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PART I: TITLES AND ABSTRACTS

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PHYSICAL EDUCATION

ADMINISTRATION

Chen, Li

Performances of coaches: criteria differences across NCAA divisions, 1998. D.P.E., Springfield College (Barbara E. Jenson). (172pp 2f $8.00) PE 3864

A national survey was conducted to examine different perceptions of important criteria in coaching performances as rated by athletic administrators and coaches across the three NCAA divisions. A sample of 720 was targeted through a random selection procedure. A total of 402 (55.83%) directors of athletics (Ads) (n=155) and head coaches (n=247) responded to the survey using the Scale of Coaching Performance (SCP) (MacLean & Chelladurai, 1995) with domains of 'Team Products' (TP), 'Personal Products' (PP), 'Direct Task Behaviors' (DTB), 'Indirect Task Behaviors' (ITB), 'Administrative Maintenance Behaviors' (AMB), and 'Public Relations Behaviors' (PRB). The following significant differences (p<.05) were found by using 2 x 3 factorial MANOVAs, discriminant function analyses, linear correlation analyses, alpha reliability, and confirmatory factor analysis (CFA): (a) the Ads of Division I rated TP higher than their colleagues of Division II and III; yet Ads of Division II rated AMB higher than their counterparts of Division I and III; (b) the coaches of team sports rated ITB and PRB higher than the coaches of individual sports; (c) the more years the Ads had worked in athletic administration, the higher they rated TP and DTB; and (d) the six-dimensional model of SCP fit the data from the NCAA sample and each subscale had acceptable internal consistency. The results reflect the different perceptions of Ads and coaches in what is important to evaluate coaching performances, and support the theoretical framework where the expectations of athletic administrators toward coaching performances are consistent with the value and philosophies of the three NCAA Divisions. The study provides quantitative data for the athletic administrators to expand their horizon on the evaluation of coaches, and for coaches to refresh their mind on what important criteria are preferred by their employers, and how their coaching duties would be better carried out in different programs. Further research of coaching performances was recommended.

Chynoweth, Tracy L.

Medical services available for the participants of intramural sports at the schools of the Mid-American Conference, 1998. M.A., Ball State University (Connie Peterson). (40pp 1f $4.00) PE 3850

The purpose of this study was to ascertain the type and extent of medical services available for participants that become injured during participation in intramural sports at the schools of the Mid-American Conference. Another goal was to determine the method(s) for providing these services in terms of personnel and financial resources. Surveys were sent to the twelve member institutions of the Mid-American Conference. These schools were chosen based on their similarities to the researcher’s institution to utilize their feedback for comparison between Ball State University and schools of similar enrollment and resources. A 100% return rate was achieved and all responses were deemed usable. Studies conducted during the last twenty-five years point out the growth experienced by campus intramural and recreational sports programs across the country. Initially, this growth was not accompanied by increased concern for the safety and well being of the participants of these programs. More recently, however, schools have been addressing this need by utilizing certified and student athletic trainers, student supervisors trained in CPR and first aid, or a combination of both. The results of this survey indicate that most schools are moving away from utilizing the services of specialized athletic training personnel. The responses may indicate that the number and severity of injuries sustained by participants of intramural sports do not warrant the services of specialized athletic training personnel. The majority of schools have chosen to train student supervisors of the intramural/recreational sports department in first aid and cardiopulmonary resuscitation so that they may respond to life threatening injuries appropriately. Any injuries that are not life threatening are not dealt with by the intramural/recreational sports department, but are referred to either the student health center or a local hospital or doctor. Many programs have continued to grow, and will continue to see increases in the number of participants involved in their programs. It will be very important that these programs seek to insure the safety of each participant, and to provide necessary care for those that become injured as a result of participation. Many studies have been done to determine the most effective method for providing such care, and future studies must continue to evaluate the practices within the field of intramural and recreational sports.
Deibler, Lisa K. *A three-year plan for the University of North Carolina at Chapel Hill Department of Athletics*, 1998. M.A., University of North Carolina-Chapel Hill (John E. Billing). (73pp 1f $4.00) PE 3880

The purpose of this study was to construct a three-year plan for the University of North Carolina Department of Athletics based on the ideas of the Director of Athletics in order to maintain and improve the department and the intercollegiate athletics program. The goals of the department are 1) to conduct an athletics program characterized by integrity, 2) to recruit and enroll student-athletes who are committed to academic and athletic achievement, 3) to conduct an athletics program characterized by athletic excellence, 4) to achieve economic stability, 5) to operate the athletics program in accordance with Title IX, 6) to improve its administrative environment, 7) to provide and maintain superior athletics facilities, and 8) to advance technology. Department employees and other individuals and groups affected by the plan are involved in its adjustment and implementation. Progress toward meeting the goals and objectives of the plan is evaluated in terms of the accomplishment of actions.

Dierks, Tamara J. *Descriptive study of intramural activity offerings and entry rates in college/university intramural programs with a student population between 10,001-30,000*, 1998. M.S., Ball State University (Marilyn Buck). (93pp 1f $4.00) PE 3881

Recreation programs have become important resources on college campuses. They can provide important benefits to students and to the university. Students benefit from the opportunity to participate in leisure activities, which helps them develop a healthy lifestyle. The university benefits from the assistance in retaining students who might otherwise terminate their enrollment. This study presents information regarding intramural programs at colleges and universities in 1997. The following questions were researched: 1) What activities are currently being offered for intramural competition in universities that are institutional members of the NIRSA and list a student population between 10,001 and 30,000? 2) How many teams compete in these events? 3) What percent of the university community participates in intramural sports? The study surveyed those colleges and universities who were institutional members of the National Intramural-Recreational Sports Association (NIRSA) in 1997, and had a listed student population between 10,001-30,000. A total of 150 institutions met the criteria and were included in the study. These 150 institutions were grouped into three population categories (10,001-15,000; 15,001-20,000; 20,001-30,000). They were also grouped into six regional categories, as defined by the NIRSA. A survey return rate of 71% was achieved. Survey respondents were asked to list the activities offered in their intramural programs, and the number of teams entered in those activities. Respondents were also asked to identify the percent of the university community that participates in intramural sports. Over 50% of respondents indicated that 11-40% of their campus community participates in intramural sports. It is difficult to draw comparisons in any given activity. The number of teams entered varied significantly from one institution to another. Recreation professionals can use this study to identify new activities to add to their intramural programs. The information can assist in identifying intramural activities that might be of interest to students on their campus. Activities that draw a large number of teams at other institutions might be successful on many campuses. Activities that do not attract many entries may not be of interest to students, and are therefore less likely to be successful on other campuses.

Ervin, James R. *An assessment of the marketing and promotions of women’s lacrosse in NCAA Division I*, 1998. M.A., University of North Carolina-Chapel Hill (Ronald Hyatt). (78pp 1f $4.00) PE 3871

The purpose of this study was to provide a comprehensive assessment of the marketing and promotions of women’s lacrosse in NCAA Division I. Thirty-seven of the 61 NCAA Division I institutions offering women’s lacrosse for the 1998 season provided data on the questionnaire, and descriptive statistics and frequencies were calculated. The data indicated that almost half of the institutions actually implement marketing for women’s lacrosse and have a moderate level of satisfaction with their efforts. Also, these institutions are implementing marketing to increase awareness of women’s sports and indicated schedule cards and flyers as the most popular promotional tools. The study showed that institutions without marketing for women’s lacrosse have a low to moderate level of satisfaction and anticipate implementing marketing for women’s lacrosse in the near future. The two most popular women’s sports receiving marketing at institutions with and without marketing for women’s lacrosse were basketball and soccer.

Freel, Michael J. *Survey of Indiana high school athletic directors regarding qualifications, education, time obligation and salary*, 1998. M.A., Ball State University (Jerry Rushton). (70pp 1f $4.00) PE 3856

The purpose of this study was to examine the basic educational and administrative qualifications and time obligation required to become a high school athletic director and to effectively and efficiently administer a high school athletic program in the state of Indiana. This study also discovered possible relationships between the salaries of high school athletic directors in the state of Indiana and 1) the number of years worked as an athletic director and 2) the size of the school or school system in which they work. Surveys were sent to 100 randomly selected high school athletic directors in the state of Indiana. Twenty-five
schools from each of the four sports classes in the state of Indiana were randomly selected. The four sports classes were defined by the Indiana High School Athletic Association (IHSAA). An 88% overall return rate was achieved and all surveys were deemed usable. The surveys revealed that high school athletic directors require basic educational and administrative qualifications in order to become an athletic director. The typical high school athletic director in the state of Indiana possesses a master’s degree and holds a teacher’s license. The research provides a complete breakdown of degrees and licenses for athletic directors in each class. In addition, athletic directors must be expected to do whatever it takes in terms of time commitment in order to fulfill their job responsibilities. Rarely, if ever, will a high school athletic director only work a forty-hour week. The study also shows that athletic directors in each class level are in approximately the same salary range. However, the range of responsibilities is much different between classes. Schools in larger classes have more full time athletic directors, while schools in smaller classes have athletic directors who are assigned additional responsibilities such as coaching, teaching, or administrative duties. The high school athletic director in today’s society must be able to exhibit a diverse range of skills and abilities in order to provide effective leadership and to efficiently operate a high school athletic program. The results of this study provide the aspiring high school athletic director with the basis for which he or she should structure a foundation for future success in high school athletic administration.

Hensley, Tammy An analysis of the primary use of church sports programs in Anderson, Indiana, 1998. M.A., Ball State University (Jerry Rushton). (76pp 1f $4.00) PE 3855

The purpose of this study was to examine the opinions of church sports programs leaders concerning what they believe should be the primary focus of church sports programs, and to compare those opinions with the actual focus in their church sports programs. Subjects were 40 Christian church sports program leaders in Anderson, Indiana. Church sports programs leaders were mailed questionnaires, which were designed for the study. There was a 65% response rate. Data was analyzed using descriptive statistics. The analysis of the questionnaires indicated that there was basic agreement that the primary focus of church sports programs should be on both serving the evangelistic purposes of the church, and serving the discipleship purposes of the church. However, the actual focus of the church sports programs was found to be on church members. The higher percentage of time spent on members of the church (67.8%) also reflected the actual focus of church sports programs on the members. The information gathered indicated that there was a significant difference between what the opinions of the church sports leaders were regarding what they believed should be the primary purpose of church sports programs, and what the sports programs actually had as their primary focus. While church sports programs leaders believed their sports programs should primarily focus on both the church member and non-members as an outreach, the majority of church sports programs spent most of their time on the members of their church.

Lambertson, Amy J. A comparative study of the student-athlete academic support programs at the schools in the Mid-American Conference, 1998. M.A., Ball State University (Thomas A. Morrison). (53pp 1f $4.00) PE 3853

Introduction: Every academic institution has a population of academically underprepared students. A targeted population of these underprepared students are intercollegiate student-athletes. Student-athletes face added challenges that traditional students do not. In response to these challenges, colleges across the United States have begun to create programs that assist the academic needs of student-athletes. There is a need of descriptive and comparative research that reveals the appropriate services that advance the academic success of student athletes. Purpose: The purpose of this study was to compare the student-athlete academic support programs at the schools in the Mid-American Conference. This study also examined how these programs correlate to the graduation rates of the student-athletes attending the participating schools. Subjects: Eleven directors of the student-athlete academic support programs from the Mid-American Conference were used as the subjects in this study. Procedures: A questionnaire and cover letter was generated to obtain descriptive information about the student-athlete academic support programs. The directors of the programs received the cover letter and questionnaire. These subjects were asked to respond to the questionnaire based on their experience with the academic support program. The questions used in this study were determined through readings in similar areas of research. The questionnaire consisted of both open and closed ended questions. The design of this study allowed for a comparative analysis of the individual student-athlete academic support programs. A school by school comparison differentiated the organizational structure of each program. Significance: The results of this study will be useful to any academic institution that is looking to advance the academic and athletic achievement of its student-athletes. This research could also be used by the NCAA, the National Association of Academic Advisors for Athletes or other organizations seeking this information. The results of this study will provide further insight on how to run a more comprehensive student-athlete academic support program.

Lubbers, Paul A. A contrast of planning skills between expert and novice college tennis coaches, 1998. Ph.D., University of North Carolina-Greensboro (Thomas J. Martinek). (140pp 2f $8.00) PE 3847
The purpose of the present investigation was to examine the planning processes and strategies used by expert and novice men's college tennis coaches. The investigation focused on the following six areas of planning: 1) General descriptions of planning, 2) Specific planning processes, 3) Planning for individual performance, 4) Team planning, 5) Planning effectiveness, and 6) Problems encountered in planning. Participants for the investigation were four expert men's college tennis coaches and four novice men's college tennis coaches selected from Region II of the Intercollegiate Tennis Association. The coaches' expertise level was determined by use of a peer rating. To garner information about the coaches' planning skills, in-depth interviews were used which followed Spradley's (1979) guidelines for ethnographic interviews. The interviews were audiotaped, videotaped, and later transcribed. A hierarchical content analysis was used to analyze the interview data. Findings indicate that there exist both similarities and differences within and between the expert and novice coaching groups. These first-of-a-kind findings related to planning and the coaching process parallel earlier results from teacher and physical education.

Montgomery, Daron. The effect of free agency on player loyalty in Major League Baseball, 1998. M.A., Ball State University (Gale Gehlsen). (43pp 1f $4.00) PE 3854

The purpose of this study was to determine the effect of free agency on player loyalty to team in Major League Baseball during the 24 years since the inception of free agency. The investigator believed that free agency would cause a significant decline in player loyalty. Data for all non-pitchers each season with a minimum of 200 times at bat and data for all pitchers each season with a minimum of 50 innings pitched were analyzed. The official American League and National League rosters, as reported in Total Baseball: The Official Encyclopedia of Major League Baseball and The Sporting News Baseball Register, were used in the study. The consecutive number of years played under contract with current team was recorded for each player in each season. This allowed the researcher to calculate an average number of years with current team for both pitchers and non-pitchers in each season from 1973 until 1996. The results were divided into four subsets for analysis: American League Pitchers; National League Pitchers; American League Non-Pitchers; and National League Non-Pitchers. While there was no significant difference in player loyalty within any of the four subsets, the findings clearly indicated that pitchers tend to migrate from team to team more frequently than do non-pitchers in major league baseball.


Research on intramural participation rates is limited regionally, institutionally, and to participants. Recent research suggests there is a trend of declining female participation in intramural sports. This study presents an analysis of nationwide participation rates and administrative responses in intramural sports. A mail-back questionnaire was distributed to the National Intramural Recreation Sports Association institutional member intramural departments. Directors provided intramural participation rates from 1992 to 1997 and provide administrative responses to the possibility of declining female participation. A within-subject analysis using repeated measure of analysis of variance found no statistically significant difference in participation rates for total, male or female participants between 1992 and 1997. Mean results of participation rates highly suggest there is an overall decline in participation in intramural sports nationwide. Descriptive statistics were used to analyze administrative responses. From programming offered, more than 94% of the respondents offered coed, male and female leagues respectively. The most widely offered division within these leagues was the men's ‘A’ division. This division is based on competitive criteria of giving awards, keeping scores and participating for fun. The facility that is utilized the most by intramural departments is shared indoor facilities followed by shared fields, campus recreation center, recreation fields, and off campus recreation centers. The majority of intramural departments are currently located within a campus recreation department and this is the most desirable administrative unit to be located in. Funding for an intramural department comes from a variety of sources with student and activity fees contributing the most to the overall budget. Directors responded to questions on their perceptions of declining female participation in intramural sports. The top three administrative reasons for declining female participation are: (1) Not having enough facilities; (2) Types of leagues available to students; and (3) Females participating in varsity athletics. The majority of respondents felt Title IX did not have an effect on female participation in intramural sports. More directors felt female participation was not declining in their programs but they did feel that it is a problem nationwide.

Richhart, Christina L. Gender and leadership: a comparison of Division I athletic directors, 1998. M.S., Ball State University (Arlene Ignico). (93pp 1f $4.00) PE 3857

This study examined gender differences in the leadership styles of Division I athletic directors. Perceptions of coaches and the athletic directors, themselves, regarding these styles were assessed. Ten Division I athletic directors (five male, five female) and six coaches (three male, three female) from each of the 10 schools completed a demographic questionnaire and a revised form of the Leader Behavior Description Questionnaire - Form XII. Six separate independent groups t-test indicated no significant
differences between the self-perceptions of male and female athletic directors on any of the six factors of leadership. A 2 x 2 x 3 (AD Gender x Coach Gender x Coach) ANOVA with repeated measures on the final two factors showed no significant difference in the perceptions of all coaches of male athletic directors versus all coaches of female athletic directors. The results did demonstrate that the perceptions of male coaches were significantly different from female coaches on the leadership factors of structure, production emphasis, and integration, regardless of the gender of the athletic director.

Stauffer, Bryan E. *Adapting the offense efficiency rating in basketball to accommodate the 3-point goal*, 1998. M.S., Springfield College (Barbara E. Jensen). (109pp 2f $8.00) PE 3891

This study was designed to adapt the Offense Efficiency Rating (OER) system to accommodate the 3-point goal. The basketball boxscores from three local colleges and universities were used in the analysis. A total of nine dependent variables were used with five taken from each boxscore obtained and the remaining four computed. Various findings were derived from the variables studied. The Pearson product-moment correlational coefficient was used to show the positive relationship between the 2-point OER and the 3-point OER. The independent groups t-ratio was used to determine the offense efficiency of the males at the Division I and III levels was higher than the females. The offense efficiency of the males and females at the Division II level was similar. The independent groups t-ratio was used to determine that the defense efficiency of the females was lower than the males, indicating females played better defense. The independent groups t-ratio was used to determine the offense efficiency potential of the females was higher than the males. The 3-point OER was higher than the 2-point OER using the repeated measures t-ratio. The repeated measures t-ratio was used to determine the offense efficiency of the teams when playing at home was similar when compared to away. Using the repeated measures t-ratio, the defense efficiency was better when playing at home than away. The offense efficiency potential was similar at home when compared to using the repeated measures t-ratio. The offense efficiency potential and offense efficiency was higher for Division I compared to Division II and III using the independent groups ANOVA. The OER, DER, and OER-P should be utilized by coaches during and after basketball games because they are quick, accurate, and revealing sources of strengths and weaknesses of the team.

Sverduk, Kevin L. *The development of a conceptual model and definition of quality practice from the perspectives of expert coaches*, 1998. M.A., University of the Pacific (Glen Albaugh). (95pp 1f $4.00) PE 3885

An investigation of quality practice in sport had the dual purposes of developing a conceptual model of quality practice and proposing a definition of “quality practice” from the perspectives of expert coaches. Individual, semi-structured interviews were conducted with five expert coaches. The coaches were considered experts because they had coached teams to World or National championships and worked with athletes who had attained recognizable excellence in their sports (All-American, Olympic Gold Medalist, or All-Pro). In addition the coaches represented individual, team, male, and female sports. Analysis of the interviews was conducted using the qualitative methodology known as “grounded theory” (Glaser and Strauss, 1967). Analysis of the interviews identified 138 meaningful bits of information (“meaning units” Tesch, 1990). Results recommended a quality practice model consisting of four general dimensions, eight categories and 16 properties. The four general dimensions of the quality practice model were: a. personal factors of athletes, b. coaching philosophy, c. components of practice, and d. effort of athletes. The quality practice model that emerged represented a more comprehensive understanding of quality practice than had previously existed. The second purpose of the study was to propose a definition of “quality practice”. The interviews with expert coaches suggested that quality practice as it pertained to sport was: “Quality practice is an effortful activity which is highly structured with specific goals and tasks aimed at thorough performance preparation. It is carried out with a total commitment of optimal intensity, energy, focus, awareness, enthusiasm and competitiveness”. Results of the study suggested that “quality practice” existed in a conceptual and definable way. Expert coaches when discussing quality practice recognized the personal factors of athletes, had distinct coaching philosophies, carefully planned the components of practice, and consistently monitored the effort of the athletes.

Taylor, Chris *The effect of computer technology in the sports information offices of the Mid-American Conference*, 1998. M.A., Oregon State University (Thomas Morrison). (53pp 1f $4.00) PE 3887

The purpose of this study was to investigate the use of computer technology in the sports information offices at the 12 universities in the Mid-American Conference. The subjects involved in this study were the sports information directors at the 12 universities. The subjects were sent a survey which included a categorical response section and an open-ended section allowing directors to respond to questions concerning computer technology at their university. The survey had 100% participation as responses were gathered from each of the 12 directors. The important findings to this study included that electronic mail and the Internet is increasing in importance in sports information. Electronic mail and the Internet provided a new and
efficient means of communicating to a variety of entities by the sports information directors. However, these computer advances have, according to the directors in this study, increased the time commitments and the demands of the sports information office. In addition, this study also showed that using computers for courtside statistics and for desktop publishing are valuable and important advances in computer technology being utilized by the directors in the Mid American Conference.


The purpose of this study was to explore the extent to which high school coaches in the State of Washington have progressed to the various coaching standard levels as developed by the Washington Interscholastic Activities Association (WIAA). Mail back questionnaires were used to survey all of the high school football, boys basketball, and girls basketball coaches in the state of Washington. Descriptive statistics were used to describe the population on each of the study variables including the proportion of WIAA member coaches who meet or exceed the standard levels and the future educational plans of coaches. To test each study hypotheses, chi-square tests using a Cramers V statistic were conducted to determine if differences in the population of coaches was shown across school size classification, state orientation, WIAA district divisions, public/private school orientation, and sport coached. Given the short time period between the implementation of the coaching standard requirements and this survey, the following results were found. (1) It is difficult to determine whether coaches are moving to a higher education level or if the figures are the result of the grandfathering of coaches to compliance to certain levels. (2) Most coaches are at either the highest or lowest coaching standard levels. (3) There are standard level variations between coaches by school size and WIAA district divisions.

Williams, Joanne *Sponsorship evaluation practices of Ladies Professional Golf Association title sponsors*, 1998. D.P.E., Springfield College (Betty Mann). (134pp 2f $8.00) PE 3869

The investigation was designed to gain insight into the sponsorship evaluation practices of title sponsors of Ladies Professional Golf Association (LPGA) tournaments. A qualitative analysis was conducted using the long interview method. The participants (N=7) were selected based on a minimum of 3 years involvement as a title sponsor of an LPGA event. Interviews of 50-100 min were recorded, transcribed and analyzed using the Ethnograph Computer Program (Seidel, Kjolseth, & Seymour, 1988). Further analysis was conducted using charts and matrices to assist in the management of the data. Six areas were examined: (a) background information; (b) reasons corporations become involved in LPGA sponsorships; (c) influencing factors in evaluating sponsorships; (d) relationships between sponsor objectives and evaluation practices; (e) selection and development of evaluation methods; and (f) use of evaluation results. Evidence of formal and systematic sponsorship evaluation was found in 3 of the 7 participants. The use of sponsorship to fulfill a marketing or a public relations function impacted the approach towards evaluation. Sponsorships that were housed in marketing departments were more likely to be subjected to formal and systematic evaluations. Further research examining evaluation practices is required in a broader setting that includes sponsors of all sports and recognizes the needs of specific industries.

Woodfork, David R. *A comparison between professional and non-professional football players using selected anthropometric and performance variables*, 1998. M.S., Purdue University (Don Corrigan). (59pp 1f $4.00) PE 3890
The purpose of this study was to identify selected performance and anthropometric variables that could predict selection into professional football. Participants in this study were 194 intercollegiate football players ages 18 to 24. These players were from two Division I schools and the data were collected over a fifteen year period. It was hypothesized that there would be a significant difference between the professional and non-professional football players on selected performance and anthropometric variables for the total sample population and as a function of player sub-groups. Univariate and multivariate analyses were used to analyze the data. Discriminant analysis revealed that performance on the standing long jump, 40-yard dash, and lean body weight were the variables that significantly differentiated the professional players from the non-professional players for the total sample. Further analysis revealed that performance on the squat, zero step vertical jump, and lean weight differentiated the professionals from the non professionals in the strength group, the 40-yard dash and bench press were the performance variables that significantly differentiated the professionals from the non professionals in the power group, and the 40-yard dash and three step vertical jump for the speed group. It was concluded that selected performance and anthropometric variables are valuable in determining what players will be selected as a professional football player. However, since all the variance cannot be accounted for using the current assessments, variables from other domains that may add to the prediction of professional football selection should be considered for future research.

Yarwasky, Lauri Laurene Marketing plan for Far West Wheelchair Athletic Association, 1998. M.S., San Jose State University (V. Gregory Payne). (121pp 2f $8.00) PE 3866

Over 40 million people in the United States have disabilities (Bedini & McCann, 1992). Wheelchair sport positively affects the respiratory and cardiopulmonary health of people with spinal cord injuries and amputations (Asayama et al., 1985; Coutts, 1988; Davis & Shephard, 1988; Emes, 1977; Gass & Camp, 1987; Miles et al., 1982; Okuma, Ogata, & Hatada, 1989; Veeger, Hadj Yahmed, Van der Woude, & Charpentier, 1991, Zwiren & Bar-Or, 1975). The FWWAA provides sport opportunities for people with disabilities. One way to increase awareness of the activities and services of an organization is through marketing. The purpose of this project was to create and evaluate a marketing plan that will increase the membership of the FWWAA. The plan was evaluated, using a 5 point Likert-type by professional and target market populations. Overall mean scores of 4.4 and 4.5 were calculated from the two populations, respectively. The plan was considered successful.

MEASUREMENT AND EVALUATION

Donahue, Judy M. The value of cardiorespiratory field tests: comparison of the 3-minute step test and the 1.5 mile run test, 1998. M.A., Ball State University (Valerie Wayda). (35pp 1f $4.00) PE 3849

The purpose of this study was to investigate whether the 3-minute step test was a more effective indicator of cardiorespiratory fitness for aerobic dance classes than the 1.5 mile run test. Thirty-four female volunteer students ranging in age from 18 to 23 participated in this study. Subjects completed the 1.5 mile run test and the 3-minute step test as part of their PEFWL course requirements. In addition, they completed the microfit cycle test as an outside class assignment. Pearson Product Moment Correlations were calculated to determine the relationship, if any between the 3-minute step test and the MicroFit, and the 1.5 mile run test and the MicroFit (p<.05). Both assessments were significantly correlated to the MicroFit (r=.58 1.5 mile run test; r=.70 3-minute step test). Results of this study indicated that the 3-minute step test and the 1.5 mile run test were both significantly correlated to the MicroFit test but the 3-minute step test was more highly correlated than the 1.5 mile run test. Despite the stronger correlation, the magnitude was not strong enough to state that the 3-minute step test was statistically better than the 1.5 mile run test. The researcher believes that further analysis of both assessments needs to be completed to determine whether the difference that occurred was due to chance or because the 3-minute step test was a better measure of cardiorespiratory endurance.

Laurie, Nicolette E. Reliability of a one mile rockport fitness walking test, 1998. M.S., Oregon State University (Douglas H. Collier). (93pp 1f $4.00) PE 3888

A modified version of the Rockport Fitness Walking Test (RFWT) has been determined to be reliable for persons with mental retardation. Previous investigations have used one pacer for each participant. While this protocol may be reliable, it is not likely feasible in most school or community-based settings. Therefore, the purpose of this study is twofold: first to evaluate the reliability of a modified version of the RFWT using one pacer per five participants; second, to determine the agreement among the one to one protocol and the proposed five to one protocol. This study compared the end completion times and mean peak heart rates of three different one-mile walking sessions of 35 participants with mild mental retardation. Eighteen females (21.1 ±2.7 yr.) and 17 males (19.7 ±2.8 yr.) participated in each testing session. Each participant randomly completed two sessions of walking with one pacer per five participants and one session of one pacer per participant on an indoor surface 1/9th of a mile long. Results from ANOVA indicated end completion times and mean peak
heart rates did not differ based on gender (p=0.798), sessions (p=0.053), and gender x sessions (p=0.855). To determine agreement, intraclass correlation coefficients (ICC) were calculated for end completion times for the first five to one and the one to one (R=0.83) and the second five to one and the one to one (R=0.85). ICC’s were calculated for mean peak heart rates for the first five to one and the one to one (R=0.93) and for the second five to one and the one to one (R=0.95). The results support that the five to one modified walking protocol produces results similar to the results using the one to one testing.

PEDAGOGY


This study compared two methods for teaching 3-ball juggling to college students. Subjects (Ss) were students enrolled in introductory Physical Education courses at the University of Wisconsin-La Crosse (n=46), and were divided into 2 experimental groups. Both groups participated in 2 15-min juggling lessons. The “wall practice” group juggled while facing a blank wall at a distance of 2 ft. The “nonwall” group juggled while facing a blank wall of 12 ft. Subjects were tested on 3 occasions: prior to the treatment (pretest), after the treatment (posttest), and following a 1-week interval during which no juggling practice was permitted (retention). A 2-way test of independent samples revealed no significant difference between groups in the pretest (p>.05). A 2-way ANOVA with repeated measures revealed that Ss improved significantly from posttest to retention (p<.05), although improvement was regardless of treatment group. A 2-way ANCOVA determined that the groups’ posttest scores were not significantly different (p>.05). It was concluded that wall practice was neither a help nor a hindrance to juggling skill acquisition. Several Ss in the wall group remarked that they felt dependant upon the wall for optimal performance, but the results did not reveal any differences between treatments.

Gentry, Grier B. Coaching motivation and efficiency, 1998. M.A., Ball State University (Valeria Wayda). (47pp 1f $4.00) PE 3851

The purpose of this study is to determine what various methods and aspects make coaches successful. It is important to know and understand the techniques and philosophies that are shared by highly successful coaches. This knowledge (or process) will enable all coaches to be able to better convey and aid in the retention of information to those with whom they are in charge. For the purposes of this study, the researcher conducted a pur-

poseful sample asking 50 successful high school football coaches and 50 successful boys’ basketball coaches from various schools throughout a five state region in the Midwestern United States to participate. The coaches completed a self-constructed survey which consisted of 11 questions. The survey was designed to obtain information about what constitutes a successful coach, coaching strategies, and issues related to the use of reinforcement. Based upon the responses, a picture emerged about the successful coach. There was significant support that a characteristic of a successful coach is to be a successful communicator and knowledgeable about the subject matter. Furthermore, those whom have accomplished success in the coaching professions favor on-the-job learning as opposed to that which is done in the formal setting of a classroom. Finally, they felt that it was important to care for your athletes and to follow-up any negative punishment with some sort of positive action or statement.

Nisgor, Craig M. Redshirting, how and when it is used: a comparison between football coaches and men’s swimming coaches in the Southeastern and Mid-American Conferences, 1998. M.S., Ball State University (Marilyn Buck). (76pp 1f $4.00) PE 3852

The purpose of this study was to investigate the practice of redshirting student athletes by football and men’s swimming coaches in the Southeastern and Mid-American Conferences. Questionnaires were sent out to each of the coaches regarding their practices of redshirting. The data was tabulated in SPSS format and the Pearson Chi-Square was used to find out if there were any statistical significance. The results of the Chi-Square analysis revealed no statistical significance between the two conferences redshirting practices, however there were some differences between the two sports. One difference between the sports was in both the freshman and sophomore years of eligibility in the use of redshirting as a coaching strategy. Another difference between sports existed in the junior year of eligibility in the use of redshirting for medical reasons. Coaching strategy was the number one reason why football coaches used and believed that redshirting is used. The men’s swimming coaches used, and believe, that medical reasons was the main reason for redshirting athletes.

Schuldheisz, Joel M. The effects of an interdependent group-oriented contingency on middle school students’ physical activity levels during physical education, 1998. Ph.D., Oregon State University (Hans van der Mars). (199pp 3f $12.00) PE 3889

The primary purpose of this study was to determine the effects of an interdependent group-oriented contingency on the MVPA levels of middle school students during the fitness portion of physical education lessons. Participants were randomly selected target students from three intact eighth grade classes. A combination of a delayed multiple
baseline and changing criterion design was implemented to determine the effects of the intervention on students’ MVPA levels (dependent variable). MVPA were measured using momentary time sampling with definitions from the System for Observing Fitness Instruction Time. The independent variable consisted of an interdependent group oriented contingency program. When target students reached a physical activity level criterion, for a specified number of days, the whole group was rewarded with a choice of activities. Inter-observer agreement, using the scored-interval method (during 20% of the lessons), for students’ MVPA levels was 95% (range 91-100%) and 86% (range 74-94%) for the teacher’s instructional behaviors. Visual analysis of graphic data was used to demonstrate the functional relationship between the intervention and MVPA levels. The overlap of data points, mean level changes, trends, variability within and between conditions, and number of days that the criteria were attained by the target students were used to establish the experimental effects. A higher level of student MVPA was demonstrated in all classes, during all three units when the initial criterion level of the intervention was implemented. During the second level of intervention higher MVPA levels were demonstrated in one of three units. Across all three units, when the intervention was in effect, target students attained the MVPA criteria 21 of the 27 days (78%). Post-checks conducted three weeks after the withdrawal of the contingency program revealed that MVPA levels decreased slightly while remaining above the level observed during baseline.

**SOCIOLOGY AND CULTURAL ANTHROPOLOGY**

Squires, Albert R. *Predictors of fitness levels of western arctic youth in both urban and rural settings*, 1997. M.S., Dalhousie University (Phil Campagna). (140pp 2f $8.00) PE 3873

The purpose of this study was to predict the influence of lifestyle on fitness levels of young people living in two distinctly different settings, rural and urban, of the western Arctic region of Canada. The study involved 130 male and female subjects of high school age (15-19 years). Of these, 65 were drawn from high school students from the Inuvik region; the other 65 were drawn from high school students from Yellowknife. All subjects participated in two areas of testing in order to analyze their lifestyle and fitness levels. Selected components of the Canadian Standardized Test of Fitness (CSTF) were administered and a modified version of the 1988 Campbell’s Lifestyle Questionnaire was administered to ascertain selected aspects of lifestyle. The Canadian Aerobic Fitness Test (CAFT) was administered to predict cardiovascular fitness levels and anthropometric measures were used to determine individual adiposity indices. Smoking status and adherence to Canada’s Food Guide were the two only factors that showed a significant association with the two adiposity index-dependent variables, sum of trunk skinfolds (SOTS) and sum of skinfolds (SOS). Four factors showed a significant association with the dependent variable, maximal oxygen consumption (V02-max); namely, gender, smoking status, energy expenditure in leisure time, and positive well-being. Recommendations were made in light of the findings. These recommendations work towards minimizing health associated risk factors, promotion of favourable lifestyle habits, promotion and encouragement of youth to pursue sport and recreational activities, and further study in specific areas of concern.

**DANCE**

Chamberlain, Tamara M. *The development of a folk dance unit as a resource for the State of Utah elementary sixth grade social studies core*, 1997. M.A., Brigham Young University (Susanne J. Davis). (132pp 2f $8.00) PE 3875

This thesis developed a folk dance unit to enhance the historical, cultural, and geographical study of Israel, England, and Germany through the inclusion of folk dance. The folk dance unit was developed by following the social studies curriculum standards set forth by the Utah State Board of Education. Three movement activities were developed for each country which are related to history, culture, and geography, respectively. Each activity includes an attention-getter, background information, a dance description, and a follow-up activity. The unit strongly supports the idea that folk dance, if presented with accompanying information, can be a vital tool for clear kinesthetic and intellectual understanding of selected historical, cultural, and geographical concepts in social studies.

Dominiak, Kathleen M. *The role of dance making for the older adult*, 1998. MFA, Texas Woman’s University (Adrienne Fisk). (38pp 1f $4.00) PE 3848

The purpose of this paper was to examine the role of dance-making activities in the context of older adult populations and to develop approaches for the implementation of such experiences for enhancing lifelong learning and successful aging. The paper begins with an identification of the ‘aging population’ and then proceeds to a discussion of older adult populations and the effects of the aging process in the latter stages of life. An examination of the significance and role of dance and dance-making activities for older adult populations is provided and was the basis for discussing the nature and benefits of movement improvisation as a point of entry for such activities. Movement improvisation is the focal point for developing the approaches to the formulation and implementation of
improvisation structures in order to present suggested prototypes at the end of the paper. These prototypes provide frameworks for teachers to develop their own movement improvisation structures for older adults and are intended to foster lifelong learning and successful aging.

Muehlhauser, Emmely K. Exploring ownership of learning in children’s choreographic projects, 1998. M.A., University of Oregon (Steven J. Chatfield). (122pp 2f $8.00) PE 3884

Ownership in learning does not imply a literal definition because it is the owning of an experience, rather than a thing. In this ownership experience, the purposefully engaged learner seeks learning opportunities, constructs meaning, and acts in ways that transcend task completion. The two studies in this document reveal the investigator’s evolution to this sense of ownership and its application to choreographic projects. In the first study I explored the idea of ownership as a philosophy and practical objective for teaching dance to children within a choreographic project. I found that ownership occurred in different ways for children of different developmental levels. In the second study, I explored emergent entry points for purposeful engagement in learning as experienced by children in a choreographic project with adult dancers. I found three realms of entry points that can allow any learner of any level to become purposefully engaged in this choreographic project.

BIOMECHANICS

Cotterman, Michael L. Comparison of muscle force production for the Smith machine and free weight modes using similar exercises, 1998. M.E., Bowling Green State University (Lynn Darby). (102pp 2f $8.00) PE 3867

The purpose of this study was to compare muscle force production on the Smith Machine (SM) and free weights (FW) using a one-repetition maximum (1-RM) for the parallel back squat and supine bench press exercises. Further, examined was the process of equalizing workloads between the modes by using regression equations to determine 1-RM performance for one mode from the 1-RM on the previous mode. Participants (n=16 males and n=16 females) were alternately assigned to start the first of three testing sessions on FW or SM. The first testing session included demographic data collection and a 5-RM test to estimate 1-RM. The second and third sessions included 1-RM testing on the SM or FW mode by testing squat and then bench. Two, two-way (between, within) ANOVAs were used to determine if a significant difference existed between modes and genders. Regression equations were developed to estimate the 1-RM on one mode from the 1-RM on the previous mode using a forward and backward stepwise multiple linear regression model. A significant difference was found between modes for the bench (p<.0001) 1-RM, with FW 10.9 kg > the 1-RM on the SM and between genders (p<.0001). The males in this study demonstrated a greater 1-RM on all modes and exercises. For the squat exercise, the ES (.094) was too small to render a significant difference between the modes. The 1-RM on the previous mode was determined to be the best predictor of performance for the bench (FW Bench (kg) = 8.21 + 1.04 [SM Bench (kg)], SEE = 4.8, R² = .9847). Based on the results from this population, no difference was observed for the squat exercise between modes; however, the FW bench press 1-RM was greater and can be estimated using a regression equation. These findings should provide valuable information for individuals who intend to effectively utilize the Smith Machine benefits in conjunction with free weights.

Cross, Peter G. Plyometric treatment and whole-body movement times, 1997. M.S., Dalhousie University (John McCabe). (101pp 2f $8.00) PE 3874

The purpose of this study was to determine whether a plyometric treatment of rapid knee lifts had a significant effect on subjects’ sprint running speeds. The concept of a rapid muscle stretch of the stretch-shortening cycle (SSC) that loads the eccentric elongation phase of muscular contraction to store elasticized and reflex potentiated energies was investigated. This stored energy is reused in the ensuing concentric contraction phase. A SSC exercise manifest as rapid knee lifts was imposed on experimental subjects to stress the SSC for possible potentiation effects. A test sprint run of 60 metres (m) by both Experimental and Control Groups was designed to elicit possible potentiation effects of the plyometric exercise protocol of hip and knee flexor and extensor muscles, on their sprinting performances. Both treated and untreated groups were engaged in 60 m sprint running speed tests at two-week intervals throughout the ten-week plyometric treatment period. Groups’ split times were recorded for average sprinting velocities V1 and V2 over the 10-20m, and 20-60m distances. Initially, each group had fifteen subjects, but at the end of the ten-week period of the study, attrition reduced participation to 4 subjects in the Control Group, and 5 in the Experimental Group. Statistical analysis by a two way ANOVA for repeated measures was performed to determine any intra- and inter- group interactions. Lack of complete data from subjects for the five post tests reduced analyses to only two post tests, and these were post tests no. 1 and 2. For Post Test no. 1, the four subjects of the Control Group, and five of the Experimental Group, in their V1 and V2 average velocity measurements over the 10 to 20 m and 20 to 60 m distances, showed increases in their sprint velocities. With post test 2, V1 and V2 had longer sprint split-times, and slower average velocities for both groups over the previous Post Test no. 1 performance; the
Control Group exhibiting higher average velocities in their pre test sprint run. Only the 20 to 60 m (V2) distance of sprint test no. 1 (p=0.0293) was within the (p=0.05) statistical level of significance for the results. This was the only statistically significant positive increase in post test sprint average velocities over the Experimental Group and the Control Group’s V2 averaged velocity sprint values. Results of this study indicate that the Experimental Group increased their average sprint velocity by 6.30 %, and the Control Group had their average sprint velocity lowered by 0.38 %. Reflex potentiations of the rapid stretches of the SSC on hip and knee flexor and extensor muscles are the suspected causative factors that possibly had a cumulative training effect on the legs’ neuromuscular adaptations to the increased stress of the plyometric exercise protocol.

Crussemeyer, Jill A. Determination of control parameters in pronation curve behavior during running, 1998. Ph.D., University of Oregon (Barry Bates). (143pp 2f $8.00) PE 3882

The purpose of the study was to determine variability of pronation curve behavior and identify control parameters causing an individual to shift behaviors. Fifteen male subjects performed 20 random running trials for each of three speed conditions (slow, medium, fast) on two separate days based on the subject’s running speed range. Sagittal and rear view high speed video (200 Hz) and force platform data (1000 Hz) were collected to determine vertical ground reaction force, hip, knee, ankle, pronation, rear foot, and rear leg angles, as well as pronation velocity and knee-pronation and hip-knee slope differences. Pronation curves were categorized trial by trial as one of four types: unimodal, bimodal, transition 1, and transition 2. Data were collapsed across days based on a non-significant one-way ANOVA for medium speed differences between days. Single subject analyses of curve correlation variability within condition/curve behavior and within condition/between curve behaviors were completed and compared to trial distributions. Curve correlations were computed for each variable within condition/between curve behaviors and within curve behavior/between conditions to identify control parameters for the critical portion of the stance phase (10-70%). Coefficients of variation (CV) > 15% defined large variability and control parameters were identified based upon a curve correlation criterion (< 0.707). Generally, pronation variability was least in the medium speed while knee, hip, and HK slope differences were least in the slowest speed. Overall, four subjects exhibited large variability and four showed low variability. The high variability subjects typically showed a preference (> 50% of trials) for one particular curve behavior while low variability subjects demonstrated similar trial distributions for at least two of the behaviors. Control parameter results were varied although the hip was the most common variable with a low curve correlation for the slow and fast speeds. In conclusion, high variability may be inherent in some individuals making them less susceptible to injury while other individuals with less variability may need to change their behaviors to acquire greater variability.


Four first-time, single fetus, pregnant women (20-30 years) began the study at month 4 or 5 and participated through month 9. They were videotaped bimonthly as they performed 3 trials each of self-paced, fast, and slow walking as well as 3 trials each of walking over an obstacle and stepping onto/ off a raised platform. Anthropometric measures were taken. Videotapes were behavior coded and temporal gait variables were calculated. Footprints from non-obstacle trials were analyzed and spatial gait variables were calculated. Self-paced trials were digitized and spatio-temporal gait variables were analyzed. ANOVA revealed significant differences between sessions for linear velocity, cycle duration, percent of cycle in stance, and inter-limb coordination for self-paced condition. Obstacle and platform trials showed significant differences for percent of cycle in stance. Though no other significant difference were found (potentially due to small sample size) variables showing a trend over the pregnancy term were identified. Significant changes were found for weight, abdominal circumference, pelvic width, calf-circumference, foot width, and hip flexion. The only variable that suggested a relation to any observed changes in walking pattern was weight. The women exhibited fairly stable gait patterns. When perturbed with speed, changes were nonexistent as the women entrained to the imposed speed. Moreover, obstacle trials stabilized gait patterns as the women solved the task similarly.

Hsu, Hung-Yi A cinematographical and biomechanical analysis of the approach run phase for the pole vault, 1997. M.S., Eastern Washington University (Alan Coelho). (56pp 1f $4.00) PE 3883

The purpose of this study was to compare and analyze the differences of approach run velocity between the traditional and the Russian pole vault techniques. Twelve teen aged intermediate male pole vaulters served as subjects. Each subject possesses the ability to clear a height of 4.5m successfully. The researcher conducted a three week training program to teach the subjects the concept of the Russian gripping technique. Prior to the training program, the researcher pre-tested subjects’ approach run velocity using the traditional gripping technique. After the three week training program, the researcher post-tested subjects’ approach run velocity using both the traditional and the Russian gripping techniques. All subjects were filmed by
two camcorders set up perpendicular to the sagittal plane while completing the approach run. A 1X3 repeated measures, ANOVA was used to test for statistical differences. A Scheffe post hoc test was then run to test for differences between the groups. Results showed significant differences between the run-up speed for the traditional pre-test and the run-up speed for the Russian post-test (P=0.0134). No significant differences were found between the pre-test and post-test traditional technique (P=0.0715) or post test traditional and post-test Russian technique group (P=0.1252). Although there was no significant difference between the post-test results for athletes utilizing traditional and Russian style approach-run techniques, individuals who used the Russian technique tended to run slightly faster than those that used traditional technique. The average speed was 8.019 m/s vs. 8.586 m/s respectively.

McCoy, Bryan K. Role of the lower leg in determining vertical jump height, 1997. M.A., San Jose State University (Gail Evans). (75pp 1f $4.00) PE 3846

Few studies (Bangerter, 1967; Hubley & Wells, 1983) identify the importance of the lower leg in vertical jumping. Thirty active college students performed maximal vertical jumps. Kinetic and kinematic data were collected via a Kistler force plate synchronized with a Peak Performance Three Dimensional Motion Measurement System. Ankle power, torque, angular velocity and angles about the ankle were calculated and correlated to vertical jump height. Analysis of covariance and Tukey post hoc tests were performed to identify group differences. Significant correlations existed between ankle torque, ankle power and jump height, as well as between ankle torque and ankle power. Significant differences were found between the high jumping group and the average and low groups for ankle torque and ankle power. This study concluded the lower leg was important in vertical jumping. To improve jump height it is recommended that one increase torque about the ankle.

Schlagel, David A. The development of muscular power in swimmers, 1997. M.S., Indiana University (Joel Stager). (79pp 1f $4.00) PE 3859

The positive relationship between stroke power and swimming performance is well established. In order to assess the impact of the swimming training program upon stroke power and swimming performance, two male and two female collegiate swimmers (20-21 yrs.) were divided into two treatment groups: high swimming volume and low swimming volume and resistance training. Stroke power was assessed at pre-test, pre-taper, and post-taper intervals while swimming performance was determined in several competitions over the course of the investigation. Results of the investigation revealed that high swimming training volume caused a sig

reduction in stroke power at the pre-taper measurement and a non-sig reduction at post-taper compared to initial values (88.25±9.12, 8.05±0.78, 64.10±10.61 Nm/s). Conversely, the low swimming training volume promoted a sig increase in stroke power at the pre-taper measurement and non sig decreases at post-taper (42.50±1.41, 61.65±7.99, 55.25±0.21 Nm/s). Because both groups experienced sig improvements in competitive swimming performance, it appears that different adaptations occurred. It was postulated that the high swimming training volume promoted an improvement in the glycolytic capacity of the propulsive musculature while low swimming training volume improved the force generating capacity of these same muscles.

SPORTS MEDICINE

Ball, Chad G. Exercise-induced muscle damage: role of the calpain-calpastatin system in skeletal muscle myofibrillar protein composition, 1998. M.S., University of British Columbia (Angelo Belcasto). (149pp 2f $8.00) PE 3877

The purpose of this study was to examine the relationship between the activation of the calcium stimulated cysteine protease, calpain, its endogenous inhibitor, calpastatin, and myofibrillar protein composition (troponin I (TnI), troponin T (TnT) and tropomyosin (TM)) in an exercise-induced muscle damage model. It was hypothesized that this protease system initiated skeletal myofibrillar protein loss (and perhaps subsequent peptide release) from the contractile apparatus. In addition, lowering calpain activity (by the use of an exogenous inhibitor) was hypothesized to attenuate the composition of myofibrillar protein substrates for calpain (i.e. TnI, TnT, TM). To test these hypotheses, male Wistar rats (~315g) were randomly assigned to one of six groups: 1) control sedentary (n=8), 2) control + cysteine protease inhibitor (E64c)(n=8), 3) running (25 meters/minute (-16º) for 45 min,)(n=8), 4) running + E64c (n=8), 5) running + 6 hr. recovery (n=8), or 6) running + 6 hr. recovery + E64c (n=8). Calpain I and II isoforms were isolated from rat hind-limb skeletal muscles, purified via phenyl-sepharose chromatography and their activities quantified using a casein-release assay. Calpastatin was isolated by a heat-release procedure and assayed based on its ability to inhibit calpain. Finally, myofibrillar proteins were resolved from a muscle homogenate via SDS-PAGE and their concentrations quantified using computer densitometry. Calpain I and II activities increased by 36.1% and 37.5% respectively, immediately following exercise, and at 6 hours of recovery were 16.4% and 15.9% compared to controls (p<0.05). With E64c administration, the run-induced activation of calpain I (3.7%) and II (8.2%) following exercise was much less, which was maintained into the recovery (5.3% and 9.7% respectively)(p>0.05). Calpastatin activity did not change with exercise, however at the 6-hour recovery, activity was elevated by 74.8% (p<0.05).
With E64c injection, this activity increase remained elevated over control levels (97.4%) (p<0.05). The proportion of bands corresponding to myofibrillar sTnI and TM decreased to 75.1%, 75.6% and 90.1% of control values respectively, immediately following exercise (p>0.05) and at 6 hours of recovery were 73.2%, 75.4% and 80.3% (p>0.05). With E64c injection, any exercise-induced loss of sTnI (108.0% of control), sTnT (105.5% of control) or TM (110.7% of control) following running was arrested (p>0.05). This trend was maintained into the recovery (104.2%, 101.8% and 113.8% respectively) (p>0.05). The proportion of cytosolic protein bands corresponding to sTnI, sTnT and TM increased to 363.8%, 343.5% and 430.1% of control respectively, immediately after exercise (p<0.05) and at 6 hours of recovery were 386.4%, 372.7% and 473.2% (p<0.05). With E64c administration, the exercise-induced increase in sTnI (532.3% of control), sTnT (509.0% of control) and TM (478.6% of control) was enhanced (p<0.05). This change remained into the recovery (337.4%, 530.7% and 514.9% respectively) (p<0.05). It is concluded, based on E64c’s ability to attenuate both the exercise-induced activation of calpain and myofibrillar protein loss/breakdown, that calpain is a causative factor for protein composition changes in vivo. Calpastatin also dominates the protease system during recovery, shifting the environment to one of protein maintenance.


The following study was conducted to compare the frequency, cause, severity, and anatomical location of injuries that occur in NCAA Division I, Division II/III, and Massachusetts Interscholastic Athletic Association (MIAA) Ice Hockey Conferences during the 1994-1995 regular season. Twenty-four Head or Student Athletic Trainers participated in the investigation providing injury information about 332 athletes. Data were analyzed using Pearson’s Chi square test that was weighted by the number of injuries per division. All more frequently in games than practice. Division II/III athletes suffered significantly (p<.05) more upper extremity, shoulder, and groin injuries, strains, and injuries caused by the puck and non-contact. High school athletes suffered significantly (p>0.05) fewer lower extremity injuries than either Division I or Division II/III athletes. And Division I athletes incurred significantly (p<.05) more back injuries than Division athletes were injured significantly (p<.05) I/II athletes and high school athletes. Severity of injury did not appear to vary across each division and player position did not appear to affect the frequency of injury.


Twelve males and 18 females (18-26 years) were randomly assigned to one of three groups (n= 10), acupressure (ACU), placebo (PLA), or control (CON), to determine whether accupressure was effective in decreasing strength loss, alleviating delayed onset muscle soreness (DOMS), decreasing swelling, and improving active (AROM) and passive range of motion (PROM) following eccentric exercise. Maximal voluntary isometric knee extension contractions (MVIC), muscle soreness (VAS), thigh circumference (CIR), AROM, and PROM were assessed prior to engaging in exercise, immediately post-exercise, and at 24, 48, 72, and 96 hours post-exercise. Following 10 sets of 15 repetitions of eccentric knee extension contractions, subjects were tested and received their treatment. Significant main effects over time were found for MVIC, CIR, AROM, and PROM. However, variation and limited statistical power preclude identification of specific effects, and therefore, specific testing of hypotheses. Increased VAS scores were found in CON at 48 and 72 hours post-exercise compared to pre-exercise. In both ACU and PLA, increased VAS were found at 24, 48, and 72 hours compared to pre- and post exercise. VAS returned to pre-exercise levels by 72, 96, and 96 hours for ACU, PLA, and CON, respectively. It was concluded that accupressure therapy administered immediately post-exercise, and at 24 and 48 hours post-exercise was effective in reducing the duration of perceived soreness compared to placebo or no treatment.

Conner, Christopher P. The incidence of post-traumatic stress disorder symptoms in certified athletic trainers, 1997. M.A., San Jose State University (David Furst). (80pp 1f $4.00) PE 3845

This study investigated the incidence of post-traumatic stress disorder (PTSD) symptoms in certified athletic trainers employed in the college/university athletic training setting. Research supports the theory that emergency personnel who experience trauma in their work environment on a regular basis often suffer from psychological effects related to the trauma. The Impact of Event Scale (IES), a Stress Checklist, designed from the Diagnostic Criteria for PTSD (APA, 1994), and a demographic questionnaire were used for data collection. Results indicate that athletic trainers witness and manage traumatic injuries regularly, and as a result, often suffer from PTSD symptoms. Two subjects were diagnosable for PTSD. The IES showed 64% of the subjects experienced PTSD symptoms. Two subjects were diagnosable for PTSD. The IES showed 64% of the subjects experienced PTSD symptoms. The Stress Checklist identified 42% of the subjects suffered at least one PTSD symptom related to witnessing or managing an athletic injury. Social support received from coworkers was indicated as a predictor of PTSD risk.

Hoffman, Mark A. Sensorimotor evaluation of post-operative anterior cruciate ligament reconstruction patients, 1997. Ph.D., Indiana University (David Koceja). (249pp 3f $12.00) PE 3861
Twenty male and female subjects with reconstructed anterior cruciate ligaments (ACL) were recruited. The dependent measures included static balance, dynamic balance, H-max/M-max ratio, and strength ratio. During the static balance trials subjects assumed a single-leg stance on a force platform for 20 seconds. During the dynamic condition, subjects stood on the force platform in a single leg stance, however, at a random point an electrical muscle stimulation disrupted the subjects static balance. Time required for the subject to regain a stable stance was recorded. Sensorimotor profile mapping involved the measurement of the maximum soleus Hoffmann reflex and maximum M wave. A Cybex dynamometer was used for measurement of the 60 degrees per second and during isometric contractions. A 2x2x2 (Group by Gender by Leg) ANOVA was performed for all of the dependent measures (p<.05). Results showed a strength deficit for the ACL group at both 60 degrees per second and isometric, and significant difference in dynamic balance between groups. There was no significant difference in static balance or reflex profiles. We conclude that patients who have undergone ACL reconstruction exhibit significantly different levels of quadriceps strength and dynamic balance when compared to a control group.

Mackey, Theresa R. *A comparison of the pharmaceutical practices of head athletic trainers in the treatment of athletic injuries at the National Collegiate Athletic Association Division I level*, 1998. M.S., Ball State University (Thomas Ferrara). (62pp 1f $4.00) PE 3886

The purpose of this study was to identify the pharmaceutical practices of head athletic trainers in the treatment of athletic injuries at the National Collegiate Athletic Association (NCAA) Division I level. Another purpose was to determine if head ATCs and their staffs are compliant with the Federal and State guidelines relating to the dispensing and administering of prescription and over-the-counter OTC medications. Previous research indicated that widespread problems exist with the pharmaceutical practices of athletic trainers in the athletic setting. Due to these problems, the health care of student-athletes is being compromised and athletic trainers, physicians, pharmacists and universities are at risk for legal ramifications. A packet consisting of a cover letter explaining the purpose and voluntary nature of the study, the instrument, and a self-addressed stamped envelope was mailed out to the 312 Division I head athletic trainers on March 17, 1998. The 34 item instrument was specifically developed for the study and it covered areas dealing with the pharmaceutical practices of athletic trainers. A response rate of 60% (N=188) was obtained for the study. The results were analyzed using descriptive statistics which consisted of means, standard deviations, and frequencies. The results indicated that prescription and OTC medications are provided in a majority of the athletic training rooms. The results indicated that a large number of athletic trainers dispense and administer prescription medications to student-athletes. This means that a number of ATCs are not following the Federal and State pharmaceutical guidelines.

As a result of these findings, it is evident that widespread problems still exist in the pharmaceutical practices of athletic trainers at the NCAA Division I level. These practices could lead to compromised health care for the student athletes and serious legal ramifications for ATCs, physicians, and the universities.


Eleven post surgical ACL reconstructed females were fitted with DonJoy Defiance knee braces and tested on three computerized functional assessment systems. A Bi-Variate Pearson correlation was performed to find any significant correlations between the 3 systems. Two Fastex tests were strongly correlated to 3 NeuroCom test, while there were no correlations found between these 2 systems and the Biodex. The 11 subjects were asked to perform tasks in three bracing conditions (nonbraced, braced and braced with neoprene undersleeve). A total of 18 individual performance measurements were taken from 7 separate tests. Eighteen repeated measures ANOVAs were used to analyze the means of the data. Repeated measures T-tests with standard Bonferroni method were used as post hoc analysis for any significant results. The NeuroCom Step Up and Over test showed a significant difference within the bracing conditions with the Lift Up Index measurement (F value=5.446, Sig.=.013). Statistical analysis suggested that the Defiance knee brace might have a proprioceptive effect during the performance of functional activities. The results also indicated that the bracing conditions had no detrimental effects on performance measures. It also showed that no additional proprioceptive benefits were gained with wearing the neoprene sleeve under the Defiance brace.


This study analyzed the availability of dance medicine in the professional dance world by examining and comparing how companies and dancers handle injury management. Questionnaires were sent to administrators and dancers in each of 106 United States professional dance companies. Results revealed a lack of interaction and communication between medical personnel and professional dancers, partly due to dancers’ low salaries and insufficient insurance coverage. Findings showed that mar dancers lack adequate medical supervision at home and on tour, that few dancers have specific injury prevention programs,
and that dancers' insurance plans do not always cover their preferred treatment types. Chi square analysis revealed that dancers' incomes affect their insurance coverage and injury treatment possibilities, and that administrators and dancers lack sufficient information on medical care for dancers.


The purpose of this study was to determine the reliability and validity of the Tanita TBF-511 Body Fat Monitor / Scale in 15 males and 39 females between 25 and 55 years of age. Percent body fat (BF) was estimated from 7 skinfold sites, the Tanita Scale, and hydrostatic weighing. The Tanita Scale demonstrated high test-retest stability within a 2 minute period (r=1.0; p=0.001) and within 72 hours (r=0.993; p=0.001). An intraclass correlation of R=0.99 suggested good reliability between the trials. The Tanita Scale consistently over predicted BF when compared to skinfold BF estimation (+4.95, p=0.001) and hydrostatic weighing (+3.2, p=0.001). The BF estimations were not significantly different by age group, however, it was found that females had significantly higher BF estimations from the Tanita Scale when compared to males (p<0.001). These results suggest that the BF estimate obtained from the Tanita Scale is reproducible, however, it appears to provide a more accurate BF estimate for men than for women.

Wilson, Natalie *The effects of stretching, ice massage, and rest on anterior shin pain*, 1997. M.S., Brigham Young University (Mark D. Ricard). (48pp 1f $4.00) PE 3876

This study determined if stretching, ice massage, or rest is more beneficial on anterior shin pain. We used a 3 X 5 factorial repeated measures analysis of variance to test for significant group effects, day effects, and group by day interactions for pain and range of motion. Forty college age students from Brigham Young University participated in the research. All subjects had no prior anterior shin pain within the previous 3 weeks. Each subject performed an exercise program that produced anterior shin pain. The subjects returned twice a day for 4 days to complete assigned treatments in one of three treatment groups (ice massage, stretching, or rest). We measured plantarfexion, dorsiflexion range of motion, and perceived level of pain. We did not find a significant difference between treatments consisting of ice massage, stretching of the plantarfexors and dorsiflexors, or rest on pain level or plantarfexion and dorsiflexion. We conclude that the above treatments are equally beneficial in the treatment of anterior shin pain.

**PHYSIOLOGY AND EXERCISE**


The investigation was designed to determine whether premenstrual syndrome (PMS) and progesterone concentrations would decrease for subjects trained aerobically for 8 weeks. Progesterone concentrations were measured in an effort to link PMS reduction with exercise. Prior to training, control and test subject (N = 10) PMS severity, weight, Peak VO2, HR max, and progesterone concentrations were measured and recorded. During the 8-week training period, test subjects avoided participation in any regular physical exercise. During the 8-week training period, test subject exercised for a minimum of 4 days per week, for a minimum of 30 min per session, at an intensity of 65 to 75 of their HR max. PMS severity and progesterone concentrations were compared before and after the training period between control and test subjects. A 2 x 2 ANOVA comparing time (pretest, post-test) and group (experimental, test) with respect to PMS scores was used to analyze the data. Significant decreased in PMS (p< .05) after the training period were reported for test subjects. No reported changes in PMS were found in the control subjects. Progesterone concentrations were found to be unaltered for both test and control subjects. A possible reason for the lack of alterations in progesterone concentrations was inaccurate timing of blood samples mainly due to subject inability to determine ovulation.

AuCoin, Rhonda B.G. *Site specific motor unit recruitment during fatigue in human soleus muscle: a quantitative EMG analysis*, 1996. M.S., Dalhousie University (Geoffrey Elder). (104pp 2f $8.00) PH 1620

The purpose of this study was to determine whether motor unit recruitment is site specific in the human soleus muscle, particularly during muscular fatigue. Needle electrodes measured the electrical activity from the muscle at site no. 1 and 2, located on the lateral border of the soleus, and site 3, located on the medial border. Tums analysis was used to determine if there were differences in recruitment among the three sites during isometric plantarfexion at various intensities. Contractions of 20%, 40%, and 60% MVC were each maintained for 10 seconds. Next, a gradual increase in torque (ramp contraction) from 0-80% MVC was completed in approximately 40 seconds. Finally, a 70% MVC fatiguing contraction was sustained for three minutes. During each of the 10-second contractions, torque, numbers of turns, and amplitude remained constant throughout each contraction. There were signifi-
cant differences in turn counts among the sites, with the largest differences observed at the lowest intensity (20% MVC). During the ramp contraction, as the torque continued to increase to 80% MVC, the amplitude of the EMG signal showed a corresponding increase. The numbers of turns, however, leveled off at sites no. 1 and 2 at 60% and 50% respectively. At site 3, the number of turns had not yet reached a plateau at 70% MVC. There were significant differences observed among the sites, with the largest differences at the lowest intensities. During the 70% MVC fatiguing contraction, torque declined in every subject, with an average decline of 59%. Numbers of turns decreased at all sites by approximately 43% at site no. 1, 35% at site 2, and 25% at site 3. There was a significant difference among the sites, primarily at the lower torque levels, when torque had decreased as a result of fatigue. Site 3, located at the medial site in the muscle, was significantly different from the others. Fast Fourier transformation (FFT) was used along with turns analysis to analyze the fatigue data. The 11 showed a similar trend to the turns analysis, but with more pronounced differences among the sites decreased significantly by approximately 20% at site no. 1, 31% at site 2, but showed no significant decrease at site 3. Once again, site 3 was quite different from sites nos. 1 and 2 and the greatest site differences were observed at the lower intensities. These data suggest that recruitment can be site specific in the human soleus muscle during fatigue and isometric contractions of various intensities. These recruitment differences were most evident at the lower intensities, suggesting that more recruitment “options” are available to the neuromuscular system at lower torque levels. During fatigue, the medial site was markedly different from the other sites, which were located laterally. The presence of such differences among muscle sites highlights the importance of consistently sampling from different regions of a muscle.


The Precor C544 Transport (Transport) (Precor Inc., Bothell, WA) is a motorized cardiovascular exercise machine designed to glide feet in a forward (F) or backward (B) circular pattern. Twenty female Ss (18-37 years) performed 2, 10 min submaximal tests consisting of the F and B exercise on the Transport at equivalent work settings. The Ss were placed into 2 categories based on their experience level of exercising on the Transport at equivalent work settings. Physiological responses (VE, VO2, METs, RER, kcal, HR, and RPE) for F and B exercise were analyzed and compared. A 3-way ANOVA with repeated measures determined no significant differences between responses based on experience levels. With data combined regardless of experience level, 2-way ANOVA with repeated measures indicated no significant (p>.05) interaction between F and B exercise in all physiological variables. Significant (p<.05) main effects were found between workloads for all physiological variables except RER. As the intensity increased, physiological variables significantly increased. A significant (p<.05) main effect was found for HR and RPE during the first workload which resulted in higher values during B exercise. It was concluded that the Transport elicits similar physiological responses in the F and B direction possibly due to the control for stride length and frequency. Exercising on the Transport should provide an adequate stimulus to improve aerobic capacity.


The purpose of this study was to examine the effect of exercise training on fasting blood glucose levels in 11-14 year old healthy adolescents. Three hundred eighteen students were enrolled in a 20-30 min aerobic exercise program, 3 days a week for eight weeks. Blood samples were drawn in a self-reported fasting state before and after the exercise program. Only 260 subjects were determined to have fasting blood samples. The 58 subjects with increased VO2max by greater than 3 ml/kg/min were responders (R) and 202 subjects were non-responders (NR). Neither group showed a significant reduction in weight or ΣSF (R=1.7; NR=3.3 mm). Fasting blood glucose levels did not significantly decrease after training in either group (R=0.1; NR=-0.1mmol/L). It was concluded that an eight-week school-based exercise program had no significant effect on fasting blood glucose levels in healthy adolescents.


As a result of aerobic training, the rate and magnitude of the recovery VO2 following submaximal exercise at the same absolute workloads is decreased (Hagberg et al., 1980). To date there has been little research associated with the effects of an increased aerobic power on the recovery VO2 following supramaximal exercise. The purpose of this study was to determine the effects of an increased aerobic power on the excess post exercise oxygen consumption (EPOC) after a supramaximal exercise test. A secondary purpose was to determine the relationships between aerobic power and the recovery VO2 rate and magnitude. Ten untrained males participated in a six-week training study. The subjects performed pre and post training VO2max tests and Anaerobic Speed Tests (ASTs). EPOC volume and EPOC rate components (τ=1 and τ=2) as well as post
Exercise blood lactate response were measured following a 2 min AST. Significant differences were evident between pre and post training relative and absolute VO2max scores (46.38±3.74 ml·kg⁻¹·min⁻¹ vs. 51.82±5.21 ml·kg⁻¹·min⁻¹ and 3.61±0.42 L·min⁻¹ vs. 4.00±0.44 L·min⁻¹; p<0.05). EPOC volume was significantly decreased following the endurance training program (9.13±1.68 L vs. 7.49±1.73 L; p<0.05). Significant differences were found between the pre and post training fast VO2 recovery rate (τ=1) (2.69±0.19 min. vs. 2.29±0.33 min.; p<0.05) and the pre and post training slow VO2 recovery rate (τ=2) (43.74±5.12 min. vs. 39.63±5.28±1.80 mmol·L⁻¹ vs. 13.36±1.55 mmol·L⁻¹; p<0.05). A significant relationship was found between the change in VO2max and the change in blood lactate concentration (r=0.73; p<0.05). No significant relationships were evident between VO2max, EPOC volume, or EPOC recovery rates (p>0.05). The results of this study indicate that aerobic training can decrease the VO2 recovery volume and rate, as well as decrease the blood lactate response associated with anaerobic exercise. However, the rate and magnitude of the recovery VO2 from supramaximal work appear to be independent of VO2max.

Chen, Kevin Y. The effect of active recovery on the post-exercise diffusion capacity, 1998. M.S., University of British Columbia (Ken Coutts). (73pp If $4.00) PH 1614

The purpose of this study was to investigate the effect of active recovery on the post-exercise pulmonary diffusion capacity (DL) and its two components, alveolar-capillary membrane diffusion capacity (DM) and pulmonary capillary blood volume (Vc). Ten trained non-smoking male cyclists (age=22 ± 2 yrs; ht=177.4 ± 7.1 cm; mass=70.3 ± 9.1 kg; VO2max=61.0 ± 4.4 ml/kg/min) were recruited for this study. All subjects demonstrated normal pulmonary function with no history of respiratory disease. All spirometry and diffusion measurements were administered using the Collins PLUS DS II pulmonary function testing unit. Subjects cycled to exhaustion to determine maximal oxygen consumption (VO2max) and ventilatory threshold (VT) on an electronically-braked cycle ergometer in their first visit. In the following two experimental trials labeled active recovery (AR) and inactive recovery (IR), all pulmonary diffusion measurements were performed. In both sessions, pre-exercise baseline values for DLco, DM and Vc were first obtained. Subjects then performed 45 minutes of cycling exercise at the individual’s VT with maximal effort near the end. In only the AR trial, subjects performed an additional 30 minutes of cycling at 10% of individual’s maximal power output immediately following the 45-minute exercise bout. Two additional pulmonary diffusion capacity measurements were made at 1 and 2 hours following the 45-minute submaximal exercise test. DM and Vc were calculated by measuring DLco at two inspired O2 concentrations using the technique of Roughton and Forster (1957). DLco was significantly reduced 1 hour post-exercise (p<0.05) and further reduced during the second hour of seated recovery in both AR and IR conditions (p<0.01). A significant reduction in DM following exercise was only observed in IR condition (p<0.05), while post-exercise DM remained at pre-exercise baseline level in AR condition. Vc was significantly decreased at 1 and 2 hours post-exercise in both conditions (p<0.05 and 0.01, respectively). Mean heart rate at 1 hour post-exercise was found to be higher than resting baseline (p<0.05), indicating that some of the decrease in DL, DM and Vc might have been masked by the elevated cardiac output. The most significant finding was that the depressed post-exercise DM was recovered by an active recovery, giving stronger support for the presence of pulmonary edema during and after the sustained effort which was partially responsible for the reduction in DM following exercise. Changes of Vc were in identical pattern and similar magnitude in both AR and IR conditions, suggesting that the distribution of central blood volume due to gravity might have greater effect on post exercise Vc than the shunting mechanism. This study represents the first attempt to examine the effect of active recovery on the post-exercise pulmonary diffusion capacity.

Emery, Michael S. Exercise induced hypoxemia as a determinant of maximal aerobic capacity, 1997. M.S., Indiana University (Joel Stager). (73pp If $4.00) PH 1619

It has been hypothesized that the exercise-induced hypoxemia (EIH) present in many highly trained endurance athletes may limit maximal O2 consumption (VO2max) and performance; however, discrepancies in subject selection, group comparisons and data interpretation have impaired firm conclusions. 16 males completed two incremental treadmill tests to exhaustion: normoxia (N; FiO2=21%) and hyperoxia (H; FiO2=40%). Subjects were divided into groups based on N SaO2 values at VO2max: EIH, SaO2< 90% (n=7) and non-EIH, SaO2≥90% (n=5). The 4 remaining subjects (SaO2 = 90 to 91.9%) were used in correlation analyses. By design, N VO2max did not differ between EIH and non-EIH (70.4±5.4 vs. 68.2±7.9 ml/kg/min). The increase in VO2max from N to H was significant (p<0.05) for both EIH (6.9±5.4%) and non-EIH (7.4±8.4%). While the increase in SaO2 at VO2max from N to H was greater in EIH than non-EIH (10.3±18 vs. 5.5±1.8%, p<0.05), there was no difference in ∆VO2max between the two groups. Despite a wide range of SaO2 values, no relationship was observed between N SaO2 at VO2max and the percent increase in VO2max (r=−0.09), or between the increase in SaO2 and the percent increase in VO2max (r=0.19). The conclusion is that arterial desaturation does not appear to be the single significant factor limiting VO2max in these athletes. Additional factors unaffected by improved PAO2, PaO2, and SaO2 must play important roles as well.

Microform Publications—University of Oregon
The effects of static and hold-relax stretching on hamstring range of motion using the FlexAbility LE1000, 1998. M.A., University of North Carolina-Chapel Hill (William E. Prentice). (85pp 1f $4.00) PH 1618

The purpose of this study was to determine the effects of static hamstring stretching and hold-relax hamstring stretching on hip flexion range of motion. A second focus of this study was to examine the reliability of the FlexAbility LE1000 compared with the goniometrically measured Active Knee Extension Test. Forty-two subjects were stretched over a six-week period using an Instrumental Straight Leg Raise method on the FlexAbility LE1000. It was determined that both static and hold-relax techniques improve hamstring flexibility and will both experience a plateau effect between the fourth and fifth weeks of training. Thus, a static or hold-relax method is equally effective in improving hamstring ROM. Reliability of the FlexAbility LE1000 and the goniometer were both found to be high. Therefore, it appears that either measurement technique could be used successfully to measure hip flexion ROM.

Hall, Courtney D. Ankle strength and rate of force development: implications for balance control, 1997. M.S., University of Oregon (Jody L. Jensen). (117pp 2f $8.00) PH 1626

As adults age, the rate of falling increases substantially. The purpose of this study was to gain an understanding of the mechanisms of falling. The focus was on the contributions of strength and rate of force development to balance control. In this study balance deficits were not explained by deficits of strength. We also now know that the mechanical solution to balance disturbances is not different for younger versus older adults in non-stepping trials. Both younger and older adults construct the initial balance response similarly: they use equivalent reaction times within a condition, and also scale the rate of force development to increasing balance threat. While the balance response, at least in the initial stages, is constructed similarly for younger and older adults, there is some unidentified limitation that makes older adults and older adults with instability less successful than younger adults in the face of threats to balance.

Hough, Holly J. The effects of hormone replacement therapy and active lifestyle on immune function in postmenopausal women, 1998. Ph.D., University of North Carolina-Greensboro (Mark L. Failla). (125pp 2f $8.00) PH 1631

The purpose of the study was to a) examine daily intra-individual variability of in vitro activities of immune cells isolated from subjects, and b) investigate the combined impact of hormone replacement therapy (HRT) and active lifestyle on the activities of specific immune cells in postmenopausal women. Forty women aged 45-70 were assigned to four groups: a) currently receiving HRT/active (n=12), b) currently receiving HRT/sedentary (n=9), c) not currently receiving HRT/sedentary (n=10), and d) not currently receiving HRT/active (n=9). Subjects were considered active if they had a VO2max greater than 31 ml·kg·1·min·1 and had been exercising consistently for twelve weeks. The average of three blood samples was used to assess treatment effects for the proliferative responses of lymphocytes to phytohemagglutinin (PHA) and concanavalin A (ConA), natural killer cell activity (NKCA), and neutrophil respiratory burst activity. One of three blood samples was used to assess complete blood counts, differential counts, and immunophenotyping of circulating leukocytes. Intra-individual variation was apparent in all three in vitro cellular assays, but greater reliability was observed for both the lymphocyte proliferative response and NKCA than for neutrophil oxidative burst activity. There was no significant impact of HRT or regular physical activity on the hematological or phenotypic profile, NKCA, or respiratory burst activity among groups. However, both groups taking HRT exhibited a significantly lower proliferative response to both ConA and PHA than the groups not taking HRT (p<0.05). There also was a trend for higher proliferative response of T lymphocytes isolated from active groups than from sedentary groups when bot ConA and PHA were added to cultures. These data suggest that regular exercise may result in enhanced T cell function in postmenopausal women, but those taking HRT may not incur the benefits of an active lifestyle.

Hunter, Sandra Kay Human skeletal muscle function and morphology: the effects of age and exercise, 1998. Ph.D., University of Sydney (Martin Thompson). (394pp 5f $20.00) PH 1622

This thesis investigates the loss of skeletal muscle function with age and the effect of a weight resistance training intervention in healthy, independent, urban-dwelling women. Three inter-related studies were undertaken. Study One was of cross-sectional design and investigated the strength of three muscle groups (knee extensors, plantar flexors and grip flexors), as well as the reaction time in a group of 217 women between the ages of 20 and 89 years. Age was the most potent predictor of the strength status of a muscle group. The age and the extent to which strength declined across age groups was specific to the muscle group assessed, and independent of whether the muscle was in the upper or lower limb. The strength of the knee extensors declined in a linear trend with age at 9.3% per decade, while the plantar flexors and grip flexors declined in a curvilinear trend with age at 7.4% and 6.2% per decade, respectively. Women who were physically active for their age were stronger in all muscle groups and had a larger lean body mass and lean thigh and leg CSA than relatively inactive women. Dominance of the limb had a small but consistent effect on the strength of each muscle group. Furthermore, reaction time was shown to increase.
with age in a curvilinear trend and was dependent on the level of physical activity of the individual. Study Two investigated the principal factors contributing to the muscle weakness and contractile slowing of the quadriceps in elderly women. It was demonstrated that the quadriceps of elderly women were smaller, weaker and intrinsically slower than the muscle of young women. The maximal rate of sarcoplasmic reticulum Ca\(^{2+}\) uptake and Ca\(^{2+}\) ATPase activity of the vastus lateralis was shown to be depressed in elderly women. This was associated with slower quadriceps relaxation and a larger relative Type I fibre area in the vastus lateralis of elderly women. The large reduction in the quadriceps size of the elderly women was associated with age and disuse. The marked reduction in quadriceps strength of the elderly women was due to: (i) a smaller muscle mass with a selective reduction of Type II fibre size, and (ii) an inability of a large proportion of elderly women to maximally activate their quadriceps muscle. In Study Three, the adaptive response of muscle function and morphology to short-term high resistance training was investigated in 20 young and elderly women. The plasticity of the neuromuscular system of the elderly was observed to be similar to that of the young. The major findings were that in response to short-term high resistance strength training: (i) both the young and elderly women showed similar relative increases in muscle and fibre size, and isometric strength; (ii) an increase in the maximal isometric strength of the quadriceps in young and elderly women was predominantly due to muscle/fibre hypertrophy; (iii) improvement of dynamic strength was due to muscle/fibre hypertrophy and significant neural adaptations in both the young and elderly women; (iv) there was evidence of fibre type conversion within the sub-units of Type II fibres in the young muscle but not the elderly; (v) the maximal rates of sarcoplasmic reticulum Ca\(^{2+}\) uptake and Ca\(^{2+}\) ATPase activity in resting vastus lateralis was augmented in elderly muscle but not in young muscle; and (vi) relaxation times of both the young and elderly quadriceps did not alter. Thus, a short-term high resistance training program was able to in part reverse the disuse associated muscle atrophy, weakness and slowing of SR Ca\(^{2+}\) uptake in the elderly women. In conclusion, the marked decrements of muscle size and function evident in elderly women were reduced in women who led a relatively physically active lifestyle and also with the intervention of a short-term high resistance training program introduced to relatively sedentary women later in life. These findings have implications for maintaining the functional independence and the prevention of morbidity and mortality of a predominantly sedentary and aging Australian population.


One important component of energy expenditure is dietary induced thermogenesis (DIT). Elucidating the effects of certain nutrients on DIT would be advantageous for those attempting to control body weight. The purpose of this study was to examine the effects of carbohydrate and fat on DIT and the respiratory exchange ratio (RER). The subjects consisted of 6 males who participated in four trials. Three isocaloric trials were designed to determine the effect of a dose related amount of carbohydrates. A fourth trial examined how additional fat would effect DIT. The isocaloric trials resulted in similar increases in RER and DIT. However, only the difference in RER was significant. The addition of fat appeared to have no effect on RER or DIT. Thus, it was concluded that carbohydrate was the main factor controlling DIT.

Jones, T. B. *The effect of chronic exercise stress on hippocampal glucocorticoid and serotonin1A receptors*, 1998. M.S., Washington State University (Sally Blank). (126pp 2f $8.00) PH 1623

Dysregulation of the hypothalamic-pituitary-adrenal axis and the serotonergic system are implicated in stress system disorders such as depression. Exercise has putative antidepressant effects, although in excess results in overtraining syndrome, the symptoms of which mimic those observed in depression. The purpose of this study was to examine the effects of chronic exercise stress on hippocampal glucocorticoid and serotonin (5-HT\(_{1A}\)) receptors in female Sprague-Dawley rats following eight weeks of forced treadmill exercise of progressively increasing intensity and duration. Indices of serotonergic transmission including changes in body weight, food consumption, and sleep patterns were monitored, as was the submaximal oxygen cost of running, a putative marker of overtraining in human subjects. Glucocorticoid receptor (GR) immunoreactivity was significantly decreased (p<0.05) in the CA1, CA3, and dentate gyrus regions of the hippocampus in exercise-trained rats compared with controls. There was no group effect of chronic exercise on hippocampal 5-HT\(_{1A}\) receptor expression as determined by autoradiography. Based on our theoretical model of adaptation, development of tolerance to stress (adaptation) involves downregulation of GR density with a compensatory increase in 5 HT\(_{1A}\) receptor expression in the hippocampus. Exercise-trained rats were classified as maladapted if they exhibited downregulation of GR immunoreactivity without a compensatory increase in 5-HT\(_{1A}\) receptor expression. Indices of serotonergic transmission and submaximal oxygen cost responses to running in stress-adapted rats were compared with those in mal-adapted rats to evaluate the efficacy of these markers in predicting central adaptive responses.

This study’s purpose was to analyze the effect a 6 h fast had on exercise performance. The subjects were 8 active females (21.4±0.9y, 60.4±2.4 kg, 19.9±1.3% body fat, and 165.6±2.1 cm). The exercise test consisted of two exercise trials (separated by 3-6 d) where the subjects ran for 30 min at a speed that caused a heart rate of 150 bpm, the speed and grade was then increased until VO2max. The exercise trials were performed 3 h after eating (Fed), and after a 6 h fast (Fasted). Comparing the Fasted and Fed trials there were no significant differences (p>0.05) in VO2, RPE, or blood glucose. The Fasted compared to the Fed trial resulted in 0.04 lower RERs (p=0.0002), and a 2 mmol lower blood lactate at exhaustion (p=0.0116); times to exhaustion were also 0.75 min shorter (p=0.0001). It was concluded that a fast of 6 h is detrimental to exercise performance, and results in altered substrate utilization.

Manning, Timothy S. *Intra-abdominal pressure and rowing: the effects of inspiring versus expiring during the drive*, 1998. M.S., Northern Illinois University (Sharon Plowman). (103pp 2f $8.00) PH 1610

The lower lumbar vertebrae of rowers are subjected to high levels of shear and compression at mid-drive during the rowing stroke, and these forces may be partially neutralized by increasing intra-abdominal pressure (IAP). Since IAP fluctuates with ventilation, the purpose of this study was to compare the IAP response between two breathing patterns, inspiring during the drive and expiring during the drive, to determine if one breathing pattern might increase the IAP at mid-drive more than the other. Ten moderately active volunteers (5M, 5F; age: 25.1 yr±2.9; Ht: 176.4 cm±6.6; Wt: 73.6 kg±12.3) with and without rowing experience performed two sets (inspiration and expiration) of five 2-minute intervals on a Concept II rowing ergometer. The intervals began at a workload of 100 watts (W) and increased to 200 W by increments of 25 W. IAP was measured every .032 s for 30 s during each interval using a pressure transducer catheter. A position sensor was attached to the seat of the ergometer and interfaced with the data acquisition program so that the IAP responses could be expressed relative to the position of the body during the drive. Statistical analyses were completed using a 2x5 (breathing pattern by workload) repeated measures analysis of variance with Tukey or dependent -test follow-ups. There was no interaction between breathing pattern and workload for the dependent variables minimum IAP (IAPmin), maximum IAP (IAPmax) or change in IAP (ΔIAP) (p>.05); however, there was a significant interaction for mid drive IAP (M-D IAP), with M-D IAP increasing at a greater rate as workload increased while expiring during the drive than inspiring during the drive (p<.05). When collapsed across breathing patterns, a significant difference in IAPmin, IAPmax, ΔIAP and M-D IAP occurred as workload increased (p<.05). When collapsed across workload, a significant difference occurred in IAPmin and M-D IAP between the two breathing patterns (p<.05), but there was no difference in either IAPmax or ΔIAP (p>.05). The data show that expiring during the drive offers more protection to the lower lumbar vertebrae at mid drive than inspiriting during the drive.

Moroney, Daniel R. *Comparison of nutritional supplements during a six-week resistance training program*, 1998. M.S., Springfield College (Sam Headley). (163pp 2f $8.00) PH 1613

The purpose of the researcher was to compare the effects of three weight gain supplements, on strength, bodyweight (BW), fat-mass (FM), percent body fat (BF), fat-free mass (FFM) and 13 body girths across a 6-week resistance training program. The weight gain supplements were MetRx (MR), Weight Gain 1850 (WG), and control (C). The subject sample group involved 16 physically active men, ages 18 to 35, randomly assigned to one of three groups: MR (n=5), WG (n=6), or C (n=5). Following manufacturers suggested servings, the MR and WG groups consumed an extra 330 kcals/day and 955 kcals/day, respectively, while the C group averaged an additional 190 kcals/ day from normal foods. The resistance training program stressed all major muscle groups. Significant (p<.05) increases in BW, bench and leg press (1 RM), chest, shoulder, biceps, and thigh girths were found across the training period. In conclusion, while supplementation concurrent with a resistance training program may promote gains in strength, BW, and size, commercial supplements appear to be no more effective than increasing normal dietary consumption.


The relationships between plasma total cholesterol and body weight, body mass index, percent body fat, leisure time activity index, physical activity score, and VO2max were investigated using cross-sectional and longitudinal approach. The subjects, 1396 men and 268 women, were placed in a nine-week exercise intervention following the initial testing session. In men, body fat percentage (r²=.090, p=.0001) accounted for the most variance in total cholesterol, followed by VO2max (r²=.13, p=.0001) and leisure score (r²=.0069, p=.002). In women, VO2max accounted for the most variance in total cholesterol (r²=.076, p=.0001), while body fat percentage (r²=.015, p=.05) was also a significant contributor. The exercise program included aerobic exercise and lasted one hour, three times per week. Following the program total cholesterol decreased in men by 2.8 mg/dl (p<.0001). That decreased cholesterol was dependant upon change in VO2max (r²=.012, p=.0001). Total cholesterol did not change in women following the
exercise program. It was concluded that increase in VO2max has a small effect on total cholesterol levels in men, and no effect on cholesterol levels in women.

O’Hare, Turlough J. The effects of sustained heavy exercise on the development of pulmonary interstitial edema in trained male cyclists, 1998. M.S., University of British Columbia (Don McKenzie). (53pp 1f $4.00) PH 1616

The transport of O2 from alveolus to pulmonary capillary has not typically been thought of as the limiting step in aerobic performance. It has been demonstrated that fit athletes are able to, at high workloads, elicit a decreased arterial O2 saturation to levels below 90%. This showed that healthy, fit individuals were able to exceed the capacity of the pulmonary system, and was termed exercise-induced-hypoxemia (EIH). The possible mechanisms for EIH include veno-arterial shunts, Vq / Qm mismatch, relative alveolar hypoventilation, decreased pulmonary transit time, and pulmonary edema. This study looked for increases in extravascular water (EW) after a 45-minute intense exercise bout as evidence of pulmonary edema. The subjects were 8 highly trained males (mean±SD: age; 26.9±3.0 years, height; 179.9±5.7 cm, weight; 76.1±6.5 kg) who performed three tests used to identify differences pre and post exercise. The testing involved measurements to ensure normal spirometry (FVC, 6.0±1.41, FEV1-FVC; 79.0±9.2%) and sufficient fitness (VO2max=63.7±2.63 ml·min⁻¹·kg⁻¹). During intervention testing, subjects completed a 45-minute bout of maximum sustainable cycling activity, pre and post pulmonary diffusion measures, and pre and post magnetic resonance imaging. Subjects exercised at 10% below their ventilatory threshold for 45 minutes at a power output of 300 ± 25 watts. Diffusion for carbon monoxide (DLco) and lung capillary volume (Vc) had decreased one hour post exercise by 12% (p=0.004) and 21% (p=0.017), respectively, but no significant change in membrane diffusing capacity (Dm) was found. The magnetic resonance (MR) scans showed a 9.4% increase (p=.043) in pulmonary extravascular water after exercise, consistent with the theory that EW is produced in well trained subjects. This study was the first to use new MR advances to show an increase in EW following long duration heavy exercise in trained male subjects.

Sharpe, Glen P. A comparison of blood flow of the vastus lateralis during exercise in trained and untrained cyclists as measured by 133 Xenon Clearance, 1998. M.S., Dalhousie University (Edward C. Rhodes). (51pp 1f $4.00) PH 1611

The purpose of this investigation was to examine muscle blood flow (MBF) in the vastus lateralis of trained and untrained cyclists using the 133Xenon clearance method. MBF was measured in five trained cyclists (VO2max=68.8±4.2 ml/kg/min) and five untrained subjects (VO2max=48.2±4.2 ml/kg/min) at 150 Watts, the anaerobic threshold (AT), and at 100% VO2max. These workloads corresponded to an absolute (150 W), relative (AT) and maximal comparison between groups. 133Xenon dissolved in saline (3.9 MBq in less than 0.2 ml volume), was injected in the vastus lateralis muscle prior to ergometer work. Clearance of the isotope was monitored using a gamma camera positioned adjacent to the injection site (Chung et. al., 1987). MBF calculations are based on the half clearance time (T1/2) during the initial steep portion of the clearance curve, and the blood-muscle partition coefficient value of 133Xenon (0.7) according to the formula MBF = (In 2/T1/2) x 0.7 x 100 (Clausen and Lassen, 1971). MBF was not significantly different between the two groups at 150 Watts (28.7±3.7 vs. 27.5±1.9 ml/100g/min for trained and untrained groups respectively) or at AT (35.1±8.6 vs. 39.8±2.6 ml/100g/min), but was significantly higher in the trained group at 100% VO2max (35.6±8.1 vs. 27.0±4.3 ml/100g/min). It appears that the high variability in the MBF results may have masked some differences, thereby identifying this limitation in the gamma camera technique. No significant differences were evident across the three exercise conditions in either group, and no significant relationships were detected between MBF and workload (expressed in Watts, ml of oxygen, or % VO2max). The lack of a strong correlation between workload and MBF indicates that the technique may not accurately track MBF across all exercise intensities. It appears that the gamma camera technique may not be suitable for measuring MBF at high exercise intensities due to the short time course of 133Xenon washout.

Sidner, Aaron B. The effects of high resistances on peak power output and total mechanical work during short-duration high intensity exercise in the elite female athlete, 1998. M.S., Oregon State University (Paul A. Borsa). (70pp 1f $4.00) PH 1624

The purpose of this investigation was to determine the effects of high resistances on peak power output and total mechanical work as indices of anaerobic power and anaerobic capacity using the Wingate Anaerobic Test. It was hypothesized that increased resistance would result in increased peak power output without a simultaneous decrease in total mechanical work. Ten (N=10) basketball and seven (N=7) volleyball NCAA Division 1 female athletes completed one 20 second trial at each of four resistances (7.5%, 8.5%, 10.5% and 12.5% of body weight) on a Monark 824e weight ergometer in a single exercise session (10 minutes rest between trials). Results showed statistically significant (p=0.05) increases in peak power output with increased resistance for absolute values (range: 752.2-971.5 watts), relative to mass values (range: 10.5-13.5 watts/kg), and relative to lean mass values (range: 12.8-16.8 watts/lbm). Similarly, increased resistance resulted in increased MW (absolute: range=1274.3-1431.7 joules, relative to mass: range=17.8-20.1 joules/kg, and relative to lean mass: range=21.8-24.5 joules/lbm). The differences in peak power output and total mechanical work obtained
from the 10.5% and 12.5% resistances were not statistically different (although they continued to demonstrate an upward trend) and thus it was not possible to determine which resistance was optimum for determining peak power output and total mechanical work values in a power-trained population. We concluded that the use of at least a 10.5% of body weight resistance was required to elicit true peak power output and total mechanical work in adult, power-trained subjects as opposed to the 7.5% factor typically used. The results of this study provide the basis for using a Wingate Anaerobic Test modified by increasing the test resistance to determine fatigue curve profiles for various sport, age, and gender and ability groups. Additionally, power vs. time data from this study support the need to experimentally determine the duration of the test for optimal evaluation of anaerobic power and capacity characteristics.

Spaulding, Matthew J. Predicting muscle fiber type through a leg extension test, 1998. M.S., Springfield College (Margaret Jones). (105pp 2f $8.00) PH 1627

The study was designed to determine if the number of repetitions performed on a submaximal leg extension test could be used as a predictor of an individual’s muscle fiber type. Males (N=30) between the ages of 18 and 22 served as the participants of this study. The 30 participants had a mean age of 19.6±1.35 years, a mean height of 70.13±2.16 cm, and a mean weight of 75.2±8.7 kg. The participant’s muscle fiber composition was determined based on the results of a fatigability test on a Kinetic-Communicator isokinetic dynamometer. Based on the results of a simple linear regression analysis, the number of repetitions performed cannot be used to predict muscle fiber composition (p=.308). An additional hypothesis was tested to determine if a relationship existed between the percent of fast twitch muscle fibers and peak torque. Using a Pearson product moment correlation, a positive correlation was found between the percent of fast twitch muscle fibers and peak torque (r=.558). A simple and practical method of determining muscle fiber type would be extremely beneficial. This could be useful for coaches when training and/or testing athletes or when placing them in a position within a sport which best suits their genetic endowment.

Stavrianeas, Stasinos Sarcoplasmic reticulum function and glycogen depletion patterns in the rat diaphragm following prolonged exercise, 1998. Ph.D., University of Oregon (Gary Klug). (132pp 2f $8.00) PH 1617

An exercise-induced disruption of intracellular Ca²⁺ is a primary etiological factor in muscle fatigue in limb skeletal muscle. However, its role in diaphragmatic fatigue remains unestablished, as few data exist on the effects of exercise on the sarcoplasmic reticulum (SR) in this muscle. This project examined the effects of a bout of exercise (~81min) on glycogen levels and rates of Ca²⁺ release, uptake, and SR ATPase activity derived from the costal region of rat diaphragm (D) and red gastrocnemius (RG). Histological determination of glycogen content indicated a homogeneous pattern of depletion throughout five regions of the costal D which, when quantified, averaged 87%. This was consistent with an 81.5% decline in RG. SR Ca²⁺-ATPase activity in isolated SR vesicles decreased in the RG by 32.8% but remained unchanged in D. The results in RG are consistent with previous studies, whereas the failure of exercise to depress ATPase activity in D is the first observation suggesting that SR in this muscle behaves differently than limb muscles in response to exercise. The decrease in ATPase activity in RG following exercise was matched by a 37.5% decline in Ca²⁺ uptake and a 28.5% depression in Ca²⁺ release when measured in homogenates. Conversely, uptake increased between 157 and 263% in the isolated sections of D whereas calcium release for samples from the same regions of the diaphragm remained unchanged. Mapping of glycogen depletion suggests that during prolonged running, recruitment of motor units is uniform across the costal region of D. However, the discrepancy in the rates of calcium-release in D and RG argues against a role for the release mechanism in fatigue in D as is apparent in limb muscle. The large increases in calcium-uptake following exercise in D contrast sharply with the depression produced in RG. Furthermore, the lack of a commensurate increase in ATPase activity suggests that exercise produces a “more efficient SR” in D. These findings illustrate the adaptability of SR function to exercise and indicate the need for further study into the consequences and mechanisms of the effects of exercise on D muscle.

Sweenor, Kymberlie A. Effects of caffeine on sprint performance, 1998. M.S., Springfield College (Sam Headley). (115pp 2f $8.00) PH 1612

The current researcher utilized aerobically trained, college-aged male and female athletes to investigate the potential ergogenic effects of 7 mg caffeine·kg body weight⁻¹ on anaerobic sprint performance as measured through the Wingate Anaerobic Test. Caffeine was administered in capsule form using the corresponding dose of Vivarin. Subjects fasted for 12 hours, abstained from caffeine for 48 hours and abstained from vigorous activity for 24 hours prior to all testing sessions. Resistance for the Wingate Anaerobic Test was 7.5% of the body weight of each subject measured in kg. The current researcher found no interaction between gender and treatment conditions of caffeine or placebo regarding absolute peak, relative peak, absolute mean, relative mean, absolute minimal, and relative minimal anaerobic power. The current researcher found that acute caffeine consumption did not enhance absolute peak, relative peak, absolute mean, or relative mean anaerobic power performance in college-aged male and female athletes when compared to the placebo trial.
However, absolute minimal (p=.032) and relative minimal (p=.023) anaerobic power performances were significantly improved following the caffeine trial absolute: 481.70±136.99, relative: 7.09±0.96 when compared to the placebo trial (absolute: 448.63±115.68, relative: 6.65±0.71) in male and female college aged athletes. Male subjects (absolute: 759.79±22.73, relative: 10.16±0.06) were stronger than female subjects (absolute: 533.00±4.71, relative: 8.89±0.06) regarding absolute peak (p=.000), and relative peak (p=.001) anaerobic power after either caffeine or placebo treatment. Male subjects (absolute: 670.07±14.85, relative: 8.97±0.20) were stronger than female subjects (absolute: 457.75±1.77, relative: 7.63±0.05) regarding absolute mean (p=.000), and relative mean (p=.000) anaerobic power after either caffeine or placebo treatment. Male subjects (absolute: 554.50±34.04, relative: 7.46±0.43) were also stronger than female subjects (absolute: 375.83±12.73, relative: 6.65±0.71) regarding absolute min (p=.000), and relative min (p=.001) anaerobic power after either caffeine or placebo treatment. In conclusion, 7 mg caffeine·kg body weight⁻¹ enhanced absolute and relative minimal anaerobic power in male and female college-aged athletes. Secondly, male subjects produced more power than female subjects.


The investigation was designed to test the impact of low dose oral contraceptives (OC) on high intensity running during the different menstrual cycle phases. 2 groups of 5 moderately active females were assigned as follows: (a) OC users for 6 or more months prior to testing; (b) non-oral contraceptive users (NOC) for 6 or more months prior to testing. All participants were tested during the mid-cycle of the follicular and luteal phases of the menstrual cycle. Each participant performed a total of 4 running tests on a treadmill; a VO₂peak test followed by a run to exhaustion test at 85% VO₂peak. Each set of tests was done twice with 48 hr of rest between each specific test. Physiological measurements included VO₂peak, RER, total run time, blood lactate, and blood glucose. A significant (p<.05) interaction occurred between OC status and menstrual cycle phase (MC). One interpretation is the NOC group performed longer during the follicular phase than the OC group during the same phase. No phase related differences occurred during the luteal phase. Exact reasons can only be speculated at this time, however the conclusion reached was that low dose OCs did not affect carbohydrate metabolism as evidenced by the obtained blood glucose measures and RER values. A second interpretation of the interaction is that the OC group ran longer during the luteal phase than during the follicular phase. No differences occurred within the NOC group regarding MC. Possible explanation was the increased amount of circulat-

ing hormones during the luteal phase which could lead to an enhanced carbohydrate metabolism. A significant (p<.05) main effect difference for blood lactate within participants and time was found. The physiological explanation is that during high intensity exercise as the exercise becomes predominately anaerobic the rate of lactate accumulation is faster than the rate of lactate clearance.

**HEALTH EDUCATION**

Chand, Sonal  The history of New Horizons: 20th anniversary celebrations, 1998. M.P.H., University of Wisconsin-La Crosse (Margaret F. Dosch). (165pp 2f $8.00) HE 619

The purpose of this project was to develop a document which describes the history of New Horizons Shelter and Women’s Center from 1978 to the present. The document includes New Horizons accomplishments, goals, and challenges as well as stories from survivors. The data were collected from interviews, newspaper articles, advisory committee meeting minutes, board of directors meeting minutes of New Horizons and the YWCA, New Horizons newsletter, and New Horizons papers. Interviews with 42 individuals were conducted which included several founding members, staff members, advisory committee members, board of directors, executive directors of New Horizons and the YWCA, volunteers, and community members who were involved with the organization, and survivors. The document was composed of four chapters which was divided into five year time periods. The first chapter, 1978 through 1982, focused on the founding members of New Horizons and the establishment of the shelter and office space. The second chapter, 1983 through 1987, described the development of the proarrest policy and networking with the community. The third chapter, 1988 through 1992, included the purchasing of a new shelter and the development of education and prevention programs. The last chapter, 1993 through 1997, provided the details about the development of a nonprofit independent incorporated organization. The document was evaluated by ten reviewers and two editors for content accuracy, consistency, correctness, and clarity.

Flynn, Priscilla M. **Mammography adoption of Winona County women using the transtheoretical model**, 1997. M.P.H., University of Wisconsin-La Crosse (Richard A. Detert). (162pp 2f $8.00) HE 613

A written survey using the transtheoretical model (TM) was used to categorize a convenience sample of Winona County, MN, women (N=170) aged 40+ by stage of change for mammography adoption. Study questions regarding demographic factors (formal education, per capita income, source of health care, insurance coverage, employment
status, and marital status) and health-related actions (recency of Pap test and CBE, frequency of BSE, and physician recommendation for a mammogram) were subcategorized by 3 age groups (40-49 yrs, 50-59 yrs, and 65+ yrs). Group characteristics within each stage with n≥5 were summarized. Results indicated a stronger relationship between health-related actions than demographics factors for mammography compliance. The use of the TM model using 7 stages was appropriate for descriptive analysis in this study, although results were limited due to small sample size, and distribution of both age-and stage of mammography adoption.

Freit, Lori K. *A psychosocial assessment on the effects of different evaluation methods on women with a first-time ASCUS pap smear*, 1998. M.P.H., University of Wisconsin-La Crosse (Margaret F. Dosch). (71pp 1f $4.00) HE 618

The purpose of this study was to determine the effects of different evaluation methods for an Atypical Squamous Cells of Undetermined Significance (ASCUS) Pap smear on psychosocial characteristics of women. Subjects (N=67) were randomly assigned to an aggressive group (n=22), American College of Obstetrics and Gynecology (ACOG) group (n=24), or conservative group (n=21) for follow-up abnormal cytology at Gunderson-Lutheran Medical Center in La Crosse, WI. Subjects completed a baseline survey to examine possible relationships between the Duke-UNC Functional Social Support (DUFSS) Questionnaire, the Abnormal Smears Questionnaire (ASQ), demographic variables, smoking status, sexual history, and concurrent stressors. A one-way analysis of variance was used to compare the three groups to the variables of the ASQ (procedural distress, negative cognitions, and smear distress). Women assigned to the aggressive group had statistically more procedural distress (P=.02) than did women in the ACOG or conservative groups. A Pearson’s product-moment correlation coefficient was used to evaluate the relationship between levels of perceived social support and smear distress. The correlation coefficient was -.30 and was statistically different from zero (P=.02). As social support increased, smear distress scores decreased.

Jensen, J. Keith *The effects of two educational processes on energy, nutrient, and food group intakes of sedentary, overweight women who are consuming self-help, low-fat, ad libitum diets*, 1997. M.S., Brigham Young University (A. Garth Fisher). (117pp 2f $8.00) HE 614

We studied 18 well-educated, sedentary, overweight women who consumed self-help, low-fat, ad libitum diets after a single, educational visit with a clinician. One group (FE) was taught to record fat and energy intakes with a goal of eating no less than 1200 kcal and consuming ≤30% of energy from fat per day. The other (FEP) received the same instruction and information, but was also taught the importance of eating from a slightly modified Food Guide Pyramid each day. These low-fat, ad libitum (LFA) diets were followed for six weeks and were analyzed for total daily intake of food groups, energy, grams of protein, grams of protein per kg body weight, grams of fat, percent energy from fat, iron, calcium, vitamin A, and vitamin C. Intakes of energy, total fat, and percent energy from fat during the LFA eating period decreased significantly from baseline for both groups. Intakes of protein and calcium decreased significantly from baseline for FE only. Intake of fruits and vegetables increased significantly for FEP only. The change in fruit and vegetable intake for FEP significantly increased during LFA eating compared to FE. Protein intake decreased less for FEP than for FE during LFA eating. Weight loss for FE and FEP was similar. Results indicate that educational processes of either FE or FEP should equally lower intakes of energy, total fat, and percent energy from fat and enhance moderate amounts of weight loss. An increase in the intake of fruits and vegetables may be greater, and a decrease in protein and calcium intake may be less substantial, for those who experience an educational process that also includes some Food Guide Pyramid information.


The study explored various musculoskeletal, neuromuscular and psychological impairments constraining the movement capabilities of adults with multiple sclerosis (MS). Specifically, the variability within each constraint and the relationship between individual constraints and functional competence in activities of daily living were examined. Five adults with MS (X=44 years) were assessed on muscular strength in the lower extremities, upright postural control, mood, fatigue, self-efficacy, and stress. In addition, functional competence in daily life activities was evaluated using the Scale of Functional Competence in Multiple Sclerosis (SFCMS). The scale was developed to assess each participant’s ability to 1) step up onto a 6 inch wooden riser, 2) reach for a cup placed above head-height, and 3) walk 12 feet while carrying a bag of groceries. Preliminary data suggest that the SFCMS had the potential to sufficiently measure the functional competence in these three tasks of daily living for individuals with MS. Principal component factor analyses were first performed to discover covariation patterns among the variables over a four month period. While identifiable covariation patterns were observed for four of the five participants, no commonalities in factor patterns were found across the sample. Further, correlational procedures failed to demonstrate any strong relationships between physical and psychological variables nor between these variables and functional performance. Lastly, the extent of variability observed was then quantified through coefficients of variation. Results indicated
that, for all five participants, fatigue and stress fluctuated the greatest over the 16 week period. Most importantly, variability in both the physical and psychological variables was shown to be much greater than variability observed in performance of the functional tasks. An ecological interpretation was offered to explain the preservation of functional competence in activities of daily living in light of fluctuating constraints. Future research employing an ideographic approach to examine intraindividual variability in adults with MS may prove beneficial in affording a deeper understanding of how disease-related constraints influence functional performance. Additionally, research quantifying the extent of variability in particular constraints may afford clinicians and researchers greater insight and accuracy when assessing functional status and therapeutic outcomes in individuals with MS.

Lopez, Paulette The incidence and severity of heavy episodic drinking, stages of heavy episodic drinking, stages of change of readiness and perceived normative expectations among college students, 1998. M.S., Purdue University (Roger W. Seehafer). (185pp 2f $8.00) HE 615

The purpose of this randomized study was to identify and describe various health risk behaviors among college students at a mid-western university and particularly to identify and describe the relationship between heavy episodic drinking (i.e. at least 5 drinks in a row during the past 30 days) and selected risk-taking behaviors (e.g. drinking and driving, sexual activity, suicide) in a population of college students; to determine the predisposition of students’ readiness to change drinking behaviors by applying the stages of change model; and to assess normative drinking behaviors and perceived norms on a college campus. A self-report health questionnaire which assessed attitudes and behaviors was administered to students (n=1000) during the 1996 fall semester. A total of 413 students (mean age = 22 years) participated in the study. Respondents who had never consumed alcohol were omitted from all data analyses except normative expectations. The sample included both female (n=174) and male (n=159) students (69.3% total) who drank alcohol. Chi-square analysis indicated that there were no significant differences (p< .05) between heavy episodic drinking and gender, race/ethnicity, students’ place of residence and family composition. An approachable difference (p< .05) was found between heavy episodic drinking and U.S./Domestic residents and International students. Heavy episodic drinkers were more likely to be freshmen and seniors, and members of a social fraternity/sorority. Heavy episodic drinkers were more likely to engage in selected risk-taking behaviors such as drinking and driving, and sexuality issues. However, no significant difference (p< .05) was found in regards to suicide. Heavy episodic drinkers were more likely to be the maintenance stage compared to non-heavy episodic drinkers. Current drinkers were more likely to overestimate the perceived drinking norm than non-drinkers. A significant difference was found between the perceived drinking norm among heavy episodic drinkers and occasional episodic drinkers. Finally, heavy episodic drinkers report more alcohol use among friends compared to occasional episodic drinkers.

Petersen, Carolyn A descriptive study of North American exercise programs for persons infected with the Human Immunodeficiency Virus, 1998. M.S., University of Oregon (Richard K. Troxel). (152pp 2f $8.00) HE 617

Although regular, moderate exercise has been shown to improve immune system function, little is known about its use as a therapeutic intervention for Human Immunodeficiency Virus infection. Telephone interviews were conducted with 1,049 agencies in the United States and Canada regarding exercise program availability and type, class structure and fees, participant demographics and goals, agency mission and implementation practices, and future plans. A Physical Activity Profile was administered to 76 HIV+ persons who regularly exercise to quantify typical participation and physical capabilities. Approximately 11% of surveyed agencies offer exercise programs, 18.33% charge participation fees, and, 6.67% expect to continue offering programs. Flexibility (including yoga) and combination aerobic/strength/flexibility training programs are offered most frequently. Participants tend to be unemployed Caucasian males aged 30 to 49. A majority exercise 1 to 4 times per week for 45 to 90 minutes. Primary exercise goals are gain muscle, increase strength, and increase cardiovascular endurance.

Potvin, Andre N. The effects of resistance training during early cardiac rehabilitation (Phase II) on strength and body composition, 1998. M.S., University of British Columbia (Alan Martin). (129pp 2f $8.00) HE 624

The effects of combined resistance training (RT) and aerobic exercise were compared to aerobic only (AO) exercise on measures of strength, fat mass (FM), lean mass (LM), and muscle mass (MM). Twenty-seven haemodynamically stable male cardiac patients (age range 39-66 years) performed 3 weeks (6 sessions) of aerobic exercise 2x/week before being randomly assigned to one of three groups: aerobic only (AO; n=10) early-start resistance training (ESRT; n=8) and late-start resistance training (LSRT; n=9). All three groups participated in 16 weeks (32 sessions) of aerobic exercise, however, the ESRT and LSRT groups performed 12 and 6 weeks (24 or 12 sessions respectively) of moderate-high intensity (70-79% of IRM) weight training (7 exercises). There were no haemodynamic complications due to the RT over the course of the study. Body composition was measured using anthropometric girths, sum of skinfolds (SOS), body weight (BW), waist-to-hip ratio (WHR), Near Infrared
Photospectrometry (NIR) and Dual-Energy X-ray Absorptiometry (DXA). DXA measures were only done for 14 subjects (AO & LSRT, n=4; ESRT, n=6) and due to the small group numbers results were used as supplemental information. MM was calculated from a regression equation based on skinfold-corrected limb girths. Results: A 3 (Group) X 4 (Time) ANOVA with repeated measures on the last factor, indicated no significant changes for the group effect in BW (p=0.6) and SOS (P<0.9), DXA & NIR LM (both p=0.6); DXA & NIR FM (p=0.4 & p=0.9, respectively) or MM (p=0.2), or individual girths. However, a significant difference occurred for the time factor for WHR (F1,47=5.4, p<.002) and for waist girths (F1,47=4.0, p<.01) with no changes to hip girths (p=0.7) or umbilicus skinfolds (p=0.9) suggesting a decrease in subjects’ visceral fat. The group X time factor showed significance for the DXA LM (F3,72=5.7; p<.02), and MM (F3,72=5.1, p<.001) indicating that changes in response to the RT interventions over time were dissimilar between the groups at specific assessment periods. The AO group lost 2 ±1.5% DXA LMpre-post, and 3.3 ±2.1% MM while the ESRT and LSRT groups gained DXA LMsub 3.9% ±1% and MMsub 4.0 ±1.4% MM and and DXA LMSRT .8 ±1.1% and MM SRT 4.0 ±1.4%. Overall pre-to post-training strength changes were significantly different (F2,22=9.5, p<.001) between groups with the greatest changes occurring in the ESRT group (27±4.2%) followed by the LSRT group (25 ±3.3%) and then the AO group (7.3 ±2.6%). A post-hoc Tukey HSD analysis revealed the significant difference to be between the RT and AO groups (p<0.05); no significant difference existed between the two RT groups (p=.35). Upper and lower body pre-to post training strength changes were significantly different (F2,22=5.8, p<.009 and F2,22=7.4, p<.004, respectively) with the upper body increasing 6.5%AO, 17.9%ESRT, and AO & LSRT 8.1% and lower body increasing 7.5%AO 39.0%ESRT, and 33.6%LSRT. Conclusions: RT significantly increased strength with the greatest gains occurring in subjects who started RT earlier rather than later in the cardiac rehabilitation program (CRP). However, there were no significant strength differences between the ESRT and the LSRT groups suggesting that RT can begin as late as 10 weeks after starting a CRP and show similar strength gains to those who start RT earlier. There were no significant changes in body composition between groups, however, the AO group showed a numerical loss in MM and DXA LM while the RT groups showed a numerical increase in these variables. A statistically significant group X time interaction effect for MM (p<.001) and DXA LM (p<.02) suggests that RT maintains or increases MM and DXA LM, while AO exercise actually caused losses in these variables. WHR for all groups significantly decreased over time regardless of training intervention suggesting that RT may not play a primary function on WHR changes. WHR changes were due to a loss in waist girths suggesting a loss in visceral fat. The primary goal of a CRP is to return the patient to a normal life as quickly as possible, RT can play a vital role in this process. RT can begin as early as 4 weeks post-cardiac event with minimal risk of haemodynamic complications in selected low-moderate risk cardiac patients. RT has many physiological benefits and by incorporating it earlier in a CRP, cardiac patients have an opportunity to incur these benefits sooner. This may then facilitate a quicker return to work and leisure activities.

Sherwood-Puzzello, Catherine M. Health motivation and HIV risk behaviors among college students from urban and rural communities, 1998. H.S.D., Indiana University (William Yarber). (166pp 2f $8.00) HE 616

This study examined the relationship between health motivation and HIV risk behaviors and the differences in health motivation and HIV risk behaviors among subjects from urban and rural communities. An instrument measuring HIV knowledge, motivation toward HIV prevention, and HIV risk behaviors, was administered to 595 students from universities in Indiana. Reliability, Pearson correlation and analysis of variance (ANOVA) were applied to the data. Qualitative analysis was applied to the catalyst question on the instrument. The instrument was found to be reliable at α=.69. Analysis of the relationship between HIV knowledge and HIV risk behaviors resulted with a significant correlation only for injecting drug use. A significant relationship between motivation and all HIV risk behaviors existed. ANOVA yielded no significant differences between urban and rural students regarding HIV prevention knowledge and HIV risk behaviors. Additionally, ANOVA calculations determined no significant differences between community and motivation toward HIV prevention behaviors. The higher the level of motivation the subjects had toward HIV prevention, the more likely they were to practice HIV preventive behaviors. Future research should be conducted to determine if motivation toward health promotional behaviors is sustained over a period of time.

Wells, Jo Nell B. Purpose in life and breast health behavior in Hispanic and Anglo women, 1998. Ph.D., Texas Woman’s University (Susan E. Ward). (166pp 2f $8.00) HE 621

The purpose of the study was to determine relationships between purpose in life and breast health behavior in Hispanic and Anglo women. Differences in purpose in life and breast health behavior between the two ethnic groups were also explored. Reliability and validity of the Purpose in Life test as amended in English and translated into Spanish was addressed. Beginning reliability and validity of the researcher-developed Breast Health Behavior Questionnaire was determined. Frankl’s (1963) concept of purpose in life and Leventhal and Johnson’s (1983) theory of self-regulation formed the theoretical framework for this study. The sample consisted of 40 Hispanic women and 40 Anglo women, age 20 and over, who attended a class at a
Xiong, Donald C. The development of the software for the Wellness Development Process, La Crosse Wellness project, 1998. M.P.H., University of Wisconsin-La Crosse (Gary D. Gilmore). (57 pp 1f $4.00) HE 623

Wellness Development Process software was developed based on the printed version to address the intervention and reinforcement components of the La Crosse Wellness Project as delineated by the AIR (assessment, intervention, reinforcement) framework by Gilmore (1979). The software was produced by utilizing Internet technology, a web page editor (FrontPage 98), JavaScript, and graphic tools (SmartDraw, Paint Shop Pro, and WWW Animation). The intent of the project was to develop a software package where participants after completing the La Crosse Wellness Inventory can engage in a user-friendly environment to explore and develop personalized action plans for their personal wellness enhancement. The software consists of 45 web pages and is divided into three parts. In the first section, participants are educated on wellness enhancement by exploring components of wellness, and selecting areas for enhancement. In the next section, participants establish a single wellness area for enhancement and proceed to producing a personalized action plan. The final section is used for the citation of additional materials and instructions. The product was peer reviewed by graduate students for clarity, visual effect, and practicality.

RECREATION


A total of 42 subjects were interviewed, 22 members of the Indianapolis Ski Club (ISC) and 20 ski resort administrators from National Ski Areas Association (NSAA) member ski resorts. Subjects were asked open ended questions designed to elicit a salient set of ski resort attributes. ISC subjects were interviewed using the Researcher Generated/Expert Judges methodology while NSAA ski resort administrators were interviewed using the Researcher Generated/Expert Judges methodology. Elicited ski resort attribute frequencies were calculated and subjected to the fifteen-percent rule. Attributes that passed the fifteen-percent rule were considered salient. All salient and non-salient attributes were presented to a jury of experts for review. A total of 72 ski resort attributes were elicited. Of these attributes, initially 45 were considered salient and 27 were considered non-salient. The jury of experts added nine ski resort attributes to the salient ski resort attribute list, bringing the total number of salient ski resort attributes to 54. The top 13 final salient ski resort attributes (mentioned by at least 50% of the sample) include: restaurant—nightlife, bars, entertainment—Apres ski—variety, mix of terrain, slopes—lifts, type of lifts, quality—town, village atmosphere, theme, attitude, flavor—cost, expense, rates, value—crowds, crowding, lines—snow quality, condition—vertical drop, vertical feet—shopping—type of lodging, accommodations—base, ski lodge, facilities—and size of resort, skiable acres, footprint.

Gustafson, Thomas F. The process of privatization of the public golf services in three major United States cities, 1996. Ph.D., Indiana University (Daniel McLean). (220pp 3f $12.00) RC 519

Administrators and employees of the golf service operations of three cities were interviewed to determine the political climate and economic conditions that led elected officials and recreation administrators of the cities to the conclusion that the golf services should be privatized, the process by which the cities privatized, the structure selected for privatized service delivery, and the effect on the administrators and employees of the privatization. The cities were selected for the divergent structures they selected. Support documents from each city were obtained to confirm and supplement information obtained in the interviews. Common elements in the privatization efforts of the three cities included the origination of the effort from the mayor’s office, committees formed to investigate options, and the potential for displacement of cities employees. The cities were dissimilar in the motivation for
privatization, the length of time from conception to fruition, the degree to which the daily decision making authority was removed from political influence, and the manner in which the issue of displaced employees was handled. It was determined that the economic motivation for privatization rather than political, greater separation of daily decision making from political influence, and protecting public employees contractually positively affected the outcomes and success potential of privatization of golf services.

Howden, Jeffrey B. *A funding plan for the renovation of the A.E. Finley Golf Course*, 1997. M.A., University of North Carolina-Chapel Hill (John Billing). (104pp 2f $8.00) RC 517

This study provided a financial assessment of the plans for the renovation of Finley by golf architect Tom Fazio. The study analyzed a funding plan for the estimated cost of construction and operational losses during a 19-month renovation period. This study detailed the financial arrangement for debt service and fundraising efforts to fund the total cost of the renovation project. The study also provided a Five-Year pro forma based on new operations. The total cost of the project is estimated to be $6.9 million. The study concluded that $2.0 million would be paid from debt service, while the remaining $4.9 million of the total cost will derive from fundraising efforts. The Five-Year pro forma projected $1.9 million in profits. The study concluded the renovation is a financially feasible project for the Department of Athletics and would have many benefits for the University of North Carolina.

Hsu, Chia-Lin K. *Motivations for participating in leisure activities between Chinese and American students*, 1998. M.S., Washington State University (Alan Bright). (85pp 1f $4.00) RC 516

This study examines differences in motivations for Chinese and American students for participating in recreation activities. Based on the assumption that Chinese and American has different cultural values, this study is specifically focusing on finding out whether Chinese students prefer different recreation activities than American students; and when the activity is the same as that chosen by American students, if their motivations for participating is different. The results indicate that 1) Chinese students appear to choose different recreation activities from American students for participating in active or passive recreation activities, but not for participating in natural resources or non-natural resource based recreation activities, and 2) Chinese students appear to have different motivation from American students for participating in natural resource based recreation activities. Moreover, there appear to be no different motivation for Chinese and American students to participate in non-natural resource based and active activities.


Senile Dementia of the Alzheimer’s Type (SDAT) is a debilitating disease that has detrimental effects on those who are diagnosed with it and on their families. Many facets of familial life are impacted and it has been emphasized in the literature that leisure pursuits is one of these. Those who acquire the disease are no longer physically or mentally capable of maintaining prior activity levels. Also, caregivers and other family members are no longer able to engage in preferred activities because of what is required of them to care for their relative. Leisure activities become lost despite their important role in the maintenance of family cohesion. This loss, along with many other stresses that the family experiences, generally forces families to seek an alternative to care. The end result is having to place their relative in a nursing home which is a difficult adjustment for the family. The purpose of this investigation was to examine the leisure experiences and adjustments that family members have encountered as a result of having a relative with SDAT. An emphasis was put on how the disease has impacted participation in leisure activities and how family members perceive these experiences and adjustments as affecting the family unit. Family members were given the opportunity to tell their story as they traced their past, present and anticipated future experiences with their relative. Their stories provided the researcher with an understanding of what family members have gone through and how and if leisure activities could be regained and used to enhance familial interactions. The method employed to elicit this information was a semi-structured, face-to-face interview. Questions pertained to past, present and anticipated future experiences. Four family members who have a relative diagnosed with SDAT residing in a nursing home presented their stories in the form of a narrative that depicted the experiences and leisure adjustments they have experienced and may endure. Narrative analysis was used as a way to emphasize the core narratives that truly reflected family member’s experiences as they perceive them. These narratives, highlighted from each interview, were presented separately for each participant and traced their experiences and leisure adjustments from the time prior to their relative being diagnosed with SDAT to the present as well as their perceptions of what the future holds. Each participant presented a unique story. Not all of these individuals experienced the same things but indicated that they are presently having difficulty visiting their relative within the home due to the change in relationship with their relative, feelings of guilt about their decision to seek nursing home placement or about not being able to visit frequently, problems in communicating with their relative and for some, problems in communicating with staff. All expressed
a desire to be able to make their visits with their relative more enjoyable and participants expressed that leisure may be a way to make this possible. Participants indicated that they would like to play a more active role not only in their relative’s life but within the nursing home as well. The findings of this investigation provided many implications for what professionals, who deal with families who are experiencing the difficulties of having a relative with SDAT, can offer to families. Implications arose as well for what leisure professionals within the nursing home can provide to allow families to either regain leisure activities or modify and adapt those activities that provided the family enjoyment. The family needs to feel included and involved in continuing to maintain the well being as well as their own sense of well being. Leisure may be a way of maintaining this and with guidance from professionals, family members may feel empowered to do so.

Mak, Yuen Ming J. A statistical profile of doctoral students in recreation, park, tourism, and leisure studies in the United States, 1998. M.S., Indiana University (Lynn Jamieson). (114pp 2f $8.00) RC 520

This two-phased study first identified the statistical profile of doctoral students in the fall of 1997. It then examined the differences between this statistical profile and Crompton’s profile of doctoral students in the fall of 1989. Data was collected from 15 out of the 17 department chairs of U.S. programs offering doctoral degrees in recreation, park, tourism, and leisure studies by using a mailed questionnaire. The data were analyzed using descriptive analysis and Chi-square tests. Significant differences were found in the stipends paid to the doctoral students; the tuition status; and the type of Master’s degree held by doctoral students between fall 1989 and fall 1997. No significant differences were found in the number of doctoral students enrolled in the five specialty areas (administration, tourism, leisure behavior, therapeutic recreation, and outdoor recreation); gender distribution; and nationally distribution between fall 1989 and fall 1997. Implications were discussed for educators, administrators, students, and policy makers. Several recommendations for further research are provided. The present study should be replicated every four years, which is the average length of time toward completing a doctoral degree.

Snyder, Margaret A. The relationship between sensory stimulus and leisure memory, 1997. M.A., Dalhousie University (Jerome F. Singleton). (147pp 2f $8.00) RC 521

Leisure has been examined from a variety of perspectives: social, social psychological and psychological perspectives (Mannell, 1983, Iso Ahola, 1980; Kaplan, 1975). The examination of leisure has often focused on the frequency of participation from an androcentric perspective. A variety of authors have recently examined how women perceive leisure (Bialeski & Henderson, 1986; Henderson, 1994). Other authors have examined the context of a leisure experience rather than the frequency of involvement (Harvey & Singleton, 1995). Various authors have examined leisure memory using reminiscence (Tabourne, 1991; Weiss, Blake & Kosciansher, 1991). How the senses affect a leisure memory has not been examined. The purpose of this study is to examine how sensory stimulus affects leisure memory. Oral sources of information will be used in this study to explore the question: Does the presentation of a positive aroma enhance the leisure memory of older women? This method will allow the gathering of retrospective and contextual information about the role of instant sensory stimulus on memory’s imprint. The data will be derived through the words spoken, the intonation and the body language of the subjects. This research will allow for a better understanding of the interaction between present sensory stimuli and leisure memory of the senior woman, and at the same time open up an increased awareness of memory’s role in living more fully in the senior years.

Wang, Li-Shaun L. Destination image of Taiwan as an international tourism destination, 1998. M.A., Washington State University (Edward Udd). (94pp 1f $4.00) RC 522

Destination image has been an area of interest in the recreation and tourism field. Some research has dealt with the measurement of destination image and has explored the importance of destination image in the decision-making process of tourists. However, there is little research which studies about the relationship of image perception and familiarity, previous travel experience, distance of resident country and likelihood of future visit. This study attempted to examine the destination image of Taiwan as an international travel destination among college students. The testing of the relationship between image perception and gender, nationalities, familiarity, international travel experience and the likelihood for a future visit were applied. In order to decrease the consuming of time and money, e-mail method was used and the influence of the e-mail research results was also tested. The key findings of this study indicate that there are significant differences on image perception of Taiwan among different nationalities, travel experience, awareness and likelihood of travel in the future. As a result, recommendations for enhancing the promotion strategy for Taiwan’s tourism industry are proposed according to the differences in image perception. This study contributes to the existing literature in destination image measurement by introducing the evaluative approach of image influence factors. This study also contributes to the existing knowledge of mail survey and introduces e-mail as a distribution method. From the viewpoint of the tourism industry, the findings will aid the planning of marketing programs with further understanding of the image of Taiwan.
PSYCHOLOGY

AGGRESSION


The purpose was to determine current perspectives of aggression in professional ice hockey players. Subpurposes included: (1) examining player perceptions of the causes and antecedents of aggression, and (2) player perceptions of the aggression-performance relationship. A heuristic model of aggression and performance in ice hockey was developed from previous research and used to formulate an aggression-performance survey. Comparisons to past research (M. Smith, 1979, 1983) revealed minor differences between former players and contemporary players. An examination of the overall level of aggression showed that participants perceived their play as more aggressive than league counterparts. Illegal stick work was viewed as a dangerous and unwanted part of the game. However, contemporary players do not want to see the removal of fighting from the game. The causes and antecedents most significantly related to self-perception of aggression were frustration and the social organization of hockey. Players perceived that scouts and coaches reward aggressive behavior, players receive recognition for being aggressive, and aggression is needed to move up the ranks.

Social learning was perceived as the predominant factor associated with aggression. A major finding was that the majority of players perceive that aggression enhances individual and team performance. Player perceptions of how aggression influences performance included protecting “star” and “finesse” players, energizing collective effort, strengthening team bonds, and increasing a player’s focus and involvement. The major limitation of this study is the confusion over the ways players use the term aggression (as not involving harm) versus its scientific use (intent to harm). Future research needs to sample larger numbers of professional players, develop more powerful designs, and clarify what behaviors are aggressive. Applied research also needs to study intervention effectiveness of mental skills on controlling aggression. Practical implications of aggression-performance research include: the need to implement aggression control interventions at the youth level before players acquire aggressive behaviors, sport psychologists intervening with mental skills training to control aggression, and including aggression control in coaching education clinics.

Riley, Devin B. Differing levels of aggression and extraversion across the five categories of United States Cycling Federation (USCF) riders, 1998. M.S., Ball State University (Valerie Wayda). (42pp 1f $4.00) PSY 2007

Prior research involving cycling, aggression, extraversion, and skill level is dated and limited. This study attempted to measure the levels of aggression and extraversion in each of the five categories of USCF riders to determine if personality differences existed between the different skill levels. Specifically, what proportion of extraverts versus introverts exist in each skill level and do personality characteristics and skill level effect the occurrence of aggression? Modified versions of the Aggression Inventory (AI) and the 55 Bipolar Rating Scale (55-BRS) were used to assess the subjects’ tendencies to use aggression and personality characteristics. Results showed that no category has a particular concentration of either personality characteristic, indicating that the proportion of extraversion/introversion did not increase or decrease with increasing category levels. The results also showed a significant main effect for personality, where extraverts were significantly more likely to use verbal aggression and introverts were more likely to use avoidance techniques to avoid aggression.

ATTITUDES AND VALUES


The purpose of this study was to develop an instrument to assess middle school students’ attitude toward physical education, to provide psychometric evidence of validity and reliability of the instrument, and to demonstrate further evidence of construct validity of the attitude instrument employing a qualitative technique (student interviews). This study was conducted in multiple phases. The preliminary study involved 589 participants in three middle schools. Participants for the first and second elicitation study were 110 and 48 middle school students respectively. The pilot study utilized a convenient sample of 33 participants (grades 4-7) from a summer Sports Fitness Program. Participants for the content validity study were 35 experts in physical education pedagogy. The reliability and validity study involved 995 participants from three middle schools. Twelve participants who were randomly selected based on their observed scores (above 90th and below 10th percentiles) from the reliability and validity study participated in the qualitative investigation (student interviews). The preliminary study did not provide conclusive results. Two primary factors were extracted from the first elicitation study: enjoyment and usefulness. Three primary subfactors (PE teacher, curriculum, and peer) emerged from the second elicitation study. Results from the pilot study were used to revise the attitude instrument. The percent agreement (inter-item) among the experts for the revised attitude instrument was
participating in intercollegiate athletics. A multiple-linear regression test explored the relationships with attitudes of expressed toughness, irrational decision-making, and pressures to play with pain and/or injuries. The questionnaire consisted of 15 multiple choice questions and 31 statements rated on a 4-point Likert Scale. Data was randomly collected from 334 athletes during the 1997-98 academic year, representing a large Division I institution (i.e., 24,000 students) consisting of 28 sports. Data analysis was delimited to athletes who were unable to compete or practice for at least five consecutive days, therefore reducing imagined injury experiences. Gender found significant relationships with two of the three attitudes.

**BEHAVIOR ANALYSIS**

Diatelevi, Michael P. *An examination of the relationships between coaching behaviors, sport confidence, and motivational orientation*, 1998. M.A., University of North Carolina-Chapel Hill (Diane E. Stevens). (160pp 2f $8.00) PSY 2022

Although a tremendous amount of research has been conducted on coaching behaviors, few have examined the effect these behaviors have on an athlete’s level of confidence and his or her motivational orientation. The present study examined the relationship between these constructs. In addition, an exploratory analysis was conducted regarding demographic differences with respect to the perceived coaching behaviors of the newly developed Coaching Behaviors Scale (CBS; Côté, Yardley & Hay, 1997). The moderating effects of these variables on the relationships between coaching behaviors, confidence and motivation were also examined. Significant differences were found with respect to gender, sport type, and ability. Coaching behaviors as a whole were found to be predictive of extrinsic motivation in athletes. Results indicated limited success with respect to coaching behaviors predicting sport confidence. Moderating effects of various demographic variables on the relationships between coaching behaviors, confidence, and motivational orientation were not found. Applications of the current research and recommendations for future coaching behavior research are discussed.


Through the increased attention the psychology of injuries has received within the field of sport psychology, it has been observed that there is a high incidence of minor injuries in competitive athletes combined with a pressure to ignore those injuries, resulting in athletes competing with injuries. However, the psychological effects of competing with injuries have not been examined. The purpose of this investigation was to examine how short-
term injuries affect psychological readiness for competition, specifically state anxiety and self-efficacy, and the subsequent performance. Four hypotheses were examined to study this overall relationship: (1) when athletes are injured, they will experience more pain; (2) when athletes are injured, they will experience a decrease in mental readiness for competition, as expressed through an increase in cognitive anxiety and somatic anxiety and a decrease in self-efficacy and confidence; (3) the presence of an injury will result in a decrease in performance; and (4) a comprehensive test of the relationship between all specified variables will show that when athletes are injured, they will experience an increase in pain, a decrease in mental readiness, and a decrease in performance. Participants were 13 members of a NCAA Division I women’s gymnastics team. CSAI-2 and self-efficacy scores were determined prior to each of the 13 meets during the competitive season. The judges scores and athletes’ subjective ratings were used to assess performance. Tables are utilized to compare injured and uninjured anxiety, self-efficacy, and objective and subjective performance scores. Anxiety, self-efficacy, and performance are further discussed in relation to the athletes’ ratings of injury severity and pain. The results of this study are discussed in relation to current research. Limitations of this study are discussed and future research directions recommended.

Michael, Stacy L. The taper in swimming: the differences in mood states of male and female swimmers during variations of training, 1998. M.S., Springfield College (Mimi Murray). (114pp 2f $8.00) PSY 2029

Changes in mood states are often indicators of overtraining and staleness, and may signal how well an athlete will perform in an upcoming competition. The study was designed to determine if male and female collegiate level swimmers responded differently to changes in training volume across a competitive swim season. The athletes completed the Profile of Mood States questionnaire (POMS) (McNair, Lorr, & Droppleman, 1971) on three occasions during the swim season: the beginning of the season (baseline yardage), the middle of the season (high yardage), and the end of the season (the taper). A 2 x 3 repeated measures multivariate analysis of variance (MANOVA) was used to evaluate the data. The main effect for assessment occasion was significant (p < .05); however, no significant (p > .05) difference was found for gender, and no significant time/gender interaction was found. A significant (p < .05) linear trend was found for the ‘fatigue-inertia’ subscale across the three assessment occasions whereby the scores decreased across all three assessments. A significant quadratic trend was found for ‘tension-anxiety’, with the scores decreasing during high yardage and increasing during the tapering period. A 2 x 3 ANOVA was used to analyze Global Mood scores. No significant (p > .05) differences were found across time period or gender, and no significant time/gender interaction was found. The decreases in ‘fatigue-inertia’ scores during the taper may indicate that the athletes were tapering appropriately, while the increase in ‘tension-anxiety’ may represent nervousness about an upcoming meet, or may suggest that the athlete was not satisfied with the taper experience.

MOTOR LEARNING AND CONTROL

Angulo-Kinsler, Rosa M. Exploration and control of leg movements in infants, 1997. Ph.D., Indiana University (Beverly D. Ulrich). (188pp 2f $8.00) PSY 2031

I used a biofeedback system to evaluate the joint movements of 3-month-old infants in real-time. In 3 experiments, I set the computer to discriminate a specific leg movement as the motor task infants had to discover to receive the reinforcement from a mobile. In Experiments 1 and 2 the tasks were to cross 85 degree knee flexion and 35 degree knee extension, respectively. The task in Experiment 3 was to produce coordinated hip and knee extensions. The results from 14 infants in Experiment 1 showed that infants did not significantly increased their leg kick frequency to make the mobile move. Infants demonstrated distinct motor solutions. These results indicate that infants are capable of discovering narrowly defined motor solutions and that depending on their individual characteristics, they select different solutions. In contrast, almost all infants in Experiment 2(14/16) increased their leg kick frequency showing only one strategy to solve the motor task. These results suggest that knee extension is a more difficult task than knee flexion. The results from Experiment 3 showed infants were capable of selectively increase their frequency of coordinated hip and knee movements to make the mobile move, suggesting that infants are sensitive to intralimb coordination task requirements.


The study was designed to determine the relationship between kinesthetic sense and the ability of participants to replicate a multijoint movement sequence. The participants were right-handed males and females between 18 and 35 years old with full range of motion in the right shoulder, elbow, and wrist joints (N=22). Kinesthetic positional sense was assessed at the shoulder, elbow, and wrist according to the accuracy participants maintained while attempting to reproduce target joint angles. Movement sequence consistency was analyzed based upon how accurately a movement pattern could be replicated. Digitized video images were used to acquire kinematic data. The mean error of
kinesthetic positional sense was correlated with the mean error in multijoint movement consistency. The correlation between the mean error of kinesthetic positional sense and the mean error in multijoint movement consistency was significantly (p<.01) > zero. The more accurately a participant performed in kinesthetic testing, the more consistently they reproduced the movement pattern kinematics. The results of this investigation are indicative of a link between the level of performance of multijoint movement sequences and the positional sense within the joints involved in the movement sequence.


The purpose of this study was to establish baseline data regarding the contributions of the vestibular, visual, and somatosensory systems during quiet stance, and the characteristics of the muscular response patterns during perturbed stance in chicks. It was found that elimination of visual and somatosensory information from muscle spindles and cutaneous receptors along the legs increased sway significantly. However, elimination of both caused significantly more body sway than taking away either individual sensory input. In response to the platform perturbations, chicks showed sway mainly at the tarsometatarsus and ankle joints and muscle contractions that commenced in the ankle joint muscles and radiated in a distal to proximal sequence to the thigh muscles on the same dorsal or ventral aspect of the body. Muscle responses were of similar latencies in chicks and humans when the relative size of the two species was taken into account.

Leslie, P. J. *The effects of video-computerized feedback on competitive state anxiety, self-efficacy, effort, and baseball hitting-task performance*, 1998. M.S., University of North Texas (James R. Morrow, Jr.). (112pp 2f $8.00) PSY 2037

The purpose of this study was to examine the effects of frame-by-frame video computerized analysis feedback on competitive state anxiety, self-efficacy, effort, and baseball hitting-task performance of high school baseball players. The top nine and then the remaining players were randomly assigned to one of three feedback conditions: (a) Hitting-Task score, (b) Hitting-Task score and frame-by-frame analysis of a mechanically correct baseball swing, (c) Hitting-Task score and frame-by-frame analysis of participant’s baseball swing accompanied with a mechanically correct baseball swing. Once per week for six weeks, the athletes completed three questionnaires: (a) Hitting Self-Efficacy Scale, (b) Competitive State Anxiety Inventory-2C, and (c) Performance Effort Scale, and performed a baseball hitting task. Results from a series of 3 (Group Assignment) x 6 (Trials) ANOVAs revealed no significant relationship between the use of frame-by-frame analysis and competitive state anxiety, self-efficacy, effort, and baseball hitting-task performance. This study compares unfavorably to previous confidence-baseball hitting research.

Lin, Sang-I. *Adapting to dynamically changing balance threats: differentiating young, healthy older adults and unstable older adults*, 1997. Ph.D., University of Oregon (Marjorie Woollacott). (140pp 2f $8.00) PSY 2033

The maintenance of upright standing following dynamically changing postural disturbances relies on the individual’s ability to detect body displacement, select response strategy and carry out motor commands from the central nervous system. This ability frequently deteriorates with aging and may result in instability. This study explored the characteristics of postural responses to body sway induced by support surface translations of various magnitudes and velocities, and examined the relationship between postural response characteristics and the level of function of the muscular and somatosensory systems tested with a clinical approach, in young adults, older adults with good balance and older adults with poorer balance, compared to young adults. Older adults with good balance showed delayed postural muscle offset latencies following small perturbations and smaller muscle response amplitude following large perturbations, compared to young adults. Older adults with poorer balance were found to show delayed muscle onset latencies, reduced muscle response amplitudes and increased percentage of voluntary contraction capacity utilization following both small and large perturbations. The increment in postural muscle response amplitude to increasing size of postural threats was also found to be smaller in both groups of older adults. Following postural perturbations, older adults with poorer balance tended to use the behavioral responses used by stable older adults following less challenging balance threats. Increased hip motion and greater peak shear forces during smaller perturbations, more frequent use of non-stereotypical response patterns during large perturbations, and an overall delay in stabilizing the center of pressure characterized the response patterns of older adults with poorer balance. These changes in postural response characteristics and functional balance ability were related to the function of the muscular and somatosensory systems: poorer functional stability, slower/smaller postural muscle response, and increased hip motion during balance recovery were related to declines in the function in the muscular and somatosensory systems. These findings suggest that while some of the changes in postural responses in the elderly are due to deterioration in the muscular and somatosensory compo-
nents of balance control, other changes could be adaptive mechanisms used by older adults to compensate for constraints in their response capacity.


Functional instability of the ankle has been found to increase the incidence of injuries to the ankle, and attention towards finding an effective and efficient means of rehabilitation for this problem has become necessary. The purpose of this study was to evaluate the effectiveness of three different ankle training programs on improving neuromuscular control of the ankle, allowing subjects to stabilize themselves more efficiently following functional tasks. Another purpose was to examine the effectiveness of the three different ankle training programs on postural control in single limb stance. Statistical analysis revealed that although the functionally unstable ankles involved in training showed significant improvement as a group, none of the training approaches were found to be significantly more beneficial than the others. On the other hand, it was found that a proprioceptive training approach improved single limb stance scores significantly in relation to the other two groups. Our results indicate that each approach to training functionally unstable ankles has its benefits and should be considered as a possibility when designing a rehabilitation program for the functionally unstable ankle.


It has been theorized that decreased proprioception and neuromuscular control of a joint may increase one's risk to injury. The purpose of this study was to determine what effect fatigue has on proprioception and neuromuscular control of the shoulder. Thirty-two normal, physically active, college students were randomly placed in one of four groups (control, closed kinetic chain exercise, dumbbell open kinetic chain exercise, and proprioceptive neuromuscular facilitation exercise). Subjects were pretested to measure Active Angle Reproduction (proprioception), Single Arm Push Up Position Test (neuromuscular control), Peak Torque Production (strength), and the Functional Throwing Performance Index (functional performance). After performing 5-weeks of exercise for their specific group the subjects performed posttests to determine if exercise affected these variables. Statistical analysis revealed no significant changes in strength, proprioception, and neuromuscular control for all groups. Functional performance was significantly affected for proprioceptive neuromuscular facilitation exercise subjects at posttest. Additional statistical analyses were performed to determine the relationships between proprioception and neuromuscular control, and also functional performance with strength, proprioception, and neuromuscular control. A significant relationship was only revealed for functional performance and various measures of strength. The results of this study indicate that none of the exercises performed over a 5-week period have an effect on strength, proprioception, and neuromuscular control. Functional performance was affected in those subjects performing proprioceptive neuromuscular facilitation exercise.


The purpose of this study was to determine the effect of three different methods of exercise on strength, proprioception, neuromuscular control, and functional performance of the shoulder. Fifty-four normal, physically active, college students were randomly placed in one of four groups (control, closed kinetic chain exercise, dumbbell open kinetic chain exercise, and proprioceptive neuromuscular facilitation exercise). Subjects were pretested to measure Active Angle Reproduction (proprioception), Single Arm Push Up Position Test (neuromuscular control), Peak Torque Production (strength), and the Functional Throwing Performance Index (functional performance). After performing 5-weeks of exercise for their specific group the subjects performed posttests to determine if exercise affected these variables. Statistical analysis revealed no significant changes in strength, proprioception, and neuromuscular control for all groups. Functional performance was significantly affected for proprioceptive neuromuscular facilitation exercise subjects at posttest. Additional statistical analyses were performed to determine the relationships between proprioception and neuromuscular control, and also functional performance with strength, proprioception, and neuromuscular control. A significant relationship was only revealed for functional performance and various measures of strength. The results of this study indicate that none of the exercises performed over a 5-week period have an effect on strength, proprioception, and neuromuscular control. Functional performance was affected in those subjects performing proprioceptive neuromuscular facilitation exercise.

Rankin, Julie K. *A neuromuscular analysis of the influence of a cognitive task on postural stability in young and older adults*, 1998. M.S., University of Oregon (Marjorie Woollacott). (105pp 2f $8.00) PSY 2038

The purpose of the study was to investigate the effect of a cognitive task on the neuromuscular response characteristics underlying reactive balance control in young vs. older adults. The attentional demand on the neuromuscular system was examined by analyzing the EMG activity while performing a dual task paradigm. The primary task involved standing platform perturbations and the secondary task was a math task that involved subtraction by threes. Combined EMG data for young and older adults showed a decrease in muscle response amplitude of both
agonist (GA) and antagonist (TA) muscle when performing the cognitive math task. This was apparent at 350 500ms from plate onset for the GA and between 150-500ms for the TA. An age x task interaction effect was also seen in muscle response amplitude for the (GA) muscle between 350-500 ms time interval, with older adults showing a significantly greater reduction in muscle amplitude than young adults.

MOTIVATION


A sport psychology manual was created for new soccer coaches. The intent of the manual was to provide a resource for coaches of high school soccer. The manual had a special emphasis on coaching females, yet could be used by coaches of all sports, both genders. The manual contains five topics: Coaching females, goal setting and motivation, competition anxiety and coping techniques, problematic athletes, and communication and team cohesion. Five high school soccer coaches, five college soccer coaches, and two sport psychologists evaluated the manual. The results were supportive and the evaluators believed that there is a definite need for a sport psychological manual for all levels of coaches, not just at the high school level.

Cardinal, Jeffrey S. Effects of coach interactions on college soccer players’ behavior and perception., 1998. M.A., San Jose State University (Susan Wilkinson). (124pp 3f $8.00) PSY 2015

The purposes of the study were to determine the effects of a coach’s verbal interactions on athlete effort as measured by motor skill engagement, to determine which goal orientation(s) the coach encouraged and if the coach provided equitable motivation to all types of athletes and to determine coach’s and athletes’ perceptions of the coach’s verbal interactions. Data were reported for 1 coach and 25 athletes who finished the season. Despite the coach’s focus on positive interactions and its relationship to motor skill engagement, nonstarter task athletess were able to achieve high levels of motor skill engagement with less positive coach interactions. The coach was found to encourage a task oriented environment. There were mixed results as to the accuracy of the coach’s perception of his actual behaviors and the athletes’ perception of the coach’s behaviors. In particular, the nonstarter athletes generally had a different perception of the coach’s behaviors.

Ferrer Caja, Emilio Determinants of intrinsic motivation among female and male adolescent students in physical education, 1997. M.S., University of Oregon (Maureen R. Weiss). (265pp 3f $12.00) PSY 2035

This study examined the relationships among social-contextual factors, individual differences, intrinsic motivation, and physical activity behaviors in the physical education context using cognitive evaluation theory as a framework. Female (n = 201) and male (n = 206) high school students completed measures of motivational climate, teaching style, perceived competence, self-determination, goal orientations, and intrinsic motivation. Teachers rated the students on effort and persistence in the class activities. Hypothesized relationships among the variables were tested using structural equation modeling. Results revealed that individual factors exerted direct effects on intrinsic motivation and mediated the effects of social-contextual factors on intrinsic motivation. Intrinsic motivation was directly predictive of effort and persistence. Although, for females, all the paths were significant, some of the paths for males were not significant. Results suggested that both individual differences and social-contextual factors are important determinants of intrinsic motivation in high school-age physical education students.

Gammage, Kimberley L. Validation of the revised exercise motivation questionnaire and examination of the relationship between motivation and adherence, 1998. M.A., University of North Carolina-Chapel Hill (Diane E. Stevens). (180pp 2f $8.00) PSY 2023

Exercise has numerous psychological and physical benefits, yet the participation and adherence rates are poor. Exercise motivation exercise is poorly understood, in part because there is no instrument that can adequately assess exercise motivation. The present study was designed to validate the Revised Exercise Motivation Questionnaire, and to examine the relationship between motivation and adherence. Subjects included 372 students enrolled in undergraduate classes in the physical education department. Exploratory factor analysis yielded 7 interpretable factors representing intrinsic motivations (Enjoyment, Health and Fitness, and Psychological Benefits) and extrinsic motivations (Affiliation, Preventative Health, Self-Presentation, and Weight and Appearance), to exercise. Acceptable internal consistencies and test-retest reliabilities were found for all subscales. High adherers were differentiated from low adherers on all subscales but Weight and Appearance. High intrinsic-high extrinsic and high intrinsic low extrinsic individuals reported higher adherence than low-intrinsic-high extrinsic and low-intrinsic-low extrinsic individuals. Men exercised more for Affiliation and Enjoyment purposes, while women exercised more for Weight and Appearance. Enjoyment and Health and Fitness were able to predict adherence.
**SELF-CONCEPT**


The purpose of this study was to compare the effects of two instructional styles (socially-enriched versus bland instruction styles) in a group exercise class on participants’ exercise-induced feeling states and self-efficacy measures. Twenty-one college-aged men and women participated in a single session of group exercise that contained either a socially-enriched or bland environment created by the instructor of the session. Prior to and immediately after the group exercise session the participants completed a group exercise-efficacy scale and an Exercise-Induced Feeling Inventory. Analysis of the data, using descriptive and inferential statistics, found that independent of instructional style self-efficacy measures had a significant increase from pre- to post- scores (alpha=.05). When comparing the two environmental conditions, analysis of the descriptive statistics showed that participants of the socially-enriched environment experienced greater increases in self-efficacy and positive feeling states than participants of the bland environmental condition. Further analysis using inferential statistics revealed that these differences were not significant (alpha=.05), which may be due to a small sample size.


This research explores the processes by which people struggle to reconstruct their self-identities (and lives) following a traumatic brain injury. Explanations regarding the ways individuals incorporate meanings from their experiences into their view of themselves following their injury are sought. It is theorized that people reconstruct their self-identities through the stories they tell themselves and others to make sense of how they have changed as a person, and where these changes fit within their evolving life story. The role that leisure plays in this restorying process is studied. The question that guides this inquiry is: *What is the nature of the changes that take place in individual’s explanatory models of their self-identity in relationship to their acquired disability, and in relationship to the role that leisure may play in the restorying process?* Eight people with a brain injury were interviewed to gather storied recollections about experiences which served as ‘turning-points’ in the construction and reconstruction of their self-identities before and after their accidents. Three predominant identity views emerged from the stories told as the outcome of the processes undertaken by individuals as they renegotiated their relationships, recast their roles and re-created their selves post-injury. Differences apparent among the three views revealed the ‘identity work’ necessary to effect change in one’s self-identity following traumatic injury. Identity work is what people think and do that influences self-identity reconstruction. Each factor which influences identity change is a dialectic; serving either to facilitate or undermine satisfactory identity reconstruction and taken together can significantly alter the resulting identity view that is formed. A model of self-identity reconstruction is proposed, whereby actions together with restorying enable the integration of meanings from experiences into one’s identity view. The restorying that accompanies the experiencing of one’s self in any context, but most powerfully in leisure, is presented as the mechanism by which identity reconstruction can most successfully occur.

Magyar, Tina M. *Temporal impact of goal orientations, perceptions of social support and sources of self-efficacy on efficacy restoration from athletic injuries*, 1998. M.S., Purdue University (Joan Duda). (122pp 2f $8.00) PSY 2013

The purpose of this study was to assess the impact of injured athletes’ goal orientations, perceptions of social support, and sources of self-efficacy on the process of efficacy restoration from athletic injury. Efficacy restoration was defined as the amount and rate of change in self-efficacy during rehabilitation that restores one’s self-efficacy beliefs to a level in which the individual can return to competition. Participants in this study were forty male and female intercollegiate athletes ages 18 to 24 years. All of the athletes sustained a sport-related injury that required a minimum of one week of physical rehabilitation. Participants completed the Task and Ego Orientation in Sport Questionnaire (Duda, 1992), the Social Support Questionnaire (Duda et al., 1989), the Sources of Sport-Confidence Questionnaire (Vealey, Walter, Garner-Holman & Giacobbi, 1998) and the State Sport-Confidence Inventory (Vealey, 1986). All measures were completed within the first two days of rehabilitation and the SSQ, SSCQ, and SSCI were completed during the middle of rehabilitation, and the day before returning to practice/competition. Multiple regression analyses indicated that the adoption of task-involved goals in sport and perceptions of social support significantly predicted the selection of adaptive sources of self-efficacy in rehabilitation. Perceived social support, past performance and environmental sources of self-efficacy in rehabilitation, and previous judgements of efficacy restoration significantly related to subsequent ratings of confidence about returning to practice and/or competition following injury.

Global self-concept has been conceptualized as having several component parts (Shavelson, Hubner, & Stanton, 1976). Among the facets that may contribute to an individual’s overall self-concept are academic, physical, and social self-concept. The current study assessed the ability of an individual’s academic self-concept, athletic identity, gender, sport participation status, and global self-esteem to predict for academic performance (measured by GPA) in 126 undergraduate students. Academic self-concept and global self-esteem were found to be statistically significant predictors of GPA. Gender, athletic identity, and sport participation type failed to statistically significantly predict for GPA. An alpha coefficient of .90 was obtained for the Athletic Identity Measurement Scale (Brewer, Van Raalte, & Linder, 1993), demonstrating good internal reliability for the instrument. Results of the current study indicate that multidimensional self-concept theory appears to have some merit as a method of explaining at least one measure of collegiate academic performance, although future research will be necessary to further expand the knowledge base surrounding the theory.


A total of 156 YMCA Program Directors from Indiana, Iowa, Illinois, and Nebraska responded to a task specific and general Self-efficacy scale. This modified scale was used to assess the general and task specific self-efficacy of YMCA Program Directors. Information regarding supervisory skill and management tasks was collected, along with demographics such as, length of employment, level of education, and number of employees the Program Director supervises. In the analysis of the data, two separate 3x3 ANOVAs were calculated to test the hypotheses “there is no significant difference in YMCA Program Directors' self-efficacy with respect to the respondents' 1) years of experience and 2) number of employees they supervise.” There was a significant difference in the number of employees supervised and general (F=4.01, p=.020) and task specific (F=7.81, p=.001) self-efficacy. There was no significant difference between years of YMCA supervisory experience and general (F=2.45, p=.090) and task specific (F=.088, p=.419) self-efficacy. The findings reported that YMCA Program Directors who supervise a large number of employees have greater reported self-efficacy than those who supervise a small number of employees.


This thesis analyzes self talk and self-confidence with female tennis players. Qualitative methods were utilized for data analysis. Participants were three female tennis players from a west coast university. Interventions such as, self talk, progressive muscular relaxation, and diaphragmatic breathing were taught to participants during a 20 minute interview. A reflective journal following a structured format was employed. Participants were instructed to record entries for each practice/match for a period of one month. The results indicated that participants’ self-confidence and performance increased over the course of the intervention period. This study adds to the body literature on self talk, self confidence, women in sport, and qualitative data analysis.

Vogel, Amanda E. “Body image by association”: women’s interpretations of aerobics and the role of the fitness instructor, 1998. M.A., University of British Columbia (Lucie Thibault). (156pp 2f $8.00) PSY 2027

The increasingly popular fitness industry targets members of the middle-class who are anxious to lose weight, “tone-up” and “look great” (Hargreaves, 1994; Markula, 1995; Thompson & Hirschman, 1995). Studies on women and body image consistently show that many active women express a multitude of concerns over their physical appearance (cf Davis & Cowles, 1991; Markula, 1995). The aerobics class, an instructor-led, exercise-to-music workout, is a form of exercise frequented mainly by women (Crawford & Eklund, 1994; Kagan & Morse, 1988). The rise in popularity of aerobics during the 1980s posed the possibility for an arena where women could enjoy being active and becoming physically fit. However, many researchers consider aerobics, as it has developed into the 1990s, to be representative of stereotypical ideologies of femininity and ideal beauty (Cole, 1993; MacNeill, 1990; Valdes, 1995; White, Young & Gillett, 1995). Other researchers believe there is still room for the empowerment of women and body image satisfaction in aerobics (Haravon, 1995; Markula, 1995). Research which examines body image in the context of aerobics as a distinct exercise and social setting, particularly with a focus on the role of the fitness instructor, is largely absent from the literature. On one hand, the instructor’s appearance and discourse can be influential in reinforcing cultural standards of an ideal female body among aerobics participants (Kagan & Morse, 1988; Kenen, 1987; Valdes, 1995). On the other hand, some researchers have suggested that the instructor has the potential to focus participants’ attention away from weight loss and appearance enhancement in aerobics (Frederick & Shaw, 1995; Haravon, 1995; Kagan & Morse, 1988). Some empirical evidence also suggests participants express resistance to, and disapproval of the messages and actions of their instructors (Bain, Wilson & Chaikind, 1989; Haravon, 1995; Valdes, 1995). The purpose of this study was to examine how female aerobics participants and female fitness instructors interpreted the role of the instructor and how this role related to the body image experiences of participants. The research methodology was qualitative in nature and relied on multi-modal data.
collection techniques: unobtrusive observations and one-on-one interviews. Observations focused on the actions and appearances of instructors and participants, comments made by instructors and the interactions between participants and instructors. Semi-structured interviews were conducted with volunteers from a popular Lower Mainland fitness facility: female aerobics participants (n=10), female fitness instructors (n=3) and the director of the aerobics program. A computer program designed to manage and organize large amounts of qualitative data was employed for data analysis. Results from this study indicated that both participants and instructors constructed personal meanings for their involvement in aerobics. Further, the impact of the instructor’s role on the body image experiences of participants was multi-dimensional. Instructors who emphasized appearance and weight loss in aerobics offended some women and inspired others. Certain women preferred an instructor who resembled an image consistent with media representations of a fit female body while others resisted this stereotypical look and sought an instructor with a larger, more athletic build. This study contributes to an understanding of the role of the fitness leader and how this role impacts the body image experiences of women who are active in the aerobics.

Whaley, Diane E. An investigation of possible selves across stages of exercise involvement with middle-aged women, 1998. Ph.D., Oregon State University (Vicki Ebbeck). (123pp 2f $8.00) PSY 2041

In order to develop effective interventions designed to encourage more middle-aged individuals to engage in regular exercise, there is a need to further understand the mechanisms involved in the decision to exercise. One appropriate conceptual framework involves future-oriented self-conceptions, or possible selves (Markus & Nurius, 1986). Possible selves, both hoped-for and feared, have been shown to vary over the lifespan in content and number (Cross & Markus, 1991), and to be predictive of future health behaviors (Hooker & Kaus, 1992,1994). The role of possible selves in the exercise context can be explored using the Stage of Change Model (Prochaska & DiClemente, 1983), which identifies participation as a process consisting of five identifiable stages. The purpose of this study was to examine the number and content of possible selves generated by individuals across stages of exercise behavior, in order to determine whether possible selves can differentiate those stages and be predictive of exercise-related behavior. Participants were 204 middle-aged women employed at a university in the U.S. Pacific Northwest. Results indicated that differences in the number and content of open-ended possible selves across stage of exercise were relatively few, although differences that did exist held potential for future interventions. Of particular interest was the significant finding of possible selves related to body image, which differed by stage for both hoped-for and feared selves. Responses to focused possible selves directly related to exercise behavior showed a number of differences between stage of exercise, providing support for previous literature as well as for the methodology employed in the present study. Individuals whose self-efficacy and outcome expectancy associated with a particular possible self related to exercise was high, were most likely to engage in exercise behavior. Finally, when the strongest predictor of exercise behavior was combined with exercise self-efficacy, the variance accounted for by the possible self was negligible. Findings support the conclusion that possible selves are worthy of future research in the exercise domain, including the role of possible selves as an antecedent to exercise self-efficacy. Results are discussed in terms of past research, practical applications, and future research directions.

SOCIAL PSYCHOLOGY

Bourn, Drew F. Gambling behavior among college student-athletes, non-athletes, and former athletes, 1998. M.S., Springfield College (Mary Ann Coughlin). (126pp 2f $8.00) PSY 2009

The investigation was designed to determine whether differences and/or interactions exist across athletic status and gender in the incidence of gambling behavior and to determine if differences exist in pathological gambling behavior across athletic status and gender. Gambling behavior and pathological gambling behavior were determined using the South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1991). Data were collected from participants from two NCAA Division III colleges (N=432). All participants completed the SOGS and a demographic survey. From the demographic survey participants were categorized as male or female, and student-athlete, non-athlete, or former athlete. A 2 x 3 ANOVA was used to determine differences across athletic status and gender. No significant (p=.123) mean difference existed across athletic status with regard to the SOGS (Lesieur & Blume, 1987). Males had a significantly (p=.000) higher mean SOGS (Lesieur & Blume, 1987) scores than females. No significant (p=.129) interaction existed between gender and athletic status with regard to the SOGS (Lesieur & Blume, 1987). A Chi-square analysis was used to determine differences in frequency of pathological gambling behavior. Student-athletes had a significantly (p=.047) higher frequency of pathological gambling than non-athletes and former athletes. Males had a significantly (p=.000) higher frequency of pathological gambling than females. The researcher concluded that student athletes are more susceptible to pathological gambling than non-athletes, and former athletes based on the scores of the SOGS (Lesieur & Blume, 1987). Males are more susceptible to pathological gambling than females. Three possible influences on the results are the self-perception of behavior...
by the participants, the willingness of the participants to admit to illegal behavior, and the broad definition of gambling used. The difference between student-athletes and former athletes suggests a possible link between the collegiate athletic experience and gambling behavior. Research directed to understanding the motivations for gambling and athletic behavior is needed.

Bray, Corey D. *The relationship between team cohesion and objective individual performance of high school basketball players*, 1998. M.S., University of Oregon (Diane E. Whaley). (104pp 2f $8.00) PSY 2010

This study investigated the cohesion-individual performance relationship and its possible mediation by expended effort. It was hypothesized that: (a) cohesion would predict performance, (b) the cohesion-performance relationship would be mediated by expended effort, and (c) rebounds/game and steals/game would be more correlated with expended effort than the other statistics. At the middle and end of the season, 41 males and 49 female high school basketball players completed the Group Environment Questionnaire (Widmeyer, Brawley, & Carron, 1985) and the Expended Effort scale of the Intrinsic Motivation Inventory (Ryan, 1982), the players’ game statistics were gathered, and coaches completed the expended effort questions about each player. Results supported the predictive ability of cohesion on performance and expended effort as a mediator at the end of the season. Results did not support the third hypothesis. Cohesion significantly affected performance at the end of the season through the players’ level of effort.

Kimball, Grayson T. *Differences in cohesion among starters and non-starters of recreational basketball teams*, 1998. M.S., Springfield College (Mimi Murray). (108pp 2f $8.00) PSY 2042

Determining the variables that can influence team cohesion, as well as examining the differences in cohesion among starters and non-starters, is an issue in sport. The participants in this study included starters (n=60) and non-starters (n=45) who were above the age of 18 and were participating in a recreational basketball league. The athletes were asked to voluntarily participate in responding to the Gruber and Gray (1981) Team Cohesion Questionnaire. No significant difference was found between starters and non-starters on the following four subscales of the Team Cohesion Questionnaire (Gruber & Gray, 1981) (p>.05); ‘affiliation cohesion’; ‘self-performance satisfaction’; ‘team performance satisfaction’; and ‘value of membership’. A significant mean difference (p<.05) existed between starters and non-starters for the following two subscales of the Team Cohesion Questionnaire (Gruber & Gray, 1981): ‘desire for recognition’ and ‘task cohesion’. Starters had higher levels of ‘task cohesion’ while non-starters had higher levels of ‘desire for recognition’.


Article content in a sample of men’s and women’s popular health and fashion magazines (n=108) was examined in terms of weight loss, shape, appearance and general health. Correlation analysis found a strong correlation between gender and appearance (-.80), and gender and health (-.426). Mean scores indicated that women receive four times the appearance-oriented articles than men, and almost double the number of health messages. Step-wise regression suggested that appearance, not the desire for longevity, may be the predominant force behind general health. Analysis of data also showed that magazine type, health vs. fashion, was significant to article content. More articles about weight, shape, and general health were associated with health magazines, and more articles relating to appearance are found in fashion magazines. However, mean scores indicated that almost one third the number of articles in health magazines concentrate on appearance alone, propagating the idea that looking healthy is more important than actual wellness.

Patterson, Aaron C. *Differences in the academic achievement of athletes and non-athletes from intact two-parent, divorced, single-parent, and divorced/remarried two parent families*, 1998. M.S., Springfield College (Diane Potter). (125pp 2f $8.00) PSY 2044

Participants in this study consisted of 600 students from seven high schools in Western Massachusetts. Participants were asked to respond to a demographic questionnaire. The information from the questionnaire was used to divide participants into groups based on athletic status (athlete and non-athlete), family background (intact 2-parent, divorced 1-parent, and divorced/remarried 2-parent), and gender. Based on the information obtained from the questionnaire, participants were selected for the study and grade point averages (GPAs) were recorded for all participants. A 2 x 2 x 3 independent groups factorial analysis of variance (ANOVA) was used to analyze the difference in the mean GPA between gender, athletic status, and family background. The interaction effects were not significant (p>.05), therefore, the main effects were examined. The mean GPA for the females was significantly higher (p<.001) than the males. The mean GPA for the athletes was significantly higher (p<.001) than the non athletes. Students from intact 2-parent families had a significantly higher (p<.004) mean GPA compared to students from divorced/remarried 2-parent families. No significant (p>.381) difference was found in the mean GPAs of participants from intact 2-parent and divorced single parent families. Finally, no significant (p>.134) mean difference was found in the GPAs of students from...
may be dependent upon a person’s gender and or age. efficacy of differing exercise modes and or exercise alone reducing benefits of exercise. However, the stress-reducing stress management but fail to substantiate the stress-importance of social problem solving ability for effective gender and exercise mode. Overall, the results support the main effect of age on reported anxiety is moderated by age, and gender for state and trait anxiety suggests that the severity of daily hassles, gender was removed from the social problem solvers. With respect to frequency and hassles, and lower state and trait anxiety than ineffective problem solvers reported less frequent and severe daily state and trait anxiety, an exercise mode main effect did not emerge until age and gender were controlled. However, a state and trait anxiety, gender did not emerge as a main effect and severity of daily hassles, gender was removed from the social problem solving ability, gender, and age in relation to state and trait anxiety and frequency and severity of daily hassles. Two hundred forty-nine volunteers (M age=36.9 years, SD=14.3) were classified by three levels of exercise mode via completion of a questionnaire. Moderate aerobic (n=84; 46 women) and mindful Tai Chi (n=71; 38 women) exercisers reported exercising at least three times per week, for at least 20 minutes each time, whereas sedentary participants (n=94; 62 women) reported not exercising for the six months before the study. Participants were categorized as effective or ineffective social problem solvers based on their global score on the Social Problem Solving Inventory-Revised. Age groups were defined as younger adults (19 to 36 years, n=123) and older adults (37 to 69 years, n=126). Participants’ state and trait anxiety were measured by the State-Trait Anxiety Inventory and The Daily Hassles Scale was used to assess perceived frequency and severity of daily hassles. Effective social problem solvers reported less frequent and severe daily hassles, and lower state and trait anxiety than ineffective social problem solvers. With respect to frequency and severity of daily hassles, gender was removed from the model because gender did not emerge as a main effect and exercise mode emerged only after age was controlled. For state and trait anxiety, an exercise mode main effect did not emerge until age and gender were controlled. However, a significant three-way interaction involving exercise mode, age, and gender for state and trait anxiety suggests that the main effect of age on reported anxiety is moderated by gender and exercise mode. Overall, the results support the importance of social problem solving ability for effective stress management but fail to substantiate the stress-reducing benefits of exercise. However, the stress-reducing efficacy of differing exercise modes and or exercise alone may be dependent upon a person’s gender and or age.

**STRESS**


This study evaluated the importance of exercise mode, social problem solving ability, gender, and age in relation to state and trait anxiety, and frequency and severity of daily hassles. Two hundred forty-nine volunteers (M age=36.9 years, SD=14.3) were classified by three levels of exercise mode via completion of a questionnaire. Moderate aerobic (n=84; 46 women) and mindful Tai Chi (n=71; 38 women) exercisers reported exercising at least three times per week, for at least 20 minutes each time, whereas sedentary participants (n=94; 62 women) reported not exercising for the six months before the study. Participants were categorized as effective or ineffective social problem solvers based on their global score on the Social Problem Solving Inventory-Revised. Age groups were defined as younger adults (19 to 36 years, n=123) and older adults (37 to 69 years, n=126). Participants’ state and trait anxiety were measured by the State-Trait Anxiety Inventory and The Daily Hassles Scale was used to assess perceived frequency and severity of daily hassles. Effective social problem solvers reported less frequent and severe daily hassles, and lower state and trait anxiety than ineffective social problem solvers. With respect to frequency and severity of daily hassles, gender was removed from the model because gender did not emerge as a main effect and exercise mode emerged only after age was controlled. For state and trait anxiety, an exercise mode main effect did not emerge until age and gender were controlled. However, a significant three-way interaction involving exercise mode, age, and gender for state and trait anxiety suggests that the main effect of age on reported anxiety is moderated by gender and exercise mode. Overall, the results support the importance of social problem solving ability for effective stress management but fail to substantiate the stress-reducing benefits of exercise. However, the stress-reducing efficacy of differing exercise modes and or exercise alone may be dependent upon a person’s gender and or age.

Hanson, Margaret L. *Perceived occupational stress levels of NCAA directors of athletics*, 1997. M.S., Springfield College (Tina M. Manos). (111pp 2f $8.00) PSY 2043

This investigation was designed to determine whether there were differences in occupational stress levels in directors of athletics across levels of National Collegiate Athletic Association (NCAA) Divisions and gender. The levels of the independent variable of Division are Division I and II together and Division III. The Stress Diagnostic Survey Form B (SDS Form B) (Ivancevich, Matteson, & Dorin, 1988) was used to measure occupational stress. The SDS Form B is divided into eight macro and nine micro stressor dimensions. The eight macro stressor dimensions are politics, human resource development, rewards, participation, under utilization, supervisory style, organization structure, and work-flow. The nine micro stressor dimensions are role ambiguity, role conflict, quantitative overload, qualitative overload, career progress, responsibility for people, time pressure, job scope, and technology. The dimension of gender discrimination was added by the researcher. A total of 18 2 x 2 ANOVAs were computed. No significant (p>.05) interaction between gender and Division group was found with respect to any of the dependent variables. Furthermore, no significant (p>.05) differences were found between genders or between Division groups for mean scores on the macro stressor dimensions and for the mean scores for gender discrimination. No significant (p>.05) differences were found between genders or between Division groups for mean scores on the micro stressor dimensions of role ambiguity, role conflict, qualitative overload, career progress, and job scope. Females scored significantly (p<.05) higher on micro stressor dimensions of quantitative overload, time pressure, technology, and responsibility for people. The gender of the participants may be more of a factor than Division level in explaining differences in occupational stress in directors of athletics.

Happ, Carol K. *Hardiness levels and coping strategies of female head women basketball coaches in the National Collegiate Athletic Association*, 1998. M.S., Ball State University (Valerie Wayda). (73pp 1f $4.00) PSY 2040

The sport of women’s basketball has evolved into a high profile event. The demands of the job during the competitive season can exceed coaches’ ability to cope and endure the stressful profession. Research has shown that hardiness decreases the impact of stress on health by influencing one’s coping strategies. Individuals who are low in hardiness have a higher chance of professional burnout, illness, and health problems due to the inability to handle stress. The purpose of this study was to identify the hardiness levels and coping strategies of female head women coaches in the National Collegiate Athletic Association (NCAA). The following questions were...
researched: 1) Are there differences in hardiness between female head women basketball coaches across the NCAA divisions? 2) Are there differences in coping strategies between female head women basketball coaches across the NCAA divisions? One hundred and five coaches participated in the study (n=29 for division I, n=38 for division II, n=38 for division III) by completing the Personal Views Survey II for the hardiness levels and the Ways of Coping Questionnaire for the coping strategies. A one-way ANOVA was calculated to determine if differences existed in hardiness scores across the three divisions. A MANOVA was conducted to determine if differences existed in the three hardiness components as well as with the different coping styles across the three divisions. No significance differences were observed in the hardiness scores, the three hardiness components, or the coping strategies across the three NCAA divisions (p<.05).


Research has described the psychological benefits of exercise, but literature involving the effects of acute aerobic versus resistance exercise is scant. The purpose of this investigation was to examine the acute effects of aerobic and resistance exercise on mood enhancement in males and females. Thirty, trained students (n=14 males, n=16 females) partook in three, counterbalanced conditions: aerobic exercise (cycle ergometry), resistance exercise (weight-lifting), and a non-exercise control (quiet rest). Mood was assessed before and after each condition by the Subjective Exercise Experiences Scale (McAuley & Courneya, 1994). A MANOVA and follow-up tests revealed cycling improved mood significantly more than weight-lifting and the control and that gender did not affect the mood response to exercise. It was concluded that acute aerobic exercise is more effective at elevating mood than acute resistance exercise and that gender does not influence exercise-induced mood improvement.

Weuve, Celestine M. The differences in stress and peripheral vision between injured and uninjured collegiate athletes, 1998. M.S., Springfield College (Tina M. Manos). (141pp 2f $8.00) PSY 2019

The investigation was designed to determine if any differences exist between the negative, positive, total life stress and narrowing of peripheral vision of injured and uninjured collegiate athletes. The association between changes in peripheral vision and levels of life event stress was also determined, as was the reliability of the stress instrument. Participants from Division III female field hockey and soccer teams (N = 18) were classified as injured or uninjured after the season was completed. Negative, positive, and total life stress were measured using the average scores of two administrations of The Life Events Survey for Collegiate Athletes (Petrie, 1992). Reliability coefficients for the negative, positive, and total life stress were .35 (p<.05), .50 (p<.05), and .26 (p>.05), respectively. Peripheral vision was measured using a perimeter at the beginning of the season under a baseline and stress condition. Independent groups t-tests were used to analyze differences in life stress and narrowing of peripheral vision between injured and uninjured athletes. No significant (p>.05) differences in mean scores were found in negative, positive, and total life stress and narrowing of peripheral vision groups. No significant (p>.05) difference in narrowing of peripheral vision was found between injured and uninjured athletes. No significant linear relationship was found between negative, positive, and total life stress and narrowing of peripheral vision. Possible influences on the lack of mean differences were the small sample size, the lack of injuries that occurred, the sports chosen for the study, and the lack of acute stress measurement. Research focusing on the differences in sports and positions within sports is needed to fully understand the impact stress has on athletes.
This index includes keywords for titles published in microfiche format by Microform Publications in Volume 11, No. 2 (October 1998).

Each title in Part I is indexed using keywords selected and assigned from the *Sport Thesaurus*, published by the Sport Information Resource Centre (SIRC), located in Gloucester, Canada. (Users should note that British spelling conventions [e.g., behaviour] occasionally appear.) In addition to keywords identifying the content of a study, the major research methods are identified by the statistical technique employed and appear in brackets immediately following author’s name. Users may find these methodological and statistical descriptors helpful in identifying a particular design or statistical prototype for their own research investigations. A listing of statistical abbreviations used in this index is found on the following page.

The keywords appear in alphabetic order and are followed by the author names of the doctoral or master’s theses that they refer to. Because each thesis will have more than one keyword, author names appear several times under different keywords. The author names are followed by the research and statistical methods used in the study. These are contained in brackets—the letters before the dash refer to the research methods, those behind the dash denote the statistical methods. The methods information is followed by the subject code and number for the study. The following example illustrates the elements of each entry.

**BIOMECHANICS**  
Allen, D.M.  [D,MA-DE,MAV] PE 3815

*Biomechanics* is one of the keywords of a study by D. M. Allen. The research methods used in the study include descriptive and mechanical analysis techniques; statistics are descriptive and Multivariate Analysis of Variance. The study’s subject code is PE 3815. To find the title of the study as listed in part I of the *Bulletin*, use the author index in the back of the book to find the page number on which the study by D. M. Allen is listed.

Criteria used to determine whether a study is experimental include the use of a control group and the manipulation of an independent variable or variables. Studies designed to examine correlations among selected variables in a particular population are classified as surveys.

Specific abbreviations for research methods and the statistical techniques that were used are listed alphabetically in the table on the following page.
# METHODS

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<th>A</th>
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# STATISTICS

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<td>Cohen’s Coefficient of Agreement</td>
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<td>Delphi Method</td>
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<td>Discriminant Analysis</td>
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<td>Kruskal-Wallis</td>
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<td>Least Significant Variance</td>
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<td>Multivariate Discriminant Analysis</td>
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<td>Multivariate Mixed Model</td>
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<td>Phi Coefficient</td>
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<td>Spearman-Brown Prophecy</td>
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<td>Scheffe’s Method</td>
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<td>Split-Split Plot Repeated Measures</td>
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<td>Kendall’s Rank Coefficient</td>
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<td>Tetrachoric Correlation</td>
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<td>TU</td>
<td>Tukey’s Test</td>
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<td>U</td>
<td>Mann-Whitney U Test</td>
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</table>
KEYWORDS

ACADEMIC ACHIEVEMENT
Lamberton, A. J. [D, S-DE, %, G] PE 3853
Patterson, A. C. [D, E-DE, G, AV, SCH, HV] PSY 2044

ACCIDENT
Chynoweth, T. L. [D, S-DE, %] PE 3850
Hall, C.D. [D, AV, MAV, DE, MMM, G] PH 1626

ACHIEVEMENT
Lauer, L. L. [D, Q-DE, RE, %] PSY 2026

ACHIEVEMENT MOTIVATION
Bray, C. D. [D, Q-DE, AV, RC, RPM, %] PSY 2010

ACTIVITIES OF DAILY LIVING

ACUPRESSURE

ADIPOSE TISSUE

ADMINISTRATION
Sesow, J. C. [D, DE, FA, RC, %] PSY 3863
Toh, K. L. [D-DE, AV, FA, RC, %] PSY 3873

ADOLESCENT
Ferrer Caja, E. [D, DE, G] PSY 2035
Schuldheisz, J. M. [D, DE, G, RC, %] PE 3889
Squires, A. R. [D, COM-DE, G, LR, %] PE 3873

ADULT
Rankin, J. K. [D, DE, G, MAV, %] PSY 2038

AEROBIC CAPACITY
Chen, K. Y. [D, FA, NK, SCH, DE] PH 1614
Emery, M. S. [D, DE, G, RD, RE, RM, T] PH 1619
Laurie, N. E. [D, TC-AV, DE, G, T] PE 3888
O’Hare, T. J. [D, DE, G] PH 1616
Potvin, A. N. [D, DE, %, AV, TU] HE 624

AEROBIC DANCE
Donahue, J. M. [D, DE, RPM] PE 3849

AEROBIC TRAINING
Anzelc-Spjesia [D, DE, AV, FA, G, HV, MAV, RM, RPM, T] PH 1615
Ellering, M. [D, AC, DE, RC, T] PSY 2036
Petersen, C. [D, DE, %, G, RD] HE 617
Rosenfeld, S. M. [D, E-DE, HV, MAV, RC, RM] PSY 2032
Vogel, A. E. [I-] PSY 2027

AGED
Dominik, K. M. [D-] PE 3848
Hall, C.D. [D, AV, MAV, DE, MMM, G] PH 1626
Lin, S. [D, AV, DE, KW, MAV, RM, RPM, TU] PSY 2033
Snyder, M. A. [I, O-] RC 521

AGGRESSION
Lauer, L. L. [D, Q-DE, RE, %] PSY 2026

AGING
Rankin, J. K. [D, E-DE, G, MAV, %] PSY 2038

ALCOHOL
Lopez, P. [D, S-DE, CS, AV, SCH, %] HE 615

ALZHEIMER’S DISEASE
Hubley, M. H. M. [D, I-] RC 523

AMATEUR
Woodford, D. R. [D, MA-DE, MAV, RM, TMP] PSY 3890

ANAEROBIC CAPACITY

ANAEROBIC THRESHOLD

ANIMAL
Kato, N. [D, AV, DE, LSD] PSY 2034

ANKLE
Hall, C. D. [D, AV, MAV, DE, MMM, G] PH 1626
McCoy, B. K. [D, MA-DE, RPM, AC, TU] PSY 3846

ANOXEMIA
Chen, K. Y. [D-FA, NK, SCH, DE] PH 1614
Emery, M. S. [D, DE, G, RD, RE, RM, T] PH 1619

ANTHROPOMETRY
Potvin, A. N. [D, DE, %, AV, TU] HE 624
Woodford, D. R. [D, DE, %, T, DIS, A, V, MAU, RPM] PE 3890

ANXIETY
Freit, L. K. [D, Q-AV, DE, RPM, TU] HE 618
Kilgore, J. M. [D, DE, RPM, G] PSY 2025
Leslie, P. J. [D, AV, DE, RC, RPM] PSY 2037

APPLIED BEHAVIOUR ANALYSIS
Flynn, P. M. [D, Q-DE] HE 613

ARBITRATION
Montgomery, D. [D, DA-DE, DUN, AV, KW] PSY 3854

ARCTIC
Squires, A. R. [D, COM-DE, G, LR, %] PE 3873

ASIA
Wang, L. L. [D, DE, %, FA, RC, TA, AV(F), RPM] RC 522

ASIAN
Hsu, C. K. [D, DE, AV, RC, CS, T] RC 516

ATHLETE
Mackey, T. R. [D-DE, %] PE 3886
Patterson, A. C. [D, DE, AV, SCH, HV] PSY 2044
Sweeney, K. A. [D, E-DE, HV, RM] PH 1612
Weuve, C. M. [D, DE, RC, RPM, T] PSY 2019
Woodford, D. R. [D, DE, %, T, DIS, A, V, MAU, RPM] PE 3890
Yoder, K. J. [D, Q-DE, MR] PSY 2018
ATHLETIC DIRECTOR
Freel, M. J. [D,S-DE,%,G] PE 3856
Hanson, M. L. [D,E-DE,AV] PSY 2043
Richhart, C. L. [D,S-DE,AV,%] PE 3857
Toh, K. L. [D-DE,FA,RC,]% PE 3863

ATHLETIC TRAINER
Chynoweth, T. L. [D,S-DE,%,G] PE 3850
Conner, C. P. [D,Q-DE,MR,%] PE 3845
Mackey, T. R. [D-DE,Q,]% PE 3886

ATHLETIC TRAINING

ATTITUDE
Hsu, C. K. [D-DE,AV,RC,CS,T] RC 516
Subramaniam
Thompson, P.C. [D-DE,T] PSY 2042
Yoder, K. J. [D-DE,Q,]% PE 3818

ATTRIBUTION
Aukers, S. M. [D-DE,%] RC 518

BACKWARDS

BALANCING
Hall, C.D. [D-DE,AV,MAV,DE,MMM,G] PH 1626

BASEBALL
Leslie, P.J. [D-DE,AV,RC,RPM] PSY 2037

BASEBALL PITCHER
Montgomery, D. [D-DA-DE,DUN,AV,KW] PE 3854

BASKETBALL
Bray, C. D. [D,Q-DE,AV,RC,RPM,]% PSY 2010
Gentry, G. B. [D,S-DE,AV] PE 3851
Happ, C. K. [D-DE,AV,MAV,SCH,%] PSY 2037
Kimball, G. T. [D-DE,AV,NK,RC,T] PE 3891

BATTING
Leslie, P.J. [D-DA-DE,AV,RC,RPM] PSY 2037

BEHAVIOUR
Gammage, K. L. [D,Q-DE,AV,MAV,RC,SC] PSY 2023
Mackey, T. R. [D,Q-DE,AV,RC,SCH] PSY 2026
Schultheiss, J. M. [D-DE,AV,RC,NK,G] PSY 3889
Sherwood-Puzzello [D,Q-DE,AV,RP,M,RC] HE 616
Wells, J.B. [D,S-DE,FA,RC,RPM,T,]% HE 621

BIOMECHANICS
Hoffman, L. A. [D-DE,GA,AV,RPM,T,]% PE 3880
Hsu, H. [D,MA-DE,AV,MR,SC] PE 3883
McCoy, B. K. [D,MA-DE,RP,M,AC,TH] PE 3846

BLOOD FLOW

BLOOD GLUCOSE

BODY COMPOSITION
Potvin, A.N. [D-DE,AV,TA] HE 624
Oomen, J. S. [D,CA-DE,T,CS,RE] PSY 2028
Vogel, A.E. [I-] PSY 2027

BODY IMAGE
Oomen, J. S. [D,CA-DE,T,CS,RE] PSY 2028
Whaley, D. E. [D,Q-AV,DE,M,NAV,AK,PK] PSY 2041

BODY WEIGHT
Moroney, D. R. [D-DE,AV,HV] PH 1613
Oomen, J. S. [D,CA-DE,T,CS,RE] PSY 2028
Potvin, A.N.

BODYBUILDING
Moroney, D. R. [D-DE,AV,HV] PH 1613
Patterson, A. C. [D,E-DE,G,AV,SCH,HV] PSY 2044

BRAIN
Hutchinson, S.L. [D-DE,AV,SV,HE,SC] PSY 2044
Jones, T.B. [D-DE,AV,MAV,RC,WH] PE 2044

BRAIN DAMAGE
Hutchinson, S.L. [D-DE,AV,SV,HE,SC] PSY 2044

BREAST
Wells, J.B. [D,S-DE,AV,RC,RPM,T,]% HE 621

BREAST NEOPLASM
Flynn, P. M. [D,Q-DE] HE 613
Wells, J.B. [D,S-DE,AV,RC,RPM,T,]% HE 621

CAFFEINE
Sweener, K. A. [D-DE,AV,DE,MAV,MR] PH 1612

CALORIC INTAKE

CARBOHYDRATE
Jewell, D. A. [D-DE,AV,RC,RPM,T,]% PH 1629

CARDIOVASCULAR DISEASE
Potvin, A.N. [D-DE,AV,MAV,MR] HE 624

CARDIOVASCULAR SYSTEM
Laurie, N.E. [D,TCA-DE,G,TH] PE 3888
Petersen, C. [D-DE,AV,RC,RPM,T] HE 617

CHILD
Muehlhauser, E. K. [D,L,CH,]% PE 3884
Subramaniam, P.R. [D,TCA-DE,AV,RC,MR,AV] PSY 2037

CHILD DEVELOPMENT

CHINESE
Hsu, C. K. [D-DE,AV,RC,CS,T] RC 516

CHOREOGRAPHY
Dominika, K. M. [D-] PE 3848
Muehlhauser, E. K. [D,L,CH,]% PE 3884

CHRISTIANITY
Hensley, T. [D,S-DE,GA,]% PE 3855

CHURCH
Hensley, T. [D,S-DE,GA,]% PE 3855

COACH
Hsu, H. [D,DA-DE,AV,MA,SC] PE 3851
Happ, C. K. [D-DE,AV,MAV,SCH,]% PSY 2040
Lubbers, P. A. [D,CA-DE,T] PE 3847
Mackey, T. R. [D-DE,AV,MAV,RC] PE 3886
Richhart, C. L. [D-S-DE,AV,]% PE 3857
Tucci, D. C. [D,DA-DE,MAV,MAV,MAV,MAV,RP,M] PE 3872

COACHING

45
Gentry, G. B. [D,S-DE,]% PE 3851
Lubbers, P. A. [DE,CA,1-DE] PE 3847
Nisgor, C. M. [D-S,DE,%] PE 3852
Sveduk, K. L. [M,]% PE 3885
Tucci, D. C. [D,JA,Q-CS,DE,]% PE 3872

**COGNITION**

Rankin, J. K. [D,E-DE,G,MAV,%] PSY 2038

**COLLECTIVE BARGAINING**

Montgomery, D. [D,DA-DE,DUN,AV,KW] PE 3854

**COMMUNITY**

Montgomery, D. [D,DA-DE,DUN,AV,KW] PE 3854

**COMMUNICATION**

Taylor, C. [S-DE,]% PE 3887

**COMPARATIVE STUDY**

Bullock, G. E. [D,CS,G] PE 2862
Ferrer Caja, E. [D,]% PE 2035
Happ, C. K. [D,DE,AV,MAV,SCH,]% PSY 2040
Hsu, C. K. [D,DE,AV,RC,CS,T] RC 516
Laurie, N.E. [D,DE,MAV,G,T] PE 3888
Mak, Y. J. [D,DE,%,CS] RC 520
Manning, T. S. [D,L-DE,RM,AV,TU] PH 1610
Patterson, A. C. [D,DE,G,AV,RC,HV] PSY 2044
Potvin, A.N. [D,DE,AV,MAV,RC] PE 2032
Schuldheisz, J. M. [D,DE,G,]% PE 3899
Shewert-Puzzello, C. M. [D-Q,DE,%,AV,RPM,RC] HE 616
Squires, A.R. [D,COM-DE,G,LR,%] PE 3873
Whaley, D. E. [D-Q,AV,DE,MAV,MAV] PSY 2041

**COMPETITION**

Leslie, P.J. [D,AV,D,DE,RPM] PSY 2037

**COMPUTER**

Taylor, C. [S-DE,]% PE 3887

**COMPUTER PROGRAM**

Xiong, D. C. [REP] HE 623

**CONDITIONING**


**CONFERENCE USA**

Richhart, C. L. [D,S-DE,AV,]% PE 3857

**CONFIDENCE**


**CONTENT ANALYSIS**

Lubbers, P. A. [DE,CA,1-DE] PE 3847

**CONTINGENCY MANAGEMENT**

Schuldheisz, J. M. [D,DE,G,]% PE 3889

**CONTRACTION**

Van Dyke, A. D. [D,DE,AV,G,HV,T] PH 1625

**CORPUS BEHAVIOUR**

Happ, C. K. [D,DE,AV,MAV,SCH,]% PSY 2040

**CORRELATION**

Cannon, E. W. [D,DE,RPM,RE,GR] PH 1609
Donahue, J. M. [D,DE,RPM] PE 3849
McCoy, B. K. [D,MA-DE,RPM,AC,TU] PE 3846

Oomen, J. S. [D,CA-DE,T,CS,RE] PSY 2028

**CRITICAL**


**CULTURE**

Hsu, C. K. [D,DE,AV,RC,CS,T] RC 516
Squires, A.R. [D,COM-DE,G,LR,%] PE 3873

**CYCLING**

O'Hare, T.J. [D,DE,T] PH 1616
Rosenfeld, S.M. [D,DE,AV,HC,MAV,RC] PSY 2032
Sharpe, G. P. [D,DE,AV,NC,RC] PH 1611

**DANCE**

Dominak, K. M. [D,]% PE 3848
Muelhauser, E. K. [D,I,CH-]% PE 3884

**DANCE COMPANY**

Smith, T. J. [D,CS,DE] PE 3879

**DECISION-MAKING**

Yoder, K. J. [D,Q-DE,MR] PSY 2018

**DEPARTMENT**


**DIET**

Jewell, D. A. [D,AV,DE,RC] PH 1629
Moroney, D. R. [D,AV,AV,RC] PH 1613

**DIETARY CARBOHYDRATE**

Jewell, D. A. [D,AV,DE,RC] PH 1629

**DIETARY FAT**


**DIETARY SUPPLEMENTATION**

Jewell, D. A. [D,AV,DE,RC] PH 1629

**DIVISION I**

Bourn, D. F. [D,DE,CS,G] PE 3862
Hanson, M. L. [D,DE,AV] PSY 2043
Richard, C. L. [D,S,DE,%,AV] PE 3857
Stauffer, B. E. [D,DE,AV,NC,RC] PE 3891
Yoder, K. J. [D,Q-DE,MR] PSY 2018

**DIVISION II**

Bourn, D. F. [D,DE,CS,G] PE 3862
Hanson, M. L. [D,DE,AV] PSY 2043
Stauffer, B. E. [D,DE,AV,NC,RC] PE 3891

**DIVISION III**

Bourn, D. F. [D,DE,CS,G] PE 3862
Hanson, M. L. [D,DE,AV] PSY 2043
Stauffer, B. E. [D,DE,AV,NC,RC] PE 3891
DOMESTIC VIOLENCE
Chand, S. [H, I] HE 619

DRIVE
Manning, T. S. [D, L-DE, RM, AV, TU] PH 1610

DRUG
Mackey, T. R. [D-DE, Q, %] PE 3886

DRUG ABUSE
Mackey, T. R. [D-DE, Q, %] PE 3886

DYNAMOMETRY
McCoy, B. K. [D, MA-DE, RPM, AC, TU] PE 3846

EDEMA
O’Hare, T. J. [D-DE, T] PH 1616

EFFICACY
Muehlhauser, E. K. [D, I, CH-] PE 3884
Rankin, J. K. [D-E, DE, GM, AV, %] PSY 2038
Smith, T. J. [D-CS, DE] PE 3879
Wells, J. B. [D-S, DE, FA, RC, RPM, T, %] HE 621

ELECTROMYOGRAPHY

ELEMENTARY SCHOOL
Chamberlain, T. M. [D] PE 3875

ELITE ATHLETE
Emery, M. S. [D-DE, GR, RE, RM, T, TU] PH 1619
Mackey, T. R. [D-DE, Q, %] PE 3886
O’Hare, T. J. [D-DE, T] PH 1616
Sverduluk, K. L. [M, I-] PE 3885

EMOTION
Elfering, M. [D-AC, DE, RC, T] PSY 2036
Freit, L. K. [D-Q, AV, DE, RPM, TU] HE 618

ENERGY
Jewell, D. A. [D-DE, RM, T, TU] PH 1629

ENERGY EXPENDITURE

ENERGY METABOLISM

EQUILIBRIUM
Kato, N. [D-DE, LSD] PSY 2034
Liu, S. [D-DE, DE, KW, MAV, RM, RPM, T, TU] PSY 2033
Rankin, J. K. [D-E, DE, GM, AV, %] PSY 2038

EQUIPMENT
Cotterman, M. L. [D-E-DE, AV, G] PE 3867

ETHNIC
Squires, A. R. [D, COM-DE, G, LR, %] PE 3873

EVALUATION
Williams, J. [I] PE 3869

EX-ATHLETE

EXAMINATION
Freit, L. K. [D-Q, AV, DE, RPM, TU] HE 618

EXERCISE
Ball, C. G. [D-DE, FA, RC, T, TU] PE 3877
Bond, D. [D-DE, D, NK, DU] PSY 2014
Chen, K. Y. [D-FA, NK, SCH, DE] PH 1614
Elfering, M. [D-AC, DE, RC, T] PSY 2036
Emery, M. S. [D-DE, GR, RE, RM, T] PH 1619
Jones, T. B. [D-L, AV, LSD, DE, %] PH 1623
O’Hare, T. J. [D-DE, T] PH 1616
Petersen, C. [D-DE, %G, RD] HE 617
Rosenfeld, S. M. [D-DE, DE, HV, MAV, RC, RM] PSY 2032
Schultheisz, J. M. [D-DE, G, %] PE 3889
Sharpe, G. P. [D-L, DE, AV, NK, RPM] PH 1611
Stavrianeas, S. [D-DE, T, RPM] PH 1617
Subramaniam, P. R. [D-I, TC-AC, CS, DE, FA, RC, %] PH 2011
Whaley, D. E. [D-Q, AV, DE, MAV, NK] PSY 2041

EXERCISE PRESCRIPTION
Potvin, A. N. [D-DE, AV, TU] HE 624

EXPERIENCE
Yoder, K. J. [D-Q-DE, MR] PSY 2018

EXPERIMENTATION

EXTRAVERSION

FALLING
Hall, C. D. [D-DE, MAV, DE, MMM, G] PH 1626

FAMILY
Hubley, M. H. M. [D-I-J] RC 523
Patterson, A. C. [D-E-DE, G, AV, SCH, HV] PSY 2044

FAR WEST WHEELCHAIR ATHLETIC
ASSOCIATION
Yarwasky, L. L. [D] PE 3866

FASTING

FATIGUE
Stavrianeas, S. [D-DE, T, RPM] PH 1617

FEAR
Freit, L. K. [D-Q-DE, AV, DE, RPM, TU] HE 618

FEEDBACK
Leslie, P. J. [D-DE, RC, RPM] PSY 2037

FIBRE
Howden, J. B. [D, D-I-DE, %] RC 517

FIRST AID
Mackey, T. R. [D-DE, Q, %] PE 3886

FLEXIBILITY
HEALTH SURVEY
Flynn, P. M. [D,Q-DE] HE 613

HEART RATE
Donahue, J. M. [D-DE,RPM] PE 3849
Laurie, N.E. [D,TC-DE,G,T] PE 3888

HISTORY
Chand, S. [H,I-] HE 619

HOCKEY
Lauer, L.L. [D,Q-DE,RE,R] PSY 2026

HUMAN
Crussemeyer, J. A. [D-AV,CV,DE,G,RM] PE 3882

HUMAN IMMUNODEFICIENCY VIRUS
Petersen, C. [D-DE,%,RD] HE 617
Sherwood-Puzzello, C. M. [D,Q-DE,AV,RM,RC] HE 616

HYPOTHALAMUS
Jones, T.B. [D,L-DE,AV,LSD,RC] PH 1623

ICE
Lauer, L.L. [D,Q-DE,RE,RM] PSY 2026
Wilson, N. [D-AV,DE,FA,RC,RM] PE 3876

IMMUNE SYSTEM
Hough, H. J. [D-RC,CV,AC] PH 1631
Petersen, C. [D-Q-DE,%,RD] HE 617

IMPROVISATION
Dominika, K. M. [D-] PE 3848

INDIANA
Freed, M. J. [D,S-DE,%,G] PE 3856
Hensley, T. [D,S-DE,%,G] PE 3855

INDIANS OF NORTH AMERICA

INFANT

INJURY
Ball, C.G. [D-AV,DE,FA,RC,TU] PE 3877
Chynoweth, T. L. [D-S-DE,%,G] PE 3850
Hutchinson, S.L. [D,L,RC-] PSY 2030
Kilgore, J.M. [D-DE,RPM,G] PSY 2025
Mackey, T. R. [D,Q-DE,Q,RM] PE 3886
Smith, T. J. [D-Q-DE] PE 3879
Weuve, C. M. [D-DE,RC,RM,T] PSY 2019
Yoder, K. J. [D-DE,MR] PSY 2018

INTERCOLLEGIATE TENNIS ASSOCIATION

INTERVIEW
Lubbers, P. A. [D-DE,CA,I,DE] PE 3847

INTRA-ABDOMINAL PRESSURE
Manning, T. S. [D-L-DE,RA,AV,TU] PH 1610

INTRAMURAL SPORT
Chynoweth, T. L. [D,S-DE,%,G] PE 3850
Dierks, T. J. [D-DE,%,G] PE 3881
INTRODUCTION
Riley, D. B.
[D,S-DE,MAV,CS] PSY 2007

INUIT
Squires, A.R.
[D,COM-DE,G,LR,]% PE 3873

ISOKINETIC
Spaulding, M. J.
[D-AC,DE,G,RE,RPM] PH 1627

ISOMETRIC
AuCoin, R.B.G.
[D-AC,AV,DE,G,RM] PH 1620

JAPAN
Wang, L. L.
[D-DE,%,FA,RC,T,AV(F),RPM] RC 522

JOINT USE
Astill, M. J.
[D-DE,RPM] PSY 2012

JUGGLING
Catanzariti, J. C.
[D-DE,MAC] PE 3868

KINETICS
Spaulding, M. J.
[D-AC,DE,G,RE,RPM] PH 1627

KINESTHETIC PERCEPTION
Astill, M. J.
[D-DE,RPM] PSY 2012

KNEE
Cross, P.G.
[D,E-AV,DE,G,RC,RM] PE 3874
Hoffman, M. A.
[D-DE,AV,RPM,G] PE 3861

KOREA
Wang, L. L.
[D-DE,%,FA,RC,T,AV(F),RPM] RC 522

LA CROSSE WELLNESS PROJECT
Xiong, D. C.
[REP] HE 623

LABORATORY
Jones, T.B.
[D,L-AV,LSI,DE,]% PH 1623

LACTATE
Cannon, E. W.
[D,L-DE,RPM,RE,G] PH 1609

LADIES PROFESSIONAL GOLF ASSOCIATION
Williams, J.
[I] PE 3869

LEARNING
Muehlhauser, E. K.
[D,J,CH-] PE 3884

LEG
Angulo-Kinzler, R. M.
[D-DE,RE,TM,A] PSY 2031
Cross, P.G.
[D,E-AV,DE,G,RC,RM] PE 3874
McCoy, B. K.
[D-MA,DE,RPM,AC,TU] PE 3846
Spaulding, M. J.
[D-AC,DE,G,RE,RPM] PH 1627

LEISURE
Hsu, C. K.
[D-DE,AV,RC,CS,T] RC 516
Hubley, M.H.M.
[D,J-R] RC 523
Mak, Y. J.
[D-DE,%,CS] RC 520
Snyder, M.A.
[LO-] RC 521

LIFESTYLE
Hough, H. J.
[D-DE,RC,CS,V,AC] PH 1631
Squires, A.R.
[D,COM-DE,G,LR,]% PE 3873

LIGAMENT
Hoffman, M. A.
[D-DE,AV,RPM,G] PE 3861

LONGITUDINAL STUDY
Crussemeyer, J. A.
[D-AC,AV,DE,G,RPM] PE 3882
Gribble, P. A.

Kasser, S. L.
[D,TC-DE,FA,G,RC,RD] HE 622
Padua, D. A.
Rosenfeld, S.M.
[D,E-AV,DE,HV,MAV,RC,RM] PSY 2032
Wilson, N.
[D-DE,FA,DE,G,RC,RM] PE 3876

LUMBAR SACRAL REGION
Manning, T. S.
[D,L-DE,RM,AV,TU] PH 1610

LUNG
Chen, K.Y.
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