly important for coaches as a standard against which to gauge the standing and progress of their divers.

The basic question addressed in the research was whether a feedback system could be designed which would provide timely and meaningful biomechanics

information and which would be used by the coaches of Canada's elite divers to assist them in evaluating the performances of their athletes. It was hypothesized that, given the type of feedback on biomechanical aspects of performance which can be provided with modern computerized video digitizing systems, coaches would be more predisposed to use this information in the training of their divers and, as a result, performances would improve more rapidly than without such feedback.

While it was recognized that such an hypothesis is extremely difficult to test scientifically, attempts were made to evaluate the effectiveness of the biomechanical feedback system through the administration of two evaluative questionnaires to discover whether coaches used the information provided and whether it furnished them with new insights and/or helped to confirm and support what they suspected empirically. Response rates of 13 and 15 out of 16 were obtained on the questionnaires given in the middle and at the end of the study, respectively. In answering the first questionnaire, coaches indicated that the components of the report were presented in a clear manner. In both evaluations, the importance of the stick figure sequences was evident. The value of having comparative data on top international divers was also highly rated. The majority of coaches rated the various report components as either good or excellent. All but one or two of the respondents to both questionnaires indicated that the reports provided them with new information or new insights and also confirmed some things they already knew or suspected. Approximately half of the coaches completing the first questionnaire found the reports useful in providing feedback to their divers and also in increasing their understanding of some aspects of biomechanics. This number increased to 13 of the 15 respondents on the final evaluation. This information, plus the enthusiastic reception we received in both informal contacts with coaches and also more formal coaching symposia settings, led us to believe that we have begun to make a difference in their attitudes toward biomechanics.

It was therefore concluded that the feedback system developed in the study and designed to convey meaningful and timely biomechanical information to coaches was effective in gaining their interest and in increasing their understanding of the application of biomechanics to diving performance. With perhaps one exception, the feedback was employed and supported by all the

coaches of Canada's top divers. While the effect of the rapid biomechanical feedback project on the divers could not be isolated because of the complex interaction of factors influencing dive execution, input from their coaches inferred that it was positive. A comparison of the performance histories of these divers at the end of the current Olympic training cycle (1988-92), with those their counterparts in the preceding cycle (1984-88) may shed additional light on this question.

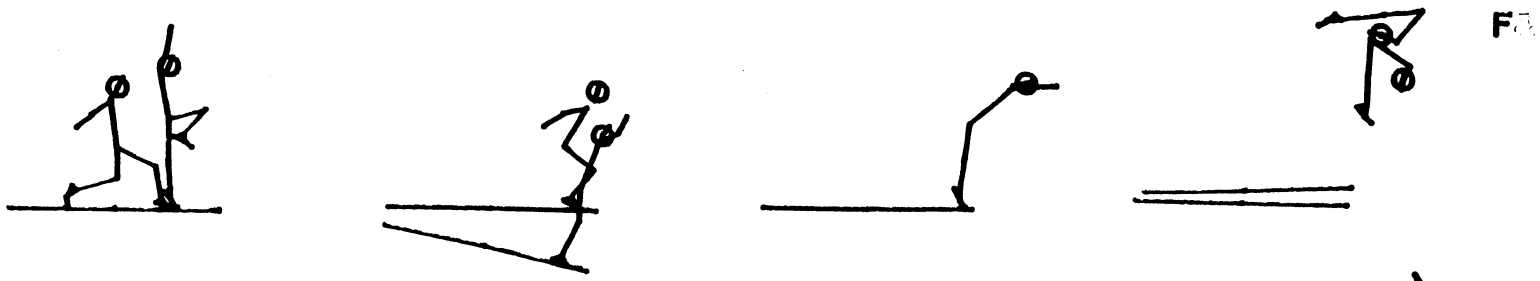
To our knowledge, the nature and scope of the present project are unique in the sport of diving internationally and in Canadian sport in general. Over the course of data collection (1988-91), approximately 5,000 dives performed at eight inter/national competitions have been videotaped and about 2000 of these subjected to biomechanical analysis. This extensive data base should provide an unequalled resource for biomechanics research on diving with the available data being amenable to both cross-sectional and longitudinal designs. Moreover it will provide essential 'Canadian content' which can be used in the production of effective instructional materials for diving coaches and instructors. Finally, the experience gained in bridging the gap between biomechanics research and diving coaches should be value to administrators and coaches of other individual sports contemplating the undertaking of a similar program.

APPENDIX A

STICK FIGURE 'EVENT' SEQUENCES

ANNIE PELLETIER: Canadian Winter Nationals, 1991

103B.



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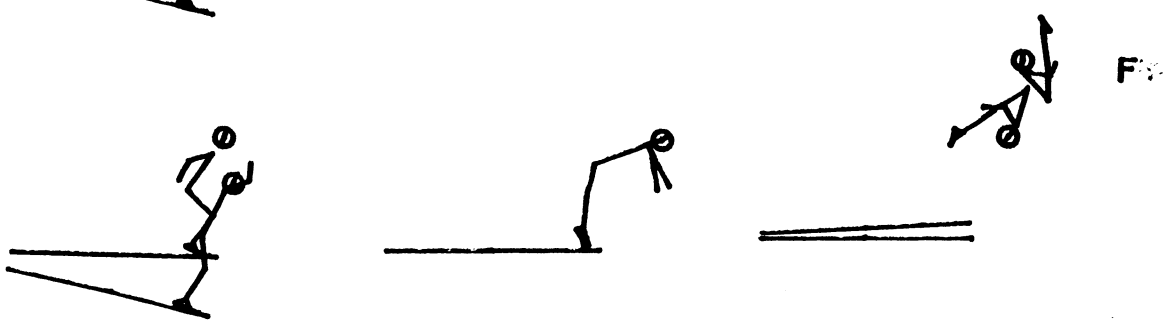

ANNIE PELLETIER: Canadian Winter Nationals, 1991

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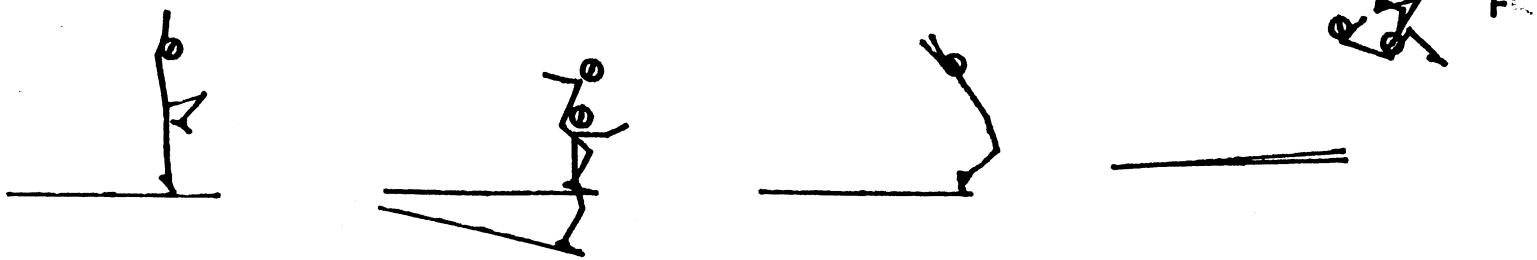

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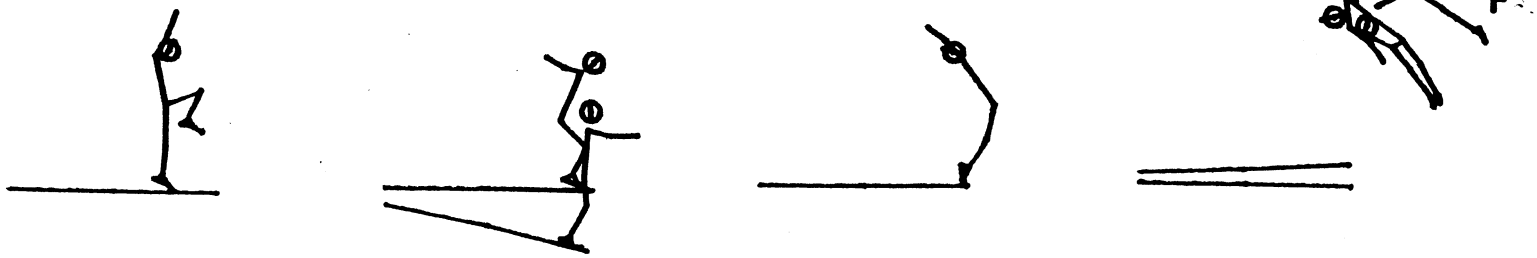

ANNIE PELLETIER: Canadian Winter Nationals, 1991

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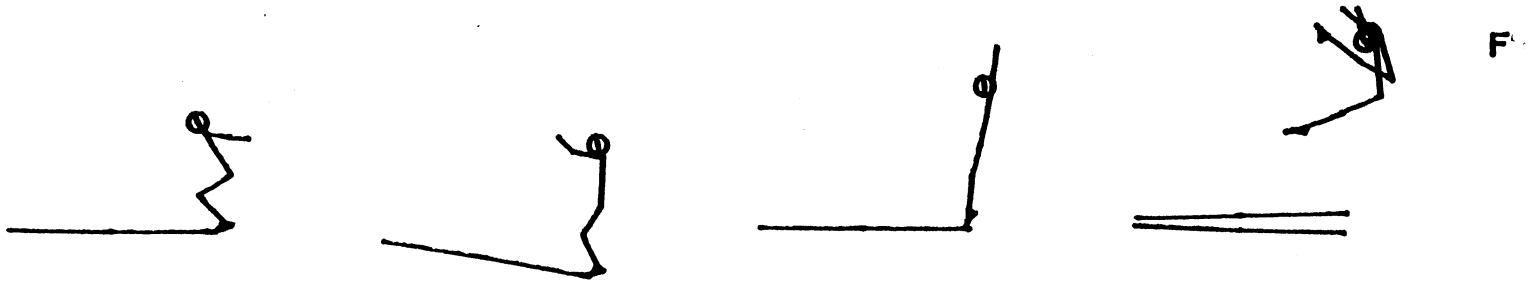

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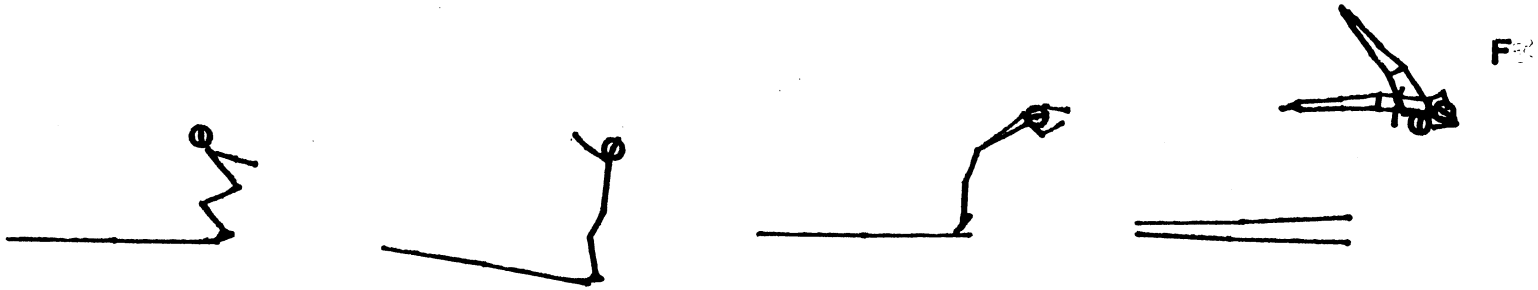


ANNIE PELLETIER: Canadian Winter Nationals, 1991

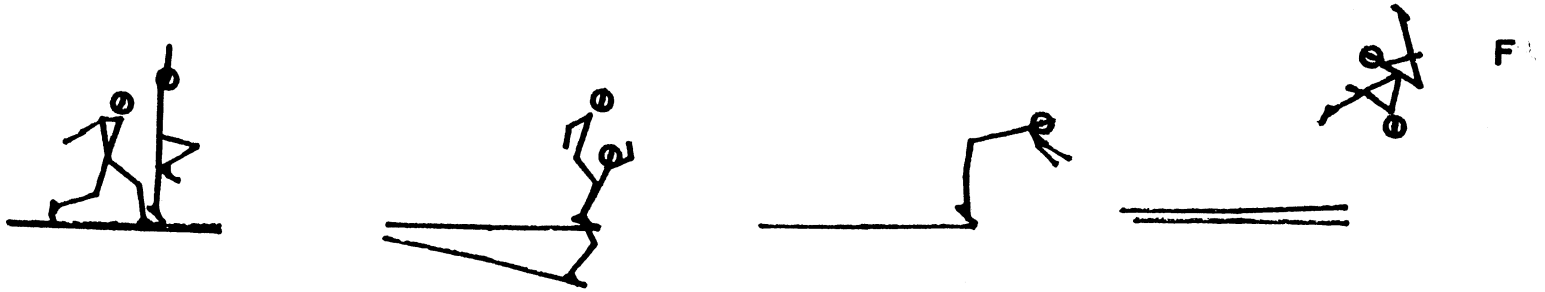
403B.

405C.

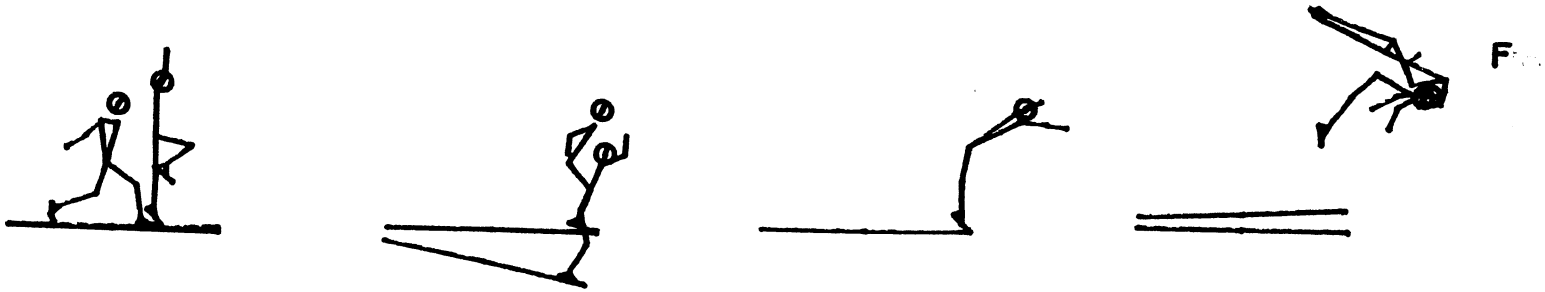
PAIGE GORDON: Canadian Winter Nationals, 1991

101C.

105B.

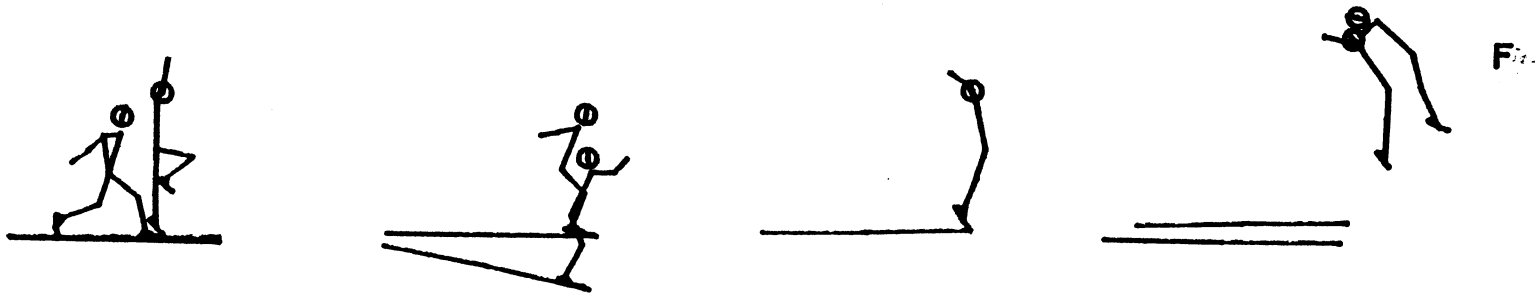


5132D.



PAIGE GORDON: Canadian Winter Nationals, 1991

301A.



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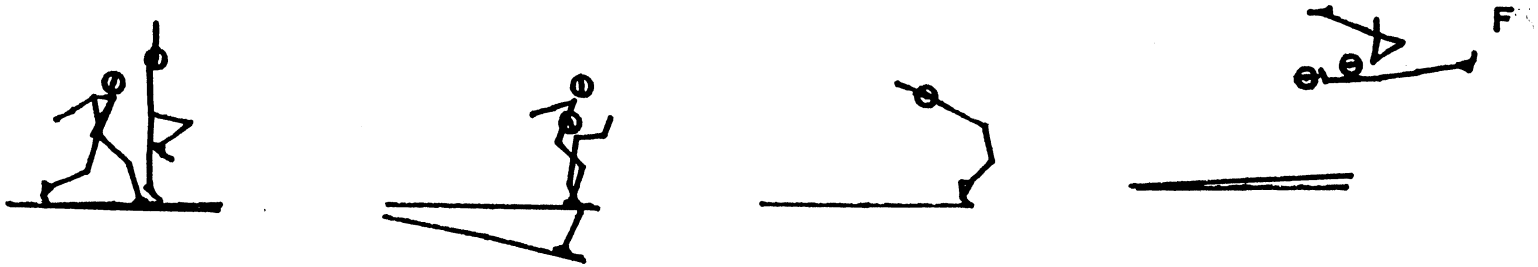


5335D.

PAIGE GORDON: Canadian Winter Nationals, 1991

201A.

205B.

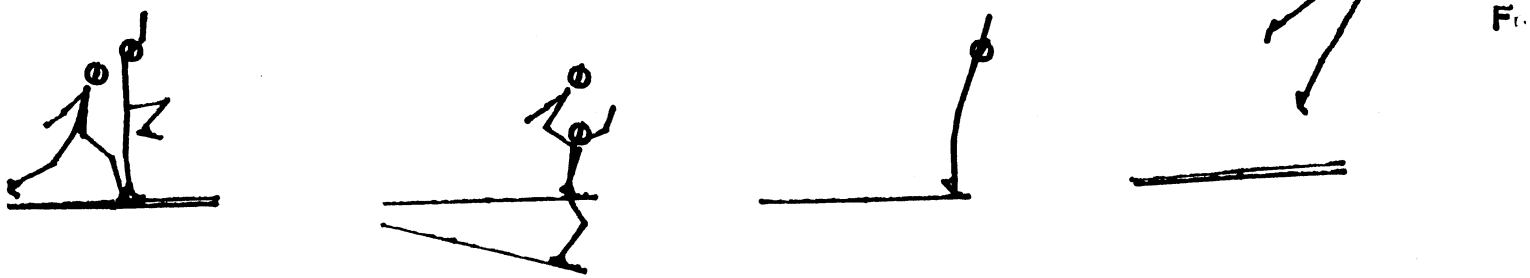
403B.

405B.

T6

DAVID BEDARD: Canadian Winter Nationals, 1991

101A.



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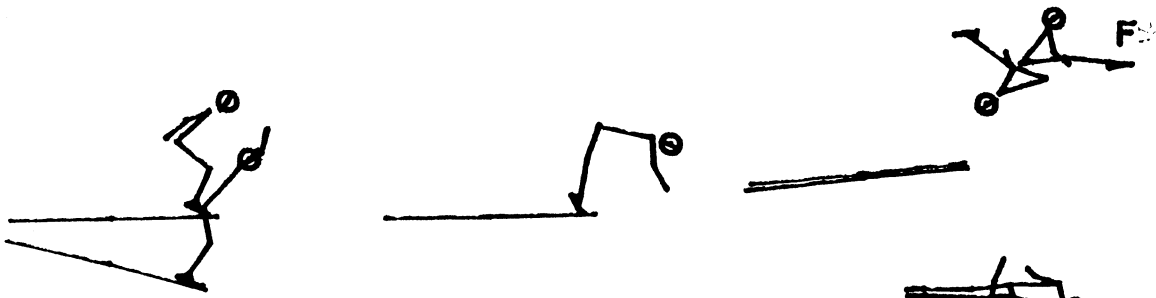

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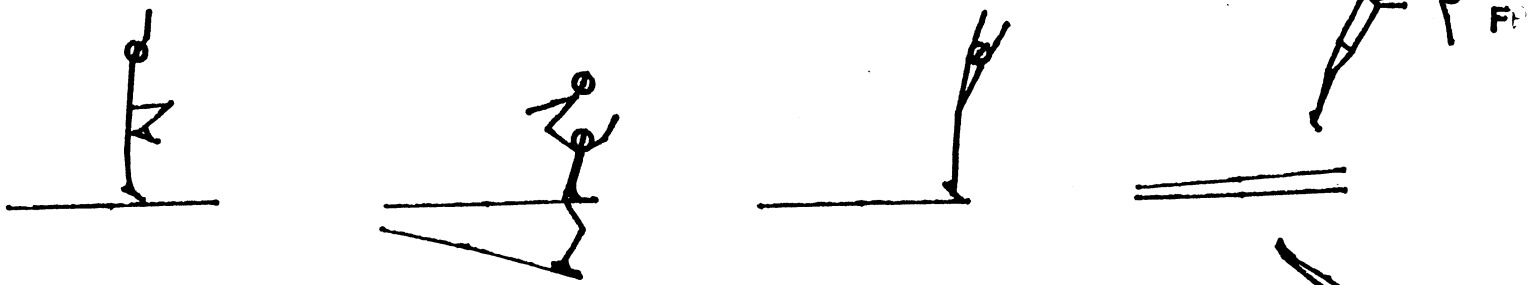

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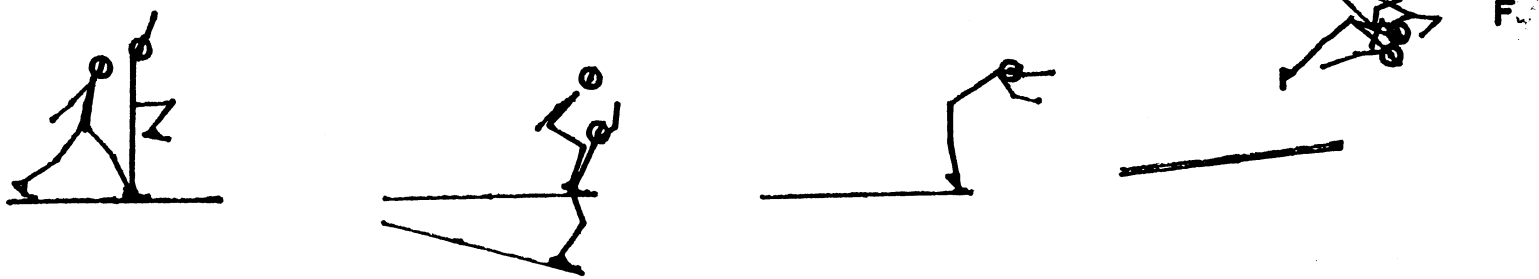
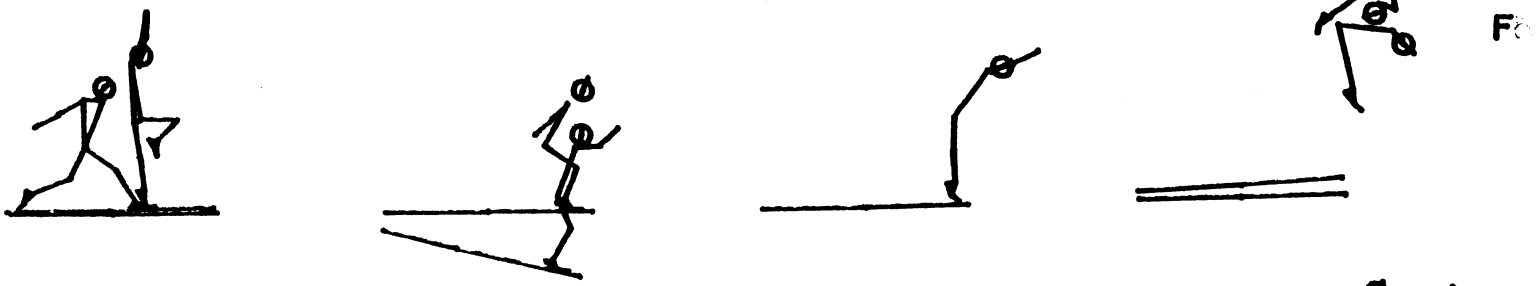


MARK ROURKE: Canadian Winter Nationals, 1991

103B.



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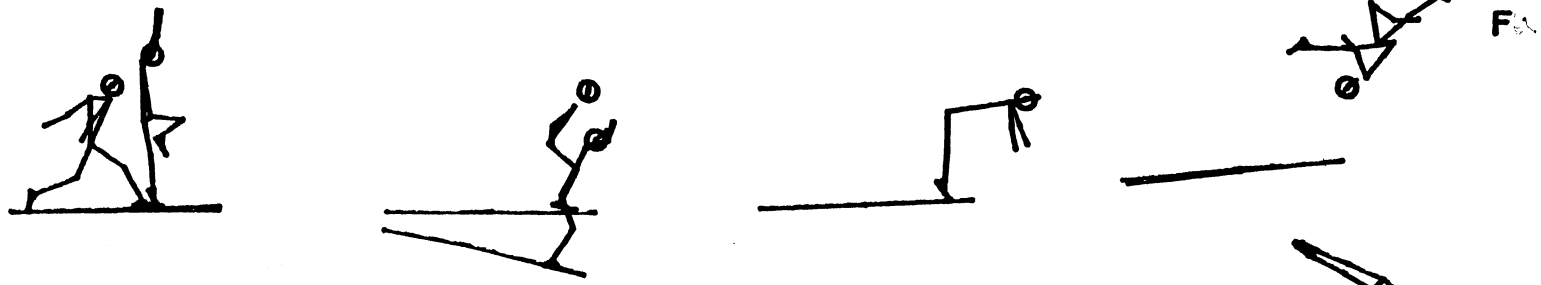

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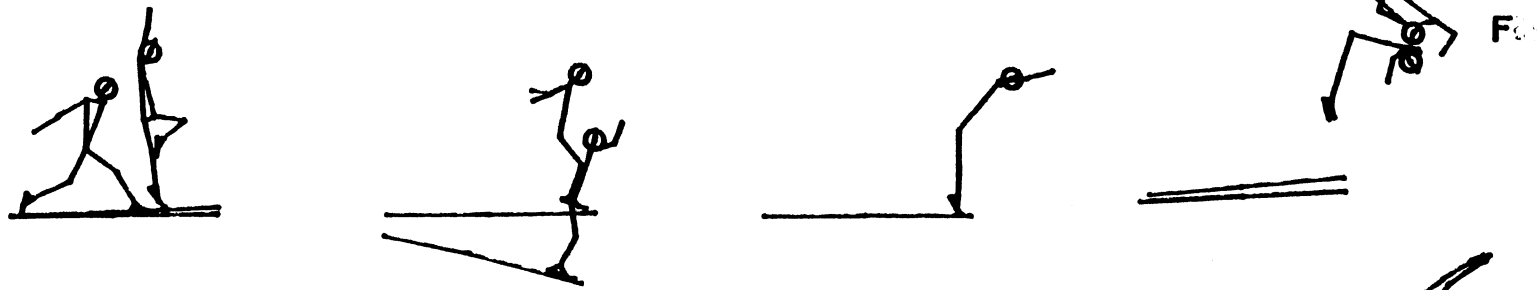

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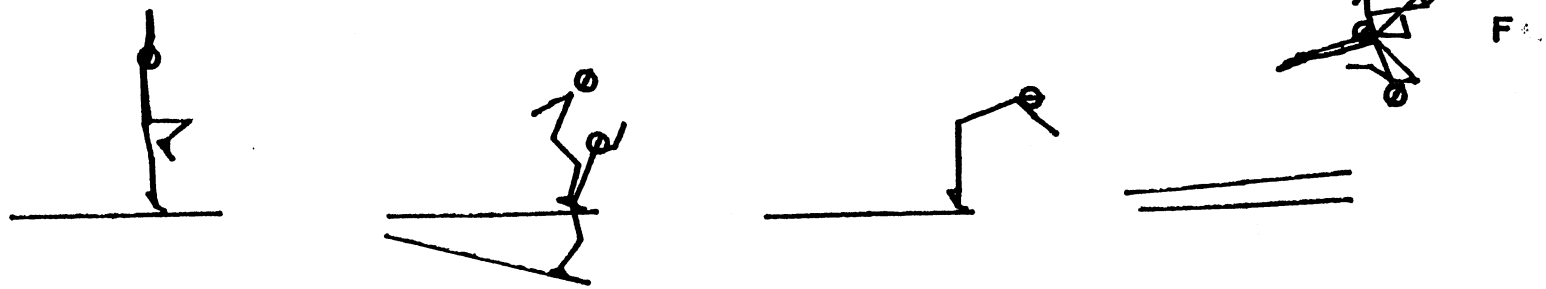
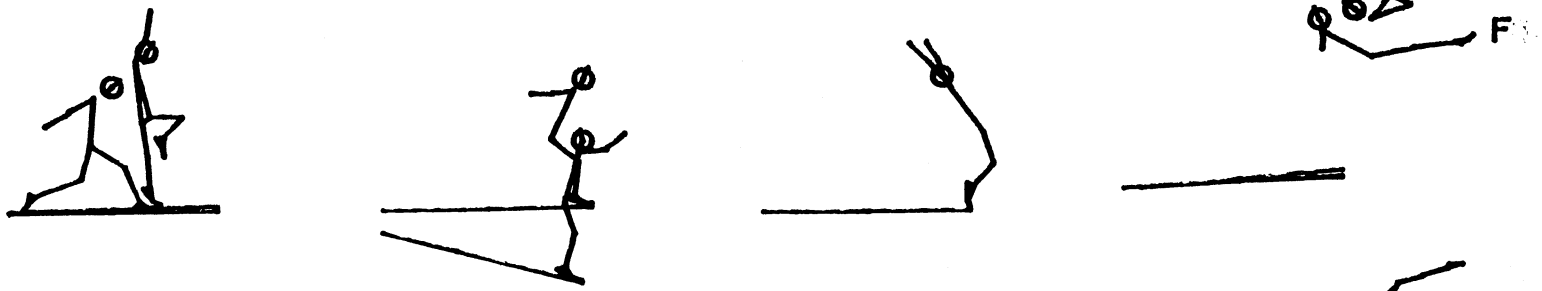


MARK ROUKE: Canadian Winter Nationals, 1991

301B.

305B.



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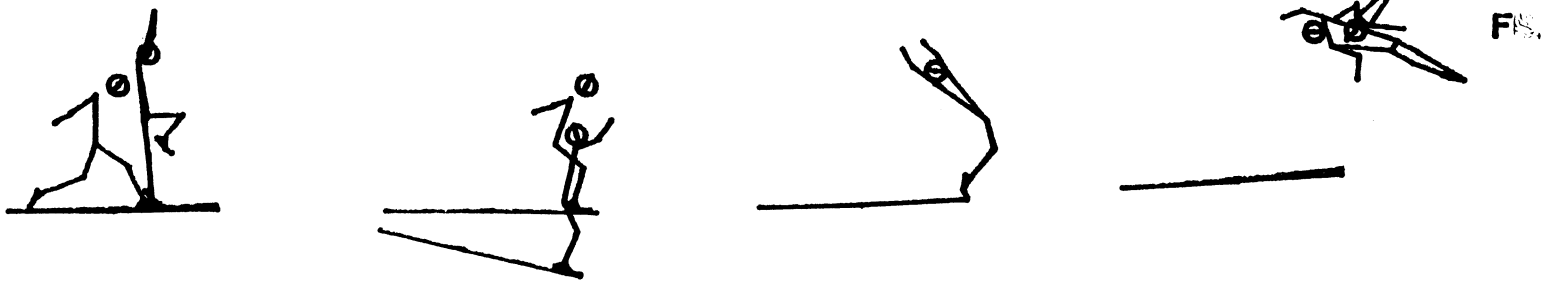
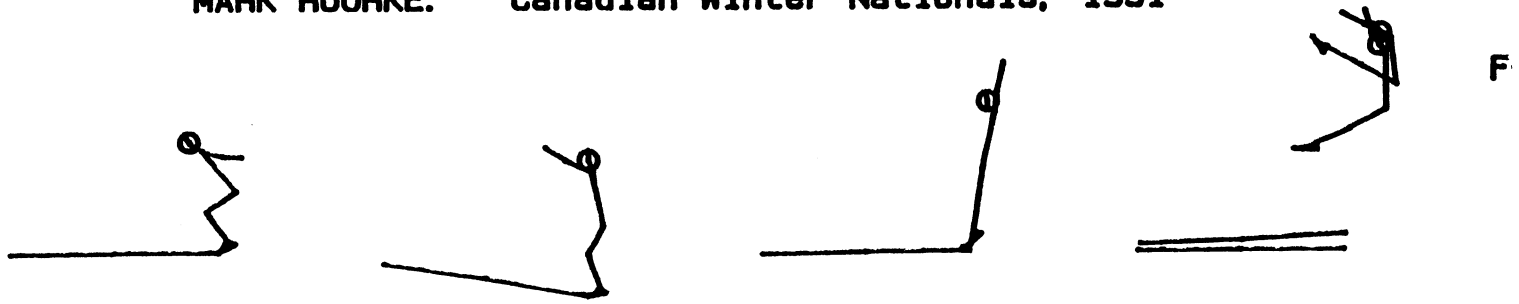


MARK ROURKE: Canadian Winter Nationals, 1991

201B.



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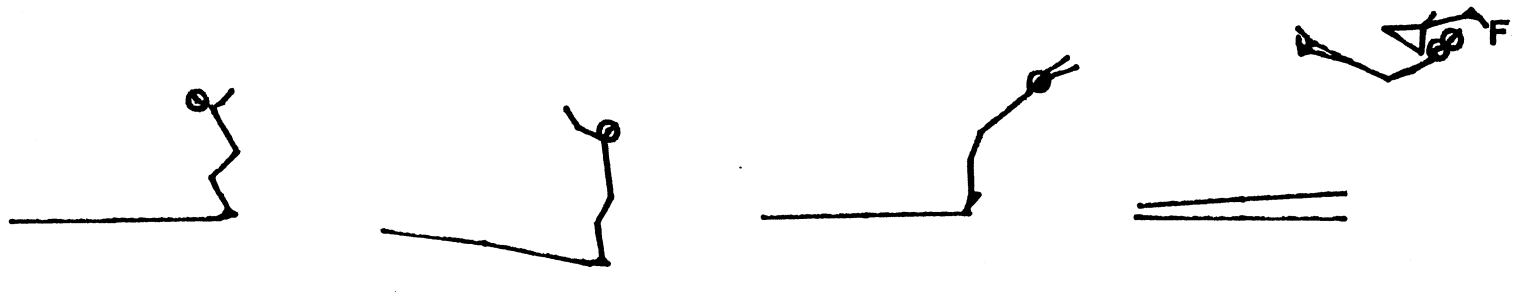

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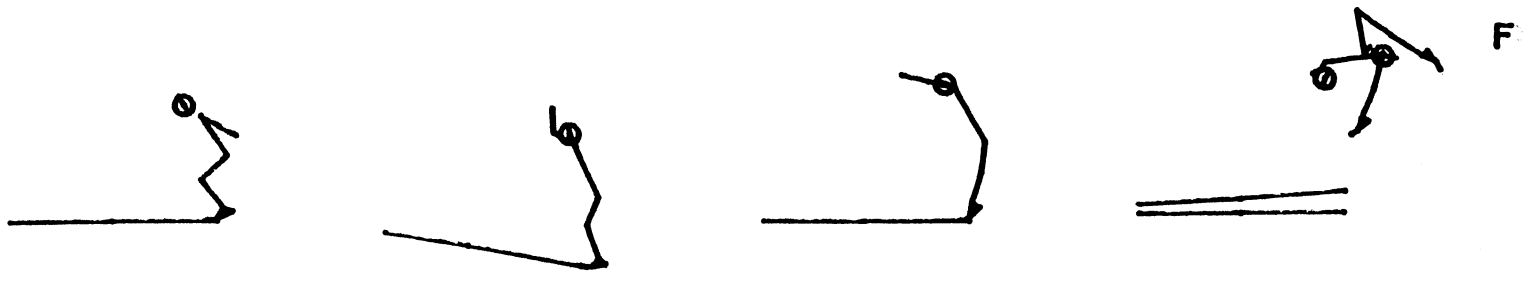

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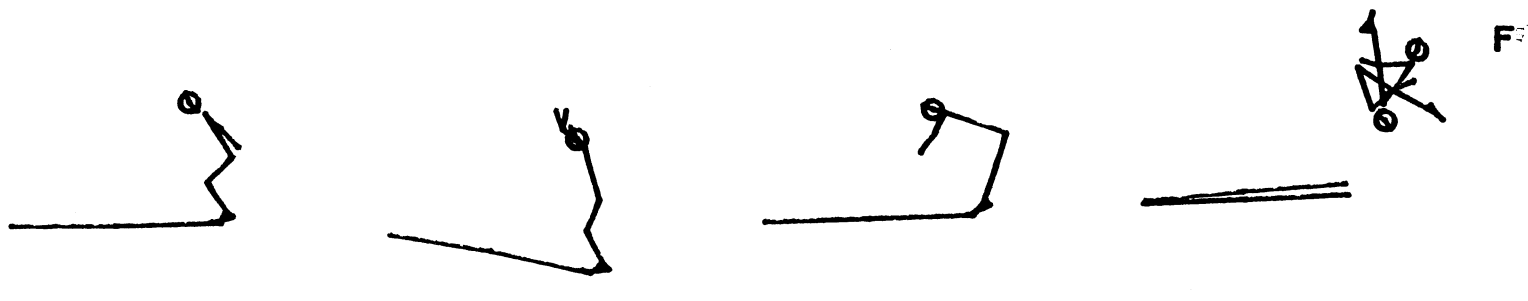
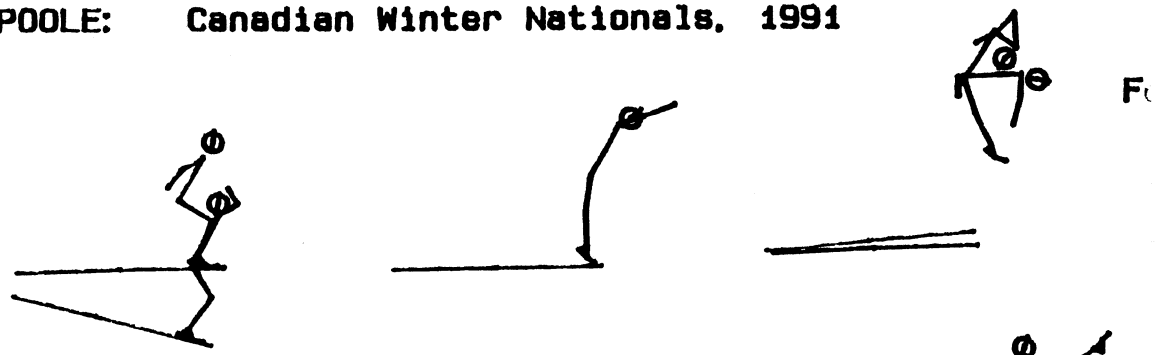


CHRIS LEPOOLE: Canadian Winter Nationals, 1991

103B.



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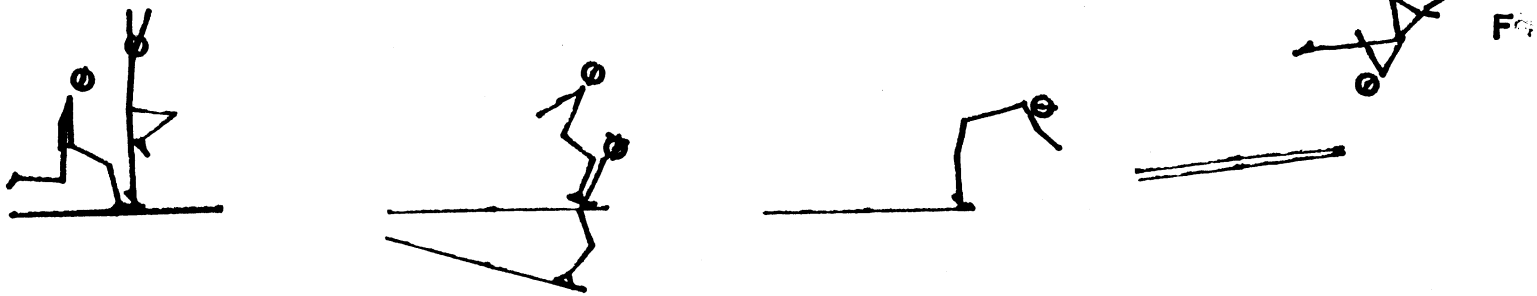

CHRIS LEPOOLE: Canadian Winter Nationals, 1991

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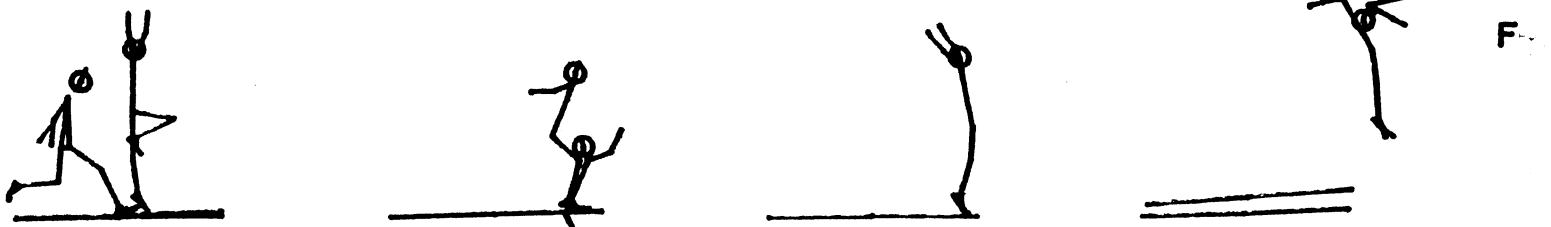

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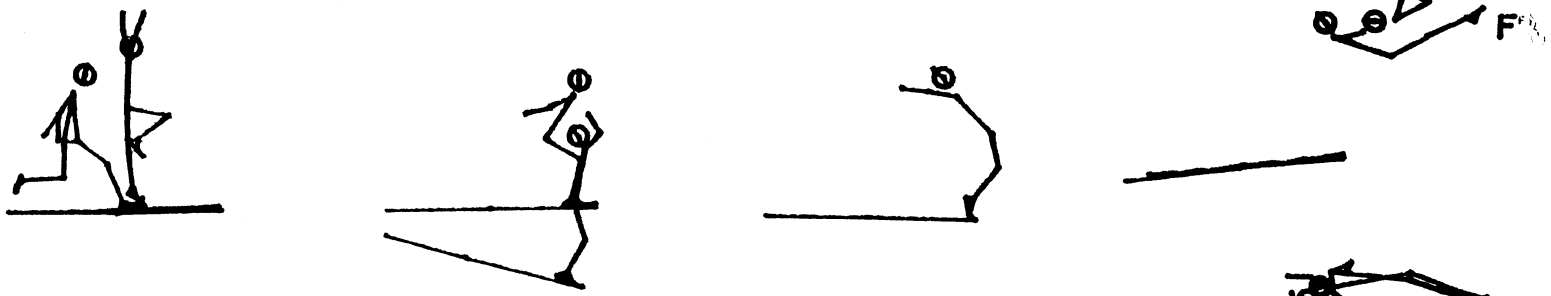

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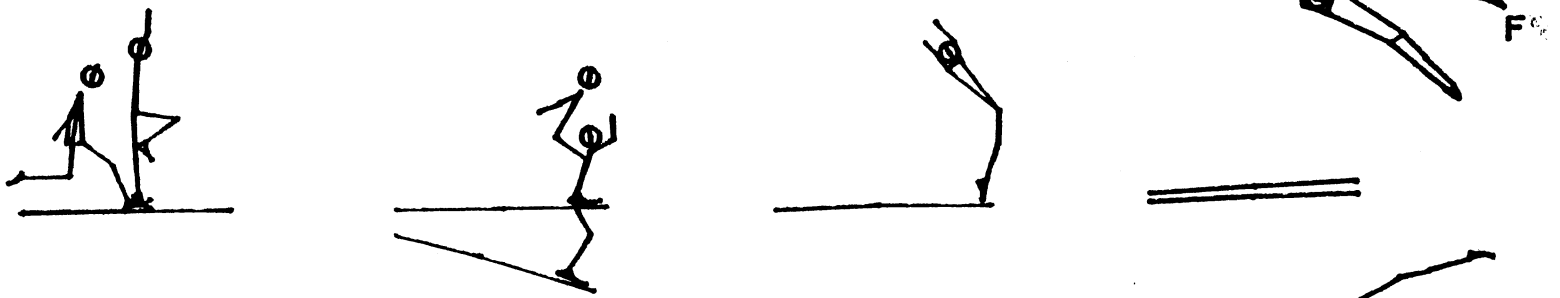

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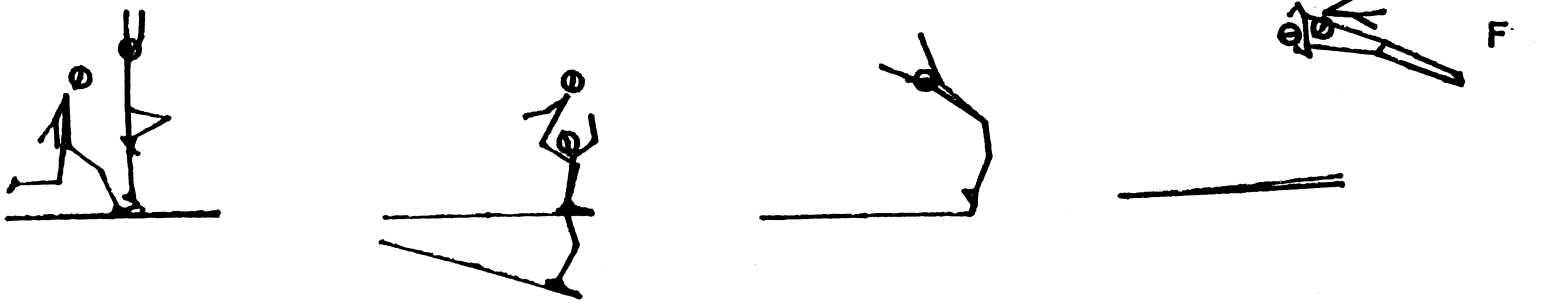
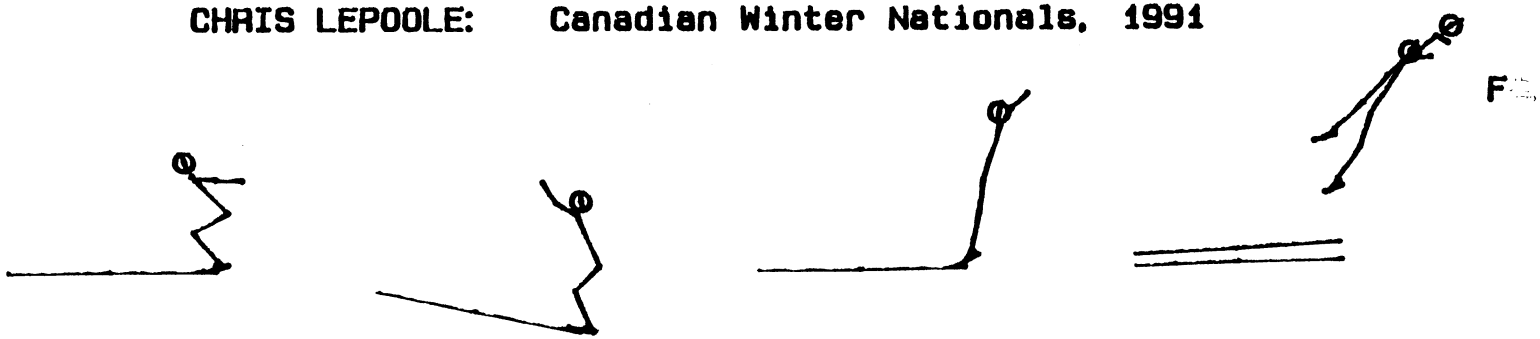


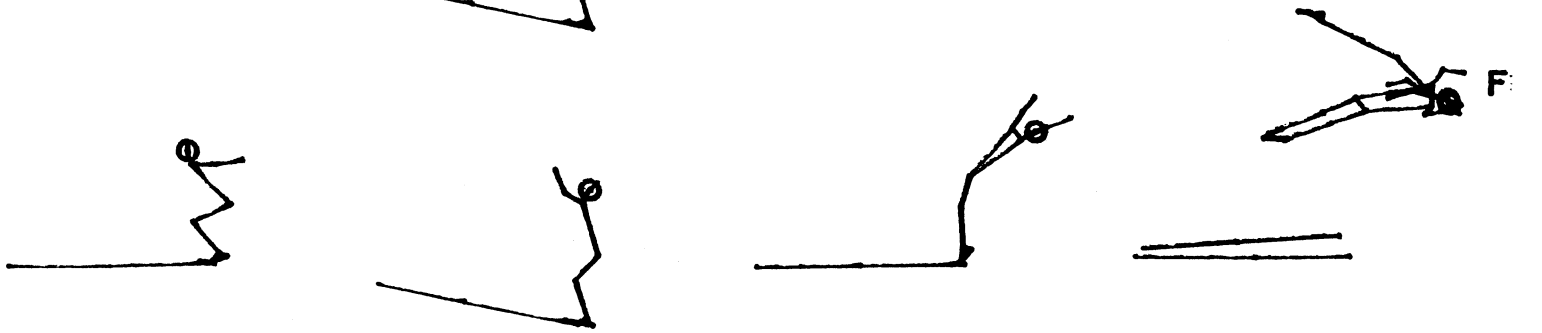
CHRIS LEPOOLE: Canadian Winter Nationals, 1991

201A.



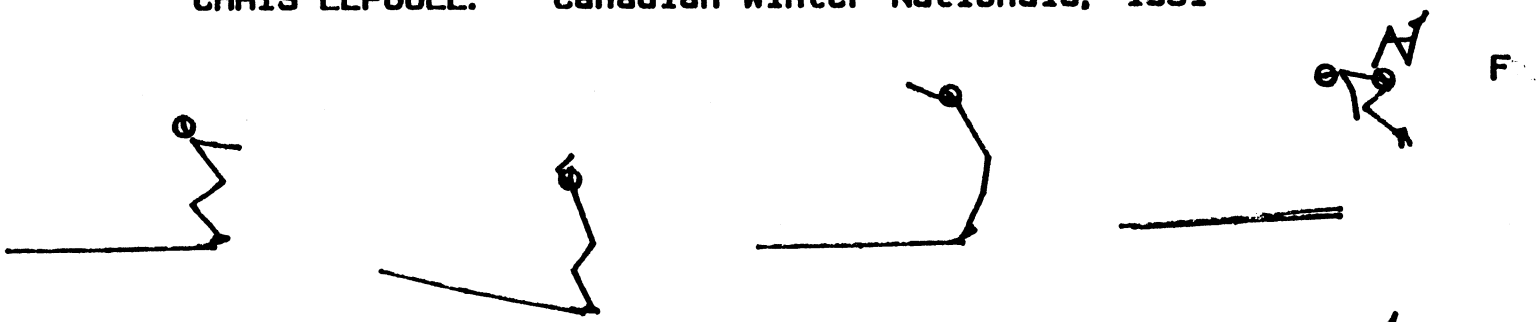
205B.

5235D.

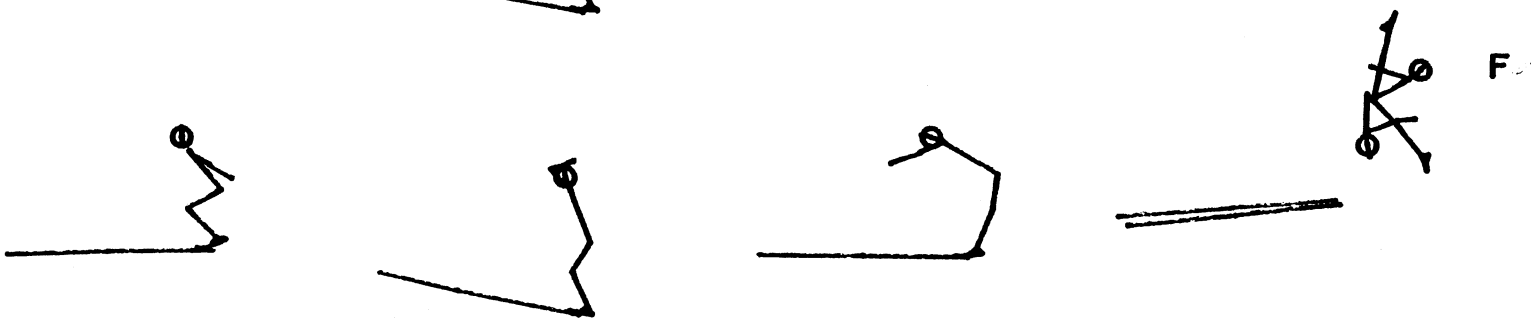


CHRIS LEPOOLE: Canadian Winter Nationals, 1991

403C.



405B.



APPENDIX B

INDIVIDUAL CUMULATIVE STATISTICAL SUMMARIES

3M SPRINGBOARD DIVING

ANNIE PELLETIER

DIVE		SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV	COMP
103B	F	7.7	0.30	0.70	0.4	0.08	0.66	0.42	55	145	141	75	4.6	0.9	4.7	TWN91
103B	F	7.7	0.34	0.70	0.4	0.03	0.63	0.43	53	134	161	74	4.7	1.0	4.8	WDT90
103B	F	7.7				0.07	0.65	0.40	58	152	137	76	4.9	0.9	5.0	ECT89
103B	F	8.0	0.50	0.70	0.7	0.11	0.61	0.37	54	144	153	78	4.8	1.1	4.9	CSN89
105B	F	8.7				0.06	0.65	0.40	55	126	87	69	4.4	1.1	4.5	TWN91
105B	F	7.8	0.34	0.73	0.5	0.08	0.64	0.40	55	117	71	67	4.1	1.2	4.3	WDT90
105B	P	5.5	0.58	0.70	0.7	0.11	0.58	0.38	53	112	94	69	4.0	1.0	4.1	DVC90
105B	F	7.4	0.54	0.70	0.7	0.14	0.56	0.37	54	130	107	72	4.4	0.9	4.5	ECT89
105B	F	7.0	0.42	0.67	0.6	0.15	0.61	0.35	51	134	107	70	4.3	1.2	4.5	CSN89
301B	F	8.1	0.32	0.70	0.4	0.01	0.66	0.43	53	182	175	81	5.0	0.9	5.1	TWN91
301B	F	7.0	0.35	0.70	0.4	0.03	0.64	0.45	51	185	187	82	4.6	1.1	4.7	WDT90
301B	F	7.6				0.09	0.65	0.40	50	194	163	82	5.0	1.0	5.1	ECT89
301B	F	6.0	0.59	0.68	0.7	0.00	0.62	0.42	52	187	161	84	4.8	0.9	4.9	CSN89
305C	F	6.2	0.35	0.70	0.4	0.06	0.67	0.42	55	190	197	83	4.6	1.4	4.8	TWN91
305C	F	7.2	0.37	0.70	0.4	0.00	0.65	0.43	58	186	180	82	4.7	1.2	4.9	WDT90
305C	P	4.7	0.63	0.68	0.7	0.06	0.56	0.40	62	199	188	82	4.3	1.5	4.5	DVC90
305C	F	5.3	0.58	0.70	0.7	0.14	0.60	0.40	58	198	174	84	4.7	1.1	4.8	ECT89
305C	F	6.3				0.00	0.55	0.38	58	189	183	88	4.5	1.0	4.6	CSN89
5331D	F	7.8	0.37	0.72	0.4	-0.02	0.67	0.43	53	218	184	83	4.6	1.2	4.7	TWN91
5331D	F	7.5	0.40	0.67	0.4	0.01	0.62	0.43	53	212	187	87	4.7	1.0	4.8	WDT90
5331D	F	7.0	0.65	0.70	0.7	0.01	0.60	0.42	55	221	181	86	4.8	1.0	4.9	ECT89
201B	F	6.6				0.08	0.45	0.43	53	172	177	84	4.0	0.5	4.1	TWN91
201B	F	8.1				0.12	0.44	0.47	57	173	172	82	3.8	0.7	3.9	WDT90
201B	F	7.0				0.07	0.34	0.43	53	170	161	78	3.7	0.7	3.8	ECT89
201B	F	6.1				0.04	0.32	0.40	58	176	181	82	3.8	0.6	3.8	CSN89
205C	F	8.1				0.08	0.48	0.43	53	190	183	73	3.6	1.0	3.7	TWN91
205C	F	6.2				0.11	0.45	0.43	53	190	199	72	3.9	1.0	4.0	WDT90
205C	P	4.5				0.04	0.41	0.40	58	169	170	71	3.6	0.9	3.7	DVC90
205C	F	7.0				0.08	0.37	0.43	58	186	185	74	3.7	0.8	3.7	ECT89
205C	F	5.1				0.03	0.38	0.37	59	187	186	76	3.7	0.9	3.8	CSN89
403B	F	7.8				0.08	0.49	0.40	58	140	67	85	3.7	1.0	3.8	TWN91
403B	F	7.5				0.12	0.42	0.45	60	131	82	83	3.6	1.1	3.7	WDT90
403B	F	6.3				0.07	0.38	0.40	58	133	79	84	3.6	0.9	3.7	ECT89
403B	F	7.6				0.06	0.32	0.38	61	133	95	87	3.4	0.9	3.5	CSN89
405C	F	6.6				0.12	0.43	0.38	61	129	60	87	3.5	0.9	3.6	TWN91
405C	F	6.5				0.13	0.45	0.42	55	130	70	85	3.4	1.0	3.6	WDT90
405C	F	5.2				0.09	0.37	0.38	58	136	82	86	3.5	1.0	3.7	ECT89
405C	F	6.1				0.05	0.36	0.40	62	126	85	90	3.3	0.8	3.4	CSN89

3M SPRINGBOARD DIVING

ANNIE PELLETIER

		HURDLE			TAKE-OFF				LAST CONTACT						COMP
DIVE	SCORE	L	T	HV	DIS	MD	T	DT	ANGLES (deg)			VELOCITY (m/s)			
		(m)	(s)	(m/s)	(m)	(m)	(s)	(%)	H	S	LC	VV	HV	RV	
5231D F	6.6				0.08	0.34	0.40	58	201	258	73	3.5	0.8	3.6	CSN89
5233D F	7.5				0.05	0.34	0.40	58	206	200	73	3.4	0.8	3.5	CSN89
5235D F	7.5				0.09	0.45	0.40	58	214	261	70	3.6	0.8	3.7	TWN91
5235D F	7.2				0.13	0.44	0.43	53	225	193	70	3.6	1.0	3.7	WDT90
5235D P	5.4				0.05	0.42	0.37	54	217	232	71	3.5	0.8	3.6	DVC90
5235D F	5.3				0.09	0.37	0.43	63	215	202	68	3.6	0.9	3.7	ECT89

COMPETITION	HEIGHT (m)	MASS (kg)	CLUB	PLACING & SCORE PRELIMS		FINALS		FULCRUM SETTINGS RUNNING	STANDING
TWN91	1.63	53.6	C.A.M.O.	2ND	284.46	2ND	516.27	7.5	6.0
WDT90	1.63	54.5	C.A.M.O.	2ND	476.97	3RD	496.95	7.0	6.5
DVC90	1.61	52.7	CANADA	16TH	373.62			6.5	5.5
ECT89	1.61	52.3	C.A.M.O.	8TH	412.92	7TH	445.11	5.5	2.5
CSN89	1.61	49.10	C.A.M.O.	9TH	411.30	5TH	443.43	5.0	2.5

YEAR OF BIRTH
1973

3M SPRINGBOARD DIVING

PAIGE GORDON

DIVE		SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV	COMP
101B	F	6.8	0.54	0.65	0.7	-0.01	0.59	0.43	53	173	162	75	4.6	1.0	4.7	WDT90
101C	F	7.6	0.47	0.68	0.6	0.03	0.56	0.42	52	166	144	78	4.6	1.0	4.7	TWN91
101C	F	6.7	0.36	0.67	0.4	0.01	0.64	0.43	53	166	135	78	4.6	1.0	4.7	ECT89
101C	F	6.8	0.38	0.70	0.5	0.05	0.56	0.40	50	163	131	83	4.3	0.7	4.4	CSN89
101C	F	6.7	0.39	0.68	0.5	0.01	0.57	0.40	50	167	117	82	4.4	0.8	4.5	QWN89
105B	F	5.0	0.51	0.67	0.6	0.00	0.56	0.42	48	113	95	72	4.2	0.8	4.3	TWN91
105B	F	7.1	0.56	0.67	0.7	0.03	0.56	0.42	55	109	100	72	4.2	0.8	4.3	WDT90
105B	F	7.5	0.43	0.70	0.5	0.00	0.55	0.40	58	103	108	74	4.1	0.6	4.1	DVC90
105B	S	7.2	0.36	0.70	0.4	0.07	0.58	0.37	54	117	103	75	4.3	0.6	4.3	DVC90
105B	F	7.1	0.31	0.68	0.4	0.07	0.61	0.40	55	116	105	74	4.3	0.8	4.3	ECT89
105B	F	6.7	0.31	0.72	0.5	0.13	0.57	0.35	49	110	114	72	4.0	0.9	4.1	CSN89
105B	P	6.3	0.36	0.70	0.5	0.07	0.56	0.37	54	110	98	76	4.1	0.5	4.1	QWN89
105B	F	7.4	0.35	0.68	0.5	0.06	0.62	0.38	53	119	118	71	4.2	0.9	4.3	QWN89
301A	F	5.6	0.48	0.67	0.5	0.02	0.53	0.43	53	203	191	83	4.4	1.1	4.5	TWN91
301A	F	7.0	0.51	0.63	0.6	0.03	0.54	0.45	56	208	176	84	4.4	0.9	4.5	WDT90
301A	F	6.5	0.42	0.65	0.5	-0.05	0.59	0.45	56	203	189	83	4.4	1.0	4.5	ECT89
301A	F	7.0	0.31	0.70	0.4	0.11	0.56	0.38	53	202	161	84	4.4	1.0	4.5	CSN89
301A	F	6.5	0.28	0.70	0.4	0.10	0.57	0.37	54	206	169	81	4.5	1.3	4.7	QWN89
305B	F	6.8	0.48	0.68	0.5	0.06	0.56	0.37	54	225	176	91	4.0	1.0	4.1	TWN91
305B	F	4.2	0.53	0.67	0.5	-0.01	0.57	0.38	58	228	161	89	4.1	1.1	4.2	WDT90
305B	F	5.8	0.41	0.70	0.4	-0.01	0.58	0.37	59	216	62	91	4.2	1.0	4.3	DVC90
305B	S	5.2	0.44	0.68	0.5	-0.01	0.62	0.38	61	226	85	87	4.1	1.1	4.2	DVC90
305B	P	5.7	0.47	0.68	0.5	-0.01	0.58	0.37	59	208	124	89	4.0	1.2	4.2	QWN89
305B	F	5.3	0.45	0.70	0.5	-0.03	0.61	0.35	57	214	123	89	4.0	1.3	4.2	QWN89
305C	F	6.7				-0.02	0.63	0.40	68	190	115	85	4.3	1.3	4.5	ECT89
305C	F	4.3	0.46	0.72	0.5	-0.03	0.61	0.35	57	190	72	86	4.4	1.2	4.6	CSN89
5132D	F	8.0	0.53	0.68	0.6	0.00	0.55	0.40	55	139	156	74	4.5	0.9	4.6	TWN91
5132D	F	6.8	0.51	0.67	0.6	0.03	0.57	0.42	52	136	114	76	4.5	0.7	4.5	WDT90
5132D	F	6.5	0.30	0.70	0.4	0.13	0.57	0.37	49	126	156	75	4.1	0.7	4.2	CSN89
5132D	F	6.0	0.47	0.70	0.6	0.00	0.58	0.37	49	118	151	73	4.1	0.7	4.2	QWN89
5335D	F	7.4	0.54	0.68	0.5	-0.01	0.55	0.38	61	232	129	88	4.2	1.0	4.4	TWN91
5335D	F	6.5	0.53	0.65	0.6	0.00	0.57	0.38	58	218	115	87	4.1	1.2	4.3	WDT90
5335D	F	7.1	0.38	0.70	0.4	0.00	0.60	0.37	54	229	92	85	4.2	1.2	4.3	DVC90
5335D	S	7.2	0.38	0.72	0.4	-0.03	0.59	0.38	58	233	91	87	4.1	1.3	4.3	DVC90
5335D	F	6.2	0.33	0.68	0.4	0.03	0.64	0.38	58	239	109	86	4.2	1.2	4.4	ECT89
5335D	F	5.0	0.45	0.70	0.5	-0.01	0.60	0.38	61	225	94	88	4.2	1.3	4.4	CSN89

3M SPRINGBOARD DIVING

PAIGE GORDON

DIVE	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV	COMP
201A F	7.6				0.08	0.40	0.45	51	187	188	79	3.6	0.8	3.7	TWN91
201A F	6.5				0.08	0.34	0.45	60	185	183	74	3.4	1.1	3.6	ECT89
201A F	6.5				0.04	0.37	0.43	51	182	188	77	3.4	1.0	3.5	CSN89
201A F	7.0				0.05	0.41	0.43	51	189	199	77	3.3	0.9	3.4	QWN89
201B F	6.7				0.16	0.43	0.43	53	161	168	76	3.6	0.8	3.7	WDT90
205B F	6.9				0.17	0.42	0.43	58	219	182	65	3.3	0.8	3.4	TWN91
205B F	6.5				0.13	0.42	0.40	58	219	164	69	3.4	0.7	3.5	WDT90
205B F	6.1				0.08	0.41	0.42	55	210	178	63	3.4	0.9	3.5	DVC90
205B S	6.9				0.12	0.41	0.42	60	213	186	70	3.5	0.9	3.6	DVC90
205B F	4.3				0.08	0.37	0.43	63	214	168	73	3.6	0.8	3.7	ECT89
205B F	5.3				0.06	0.40	0.40	58	218	161	71	3.4	0.8	3.5	CSN89
205B P	5.0				0.08	0.41	0.38	61	213	145	69	3.3	0.8	3.4	QWN89
205B F	5.6				0.06	0.43	0.37	54	219	148	71	3.5	0.9	3.6	QWN89
403B F	7.8				0.06	0.36	0.38	53	137	123	88	3.3	0.9	3.4	TWN91
403B F	6.8				0.10	0.43	0.42	48	120	90	85	3.1	0.9	3.3	WDT90
403B F	6.8				0.06	0.40	0.40	58	136	125	86	3.1	1.1	3.3	ECT89
403B F	6.7				0.07	0.38	0.38	53	115	133	86	3.1	1.0	3.3	CSN89
403B F	6.7				0.06	0.38	0.37	49	122	105	83	3.0	1.1	3.2	QWN89
405B F	7.2				0.07	0.38	0.35	51	99	95	91	2.7	1.0	2.9	TWN91
405B F	7.0				0.15	0.40	0.38	47	82	71	89	2.5	1.1	2.7	WDT90
405C F	7.1				0.06	0.41	0.38	45	109	92	91	3.0	0.8	3.1	DVC90
405C S	7.3				0.07	0.42	0.37	54	107	94	90	2.9	0.8	3.0	DVC90
405C F	7.2				0.07	0.43	0.42	55	124	102	86	3.2	0.9	3.3	ECT89
405C F	7.0				0.06	0.42	0.40	55	114	94	90	3.1	0.9	3.2	CSN89
405C P	6.7				0.06	0.40	0.37	54	113	86	89	2.8	1.0	3.0	QWN89
405C F	6.5				0.08	0.37	0.38	58	127	97	91	3.1	0.9	3.2	QWN89
5233D P	6.5				0.08	0.42	0.40	58	238	140	75	3.3	0.6	3.4	QWN89
5233D F	6.1				0.10	0.39	0.40	55	243	146	70	3.3	0.8	3.4	QWN89

COMPETITION	HEIGHT (m)	MASS (kg)	CLUB	PLACING & SCORE PRELIMS	QUARTERS	SEMIS	FINALS	FULCRUM SETTINGS R	S
TWN91	1.60	52.7	V.A.C.D.	3RD 278.14			3RD 496.86	6.0	4.0
WDT90	1.60	52.7	V.A.C.D.	4TH 424.38			4TH 461.43	5.5	3.5
DVC90	1.60	53.2	CANADA	4TH 437.43	BYE	2ND 282.51	4TH 280.38	5.0	3.0
ECT89	1.60	53.6	V.A.C.D.	3RD 451.14			4TH 443.19	4.5	2.5
CSN89	1.58	51.4	V.A.C.D.	3RD 446.85			6TH 423.66	2.5	1.5
QWN89	1.58	50.9	V.A.C.D.	7TH 424.50			8TH 433.86	4.0	2.5

3M SPRINGBOARD DIVING MARK ROURKE

DIVE		SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV	COMP
103B	F	7.8	0.46	0.80	0.5	0.09	0.72	0.42	48	148	137	80	5.5	0.9	5.5	TWN91
103B	F	7.0	0.44	0.77	0.5	0.03	0.81	0.45	51	145	133	80	5.2	1.0	5.3	WDT90
103B	F	7.9	0.38	0.78	0.4	0.11	0.84	0.45	56	151	146	79	5.5	0.9	5.5	ECT89
103B	F	7.6	0.46	0.78	0.5	0.05	0.80	0.42	52	151	145	79	5.6	0.8	5.6	CSN89
103B	P	7.2	0.45	0.77	0.5	0.11	0.76	0.42	60	153	130	80	5.5	0.7	5.6	COT88
103B	F	7.7	0.40	0.80	0.5	0.11	0.75	0.42	48	137	133	77	5.4	0.9	5.4	COT88
107B	F	6.8	0.34	0.82	0.4	0.17	0.74	0.38	47	101	81	71	4.8	1.0	4.9	TWN91
107B	F	7.7	0.44	0.75	0.5	0.04	0.81	0.45	60	97	65	67	4.8	1.3	5.0	WDT90
107B	F	7.3	0.34	0.77	0.4	0.08	0.84	0.47	57	97	75	69	4.9	1.0	5.0	ECT89
107B	F	6.8	0.37	0.78	0.4	0.15	0.84	0.40	55	109	78	70	5.0	0.9	5.1	CSN89
107B	P	6.4				0.06	0.79	0.42	60	112	90	73	4.9	1.0	5.0	COT88
107B	F	5.9				0.07	0.75	0.40	55	102	83	71	4.9	0.9	5.0	COT88
301B	F	7.5	0.38	0.77	0.4	0.09	0.78	0.45	51	183	175	86	5.6	0.9	5.6	TWN91
301B	F	7.5	0.35	0.77	0.4	0.07	0.77	0.43	53	186	175	84	5.5	1.0	5.6	WDT90
301B	F	7.9	0.41	0.78	0.4	0.04	0.83	0.45	56	186	171	87	5.6	0.7	5.7	ECT89
301B	F	7.5	0.35	0.78	0.4	0.12	0.80	0.42	52	189	189	85	5.7	0.8	5.8	CSN89
301B	P	6.8	0.44	0.78	0.4	0.09	0.72	0.43	51	190	170	86	5.3	1.0	5.4	COT88
301B	F	7.4	0.42	0.78	0.4	0.12	0.75	0.43	53	185	174	86	5.4	0.9	5.4	COT88
305B	F	7.6	0.49	0.75	0.5	0.00	0.80	0.45	56	193	186	90	5.2	1.1	5.4	TWN91
305B	F	5.7	0.46	0.75	0.5	0.01	0.77	0.45	60	185	155	92	5.0	1.4	5.2	WDT90
305B	F	7.3	0.40	0.75	0.3	0.03	0.79	0.47	57	190	180	89	5.1	1.1	5.2	ECT89
305B	F	5.7	0.43	0.77	0.4	0.05	0.82	0.43	53	189	188	91	5.1	1.0	5.2	CSN89
305B	P	6.4				0.06	0.78	0.42	52	193	175	86	5.0	1.3	5.2	COT88
305B	F	7.3	0.44	0.73	0.5	0.09	0.76	0.43	51	193	171	92	4.9	1.1	5.0	COT88
5132D	F	8.0	0.40	0.73	0.5	0.08	0.78	0.45	51	143	130	78	5.3	0.9	5.4	TWN91
5132D	F	7.5	0.43	0.75	0.5	0.03	0.78	0.48	58	139	118	80	5.3	0.9	5.4	WDT90
5132D	F	7.5	0.31	0.78	0.3	0.13	0.77	0.43	58	135	129	81	5.4	0.7	5.5	ECT89
5132D	F	7.2	0.42	0.78	0.5	0.05	0.80	0.43	53	148	128	79	5.7	0.8	5.7	CSN89
5132D	P	7.1								146	126	79	5.3	0.9	5.3	COT88
5132D	F	7.3				0.07	0.81	0.45	51	133	124	80	5.2	0.8	5.2	COT88
5152D	F	7.8	0.39	0.77	0.5	0.11	0.78	0.43	53	115	103	74	5.2	0.9	5.3	TWN91
5152D	F	7.4	0.43	0.77	0.5	0.03	0.74	0.43	53	110	105	70	5.0	1.2	5.1	WDT90
5152D	F	7.9				0.04	0.81	0.43	51	107	107	74	5.2	0.8	5.3	ECT89
5152D	F	5.8	0.50	0.77	0.5	0.00	0.81	0.45	56	114	95	74	5.0	0.9	5.1	CSN89
5152D	P	6.7	0.42	0.78	0.5	0.15	0.76	0.40	58	121	98	73	5.0	1.0	5.1	COT88
5152D	F	7.1				0.12	0.79	0.43	53	112	108	73	5.0	0.9	5.1	COT88
5335D	F	7.0	0.45	0.75	0.5	-0.03	0.80	0.45	56	201	188	86	5.0	1.5	5.3	WDT90
5335D	P	7.7	0.49	0.77	0.5	0.05	0.75	0.45	56	202	147	88	5.2	1.1	5.3	COT88
5335D	F	7.4	0.42	0.77	0.4	0.10	0.77	0.42	55	200	149	86	5.2	1.2	5.3	COT88

3M SPRINGBOARD DIVING

MARK ROURKE

DIVE	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV	COMP
5337D F	6.6	0.48	0.80	0.5	0.06	0.74	0.43	53	201	179	88	5.2	1.2	5.3	TWN91
5337D F	7.6	0.38	0.75	0.4	0.06	0.81	0.48	58	204	158	89	5.4	1.0	5.5	ECT89
5337D F	6.0	0.36	0.77	0.4	0.09	0.80	0.42	60	199	165	87	5.5	1.1	5.6	CSN89
201B F	7.7				0.07	0.50	0.45	60	178	176	83	4.6	0.8	4.6	TWN91
201B F	7.0				0.12	0.53	0.47	57	172	176	81	4.4	0.8	4.4	WDT90
201B F	7.5				0.06	0.50	0.50	56	183	175	84	4.6	0.7	4.7	ECT89
201B F	7.9				0.05	0.53	0.50	60	184	171	82	4.5	0.8	4.6	CSN89
201B P	6.7				0.08	0.49	0.45	60	184	170	86	4.5	0.6	4.5	COT88
201B F	6.9				0.04	0.42	0.45	56	183	164	81	4.4	0.9	4.4	COT88
205B F	7.7				0.07	0.52	0.48	63	204	171	73	4.2	1.0	4.4	TWN91
205B F	7.5				0.12	0.53	0.48	63	189	193	69	4.2	0.9	4.3	WDT90
205B F	7.5				0.07	0.54	0.50	64	191	162	74	4.4	1.1	4.5	ECT89
205B F	7.4				0.04	0.54	0.47	57	187	165	72	4.2	0.9	4.3	CSN89
205B P	4.4				0.04	0.51	0.43	63	189	168	76	4.1	0.8	4.2	COT88
403B F	7.5				0.08	0.51	0.43	63	150	132	91	4.5	0.8	4.6	TWN91
403B F	7.4				0.13	0.52	0.47	57	150	104	89	4.2	0.8	4.3	WDT90
403B F	7.9				0.08	0.54	0.48	56	146	103	88	4.2	0.9	4.3	ECT89
403B F	7.7				0.03	0.54	0.40	58	150	120	89	4.5	0.8	4.6	CSN89
403B P	7.3				0.06	0.49	0.38	61	156	118	91	4.4	0.8	4.5	COT88
403B F	7.5				0.05	0.50	0.42	55	138	110	89	4.1	0.9	4.2	COT88
405B F	7.4				0.08	0.55	0.43	63	98	89	90	3.5	1.1	3.7	TWN91
405B F	7.1				0.13	0.57	0.42	55	101	79	92	3.4	1.0	3.5	WDT90
405B F	7.7				0.07	0.56	0.47	57	98	76	89	3.6	1.1	3.8	ECT89
405B F	7.4				0.05	0.55	0.43	63	110	98	89	3.8	1.1	3.9	CSN89
405B P	7.3				0.06	0.52	0.40	58	109	82	90	3.6	1.1	3.7	COT88
405B F	5.2				0.02	0.52	0.45	60	97	84	89	3.3	1.2	3.5	COT88

COMPETITION	HEIGHT (m)	MASS (kg)	CLUB	PLACING & SCORE PRELIMS		FINALS		FULCRUM SETTINGS RUNNING	STANDING
TWN91	1.70	72.7	P.C.D.C.	2ND	387.48	2ND	617.82	7.0	2.5
WDT90	1.70	72.7	P.C.D.C.	3RD	564.51	2ND	576.09	6.5	2.5
ECT89	1.70	72.7	P.C.D.C.	3RD	594.39	1ST	632.46	6.5	2.5
CSN89	1.70	72.7	P.C.D.C.	3RD	547.55	2ND	572.25	4.0	6.0
COT88	1.70	72.7	P.C.D.C.	3RD	544.95	4TH	544.85	7.0	2.5

YEAR OF BIRTH
1968

3M SPRINGBOARD DIVING CHRIS LEPOOLE

DIVE		SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV	COMP
103B	F	7.5				0.06	0.86	0.47	49	160	135	81	5.9	0.7	5.9	TWN91
103B	F	7.8	0.61	0.77	0.6	0.01	0.83	0.50	50	151	147	81	5.8	0.8	5.8	WDT90
103B	F	5.1	0.71	0.75	0.7	0.05	0.80	0.43	58	150	127	82	5.6	1.0	5.7	QWN89
103B	P	5.6	0.63	0.73	0.7	-0.02	0.85	0.50	54	145	146	78	5.5	1.0	5.6	COT88
103B	F	6.8	0.52	0.73	0.6	0.04	0.82	0.47	49	153	146	79	5.5	1.0	5.6	COT88
107B	F	6.3	0.67	0.77	0.8	0.10	0.91	0.47	57	115	94	72	5.2	1.0	5.2	TWN91
107B	F	4.2	0.60	0.72	0.6	0.08	0.83	0.52	58	92	81	66	4.7	0.9	4.8	WDT90
107C	P	5.5	0.68	0.72	0.7	0.18	0.82	0.45	51	124	100	77	4.9	0.9	5.0	QWN89
107C	F	6.3	0.77	0.73	0.8	0.04	0.85	0.47	57	130	107	76	5.4	1.0	5.4	QWN89
107C	P	5.8	0.49	0.75	0.6	0.06	0.85	0.48	52	117	102	71	5.0	0.9	5.1	COT88
107C	F	3.7	0.65	0.75	0.7	-0.05	0.80	0.47	49	121	106	71	5.0	1.1	5.2	COT88
301A	F	7.0	0.57	0.73	0.6	0.12	0.93	0.50	54	191	185	89	5.9	0.8	5.9	TWN91
301A	F	6.9	0.60	0.77	0.6	0.02	0.89	0.50	56	194	176	89	5.7	0.8	5.7	WDT90
301A	F	5.4	0.72	0.75	0.7	0.04	0.83	0.45	56	192	177	86	5.7	1.2	5.8	QWN89
301A	P	6.0	0.59	0.73	0.6	0.00	0.85	0.48	52	201	183	83	5.4	1.3	5.5	COT88
301A	F	4.8	0.67	0.72	0.7	-0.04	0.86	0.50	56	198	182	86	5.7	1.1	5.8	COT88
305B	F	6.6	0.66	0.78	0.6	0.00	0.86	0.43	63	207	220	89	5.4	1.4	5.5	TWN91
305B	F	5.1	0.65	0.75	0.6	0.02	0.83	0.48	56	202	209	93	5.2	1.3	5.3	WDT90
305B	P	3.3	0.79	0.70	0.7	-0.03	0.84	0.45	67	204	186	91	5.0	1.3	5.1	QWN89
305B	F	4.9	0.79	0.72	0.7	0.00	0.83	0.43	58	197	184	90	5.1	1.4	5.3	QWN89
305B	P	3.6	0.64	0.73	0.6	0.00	0.85	0.42	60	202	183	90	5.0	1.5	5.2	COT88
305B	F	3.6	0.61			0.00	0.85	0.42	60	200	200	89	5.0	1.5	5.2	COT88
5331D	F	6.9	0.60	0.78	0.6	0.10	0.89	0.48	52	217	164	93	5.4	1.0	5.5	TWN91
5331D	F	6.9	0.67	0.73	0.7	-0.01	0.86	0.50	56	206	176	91	5.7	0.9	5.8	WDT90
5331D	F	6.2	0.76	0.75	0.7	0.02	0.83	0.45	51	227	177	89	5.3	1.0	5.4	QWN89
5331D	P	6.2				0.06	0.87	0.48	48	214	159	86	5.4	1.4	5.6	COT88
5331D	F	6.7	0.61	0.75	0.6	0.01	0.87	0.47	53	209	165	88	5.6	1.1	5.7	COT88
5335D	F	7.2	0.59	0.77	0.6	0.06	0.91	0.47	57	218	159	96	5.4	0.9	5.5	TWN91
5335D	F	7.0	0.67	0.77	0.6	-0.02	0.89	0.47	57	208	183	94	5.3	1.0	5.4	WDT90
5335D	P	6.0	0.75	0.70	0.7	-0.03	0.85	0.47	60	205	159	94	5.0	1.2	5.2	QWN89
5335D	F	6.1	0.81	0.72	0.8	0.00	0.84	0.43	58	202	165	92	5.2	1.2	5.3	QWN89
5335D	P	6.5	0.56	0.73	0.6	0.01	0.85	0.45	56	207	145	89	5.1	1.2	5.2	COT88
5335D	F	6.6	0.58	0.73	0.6	0.00	0.84	0.45	56	203	139	92	5.3	1.1	5.4	COT88
201A	F	7.0				0.12	0.68	0.55	55	186	194	79	4.9	1.0	5.0	TWN91
201A	F	7.2				0.20	0.69	0.57	53	187	178	77	4.6	0.9	4.7	WDT90
201A	F	6.5				0.11	0.63	0.53	57	187	175	76	4.3	1.0	4.4	QWN89
201A	P	5.5				0.09	0.64	0.52	52	182	179	76	4.4	1.1	4.6	COT88
201A	F	6.9				0.09	0.64	0.50	54	184	184	77	4.5	1.2	4.7	COT88
205B	F	6.3				0.13	0.70	0.50	60	201	207	71	4.7	1.2	4.9	TWN91
205B	F	6.8				0.19	0.69	0.52	62	200	235	66	4.4	1.1	4.6	WDT90
205B	P	3.2				0.13	0.65	0.47	57	181	186	63	4.1	1.6	4.4	QWN89

3M SPRINGBOARD DIVING CHRIS LEPOOLE

DIVE	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY VV	HV	RV (m/s)	COMP
205B F	5.8				0.13	0.58	0.50	60	188	185	65	4.2	1.4	4.4	QWN89
205B P	5.1				0.11	0.62	0.47	57	186	180	68	4.1	1.1	4.3	COT88
205B F	4.1				0.09	0.64	0.48	63	195	176	70	4.3	1.1	4.4	COT88
403C F	7.1				0.14	0.68	0.55	58	150	136	86	4.8	1.1	4.9	TWN91
403C F	6.9				0.14	0.74	0.57	53	139	139	89	4.6	0.8	4.7	WDT90
403C F	6.5				0.10	0.65	0.50	56	146	130	86	4.5	1.0	4.6	QWN89
403C P	6.4				0.13	0.51	0.45	51	174	184	79	4.6	0.9	4.6	COT88
403C F	5.8				0.08	0.64	0.52	58	139	125	84	4.4	1.0	4.5	COT88
405B F	7.4				0.14	0.70	0.47	57	120	114	88	4.3	1.3	4.5	TWN91
405B F	7.6				0.16	0.69	0.52	58	98	100	95	3.9	1.0	4.0	WDT90
405B P	5.8				0.11	0.67	0.48	56	113	98	91	3.7	1.1	3.9	QWN89
405B F	5.6				0.10	0.64	0.45	60	127	103	92	3.9	1.1	4.1	QWN89
405B P	6.0				0.06	0.66	0.47	57	109	105	89	3.8	1.2	4.0	COT88
405B F	4.5				0.08	0.67	0.47	57	110	107	88	3.9	1.2	4.1	COT88
5235D F	7.3				0.13	0.66	0.53	60	216	172	75	4.9	0.9	5.0	TWN91
5235D F	7.1				0.20	0.69	0.53	57	213	178	74	4.6	0.7	4.6	WDT90
5235D P	6.0				0.12	0.62	0.50	56	205	141	68	4.3	1.3	4.5	QWN89
5235D F	6.5				0.10	0.63	0.50	60	202	161	74	4.5	1.1	4.7	QWN89
5235D P	5.9				0.12	0.55	0.53	57	192	157	71	4.6	1.3	4.8	COT88
5235D F	5.9				0.08	0.64	0.50	54	202	218	67	4.3	1.3	4.5	COT88

COMPETITION	HEIGHT (m)	MASS (kg)	CLUB	PLACING & SCORE PRELIMS		FINALS		FULCRUM SETTINGS RUNNING	STANDING
TWN91	1.80	77.3	DIVE CALGARY	3RD	369.96	3RD	566.19	8.5	9.0
WDT90	1.80	78.2	DIVE CALGARY	6TH	535.32	5TH	539.58	7.2	7.2
QWN89	1.75	72.7	U OF CALGARY	11TH	426.35	8TH	477.33	6.5	5.5
COT88	1.78	72.7	U OF CALGARY	9TH	457.05	12TH	426.03	6.5	5.5

YEAR OF BIRTH
1971

APPENDIX C

COMPETITION STATISTICAL SUMMARIES

WOMEN'S COMPETITION — QUEBEC WINTER NATIONALS 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
101A	3	MEAN	6.9	0.45	0.64	0.6	0.10	0.59	0.42	54	169	153	78	4.2	0.9	4.3
		S.D.	0.1	0.02	0.03	0.0	0.05	0.02	0.01	3	2	10	4	0.3	0.2	0.3
		MAX	7.0	0.48	0.67	0.6	0.17	0.62	0.43	58	171	162	83	4.6	1.1	4.7
		MIN	6.7	0.42	0.60	0.5	0.05	0.57	0.40	52	166	140	75	3.9	0.6	4.0
101B	3	MEAN	6.8	0.65	0.66	0.8	0.05	0.68	0.42	52	162	171	82	4.5	0.9	4.6
		S.D.	0.7	0.15	0.02	0.2	0.05	0.10	0.02	2	2	2	2	0.3	0.2	0.3
		MAX	7.4	0.85	0.68	1.0	0.12	0.80	0.45	55	164	173	85	4.9	1.2	5.1
		MIN	5.9	0.49	0.63	0.6	-0.01	0.55	0.40	50	160	169	80	4.3	0.7	4.4
101C	1	MEAN	6.7	0.39	0.68	0.5	0.01	0.57	0.40	50	167	117	82	4.4	0.8	4.5
		S.D.														
		MAX														
		MIN														
103B	2	MEAN	6.9	0.44	0.63	0.6	0.11	0.55	0.40	54	140	144	73	4.3	1.4	4.5
		S.D.	0.2	0.04	0.03	0.1	0.02	0.04	0.00	4	8	7	3	0.1	0.3	0.2
		MAX	7.1	0.47	0.67	0.6	0.13	0.59	0.40	58	148	151	76	4.4	1.6	4.7
		MIN	6.7	0.40	0.60	0.5	0.08	0.50	0.40	50	132	137	70	4.2	1.1	4.4
103C	1	MEAN	7.5					0.52	0.38	77	133	156	77	4.2	0.7	4.2
		S.D.														
		MAX														
		MIN														
105B	10	MEAN	7.0	0.49	0.65	0.6	0.08	0.59	0.39	52	118	118	72	4.1	1.0	4.2
		S.D.	0.5	0.06	0.03	0.1	0.03	0.04	0.02	5	10	14	2	0.2	0.1	0.2
		MAX	7.4	0.57	0.70	0.8	0.14	0.65	0.43	62	133	130	75	4.4	1.3	4.5
		MIN	5.7	0.35	0.60	0.5	0.04	0.51	0.37	46	102	82	69	3.8	0.8	4.0
301A	3	MEAN	6.9	0.52	0.69	0.6	0.01	0.57	0.37	55	202	166	84	4.6	1.0	4.7
		S.D.	0.3	0.17	0.01	0.2	0.06	0.00	0.00	2	3	2	2	0.1	0.2	0.1
		MAX	7.3	0.66	0.70	0.8	0.10	0.58	0.38	58	206	169	86	4.7	1.3	4.8
		MIN	6.5	0.28	0.68	0.4	-0.04	0.57	0.37	54	198	163	81	4.5	0.9	4.7
301B	7	MEAN	6.9	0.49	0.64	0.6	0.07	0.59	0.42	54	180	179	85	4.5	1.0	4.6
		S.D.	0.6	0.08	0.02	0.1	0.05	0.04	0.01	2	6	11	2	0.2	0.1	0.2
		MAX	7.9	0.64	0.68	0.8	0.16	0.67	0.43	58	188	195	88	4.8	1.2	4.9
		MIN	6.0	0.42	0.62	0.5	-0.01	0.55	0.40	50	170	162	82	4.2	0.8	4.3
305B	1	MEAN	5.3	0.45	0.70	0.5	-0.03	0.61	0.35	57	214	123	89	4.0	1.3	4.2
		S.D.														
		MAX														
		MIN														
305C	9	MEAN	5.7	0.55	0.64	0.6	0.04	0.60	0.40	57	180	170	87	4.3	1.2	4.5
		S.D.	0.9	0.07	0.04	0.1	0.05	0.05	0.02	3	8	15	2	0.2	0.2	0.1
		MAX	6.8	0.65	0.70	0.7	0.12	0.69	0.43	63	193	195	91	4.5	1.5	4.7
		MIN	4.3	0.47	0.58	0.5	-0.03	0.54	0.37	52	172	152	84	4.1	0.9	4.3

WOMEN'S COMPETITION — QUEBEC WINTER NATIONALS 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
5132D	9	MEAN	6.8	0.49	0.65	0.6	0.07	0.60	0.39	53	129	139	74	4.3	0.9	4.4
		S.D.	0.4	0.06	0.04	0.1	0.05	0.04	0.02	2	10	48	3	0.2	0.1	0.2
		MAX	7.4	0.58	0.70	0.8	0.14	0.67	0.43	55	144	254	78	4.6	1.2	4.7
		MIN	6.0	0.42	0.60	0.6	0.00	0.53	0.37	49	114	72	69	4.0	0.7	4.1
5134D	5	MEAN	7.0	0.56	0.66	0.6	0.08	0.61	0.39	52	124	120	74	4.2	1.0	4.3
		S.D.	0.5	0.05	0.02	0.1	0.04	0.04	0.01	5	5	28	3	0.2	0.1	0.2
		MAX	7.4	0.62	0.70	0.7	0.12	0.67	0.40	58	133	157	80	4.5	1.1	4.6
		MIN	6.1	0.51	0.63	0.5	0.00	0.55	0.37	46	117	81	70	4.0	0.8	4.1
201A	2	MEAN	6.9	0.00	0.00	0.0	0.06	0.36	0.41	52	188	204	77	3.3	0.9	3.4
		S.D.	0.1	0.00	0.00	0.0	0.01	0.05	0.02	1	1	5	1	0.0	0.0	0.0
		MAX	7.0	0.00	0.00	0.0	0.07	0.41	0.43	53	189	208	77	3.3	0.9	3.4
		MIN	6.8	0.00	0.00	0.0	0.05	0.31	0.38	51	187	199	76	3.3	0.9	3.4
201B	8	MEAN	6.9	0.00	0.00	0.0	0.08	0.37	0.44	55	178	168	80	3.6	0.9	3.7
		S.D.	0.4	0.00	0.00	0.0	0.03	0.05	0.03	3	7	7	3	0.2	0.1	0.2
		MAX	7.7	0.00	0.00	0.0	0.14	0.42	0.50	60	190	176	85	4.0	1.1	4.1
		MIN	6.4	0.00	0.00	0.0	0.04	0.27	0.40	51	169	157	76	3.4	0.7	3.5
203A	1	MEAN	6.8	0.00	0.00	0.0	0.01	0.38	0.42	60	201	184	67	3.1	1.0	3.3
		S.D.														
		MAX														
		MIN														
205B	2	MEAN	5.8	0.00	0.00	0.0	0.09	0.42	0.42	57	216	178	69	3.5	1.0	3.7
		S.D.	0.2	0.00	0.00	0.0	0.02	0.01	0.05	3	4	30	2	0.0	0.2	0.1
		MAX	5.9	0.00	0.00	0.0	0.11	0.43	0.47	60	219	207	71	3.5	1.2	3.7
		MIN	5.6	0.00	0.00	0.0	0.06	0.41	0.37	54	212	148	67	3.5	0.9	3.6
205C	7	MEAN	5.3	0.00	0.00	0.0	0.09	0.39	0.41	57	185	177	74	3.5	0.9	3.7
		S.D.	1.0	0.00	0.00	0.0	0.04	0.04	0.02	3	10	13	2	0.2	0.1	0.2
		MAX	6.4	0.00	0.00	0.0	0.13	0.45	0.43	63	202	205	76	3.8	1.1	4.0
		MIN	3.7	0.00	0.00	0.0	0.02	0.30	0.37	54	170	162	72	3.4	0.7	3.5
401A	1	MEAN	5.7	0.00	0.00	0.0	0.01	0.39	0.38	58	144	160	81	3.3	1.3	3.6
		S.D.														
		MAX														
		MIN														
403B	10	MEAN	7.2	0.00	0.00	0.0	0.08	0.38	0.40	51	121	114	86	3.1	1.0	3.3
		S.D.	0.5	0.00	0.00	0.0	0.03	0.04	0.02	3	12	18	2	0.1	0.1	0.1
		MAX	8.0	0.00	0.00	0.0	0.13	0.45	0.43	58	145	140	90	3.3	1.1	3.4
		MIN	6.4	0.00	0.00	0.0	0.05	0.29	0.35	48	102	72	83	3.0	0.9	3.1
405C	9	MEAN	6.3	0.00	0.00	0.0	0.07	0.38	0.41	53	113	103	89	2.9	1.0	3.1
		S.D.	0.6	0.00	0.00	0.0	0.02	0.05	0.02	2	12	13	3	0.2	0.1	0.2
		MAX	7.2	0.00	0.00	0.0	0.10	0.46	0.43	58	127	114	91	3.1	1.1	3.3
		MIN	5.1	0.00	0.00	0.0	0.04	0.30	0.37	49	92	74	82	2.5	0.8	2.7

WOMEN'S COMPETITION QUEBEC WINTER NATIONALS 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
5231D	1	MEAN	6.9	0.00	0.00	0.0	0.07	0.29	0.38	58	227	192	70	3.3	1.1	3.4
		S.D.														
		MAX														
		MIN														
5233D	3	MEAN	6.6	0.00	0.00	0.0	0.11	0.38	0.40	55	220	174	70	3.3	0.9	3.5
		S.D.	0.4	0.00	0.00	0.0	0.04	0.03	0.02	2	17	23	2	0.1	0.2	0.1
		MAX	7.2	0.00	0.00	0.0	0.16	0.41	0.43	58	243	203	72	3.4	1.2	3.5
		MIN	6.1	0.00	0.00	0.0	0.06	0.34	0.38	53	203	146	68	3.3	0.7	3.4
5235D	2	MEAN	6.00	0.00	0.00	0.0	0.10	0.44	0.40	54	213	160	66	3.5	1.0	3.7
		S.D.	0.30	0.00	0.00	0.0	0.04	0.02	0.02	1	7	37	2	0.1	0.1	0.1
		MAX	6.30	0.00	0.00	0.0	0.14	0.45	0.42	55	219	197	68	3.6	1.2	3.8
		MIN	5.70	0.00	0.00	0.0	0.06	0.42	0.38	53	206	123	64	3.5	0.9	3.6

WOMEN'S COMPETITION

FINA CUP 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
101A P	2	MEAN	7.1	0.50	0.67	0.6	0.06	0.63	0.43	56	174	171	80	4.7	0.8	4.7
		S.D.	0.3	0.19	0.02	0.2	0.07	0.01	0.02	1	4	12	3	0.0	0.2	0.0
		MAX	7.4	0.69	0.68	0.8	0.13	0.64	0.45	56	178	182	82	4.7	1.1	4.7
		MIN	6.8	0.30	0.65	0.4	-0.01	0.61	0.40	55	170	159	77	4.6	0.6	4.7
101B P	1	MEAN	7.8	0.78	0.70	0.8	0.05	0.61	0.40	50	168	158	84	4.9	0.6	5.0
		S.D.														
		MAX														
		MIN														
103B P	5	MEAN	6.6	0.44	0.73	0.5	0.09	0.69	0.42	52	153	134	78	4.9	0.9	5.0
		S.D.	0.4	0.26	0.07	0.2	0.03	0.05	0.01	1	3	9	2	0.1	0.2	0.1
		MAX	7.2	0.87	0.82	0.7	0.13	0.75	0.45	62	157	159	80	5.2	1.1	5.3
		MIN	6.2	0.17	0.62	0.3	0.06	0.62	0.40	50	150	121	76	4.8	0.7	4.9
105B P	7	MEAN	7.3	0.53	0.71	0.6	0.06	0.66	0.40	52	122	110	72	4.4	0.8	4.5
		S.D.	0.4	0.25	0.06	0.2	0.03	0.03	0.02	3	10	5	2	0.2	0.2	0.2
		MAX	8.0	0.85	0.82	0.9	0.11	0.71	0.45	56	140	116	76	4.7	1.1	4.8
		MIN	6.7	0.19	0.65	0.2	0.02	0.62	0.37	47	110	102	70	4.0	0.7	4.1
105B Q	7	MEAN	6.9	0.45	0.73	0.5	0.07	0.65	0.39	51	123	106	72	4.4	0.8	4.4
		S.D.	0.3	0.17	0.05	0.1	0.04	0.05	0.03	4	8	13	3	0.3	0.1	0.3
		MAX	7.5	0.66	0.83	0.7	0.10	0.74	0.43	58	138	122	75	4.7	1.1	4.8
		MIN	6.6	0.15	0.67	0.3	-0.01	0.58	0.33	45	112	89	67	3.9	0.7	4.0
105B S	6	MEAN	7.3	0.59	0.71	0.6	0.08	0.62	0.39	52	126	111	74	4.4	0.9	4.5
		S.D.	0.4	0.19	0.04	0.2	0.04	0.04	0.02	3	7	15	2	0.4	0.2	0.3
		MAX	7.8	0.80	0.80	0.9	0.15	0.68	0.43	58	133	128	77	4.7	1.1	4.8
		MIN	6.7	0.22	0.68	0.3	0.00	0.55	0.37	49	116	82	70	3.7	0.6	3.8
107C P	1	MEAN	4.4				0.08	0.77	0.42	52	132	111	73	4.9	0.9	5.0
		S.D.														
		MAX														
		MIN														
107C Q	1	MEAN	6.6	0.33	0.82	0.5	0.02	0.77	0.43	51	135	103	73	5.1	1.1	5.2
		S.D.														
		MAX														
		MIN														
107C S	1	MEAN	3.7	0.38	0.77	0.6	-0.03	0.74	0.47	49	115	108	58	4.2	1.7	4.5
		S.D.														
		MAX														
		MIN														
301A P	1	MEAN	7.9	0.00	0.68	0.8	0.05	0.62	0.42	55	204	180	86	4.9	0.9	4.9
		S.D.														
		MAX														
		MIN														

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
301B	7	MEAN	7.0	0.49	0.70	0.5	0.07	0.65	0.43	54	182	175	84	4.0	1.0	5.0
P		S.D.	0.6	0.23	0.07	0.2	0.04	0.06	0.02	4	6	9	2	0.1	0.1	0.1
		MAX	7.5	0.82	0.82	0.7	0.13	0.74	0.47	63	195	186	87	5.1	1.3	5.2
		MIN	5.9	0.19	0.63	0.2	-0.01	0.59	0.40	50	175	158	81	4.7	0.8	4.7
305B	3	MEAN	4.1	0.32	0.80	0.3	0.04	0.68	0.42	56	212	183	87	4.5	1.4	4.7
P		S.D.	2.0	0.10	0.03	0.1	0.05	0.04	0.05	2	7	17	3	0.1	0.1	0.1
		MAX	6.2	0.42	0.83	0.5	0.10	0.71	0.48	58	221	207	90	4.6	1.6	4.9
		MIN	1.4	0.21	0.77	0.2	-0.03	0.63	0.37	54	203	167	82	4.4	1.3	4.6
305B	2	MEAN	5.1	0.30	0.82	0.3	0.02	0.75	0.40	54	213	199	86	5.0	1.3	5.2
Q		S.D.	0.4	0.06	0.01	0.1	0.00	0.04	0.00	4	1	19	2	0.2	0.2	0.1
		MAX	5.5	0.35	0.83	0.4	0.02	0.78	0.40	58	214	217	88	5.2	1.5	5.3
		MIN	4.7	0.24	0.82	0.2	0.02	0.71	0.40	50	212	180	84	4.8	1.1	5.1
305B	3	MEAN	6.8	0.42	0.76	0.4	0.02	0.69	0.40	56	218	190	87	4.6	1.4	4.8
S		S.D.	0.4	0.19	0.07	0.2	0.03	0.04	0.02	4	1	13	2	0.2	0.1	0.2
		MAX	7.4	0.67	0.83	0.7	0.05	0.72	0.43	59	220	206	89	4.9	1.5	5.1
		MIN	6.5	0.20	0.67	0.2	-0.02	0.64	0.37	50	217	174	84	4.4	1.3	4.7
305C	5	MEAN	6.7	0.62	0.68	0.6	0.05	0.65	0.40	57	189	175	88	4.7	1.0	4.8
P		S.D.	1.3	0.22	0.04	0.2	0.06	0.04	0.03	1	4	13	3	0.3	0.2	0.3
		MAX	8.5	0.80	0.75	0.8	0.15	0.72	0.45	58	197	189	91	5.1	1.2	5.2
		MIN	4.8	0.26	0.63	0.3	-0.01	0.61	0.38	55	185	158	85	4.3	0.7	4.5
305C	6	MEAN	6.4	0.51	0.69	0.5	0.05	0.62	0.39	56	181	183	87	4.5	1.1	4.6
Q		S.D.	0.8	0.10	0.03	0.1	0.03	0.03	0.03	5	11	5	1	0.2	0.0	0.2
		MAX	7.4	0.67	0.73	0.6	0.11	0.66	0.43	63	195	189	89	4.8	1.2	4.9
		MIN	4.8	0.35	0.63	0.4	0.00	0.58	0.33	49	162	175	86	4.1	1.1	4.3
305C	5	MEAN	6.8	0.56	0.70	0.6	0.05	0.65	0.40	59	185	176	88	4.7	1.1	4.8
S		S.D.	1.1	0.21	0.04	0.2	0.06	0.06	0.02	5	14	12	1	0.4	0.1	0.4
		MAX	7.9	0.84	0.77	0.9	0.13	0.71	0.43	68	204	188	89	5.2	1.2	5.2
		MIN	4.8	0.26	0.67	0.3	-0.03	0.55	0.38	53	168	155	87	4.0	1.0	4.1
5111D	1	MEAN	7.3	0.78	0.70	0.9	0.05	0.65	0.42	48	176	161	81	4.7	0.6	4.8
P		S.D.														
		MAX														
		MIN														
5132D	6	MEAN	7.1	0.82	0.70	0.7	0.06	0.67	0.42	53	139	124	75	4.7	0.9	4.8
P		S.D.	0.5				0.03	0.05	0.03	2	9	40	1	0.2	0.2	0.2
		MAX	7.8				0.10	0.75	0.45	55	149	178	77	5.0	1.1	5.1
		MIN	6.4				0.02	0.62	0.38	51	126	66	73	4.5	0.6	4.5
5134D	1	MEAN	6.8	0.65	0.63	0.7	0.00	0.61	0.43	58	135	93	71	4.6	0.9	4.7
P		S.D.														
		MAX														
		MIN														

WOMEN'S COMPETITION

FINA CUP 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
5134D	2	MEAN	6.2	0.60	0.67	0.7	0.06	0.61	0.38	53	125	134	75	4.5	0.9	4.6
Q		S.D.	0.3	0.15	0.03	0.1	0.03	0.03	0.05	1	3	46	2	0.2	0.2	0.1
		MAX	6.5	0.60	0.73	0.7	0.09	0.64	0.43	53	127	179	77	4.7	1.1	4.8
		MIN	5.9	0.30	0.67	0.5	0.03	0.57	0.33	52	122	88	73	4.4	0.7	4.5
5134D	1	MEAN	6.4	0.40	0.70	0.5	0.21	0.59	0.40	50	138	103	67	4.0	1.1	4.2
S		S.D.														
		MAX														
		MIN														
5136D	1	MEAN	7.4	0.86	0.73	0.8	0.09	0.68	0.37	54	142	115	69	4.6	1.2	4.7
P		S.D.														
		MAX														
		MIN														
5136D	1	MEAN	6.6	0.56	0.73	0.7	0.09	0.70	0.38	53	140	114	71	4.6	1.0	4.7
S		S.D.														
		MAX														
		MIN														
5335D	4	MEAN	7.3	0.57	0.77	0.5	0.10	0.68	0.55	64	212	180	87	4.8	1.2	4.9
P		S.D.	0.5	0.32	0.08	0.3	0.17	0.04	0.27	12	11	37	0	0.1	0.1	0.1
		MAX	8.0	0.91	0.87	0.9	0.40	0.72	1.02	85	226	221	88	4.9	1.3	5.0
		MIN	6.8	0.23	0.67	0.3	-0.03	0.61	0.38	55	196	120	87	4.5	1.1	4.7
5335D	2	MEAN	6.7	0.71	0.73	0.6	0.03	0.67	0.40	55	221	190	89	4.7	1.2	4.8
Q		S.D.	0.1	0.24	0.05	0.2	0.00	0.02	0.02	1	10	38	3	0.3	0.0	0.3
		MAX	6.8	0.71	0.83	0.6	0.03	0.69	0.42	55	231	228	91	5.0	1.2	5.1
		MIN	6.6	0.24	0.73	0.2	0.02	0.65	0.37	54	211	152	86	4.4	1.1	4.5
5335D	5	MEAN	7.0	0.56	0.72	0.6	0.00	0.65	0.40	57	213	178	89	4.7	1.2	4.9
S		S.D.	0.3	0.26	0.07	0.3	0.02	0.03	0.01	1	8	35	2	0.3	0.1	0.3
		MAX	7.4	0.85	0.83	0.9	0.03	0.72	0.40	58	225	223	92	5.1	1.4	5.2
		MIN	6.6	0.22	0.63	0.2	-0.02	0.63	0.38	55	205	133	87	4.2	1.1	4.5
201A	1	MEAN	7.7				0.08	0.54	0.45	51	187	189	81	3.9	0.7	4.0
P		S.D.														
		MAX														
		MIN														
201B	7	MEAN	7.0				0.11	0.48	0.43	56	176	182	79	3.8	0.8	3.9
P		S.D.	0.4				0.01	0.04	0.02	5	3	8	2	0.1	0.2	0.1
		MAX	7.7				0.12	0.57	0.48	63	181	194	81	4.1	1.1	4.2
		MIN	6.5				0.08	0.45	0.40	50	171	174	76	3.7	0.6	3.8
205B	4	MEAN	6.0				0.10	0.49	0.42	57	206	216	67	3.7	1.1	3.8
P		S.D.	0.9				0.02	0.07	0.04	2	5	5	1	0.1	0.1	0.1
		MAX	6.7				0.12	0.59	0.47	60	214	220	69	3.8	1.2	3.9
		MIN	4.5				0.07	0.41	0.37	54	200	208	65	3.5	1.0	3.7

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
205B	2	MEAN	6.3				0.13	0.46	0.43	61	206	205	66	3.7	1.2	3.9
Q		S.D.	0.3				0.04	0.00	0.00	3	1	12	1	0.1	0.0	0.1
		MAX	6.6				0.16	0.46	0.43	63	206	217	66	3.8	1.2	4.0
		MIN	6.0				0.09	0.46	0.43	58	205	193	65	3.6	1.2	3.8
205B	3	MEAN	6.0				0.10	0.49	0.41	56	212	214	66	3.7	1.0	3.9
S		S.D.	1.5				0.01	0.03	0.02	2	3	5	2	0.2	0.1	0.1
		MAX	7.3				0.12	0.54	0.43	58	214	222	69	3.8	1.1	4.0
		MIN	3.8				0.09	0.46	0.38	53	208	210	63	3.5	0.9	3.7
205C	4	MEAN	7.0				0.10	0.48	0.40	57	184	184	74	3.9	0.9	4.0
P		S.D.	0.6				0.01	0.01	0.02	5	9	12	1	0.2	0.1	0.2
		MAX	7.8				0.12	0.49	0.42	62	196	196	76	4.1	1.0	4.3
		MIN	6.1				0.08	0.46	0.37	50	174	170	72	3.7	0.8	3.8
205C	5	MEAN	5.6				0.08	0.45	0.41	59	189	184	72	3.8	0.9	3.9
Q		S.D.	0.8				0.02	0.05	0.03	3	11	12	3	0.2	0.1	0.2
		MAX	6.8				0.11	0.50	0.45	63	203	198	76	4.0	1.1	4.1
		MIN	4.5				0.04	0.36	0.37	54	173	163	69	3.3	0.7	3.5
205C	5	MEAN	7.1				0.11	0.48	0.42	57	186	179	73	3.8	0.9	3.9
S		S.D.	0.5				0.02	0.05	0.02	2	7	16	2	0.2	0.1	0.2
		MAX	7.9				0.13	0.53	0.43	60	194	206	75	4.0	1.1	4.1
		MIN	6.5				0.08	0.39	0.38	53	176	160	70	3.4	0.8	3.5
403B	8	MEAN	7.3				0.09	0.49	0.41	54	131	121	87	3.6	0.9	3.7
P		S.D.	0.5				0.03	0.04	0.02	4	10	13	2	0.2	0.1	0.2
		MAX	8.0				0.14	0.56	0.43	60	148	141	89	3.9	1.0	4.0
		MIN	6.3				0.06	0.43	0.37	45	116	101	84	3.3	0.8	3.4
405C	8	MEAN	7.1				0.09	0.49	0.42	54	121	107	85	3.4	1.0	3.5
P		S.D.	0.6				0.03	0.04	0.02	2	10	8	2	0.2	0.1	0.2
		MAX	7.7				0.14	0.54	0.45	58	135	117	88	3.8	1.2	3.9
		MIN	5.6				0.04	0.41	0.38	50	105	96	82	3.0	0.9	3.3
405C	8	MEAN	6.8				0.09	0.44	0.41	56	116	100	87	3.3	1.0	3.4
Q		S.D.	0.6				0.03	0.05	0.03	6	6	12	2	0.3	0.1	0.3
		MAX	7.8				0.13	0.51	0.47	64	130	118	90	3.7	1.2	3.9
		MIN	5.8				0.05	0.32	0.38	48	107	78	84	2.7	0.9	2.9
405C	7	MEAN	6.9				0.09	0.47	0.41	55	125	101	86	3.4	1.1	3.5
S		S.D.	0.7				0.03	0.05	0.03	4	8	16	2	0.3	0.1	0.3
		MAX	7.8				0.15	0.52	0.45	62	134	118	90	3.8	1.3	3.9
		MIN	6.1				0.06	0.36	0.37	50	112	75	83	2.7	1.0	3.0
5235D	2	MEAN	6.2				0.12	0.45	0.44	60	225	174	69	3.6	1.0	3.8
P		S.D.	0.1				0.03	0.02	0.02	0	7	66	3	0.1	0.0	0.1
		MAX	6.3				0.14	0.46	0.45	60	232	240	72	3.7	1.0	3.9
		MIN	6.0				0.09	0.43	0.42	60	218	108	66	3.5	0.9	3.7

WOMEN'S COMPETITION

FINA CUP 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
5235D	3	MEAN	5.4				0.10	0.44	0.42	58	224	184	71	3.8	1.0	3.9
Q		S.D.	0.6				0.03	0.02	0.01	4	9	45	1	0.1	0.1	0.0
		MAX	6.1				0.15	0.46	0.43	63	233	216	72	3.9	1.1	4.0
		MIN	4.7				0.07	0.42	0.40	53	211	121	70	3.7	0.9	3.9
5235D	1	MEAN	6.3				0.12	0.43	0.43	63	219	207	70	3.8	1.0	4.0

WOMEN'S COMPETITION — CANADIAN SUMMER NATIONALS (CALGARY) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
101A	2	MEAN	6.2	0.53	0.68	0.6	0.07	0.62	0.41	53	172	159	83	4.9	0.6	4.9
		S.D.	1.3	0.00	0.00	0.0	0.01	0.04	0.01	3	1	1	1	0.0	0.1	0.0
		MAX	7.5	0.53	0.68	0.6	0.07	0.65	0.42	55	172	160	84	4.9	0.7	4.9
		MIN	4.8	0.53	0.68	0.6	0.06	0.58	0.40	50	171	158	82	4.8	0.5	4.9
101B	2	MEAN	7.0	0.56	0.65	0.6	0.03	0.63	0.44	55	169	162	81	4.7	0.8	4.7
		S.D.	0.2	0.01	0.02	0.0	0.02	0.05	0.01	2	2	10	1	0.2	0.0	0.2
		MAX	7.2	0.57	0.67	0.6	0.04	0.67	0.45	56	170	171	81	4.8	0.8	4.9
		MIN	6.8	0.55	0.63	0.6	0.01	0.58	0.43	53	167	152	80	4.5	0.7	4.6
101C	2	MEAN	6.7	0.39	0.67	0.5	0.04	0.56	0.39	55	167	137	82	4.6	0.8	4.7
		S.D.	0.1	0.01	0.03	0.0	0.01	0.00	0.01	5	4	6	2	0.3	0.1	0.3
		MAX	6.8	0.40	0.70	0.5	0.05	0.56	0.40	59	171	142	83	4.9	0.9	4.9
		MIN	6.6	0.38	0.63	0.5	0.02	0.55	0.37	50	163	131	80	4.3	0.7	4.4
103B	3	MEAN	7.4	0.58	0.67	0.7	0.06	0.64	0.42	55	144	161	75	4.7	1.1	4.8
		S.D.	0.7	0.07	0.03	0.0	0.04	0.04	0.04	1	6	18	2	0.1	0.0	0.1
		MAX	8.0	0.67	0.70	0.7	0.11	0.69	0.45	56	152	186	78	4.8	1.2	4.9
		MIN	6.5	0.50	0.63	0.7	0.03	0.61	0.37	54	137	143	73	4.6	1.1	4.7
103C	1	MEAN	7.5	0.00	0.00	0.0	0.05	0.58	0.38	58	161	146	77	4.8	0.8	4.8
		S.D.														
		MAX														
		MIN														
105B	10	MEAN	6.9	0.52	0.67	0.6	0.06	0.61	0.38	54	124	111	73	4.2	0.9	4.3
		S.D.	0.3	0.12	0.03	0.1	0.05	0.03	0.03	5	10	13	2	0.2	0.1	0.2
		MAX	7.4	0.67	0.72	0.8	0.15	0.66	0.43	63	140	134	75	4.6	1.2	4.7
		MIN	6.2	0.31	0.62	0.5	-0.02	0.57	0.35	49	106	82	70	3.8	0.7	3.9
301A	4	MEAN	7.0	0.44	0.67	0.5	0.03	0.60	0.41	55	202	163	84	4.5	1.0	4.6
		S.D.	0.3	0.13	0.04	0.1	0.06	0.05	0.02	3	3	3	1	0.3	0.1	0.3
		MAX	7.5	0.64	0.70	0.7	0.11	0.67	0.43	60	204	168	86	4.9	1.2	5.1
		MIN	6.7	0.31	0.60	0.4	-0.04	0.55	0.38	53	197	159	83	4.2	0.9	4.3
301B	6	MEAN	7.1	0.54	0.66	0.6	0.05	0.62	0.43	53	191	167	84	4.7	1.0	4.8
		S.D.	0.6	0.10	0.03	0.1	0.03	0.04	0.03	3	6	9	1	0.2	0.1	0.2
		MAX	7.7	0.68	0.70	0.7	0.07	0.69	0.47	56	202	180	86	4.9	1.1	5.0
		MIN	6.0	0.36	0.62	0.5	0.00	0.58	0.40	49	184	153	83	4.4	0.9	4.5
305C	10	MEAN	6.0	0.50	0.67	0.6	0.02	0.61	0.38	59	186	157	86	4.4	1.1	4.6
		S.D.	0.9	0.10	0.03	0.1	0.03	0.06	0.02	3	7	36	2	0.2	0.1	0.2
		MAX	7.5	0.69	0.72	0.8	0.09	0.73	0.42	64	194	193	89	4.7	1.2	4.9
		MIN	4.3	0.35	0.63	0.4	-0.03	0.51	0.35	54	169	72	84	4.1	0.9	4.2
5132D	8	MEAN	6.7	0.47	0.69	0.6	0.07	0.60	0.40	53	137	118	75	4.5	0.9	4.5
		S.D.	0.3	0.11	0.02	0.1	0.05	0.04	0.02	4	5	27	2	0.2	0.2	0.2
		MAX	7.4	0.59	0.72	0.7	0.13	0.67	0.43	61	144	156	77	4.7	1.1	4.8
		MIN	6.3	0.29	0.65	0.4	0.00	0.55	0.37	49	126	76	72	4.1	0.7	4.2

WOMEN'S COMPETITION — CANADIAN SUMMER NATIONALS (CALGARY) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
5134D	3	MEAN	6.8	0.54	0.68	0.6	0.06	0.57	0.39	52	139	130	74	4.4	1.0	4.6
		S.D.	0.6	0.13	0.01	0.1	0.01	0.04	0.01	4	6	13	2	0.1	0.2	0.1
		MAX	7.3	0.67	0.70	0.7	0.07	0.62	0.40	58	144	141	76	4.5	1.2	4.6
		MIN	6.0	0.37	0.67	0.5	0.05	0.53	0.37	49	130	112	72	4.3	0.8	4.4
5333D	1	MEAN	6.7	0.59	0.70	0.6	0.00	0.59	0.35	51	217	127	91	4.4	1.1	4.6
		S.D.														
		MAX														
		MIN														
5335D	1	MEAN	5.0	0.45	0.70	0.5	-0.01	0.60	0.38	61	225	94	88	4.2	1.3	4.4
		S.D.														
		MAX														
		MIN														
201A	3	MEAN	6.7	0.00	0.00	0.0	0.05	0.35	0.40	54	187	187	79	3.5	0.9	3.6
		S.D.	0.2	0.00	0.00	0.0	0.01	0.01	0.02	3	6	1	1	0.1	0.1	0.1
		MAX	7.0	0.00	0.00	0.0	0.06	0.37	0.43	58	195	188	80	3.7	1.0	3.8
		MIN	6.5	0.00	0.00	0.0	0.04	0.34	0.37	51	182	185	77	3.4	0.9	3.5
201B	7	MEAN	6.8	0.00	0.00	0.0	0.06	0.40	0.45	59	178	178	81	3.9	0.8	3.9
		S.D.	0.4	0.00	0.00	0.0	0.02	0.05	0.03	3	3	3	2	0.1	0.1	0.1
		MAX	7.3	0.00	0.00	0.0	0.12	0.48	0.47	65	183	181	84	4.0	1.0	4.1
		MIN	6.1	0.00	0.00	0.0	0.04	0.32	0.40	57	173	173	79	3.8	0.6	3.8
205B	2	MEAN	5.6	0.00	0.00	0.0	0.07	0.43	0.40	60	217	173	71	3.6	1.0	3.7
		S.D.	0.3	0.00	0.00	0.0	0.01	0.03	0.00	2	1	12	1	0.2	0.2	0.2
		MAX	5.8	0.00	0.00	0.0	0.07	0.46	0.40	62	218	184	71	3.8	1.3	4.0
		MIN	5.3	0.00	0.00	0.0	0.06	0.40	0.40	58	216	161	70	3.4	0.8	3.5
205C	8	MEAN	5.7	0.00	0.00	0.0	0.06	0.40	0.39	60	186	171	75	3.6	0.9	3.7
		S.D.	1.0	0.00	0.00	0.0	0.02	0.05	0.03	3	4	11	2	0.1	0.1	0.1
		MAX	7.4	0.00	0.00	0.0	0.10	0.47	0.43	65	192	186	78	3.8	1.0	4.0
		MIN	3.9	0.00	0.00	0.0	0.03	0.34	0.35	54	179	155	72	3.4	0.7	3.5
403B	10	MEAN	7.2	0.00	0.00	0.0	0.06	0.38	0.41	56	123	116	87	3.2	1.0	3.4
		S.D.	0.4	0.00	0.00	0.0	0.02	0.06	0.03	3	8	14	2	0.3	0.1	0.3
		MAX	8.0	0.00	0.00	0.0	0.12	0.48	0.45	61	133	141	90	3.7	1.1	3.8
		MIN	6.7	0.00	0.00	0.0	0.02	0.29	0.37	51	108	95	84	2.7	0.8	3.0
405C	10	MEAN	6.0	0.00	0.00	0.0	0.07	0.38	0.40	56	121	102	89	3.1	0.9	3.3
		S.D.	0.8	0.00	0.00	0.0	0.03	0.04	0.03	3	9	9	2	0.2	0.1	0.2
		MAX	7.0	0.00	0.00	0.0	0.12	0.45	0.47	62	135	114	92	3.4	1.1	3.6
		MIN	4.6	0.00	0.00	0.0	0.02	0.31	0.35	53	101	85	87	2.7	0.8	2.9
5231D	2	MEAN	6.3	0.00	0.00	0.0	0.07	0.34	0.39	60	210	226	74	3.5	0.9	3.6
		S.D.	0.3	0.00	0.00	0.0	0.01	0.00	0.02	2	9	32	1	0.0	0.1	0.1
		MAX	6.6	0.00	0.00	0.0	0.08	0.34	0.40	62	218	258	74	3.5	1.1	3.7
		MIN	6.0	0.00	0.00	0.0	0.06	0.34	0.37	58	201	194	73	3.5	0.8	3.6

WOMEN'S COMPETITION — CANADIAN SUMMER NATIONALS (CALGARY) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
5233D	4	MEAN	6.9	0.00	0.00	0.0	0.06	0.38	0.42	57	213	174	70	3.3	0.9	3.4
		S.D.	0.3	0.00	0.00	0.0	0.03	0.03	0.01	4	6	16	2	0.1	0.1	0.0
		MAX	7.5	0.00	0.00	0.0	0.11	0.42	0.43	63	220	200	73	3.4	1.0	3.5
		MIN	6.6	0.00	0.00	0.0	0.04	0.34	0.40	53	206	160	67	3.3	0.8	3.4
5235D	1	MEAN	6.5	0.00	0.00	0.0	0.06	0.43	0.40	62	232	133	71	3.7	1.1	3.9
		S.D.														
		MAX														
		MIN														

WOMEN'S COMPETITION — COMMONWEALTH TRIALS (EDMONTON) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
101A	1	MEAN	7.1	0.63	0.68	0.6	0.00	0.54	0.42	48	178	141	78	4.6	0.9	4.7
		S.D.														
		MAX														
		MIN														
101B	1	MEAN	6.5	0.52	0.67	0.6	0.12	0.61	0.43	53	165	164	82	4.6	0.6	4.6
		S.D.														
		MAX														
		MIN														
101C	1	MEAN	6.7	0.36	0.67	0.4	0.01	0.64	0.43	53	166	135	78	4.6	1.0	4.7
		S.D.														
		MAX														
		MIN														
103B	6	MEAN	7.2	0.43	0.64	0.5	0.05	0.61	0.43	54	147	143	75	4.6	0.9	4.6
		S.D.	0.5	0.13	0.03	0.1	0.03	0.05	0.03	3	6	10	1	0.2	0.1	0.2
		MAX	8.0	0.55	0.68	0.6	0.10	0.68	0.48	58	157	163	76	4.9	1.0	5.0
		MIN	6.6	0.25	0.60	0.3	0.02	0.53	0.40	50	139	131	74	4.3	0.7	4.3
103C	1	MEAN	6.7				0.09	0.39	0.40	70	144	151	74	4.3	1.0	4.5
		S.D.														
		MAX														
		MIN														
105B	10	MEAN	7.0	0.48	0.67	0.6	0.06	0.60	0.40	52	124	112	72	4.2	0.9	4.3
		S.D.	0.6	0.15	0.03	0.2	0.05	0.05	0.03	3	10	9	2	0.2	0.1	0.2
		MAX	8.2	0.73	0.70	0.9	0.14	0.67	0.45	56	138	130	75	4.6	1.1	4.7
		MIN	5.5	0.20	0.60	0.3	0.00	0.51	0.37	47	108	102	70	3.9	0.7	4.0
301A	3	MEAN	6.8	0.46	0.66	0.5	0.02	0.59	0.42	53	205	176	82	4.5	1.1	4.7
		S.D.	0.2	0.04	0.01	0.0	0.08	0.02	0.02	2	2	14	1	0.1	0.0	0.1
		MAX	6.9	0.50	0.67	0.5	0.13	0.62	0.45	56	208	189	83	4.7	1.1	4.8
		MIN	6.5	0.42	0.65	0.5	-0.05	0.56	0.40	50	203	156	81	4.4	1.0	4.5
301B	6	MEAN	6.8	0.43	0.65	0.5	0.06	0.64	0.44	52	188	166	84	4.6	1.0	4.7
		S.D.	0.8	0.13	0.04	0.1	0.03	0.05	0.03	1	7	7	3	0.2	0.2	0.2
		MAX	7.6	0.60	0.70	0.6	0.12	0.69	0.48	53	200	175	88	5.0	1.3	5.1
		MIN	5.0	0.24	0.58	0.3	0.02	0.56	0.40	50	180	157	78	4.4	0.7	4.4
305C	10	MEAN	6.1	0.55	0.67	0.6	0.04	0.61	0.41	58	188	172	87	4.4	1.1	4.5
		S.D.	0.9	0.16	0.04	0.2	0.05	0.05	0.02	5	8	22	2	0.2	0.1	0.2
		MAX	7.3	0.78	0.70	0.9	0.14	0.68	0.43	68	199	206	91	4.8	1.3	4.9
		MIN	4.5	0.21	0.58	0.3	-0.02	0.53	0.38	52	172	115	83	4.1	0.9	4.2
5132D	5	MEAN	6.8	0.45	0.69	0.5	0.08	0.61	0.42	55	138	118	74	4.4	0.9	4.5
		S.D.	0.3	0.14	0.01	0.1	0.03	0.04	0.03	2	4	17	2	0.2	0.2	0.2
		MAX	7.4	0.56	0.70	0.6	0.14	0.67	0.47	58	143	146	77	4.9	1.2	4.9
		MIN	6.4	0.20	0.67	0.3	0.03	0.56	0.38	53	131	99	71	4.1	0.7	4.2

WOMEN'S COMPETITION — COMMONWEALTH TRIALS (EDMONTON) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
5134D	3	MEAN	6.4	0.58	0.72	0.7	0.04	0.60	0.38	49	134	136	72	4.3	0.9	4.4
		S.D.	0.4				0.02	0.05	0.00	3	9	9	3	0.2	0.2	0.2
		MAX	6.9				0.06	0.67	0.38	54	146	148	77	4.5	1.1	4.6
		MIN	6.1				0.02	0.54	0.37	47	123	129	70	4.0	0.8	4.1
5331D	1	MEAN	7.0	0.65	0.70	0.7	0.01	0.60	0.42	55	221	181	86	4.8	1.0	4.9
		S.D.														
		MAX														
		MIN														
5333D	2	MEAN	6.5	0.54	0.65	0.6	0.02	0.58	0.41	55	215	171	87	4.2	1.1	4.4
		S.D.														
		MAX														
		MIN														
5335D	1	MEAN	6.2	0.33	0.68	0.4	0.03	0.64	0.38	58	239	109	86	4.2	1.2	4.4
		S.D.														
		MAX														
		MIN														
201A	3	MEAN	6.9				0.08	0.37	0.43	57	189	179	75	3.5	1.0	3.6
		S.D.	0.3				0.00	0.02	0.01	2	4	3	1	0.0	0.1	0.0
		MAX	7.1				0.09	0.39	0.45	60	195	183	76	3.5	1.1	3.6
		MIN	6.5				0.08	0.34	0.42	55	185	177	74	3.4	0.9	3.6
201B	7	MEAN	7.1				0.07	0.40	0.45	56	176	168	78	3.7	0.8	3.8
		S.D.	0.1				0.01	0.05	0.02	3	5	9	3	0.1	0.2	0.1
		MAX	7.3				0.09	0.48	0.48	64	182	182	82	4.0	1.1	4.1
		MIN	6.9				0.04	0.34	0.42	53	168	154	73	3.6	0.6	3.7
205B	2	MEAN	5.9				0.09	0.41	0.45	64	211	167	71	3.7	0.9	3.8
		S.D.														
		MAX														
		MIN														
205C	8	MEAN	5.7				0.08	0.40	0.43	59	188	185	73	3.6	0.8	3.7
		S.D.	0.9				0.01	0.03	0.02	4	7	6	2	0.1	0.1	0.1
		MAX	7.0				0.11	0.45	0.47	64	202	197	76	3.8	1.0	3.9
		MIN	4.5				0.06	0.35	0.38	53	175	176	70	3.4	0.7	3.5
401B	1	MEAN	6.6				0.08	0.39	0.40	50	151	132	79	3.0	1.1	3.2
		S.D.														
		MAX														
		MIN														
403B	10	MEAN	6.8				0.07	0.40	0.42	55	128	113	85	3.3	1.0	3.4
		S.D.	0.6				0.01	0.04	0.03	4	4	25	2	0.3	0.1	0.2
		MAX	8.0				0.08	0.45	0.48	63	136	171	89	3.7	1.1	3.8
		MIN	5.9				0.06	0.34	0.37	50	121	79	83	2.9	0.7	3.1

WOMEN'S COMPETITION COMMONWEALTH TRIALS (EDMONTON) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
405B	1	MEAN	7.4				0.08	0.44	0.43	53	92	75	90	3.1	1.0	3.3
		S.D.														
		MAX														
		MIN														
405C	8	MEAN	6.0				0.08	0.39	0.41	53	121	99	87	3.1	0.9	3.2
		S.D.	0.8				0.01	0.06	0.02	2	10	15	2	0.3	0.1	0.3
		MAX	7.2				0.11	0.45	0.43	58	136	127	90	3.5	1.0	3.7
		MIN	5.1				0.06	0.29	0.37	50	106	77	85	2.6	0.8	2.7
5231D	1	MEAN	6.2				0.08	0.35	0.42	55	204	197	70	3.4	0.9	3.5
		S.D.														
		MAX														
		MIN														
5233D	1	MEAN	6.6				0.08	0.43	0.45	60	212	151	69	3.4	0.9	3.5
		S.D.														
		MAX														
		MIN														
5235D	4	MEAN	5.6				0.09	0.41	0.44	61	221	191	67	3.6	1.0	3.7
		S.D.	0.7				0.01	0.03	0.02	4	10	57	3	0.1	0.2	0.1
		MAX	6.4				0.10	0.44	0.47	64	236	279	71	3.7	1.4	3.9
		MIN	4.7				0.08	0.37	0.42	55	208	128	63	3.5	0.9	3.6

WOMEN'S COMPETITION . DIVE CANADA 1990

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
105B	2	MEAN	7.9	0.30	0.72	0.4	0.05	0.51	0.36	56	119	112	72	4.2	0.8	4.2
F		S.D.	0.4	0.14	0.02	0.1	0.05	0.04	0.04	3	16	4	2	0.1	0.2	0.1
		MAX	8.2	0.43	0.73	0.5	0.10	0.55	0.40	58	135	115	74	4.2	1.0	4.3
		MIN	7.5	0.16	0.70	0.3	0.00	0.47	0.32	53	103	108	70	4.1	0.6	4.1
105B	6	MEAN	7.4	0.43	0.69	0.6	0.05	0.58	0.40	53	126	102	71	4.1	0.9	4.2
S		S.D.	0.3	0.10	0.03	0.1	0.04	0.05	0.03	2	11	13	3	0.3	0.2	0.3
		MAX	8.0	0.65	0.72	0.7	0.13	0.65	0.45	56	142	124	75	4.6	1.2	4.7
		MIN	7.0	0.27	0.63	0.4	0.01	0.50	0.35	50	114	86	67	3.6	0.6	3.7
107C	2	MEAN	7.0	0.38	0.77	0.5	0.00	0.70	0.43	52	122	113	73	4.8	0.8	4.8
F		S.D.	1.1	0.01	0.05	0.0	0.00	0.05	0.00	1	5	5	3	0.1	0.1	0.2
		MAX	8.1	0.39	0.82	0.5	0.00	0.75	0.43	52	127	118	75	4.9	1.0	5.0
		MIN	5.9	0.37	0.72	0.5	0.00	0.65	0.42	51	117	108	70	4.6	0.7	4.7
107C	2	MEAN	6.6	0.34	0.78	0.4	0.02	0.67	0.42	50	127	124	75	4.8	0.8	4.9
S		S.D.	0.5	0.07	0.06	0.0	0.01	0.05	0.00	2	2	12	2	0.3	0.1	0.3
		MAX	7.1	0.40	0.83	0.4	0.03	0.72	0.42	52	129	136	76	5.1	0.9	5.2
		MIN	6.1	0.27	0.72	0.4	0.01	0.62	0.42	48	125	112	73	4.5	0.7	4.6
305B	3	MEAN	6.9	0.41	0.71	0.4	0.00	0.62	0.40	60	209	144	91	4.6	0.9	4.7
F		S.D.	0.9	0.00	0.01	0.0	0.00	0.03	0.04	4	8	60	0	0.3	0.1	0.3
		MAX	8.0	0.41	0.72	0.4	0.00	0.66	0.45	66	216	203	92	4.9	1.0	5.0
		MIN	5.8	0.41	0.25	0.2	-0.01	0.58	0.37	56	198	62	91	4.2	0.9	4.3
305B	3	MEAN	6.4	0.40	0.74	0.4	-0.02	0.67	0.39	59	213	148	88	4.6	1.0	4.7
S		S.D.	1.0	0.03	0.05	0.0	0.01	0.05	0.02	3	10	46	1	0.4	0.1	0.4
		MAX	7.6	0.44	0.80	0.5	-0.01	0.74	0.42	61	226	191	90	4.9	1.2	5.0
		MIN	5.2	0.38	0.68	0.4	-0.04	0.62	0.38	55	203	85	87	4.1	0.9	4.2
305C	5	MEAN	6.3	0.42	0.68	0.5	0.04	0.62	0.39	57	187	196	84	4.3	1.1	4.5
S		S.D.	1.0	0.16	0.04	0.2	0.03	0.07	0.04	1	6	16	2	0.1	0.1	0.1
		MAX	8.0	0.57	0.72	0.6	0.07	0.70	0.45	58	197	222	87	4.5	1.2	4.6
		MIN	5.2	0.15	0.62	0.2	-0.01	0.52	0.32	55	179	179	81	4.2	0.9	4.3
5134D	2	MEAN	7.6	0.38	0.68	0.5	0.08	0.53	0.38	55	132	155	70	4.1	0.9	4.2
S		S.D.	0.3	0.22	0.04	0.2	0.04	0.02	0.03	4	15	50	1	0.1	0.1	0.1
		MAX	7.8	0.59	0.72	0.7	0.11	0.55	0.40	58	147	205	70	4.2	1.0	4.3
		MIN	7.3	0.16	0.63	0.3	0.04	0.51	0.35	51	117	105	69	4.0	0.8	4.1
5335D	3	MEAN	7.1	0.38	0.74	0.4	-0.01	0.65	0.39	56	215	152	87	4.5	1.2	4.6
F		S.D.	0.0	0.03	0.05	0.0	0.00	0.04	0.02	2	10	45	2	0.2	0.3	0.2
		MAX	7.1	0.42	0.82	0.5	0.00	0.68	0.42	58	229	199	90	4.6	1.6	4.8
		MIN	7.0	0.34	0.70	0.4	-0.01	0.60	0.37	54	205	92	85	4.2	0.9	4.3
5335D	3	MEAN	7.1	0.39	0.76	0.4	-0.01	0.64	0.40	56	217	152	88	4.5	1.1	4.6
S		S.D.	0.1	0.03	0.04	0.0	0.01	0.05	0.02	4	11	45	2	0.2	0.2	0.2
		MAX	7.2	0.43	0.82	0.4	0.00	0.71	0.42	60	233	199	90	4.7	1.3	4.9
		MIN	7.0	0.36	0.72	0.4	-0.03	0.59	0.38	50	206	91	86	4.1	0.8	4.3

WOMEN'S COMPETITION . DIVE CANADA 1990

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
205B	3	MEAN	6.8				0.10	0.43	0.42	59	206	192	65	3.6	1.0	3.8
F		S.D.	0.5				0.02	0.02	0.01	3	4	13	2	0.2	0.1	0.2
		MAX	7.3				0.13	0.45	0.43	63	210	209	67	3.9	1.1	4.1
		MIN	6.1				0.08	0.41	0.40	55	200	178	63	3.4	0.9	3.5
205B	4	MEAN	7.0				0.11	0.45	0.44	61	209	180	69	3.7	0.9	3.9
S		S.D.	0.1				0.01	0.03	0.02	1	3	17	2	0.2	0.1	0.2
		MAX	7.1				0.13	0.49	0.47	63	213	203	70	4.0	1.1	4.1
		MIN	6.8				0.09	0.41	0.42	60	205	155	66	3.5	0.9	3.6
205C	4	MEAN	5.9				0.09	0.42	0.41	57	181	206	73	3.6	0.9	3.7
S		S.D.	1.0				0.03	0.03	0.02	2	10	33	2	0.1	0.1	0.1
		MAX	7.2				0.13	0.45	0.42	58	189	262	74	3.8	1.0	3.9
		MIN	4.6				0.05	0.38	0.38	55	164	183	71	3.4	0.7	3.6
405C	4	MEAN	7.4				0.08	0.42	0.39	51	118	108	87	3.3	0.9	3.4
F		S.D.	0.3				0.02	0.04	0.03	4	9	11	4	0.3	0.1	0.3
		MAX	7.9				0.11	0.47	0.43	57	131	119	91	3.7	1.1	3.8
		MIN	7.1				0.05	0.36	0.35	45	109	92	81	3.0	0.8	3.1
405C	8	MEAN	7.0				0.06	0.41	0.41	55	123	102	87	3.2	0.9	3.3
S		S.D.	0.7				0.02	0.05	0.04	3	11	11	2	0.3	0.1	0.3
		MAX	7.7				0.10	0.48	0.47	58	142	120	90	3.8	1.1	3.9
		MIN	5.9				0.04	0.32	0.35	49	107	85	83	2.8	0.8	3.0
5235D	2	MEAN	6.4				0.11	0.44	0.43	61	216	130	65	3.6	1.1	3.7
S		S.D.	0.1				0.02	0.00	0.02	1	9	55	4	0.1	0.2	0.2
		MAX	6.5				0.13	0.44	0.45	62	225	184	69	3.7	1.3	3.9
		MIN	6.2				0.08	0.44	0.40	60	207	75	61	3.4	0.9	3.5

WOMEN'S COMPETITION — WORLD DIVING TRIALS (WINNIPEG) 1990

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
101A	1	MEAN	6.5	0.34	0.65	0.5	0.10	0.63	0.45	49	183	161	71	4.2	1.1	4.3
		S.D.														
		MAX														
		MIN														
101B	4	MEAN	6.9	0.49	0.66	0.6	0.03	0.65	0.46	51	164	173	79	4.6	0.9	4.7
		S.D.	0.1	0.03	0.03	0.0	0.04	0.04	0.02	2	8	14	3	0.1	0.1	0.1
		MAX	7.0	0.54	0.70	0.7	0.09	0.69	0.47	53	173	192	82	4.7	1.0	4.8
		MIN	6.8	0.46	0.62	0.5	-0.01	0.59	0.43	49	153	157	75	4.5	0.7	4.6
101C	1	MEAN	5.9	0.63	0.63	0.8	0.00	0.63	0.40	45	159	153	75	4.2	1.2	4.4
		S.D.														
		MAX														
		MIN														
103B	4	MEAN	6.9	0.45	0.66	0.5	0.04	0.61	0.44	53	143	155	74	4.6	1.1	4.7
		S.D.	0.8	0.16	0.04	0.2	0.03	0.02	0.02	3	5	13	1	0.3	0.0	0.2
		MAX	7.7	0.61	0.70	0.7	0.08	0.63	0.47	58	147	173	75	5.0	1.2	5.1
		MIN	5.6	0.23	0.60	0.4	0.00	0.57	0.43	49	134	142	73	4.3	1.0	4.4
105B	9	MEAN	6.5	0.51	0.67	0.6	0.04	0.62	0.42	51	115	107	69	4.1	1.1	4.3
		S.D.	1.0	0.11	0.04	0.1	0.03	0.04	0.02	3	10	22	3	0.2	0.2	0.2
		MAX	8.0	0.66	0.73	0.9	0.08	0.68	0.47	55	129	135	74	4.5	1.4	4.6
		MIN	4.7	0.34	0.58	0.5	0.00	0.56	0.37	47	93	71	65	3.7	0.8	3.8
107C	1	MEAN	6.2	0.26	0.70	0.4	0.01	0.66	0.43	51	121	110	67	4.4	1.1	4.5
		S.D.														
		MAX														
		MIN														
301A	4	MEAN	6.5	0.43	0.54	0.5	0.05	0.57	0.42	52	198	180	81	4.3	1.0	4.5
		S.D.	0.6	0.09	0.04	0.1	0.01	0.07	0.03	4	4	17	1	0.2	0.1	0.2
		MAX	7.5	0.69	0.73	0.9	0.06	0.72	0.45	56	208	198	85	4.8	1.1	4.9
		MIN	5.8	0.44	0.63	0.5	0.03	0.54	0.38	47	198	155	82	4.2	0.9	4.3
301B	6	MEAN	6.9	0.46	0.67	0.5	0.03	0.62	0.44	52	179	181	83	4.6	1.0	4.8
		S.D.	0.6	0.15	0.04	0.1	0.02	0.03	0.02	1	8	9	3	0.2	0.2	0.2
		MAX	7.7	0.65	0.70	0.7	0.06	0.65	0.48	53	193	198	86	5.0	1.3	5.1
		MIN	6.0	0.25	0.58	0.3	0.00	0.58	0.40	50	170	171	78	4.5	0.8	4.6
305B	1	MEAN	4.2	0.53	0.67	0.5	-0.01	0.57	0.38	58	228	161	89	4.1	1.1	4.2
		S.D.														
		MAX														
		MIN														
305C	8	MEAN	5.5	0.51	0.67	0.6	0.01	0.66	0.42	55	184	178	86	4.4	1.2	4.6
		S.D.	1.4	0.15	0.04	0.2	0.01	0.04	0.03	3	7	28	2	0.2	0.1	0.2
		MAX	7.2	0.72	0.72	0.9	0.03	0.72	0.47	60	192	215	89	4.8	1.4	4.9
		MIN	3.2	0.23	0.60	0.3	0.00	0.59	0.37	50	168	118	82	4.1	1.0	4.2

WOMEN'S COMPETITION — WORLD DIVING TRIALS (WINNIPEG) 1990

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
5132D	5	MEAN	6.4	0.57	0.63	0.7	0.05	0.60	0.42	51	131	129	74	4.3	0.9	4.4
		S.D.	0.7	0.04	0.05	0.1	0.02	0.04	0.03	5	9	28	2	0.2	0.2	0.2
		MAX	7.5	0.64	0.70	0.9	0.09	0.68	0.47	57	143	182	76	4.6	1.2	4.6
		MIN	5.8	0.51	0.57	0.6	0.03	0.55	0.40	42	121	105	70	4.0	0.7	4.2
5134D	1	MEAN	6.0	0.54	0.65	0.6	0.05	0.68	0.45	51	113	23	69	4.2	1.0	4.3
		S.D.														
		MAX														
		MIN														
5331D	2	MEAN	6.8	0.46	0.69	0.5	0.03	0.68	0.43	53	210	188	85	4.8	1.1	4.9
		S.D.														
		MAX														
		MIN														
5335D	4	MEAN	6.2	0.44	0.68	0.5	0.02	0.65	0.42	56	209	170	90	4.2	1.2	4.4
		S.D.	0.7	0.11	0.03	0.1	0.02	0.06	0.02	1	7	65	5	0.1	0.1	0.1
		MAX	7.2	0.53	0.72	0.6	0.06	0.72	0.45	58	218	267	98	4.4	1.3	4.5
		MIN	5.4	0.25	0.65	0.3	0.00	0.57	0.38	55	198	106	87	4.1	1.0	4.3
201A	2	MEAN	6.8				0.09	0.38	0.52	59	192	181	78	3.5	0.9	3.6
		S.D.														
		MAX														
		MIN														
201B	8	MEAN	7.2				0.12	0.44	0.47	54	171	174	79	3.7	0.9	3.8
		S.D.	0.6				0.02	0.03	0.03	3	7	12	2	0.2	0.1	0.2
		MAX	8.1				0.16	0.50	0.52	60	182	204	82	4.1	1.0	4.2
		MIN	6.3				0.11	0.40	0.42	49	161	162	75	3.4	0.7	3.5
205B	2	MEAN	6.8				0.10	0.46	0.43	59	213	156	68	3.5	1.0	3.7
		S.D.														
		MAX														
		MIN														
205C	8	MEAN	5.3				0.11	0.43	0.44	57	191	175	71	3.6	1.0	3.7
		S.D.	1.3				0.02	0.01	0.03	2	10	24	1	0.1	0.1	0.1
		MAX	7.5				0.14	0.45	0.48	61	207	204	73	3.9	1.2	4.0
		MIN	3.5				0.08	0.42	0.38	53	176	130	68	3.4	0.9	3.6
401A	2	MEAN	6.5				0.13	0.44	0.47	53	146	155	83	3.3	1.0	3.4
		S.D.														
		MAX														
		MIN														
403B	8	MEAN	6.8				0.10	0.41	0.43	54	128	112	86	3.4	0.9	3.5
		S.D.	0.9				0.03	0.04	0.03	4	5	28	3	0.3	0.1	0.3
		MAX	8.5				0.13	0.50	0.48	60	141	175	91	3.9	1.1	4.0
		MIN	5.6				0.04	0.35	0.40	48	120	82	83	3.0	0.8	3.1

WOMEN'S COMPETITION — WORLD DIVING TRIALS (WINNIPEG) 1990

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
405B	1	MEAN	7.0				0.15	0.40	0.38	47	82	71	89	2.5	1.1	2.7
		S.D.														
		MAX														
		MIN														
405C	9	MEAN	6.0				0.11	0.41	0.44	54	111	99	88	3.1	1.0	3.2
		S.D.	0.9				0.02	0.05	0.02	2	14	18	3	0.2	0.1	0.2
		MAX	7.9				0.13	0.49	0.47	57	130	128	92	3.4	1.2	3.6
		MIN	4.5				0.06	0.31	0.42	51	85	70	84	2.8	0.8	2.9
5233D	4	MEAN	6.0				0.14	0.41	0.46	56	219	183	69	3.4	1.0	3.5
		S.D.	0.4				0.03	0.02	0.04	3	11	12	2	0.1	0.2	0.1
		MAX	6.5				0.19	0.44	0.50	60	231	196	73	3.5	1.2	3.7
		MIN	5.5				0.11	0.38	0.40	53	203	164	67	3.3	0.8	3.4
5235D	3	MEAN	6.6				0.13	0.46	0.44	54	218	219	65	3.5	1.1	3.6
		S.D.	0.8				0.04	0.03	0.02	2	9	38	4	0.2	0.2	0.2
		MAX	7.2				0.18	0.50	0.47	57	225	273	70	3.6	1.4	3.9
		MIN	5.5				0.08	0.43	0.43	53	205	190	62	3.2	1.0	3.4

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DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
101A	1	MEAN	7.5	0.38	0.78	0.4	0.13	0.79	0.47	49	165	158	82	5.6	0.7	5.6
		S.D.														
		MAX														
		MIN														
101B	1	MEAN	7.4	0.55	0.82	0.6	0.08	0.84	0.48	52	174	176	84	5.7	0.9	5.8
		S.D.														
		MAX														
		MIN														
103B	7	MEAN	7.0	0.50	4.96	0.5	0.07	0.80			144	150	78	5.5	1.0	5.6
		S.D.	0.3	0.11	10.26	0.2	0.06	0.08			7	10	2	0.2	0.1	0.2
		MAX	7.7	0.61	30.08	0.6	0.19	0.92			156	164	81	5.9	1.2	6.0
		MIN	6.7	0.28	0.73	0.0	0.01	0.70			134	133	75	5.2	0.9	5.4
103C	1	MEAN	6.4	0.63	0.78	0.6	0.03	0.73	0.42	48	162	151	77	5.4	1.3	5.6
		S.D.														
		MAX														
		MIN														
107B	5	MEAN	5.6	0.30	0.49	0.3	0.08	0.83	0.42	53	103	100	71	5.0	1.1	5.1
		S.D.	1.4	0.25	0.40	0.3	0.03	0.06	0.03	2	7	13	3	0.2	0.2	0.2
		MAX	7.0	0.52	0.87	0.6	0.12	0.89	0.47	55	114	112	75	5.3	1.4	5.3
		MIN	2.9	0.00	0.00	0.0	0.04	0.75	0.40	50	93	83	67	4.8	0.8	4.9
107C	5	MEAN	5.7	0.55	0.78	0.6	0.04	0.77	0.44	50	121	116	75	5.1	1.0	5.2
		S.D.	1.4	0.08	0.02	0.1	0.05	0.07	0.02	1	8	7	2	0.2	0.1	0.2
		MAX	7.3	0.65	0.80	0.7	0.08	0.89	0.47	52	131	124	77	5.4	1.1	5.5
		MIN	3.7	0.42	0.75	0.5	-0.05	0.70	0.42	49	109	106	71	4.9	0.8	5.0
301A	5	MEAN	6.7	0.56	0.76	0.5	0.04	0.82	0.48	54	198	173	86	5.7	1.0	5.8
		S.D.	1.4	0.08	0.04	0.1	0.06	0.08	0.02	4	6	14	2	0.2	0.1	0.2
		MAX	8.6	0.67	0.80	0.7	0.14	0.89	0.50	60	208	187	88	5.9	1.1	6.0
		MIN	4.8	0.45	0.72	0.4	-0.04	0.66	0.45	48	190	150	84	5.4	1.0	5.5
301B	4	MEAN	7.3	0.47	0.79	0.5	0.10	0.80	0.45	54	186	178	86	5.6	1.0	5.7
		S.D.	0.4	0.04	0.04	0.0	0.03	0.06	0.02	3	1	3	1	0.2	0.1	0.2
		MAX	7.7	0.52	0.83	0.5	0.13	0.89	0.48	58	187	182	86	5.9	1.2	6.0
		MIN	6.6	0.42	0.73	0.4	0.05	0.74	0.43	51	185	174	84	5.4	0.9	5.4
305B	7	MEAN	5.5	0.54	0.80	0.5	0.04	0.81	0.41	54	203	182	89	5.2	1.2	5.4
		S.D.	1.5	0.07	0.04	0.1	0.05	0.07	0.02	4	8	13	2	0.3	0.1	0.3
		MAX	7.3	0.60	0.85	0.6	0.11	0.89	0.45	60	218	197	92	5.7	1.4	5.8
		MIN	3.4	0.43	0.73	0.4	-0.03	0.70	0.38	47	193	157	87	4.9	1.0	5.0
305C	1	MEAN	5.4	0.00	0.00	0.0	0.03	0.79	0.42	60	203	155	85	5.3	1.4	5.5
		S.D.														
		MAX														
		MIN														

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DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
5111A	1	MEAN	7.7	0.54	0.75	0.6	0.01	0.83	0.50	54	165	163	82	5.5	0.8	5.6
		S.D.														
		MAX														
		MIN														
5132D	5	MEAN	6.8	0.38	0.62	0.4	0.09	0.75	0.43	49	142	153	79	5.3	0.9	5.4
		S.D.	0.5	0.22	0.31	0.2	0.07	0.06	0.03	4	7	22	3	0.1	0.2	0.1
		MAX	7.3	0.58	0.80	0.6	0.22	0.84	0.47	55	152	193	83	5.5	1.1	5.5
		MIN	5.9	0.00	0.00	0.0	0.04	0.67	0.40	43	133	124	76	5.2	0.6	5.2
5136D	6	MEAN	6.9	0.49	0.81	0.5	0.07	0.82	0.45	52	125	148	77	5.3	0.9	5.4
		S.D.	0.8	0.07	0.03	0.1	0.05	0.06	0.02	3	14	84	2	0.3	0.1	0.3
		MAX	8.4	0.61	0.87	0.7	0.12	0.90	0.47	56	151	320	78	5.7	1.2	5.8
		MIN	5.9	0.38	0.77	0.4	-0.01	0.74	0.42	47	109	42	74	4.8	0.7	5.0
5152D	4	MEAN	7.2	0.38	0.60	0.4	0.07	0.77	0.42	52	106	107	73	4.9	0.9	5.0
		S.D.	0.3	0.22	0.34	0.2	0.05	0.04	0.01	2	13	6	1	0.1	0.1	0.1
		MAX	7.6	0.55	0.82	0.6	0.12	0.82	0.43	53	120	116	73	5.0	1.1	5.1
		MIN	6.9	0.00	0.00	0.0	-0.01	0.71	0.40	50	85	98	72	4.8	0.9	4.9
5331D	1	MEAN	6.7	0.61	0.75	0.6	0.01	0.87	0.47	53	209	165	88	5.6	1.1	5.7
		S.D.														
		MAX														
		MIN														
5335D	3	MEAN	7.2	0.33	0.50	0.3	0.05	0.83	0.45	55	200	148	88	5.3	1.2	5.4
		S.D.	0.4	0.24	0.35	0.2	0.04	0.04	0.02	1	2	7	3	0.1	0.0	0.1
		MAX	7.5	0.58	0.77	0.6	0.10	0.87	0.47	56	203	155	92	5.4	1.2	5.6
		MIN	6.6	0.00	0.00	0.0	0.00	0.77	0.42	53	198	139	86	5.2	1.1	5.3
5337D	3	MEAN	7.2	0.59	0.83	0.5	0.01	0.84	0.43	54	210	173	90	5.4	1.1	5.5
		S.D.	0.4	0.06	0.01	0.0	0.01	0.03	0.01	2	12	23	2	0.1	0.1	0.1
		MAX	7.5	0.68	0.85	0.6	0.02	0.87	0.45	56	222	203	92	5.5	1.2	5.6
		MIN	6.6	0.55	0.82	0.5	0.00	0.79	0.42	52	194	146	88	5.3	1.0	5.4
201A	3	MEAN	7.4	0.00	0.00	0.0	0.07	0.64	0.50	54	190	186	80	4.5	1.0	4.6
		S.D.	0.4	0.00	0.00	0.0	0.01	0.01	0.00	0	5	9	2	0.1	0.1	0.1
		MAX	7.8	0.00	0.00	0.0	0.09	0.66	0.50	54	195	198	81	4.5	1.2	4.7
		MIN	6.9	0.00	0.00	0.0	0.06	0.63	0.50	54	184	176	77	4.4	0.8	4.4
201B	6	MEAN	7.2	0.00	0.05	0.0	0.07	0.50	0.47	57	180	174	82	4.5	0.8	4.5
		S.D.	0.3	0.00	0.11	0.1	0.02	0.10	0.03	3	3	5	2	0.2	0.1	0.2
		MAX	7.6	0.00	0.28	0.2	0.11	0.67	0.52	62	184	180	85	4.7	1.0	4.8
		MIN	6.7	0.00	0.00	0.0	0.04	0.35	0.45	52	177	164	78	4.1	0.8	4.2
205B	8	MEAN	6.0	0.00	0.00	0.0	0.09	0.58	0.46	59	201	176	69	4.3	1.2	4.4
		S.D.	1.4	0.00	0.00	0.0	0.02	0.07	0.03	3	10	23	3	0.2	0.2	0.2
		MAX	7.9	0.00	0.00	0.0	0.12	0.69	0.50	63	222	207	74	4.5	1.6	4.6
		MIN	3.8	0.00	0.00	0.0	0.06	0.50	0.42	53	186	135	66	4.0	0.8	4.2

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DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
401B	1	MEAN	7.6	0.00	0.00	0.0	0.07	0.72	0.50	54	168	177	87	4.7	0.9	4.8
		S.D.														
		MAX														
		MIN														
403B	5	MEAN	6.8	0.00	0.00	0.0	0.07	0.52	0.44	54	133	126	85	4.0	1.1	4.1
		S.D.	0.7	0.00	0.00	0.0	0.02	0.02	0.02	2	8	12	2	0.1	0.1	0.1
		MAX	7.5	0.00	0.00	0.0	0.10	0.56	0.47	57	141	143	89	4.1	1.2	4.3
		MIN	5.6	0.00	0.00	0.0	0.04	0.50	0.42	51	119	110	83	3.7	0.9	3.9
403C	4	MEAN	6.7	0.00	0.00	0.0	0.07	0.58	0.48	58	145	132	85	4.4	1.0	4.5
		S.D.	0.8	0.00	0.00	0.0	0.02	0.09	0.03	4	4	4	2	0.3	0.1	0.3
		MAX	7.5	0.00	0.00	0.0	0.08	0.65	0.52	63	149	136	87	4.7	1.2	4.8
		MIN	5.8	0.00	0.00	0.0	0.04	0.43	0.43	53	139	125	83	4.0	0.8	4.0
405B	7	MEAN	6.1	0.00	0.00	0.0	0.06	0.59	0.46	57	103	97	87	3.7	1.2	3.9
		S.D.	1.2	0.00	0.00	0.0	0.02	0.08	0.02	3	7	10	2	0.3	0.1	0.3
		MAX	8.2	0.00	0.00	0.0	0.10	0.71	0.50	62	114	113	90	4.2	1.3	4.3
		MIN	4.5	0.00	0.00	0.0	0.02	0.49	0.43	53	92	84	84	3.3	1.1	3.5
405C	3	MEAN	6.0	0.00	0.00	0.0	0.07	0.48	0.47	58	119	109	85	3.7	1.3	3.9
		S.D.	0.4	0.00	0.00	0.0	0.02	0.04	0.01	2	15	4	2	0.2	0.2	0.2
		MAX	6.5	0.00	0.00	0.0	0.10	0.54	0.48	60	139	114	88	3.9	1.5	4.1
		MIN	5.5	0.00	0.00	0.0	0.05	0.44	0.45	56	102	103	83	3.5	1.1	3.8
5231D	1	MEAN	6.8	0.00	0.00	0.0	0.11	0.52	0.47	57	203	199	74	4.6	1.0	4.7
		S.D.														
		MAX														
		MIN														
5235D	4	MEAN	6.6	0.00	0.00	0.0	0.08	0.55	0.47	56	201	245	70	4.3	1.1	4.5
		S.D.	0.5	0.00	0.00	0.0	0.03	0.06	0.03	3	9	49	3	0.1	0.2	0.0
		MAX	7.1	0.00	0.00	0.0	0.12	0.64	0.50	60	216	296	75	4.4	1.4	4.5
		MIN	5.9	0.00	0.00	0.0	0.05	0.48	0.43	53	191	179	67	4.2	0.9	4.4

QUEBEC-WINTER NATIONALS 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
101A	4	MEAN	6.5	0.46	0.79	0.5	0.06	0.83	0.46	49	170	160	82	5.5	0.8	5.5
		S.D.	1.4	0.12	0.05	0.1	0.03	0.03	0.02	4	2	7	1	0.0	0.2	0.0
		MAX	7.6	0.60	0.87	0.6	0.11	0.86	0.48	53	174	170	84	5.5	1.0	5.6
		MIN	4.0	0.26	0.75	0.2	0.03	0.78	0.43	43	168	153	81	5.4	0.5	5.5
101B	1	MEAN	8.1	0.55	0.82	0.6	0.00	0.87	0.48	52	169	179	84	5.9	0.8	5.9
		S.D.														
		MAX														
		MIN														
103B	4	MEAN	6.3	0.58	0.77	0.6	0.07	0.76	0.43	53	150	143	80	5.4	1.0	5.5
		S.D.	0.9	0.12	0.02	0.1	0.03	0.04	0.01	3	7	15	1	0.2	0.1	0.2
		MAX	7.5	0.71	0.80	0.7	0.12	0.80	0.45	58	161	162	82	5.6	1.2	5.7
		MIN	5.1	0.39	0.75	0.4	0.04	0.69	0.42	49	144	127	78	5.2	0.8	5.3
103C	1	MEAN	7.0	0.52	0.80	0.6	0.07	0.75	0.40	50	157	159	79	5.6	1.2	5.7
		S.D.														
		MAX														
		MIN														
107B	4	MEAN	6.2	0.52	0.80	0.5	0.04	0.85	0.45	53	88	104	68	4.8	1.1	5.0
		S.D.	0.8	0.06	0.04	0.1	0.04	0.05	0.02	2	10	8	2	0.2	0.1	0.2
		MAX	7.3	0.59	0.85	0.6	0.10	0.92	0.47	56	103	112	70	5.0	1.2	5.1
		MIN	5.1	0.43	0.75	0.3	0.01	0.79	0.43	49	75	91	64	4.6	1.0	4.7
107C	5	MEAN	6.3	0.56	0.77	0.6	0.05	0.78	0.42	54	131	112	76	5.2	1.0	5.3
		S.D.	0.9	0.13	0.03	0.1	0.04	0.05	0.03	3	8	7	1	0.1	0.1	0.1
		MAX	7.3	0.77	0.80	0.8	0.12	0.85	0.47	58	140	122	78	5.4	1.2	5.4
		MIN	5.0	0.35	0.73	0.5	0.00	0.69	0.40	50	118	102	74	5.1	0.9	5.2
301A	4	MEAN	6.8	0.62	0.77	0.6	0.06	0.75	0.44	55	197	169	85	5.4	1.0	5.5
		S.D.	1.0	0.12	0.01	0.1	0.02	0.04	0.01	2	6	18	2	0.2	0.2	0.2
		MAX	7.9	0.75	0.78	0.7	0.09	0.83	0.45	56	205	193	87	5.7	1.4	5.8
		MIN	5.4	0.50	0.75	0.5	0.04	0.72	0.42	52	191	145	82	5.1	0.8	5.3
301B	6	MEAN	6.9	0.47	0.77	0.5	0.06	0.78	0.45	53	185	175	85	5.5	1.1	5.6
		S.D.	0.8	0.07	0.05	0.1	0.06	0.07	0.04	2	6	11	2	0.3	0.1	0.3
		MAX	8.1	0.56	0.85	0.6	0.15	0.87	0.52	57	195	189	87	6.1	1.3	6.2
		MIN	6.0	0.36	0.70	0.3	-0.01	0.66	0.42	49	176	154	82	5.3	0.9	5.3
305B	7	MEAN	5.7	0.61	0.77	0.5	0.02	0.82	0.42	57	195	180	91	5.0	1.2	5.2
		S.D.	1.0	0.09	0.05	0.1	0.06	0.06	0.02	3	12	9	1	0.3	0.1	0.3
		MAX	7.3	0.79	0.87	0.7	0.15	0.91	0.45	60	208	193	93	5.4	1.4	5.5
		MIN	3.9	0.50	0.72	0.3	-0.04	0.72	0.38	53	172	169	89	4.6	1.0	4.7
305C	2	MEAN	5.9	0.59	0.76	0.6	0.05	0.78	0.46	60	197	178	86	5.3	1.4	5.4
		S.D.	0.2	0.13	0.03	0.1	0.01	0.00	0.01	0	0	9	1	0.0	0.1	0.1
		MAX	6.1	0.72	0.78	0.7	0.06	0.78	0.47	60	197	187	86	5.3	1.4	5.5
		MIN	5.7	0.46	0.73	0.5	0.04	0.77	0.45	60	197	169	85	5.2	1.3	5.4

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DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
5111A	2	MEAN	7.4	0.52	0.78	0.5	0.01	0.78	0.44	49	168	166	82	5.5	0.8	5.5
		S.D.	0.6	0.05	0.02	0.0	0.01	0.00	0.01	2	2	14	2	0.0	0.2	0.0
		MAX	8.0	0.57	0.80	0.5	0.02	0.78	0.45	51	170	180	84	5.5	1.0	5.5
		MIN	6.8	0.47	0.77	0.5	0.00	0.77	0.43	47	166	152	80	5.5	0.6	5.5
5132D	3	MEAN	6.5	0.57	0.74	0.6	0.08	0.72	0.43	52	132	154	78	5.1	1.1	5.2
		S.D.	0.7	0.12	0.02	0.1	0.03	0.02	0.03	2	5	26	1	0.1	0.2	0.1
		MAX	7.2	0.74	0.77	0.7	0.13	0.74	0.47	55	136	173	79	5.2	1.3	5.3
		MIN	5.6	0.46	0.72	0.5	0.05	0.70	0.40	49	125	117	77	5.0	0.8	5.1
5136D	4	MEAN	6.0	0.41	0.58	0.4	0.04	0.79	0.46	57	125	135	76	5.2	1.0	5.3
		S.D.	1.3	0.26	0.34	0.3	0.03	0.07	0.02	2	3	17	3	0.2	0.2	0.2
		MAX	8.2	0.73	0.80	0.7	0.09	0.90	0.48	60	128	159	79	5.5	1.3	5.6
		MIN	4.6	0.00	0.00	0.0	0.00	0.71	0.42	55	119	111	72	5.0	0.8	5.2
5152D	2	MEAN	7.2	0.42	0.81	0.5	0.05	0.77	0.42	54	112	118	72	5.0	1.0	5.1
		S.D.	0.1	0.10	0.04	0.1	0.03	0.07	0.03	5	15	13	5	0.0	0.1	0.0
		MAX	7.3	0.52	0.85	0.6	0.08	0.84	0.45	58	126	131	77	5.1	1.1	5.1
		MIN	7.1	0.32	0.77	0.4	0.02	0.70	0.38	49	97	105	67	5.0	1.0	5.1
5331D	2	MEAN	6.6	0.52	0.80	0.5	0.04	0.84	0.45	54	223	176	90	5.5	0.9	5.6
		S.D.	0.4	0.24	0.05	0.2	0.02	0.00	0.00	3	4	1	1	0.2	0.1	0.2
		MAX	7.0	0.76	0.85	0.7	0.05	0.84	0.45	56	227	177	90	5.7	1.0	5.8
		MIN	6.2	0.28	0.75	0.3	0.02	0.83	0.45	51	219	175	89	5.3	0.8	5.4
5335D	5	MEAN	6.8	0.60	0.75	0.6	0.01	0.79	0.43	58	207	161	89	5.1	1.2	5.3
		S.D.	0.8	0.13	0.04	0.1	0.02	0.07	0.02	1	11	35	2	0.3	0.1	0.3
		MAX	8.1	0.81	0.82	0.8	0.06	0.88	0.45	60	226	208	92	5.6	1.3	5.7
		MIN	6.0	0.46	0.72	0.5	0.00	0.71	0.40	58	193	100	87	4.8	1.1	5.0
5337D	4	MEAN	7.1	0.45	0.80	0.4	0.05	0.82	0.42	56	208	161	91	5.3	1.1	5.5
		S.D.	0.4	0.09	0.04	0.1	0.04	0.06	0.02	4	10	27	2	0.2	0.1	0.2
		MAX	7.5	0.51	0.85	0.5	0.11	0.89	0.45	60	223	190	94	5.5	1.2	5.6
		MIN	6.4	0.30	0.75	0.2	0.02	0.72	0.38	52	199	117	88	5.1	0.9	5.2
201A	4	MEAN	6.6	0.00	0.00	0.0	0.09	0.54	0.50	54	194	175	79	4.2	1.0	4.3
		S.D.	1.0	0.00	0.00	0.0	0.02	0.07	0.02	3	4	14	2	0.1	0.1	0.1
		MAX	7.7	0.00	0.00	0.0	0.11	0.63	0.53	57	198	195	81	4.4	1.2	4.4
		MIN	5.0	0.00	0.00	0.0	0.07	0.45	0.47	49	187	156	76	4.0	0.9	4.1
201B	6	MEAN	6.8	0.00	0.00	0.0	0.11	0.54	0.49	54	176	169	82	4.3	0.9	4.4
		S.D.	0.5	0.00	0.00	0.0	0.03	0.12	0.03	4	5	15	2	0.3	0.1	0.3
		MAX	7.6	0.00	0.00	0.0	0.15	0.72	0.53	60	186	186	84	4.8	0.9	4.9
		MIN	6.0	0.00	0.00	0.0	0.07	0.41	0.45	49	170	141	80	4.0	0.8	4.1
205B	7	MEAN	6.6	0.00	0.00	0.0	0.12	0.59	0.47	58	196	183	70	4.2	1.1	4.3
		S.D.	0.4	0.00	0.00	0.0	0.02	0.08	0.03	3	13	7	3	0.2	0.1	0.2
		MAX	7.1	0.00	0.00	0.0	0.15	0.71	0.52	64	218	192	74	4.3	1.4	4.5
		MIN	5.8	0.00	0.00	0.0	0.09	0.49	0.43	53	180	173	65	3.8	1.0	3.9

QUEBEC WINTER NATIONALS 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
205C	3	MEAN	6.0	0.00	0.00	0.0	0.10	0.48	0.46	59	190	157	74	4.1	1.1	4.3
		S.D.	0.3	0.00	0.00	0.0	0.02	0.04	0.02	3	3	7	1	0.1	0.1	0.1
		MAX	6.4	0.00	0.00	0.0	0.13	0.54	0.47	63	195	163	76	4.2	1.2	4.3
		MIN	5.8	0.00	0.00	0.0	0.07	0.43	0.43	57	188	148	73	4.0	1.1	4.2
401A	1	MEAN	6.2	0.00	0.00	0.0	0.10	0.48	0.47	57	161	136	84	3.8	1.1	4.0
		S.D.														
		MAX														
		MIN														
401B	1	MEAN	8.1	0.00	0.00	0.0	0.09	0.70	0.53	57	163	172	88	4.7	0.7	4.7
		S.D.														
		MAX														
		MIN														
403B	5	MEAN	6.9	0.00	0.00	0.0	0.10	0.50	0.45	56	133	132	87	4.0	1.0	4.1
		S.D.	0.3	0.00	0.00	0.0	0.03	0.09	0.05	4	7	23	2	0.3	0.2	0.2
		MAX	7.4	0.00	0.00	0.0	0.13	0.66	0.52	63	147	167	89	4.3	1.2	4.5
		MIN	6.5	0.00	0.00	0.0	0.06	0.38	0.38	52	126	104	84	3.6	0.8	3.8
403C	3	MEAN	6.8	0.00	0.00	0.0	0.08	0.59	0.50	54	136	135	87	4.2	1.0	4.3
		S.D.	0.8	0.00	0.00	0.0	0.02	0.06	0.02	1	7	4	1	0.2	0.1	0.2
		MAX	7.9	0.00	0.00	0.0	0.10	0.65	0.52	56	146	141	88	4.5	1.1	4.6
		MIN	6.0	0.00	0.00	0.0	0.06	0.51	0.47	53	129	130	86	3.9	0.9	4.1
405B	6	MEAN	6.3	0.00	0.00	0.0	0.10	0.60	0.47	58	108	102	91	3.7	1.2	3.9
		S.D.	0.4	0.00	0.00	0.0	0.02	0.08	0.03	3	11	9	2	0.2	0.1	0.2
		MAX	6.8	0.00	0.00	0.0	0.12	0.71	0.50	63	127	119	94	4.0	1.3	4.2
		MIN	5.6	0.00	0.00	0.0	0.06	0.47	0.43	54	95	94	88	3.4	1.1	3.6
405C	4	MEAN	5.4	0.00	0.00	0.0	0.12	0.46	0.41	50	125	109	86	3.6	1.2	3.8
		S.D.	0.4	0.00	0.00	0.0	0.02	0.05	0.01	2	4	14	3	0.1	0.1	0.1
		MAX	5.8	0.00	0.00	0.0	0.15	0.51	0.43	53	131	128	87	3.6	1.3	3.9
		MIN	4.7	0.00	0.00	0.0	0.09	0.38	0.40	48	119	91	81	3.5	1.0	3.6
5231D	1	MEAN	6.4	0.00	0.00	0.0	0.15	0.51	0.43	58	211	187	74	4.3	0.9	4.4
		S.D.														
		MAX														
		MIN														
5233D	1	MEAN	5.6	0.00	0.00	0.0	0.07	0.53	0.43	53	213	165	68	4.1	1.0	4.2
		S.D.														
		MAX														
		MIN														
5235D	5	MEAN	6.3	0.00	0.00	0.0	0.11	0.53	0.45	58	213	179	71	4.1	1.1	4.2
		S.D.	0.4	0.00	0.00	0.0	0.03	0.06	0.03	4	8	18	2	0.3	0.2	0.2
		MAX	6.7	0.00	0.00	0.0	0.16	0.63	0.50	63	223	208	74	4.5	1.4	4.7
		MIN	5.6	0.00	0.00	0.0	0.06	0.44	0.42	53	202	161	68	3.8	1.0	4.0

MEN'S COMPETITION .FINA CUP 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
107B	7	MEAN	6.7	0.44	0.83	0.5	0.08	0.85	0.42	53	105	110	69	5.0	1.0	5.1
Q		S.D.	0.4	0.04	0.03	0.0	0.07	0.04	0.02	2	13	13	3	0.2	0.1	0.2
		MAX	7.4	0.50	0.87	0.5	0.22	0.91	0.43	58	123	136	73	5.3	1.3	5.4
		MIN	6.2	0.39	0.78	0.4	0.02	0.78	0.38	50	87	93	65	4.7	0.8	4.8
107B	8	MEAN	7.0	0.45	0.81	0.5	0.04	0.84	0.43	54	111	103	70	5.1	0.9	5.2
S		S.D.	0.9	0.07	0.03	0.1	0.03	0.05	0.03	2	12	14	3	0.3	0.1	0.3
		MAX	7.6	0.54	0.88	0.6	0.09	0.94	0.48	57	125	120	75	5.5	1.1	5.6
		MIN	4.7	0.33	0.78	0.3	0.00	0.76	0.37	52	95	79	64	4.7	0.7	4.8
107B	4	MEAN	6.28	0.47	0.82	0.5	0.06	0.81	0.43	54	120	110	71	5.1	0.9	5.2
F		S.D.	1.5	0.04	0.01	0.0	0.06	0.02	0.03	3	2	6	1	0.1	0.1	0.1
		MAX	7.9	0.51	0.83	0.5	0.12	0.82	0.47	60	121	119	72	5.2	1.1	5.3
		MIN	3.9	0.43	0.80	0.4	-0.03	0.77	0.38	51	117	104	70	4.9	0.8	5.0
107C	1	MEAN	6.4	0.67	0.78	0.6	0.08	0.87	0.48	56	137	104	74	5.6	1.0	5.7
Q		S.D.														
		MAX														
		MIN														
305B	5	MEAN	6.8	0.49	0.80	0.5	0.02	0.85	0.44	58	203	186	89	5.5	1.2	5.6
Q		S.D.	0.5	0.07	0.03	0.1	0.03	0.06	0.01	2	8	13	1	0.2	0.2	0.1
		MAX	7.6	0.60	0.85	0.6	0.05	0.95	0.45	60	218	199	90	5.7	1.4	5.8
		MIN	6.3	0.39	0.77	0.3	-0.04	0.78	0.42	56	194	166	86	5.2	0.9	5.3
305B	7	MEAN	7.0	0.44	0.81	0.4	0.04	0.83	0.41	54	207	186	90	5.4	1.1	5.5
S		S.D.	0.8	0.07	0.02	0.1	0.05	0.06	0.02	2	5	15	2	0.0	0.1	0.0
		MAX	8.0	0.52	0.83	0.5	0.11	0.89	0.43	58	214	211	93	5.5	1.2	5.6
		MIN	5.5	0.34	0.78	0.3	-0.04	0.73	0.38	52	198	165	88	5.4	1.0	5.5
305B	3	MEAN	8.1	0.51	0.78	0.4	0.01	0.83	0.42	59	213	200	89	5.6	1.1	5.7
F		S.D.	0.3	0.07	0.02	0.1	0.03	0.04	0.03	2	3	2	1	0.1	0.2	0.1
		MAX	8.6	0.58	0.80	0.5	0.05	0.89	0.45	62	216	202	90	5.8	1.3	5.9
		MIN	7.8	0.42	0.77	0.4	-0.03	0.79	0.38	58	209	198	87	5.4	0.9	5.5
305C	1	MEAN	7.0	0.74	0.77	0.7	-0.01	0.92	0.47	57	196	145	89	5.4	1.2	5.6
Q		S.D.														
		MAX														
		MIN														
307C	2	MEAN	4.1	0.48	0.82	0.4	0.08	0.81	0.43	58	177	173	87	5.4	1.2	5.6
Q		S.D.	2.5	0.01	0.02	0.0	0.05	0.04	0.00	5	9	18	2	0.2	0.2	0.1
		MAX	6.6	0.48	0.83	0.4	0.13	0.85	0.43	63	185	190	89	5.6	1.4	5.7
		MIN	1.5	0.47	0.80	0.4	0.03	0.76	0.43	53	168	155	85	5.2	1.0	5.4
5136D	4	MEAN	7.2	0.52	0.81	0.5	0.04	0.87	0.45	51	121	180	77	5.3	0.8	5.4
Q		S.D.	0.5	0.11	0.03	0.1	0.04	0.04	0.02	2	5	47	2	0.1	0.1	0.1
		MAX	7.9	0.74	0.85	0.7	0.11	0.93	0.47	53	128	256	79	5.5	1.0	5.6
		MIN	6.5	0.43	0.78	0.4	-0.02	0.83	0.43	47	114	120	73	5.3	0.7	5.3

MEN'S COMPETITION — FINA CUP 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
5136D	3	MEAN	6.7	0.48	0.80	0.5	0.05	0.86	0.43	51	128	159	76	5.5	0.8	5.6
S		S.D.	0.6	0.06	0.04	0.1	0.02	0.02	0.03	1	5	38	2	0.2	0.1	0.2
		MAX	7.2	0.57	0.83	0.6	0.08	0.89	0.48	52	134	210	79	5.7	0.9	5.7
		MIN	5.9	0.44	0.75	0.4	0.03	0.84	0.40	50	121	118	75	5.3	0.7	5.4
5136D	1	MEAN	8.3	0.51	0.80	0.5	0.06	0.85	0.43	51	141	186	77	5.6	0.9	5.7
F		S.D.														
		MAX														
		MIN														
5152D	1	MEAN	7.0	0.47	0.82	0.5	0.05	0.87	0.42	52	126	175	74	5.5	1.1	5.6
Q		S.D.														
		MAX														
		MIN														
5152D	1	MEAN	7.5	0.49	0.80	0.5	-0.01	0.80	0.40	55	118	110	73	5.1	0.9	5.2
S		S.D.														
		MAX														
		MIN														
5152D	1	MEAN	7.5	0.39	0.80	0.4	0.08	0.76	0.42	52	123	108	75	5.1	0.9	5.1
F		S.D.														
		MAX														
		MIN														
5154D	1	MEAN	6.9	0.39	0.83	0.4	0.05	0.89	0.45	56	131	108	70	5.4	1.2	5.6
Q		S.D.														
		MAX														
		MIN														
5154D	3	MEAN	7.0	0.42	0.82	0.4	0.11	0.83	0.41	55	124	95	73	5.3	0.8	5.3
S		S.D.	0.2	0.05	0.01	0.0	0.04	0.07	0.02	2	10	11	2	0.1	0.2	0.1
		MAX	7.3	0.48	0.83	0.5	0.16	0.91	0.43	58	132	104	75	5.3	1.1	5.4
		MIN	0.0	0.00	0.00	0.0	0.00	0.00	0.00	0	0	0	0	0.0	0.0	0.0
5154D	1	MEAN	8.2	0.44	0.80	0.4	0.12	0.78	0.42	52	110	94	72	5.1	0.7	5.2
F		S.D.														
		MAX														
		MIN														
5335D	1	MEAN	7.1	0.39	0.83	0.3	0.13	0.83	0.43	47	195	272	92	5.3	0.9	5.3
S		S.D.														
		MAX														
		MIN														
5335D	1	MEAN	8.4	0.44	0.80	0.4	0.06	0.90	0.47	57	187	293	91	5.5	1.0	5.6
F		S.D.														
		MAX														
		MIN														

MEN'S COMPETITION — FINA CUP 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
5337D Q	7	MEAN	6.8	0.50	0.81	0.5	0.02	0.85	0.43	57	211	186	88	5.4	1.2	5.5
		S.D.	0.4	0.14	0.02	0.1	0.05	0.10	0.02	2	5	49	1	0.2	0.2	0.2
		MAX	7.2	0.75	0.85	0.7	0.10	0.96	0.47	60	220	304	90	5.7	1.4	5.8
		MIN	5.8	0.36	0.78	0.3	-0.04	0.67	0.42	53	205	156	86	5.1	0.8	5.2
5337D S	6	MEAN	7.0	0.49	0.81	0.4	0.00	0.82	0.43	57	207	212	90	5.5	1.1	5.6
		S.D.	0.6	0.05	0.02	0.0	0.05	0.02	0.02	3	10	60	2	0.1	0.1	0.1
		MAX	8.0	0.57	0.85	0.5	0.09	0.86	0.45	63	221	302	94	5.6	1.3	5.7
		MIN	6.1	0.45	0.78	0.4	-0.06	0.78	0.38	53	187	158	87	5.3	0.9	5.4
5337D F	1	MEAN	8.60	0.41	0.80	0.4	0.08	0.81	0.47	57	193	248	96	5.5	0.7	5.6
		S.D.														
		MAX														
		MIN														
205B Q	7	MEAN	6.0	0.00	0.00	0.0	0.11	0.60	0.47	56	205	186	71	4.4	1.1	4.5
		S.D.	1.7	0.00	0.00	0.0	0.03	0.08	0.03	3	9	17	4	0.1	0.2	0.1
		MAX	7.5	0.00	0.00	0.0	0.16	0.72	0.52	60	220	215	79	4.6	1.3	4.8
		MIN	1.7	0.00	0.00	0.0	0.07	0.44	0.43	51	192	158	66	4.2	0.7	4.3
205B S	8	MEAN	7.1	0.00	0.00	0.0	0.10	0.60	0.46	56	211	181	73	4.4	1.0	4.5
		S.D.	0.6	0.00	0.00	0.0	0.03	0.03	0.02	3	7	15	2	0.2	0.1	0.2
		MAX	7.8	0.00	0.00	0.0	0.14	0.64	0.50	60	223	203	77	4.6	1.1	4.7
		MIN	6.1	0.00	0.00	0.0	0.04	0.54	0.43	51	200	161	70	4.1	0.8	4.2
205B F	4	MEAN	7.4	0.00	0.00	0.0	0.11	0.61	0.44	58	215	185	72	4.6	1.1	4.7
		S.D.	0.4	0.00	0.00	0.0	0.02	0.07	0.01	4	9	12	2	0.1	0.1	0.1
		MAX	7.9	0.00	0.00	0.0	0.14	0.66	0.45	63	228	200	75	4.7	1.2	4.8
		MIN	6.9	0.00	0.00	0.0	0.08	0.50	0.43	53	203	166	69	4.4	0.9	4.5
405B Q	7	MEAN	6.9	0.00	0.00	0.0	0.08	0.60	0.44	54	111	103	90	3.9	1.0	4.0
		S.D.	0.4	0.00	0.00	0.0	0.02	0.08	0.03	4	10	17	2	0.2	0.1	0.2
		MAX	7.3	0.00	0.00	0.0	0.12	0.77	0.47	60	133	137	92	4.1	1.2	4.3
		MIN	6.2	0.00	0.00	0.0	0.05	0.53	0.40	48	102	79	87	3.7	0.8	3.8
405B S	8	MEAN	7.6	0.00	0.00	0.0	0.09	0.58	0.44	54	117	105	90	4.0	1.1	4.1
		S.D.	0.3	0.00	0.00	0.0	0.02	0.06	0.03	3	10	12	2	0.3	0.1	0.2
		MAX	8.0	0.00	0.00	0.0	0.13	0.67	0.50	60	133	125	95	4.5	1.4	4.7
		MIN	6.9	0.00	0.00	0.0	0.05	0.49	0.40	49	103	85	87	3.7	1.0	3.8
405B F	4	MEAN	7.5	0.00	0.00	0.0	0.09	0.63	0.45	57	120	110	88	4.1	1.1	4.3
		S.D.	0.2	0.00	0.00	0.0	0.02	0.05	0.03	2	5	4	2	0.3	0.2	0.3
		MAX	7.8	0.00	0.00	0.0	0.11	0.70	0.47	60	127	114	92	4.4	1.4	4.6
		MIN	7.2	0.00	0.00	0.0	0.05	0.57	0.40	55	114	103	86	3.8	1.0	3.9
407C S	2	MEAN	6.1	0.00	0.00	0.0	0.09	0.66	0.43	53	114	110	91	4.3	1.1	4.4
		S.D.	0.6	0.00	0.00	0.0	0.00	0.04	0.00	0	5	2	1	0.2	0.0	0.1
		MAX	6.7	0.00	0.00	0.0	0.09	0.70	0.43	53	118	112	91	4.5	1.2	4.6
		MIN	5.4	0.00	0.00	0.0	0.09	0.61	0.43	53	109	108	90	4.1	1.1	4.3

MEN'S COMPETITION -FINA-CUP- 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
407C F	2	MEAN	5.7	0.00	0.00	0.0	0.14	0.62	0.48	57	108	99	91	4.1	1.1	4.3
		S.D.	2.3	0.00	0.00	0.0	0.02	0.00	0.01	1	4	7	1	0.1	0.0	0.1
		MAX	8.0	0.00	0.00	0.0	0.16	0.62	0.48	57	111	106	91	4.3	1.1	4.4
		MIN	3.4	0.00	0.00	0.0	0.11	0.61	0.47	56	104	92	90	4.0	1.1	4.1
5237D Q	1	MEAN	6.4	0.00	0.00	0.0	0.19	0.60	0.43	53	224	172	71	4.4	1.0	4.5
		S.D.														
		MAX														
		MIN														

MEN'S COMPETITION

CANADIAN SUMMER NATIONALS (CALGARY) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
101A	3	MEAN	7.3	0.44	0.77	0.5	0.03	0.80	0.47	53	173	157	81	5.4	0.8	5.4
		S.D.	0.9	0.10	0.05	0.1	0.04	0.14	0.03	1	3	12	3	0.5	0.2	0.5
		MAX	8.6	0.53	0.83	0.6	0.07	0.95	0.50	54	177	169	85	5.8	1.0	5.9
		MIN	6.6	0.31	0.70	0.3	-0.02	0.61	0.43	52	169	141	77	4.6	0.5	4.8
101B	1	MEAN	7.7	0.43	0.82	0.5	0.04	0.98	0.53	51	172	176	81	5.7	0.9	5.8
		S.D.														
		MAX														
		MIN														
101B P	1	MEAN	6.7	0.47	0.78	0.5	0.05	0.74	0.43	53	166	163	82	5.6	0.8	5.6
		S.D.														
		MAX														
		MIN														
103B	4	MEAN	6.9	0.43	0.78	0.5	0.08	0.81	0.45	55	158	148	77	5.7	1.0	5.8
		S.D.	0.7	0.03	0.04	0.0	0.06	0.08	0.03	2	5	15	2	0.1	0.2	0.1
		MAX	7.6	0.46	0.83	0.5	0.18	0.94	0.48	57	163	166	79	5.9	1.3	6.0
		MIN	6.0	0.38	0.73	0.4	0.04	0.73	0.42	52	151	126	74	5.6	0.8	5.6
103C	1	MEAN	6.7	0.42	0.80	0.5	0.05	0.75	0.47	57	158	142	73	5.4	1.5	5.6
		S.D.														
		MAX														
		MIN														
105B	1	MEAN	6.5	0.49	0.72	0.6	0.06	0.62	0.40	50	123	115	67	4.4	1.2	4.6
		S.D.														
		MAX														
		MIN														
107B	5	MEAN	6.1	0.39	0.80	0.4	0.08	0.88	0.45	54	101	94	69	5.1	1.0	5.2
		S.D.	1.3	0.14	0.02	0.1	0.07	0.06	0.03	3	12	11	2	0.1	0.1	0.1
		MAX	7.9	0.55	0.83	0.6	0.17	0.97	0.50	60	120	113	72	5.2	1.2	5.4
		MIN	4.1	0.17	0.77	0.2	-0.02	0.81	0.40	51	87	78	66	5.0	0.8	5.0
107C	3	MEAN	5.9	0.39	0.82	0.4	0.13	0.80	0.44	55	139	111	72	5.2	1.1	5.4
		S.D.	0.1	0.06	0.03	0.1	0.08	0.06	0.01	2	8	9	3	0.0	0.1	0.1
		MAX	6.0	0.45	0.85	0.5	0.23	0.86	0.45	56	145	120	76	5.3	1.2	5.4
		MIN	5.7	0.32	0.78	0.4	0.05	0.72	0.42	52	127	99	70	5.2	1.1	5.3
107C P	1	MEAN	7.0	0.00	0.00	0.0	0.03	0.74	0.45	56	109	116	72	5.1	1.0	5.2
		S.D.														
		MAX														
		MIN														
301A	3	MEAN	6.8	0.51	0.78	0.5	0.00	0.79	0.44	51	203	177	85	5.7	0.9	5.8
		S.D.	1.1	0.07	0.04	0.0	0.05	0.06	0.04	3	3	14	2	0.2	0.1	0.2
		MAX	8.2	0.58	0.83	0.5	0.07	0.86	0.50	56	205	197	88	5.9	1.0	6.0
		MIN	5.6	0.41	0.73	0.4	-0.04	0.71	0.40	48	199	165	82	5.5	0.8	5.6

MEN'S COMPETITION

CANADIAN SUMMER NATIONALS (CALGARY) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
301B	7	MEAN	7.1	0.44	0.79	0.4	0.05	0.84	0.46	54	188	179	84	5.7	1.0	5.8
		S.D.	0.9	0.08	0.04	0.1	0.05	0.12	0.04	2	4	8	1	0.3	0.2	0.3
		MAX	8.6	0.54	0.85	0.6	0.12	1.00	0.50	57	194	189	86	6.0	1.3	6.1
		MIN	5.9	0.33	0.72	0.3	0.00	0.62	0.40	52	181	166	82	5.0	0.8	5.2
305B	9	MEAN	5.2	0.47	0.79	0.5	0.02	0.85	0.44	58	196	182	87	5.2	1.3	5.4
		S.D.	1.3	0.07	0.04	0.1	0.04	0.09	0.04	2	10	29	2	0.2	0.2	0.2
		MAX	8.1	0.58	0.85	0.6	0.09	1.00	0.48	61	212	250	91	5.5	1.6	5.7
		MIN	3.8	0.38	0.73	0.3	-0.05	0.73	0.38	53	182	146	82	5.0	1.0	5.1
305C	1	MEAN	7.1	0.56	0.68	0.6	0.02	0.65	0.40	58	185	154	88	5.0	0.8	5.0
		S.D.														
		MAX														
		MIN														
307C	1	MEAN	7.1	0.45	0.77	0.4	-0.02	0.83	0.47	60	194	200	93	5.6	0.7	5.7
		S.D.														
		MAX														
		MIN														
5111A	2	MEAN	7.7	0.50	0.77	0.5	0.04	0.81	0.48	49	166	183	81	5.4	0.8	5.4
		S.D.	0.8	0.03	0.01	0.0	0.00	0.04	0.01	1	4	13	0	0.0	0.0	0.0
		MAX	8.5	0.53	0.78	0.6	0.04	0.85	0.48	49	169	195	81	5.4	0.8	5.5
		MIN	6.8	0.47	0.77	0.5	0.04	0.76	0.47	48	162	170	81	5.4	0.8	5.4
5132D	6	MEAN	6.8	0.43	0.78	0.5	0.10	0.77	0.43	55	147	138	77	5.3	1.0	5.4
		S.D.	0.4	0.04	0.04	0.1	0.02	0.11	0.03	4	7	9	1	0.4	0.1	0.4
		MAX	7.3	0.48	0.83	0.6	0.12	0.95	0.47	58	162	149	79	5.7	1.2	5.8
		MIN	6.3	0.38	0.70	0.4	0.05	0.59	0.38	47	141	128	75	4.6	0.8	4.7
5136D	4	MEAN	7.1	0.48	0.81	0.5	0.04	0.85	0.45	56	135	126	75	5.5	1.1	5.6
		S.D.	0.5	0.05	0.03	0.0	0.03	0.10	0.02	2	13	35	1	0.3	0.2	0.3
		MAX	8.0	0.55	0.85	0.5	0.09	0.98	0.47	58	144	160	75	5.8	1.3	6.0
		MIN	6.7	0.42	0.77	0.5	0.01	0.73	0.42	52	113	73	74	5.0	0.8	5.1
5152D	5	MEAN	6.7	0.48	0.80	0.5	0.04	0.82	0.44	52	117	99	71	5.1	1.1	5.2
		S.D.	0.6	0.08	0.03	0.1	0.02	0.08	0.03	3	6	8	1	0.1	0.1	0.1
		MAX	7.5	0.57	0.85	0.6	0.06	0.97	0.47	57	122	112	74	5.3	1.2	5.4
		MIN	5.8	0.32	0.77	0.3	0.00	0.74	0.40	49	107	88	70	4.9	0.9	5.1
5331D	1	MEAN	7.4	0.35	0.87	0.3	-0.01	0.94	0.48	52	204	166	88	5.8	1.0	5.9
		S.D.														
		MAX														
		MIN														
5335D	3	MEAN	6.8	0.58	0.77	0.5	0.05	0.85	0.47	56	197	148	88	5.4	1.2	5.5
		S.D.	0.8	0.18	0.04	0.0	0.04	0.08	0.02	0	3	23	2	0.2	0.1	0.2
		MAX	7.5	0.83	0.82	0.5	0.11	0.96	0.50	57	202	171	89	5.7	1.3	5.8
		MIN	5.6	0.45	0.73	0.5	0.02	0.76	0.45	56	194	116	85	5.2	1.0	5.3

MEN'S COMPETITION

CANADIAN SUMMER NATIONALS (CALGARY) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
5337D	5	MEAN	6.1	0.41	0.79	0.4	0.04	0.85	0.45	57	203	160	89	5.4	1.0	5.5
		S.D.	1.7	0.08	0.05	0.1	0.04	0.11	0.02	3	5	20	2	0.2	0.1	0.2
		MAX	7.7	0.51	0.85	0.5	0.09	1.03	0.48	60	212	181	91	5.6	1.1	5.7
		MIN	2.8	0.30	0.72	0.2	0.00	0.70	0.42	51	199	126	87	5.0	0.9	5.0
201A	3	MEAN	6.8	0.00	0.00	0.0	0.07	0.54	0.48	56	192	180	80	4.4	0.9	4.5
		S.D.	1.0	0.00	0.00	0.0	0.02	0.03	0.01	1	4	16	1	0.1	0.1	0.1
		MAX	8.0	0.00	0.00	0.0	0.09	0.58	0.50	57	198	200	82	4.6	1.0	4.6
		MIN	5.5	0.00	0.00	0.0	0.05	0.52	0.47	54	187	162	79	4.3	0.8	4.4
201B	7	MEAN	7.04	0.00	0.00	0.0	0.07	0.57	0.51	57	177	176	82	4.6	0.8	4.6
		S.D.	0.88	0.00	0.00	0.0	0.03	0.12	0.03	3	6	8	1	0.3	0.1	0.2
		MAX	7.90	0.00	0.00	0.0	0.11	0.74	0.55	60	184	184	84	4.9	1.0	4.9
		MIN	5.10	0.00	0.00	0.0	0.02	0.41	0.47	52	166	161	80	4.2	0.7	4.3
205B	9	MEAN	5.9	0.00	0.00	0.0	0.08	0.60	0.47	58	192	184	71	4.2	1.0	4.3
		S.D.	1.2	0.00	0.00	0.0	0.03	0.11	0.05	4	16	22	3	0.2	0.2	0.2
		MAX	7.4	0.00	0.00	0.0	0.13	0.78	0.55	63	218	223	75	4.5	1.3	4.6
		MIN	3.9	0.00	0.00	0.0	0.04	0.49	0.40	50	163	151	65	3.8	0.8	4.0
205C	1	MEAN	5.1	0.00	0.00	0.0	0.08	0.45	0.47	60	177	174	74	4.0	1.0	4.1
		S.D.														
		MAX														
		MIN														
401B	1	MEAN	8.0	0.00	0.00	0.0	0.09	0.78	0.55	55	165	164	88	4.7	0.8	4.7
		S.D.														
		MAX														
		MIN														
403B	7	MEAN	7.3	0.00	0.00	0.0	0.07	0.55	0.47	57	135	119	88	4.2	0.9	4.3
		S.D.	0.3	0.00	0.00	0.0	0.03	0.08	0.03	2	10	16	2	0.3	0.1	0.3
		MAX	7.7	0.00	0.00	0.0	0.11	0.68	0.50	60	150	150	91	4.6	1.1	4.7
		MIN	6.7	0.00	0.00	0.0	0.03	0.45	0.40	54	120	96	86	3.7	0.8	3.8
403C	2	MEAN	7.6	0.00	0.00	0.0	0.05	0.53	0.47	54	148	129	88	4.4	0.8	4.4
		S.D.	0.3	0.00	0.00	0.0	0.01	0.03	0.03	1	11	7	2	0.1	0.1	0.1
		MAX	7.8	0.00	0.00	0.0	0.06	0.55	0.50	54	159	135	90	4.4	0.8	4.5
		MIN	7.3	0.00	0.00	0.0	0.04	0.50	0.43	53	137	122	86	4.3	0.7	4.3
405B	5	MEAN	6.3	0.00	0.00	0.0	0.08	0.63	0.47	58	108	103	90	3.9	1.1	4.1
		S.D.	0.8	0.00	0.00	0.0	0.03	0.10	0.05	2	6	12	1	0.2	0.1	0.2
		MAX	7.4	0.00	0.00	0.0	0.11	0.79	0.53	63	113	126	91	4.2	1.2	4.4
		MIN	5.2	0.00	0.00	0.0	0.05	0.53	0.40	56	97	92	88	3.7	1.0	3.8
405C	5	MEAN	6.9	0.00	0.00	0.0	0.05	0.52	0.46	54	123	106	89	3.9	0.9	4.0
		S.D.	1.0	0.00	0.00	0.0	0.02	0.08	0.03	3	11	8	2	0.3	0.2	0.3
		MAX	7.5	0.00	0.00	0.0	0.08	0.67	0.50	60	144	114	92	4.2	1.2	4.2
		MIN	5.0	0.00	0.00	0.0	0.02	0.43	0.43	51	113	91	86	3.4	0.7	3.5

MEN'S COMPETITION

CANADIAN SUMMER NATIONALS (CALGARY) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
5233D	1	MEAN	5.7	0.00	0.00	0.0	0.05	0.43	0.43	53	205	140	71	3.9	1.0	4.0
		S.D.														
		MAX														
		MIN														
5235D	2	MEAN	5.9	0.00	0.00	0.0	0.07	0.52	0.49	56	217	156	72	4.1	1.2	4.3
		S.D.	0.4	0.00	0.00	0.0	0.03	0.14	0.01	2	12	11	2	0.3	0.1	0.3
		MAX	6.3	0.00	0.00	0.0	0.09	0.66	0.50	58	228	167	73	4.4	1.2	4.6
		MIN	5.5	0.00	0.00	0.0	0.04	0.37	0.48	54	205	145	70	3.8	1.1	4.0

MEN'S COMPETITION — COMMONWEALTH TRIALS (EDMONTON) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
101A	3	MEAN	7.0	0.40	0.78	0.4	0.08	0.80	0.48	52	173	157	79	5.6	0.9	5.7
		S.D.	0.4	0.03	0.04	0.1	0.06	0.08	0.02	3	6	6	1	0.1	0.1	0.1
		MAX	7.6	0.44	0.83	0.5	0.16	0.90	0.50	56	182	164	81	5.7	1.0	5.8
		MIN	6.7	0.36	0.75	0.3	0.02	0.71	0.45	50	167	149	78	5.4	0.8	5.5
101B	2	MEAN	7.6	0.47	0.78	0.5	0.03	0.84	0.48	54	171	172	81	5.6	0.9	5.7
		S.D.														
		MAX														
		MIN														
103B	4	MEAN	7.3	0.48	0.80	0.5	0.07	0.84	0.47	56	152	144	78	5.6	1.0	5.6
		S.D.	0.6	0.09	0.03	0.1	0.06	0.08	0.02	2	9	14	2	0.2	0.1	0.1
		MAX	7.9	0.61	0.83	0.6	0.13	0.93	0.50	57	166	161	79	5.8	1.2	5.9
		MIN	6.3	0.38	0.77	0.4	-0.03	0.72	0.45	53	140	123	76	5.4	0.9	5.5
103C	1	MEAN	7.9	0.47	0.78	0.5	0.05	0.78	0.47	57	166	134	84	5.6	0.7	5.7
		S.D.														
		MAX														
		MIN														
107B	5	MEAN	6.6	0.42	0.81	0.4	0.04	0.89	0.46	56	93	95	68	5.0	1.0	5.1
		S.D.	0.9	0.08	0.04	0.1	0.05	0.06	0.02	1	12	13	3	0.4	0.1	0.4
		MAX	7.9	0.56	0.85	0.5	0.11	0.96	0.50	57	110	113	72	5.6	1.1	5.6
		MIN	5.5	0.34	0.77	0.4	-0.01	0.80	0.43	53	72	75	62	4.3	0.8	4.4
107C	4	MEAN	6.5	0.50	0.79	0.5	0.04	0.79	0.45	53	130	109	72	5.2	1.0	5.3
		S.D.	1.1	0.04	0.04	0.0	0.04	0.04	0.02	0	20	16	3	0.3	0.3	0.3
		MAX	8.4	0.54	0.83	0.5	0.09	0.85	0.47	53	156	136	77	5.4	1.5	5.6
		MIN	5.8	0.45	0.73	0.5	-0.02	0.74	0.43	53	104	97	68	4.7	0.6	4.9
301A	4	MEAN	6.5	0.44	0.75	0.5	0.08	0.79	0.46	54	198	171	86	5.4	0.9	5.5
		S.D.	0.9	0.02	0.01	0.0	0.02	0.06	0.02	3	4	16	1	0.1	0.1	0.1
		MAX	7.6	0.48	0.77	0.5	0.12	0.89	0.48	58	203	195	88	5.6	1.0	5.6
		MIN	5.2	0.41	0.75	0.4	0.06	0.73	0.43	51	192	153	85	5.3	0.7	5.3
301B	6	MEAN	7.3	0.49	0.81	0.4	0.04	0.85	0.48	52	186	172	85	5.6	1.0	5.7
		S.D.	0.5	0.06	0.03	0.1	0.03	0.07	0.02	2	5	9	2	0.2	0.2	0.2
		MAX	7.9	0.56	0.85	0.5	0.10	0.96	0.52	56	194	183	87	5.8	1.3	5.9
		MIN	6.7	0.41	0.77	0.3	0.00	0.73	0.45	49	177	155	81	5.2	0.7	5.3
305B	10	MEAN	6.3	0.50	0.78	0.5	0.02	0.83	0.46	58	192	181	87	5.2	1.3	5.4
		S.D.	1.3	0.07	0.04	0.1	0.04	0.06	0.03	2	8	19	4	0.3	0.3	0.3
		MAX	7.9	0.61	0.85	0.6	0.08	0.91	0.52	63	205	222	91	5.6	2.2	5.8
		MIN	3.8	0.40	0.73	0.3	-0.04	0.72	0.42	54	182	152	77	4.7	1.0	4.8
5111A	2	MEAN	6.9	0.41	0.76	0.4	0.10	0.75	0.48	51	166	173	80	5.1	0.7	5.2
		S.D.														
		MAX														
		MIN														

MEN'S COMPETITION

COMMONWEALTH TRIALS (EDMONTON) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
5132D	5	MEAN	6.7	0.44	0.78	0.5	0.08	0.78	0.46	56	146	135	77	5.4	0.9	5.5
		S.D.	0.5	0.07	0.02	0.1	0.03	0.04	0.03	3	10	8	3	0.1	0.2	0.1
		MAX	7.5	0.52	0.82	0.6	0.13	0.86	0.50	60	159	144	81	5.5	1.1	5.6
		MIN	6.0	0.31	0.75	0.3	0.05	0.72	0.43	53	135	124	73	5.3	0.7	5.4
5136D	6	MEAN	7.1	0.49	0.79	0.5	0.03	0.86	0.47	56	128	131	76	5.4	0.8	5.4
		S.D.	0.9	0.07	0.03	0.0	0.06	0.07	0.02	2	13	32	4	0.4	0.2	0.4
		MAX	8.2	0.59	0.85	0.6	0.14	0.98	0.50	58	152	175	81	6.0	1.1	6.0
		MIN	5.5	0.38	0.75	0.5	-0.04	0.78	0.43	53	108	90	69	4.7	0.6	4.8
5152D	5	MEAN	6.7	0.46	0.78	0.5	0.06	0.81	0.44	52	113	101	72	5.0	1.0	5.1
		S.D.	0.8	0.06	0.07	0.1	0.01	0.06	0.02	2	5	8	3	0.2	0.1	0.2
		MAX	7.9	0.52	0.87	0.6	0.08	0.92	0.47	56	120	114	75	5.2	1.2	5.4
		MIN	5.5	0.38	0.70	0.3	0.04	0.76	0.42	49	107	92	69	4.6	0.8	4.7
5331D	1	MEAN	7.1	0.35	0.85	0.3	0.04	0.93	0.48	52	207	158	88	5.7	1.2	5.8
		S.D.														
		MAX														
		MIN														
5335D	3	MEAN	7.0	0.51	0.79	0.5	0.04	0.79	0.44	53	207	144	87	5.2	1.2	5.4
		S.D.	0.8	0.06	0.03	0.1	0.04	0.12	0.02	0	7	19	2	0.1	0.2	0.0
		MAX	7.8	0.57	0.83	0.6	0.10	0.96	0.47	53	216	161	89	5.3	1.4	5.4
		MIN	6.0	0.43	0.77	0.4	0.00	0.68	0.42	52	200	117	84	5.2	1.0	5.4
5337D	6	MEAN	6.8	0.38	0.80	0.4	0.03	0.86	0.45	56	203	162	87	5.3	1.1	5.5
		S.D.	0.9	0.19	0.04	0.1	0.02	0.08	0.02	3	2	18	3	0.2	0.2	0.2
		MAX	7.6	0.62	0.85	0.6	0.06	0.94	0.48	58	207	186	91	5.7	1.5	5.8
		MIN	5.0	0.38	0.75	0.4	-0.01	0.74	0.42	49	201	133	81	5.1	0.9	5.2
201A	4	MEAN	7.1				0.09	0.54	0.50	57	191	188	79	4.4	1.0	4.5
		S.D.	0.7				0.01	0.02	0.02	3	3	20	2	0.2	0.2	0.2
		MAX	8.0				0.11	0.56	0.53	60	194	215	81	4.6	1.3	4.7
		MIN	6.4				0.07	0.51	0.47	53	187	163	76	4.1	0.8	4.3
201B	6	MEAN	7.2				0.08	0.60	0.53	57	179	174	82	4.6	0.8	4.7
		S.D.	0.8				0.03	0.11	0.03	3	7	6	2	0.3	0.1	0.3
		MAX	7.9				0.13	0.74	0.58	62	187	186	84	4.9	1.0	4.9
		MIN	5.6				0.04	0.42	0.50	52	167	167	78	4.0	0.7	4.1
205B	10	MEAN	6.0				0.08	0.60	0.47	60	195	179	69	4.2	1.2	4.4
		S.D.	0.9				0.02	0.08	0.03	3	11	28	5	0.3	0.2	0.2
		MAX	7.5				0.12	0.74	0.53	64	211	237	75	4.7	1.5	4.8
		MIN	4.8				0.06	0.46	0.43	56	172	135	61	3.6	0.9	3.8
401B	2	MEAN	7.5				0.09	0.70	0.53	55	161	151	87	4.5	0.8	4.6
		S.D.														
		MAX														
		MIN														

MEN'S COMPETITION — COMMONWEALTH TRIALS (EDMONTON) 1989

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
403B	5	MEAN	7.1				0.07	0.57	0.50	57	135	119	87	4.2	1.0	4.3
		S.D.	0.7				0.00	0.08	0.04	4	9	12	1	0.1	0.1	0.1
		MAX	7.9				0.08	0.69	0.57	63	146	141	89	4.3	1.1	4.5
		MIN	6.0				0.07	0.47	0.47	53	123	103	86	4.0	0.9	4.1
403C	3	MEAN	7.3				0.08	0.54	0.49	57	151	123	87	4.3	0.9	4.4
		S.D.	0.2				0.00	0.05	0.01	4	2	6	1	0.0	0.1	0.0
		MAX	7.5				0.08	0.58	0.50	60	153	132	88	4.4	1.0	4.5
		MIN	7.1				0.07	0.47	0.48	52	149	117	85	4.3	0.7	4.4
405B	7	MEAN	6.6				0.08	0.60	0.47	58	105	91	86	3.6	1.3	3.9
		S.D.	0.8				0.02	0.07	0.02	2	14	8	2	0.3	0.2	0.3
		MAX	7.7				0.11	0.71	0.50	60	124	104	90	4.2	1.5	4.4
		MIN	5.5				0.06	0.52	0.45	54	84	76	83	3.3	1.0	3.5
405C	3	MEAN	6.1				0.06	0.53	0.48	60	123	110	87	3.9	1.1	4.1
		S.D.	0.4				0.01	0.07	0.01	2	9	10	1	0.1	0.1	0.1
		MAX	6.6				0.07	0.62	0.50	63	133	120	88	4.0	1.2	4.1
		MIN	5.6				0.05	0.47	0.47	57	111	97	86	3.8	1.0	4.0
5235D	2	MEAN	6.8				0.09	0.64	0.51	59	210	295	70	4.4	1.2	4.6
		S.D.														
		MAX														
		MIN														

MEN'S COMPETITION · DIVE CANADA 1990

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
107B	4	MEAN	7.3	0.46	0.82	0.5	0.07	0.76	0.41	53	116	118	68	5.1	1.1	5.2
F		S.D.	0.9	0.06	0.04	0.0	0.01	0.04	0.01	4	9	18	3	0.1	0.1	0.1
		MAX	8.0	0.56	0.87	0.5	0.08	0.82	0.43	58	125	149	71	5.3	1.2	5.4
		MIN	5.8	0.42	0.77	0.4	0.06	0.71	0.40	47	100	106	62	4.9	1.0	5.0
305B	3	MEAN	7.0	0.45	0.81	0.4	0.04	0.78	0.42	55	200	176	89	5.3	1.0	5.4
F		S.D.	1.3	0.01	0.03	0.0	0.02	0.04	0.00	4	12	10	4	0.1	0.1	0.1
		MAX	8.4	0.46	0.85	0.4	0.06	0.83	0.43	60	216	184	93	5.5	1.1	5.6
		MIN	5.2	0.44	0.77	0.4	0.02	0.74	0.42	52	188	161	83	5.1	1.0	5.2
5335D	2	MEAN	7.4	0.48	0.79	0.4	0.02	0.78	0.42	54	205	220	87	5.4	1.0	5.5
F		S.D.	0.3	0.00	0.02	0.0	0.04	0.03	0.00	2	17	73	3	0.0	0.1	0.0
		MAX	7.7	0.48	0.82	0.5	0.05	0.81	0.42	55	222	292	89	5.4	1.1	5.5
		MIN	7.1	0.48	0.77	0.4	-0.02	0.75	0.42	52	188	147	84	5.4	0.9	5.5
5337D	3	MEAN	7.6	0.52	0.84	0.5	0.03	0.77	0.41	55	205	218	86	5.4	1.1	5.5
F		S.D.	0.3	0.02	0.03	0.0	0.03	0.03	0.03	1	6	57	4	0.2	0.2	0.2
		MAX	8.0	0.54	0.87	0.5	0.08	0.80	0.45	56	211	297	92	5.6	1.3	5.6
		MIN	7.2	0.50	0.82	0.5	0.00	0.72	0.38	53	196	166	83	5.1	0.8	5.3
205B	4	MEAN	7.5				0.14	0.55	0.47	57	200	180	70	4.2	0.9	4.3
F		S.D.	0.8				0.03	0.04	0.03	3	6	13	3	0.2	0.1	0.2
		MAX	8.1				0.18	0.61	0.50	60	210	202	74	4.5	1.0	4.6
		MIN	6.2				0.09	0.52	0.43	53	195	171	67	4.1	0.8	4.2
405B	4	MEAN	7.8				0.10	0.53	0.43	58	113	119	86	3.9	1.1	4.0
F		S.D.	0.3				0.01	0.03	0.03	5	8	17	1	0.2	0.1	0.1
		MAX	8.2				0.11	0.57	0.48	67	124	138	87	4.0	1.2	4.2
		MIN	7.4				0.09	0.48	0.40	53	103	91	85	3.6	1.0	3.8

MEN'S COMPETITION

WORLD DIVING TRIALS (WINNIPEG) 1990

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
101A	2	MEAN	7.5	0.4	0.8	0.5	0.1	0.8	0.5	48	171	160	78	5.4	0.9	5.5
		S.D.														
		MAX														
		MIN														
101B	1	MEAN	8.4	0.5	0.8	0.5	0.0	0.8	0.5	54	170	162	83	5.5	0.7	5.6
		S.D.														
		MAX														
		MIN														
103B	5	MEAN	7.4	0.5	0.8	0.5	0.0	0.8	0.5	53	144	145	79	5.4	1.0	5.5
		S.D.	0.3	0.1	0.0	0.1	0.0	0.1	0.0	3	7	7	1	0.2	0.1	0.2
		MAX	7.8	0.6	0.8	0.6	0.1	0.8	0.5	56	151	152	81	5.8	1.1	5.8
		MIN	7.0	0.4	0.7	0.5	0.0	0.7	0.5	50	131	133	77	5.2	0.8	5.3
103C	2	MEAN	7.3	0.5	0.8	0.5	0.0	0.8	0.5	52	155	137	77	5.5	1.1	5.6
		S.D.														
		MAX														
		MIN														
107B	6	MEAN	5.9	0.5	0.8	0.5	0.1	0.8	0.5	55	90	92	66	4.8	1.1	4.9
		S.D.	1.1	0.1	0.0	0.1	0.0	0.0	0.0	3	9	15	3	0.1	0.1	0.1
		MAX	7.7	0.6	0.8	0.6	0.1	0.9	0.5	60	101	111	69	5.1	1.3	5.2
		MIN	4.2	0.4	0.7	0.4	0.0	0.7	0.4	51	74	65	60	4.6	0.9	4.7
107C	4	MEAN	6.9	0.5	0.8	0.5	0.0	0.7	0.5	56	123	107	71	5.1	1.1	5.2
		S.D.	0.7	0.0	0.0	0.0	0.0	0.0	0.0	5	13	8	1	0.1	0.2	0.1
		MAX	8.0	0.5	0.8	0.6	0.1	0.8	0.5	60	136	115	71	5.2	1.3	5.3
		MIN	6.2	0.5	0.7	0.5	0.0	0.7	0.5	48	102	96	70	5.0	0.9	5.1
301A	5	MEAN	6.8	0.5	0.8	0.5	0.0	0.8	0.5	53	197	176	86	5.4	1.0	5.5
		S.D.	0.4	0.0	0.0	0.0	0.0	0.1	0.0	2	3	13	2	0.2	0.1	0.1
		MAX	7.5	0.6	0.8	0.6	0.1	0.9	0.5	56	201	195	89	5.7	1.2	5.7
		MIN	6.5	0.5	0.7	0.5	0.0	0.7	0.5	49	193	160	83	5.3	0.8	5.4
301B	5	MEAN	7.6	0.5	0.8	0.5	0.0	0.7	0.5	53	184	182	83	5.5	1.1	5.6
		S.D.	0.3	0.1	0.0	0.1	0.0	0.1	0.0	2	4	8	2	0.1	0.1	0.1
		MAX	8.1	0.5	0.8	0.6	0.1	0.8	0.5	56	190	196	86	5.7	1.2	5.8
		MIN	7.2	0.4	0.8	0.3	0.0	0.7	0.4	50	179	175	81	5.3	1.0	5.4
305B	10	MEAN	5.5	0.6	0.8	0.5	0.0	0.8	0.5	58	198	181	89	5.0	1.3	5.1
		S.D.	1.0	0.1	0.0	0.1	0.0	0.1	0.0	5	10	21	3	0.2	0.2	0.1
		MAX	7.1	0.7	0.8	0.6	0.0	0.9	0.5	67	210	211	93	5.2	1.6	5.4
		MIN	3.9	0.5	0.7	0.4	-0.1	0.7	0.4	50	182	154	82	4.7	0.9	4.8

MEN'S COMPETITION

WORLD DIVING TRIALS (WINNIPEG) 1990

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	LAST CONTACT VELOCITY (m/s) VV	HV	RV
5111A	1	MEAN	7.7	0.7	0.7	0.7	0.0	0.8	0.5	52	179	160	78	5.4	0.9	5.5
		S.D.														
		MAX														
		MIN														
5132D	5	MEAN	7.0	0.5	0.8	0.5	0.0	0.7	0.5	55	140	126	75	5.2	1.0	5.3
		S.D.	0.3	0.1	0.0	0.1	0.0	0.0	0.0	3	1	32	3	0.1	0.1	0.1
		MAX	7.5	0.6	0.8	0.6	0.0	0.8	0.5	60	141	173	80	5.3	1.1	5.4
		MIN	6.5	0.4	0.7	0.5	0.0	0.7	0.5	52	139	76	72	5.0	0.9	5.1
5136D	1	MEAN	7.2	0.5	0.8	0.5	0.0	0.7	0.5	63	129	70	76	5.3	0.8	5.4
		S.D.														
		MAX														
		MIN														
5152D	2	MEAN	7.5	0.5	0.8	0.5	0.0	0.8	0.5	58	114	106	68	5.1	1.2	5.2
		S.D.														
		MAX														
		MIN														
5331D	3	MEAN	7.0	0.6	0.8	0.5	0.0	0.8	0.5	53	204	185	89	5.6	0.9	5.7
		S.D.	0.4	0.1	0.0	0.1	0.0	0.1	0.0	3	2	12	2	0.1	0.2	0.1
		MAX	7.6	0.7	0.8	0.7	0.0	0.9	0.5	56	206	202	91	5.7	1.2	5.8
		MIN	6.6	0.5	0.7	0.4	0.0	0.7	0.4	49	201	176	87	5.5	0.8	5.6
5335D	7	MEAN	6.8	0.5	0.8	0.5	0.0	0.8	0.5	58	211	194	90	5.2	1.1	5.3
		S.D.	0.4	0.1	0.0	0.1	0.0	0.1	0.0	3	12	49	3	0.1	0.2	0.1
		MAX	7.4	0.7	0.8	0.6	0.0	0.9	0.5	63	235	311	94	5.3	1.5	5.4
		MIN	6.0	0.5	0.7	0.4	0.0	0.7	0.5	54	197	162	86	4.9	1.0	5.0
5337D	6	MEAN	6.1	0.6	0.8	0.5	0.0	0.7	0.4	57	206	169	101	4.8	1.2	4.9
		S.D.	0.9	0.2	0.1	0.1	0.0	0.3	0.0	4	11	24	28	0.7	0.2	0.6
		MAX	7.3	0.9	1.0	0.6	0.1	0.9	0.5	63	221	204	162	5.3	1.6	5.5
		MIN	4.3	0.4	0.8	0.4	0.0	0.1	0.4	51	194	128	83	3.4	1.0	3.5
201A	4	MEAN	7.1				0.1	0.6	0.5	54	194	177	79	4.3	0.8	4.4
		S.D.	0.5				0.1	0.1	0.0	2	5	15	2	0.1	0.1	0.2
		MAX	7.9				0.2	0.7	0.6	57	199	190	81	4.6	0.9	4.7
		MIN	6.5				0.1	0.5	0.5	51	187	152	77	4.2	0.7	4.2
201B	6	MEAN	7.2				0.1	0.6	0.5	57	179	178	81	4.5	0.8	4.6
		S.D.	0.2				0.0	0.1	0.1	3	5	9	1	0.1	0.1	0.1
		MAX	7.6				0.2	0.7	0.6	64	185	190	83	4.6	0.9	4.7
		MIN	7.0				0.1	0.5	0.5	53	172	163	80	4.4	0.7	4.4
205B	10	MEAN	6.5				0.1	0.6	0.5	60	199	182	69	4.2	1.1	4.3
		S.D.	1.1				0.0	0.1	0.0	3	11	25	3	0.2	0.1	0.1
		MAX	7.9				0.2	0.8	0.6	64	217	235	73	4.4	1.5	4.6
		MIN	4.2				0.1	0.5	0.5	56	181	141	63	3.8	0.9	4.1

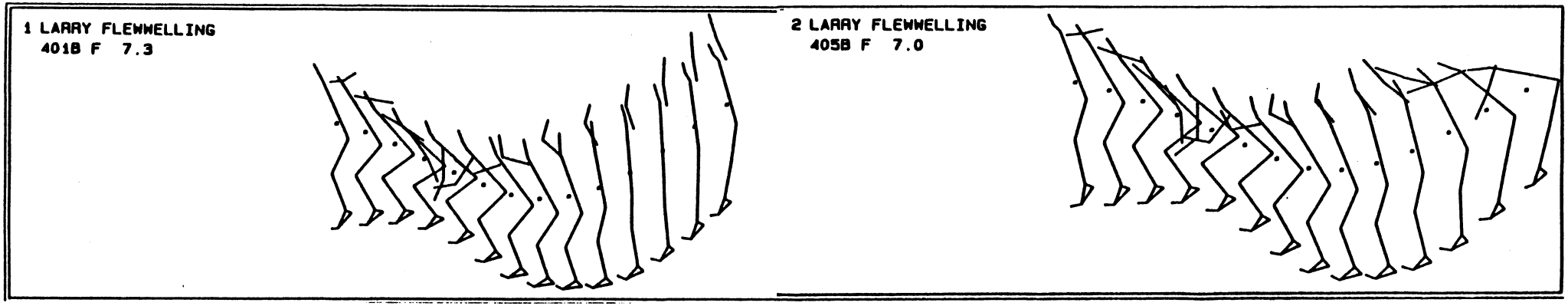
MEN'S COMPETITION

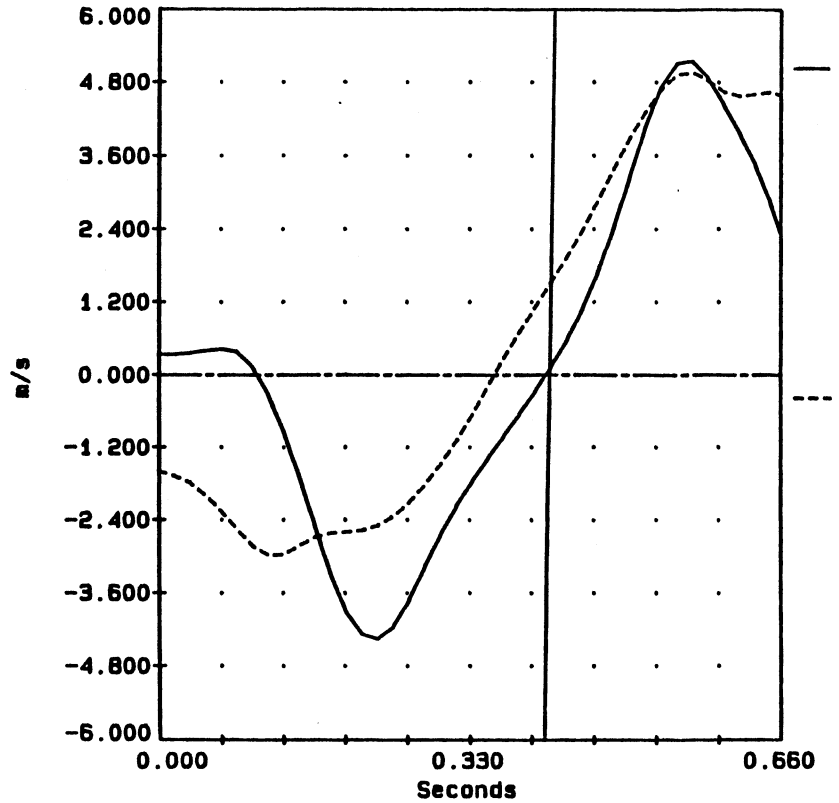
WORLD DIVING TRIALS (WINNIPEG) 1990

DIVE	N	STATISTIC	SCORE	HURDLE L (m)	HURDLE T (s)	HURDLE HV (m/s)	TAKE-OFF DIS (m)	TAKE-OFF MD (m)	TAKE-OFF T (s)	TAKE-OFF DT (%)	LAST CONTACT ANGLES (deg) H	S	LC	VELOCITY (m/s) VV	HV	RV
401B	1	MEAN	7.3				0.2	0.7	0.5	57	158	160	85	4.5	0.9	4.6
		S.D.														
		MAX														
		MIN														
403B	5	MEAN	6.8				0.1	0.6	0.5	56	134	112	86	4.1	1.0	4.2
		S.D.	0.7				0.0	0.1	0.0	3	10	7	3	0.1	0.1	0.1
		MAX	7.4				0.2	0.7	0.6	60	150	122	89	4.3	1.2	4.4
		MIN	5.5				0.1	0.5	0.4	53	123	104	82	3.9	0.8	4.1
403C	4	MEAN	7.2				0.1	0.6	0.5	54	145	135	88	4.3	0.8	4.4
		S.D.	0.2				0.0	0.1	0.0	1	3	6	1	0.2	0.0	0.2
		MAX	7.5				0.2	0.7	0.6	56	147	139	89	4.6	0.9	4.7
		MIN	6.9				0.1	0.5	0.5	53	139	125	87	4.2	0.8	4.3
405B	8	MEAN	6.5				0.1	0.6	0.5	57	105	91	89	3.6	1.1	3.8
		S.D.	0.8				0.0	0.1	0.0	4	9	9	4	0.2	0.1	0.2
		MAX	7.6				0.2	0.7	0.6	63	120	108	95	3.9	1.4	4.1
		MIN	5.2				0.1	0.5	0.4	51	94	79	82	3.4	0.9	3.5
405C	2	MEAN	6.1				0.1	0.6	0.5	53	126	111	86	4.0	1.2	4.1
		S.D.														
		MAX														
		MIN														
5235D	3	MEAN	6.6				0.1	0.7	0.5	58	208	191	70	4.2	1.0	4.3
		S.D.	0.8				0.0	0.0	0.0	0	6	36	4	0.3	0.4	0.2
		MAX	7.2				0.2	0.7	0.5	58	213	241	74	4.6	1.5	4.6
		MIN	5.5				0.1	0.6	0.5	57	199	155	64	3.8	0.7	4.1
5237D	2	MEAN	4.9				0.1	0.6	0.5	59	212	183	65	4.1	1.0	4.3
		S.D.														
		MAX														
		MIN														

APPENDIX D

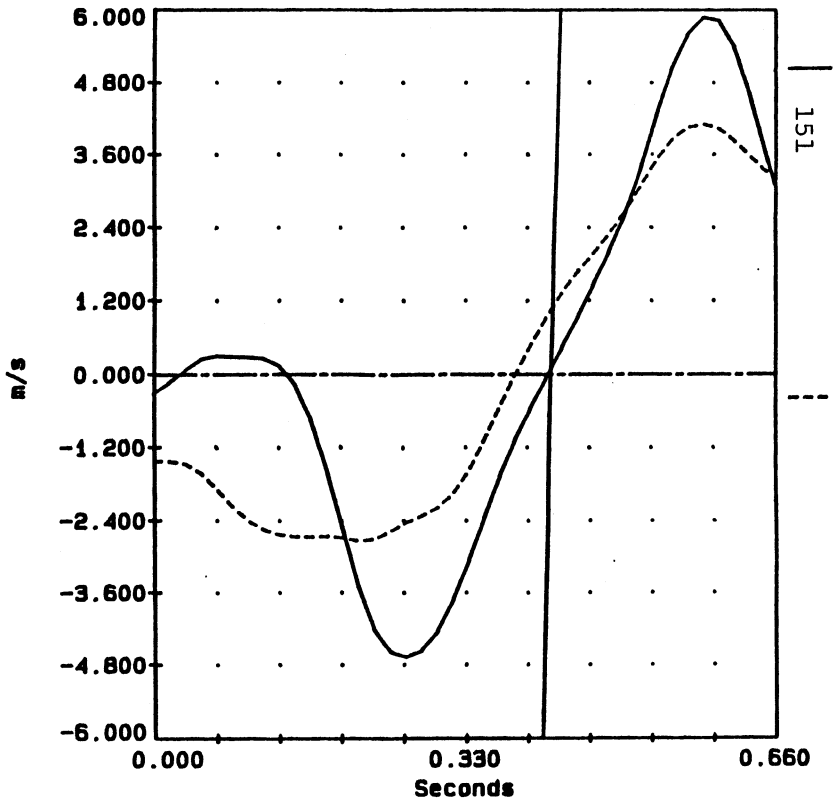
SELECTED LINEAR AND ANGULAR VELOCITY-TIME HISTORIES DURING TAKE-OFF





——V: Y-TIP LFL41BMS.VDA

--- V: Y-Center of Mass LFL41BMS.VDA



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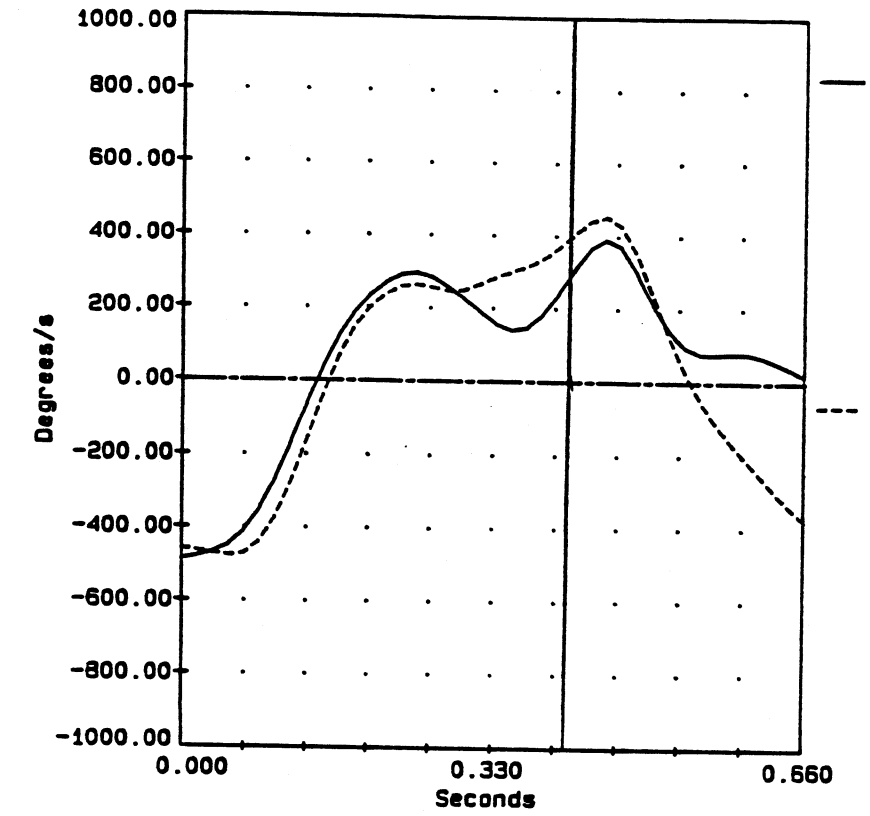
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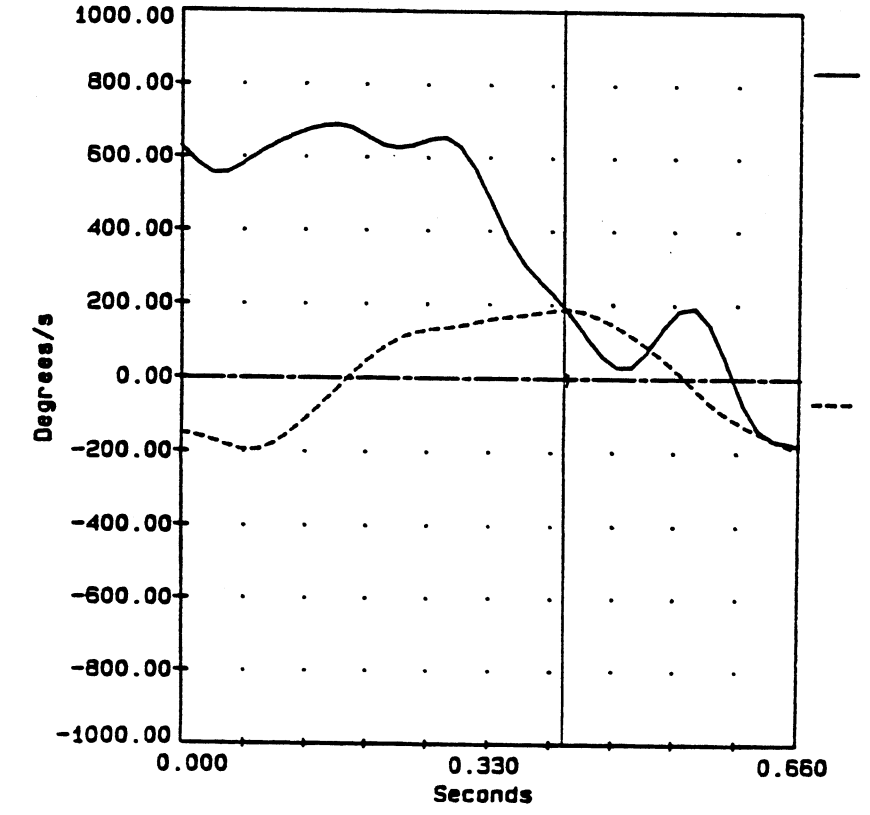
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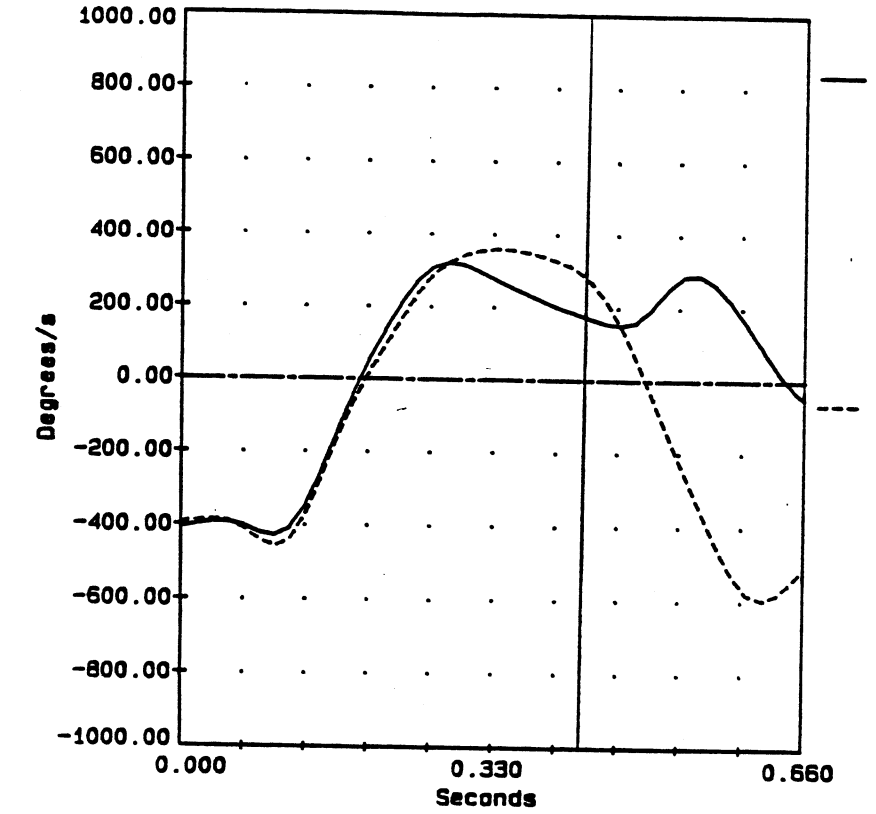
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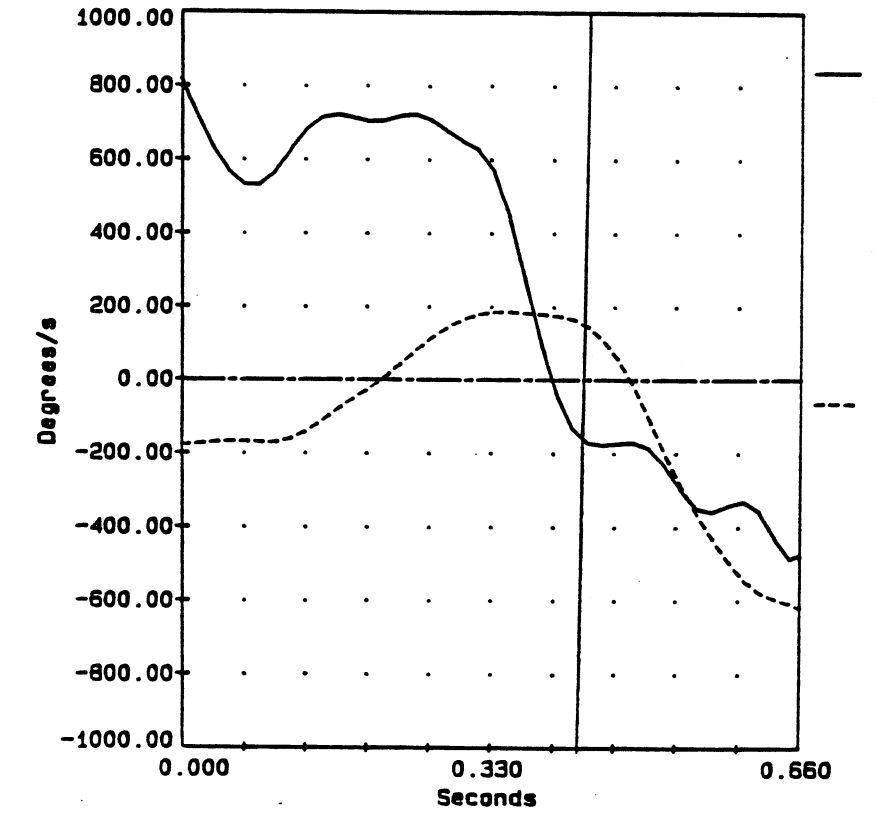
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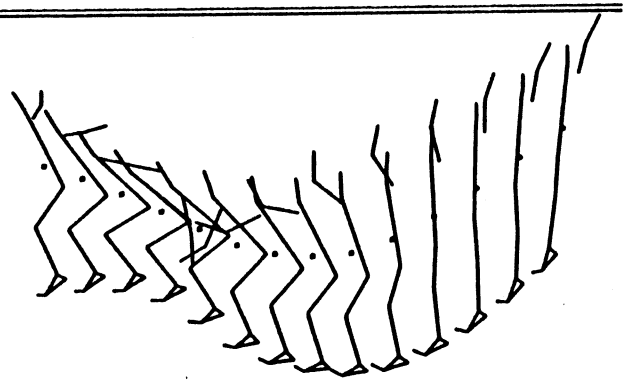

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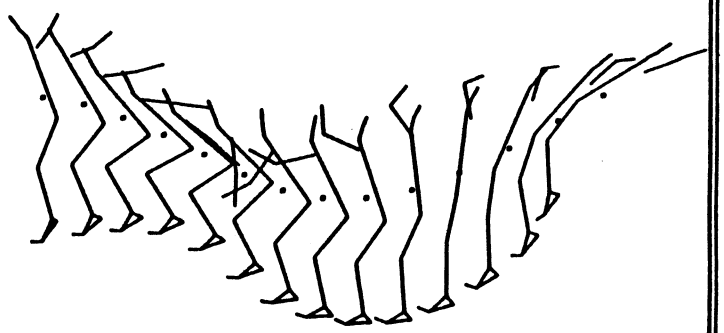

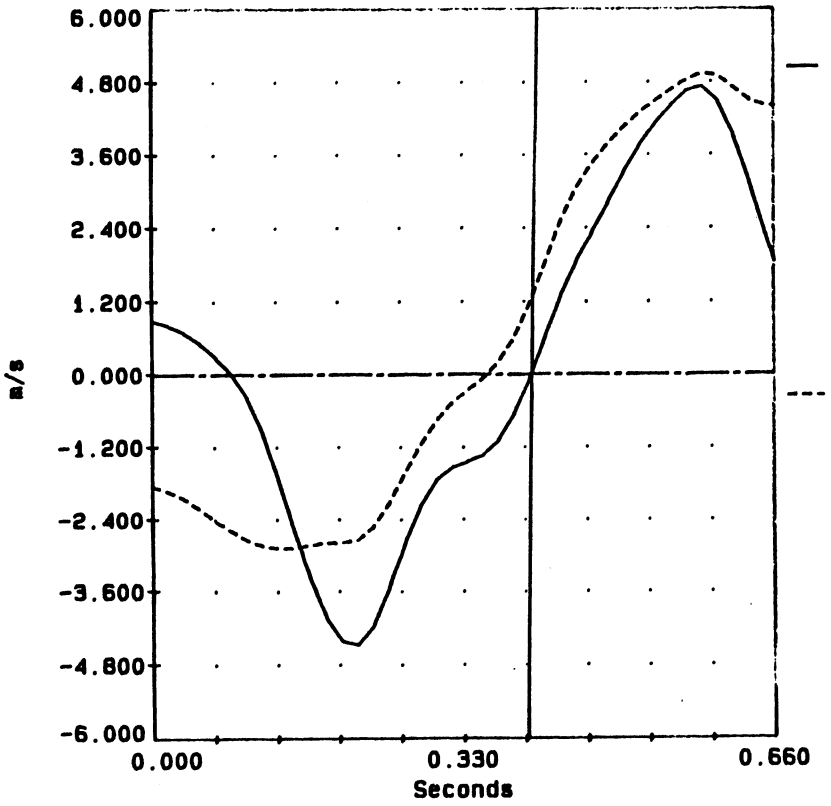

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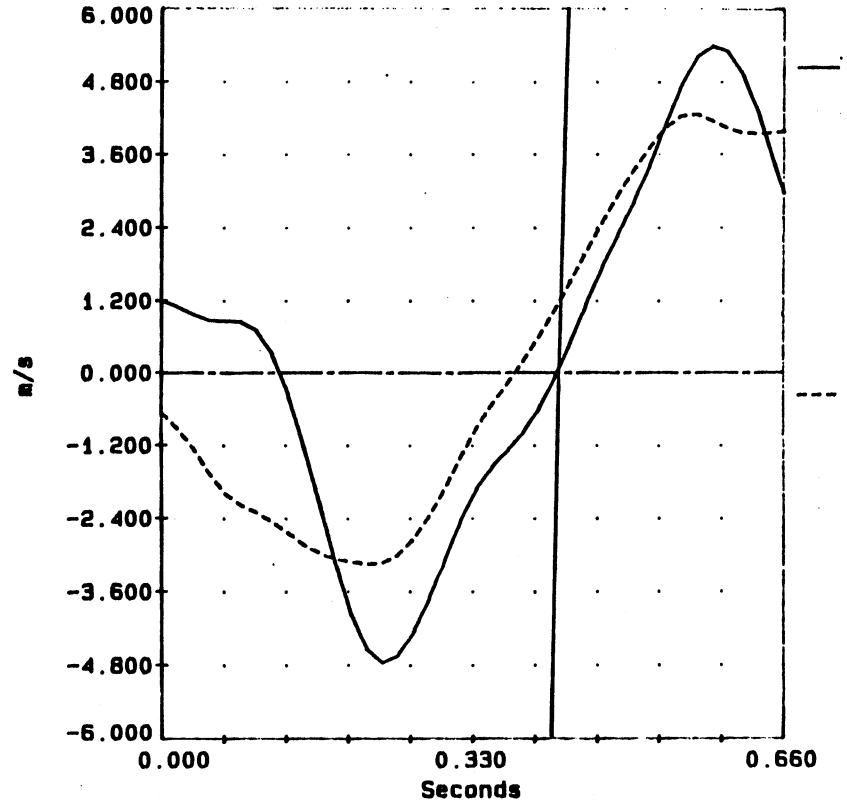

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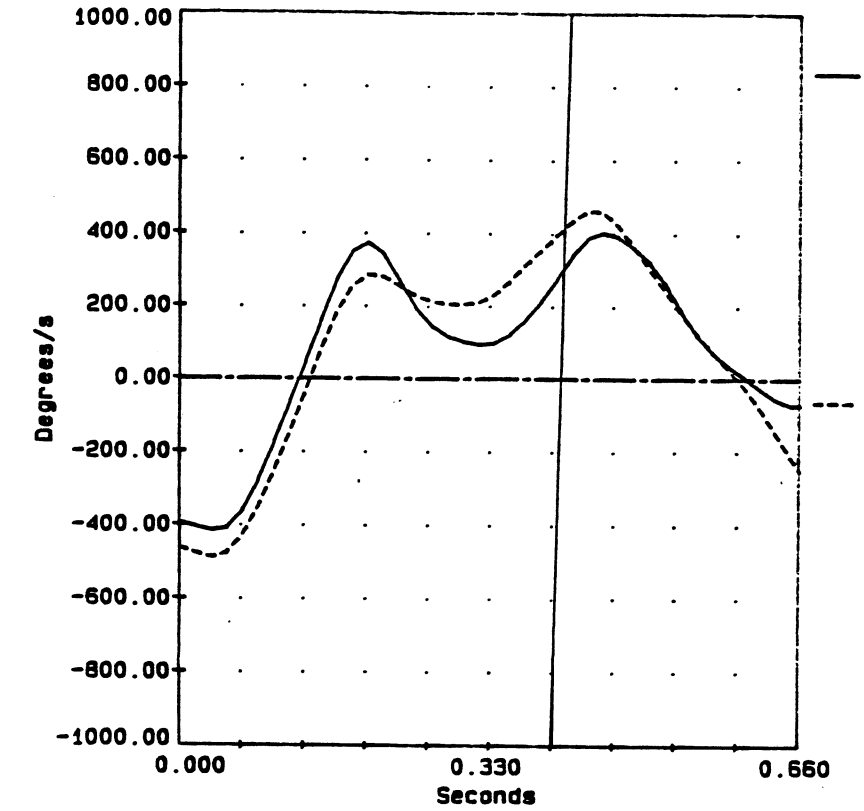
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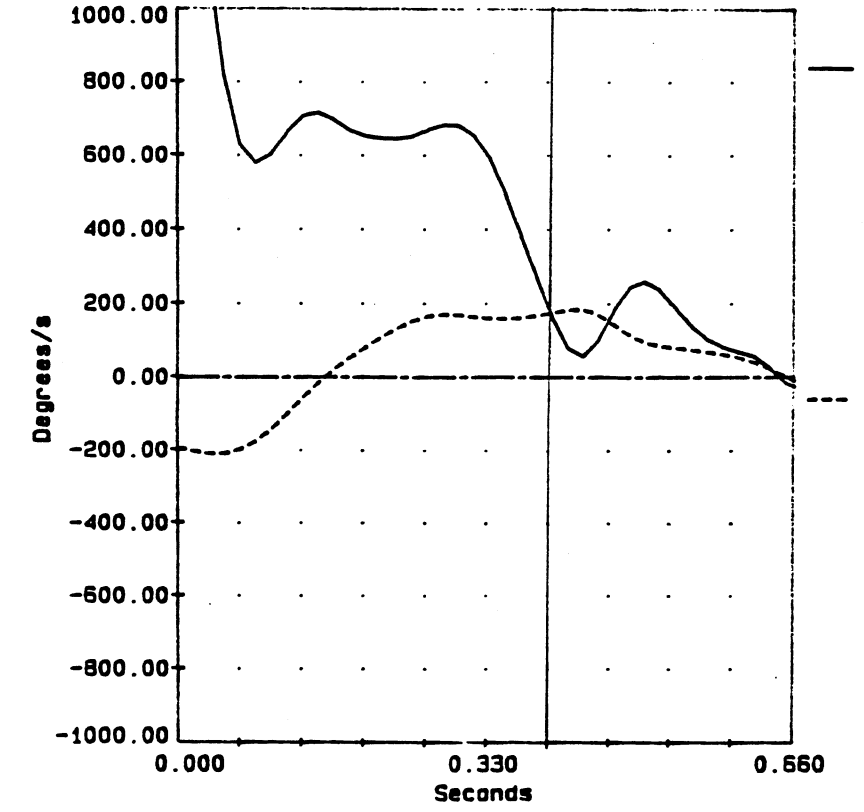
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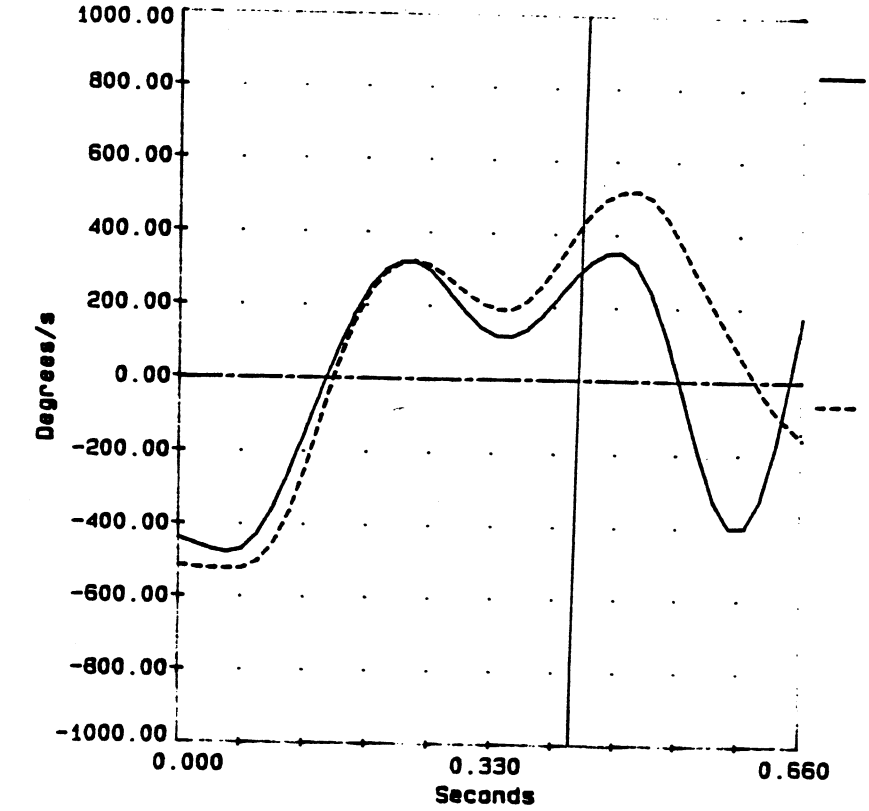

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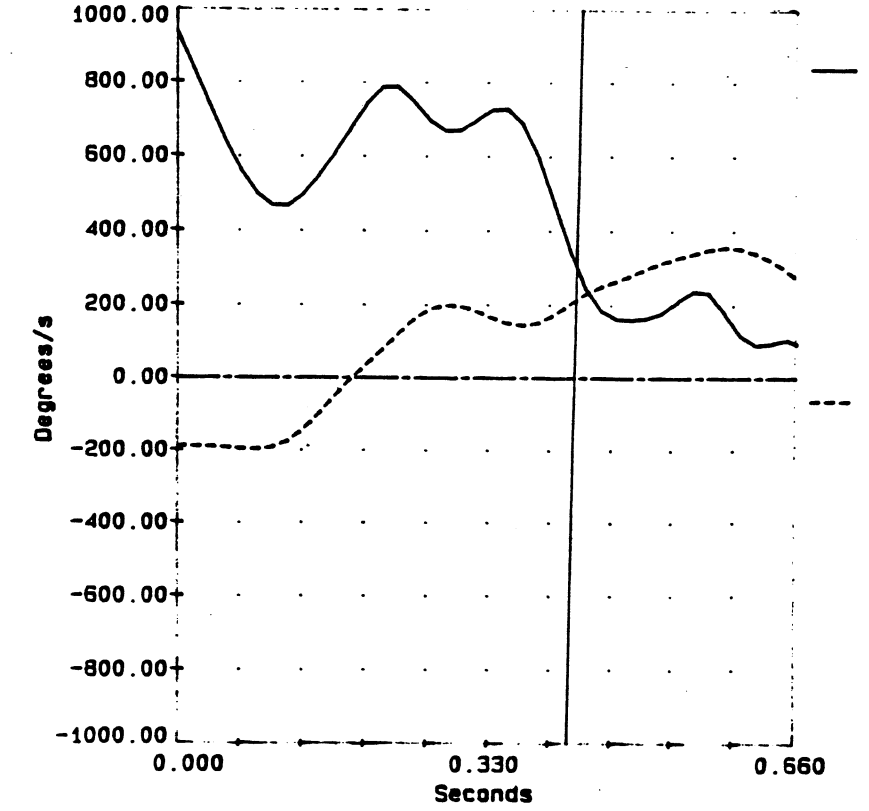

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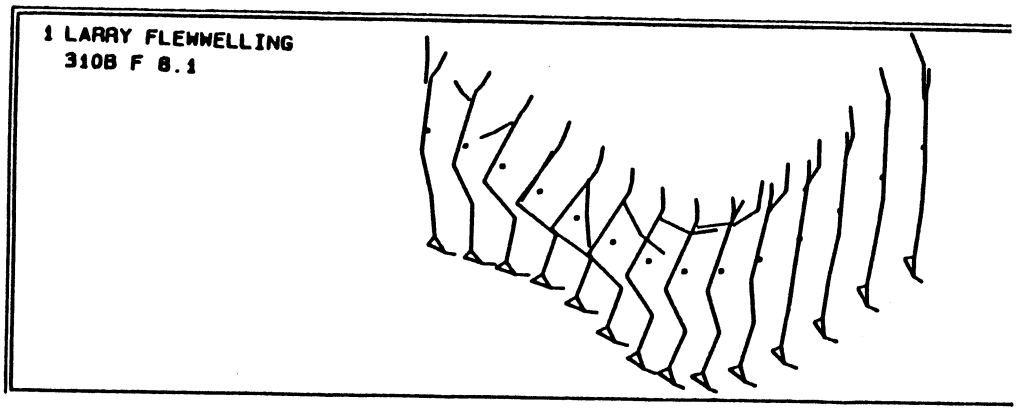
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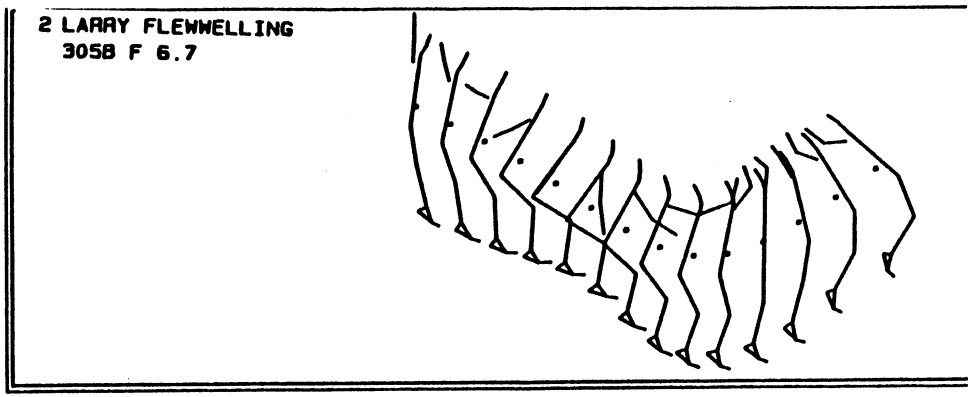
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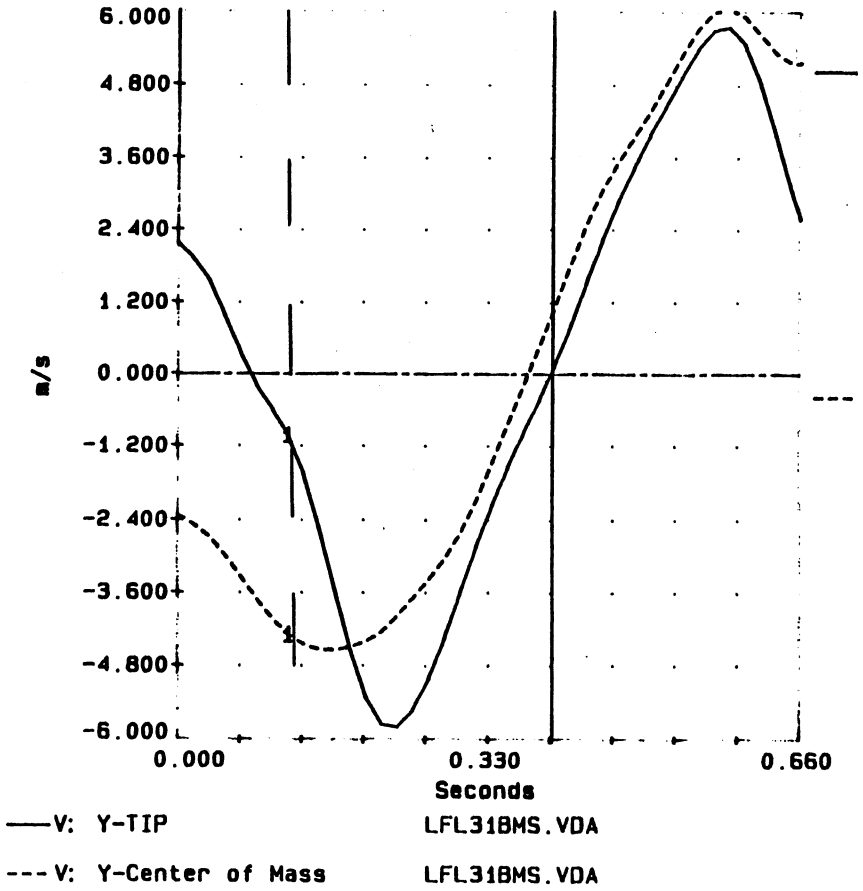
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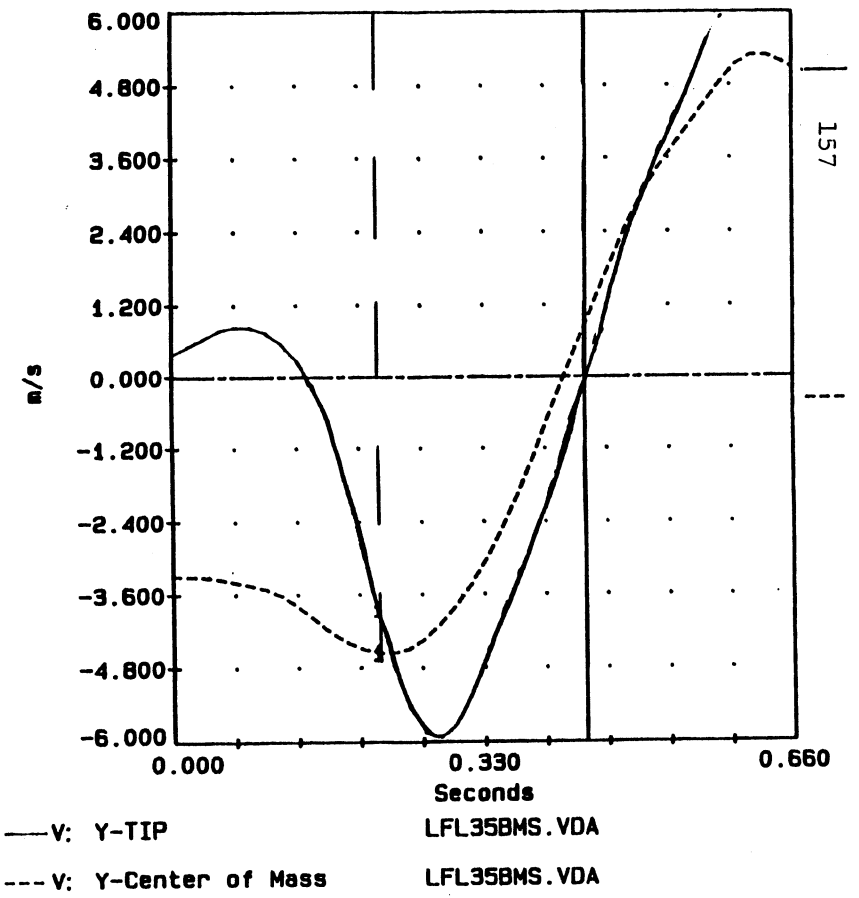
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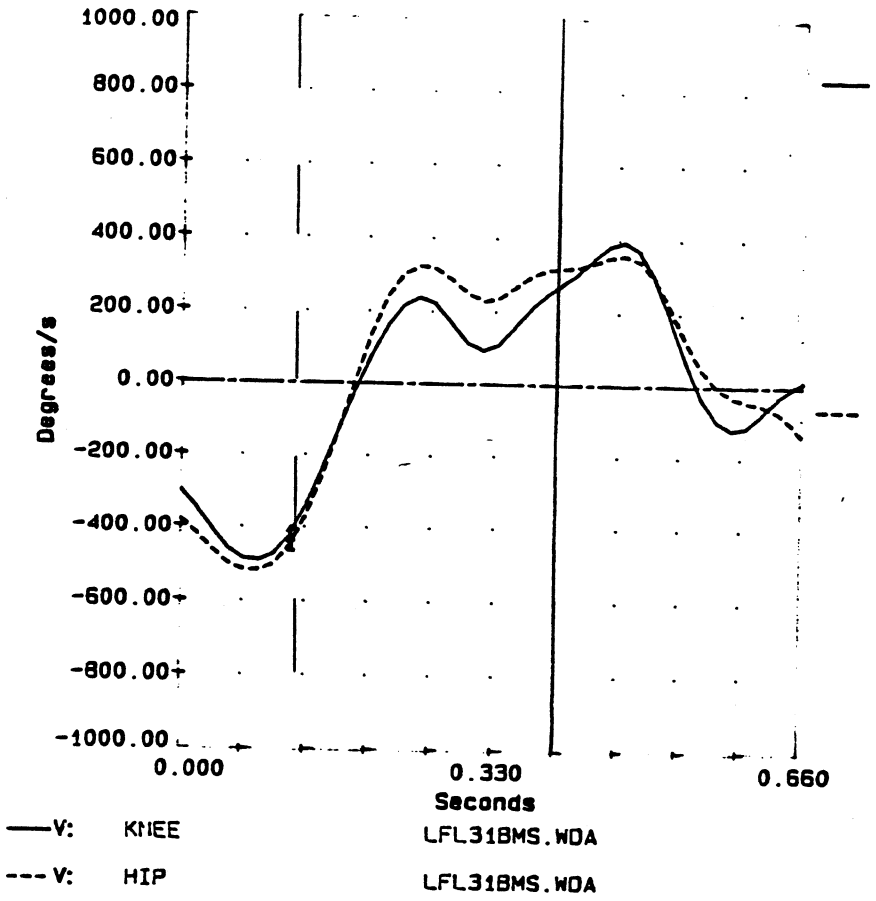
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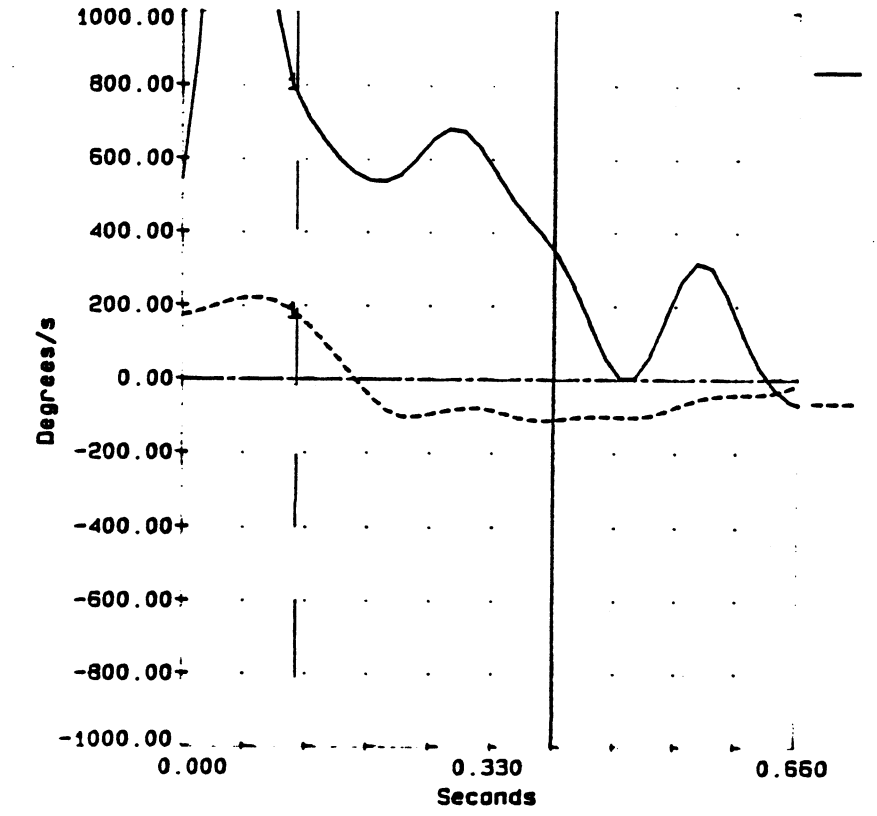
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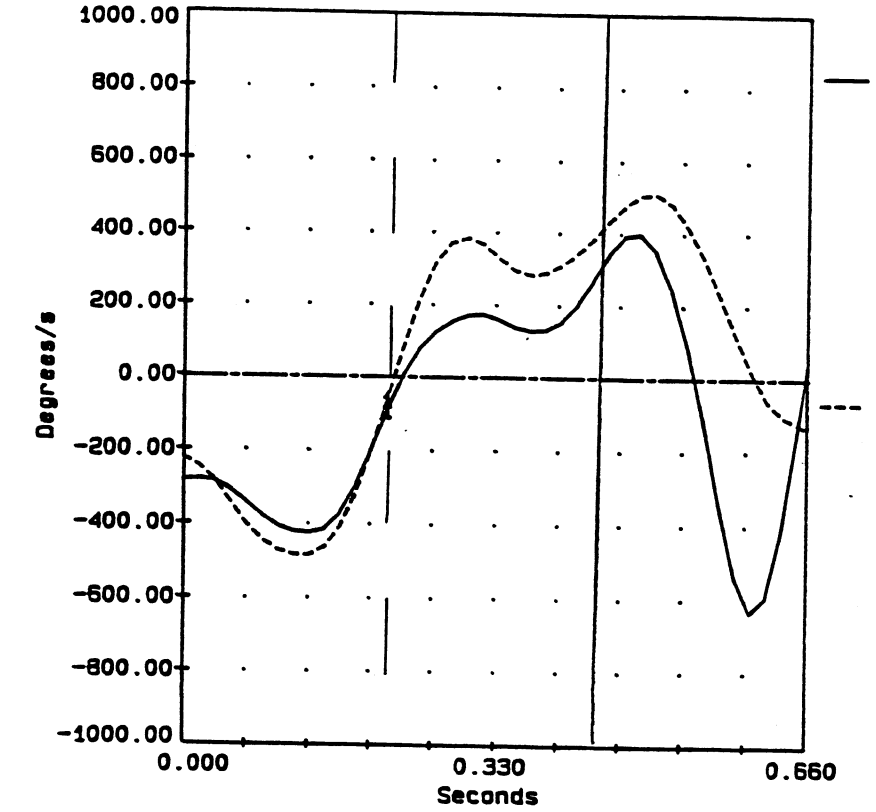
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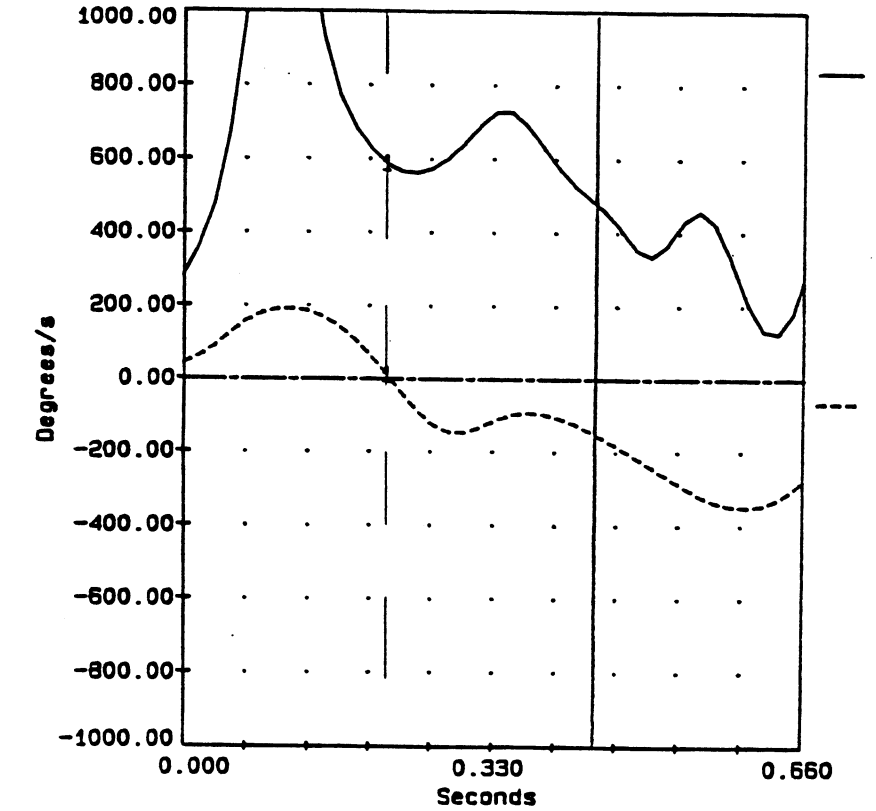
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APPENDIX E

EVALUATIVE QUESTIONNAIRES

COACHES EVALUATION

of the Sport Canada project

'BIOMECHANICAL FEEDBACK SYSTEM FOR CANADA'S HIGH PERFORMANCE DIVERS'

Doris I. Miller, Project Director

At this point, some half way through the project, we would appreciate receiving some formalized feedback from coaches on their reactions to the biomechanical feedback we are providing.

Project Evaluation

1. Please check ANY (one or more) of the following statements which apply to you and/or your divers:

a. The reports from the project

12 have provided me with some new information or new insights

13 have confirmed some things that I already knew or suspected

8 have been useful in providing feedback to my diver(s)

7 have increased my understanding of some aspects of biomechanics

_____ have been of little or no use in my coaching

_____ have not been read or consulted

Other _____

b. The videos of the approaches and take-offs used specifically for the project analysis but also provided to each club after Winter Nationals

10 were useful

_____ were not used because we didn't have the equipment

1 were of little use because they didn't include the entries

1 ~~were unnecessary~~ because we take our own videos at competitions

Other _____

2. Please check the box which best describes your reaction

a. To the various components of the report.

	Excellent	Good	Useful	Poor	Useless
Brief observations of your diver(s) specific performance (if applicable)	6	3	3		
General narrative comments at the beginning of the report	5	5	3		
Stick figure sequences	9	2	2		
Individual data tables for each diver	7	4	2		
Group statistics for the specific competition	6	5			
Height/rotation graphs	7	4	2		
FINA Cup comparative data	9	4			

b. To how these same components are presented.

	Clear	Complicated	Too Brief	Other
Brief comments on your diver(s) specific performance (if applicable)	8	1	3	
General narrative comments at the beginning of report	12		1	
Stick figure sequences	13			
Individual data tables for each diver	11	2		
Group statistics for the specific competition	11	1		
Height/rotation graphs	10	2		
FINA Cup comparative data	13	but 1		

3. Approximately how many other people (divers, other coaches, parents, club administrators, diving officials, etc.) have seen these reports?

Estimated number 65

4. Are the results provided rapidly enough after the competitions to be useful from a coaching standpoint? Yes 12 No 0

Use of Video Technology in Coaching

It would also be helpful to us to know the extent to which video technology is being used in diving coaching.

1. Do you use video in your coaching? Yes 10 No

If yes,

a. Do you videotape your divers
(1) in competition 6 Yes No 2
(2) in practice 12 Yes No
If yes, approximately how often _____

b. Approximately how long have you been using it? _____

c. What type of video camera do you have? _____

d. Does your camera have a shutter? 5 Yes No 6

e. Can you play back your video one frame at a time and stop the action so that details can be studied? 8 Yes No 3

If no, are you planning to purchase one in the near future? 2 Yes No

2. Would you like to continue to receive a copy of the videos (limited to approach and take-off) used in the project analysis if it were made available at cost? 11 Yes No (This is not an official commitment!)

Coaching Symposium

Please list any topics, questions, etc. you would like to see covered in the biomechanics section of the coaching symposium in Ottawa this fall. The current plan is to focus on various aspects of the biomechanical feedback project but we are open to suggestions.

General Comments or Suggestions Regarding the Project?????

Address Correction?

Is your address label for receiving copies of the report correct? Yes No

(Please note that it is sometimes just as economical to send the report by Purolator Courier but Purolator must have a street address and will not deliver to a box number)

Please provide address correction or change (if necessary).

Name of Coach _____ Club _____ Date _____

Please return in the stamped self-addressed envelope provided by the middle of August.

THANKS FOR YOUR ASSISTANCE!

Comments included in the open-ended portions of the questionnaire were as follows:

1. I feel to properly analyze a dive all parts have to be reviewed w/ the diver - helpful to me as a coach
2. I personally hope that all coaches are going to use it and use it in an efficient way. I find the report extremely helpful. In the name of all coaches, I thank you. Suggestions: An evaluation grid indicating: (a) the major differences between each Canadian diver and one of the best in the world; (b) the problems; (c) the causes; (d) the correctives
3. [The videos are] very good because we always find something new.
4. I even needed more information that Dr. Miller provided me with when I asked for [it]. [Videos were useful] but I would love to also have the entries instead of having to watch another tape to get the flight and entries. ... It is of even greater value when a person can access the computer program with the data and compare stuff on a screen.
5. I think it's fantastic. We've never had anything like this before. It's nice to have things presented clearly, in lay-man's terms! ... in talking to [the other club coach], I know he's very impressed with your work and very enthusiastic about the project!
6. Line-ups & entries are ???? of equal note but I realize are more difficult to attain the data.
7. Sur l'analyse des desparts j'aimerais egalement voir l'entree de façon à pouvoir fair une relation avec les composantes mecaniques du depart et la hauteur ou le plongeon se termine.
8. I found [the videos] to be of great benefit. This is the manner in which sport scientists and coaches can meet within an athletic environment and work together to produce superior athletes! It is my hope it will continue. Thanks for the information.
9. Estimated height of takeoff or time in the air is more valuable than vertical velocity. If a high speed camera was used could be calculate the force at the shoulder on the upward arm swing before the throw?

10. The divers "loved" the stick figure drawings - it is useful to be able to put pages side by side & do comparative analysis - somewhat more so than with videotape - YET, both are very necessary. It is very exciting and useful! Thank you.

11. [The reports have] helped me to analyse reports by other authors. I feel the international [videos] are of more use because I am already familiar with our nat. divers and their technique. I feel if we are to compete on a world level we must continue with new & innovative research.

COACHES EVALUATION

of the Sport Canada project

'BIOMECHANICAL FEEDBACK SYSTEM FOR CANADA'S HIGH PERFORMANCE DIVERS'

Doris I. Miller Ph.D., Project Director

As we complete the final year of our research project, we would appreciate receiving written feedback from coaches on their reactions to the biomechanical feedback we have provided on two major meets each year over the past three years beginning with the 1988 Olympic Trials.

Name _____ Club _____

Mailing (Street) Address _____

_____ Telephone (____) _____

1. To the best of your recollection, please indicate which of the project reports you received and if you had any divers included in the analysis in each case (i.e., finishing in the top 10 in 3-m springboard for the particular competition)

Competition	Received Report Yes	No	Included One or More of My Divers
1988 Olympic Trials, Nepean (men only) 1989 Winter Nationals, Quebec	11		
1989 FINA Cup, Indianapolis	12		
1989 Summer Nationals, Calgary	12		
1990 Commonwealth Trials, Edmonton	14		
1990 Dive Canada, Nepean	11		
1991 World Diving Trials, Winnipeg	12		

2. On the average, how long was it after receiving the reports and/or videos that you first looked at them in any detail?

6 within 2-3 days
1 within a week
7 within a month
1 within three months
_____ didn't make use of them at all

3. Approximately how many other people (divers, other coaches, parents, club administrators, diving officials, etc.) make use of each of the reports you received (on the average).

Estimated number 96

1-5 people - 10
6-10 4
25 1

4. Please CHECK the box which BEST describes how you would rate the various components of the report. You may ALSO include brief comments if you wish.

	Excellent	Good	Somewhat Useful	Poor	Should be Omitted
Brief observations of your diver(s) specific performance (if applicable)	3	9			
General narrative comments at the beginning of the report	6	7	1		
Event stick figure sequences (hurdle touchdown & last contact, take-off initial contact, max depression & last contact)	13	1	1		
Individual cumulative data tables for each diver	10	3	2		
Group statistics for the specific competition	9	6			
Height/rotation graphs (somersault rate added)	9	6			
Detailed take-off stick figures (frame by frame analysis of the take-off itself)	13	2			
Detailed take-off graphs (board & CG velocity, angular velocity of knees, hips and shoulders)	7	5	2		
International comparative data (when available)	14	1			

5. Please check ANY (one or more) of the following statements which apply to you and/or your divers. In general,

a. The reports from the projects

13 have provided me with some new information or new insights
14 have confirmed some things that I already knew or suspected
13 have been useful in providing feedback to my diver(s)
13 have increased my understanding of some aspects of biomechanics
____ have been of little or no use in my coaching
____ have not been read or consulted
Other _____

b. The videos of the approaches and take-offs used specifically for the project analysis but also provided to those requesting them

1 I/we did not receive these videos
11 were useful for me as a coach
8 were viewed by my divers
5 were viewed by others as well (parents, club officials, etc.)
____ were not used

Other _____

6. If funding is received to extend this project another two years to the end of the current Olympic cycle with the addition of entries and 10-m take-offs, would you like to continue to receive a copy of:

15 the report
14 the videotapes (VHS format)

7. When this research project is finished (either now or at the end of the requested extension period), should this type of feedback be continued under the Sport Science Support Program? (The current project was a research and not a support project.)

1 -- should continue as research
2 -- unsure of funding details

Yes 13 No ____ Other _____

General Comments or Suggestions Regarding the Project????? (Please use reverse side if you need additional space.)

THANKS FOR YOUR ASSISTANCE!

Comments included in the open-ended portions of the final questionnaire were as follows:

1. Very impressed with speed of which reports followed competitions - near the last competitions. Reports were excellent for comparative analysis with Chris and David!

2. [The project] should keep going as a research but if that were not possible I would love to have it as a science support prog. I wish that every body becomes familiar with the computer program so they can find relationship in between diver groups, divers, etc.

3. Additional comparisons from previous results (ie. changes) would have been even more helpful.

4. We need some occasional custom work done.

5. The timely return of all information has been appreciated.
Without considering each of the Sp. Sci. Support Program components, I cannot say which components should be included.

6. [The reports] were great for comparison purposes. Keeps track of statistics for me (e.g. ave scores over 2 year for specific dives)
I feel this is important work that Canada is leading the way on. I would very much like to see it continue.

7. I would like to see entries included in the report as well as the take-offs. [Three others also indicated they would like entries included.]

8. Even if I am not coaching I would like to receive each report (if that is possible) in order to keep me up to date.

9. I have been involved with diving for over 18 years. I have received many different reports. Only two reports have I found to be not only beneficial but became part of my coaching philosophy after reading them ... Dr. Fred Yeaden's Biomechanical Analysis of twisting sommersaults and Dorris Millers project. This project I am sure would receive uninamous support from everyone involved. I highly recommend and hope this project continues.