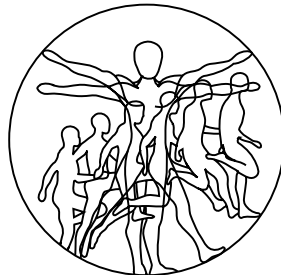


*Volume 16, 2 (continuation of Microform Publications Bulletin)*  
*October 2003*  
*A Subject and Author Index*  
*of Dissertations and Theses*

# *Kinesiology*

# *Abstracts*

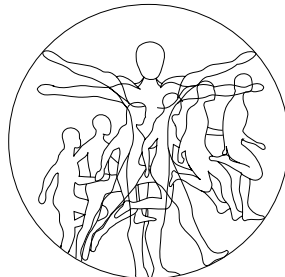


INTERNATIONAL INSTITUTE FOR SPORT AND HUMAN PERFORMANCE  
AND KINESIOLOGY PUBLICATIONS  
UNIVERSITY OF OREGON  
Eugene, Oregon

Volume 16,2  
October 2003  
A Subject and Author Index  
of Dissertations and Theses

# Kinesiology Abstracts

*(Continuation of Health, Physical Education and Recreation,  
Exercise and Sports Sciences Microform Publications  
Bulletin: A Subject and Author Index of Dissertations  
and Theses including Abstracts)*



INTERNATIONAL INSTITUTE FOR SPORT AND HUMAN PERFORMANCE  
AND KINESIOLOGY PUBLICATIONS  
UNIVERSITY OF OREGON  
Eugene, Oregon



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### **KINESIOLOGY ABSTRACTS 16, 2**

This publication is the second publication under the name *Kinesiology Abstracts*. It is a continuation of *Health, Physical Education and Recreation, Exercise and Sports Sciences Microform Publications Bulletin: A Subject and Author Index of Dissertations and Theses including Abstracts*. This is issue 2 of volume 16 and represents microfiches published in October 2003. In the past, bulletins were published every 5 years, except for bulletin 7, which covers two and a half years. Beginning with bulletin 8, there are two issues (nos 1 and 2) per annual bulletin. Each issue includes a section of theses and dissertation titles and abstracts, as well as a section of keywords. *Kinesiology Abstracts 17,1* will be published in April 2004.

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## PART I: TITLES AND ABSTRACTS

The abstracts are reproduced as provided by the authors in their dissertations. They were not edited for uniformity of style.

### PHYSICAL EDUCATION AND ATHLETICS

#### ADMINISTRATION

Alexander, Edward (Ted) W. *Collaborative advantage and collaborative inertia in a micro level study of interorganizational relationships (IORs) between Canadian sport and recreation organizations*, 2003. M.A., University of British Columbia (Lucie Thibault). (115pp 2f \$12.00) PE 4521

In 2002, the Canadian government released a new Sport Policy that included “enhanced interaction” as one of its four goals for sport organizations. Research on inter-organizational relationships (IORs) specific to Canadian sport has suggested that while broad potential benefits exist for organizations seeking to build linkages, organizations need to be aware of the challenges that are involved in managing IORs. Using Huxham and Vangen’s conceptual framework, this study examined collaborative advantage and collaborative inertia in IORs between a sport organization and recreation organizations. Studying the IORs of a provincial sport organization (PSO) requires a stakeholder group that has not been the object of previous IOR research in Canadian sport, despite the suggestion that a more comprehensive understanding of different stakeholder perspectives was needed. Huxham and MacDonald’s research found that both collaborative advantage (achieving a result that each individual organization could not achieve alone) and collaborative inertia (where IORs do not move forward, leading to frustration) are possible outcomes of relationships. Huxham and Vangen’s seven factors causing collaborative inertia were used to understand the extent to which inertia was present in the cases studied, and how inertia in the IORs was being managed. In this qualitative study, data gathered from document analysis, information meetings and observations, and semi-structured interviews, revealed that collaborative advantage was achieved in the two relationships between a PSO (Tennis BC) and two municipal recreation departments (Lake City and River City). The findings also suggest that the factors leading to collaborative inertia existed in different amounts in these IORs. The inertia present existed in two different forms. The first was related to Huxham and Vangen’s factors that described collaborative inertia emerging from organizational sources,

and the second was related to individual sources, such as difficulties in communicating, negotiating power and trust, and negotiating autonomy. Another significant finding suggested that divergent expectations that emerged at the end of the first year of the IOR present a threat for increased collaborative inertia in the future of these IORs if not adequately managed. The role of IORs is increasingly important to sport organizations in Canada. Researchers have overlooked understanding the challenges of managing these relationships until recently. Factors emerge during collaborative actions between organizations that pose a threat to realizing the advantages identified during the formation of IORs.

Babiak, Katherine M. *Examining partnerships in amateur sport: the case of a Canadian National Sport Centre*, 2003. Ph.D., University of British Columbia (Wendy Frisby). (325pp 4f \$24.00) PE 4522

This study explored the dynamics, challenges, and complexities encountered in forming, managing, and evaluating the inter-organizational relationships of a nonprofit organization and its partners in the public, nonprofit, and commercial sectors. Using a partnership process model developed from various theoretical frameworks, this study examined three phases of partnership relationships (i.e., formation, management, and evaluation) to gain a better understanding of the interactions among partnering organizations in Canadian sport. Qualitative research methods were employed to investigate partnerships of one National Sport Centre (NSC). Data were collected from three sources: 28 interviews, 110 organizational documents, and attendance at three organizational meetings. Interviews, relevant document passages, and field notes were transcribed and analyzed using “Atlas.ti,” a qualitative analysis software program. Results indicated that environmental and organizational conditions facilitated the formation of partnerships. Interdependence among organizations, presence of a broker, presence of a network, and convergence of objectives were evident. Specific reasons for partnership formation included efficiency, stability, necessity, legitimacy, reciprocity, and asymmetry. Partnership management structures and processes were central to interactions between organizations. Partners struggled to find a balance between pressures to compete and pressures to collaborate. Power imbalances, political dynamics, and control issues prima-



rily related to resource concerns existed, and in some cases weakened the bonds among partners. Some partnerships were formalized, while others were loosely structured and primarily based on mutual trust, previous history, and personal interest. Ambiguities, regarding roles and responsibilities, and “representativeness,” influenced how partners interacted and contributed to challenges in managing partnerships. Allocating resources was a prime concern for the organizations. Several levels of analysis for outcome evaluation existed. At the community level, the performance of NSC athletes at international competitions was a key measure of success. At the network level, effective coordination of programs and services contributing to improved performances of athletes was perceived as an important measure of effectiveness. Finally, at the organizational level, factors including ability to attract and retain partners, ability to remain economically viable through resource acquisition, and achieving legitimacy were all viewed as criteria to evaluate partnership effectiveness.

Bamford, Ryan G. *Differences in opinion of Division III directors of athletics and men’s basketball coaches regarding a men’s basketball recruiting calendar*, 2003. M.S., Springfield College (Craig Poisson). (107pp 2f \$12.00) PE 4509

The current study was designed to examine differences in opinion of NCAA Division III Directors of Athletics ( $n=88$ ) and men’s basketball coaches ( $n=80$ ) from the Eastern College Athletic Conference regarding a men’s basketball recruiting calendar. Differences were examined using the Division III Men’s Basketball Recruiting Calendar Survey. Results of the survey were analyzed using a nonparametric independent groups Mann-Whitney U  $t$ -test. Directors and coaches were scored on questions regarding general recruiting practices, time spent recruiting, departmental factors, state of recruiting, and the future of a recruiting calendar. Directors scored significantly higher than coaches in their level of agreement regarding the following assertions: (a) a recruiting calendar would decrease the time coaches spend recruiting; (b) a recruiting calendar would cut recruiting costs and budgets; (c) a men’s basketball recruiting calendar will create a “level playing field” for all institutions that sponsor men’s basketball; and (d) a recruiting calendar should be implemented in the near future. Opinions of directors and coaches should continue to be researched, as future NCAA legislation regarding Division III recruiting calendars is possible.

Blake, Mardina C. *Title IX compliance at the interscholastic level (9-12) involving participation patterns and sport offerings for Indiana high school male and female athletes*, 2003. M.A., Ball State University (Barbara A. Curcio). (46pp 1f \$6.00) PE 4524

The purpose of this study was to investigate Title IX compliance at the interscholastic level, since the inception of Title IX in 1972. Specifically, the researcher was interested in the participation patterns and sport offerings of Indiana high schools for male and female athletes. Participants were 125 high school athletic directors from division 1A, 2A, 3A, 4A, and 5A schools in the State of Indiana. Athletic directors were administered an athletic survey which consisted of 44 questions that addressed the sport offerings and participation patterns for male and female athletes. Results showed that males were participating in more interscholastic sports than were females. This trend has existed for a very long time; however, the number of females participating has steadily increased since the passage of Title IX in 1972. The number of sports offered to both sexes was found to be equal, with an average of nine sports each. Opportunity was very important according to Title IX regulations. The selection of sports must effectively accommodate the interests and abilities of both sexes.

Brown, Katherine V. *An analysis of the 2002 NCAA men’s basketball championship bracketing procedures*, 2003. M.A., University of North Carolina, Chapel Hill (Edgar Shields). (121pp 2f \$12.00) PE 4486

The purpose of this study was to determine the opinions of athletic personnel concerning the new bracketing procedures of the 2002 NCAA Men’s Basketball Championship. Of the 648 survey questionnaires sent to athletic directors and head coaches at Division I schools, 226 were returned, for a rate of 34.9%. Analysis of the survey data concluded a significant difference between the opinions of coaches and athletic directors. In general, administrators supported the “pod system” and found no significant issues with the system, while coaches found many concerns with the rule change, the most significant relating to the reduced likelihood for upsets, and teams playing in home cities. The analysis of the actual tournament results showed a reduction in team travel distances and an increase in ticket sales, all without reducing the number of upsets. However, the Men’s Basketball Committee must address the negative consequences noted by coaches and modify the bracketing procedures for the 2003 tournament to gain support from the athletic community.

Brunner, John F. *Women and minority recruitment and retention policies and procedures of graduate sport management and related educational programs*, 2003. M.A., University of North Carolina, Chapel Hill (Barbara Osborne). (63pp 1f \$6.00) PE 4487

Race (ethnicity) and gender have inspired provocative and passionate debate for centuries. There is a disparate presence of white males in decision-making administrative positions in relation to women and ethnic minorities, particularly in intercollegiate athletics. As this situation endures, scrutiny will continue to increase. In order to



proactively and productively address this issue, educational programs must increase their efforts to attract and retain historically under-represented women and ethnic minorities, thereby ensuring diversity in their classes. This study served to ascertain whether the 62 graduate sport administration educational programs are systematically working towards this goal. Thirteen of the 62 schools responded to the survey on this issue. The results of this survey suggest that the majority of the sport administration educational programs at the graduate level that chose to participate in this study are not systematically working towards this goal.

Butcher, Jill P. *Leadership styles of female collegiate field hockey coaches*, 2003. M.A., Ball State University (Valerie Wayda). (60pp 1f \$6.00) PE 4499

The purpose of this study was to investigate leadership styles of Division III female field hockey coaches. Athletes ( $n=131$ ) and coaches ( $n=9$ ) from the North Coast Athletic Conference and from the Kentucky, Indiana, Tennessee Conference completed the Leadership Scale for Sports (LSS). Using independent t-tests ( $p<.05$ ), the researcher wanted to determine if differences existed between the athletes' perceptions and the coaches' perception of the coach's leadership style, between the leadership styles of new vs. veteran coaches, and of successful vs. unsuccessful coaches. Athletes' perceptions, when compared to coaches' perceptions, revealed a significant difference in the rating of Democratic Behavior only, whereas coaches rated themselves higher than the athletes. For the other four leadership styles, the athletes' perceptions and the coaches' perceptions were similar. Significant differences were observed between new and veteran coaches on four of the five leadership behaviors. New coaches were rated higher on their use of Training and Instruction, Social Support, and Rewarding behavior while veteran coaches were only rated higher in their use of Autocratic Behavior. Athletes alone rated new coaches higher in Democratic Behavior. Comparing successful coaches to unsuccessful coaches, significant differences existed on three of the leadership styles. Successful coaches employed Rewarding and Social Support behaviors more than unsuccessful coaches while unsuccessful coaches scored higher in their use of Training and Instruction. Athletes alone scored unsuccessful coaches higher in Democratic behaviors. This study found that Training and Instruction and Rewarding Behaviors were the leadership behaviors employed the most regardless of their status (i.e., new vs. veteran, successful or unsuccessful). For these participants, the athletes and coaches were very similar in their perceptions of the coach's leadership style.

Chambers, Christyn P. *NCAA Division I-A graduation rates and NACDA Directors' Cup points system*, 2003. M.A., University of North Carolina, Chapel Hill (Barbara Osborne). (66pp 1f \$6.00) PE 4488

Much research has been conducted on graduation rates of college student-athletes, but none has compared the rates to a uniform measure of on-the-field success. This study compared the NCAA Division I-A institutions' graduation rates and the NACDA Directors' Cup points system between 1997-2001 to test for correlation between academic success and on-the-field success. This study used the graduation rates of the total student body and its breakdown by race and gender, those of the total student-athletes and their breakdown by race and gender, and those of men's basketball and football with each broken down by race. The four-year average Directors' Cup score for each institution was also used. Results showed little correlation between the graduation rates of any of the categories and the Directors' Cup points, concluding the need for only like-institutional comparisons and the need for better measures of both in the classroom and on-the-field success.

Dingle, C. R. *Perceived causes of occupational stress and coping strategies among athletic trainers in Indiana*, 2002. H.S.D., Indiana University (Nancy T. Ellis). (117pp 2f \$12.00) PE 4477

The problem of the study was to determine the specific perceived causes of occupational stress and coping strategies used by athletic trainers in Indiana. Specifically, the study attempted to establish associations between the perceived causes of occupational stress and coping strategies used, and factors including gender, work setting, sports worked, and alcohol. Perceived stress was also examined to see if there was a difference between genders. The subjects consisted of 426 full-time employed certified athletic trainers who were members of the Indiana Athletic Trainer's Association. Subjects were mailed the survey questionnaire which included the Stress During Sport Season Scale. A total of 212 completed surveys were returned which represented a response rate of 49.8%. Subjects provided a cross representation from ten work settings and consisted of 56.6% males and 43.4% females. Chi-square test of independence was used to test all ten null hypotheses and the level of significance was set at 0.05. A significant association was found between gender and causes of occupational stress: males were caused more stress by administrative duties ( $\chi^2(4)=10.269$ ,  $p=.036$ ), lack of time with children ( $\chi^2(4)=13.791$ ,  $p=.008$ ), and financial concerns ( $\chi^2(4)=10.229$ ,  $p=.037$ ). In regards to work setting, athletic trainers working in colleges and professional sports were caused more stress by issues with coaches ( $\chi^2(16)=69.472$ ,  $p=.001$ ), while those in high schools and clinics had issues with co-workers ( $\chi^2(16)=26.915$ ,  $p=.042$ ). Coping strategies produced significant findings between genders. Females were more likely to talk to a friend ( $\chi^2(4)=19.089$ ,  $p=.001$ ) and read ( $\chi^2(4)=12.689$ ,  $p=.013$ ), while males ( $\chi^2(4)=9.515$ ,  $p=.049$ ) between the ages of 24 to 34 ( $\chi^2(20)=32.297$ ,  $p=.040$ ) were more likely to use alcohol. There was no significant difference between genders in



regards to perceived stress. The information from this study can be used to inform current athletic trainers, students, and administrators of the causes of occupational stress among each work setting. This in turn will enable the profession to grow and diminish continuous burnout among athletic trainers.

Frost, Ryan. *Recruiting procedures for men's college basketball programs*, 2003. M.A., Ball State University (Jacalyn Lund). (51pp 1f \$6.00) PE 4526

The purpose of this study was to determine key elements and steps in the recruiting process of a student-athlete for participation in a men's college basketball program. The researcher also looked at the differences in recruiting practices at the NCAA Division I and Division III levels. Prior to the start of data collection, an instrument was developed using Copeland's (1982) work on the college recruiting process as a template. The 46-question survey covered the identification process, the selling process, and general information about the particular program. One hundred coaches from Division I and Division III were randomly selected from the National Directory of College Athletics to participate in the survey. Surveys were mailed on September 1, 2002. Participants were strongly encouraged to reply by October 1, 2002. If participants did not reply by September 15, 2002 a follow-up letter was sent with a survey and self-addressed stamped envelope enclosed for return. The study found that live evaluation and coverage of A.A.U. and summer events were considered the most important aspects of the evaluation and identification process. Campus visits were considered the most important part of the selling portion of the recruitment process. Differences in the recruiting process were found between Division I and Division III basketball programs. The aspects showing the most significant differences included the use of home visits, and the importance of A.A.U. events, and summer camps.

Hay, Traci A. *The perceptions of Division III senior woman administrators on sexual discrimination in intercollegiate athletics*, 2003. M.S., State University of New York, Brockport (Peter Hager). (77pp 1f \$6.00) PE 4527

This study examined the perceptions of Division III Senior Woman Administrators (SWAs) on three forms of sexual discrimination in intercollegiate athletic departments: (a) gender inequity and overt discrimination, (b) sexual harassment, and (c) artificial barriers in employment. The effect of sexual discrimination on the employment of women in the athletic profession was also examined. A Likert scale survey was sent to randomly selected SWAs at NCAA Division III member institutions. Descriptive statistics revealed that Division III SWAs do not perceive sexual discrimination to exist in a global form in intercollegiate athletics. However, a perception of sexual discrimination was found in the subgroups of overt discrimination

and artificial barriers in employment. Globally, sexual discrimination was not perceived to have an effect on the decline of, and low percentage of, females working in intercollegiate athletics.

Kaufmann, Ann M. *Interscholastic sports participation as a predictor of academic success for high school students*, 2002. Ph.D., University of Wisconsin, Milwaukee (Douglas Mickelson). (108pp 2f \$12.00) PE 4465

Participation in interscholastic athletics has been a major part of a high school's extracurricular offerings for over 100 years. Throughout these years, there have been those who praise the inclusion for the intangible aspects that help to extend a student's education; however, there are also those critics who feel that participation detracts from the true purpose of education. The controversy has little or no empirical evidence to support either position. The last major research on the merits of athletic participation was conducted in the 1980s. The purpose of this study is to examine the relationship between athletic participation and academic performance as measured by final grade point averages, attendance, highest level of mathematics achieved, and ACT composite scores. A literature review of the history of athletic participation in the secondary school is presented. This review also presents the pros and cons to the inclusion of interscholastic athletics in a high school. Additionally, reviews of the few empirical studies, which either support or reject participation, are summarized. The data set for the study included records of graduates from two suburban high schools from a major metropolitan area. There were 377 records from School A and 675 records from School B for a total of 1,052. The records covered 1994-1998. These data were examined to determine whether there was a relationship between student achievement and participation in athletics. In addition, School B had implemented a stringent athletic code in 1998. This allowed a second analysis to be conducted. An additional set of 313 records from School B was analyzed to determine what effects the stringent athletic code had on the academic success of the students and athletic participation rates. The data analysis yielded a positive and significant relationship between athletic participation and academic success, especially grade point average. In addition, after the implementation of the athletic code, there continued to be a significant and positive relationship between academic success and athletic participation. There was no drop in the number of participants. Additional research is recommended to further extend the study.

Klubberud, Arne. *An analysis of official athletic department Web sites for NCAA II, NCAA III, and NAIA colleges; an attempt to build a model for small college official athletic department Web sites*, 2002. M.A., University of North Carolina, Chapel Hill (Ronald Hyatt). (52pp 1f \$6.00) PE 4494



Gaining a better understanding of the role of official athletics department web sites was the purpose of my study. A stratified random sample of 150 NCAA II, NCAA III, and NAIA colleges (50 from each division) was selected for the survey. The survey was e-mailed to the Sports Information Director or Athletics Director at each college, soliciting information regarding the background, maintenance, operation, and uses of their sites. The major findings were that small colleges overall use their sites to post basic content daily but fail to fully use the potential of the Internet as a marketing tool. There is an overall need to bolster both human and monetary resources for the purpose of site operation, maintenance, and enhancement. Further, unlike NCAA I, small colleges are unlikely to outsource Internet rights, choosing instead to maintain html or Web publishing software based Web sites.

Kramer, Carol. *An analysis of the changing standards of the American Red Cross lifeguarding certification at guarded indoor aquatic facilities in Pennsylvania*, 2002. M.S., Slippery Rock University (Catriona Higgs). (73pp 1f \$6.00) PE 4485

Little research exists that explores the American Red Cross Lifeguarding Standards as they relate to safety at aquatic facilities and the profession of aquatics. The purpose of this study was to survey 100 aquatic directors regarding the effect that the changed American Red Cross lifeguard standards have had on the safety of patrons at guarded indoor aquatic facilities in Pennsylvania. A secondary purpose was to survey aquatic professionals' attitudes and opinions regarding these changes. A pilot study was conducted with 10 aquatic professionals to assist with the development of a survey for this study, which was partially based on a questionnaire used by Ogoreuc (1996). Data were obtained from a sample of 100 aquatic directors for indoor facilities in Pennsylvania. Results suggested that the changing standards of the American Red Cross Lifeguarding Program may have had a negative impact on the safety of patrons at guarded facilities in Pennsylvania. The results also suggested that aquatic professionals do not believe that the American Red Cross is properly training lifeguard candidates to perform their jobs effectively.

Ludwig, Chad A. *Criteria evaluated by NCAA Division III prospects when choosing a college*, 2002. M.A., Ball State University (Jacalyn Lund). (50pp 1f \$6.00) PE 4503

The purpose of this study was to identify criteria that are most important to incoming freshman football players at the NCAA Division III level when choosing a college. Two hundred and forty-one incoming freshman from eight Division III institutions from a Midwestern state were surveyed. There were four parts to the study: athletic aspects, academic aspects, social aspects, and overall aspects of a university. According to the study, NCAA Division III football players considered the relationship with the coaching staff the most important athletic aspect

for selecting a college. The most important academic aspect was the prestige of the university. Socially, the student-athletes were most interested in the size of the school. Academic aspects were found to be the overall most important factor when choosing a college for NCAA Division III freshmen football players.

Mikel, Douglas J. *The criteria that athletic directors use to evaluate successful head football coaches' effectiveness in the NCAA, NAIA, and NJCAA: a comparative study*, 2003. M.A., Ball State University (Valerie Wayda). (78pp 1f \$6.00) PE 4505

The purpose of this paper was to gather data from NCAA, NAIA, and NJCAA athletic directors concerning the criteria they use in evaluating their head football coaches, and to determine if differences existed across affiliation. After reviewing the literature, 16 criteria were identified as important in evaluating head football coaches, but no information existed as to the priority of these 16 criteria. The researcher created a questionnaire based on these 16 evaluation criteria. The questionnaire was then sent to the athletic directors at 50 NCAA, 50 NAIA, and 50 NJCAA institutions whose football programs had been successful over the past five years. Of the 99 questionnaires returned seven were unusable. There were almost an even number returned and usable from each group (NCAA,  $n=31$ ; NAIA,  $n=31$ ; NJCAA,  $n=30$ ). Overall the 16 criteria appear to be inclusive of the criteria most athletic directors used to evaluate a head coach. The findings of this study would suggest that athletic directors of successful football programs value high moral standards, recruiting ability, compliance with philosophy, and knowledge of football when it comes to evaluating their head football coaches. The NCAA athletic directors' prioritization of evaluation criteria appears to contradict the NCAA philosophy when evaluating head coaches; however, the prioritization of criteria for NAIA and NJCAA was consistent with their philosophies. There were some differences by association. The NCAA athletic directors would retain a football coach who wins, complies with the NCAA philosophy, and has a high graduation rate. In comparison, NAIA and NJCAA athletic directors ranked several other criteria as more important than winning. The NAIA athletic directors would retain a highly enthusiastic coach and the NJCAA athletic directors would retain a coach who has high moral standards and who is a positive role model. Understanding the differences can better guide future and existing head coaches to meet the expectations of their athletic program. In addition, athletic directors can use the information to develop a more effective evaluation process for their head coaches.

Millar, Matthew D. *Funding Kesler Activity Center: a floor plan for success*, 2003. M.A., Ball State University (Jerry Rushton). (110pp 2f \$12.00) PE 4506



The purpose of this project was to develop a fundraising plan to fund the construction of the Kesler Activity Center on the campus of Taylor University (Upland, Indiana). The fundraising plan created involved the construction of an alumni/guesthouse in which the guesthouse would act as a time-share for 13 wealthy persons who donated a specified amount of money to the Kesler Activity Center Fundraising Campaign. The plan was presented before the William Taylor Foundation, the fundraising organization for Taylor University, in order to validate the plan and attempt to have Taylor accept the plan and carry it to completion. Although Taylor declined to carry out the plan, the William Taylor Foundation found the plan to be valid and believed it could be used by other institutions.

Moky, Kristine A. *Making successful strides: developing a training manual for assistants, tutors, and volunteers in the Strides to Success and Leading the Way programs*, 2002. M.S., University of Wisconsin, La Crosse (Gary D. Gilmore). (130pp 2f \$12.00) PE 4476

The purpose of this project was to develop a training manual for assistants, tutors, and volunteers in the "Strides to Success" (STS) and "Leading the Way" (LTW) programs at Winona Middle School (Winona, Minnesota). This was based on an established need by the STS staff and action council to implement training for the partners and volunteers that work directly with the program and its participants. STS is an early intervention/prevention youth development program designed to provide children who exhibit at-risk behavior the education and support they need to make healthy decisions, build personal assets, and develop competencies. Youth learn non-violent conflict resolution skills, encouraging success in school with more intervention, providing interaction with adult role models, nourishing a positive self image, and developing an awareness and respect for others in the STS program. LTW is a program which involves high school students who participated in STS during middle school. It employs selected high school students through STS to tutor middle school students and assist in program facilitation. The manual development and evaluation process involved many intricate steps incorporating the staff and Action Council of STS.

Phillips, Tina. *Factors in the retention of NCAA Division III student-athletes*, 2002. M.S., Springfield College (Cathie Schweitzer). (113pp 2f \$12.00) PE 4519

This investigation was designed to examine factors in the retention of intercollegiate student-athletes at the nonscholarship level as measured by the Questionnaire on Retention of NCAA Division III Student-Athletes. Directors of Athletics from all NCAA Division III membership institutions ( $N=395$ ) were sent the questionnaire with 78 returned (19.6%). Results of the questionnaire were analyzed using independent groups t-tests. A significant

difference ( $p<.05$ ) was found between high and low retention sports with regard to having a full-time head coach. No significant ( $p>.05$ ) differences were found between the two groups with respect to conducting a nontraditional season, team/athletic department supported academic assistance programs, and life skills programs. A significant ( $p<.05$ ) difference was found between males and females in their rankings of financial reasons as a factor for no longer participating in athletics. No significant difference ( $p>.05$ ) was found in the male and female student athletes' mean retention rates. Satisfaction of the student athlete is at the essence of the retention research and directors of athletics and coaches should continue to investigate those factors.

Stevens, Adam. *Factors that influence the college selection process of baseball players*, 2003. M.A., Ball State University (Jeff Pauline). (43pp 1f \$6.00) PE 4531

This study investigated factors that were influential in the college selection process of baseball players. It also investigated differences between influential factors for student athletes at each NCAA Division. 161 college baseball players from six colleges/universities participated in the study. They were given the Influential Factors Survey for Student Athletes. Results showed the five most influential factors to be: winning program, opportunity to play early in career, baseball specific facilities, coach's personality/style and tradition of athletic program. The athletics section of the survey was deemed most influential by baseball student athletes. There were differences between the student athletes at each NCAA Division. Division III athletes viewed academics to be significantly more influential than did Division I and II athletes. Division II athletes viewed financial aid to be significantly more influential than did those in Division I or Division III.

Sturm, Tamara J. *Gender differences in career goals of intercollegiate athletes and in the perceptions of athletes and coaches about the decline in the percentage of female coaches*, 2003. M.A., Ball State University (Arlene Ignico). (72pp 1f \$6.00) PE 4532

The purpose of this study was to investigate gender differences in reasons given by intercollegiate athletes for planning to enter or not enter the coaching profession. The reasons given by coaches and athletes for why the percentage of females in the coaching profession has declined was also investigated. In 2002, the number of female teams that were coached by women was 44% as compared to more than 90% prior to the enactment of Title IX. A questionnaire designed by George (1989) was revised and administered to Ball State University student athletes and head coaches. One t-test was calculated ( $p<.01$ ). Frequency counts and percentages were used for data analysis. No statistically significant differences were reported by gender. There were differences in the frequency of re-



sponses. Information regarding why current athletes plan to enter or not enter the coaching profession can provide administrators, those hiring coaches, an advantage in increasing and/or maintaining the current female coaching population.

Wilson, Rebecca J. *An analysis of the Women's National Basketball Association*, 2003. M.A., Ball State University (Arlene Ignico). (73pp 1f \$6.00) PE 4508

The purpose of this study was to determine whether or not the Women's National Basketball Association (WNBA) has lived up to the expectations of each of the individual teams in terms of community service, attendance, television exposure, sponsorship income and profitability. Participants completed a 12-item questionnaire. The purposes of this questionnaire were to ascertain employees' opinions about the team's marketing and public relations efforts, the quality of on-court play, home attendance figures, commitment to community service, level of television exposure and the team's income from sponsorship. The survey also asked employees to provide numerical data related to attendance figures, the number of games televised, for how many organizations their team has done community service work, the team's income from sponsorship sales, and the team's net profit or loss. Employees ( $N=11$ ) representing eleven teams completed the questionnaire. The average team in the WNBA supports 6 charities per season. Television exposure has increased by 13% since the WNBA's first season. Representatives from all teams reported that the quality of on-court play has increased since the first season. Most teams in the WNBA indicated that their attendance rates, which have decreased since the first season, have not met their expectations. This is despite the fact that most teams have increased their marketing and their public relations efforts since the first season. Most teams in the WNBA are happy with the level of community service that they have undertaken. Due to the privacy of their financial information, all but one team did not indicate their net profit/loss or the amount of income they received from sponsorship deals. However, most teams in the WNBA reported that their sponsorship income has not met their expectations.

## COACHING AND TRAINING

Arnett, Mary S. *The physiological effects of drafting in runners*, 2002. M.S., University of Wisconsin, La Crosse (Carl Foster). (43pp 1f \$6.00) PE 4475

The drafting effect has not been thoroughly studied in running. The purpose of this study was to compare  $\text{VO}_2$ , HR, BLA, and RPE during 6-minute running bouts with variations of wind velocities and with drafting. Six collegiate runners (3 male, 3 female) performed a maximal GXT and six 6-minute running trials against a wind

velocity of  $0 \text{ m}\cdot\text{s}^{-1}$ ,  $3.64 \text{ m}\cdot\text{s}^{-1}$ , and  $4.7 \text{ m}\cdot\text{s}^{-1}$ . Three of these trials were done when drafting off a second runner, one at each wind velocity and three trials without. Comparisons were made using repeated measures ANOVA. Volume of oxygen consumed ( $\text{VO}_2$ ) was significantly lower ( $p=0.02$ ) when drafting at a wind velocity of  $4.7 \text{ m}\cdot\text{s}^{-1}$  ( $53.9\pm 6.42$  vs.  $52.4\pm 7.32$ ), which equals a 2.9% reduction in  $\text{VO}_2$ . RPE was significantly lower ( $p=0.029$ ) when drafting at a wind velocity of  $4.7 \text{ m}\cdot\text{s}^{-1}$  ( $5.5\pm 1.23$  vs.  $3.8\pm 0.75$ ). There was no significant difference in HR or BLA at any wind velocity. The results are in partial agreement with similar research. The drafting effect in running may help coaches and runners to train for performances and to develop time- and energy-saving racing strategies.

Bernard, Eric M. *The effects of a two-week resistance exercise overtraining protocol on muscular performance*, 2002. M.S., University of Memphis (Andrew Fry). (53pp 1f \$6.00) PE 4523

The major finding of this study was that, with previously weight-trained males, peak power and peak force were the most sensitive variables, using a high relative intensity, low volume, resistance exercise overtraining (OT) protocol for the lower body. Relative intensity is based on a person's 1 RM. In this training protocol, weight was set at a specific percentage of the person's 1 RM. This takes into account that people may have different 1 RMs, but, if they are working out at 80% of their 1 RM, the relative intensity is the same. 1 RM performance decrements were also evident as a result of the training. When compared to previous high-intensity resistance exercise OT research, it appeared that not allowing any days off in the OT phase of training was an important factor, along with maximal intensity to induce OT.

Compton, Bryan J. *The effect of two golf training techniques, a hologram ball and dry swings, on performance and self-efficacy in novice golfers*, 2003. M.S., Ball State University (Valerie Wayda). (115pp 2f \$12.00) PE 4525

The purpose of this study was to determine if the use of one of two training techniques, dry swings and a hologram ball, while practicing golf swings, increases the quality of performance of club-head speed just before ball to club impact, club-head path before ball to club impact, and clubface angle at ball to club impact, as well as enhances self-efficacy of golfers when compared to a control group that hits real golf balls. Forty-seven volunteers participated in the study. The hologram practice condition had ( $n=18$ ) participants, the dry swing practice condition had ( $n=13$ ), and the golf ball practice condition had ( $n=16$ ) participants. The participants were pre-tested on all swing variables and self-efficacy. This was followed by practice sessions twice per week for five weeks. After the completion of the practice sessions the participants were post-tested on all swing variables and self-efficacy. The results indicated a





significant increase in club-head speed for the hologram practice condition while a significant decrease in club-head speed was found for the dry swing and golf ball practice conditions. The results also indicated a significant decrease in the quality of performance for clubface angle in the hologram practice condition while a significant improvement was found in the golf ball practice condition. The dry swing practice condition showed no significant change. With regards to club-head path and self-efficacy no significant differences were found from the pre-test to the post-test.

Gardiner, Laura C. *Fatigue-related compensation in core musculature during a lacrosse shot*, 2003. M.A., University of North Carolina, Chapel Hill (Rick Mynark). (136pp 2f \$12.00) PE 4491

The purpose of this study was to determine how core musculature responds to fatigue by examining mean EMG amplitude, force development time (FDT), and stick acceleration during a lacrosse shot. Twenty-two female lacrosse players participated. First, five lacrosse shots were taken, then an abdominal fatigue protocol, consisting of a 3-point crunch, was performed. Immediately following, another five shots were taken. Repeated-measures ANOVA revealed significant main effects for decreases in mean EMG amplitude in six of eight core muscles, and increases in FDT in one core muscle ( $p < 0.05$ ). There was no change in shot acceleration ( $p > 0.05$ ). The changes in mean EMG amplitude and FDT of the low back muscles suggest a change in descending control of the core musculature, compensating for abdominal fatigue. No change in stick acceleration suggests compensation by the extremity muscles. In conclusion, local core fatigue alters muscle recruitment strategies during a lacrosse shot.

McGinnis, Chris J. *Influence of practice golf balls on the performance of a golf swing*, 2003. M.S., Springfield College (H. Joseph Scheuchenzuber). (121pp 2f \$12.00) PE 4516

Using three different types of golf balls, this investigation was designed to determine if differences existed in pre-test and post-test club head horizontal velocity at impact, the angle of the wrist at impact, and the area of the hub movement during the golf swing. A total of 15 healthy, right-handed male golfers were assigned to one of the three following groups: regulation, foam, or hollow. All subjects were instructed to hit a regulation golf ball toward a target 50 yds (45.72 m) away. After a three-week practice period, the subjects returned for post-test analysis under the same conditions as the pre-test. A total of three  $3 \times 2$  mixed factorial ANOVA were performed on the club head horizontal velocity at impact, angle of the wrist at impact, area of the hub movement during the golf swing. A significant ( $p \leq 0.05$ ) main effect was found between group assignments with regard to club head horizontal velocity at impact. No significant ( $p \geq 0.05$ ) interaction or main effect

was found between the group assignments and the testing periods with regards to all other dependent variables. Possible reasons for lack of differences include length of practice period, influence of additional practice, and the role of the projection angle.

Mills, Jonathan D. *The effect of a 20-week training regimen on lumbo-pelvic stability, balance, agility, and leg power in college and university-level female athletes*, 2003. M.S., University of British Columbia (Jack Taunton). (119pp 2f \$12.00) PE 4517

This study investigated the capacity of female athletes to improve stability within the lumbo-pelvic region, and quantified a relationship between lumbo-pelvic stability and athletic performance. Thirty participants were selected from university and college female volleyball and basketball teams and randomly assigned to either a treatment, pseudo-treatment, or no-treatment control group. The treatment and pseudo-treatment groups participated in distinct 10-week training regimens emphasizing recruitment of either the transversus abdominus and lumbar multifidus muscles of the lumbar spine or the rectus abdominis and external obliques of the abdomen. Lumbo-pelvic stability (Stabilizer pressure biofeedback unit), balance (static and dynamic Bass tests), agility (T-test), and leg power (Sargent's vertical jump test) were measured before and immediately after the 10-week study period. A combination of repeated measures ANOVA and non-parametric Friedman and Wilcoxon analyses identified significant differences between the improvements in lumbo-pelvic stability for the treatment and pseudo-treatment groups relative to the control group. The agility and leg power of the treatment group improved relative to the pseudo-treatment and the control groups. There were, however, no significant differences between the improvements of any of the groups on the static and dynamic balance measures. Pearson's product-moment correlation coefficient identified significant relationships between the measures of lumbo-pelvic stability and athletic performance, but there were no significant correlations between the improvements in lumbo-pelvic stability and the improvements in athletic performance. The results of this study demonstrate that lumbo-pelvic stability can be improved through training, although the focus of training (local stability vs. global mobility) seems to account for little difference in the extent of this improvement. While athletes with the most stable lumbo-pelvic regions demonstrated the best scores for agility and leg power, there was no correlation found between improvements in lumbo-pelvic stability and improvements in athletic performance. The findings of this study indicate that athletes can improve stability of the lumbo-pelvic region by participating in training regimens which focus on the recruitment of either local stability or global mobility muscles. However, improvements in athletic performance are not likely to occur as a result of improvements in lumbo-pelvic stability alone.



Petteys, Carrie L. *The effect of pre[-]exercise feeding on endurance performance*, 2002. M.S., University of Wisconsin, La Crosse (Carl Foster). (35pp 1f \$6.00) PE 4480

Glycogen depletion can have a deleterious effect on endurance performance. The use of carbohydrates ingested either before exercise or during has been a topic of numerous studies. However, previous studies have been seriously limited by the use of non-athletically representative outcome measures. This study was designed to test whether or not ingesting a carbohydrate solution 30 min prior to endurance exercise would have an effect on endurance performance. Ten well-trained cyclists performed three 40-km time trials (one for habituation purposes), using a control and a carbohydrate solution (35 grams). Time to completion, power output, velocity, blood lactate, blood glucose (BG), HR, and RPE were measured during the ride. There were no significant differences, except for a significant drop in BG at the beginning of the ride. Based on these results, the use of carbohydrates before endurance exercise does not hinder endurance performance.

## GROWTH AND DEVELOPMENT

Geithner, Christina A. *Somatic growth, maturation, and submaximal power output of Polish adolescents: a longitudinal study*, 1995. Ph.D., University of Texas, Austin (Robert M. Malina). (390pp 5f \$30.00) PE 4464

Sex- and activity-associated variation in growth status, submaximal power output (PWC170), and the timing and tempo of maturation were considered in 105 Polish adolescents followed from approximately 11 to 18 years of age. Curves were fitted to longitudinal data for individuals with kernel regression, and ages at peak velocity (PV) and peak velocities (PVs) were estimated for 16 dimensions and PWC170 for each individual. Cross-sectional and fitted means plotted relative to reference data for Warsaw youth indicate that the sample is representative of the population. Mean age at peak height velocity (PHV) in males,  $13.5 \pm 1.1$  years, suggests advanced maturity status relative to most samples. Females are average in maturity status (mean age at PHV =  $11.93 \pm 0.7$  years). Mean ages at PV in females are earlier than those in males, except for that in PWC170; whereas mean PVs are greater in males. PVs occurred within a two year period. The spurt in PWC170 occurs near ages at PHV and peak weight velocity (PWV) in both sexes; however, its relative timing varies by sex. Mean and modal sequences of PVs vary by sex and are consistent with most sequences reported previously; however, there is considerable variability among individuals in the sequence of growth spurts. The triceps skinfold decreases and the subscapular and abdominal skinfolds increase in males, while all three skinfolds increase in females during

adolescence. Females gain more subcutaneous fat than males, particularly in mid- to late adolescence, while males gain proportionally more fat on the upper trunk relative to the upper extremity and lower trunk. Correlations between ages at PV and PVs are generally negative, while correlations among ages at PV and among PVs are generally positive. All correlations are low to moderate in magnitude. Males active in sport are significantly taller and tend to have an earlier mean age at PHV ( $p < 0.083$ , NS), which suggests early maturity status. Females active in sport, on the other hand, do not differ in age at PHV and menarche from girls not active in sport. There are no other significant differences in growth or maturation between adolescents of either sex who differ in sport activity status. These findings are consistent with the literature.

## HISTORY AND PHILOSOPHY

Haesey, Michael J. *Transformational leadership theories, attribution beliefs, and self-efficacy: a qualitative study of one successful NCAA wrestling coach*, 2002. Ed.D., Indiana University of Pennsylvania (Wenfan Yan). (229pp 3f \$18.00) PE 4472

The purpose of this study was to explore how an individual coach was able to lead his team with such success for over a period of twenty-one years. In-depth qualitative research was conducted to study Mr. Daniel Mack Gable, the head wrestling coach at the University of Iowa from 1977 until 1997 who led his teams to 21 Big Ten titles and 15 NCAA titles. The following five major questions guided this qualitative study: (a) What characteristics did Dan Gable possess that enabled him to be so successful? (b) Was Dan Gable a transformational leader according to the theories of transformational leadership? (c) Did Dan Gable change his leadership style from 1977 to 1997? (d) Was attribution theory used in Gable's motivational approach to his athletes? (e) Was Dan Gable able to incorporate self-efficacy into his athletes? The in-depth interviewing techniques, consisting of structured and open-ended questioning, were conducted with Dan Gable and five former NCAA Champions that competed for Gable. A cross-case analysis was performed. Key answers were then presented in a matrix format. The results indicate that Gable was successful due to a variety of factors including: enthusiasm for each athlete, motivating everyone, creating a successful environment, and encouraging hard teamwork. The results also indicate that Gable was a transformational leader by demonstrating high expectations, strong modeling, and encouraging competition. Gable also used attribution theory in his approach to athletes by making his athletes attribute success to ability and effort and never to dwell on luck. The findings also indicate that Gable incorporates self-efficacy into his athletes by visualizing and maintaining a high level of confidence.



Hudson, Nicole A. *The history and significance of the women's Central Intercollegiate Athletic Association basketball tournament, 2003*. M.A., University of North Carolina, Chapel Hill (Barbara Osborne). (70pp 1f \$6.00) PE 4493

The history of the Women's Central Intercollegiate Athletic Association (CIAA) Basketball Tournament is one of family, homecoming, and celebration. This tournament has progressed from a satellite event held for a few teams at separate venues to an integral part of the weeklong CIAA tournament experience. The CIAA Tournament is a significant part of the past, present and future of the CIAA. This event provides African American women and men an opportunity for reflection and rejuvenations. Interviews were conducted with former and current CIAA players, coaches and administrators. Past records and top performers were found through a search of the CIAA archives. Recommendations for continued growth in marketing, TV game packaging and corporate sponsorship, to insure the continued growth of this event are made. The Women's CIAA Tournament is an enormous event that entertains and refreshes all who are involved, be it players, coaches, administrators or fans.

## PEDAGOGY AND CURRICULUM

Adams, Rozlyn N. *The effects of an individualized instructional fitness program, taught in conjunction with the established physical education curriculum, upon selected health-related fitness performance scores of fifth grade students, 2003*. M.S., Slippery Rock University (Betsy McKinley). (97pp 1f \$6.00) PE 4514

The purpose of this study was to examine the effects of an individualized instructional fitness program, taught in conjunction with the regular physical education curriculum, upon selected health-related fitness test scores of fifth grade children. The subject group in this investigation was comprised of 61 fifth grade students from Slippery Rock Area Elementary School. Thirty-four participants comprised the experimental group, who participated in an individualized fitness training program in addition to their regular physical education and twenty-seven participants comprised the control group, who participated only in the regular physical education curriculum. Both groups were tested at baseline and after 12-weeks on push-ups, sit-ups, and the sit-and-reach. The post-test mean score for each fitness test was calculated. Mean test scores were compared between the experimental and control groups after pre- and post-testing. Data were analyzed using an independent t-test ( $\alpha < 0.05$ ) for push-ups and sit-and-reach. Analysis of covariance (ANCOVA) was used to analyze the sit-up test, since the mean scores for the control and experimental groups were significantly different on the pre-test. The mean scores for the total number of push-ups performed was significantly greater ( $p < 0.05$ ) for the

experimental group when compared to the control group on the post-test. The mean scores for the total number of sit-ups performed and sum of distance for the sit-and-reach showed no significant difference ( $p < 0.05$ ) between the experimental and control groups on the post-test. Therefore, it appears that the individualized training program only significantly improved the push-up scores.

Goto, Kenta. *The effects of applied behavior management training on a pre-service teacher's perceptions and engagement patterns in a child with autism: a preliminary study, 2002*. M.S., Indiana University (Francis M. Kozub). (133pp 2f \$12.00) PE 4478

As children with autism engage in challenging behaviors, such as aggression, self-injury, and stereotyped behavior, an appropriate intervention by physical educators is contingent upon accurate and positive perceptions. A triad, including a pre-service teacher, a child with autism, and a peer without a disability, was involved in this study for interactions between each other in physical education settings over the period of five weeks. The study was divided into three phases: baseline, intervention, and maintenance. The CHABA was used to measure a pre-service teacher's learned positive and biomedical perceptions of challenging behavior in a child with autism. The Engagement Check also was used to evaluate engagement patterns in a child with autism while participating in physical activities with a pre-service teacher, a peer without a disability, and the physical environment. Results suggested that more study is needed to help determine if applied behavior management training has an impact on pre-service teacher perceptions of challenging behavior in children with autism. Limited data and the duration of the current study lead to the conclusion that it is premature to infer that training can have an impact on perceptions and subsequent learner behavior.

Guyer, M. S. *Factors that influence cognition and problem solving abilities of athletic training students, 2003*. D.P.E., Springfield College (Stephen C. Coulon). (195pp 3f \$18.00) PE 4511

This qualitative investigation was designed to evaluate factors that influence cognition and problem solving abilities of athletic training students. Participants ( $N=9$ ) were sophomore, junior, and senior level athletic training students (ATS) who were currently enrolled in a CAAHEP athletic training education program. Content analysis involved analyzing the data from the field observations, open-ended interviews, stimulated recall interviews, and injury reports using microscopic, open, axial, selective, and coding for process in a grounded theory approach. Data were evaluated for common categories. Cognitive information processing, transfer of learning, and learning environment were different for the sophomore, junior and senior ATSs. Information processing focused on schema develop-



ment, chunking, retrieval, and use of knowledge. Transfer of learning focused on the ability to use cognitive information in a psychomotor application, the depth and breadth of knowledge that the student possesses, and the effects of previous experience. The learning environment focused on the level of comfort and confidence, socialization, cognitive stimulation, and feedback.

Kosma, Maria. *Interactive vs. non-interactive electronically delivered motivational materials for physical activity initiation and enhancement among adults with physical disabilities*, 2003. Ph.D., Oregon State University (Jeffrey A. McCubbin and Bradley J. Cardinal). (121pp 2f \$12.00) PE 4484

Participation in physical activity has important health benefits among individuals with disabilities, whereas inactive lifestyles may lead to secondary limiting health conditions. However, few people with disabilities regularly participate in the recommended amount of health-related physical activities. Low rate of participation may be related to low motivation due to interconnected psychosocial factors. The Transtheoretical Model is a contemporary motivational theory incorporating several theoretical constructs that can facilitate physical activity initiation and adherence. There is lack of empirical evidence related to the development and delivery of physical activity motivational programs toward people with disabilities. The current literature identifies the need for theory-driven and appealing physical activity intervention programs. Therefore, the purpose of this study was to compare Web-based interactive (i.e., group discussions) vs. non-interactive physical activity motivational materials tailored to mainly inactive adults with physical disabilities. This was a true experimental design with two experimental and one control group. The results of the study demonstrated that the intervention program was effective in increasing leisure-type physical activity for the experimental non-interactive group that received only the Web-based materials ( $F(2,72)=3.3, p=.04$ ). Similarly, statistical significance was approached for total physical activity scores ( $F(2,72)=2.8, p=.07$ ) in the Web only (i.e., non-interactive) group (Effect Size = .34) from pre- to post-intervention. On the contrary, the control group decreased their leisure-type physical activity level between pre-test and post-test (Effect Size = -.30). There was neither statistically significant interaction nor main effects for processes of change, decisional balance, and self-efficacy. Lastly, the proportion of people in the Web only group (59%) who progressed in their stages of change was higher than the proportion who progressed in the control group (27.6%) ( $\chi^2 [1, N=51] = 5.13, p=.02$ ). The results of this study partially support the development and delivery of Web based physical activity motivational materials for the posited population. Such materials may be applicable to other populations of different disability types, ages, cultural and ethnic backgrounds.

Meehan, Brendan P. A. *Using digitally versatile disk (DVD) video technology for teaching disability sport, games, and activities to general physical educators*, 2002. M.S., Ball State University (Ronald Davis). (51pp 1f \$6.00) PE 4529

The purpose of this project was to design, create, and implement a pilot for an adapted physical education (APE) DVD-video teaching aid. This creative project has resulted in a DVD-video that can be used as an instructional tool and resource for physical educators. It follows the teaching methods and skills from the wheelchair basketball chapter in Davis (2002), featuring strategies and ideas that can aid in the successful teaching of physical education (basketball) to individuals of all abilities. The use of interactive DVD-video in a learning environment is seen as an innovative and exciting delivery method for instructional purposes. It is proposed that the majority of learners would enjoy using, and acquire a very significant learning experience from using, interactive DVD-video instruction. Therefore, it is anticipated that physical educators would get a meaningful APE training experience from an interactive instructional DVD-video such as the one piloted for this creative project.

Smith, Diane M. *Development of a thematic curriculum framework for middle school physical education*, 2002. D.P.E., Springfield College (Deborah Sheehy). (404pp 5f \$30.00) PE 4520

This investigation was designed to develop a thematic curriculum framework for middle level physical education using the Delphi technique. The framework was based on representative middle level themes determined by a panel of experts ( $N=11$ ) to be appropriate to extend the physical education content standards outlined in *Moving into the Future, National Standards for Physical Education: A Guide to Content and Assessment* (National Association for Sport and Physical Education [NASPE], 1995). Participants were members of the NASPE Standards and Assessment Task Force and physical education professionals who reviewed the Content Standards for Physical Education. The study was completed in four phases: (a) Phase 1, the panel of experts selected the representative middle school themes to extend the NASPE Content Standards for Physical Education; (b) Phase 2, the researcher developed the thematic framework with the support of an extensive literature review, using the content standards, modified for this study, as the goals for the framework; (c) Phase 3, a two round Delphi was used to establish content validity of the thematic curriculum framework for physical education; and (d) Phase 4, the final revision of the thematic framework by the researcher.

Turner, Thomas W. *A constructivist approach to coaching education: a study of learning experiences*, 2001. Ph.D., Kent State University (JoAnne Vacca and Steven Mitchell). (339pp 4f \$24.00) PE 4469



There are over 3 million youth soccer players registered in the United States. The majority play in recreation-level programs. Recreation coaches are often brought into soccer because of their siblings' participation. They are generally not teachers nor do they have a soccer background. Coaching education programs in the United States are grounded on the assumption that the best way to develop these coaches is for expert models to demonstrate perfect practices. The purpose of this study was to begin to understand the nature of the novice soccer coaches' experience and to develop insights into the process of learning to coach. Specifically, the study sought to understand (a) what soccer specific information was most relevant to novice coaches, (b) what practical knowledge and experiences helped novice coaches develop their skills as field coaches, (c) what information landmarks were evident in learning to coach, (d) how novice soccer coaches assimilated and accommodated soccer-specific and pedagogical information, and (e) what questions novice coaches asked a professional coach acting in the role of a mentor. Three adult males participated in a co-generative action research group. Data collected from the 8-week investigation encompassed practice observations, seminar discussions, pre-study questionnaires, and reflective journals. An adaptation of the Teaching Games for Understanding model was used. The data were analyzed qualitatively. Novice coaches relied on past athletic experiences, societal expectations, and program literature to guide their coaching. Developing pedagogical knowledge was more important than developing soccer knowledge. Relevant soccer knowledge was limited to individual tactical awareness. The participants' rate of development was related to prior athletic and professional experiences. Practical experiences were found to be critical for learning. Familial influences were closely related to the development of new insights. Mentoring was found to be beneficial for coaching development, and participating with the children and cuing their performances were the most effective teaching tools. A basic appreciation of top-level soccer was an important contextual detail for appreciating the value and purpose of small-sided games.

## **SOCIOLOGY AND CULTURAL ANTHROPOLOGY**

Burns, Eric T. *The prevalence of sport gambling in NCAA Division III student-athletes*, 2003. M.A., Ball State University (Daniel Byrnes). (57pp 1f \$6.00) PE 4498

The purpose of this research was to examine the frequency of sport gambling activities by student athletes at the NCAA Division III level, in comparison to athletes at the Division I level; to examine the frequency of sport gambling activities in male and female Division III athletes; to examine the frequency of general gambling activities of

Division III athletes in comparison to the general gambling activities of Division I athletes; and to examine the frequency of sport gambling by Division III athletes involving revenue- and non-revenue-producing sports. The researcher chose four NCAA Division III institutions in the State of Indiana to conduct research for this study. Seventy-four student athletes from the institutions completed a questionnaire on general gambling and sport gambling behavior. 32 percent of Division III athletes had gambled on sports. Males gambled more than females. No differences were found between sport gambling practices with respect to revenue- and non-revenue producing sports.

Kubik, Jaclyn M. *Moral judgment of professional and recreational athletes*, 2003. M.S., Springfield College (Mimi Murray). (124pp 2f \$12.00) PE 4512

The investigation was designed to examine the levels of moral judgment of professional and recreational athletes. The Defining Issues Test-2 (DIT-2; 1998) was administered to 50 professional arena football players, and 50 recreational union rugby players in the Midwest and New England Regions of the United States. Age and educational level, as well as the Principle Score (P-Score) and the N2 Index from the DIT-2 were obtained. As expected, professional athletes had significantly ( $p \leq .05$ ) higher age and educational levels than the recreational athletes. Recreational athletes had a significantly ( $p \leq .05$ ) higher N2 Index; however, no significant ( $p \geq .05$ ) mean difference was found between professional and recreational athletes regarding the P-Scores. The restricted range in age and educational levels was probably why the expected relationships of moral judgment were not found. No significant ( $p \geq .05$ ) relationships were found between age or educational level and moral judgment due to the restricted range in educational levels. Professional athletes had lower levels of moral judgment than recreational athletes in regard to the N2 Index.

Matthews, Bryan M. *Lifesports: an urban youth sports organization based on the principles of character building, academic success, and career development*, 2003. M.A., Ball State University (Jacalyn Lund). (104pp 2f \$12.00) PE 4504

The purpose of this creative project was to gain an understanding about the needs of urban youth and to develop a youth sports and life skills program to meet those needs. The study found that urban youth suffer much harsher circumstances than their peers from more affluent communities. However, youth program leaders have discovered that when mentored by positive, caring, well-trained individuals, urban youth, regardless of their surroundings, can successfully transition to adulthood. A successful transition means that youth become self-sufficient by mastering daily tasks, gaining employability skills, learning to achieve academically, and functioning well socially and emotionally. Additionally, the study found



that youth-sports- and life-skills-oriented programs aid significantly in this transition to adulthood. The end result of this creative project was an urban youth sports organization boasting an innovative philosophy that intertwines sports, life skills workshops, academic assistance, and career preparation. The validity of the creative project was checked by a recreation expert. Additionally, the project was compared with current literature for concurrent validity.

## SPORTS MARKETING

Fukumura, Takuyoshi. *A comparison of sport sponsorship objectives of companies in the United States and Japan*, 2003. M.S., Springfield College (Craig Poisson). (91pp 1f \$6.00) PE 4510

The study was designed to investigate the objectives of companies in the United States and Japan. A total of 57 companies participated in the study: 27 in the United States and 30 in Japan. All participants completed the Sport Sponsorship Objectives Questionnaire, developed by the researcher. From an analysis of t-tests performed on the mean difference in the importance of objectives, similarities as well as differences were found between companies in the United States and Japan. Company leaders in the United States focused on commercial oriented objectives, such as increasing sales and market share and extending their business connections in sport sponsorship more than Japanese companies. On the other hand, company leaders in Japan seem to value objectives related to image more than company leaders in the United States. Further research would be needed to investigate the reason and background of these differences.

Hepp, Jacob M. *A study of the relationship between draft position and success in the NBA*, 2003. M.A., University of North Carolina, Chapel Hill (Edgar W. Shields, Jr.). (61pp 1f \$6.00) PE 4492

The purpose of this study was to examine the NBA draft, specifically to determine the relationship between NBA draft position and success defined by (1) how many years a player played in the NBA, (2) how many years a player started on an NBA team, and (3) how many years a player was selected to the NBA all-star team. Career statistics were compiled of all basketball players selected in the first and second rounds of the NBA draft from 1980 to 1989. Simple correlations revealed that 82% of the variation in years of play in the NBA is explained by or is associated with draft order, 66% of the variation in years as an NBA starter is explained by or is associated with draft order, and 41% of the variation in years of selection to the NBA all-star team is explained by or is associated with draft order. Finally, the descriptive statistics suggest an observable decrease in success for draft positions after the first 14 selections.

Johnston, Janice. *The impact of 2001 Super Bowl sponsorship on consumer purchase intention relative to corporate image and prior use*, 2001. M.S., Slippery Rock University (Catriona Higgs). (82pp 1f \$6.00) PE 4482

Sport sponsorship is currently the largest form of sponsorship in North America accounting for over 5.9 billion dollars in rights fees alone in 2000. This study examines the impact of Super Bowl sponsorship in 2001 on consumer purchase intention related to corporate image and self-reported prior product use. 102 (equal number of male and female) respondents age 21 and older were personally interviewed in the metropolitan Philadelphia area. Three consumer package categories and one dummy sponsorship category were used for the study. The study examined the impact of Super Bowl sponsorship on the sponsors' brand image and their corporate image. A multiple linear regression analysis was calculated to determine the significant variables that may be used to predict the effect on the respondents' opinion of sponsorship on corporate image. The findings showed that respondents recalled (unaided) official sponsors on average 20.6% of the time. The results suggest that Super Bowl sponsorship has a slightly positive impact on both brand and corporate image of the sponsors, but it does not have an impact on consumers' purchase intention of sponsors' products and that prior brand use is a better indicator of future purchase intention than sponsorship alone.

Krist, Kyrstin D. *Media coverage of women's events during the 2000 Summer Olympics: a qualitative and quantitative analysis*, 2002. M.S., Springfield College (Mimi Murray). (111pp 2f \$12.00) PE 4466

A qualitative and quantitative analysis was conducted using selected aspects of the National Broadcasting Company (NBC) coverage of the 2000 Summer Olympic Games, *Sports Illustrated*, and an interview with an expert in the field of sport in the media. Selected videotaped media coverage was analyzed. Similar amounts of min of videotaped coverage were found both for male and for female events. The quality of the commentary differed. Similar amounts of gender-biased comments were used for male and for female athletes. Articles dedicated to the Olympic Games for the duration of the Games in *Sports Illustrated* were also analyzed. The total number of characters given to female athletes was greater than those given to male athletes. The quality of the commentary for male and female athletes differed in respect to the way they were described while competing. The expert interview was used to triangulate the results found from the other two phases of research. The answers from the interview were supportive of the results of this study.



Lee, Anita N. *Marketing effectiveness efforts in user perception among municipal recreation organizations and the YMCAs*, 2002. M.S., Springfield College (Matthew Pantera). (104pp 2f \$12.00) PE 4513

This study was designed to compare the difference in user perceptions of marketing effectiveness efforts among municipal recreation organizations and Young Men's Christian Associations in the New England and the Southeastern United States. Participants in adult fitness programs from the following organizations ( $N=183$ ) were compared: (a) municipal recreation in New England; (b) YMCAs in New England; (c) municipal recreation in Southeastern United States; and (d) YMCAs in Southeastern United States. Participants responded to a 22-item instrument based on the Index of Recreation Marketing Excellence (1998). A  $2 \times 2$  factorial ANOVA was used to compare the two independent variables: (a) type, and (b) location of recreation organizations; and the dependent variables: general marketing effectiveness efforts in user perception with the two subscales, External Marketing and Service Quality. No significant mean differences ( $p > .05$ ) were found between user perceptions of marketing effectiveness efforts at municipal recreation organizations and the YMCAs, or between the New England and the Southeastern United States, or among the four groups of recreation organizations.

## DANCE

Ashley, Tamara. *Dancing democracy: negotiating realms of experience in the teaching of dance technique [technique]*, 2003. M.F.A., Texas Woman's University (Penelope Hanstein). (28pp 1f \$6.00) PE 4497

In this paper, I articulate a model of participation, which perceives democracy as not only contributions of individuals but also contributions of knowledge paradigms in the formation of an active community. Three dialogues, historical, participatory and pedagogical, serve to illustrate connections between historical process, participation in the field, and perpetuation of knowledge in the field through processes of teaching and learning. The significance of this historicizing process, in determining who or what participates in current dialogues in the active community of dance, is assessed in a discussion of the ways in which we access the work of Martha Graham, Doris Humphrey and Helen Tamiris. Participation is explained as negotiation through realms of experience, inherently constructed by our histories, be they personal, institutional, or global. These three realms of experience are discussed in terms of their epistemological value to the formation of an active knowledge community. It is through the negotiation of

these three realms of meaning that a model of democratic participation is considered. As a dance teacher, I regard the technique class as a metaphor for this active community. For many dancers, dance technique classes are where they come to know dance, where they learn to dance by dancing. While embedded within my evolving pedagogy are my experiences as a student, performer, and choreographer, I am also particularly attentive to emerging dialogues in my teaching of technique and of choreography. A pedagogical vision is constructed on dialogues that seek to democratize vernacular, institutional and global knowledges as they are manifested in teaching/learning paradigms. Students are encouraged to take responsibility for choice making across these realms of experience. The process of meaning-making is connected to individual experience, with dancers embracing those experiences in the performance of material, assuming responsibility for themselves, the ideas in which they are engaged (the dance), and the community in which they are participating (the class).

Caldwell, Linda A. *Contemporary dance in Poland: a play of paradox in seven acts*, 2002. Ph.D., Texas Woman's University (Penelope Hanstein). (275pp 3f \$18.00) PE 4500

This dissertation introduces my fifteen-year experience both participating in and observing contemporary dance in Poland and describes my search for a methodology of presentation creating space for and actively employing the often paradoxical connections discovered while working with the Polish dancers. Driving this search was an investigation into how metaphoric images connect choreographic and ethnographic practices while unsettling the authoritative position of the researcher's experience. Philosophical and ethnographic researchers currently exploring creative presentational methodologies are discussed throughout. A fictionalized and choreographed drama shaped by a series of paradoxical Acts in which information is presented through numerous voices and points of view forms the body of the dissertation. Within the Acts, differing stories of Polish and American dancers and artists, international critics, historical and political figures, audiences, and memories are juxtaposed. The success of the play is determined by how these sources interact and open future possibilities for the reader to view and further connect with Polish contemporary dance. Theorists writing from various feminist and non-traditional ethnographic positions in qualitative research raise questions concerning the plausibility of research presented as fictional drama in the methodology section. Interwoven within these theoretical queries are the works and words of international choreographers and writers connecting their process of writing, staging, performing, and viewing movement with the words and images of Polish theatre and dance artists. Embedded within these diverse viewpoints are more questions concerning the complex methods required to present the nature of a specific culture's



identity and the efficacy of this complexity to actively engage the reader's imagination with the culture introduced. Methods for connecting research with choreography and movement with language underlie and confuse fact and fiction within the play of the dissertation paradoxically mimicking the inchoate and ever changing nature of the data collected.

Collen, Robin L. *Handle with care: a pedagogical theory of touch in teaching dance technique based on four case studies*, 2002. Ph.D., Texas Woman's University (Penelope Hanstein). (279pp 3f \$18.00) PE 4463

The purpose of this study was to investigate how human touch may be used within a modern dance technique class to facilitate effective teaching and learning. This inquiry was based on two initial assumptions: (a) touch is an effective teaching and learning tool for modern dance, and (b) a modern dance technique class defines its own culture within which pedagogical touch can be a natural and integral experience. Two qualitative traditions of inquiry were used: the phenomenological study and the multiple case study. Fieldwork took place at four institutions of higher education. Methodology centered on interviews, participant observation, and questionnaires. Memos were written from transcribed interviews, questionnaires, and videotaped observations. A list of relevant coding categories of emergent themes was developed. Nel Noddings' theory of care in moral education was used as an initial framework for a theory models approach to analysis and interpretation of the data. Laban Movement Analysis was used as an analytical tool. The effective use of touch requires teachers to acknowledge their own philosophies of teaching and learning, and to recognize the importance of students' backgrounds with touch and dance. In this context teachers develop environments for learning through touch. Teachers mentor touch, enabling students to fully engage in the learning process as touchers and touchees. Teachers develop methods for integrating touch into the flow of their classes. An emphasis on student-to-student-touch experiences engages students in tactile dialogue, providing students with practice in caring, paying attention, remaining flexible, cultivating relationships, searching for appropriate responses, and kinesthetic empathy. A pedagogical theory of touch was developed. Three core constructs are: (a) the inside/outside nature of dancing, and of learning movement; (b) the importance of student histories; and (c) the significance of intentional touch. The necessity for teachers to account for these foundational elements, to insure the effective use of touch, was stressed. Meta-dance Practice is a teaching and learning theory which was developed in this study. This theory, which describes and explains touch-based teaching and learning experiences that move beyond dance technique, resides within the paradigm of constructivist learning and embodies themes of moral education.

Curtis, Mizelle T. *A critical analysis of the transformation of the live dance, Beach Birds, to the videodance, Beach Birds for Camera*, 2002. M.A., Texas Woman's University (Penelope Hanstein). (28pp 1f \$6.00) PE 4501

By analyzing the stage version of *Beach Birds*, and the process of how it was transformed into *Beach Birds for Camera*, the expressive properties of each dance communicate in different ways to the audience member. The expressive properties in *Beach Birds* include the frame of the stage and its spatial implications and dimensions, the lighting and costumes, and the kinesthetic communication from the performer to the audience member. The video expressive properties include the frame of the screen and its spatial implications, the shifting backgrounds, and the assembly technological tools. The transformation of the stage version into the video is bound by the expressive properties through which the aesthetic of *Beach Birds for Camera* is formed. One particularly important aspect is virtual space in the video frame. Virtual space provides precise images of segments of movement, illuminating greater detail to its execution. Particular choreographic relationships are also highlighted or intensified. The concept of the work in the stage version transforms from the work in relationship to its environment to the videodance where the movement details are the environment. The concept of the dance evolves through the qualities in each form of representation and these qualities create the distinct character or aesthetic of *Beach Birds for the stage and Beach Birds for Camera*.

Davis, Crystal U. *Experiential and aesthetic encounters in Bharatanatyam [Bharatanatyam]*, 2003. M.F.A., Texas Woman's University (Penelope Hanstein). (24pp 1f \$6.00) PE 4502

As a performer and dance student of the classical Indian dance form, Bharatanatyam, I am in the process of learning and performing the dances of the Arangetram, the first full-length solo evening performed by a Bharatanatyam student. Bharatanatyam developed within the context of Hindu philosophies in India. My kinesthetic experience learning and performing Arangetram dances reveals the relationship between Hinduism and rhythmic and spatial dynamics of the dances. I illustrate the rhythmic and spatial qualities of the dances through movement and discuss the relationship of the Arangetram dances to Hindu philosophy. Topics I address include the Hindu God Shiva, concepts of time, including cosmic time and musical rhythm, and the relationship of the body to cosmic spatial patterns.

Wesley, Nicole L. *Grounding under the influence: a philosophical investigation of the construct of grounding through somatic practice*, 2003. M.F.A., Texas Woman's University (Penelope Hanstein). (24pp 1f \$6.00) PE 4507





This paper investigates the construct of “grounding” as a vehicle for empowerment in the context of the dance technique class. The transformative potential of “grounding” is considered through somatic philosophies in which students might develop new ways of physical knowing. From these new ways of knowing, students are given means to access multiple possibilities and cultivate their body knowledge, technical knowledge, performance knowledge, and artistic knowledge. These four knowledges are synthesized to create a facilitative framework through which the construct of “grounding” might be encountered. Through philosophical reflection on the praxis of teaching, this paper explores how new knowledge is physically encountered and constructed. Drawing upon personal experiences as an artist, reflections on the process of teaching and a fusion of somatic practices, such as Bartenieff Fundamentals, Body-Mind Centering and the Feldenkrais Method, are referenced to examine the construct of “grounding”. Pedagogical strategies for integrating new knowledge and fostering personal agency are presented.

## BIOMECHANICS

Killgore, Garry L. *A biomechanical and physiological comparison of deep-water running styles*, 2003. Ph.D., Oregon State University (Anthony Wilcox). (334pp 4f \$24.00) PE 4483

The purpose of this investigation was to identify a deep-water running (DWR) style that most closely approximates terrestrial running. Twenty healthy male and female intercollegiate (NCAA 111) distance runners were videotaped from the right sagittal view while running on a treadmill (TR) and in deep water at 55-60% of their TR  $VO_{2max}$  using each of four DWR styles: shod cross-country (SCC), barefoot cross-country (BCC), shod high-knee (SHK), and barefoot high-knee (BHK). All biomechanical data were digitized and analyzed using the Peak Motus® system. Physiological variables of interest were oxygen consumption ( $VO_2$ ), heart rate (HR), and rating of perceived exertion (RPE). Biomechanical variables of interest were horizontal (X) and vertical (Y) displacement of the knee and ankle, and stride rate (SR). An ANOVA with repeated measures was used to ascertain the differences across styles. The alpha significance level was set at .05, and a post hoc pairwise analysis was conducted with a Bonferroni adjustment of the alpha level. Omnibus significant differences were found for all physiological variables:  $VO_2$  ( $p < .025$ ), HR ( $p < .042$ ), RPE ( $p < .000$ ). However, the post hoc pairwise comparisons revealed that only TR vs. SHK  $VO_2$  ( $p < .005$ ), and the RPE responses for treadmill vs. all DWR styles exhibited significant differences ( $p < .000-.002$ ). Omnibus tests for biomechanical variables exhibited statistical significance. The post hoc pairwise comparisons revealed significant differences in SR

( $p < .000$ ) between TR ( $1.25 \pm .08$  Hz) and all DWR styles and also between the CC and HK styles of DWR (SCC:  $0.78 \pm .08$  Hz, BCC:  $0.81 \pm .08$  Hz, SHK:  $1.13 \pm .10$  Hz, BHK:  $1.14 \pm .10$  Hz). The CC style of DWR was found to be similar to TR with respect to linear ankle displacement, whereas the HK style was significantly different from TR in all but two of the 16 comparisons made for ankle and knee displacement. The CC style of DWR is recommended as an adjunct to distance running training if the goal is to mimic the ankle linear horizontal displacement of land-based running. However, if the goal is to mimic SR, the HK style is a closer approximation than the CC style.

Perdios, Angeliki. *The effects of camber on energy cost in the experienced and inexperienced wheelchair user*, 2003. M.S., University of British Columbia (William Sheel). (107pp 2f \$12.00) PE 4530

Wheelchair camber is the inclination of the rear wheels from vertical when viewed from the front. The proven benefits of rear-wheel camber are varied. In terms of energy cost and manoeuvrability, camber may appear to influence wheeling efficiency to a large extent. The few studies that have examined the energy cost of camber during wheeling have had differing results, with most studies reporting an improvement in wheeling efficiency and overall ease of mobility. To date, this is the only study that has examined the effects of rear-wheel camber on energy cost in the experienced disabled individual during over-ground steady state wheeling. The purpose is to determine if there is a difference in energy cost between  $0^\circ$ ,  $3^\circ$ , and  $6^\circ$  of camber in disabled experienced wheelchair users during over-ground wheeling. A secondary purpose was to determine if these differences were consistent across all three groups. Three groups of subjects were examined: experienced disabled wheelchair users (T6 lesion and below) (DIS), able-bodied individuals with experience at manual wheeling (EXP), and able-bodied individuals with no experience at manual wheeling (IN). Subjects were tested using  $0^\circ$ ,  $3^\circ$ , and  $6^\circ$  of camber during steady state manual wheeling in slalom over a smooth hard surface. Data on heart rate, rating of perceived exertion (RPE), the visual analog scale for comfort (VAS) and a user preference questionnaire were collected for subjects in all three groups. Expired gas analysis and heart rate variability (HRV) were also collected for the DIS group. No significant difference in measures of energy cost, RPE, or VAS was shown for camber angle or group. Six degrees of camber emerged as the angle most preferred in terms of stability on a side-slope, hand comfort on the pushrim, manoeuvrability and overall preference. Discussion: All subjects, regardless of wheeling ability or injury status, showed no physiological preference for  $0^\circ$ ,  $3^\circ$ , and  $6^\circ$  of camber. Specific questions about camber and stability, comfort, and manoeuvrability showed there was a preference for  $6^\circ$  of camber across all groups.



## SPORTS MEDICINE

Brucker, Jody B. *Cryotherapy effects on walking gait*, 2002. Ph.D., Brigham Young University (Kenneth L. Knight). (644pp 7f \$42.00) PE 4470

The objectives of this study were to determine the effects of a 20-minute ice immersion on walking gait performance and patterns for treated and contralateral limbs, and to determine the effect of walking on cold-induced pain. Two studies were conducted simultaneously, a biomechanical gait study and a pain study, guided by a 2x2x5 and a 2x2x13 factorial design, respectively, with repeated measures on two factors (treatment and treatment order). The independent variables were treatment (immersion and no immersion), treatment order (immersion on day 1 or day 2), and time (gait: pre- and 4 post immersion times; pain: 3 prior to, 5 during, and 5 post immersion). Forty-six dependent gait variables were calculated and analyzed for both the treated and contralateral limbs with each leg considered independently. Pain was measured with the Borg and the McGill (parts 2 and 3) Pain Questionnaires. 20 male volunteers (23.60±2.50yrs, 182.2±0.06cm, 80.45±10.72kg) were used. IRB approval and informed consent were obtained. A 6 camera infrared system with 2 force platforms mounted flush with a 15m-carpeted walkway were used to collect the gait data prior to and following a 20-minute 1° C ice water bath. The first 3 of 5 uncompromised gait trails in each set were used for analysis. Graphs of the gait variables were inspected for pattern shape changes. The gait measures and pain scores were analyzed using principal components analyses and mixed models. The majority of the variables (29/46 treated limb; 36/46 contralateral limb) and gait pattern shapes (10/13 treated; 13/13 contralateral) were unchanged. Pain was elevated, but similar, during immersion and nearly returned to baseline after 12 minutes of walking. We found that walking is not affected by immersing the ankle for 20 min in a 1° C ice water bath. Therefore, ankle immersion does not increase risk of injury during submaximal exercise. Cold-induced pain rapidly decreases following exercise. Reapplication of the cold modality should begin within 4 minutes if it is combined with exercise.

Culp, Matthew T. *Prophylactic knee bracing and local fatigue have no effect on joint position sense of the uninjured knee in a closed kinetic chain*, 2003. M.A., University of North Carolina, Chapel Hill (Kevin M. Guskiewicz). (125pp 2f \$12.00) PE 4489

It has been theorized that decreased proprioception of the knee may increase an individual's risk of injury. The purpose of this study was to determine the effect of prophylactic knee bracing and fatigue on joint position sense of the uninjured knee. Twenty healthy subjects were asked to reproduce two different angles with and without

a brace, during both a fatigued and non-fatigued state. Subjects were fatigued using a resisted squatting protocol and absolute degrees of error scores were measured during each condition. Repeated measures ANOVA did not reveal a brace main effect ( $F=1.01$ ,  $P=.33$ ), fatigue main effect ( $F=.04$ ,  $P=.84$ ), or brace by fatigue interaction ( $F=.11$ ,  $P=.74$ ) at 45° of flexion. Likewise, there was no brace main effect ( $F=.00$ ,  $P=.96$ ), fatigue main effect ( $F=2.24$ ,  $P=.15$ ), or brace by fatigue interaction ( $F=.08$ ,  $P=.78$ ) revealed at 75° of flexion. The results indicate that neither knee bracing nor fatigue have an effect on knee proprioception. Clinically, knee bracing may not enhance proprioception in the uninjured individual, even during a fatigued state.

Fava, Nicole M. *Comparison of gluteal muscle activity during running, and [of] hip muscle strength between individuals with normal and [with] excessive navicular drop*, 2003. M.A., University of North Carolina, Chapel Hill (Darin A. Padua). (182pp 2f \$12.00) PE 4490

The purpose of this study was to examine the role of gluteal muscle function in excessive pronation. Fifteen normal pronators and fifteen excessive pronators were tested. Mean EMG activity of the gluteus maximus and gluteus medius during the preparatory and initial 25% of stance were compared. Statistical analyses revealed no significant main effect for group or group by phase interaction for gluteus maximus or gluteus medius activity during treadmill running. Therefore, neither the gluteus maximus nor gluteus medius activity were significantly different between normal and excessive pronators. There was a trend for reduced gluteus maximus activity in the excessive pronators. However, due to low statistical power (power = .448), this difference was not significant. Statistical analyses of the gluteus maximus, gluteus medius and short hip external rotators also revealed no significant main effect for peak or mean strength between groups.

Fuller, Leslie. *The effect of sex hormones on knee function*, 2003. B.S., University of Oregon (Susan Verscheure). (56pp 1f \$6.00) PE 4471

Anterior cruciate ligament (ACL) injury rates are reported to be two to eight times higher in women than in men within the same sport. One of the most basic differences between the sexes is the menstrual cycle, and the accompanying sex hormone fluctuations. Research has speculated that the changes in sex hormones during the menstrual cycle may be a cause for increased ACL injury in women. The purpose of this study was to investigate the effect of the menstrual cycle on knee function, as determined by hip torque (HT), knee torque (KT), and hip:knee torque ratios (HT:KT ratio). Eighteen normally menstruating women were tested during two menstrual phases (M1 and M2) and an intervening ovulatory (E) test time. Test times were determined by menses (MI and M2) and the use of an ovulation predictor kit, which measured urine levels of



luteinizing hormone, indicating ovulation (E). Blood hormone levels were collected to assure sex hormone levels during test time. Continuous flexion-extension cycling motions were performed on the Omnikinetic dynamometer, which assessed hip torque, knee torque, and anterior tibial shear. Tests were conducted under two conditions: 1 Hz cadence at 33% one repetition max and 2 Hz at 50% one repetition maximum. Results revealed that there was no effect of test time across the menstrual cycle on HT, KT, or HT:KT ratio ( $p>0.05$ ). Non-significant results may be due to a low level of in vivo estrogen, which would not affect knee function. Individual subjects may also differ in their muscular responses to estrogen, producing non-significant results.

Lewis, Francesca J. *Physiological and biomechanical differences between balance and nonbalance exercisers over a 30 minute exercise task*, 2003. M.S., Springfield College (H. Joseph Scheuchenzuber). (154pp 2f \$12.00) PE 4515

Females, age 20 to 40 ( $N=20$ ), participated in a study designed to determine if physiological and biomechanical differences exist between balance and nonbalance exercisers over a 30 min exercise task. The subjects were matched on the basis of fitness level and divided into two groups based on the inclusion or exclusion of balance exercise in their regular fitness regimen. Physiological and biomechanical changes were determined through a 30 min continuous controlled kneel and recovery step test protocol. Using six  $2 \times 4$  and two  $2 \times 3$  mixed factorial ANOVA, differences in heart rate, respiratory exchange ratio (RER), oxygen uptake ( $VO_2$ ), blood lactate concentration, two movement efficiency ratios, and two EMG readings were calculated between the two groups at three or four testing points in the exercise period. No significant ( $p>.05$ ) interactions or main effects were found for all dependent variables between the groups. Significant ( $p<.05$ ) differences were found across testing points for heart rate, RER, and rectus femoris EMG. The implication is that regular balance exercise does not result in physiological or biomechanical differences among fitness matched women.

MacLean, Leslie B. *"Bounce at the ball": the effects of a 7-month intervention of brief bouts of moderate intensity exercise on bone mass, bone structure, and bone strength in children*, 2003. M.S., University of British Columbia (Heather McKay). (152pp 2f \$12.00) PE 4528

Adult bone mass is a function of the amount of bone gained during the years of growth, and the amount of bone lost with advancing age. Therefore, childhood bone mineral accrual is critical for bone health. The current cost of osteoporosis in Canada is estimated to be \$1.3 billion per year. There is recent evidence that load-bearing exercise elicits a positive osteogenic response and that childhood is an opportune time to deliver an exercise program to optimize this response. No studies have been conducted to

determine whether frequent, brief bouts of jumping exercise have an osteogenic effect in children. This study examines the effects of a 7-month program of jumping on bone mass, strength, and structure in early pubertal children. There were 51 children in the exercise group (mean age  $10.2 \pm 0.4$  years, mean height  $139.8 \pm 7.0$  cm, and mean weight  $35.7 \pm 9.1$  kg) and 75 children in the control group (mean age  $10.2 \pm 0.4$  years, mean height  $140.6 \pm 6.1$  cm, and mean weight  $35.4 \pm 8.0$  kg). We administered physical activity (PA), calcium intake (CA), and maturity questionnaires at baseline and final. We also assessed bone mineral content (BMC) at the total proximal femur (PF) and its subregions—trochanteric (TR), intertrochanteric (IT), and femoral neck (FN), as well as at the lumbar spine (LS), and total body (TB), using dual-energy x-ray absorptiometry (DXA, Hologic, QDR 4500). Using hip structural analysis (HSA) at the PF, areal bone mineral density (aBMD), subperiosteal width (SPW), estimated cortical width (AVG CORTEX), and bone cross-sectional area (CSA)—which is equivalent to cortical area and endosteal diameter—were measured at the narrow neck (NN), intertrochanteric (IT), and femoral shaft (S) regions. Section modulus (Z, a representative of bone strength) was then estimated from these measurements. The 7-month exercise intervention consisted of brief bouts of 5-10 jumps (interspersed 3 times throughout the school day) 5 days/week. Analysis of covariance (covariates: baseline maturity, age height, change in height, and average physical activity score) was used to determine differences between intervention and control groups in all the previously mentioned bone parameters. There were no differences between groups for age, HT, WT, maturity level, Ca or PA at baseline or for change in these parameters across the trial period. BMC at the IT (3.5%,  $p=0.005$ ) and PF (2.6%,  $p=0.012$ ) increased significantly more in intervention children when compared with control children, but BMC was not significantly different between groups at other sites. There were no differences between groups for bone structure and bone strength, with the exception of NN SPW which changed significantly more in control (2.1%,  $p=0.014$ ) compared with intervention children. A progressive program of 5-10 jumps, 3 times throughout the day elicits a positive osteogenic response at the IT region and the PF. Further study is required to investigate whether or not these changes are maintained 12 months after withdrawal of the exercise stimulus.

Madsen, Michael. *The effect of total hip arthroplasty surgical approach on gait kinematics*, 2002. M.S., Indiana University (Vassilios Vardaxis). (52pp 1f \$6.00) PE 4479

This study examined the effect of the surgical approach used to expose the hip during total hip arthroplasty (THA) on gait mechanics six months following surgery. Quantitative gait analysis was performed on 29 subjects: 10 who had undergone THA using an anterolateral (A-L) approach, 10 who had undergone THA using a posterolateral



(P-L) approach, and nine able-bodied, velocity of progression-matched subjects. Discriminant function analysis was used to determine the distinction of the groups with respect to sagittal plane hip range of motion, index of symmetry, and trunk inclination, pelvic drop, hip abduction, and foot progression angles. The trunk inclination angle, sagittal plane hip range of motion, and the symmetry index were found to correlate highest with the discriminant function, i.e., in combination they had the greatest discriminant power. The A-L group had the largest trunk inclination ( $3.0 \pm 2.4^\circ$ ) and the smallest hip range of motion ( $34.0 \pm 7.4^\circ$ ). Both THA groups demonstrated greater asymmetry as expressed by the smaller symmetry index ( $0.96 \pm 0.03$ ) than the able-bodied group ( $0.99 \pm 0.01$ ). The classification procedure correctly classified 100% of the control group cases, 90% of the A-L cases, and 50% of the P-L cases. The misclassified A-L case was predicted to be in the P-L group. Of the misclassified P-L cases, two were predicted to be in the A-L group and three in the control group. These results support the conclusion that six months following surgery, the gait of the majority (85%) of the THA patients has not returned to normal. The A-L patients displayed distinct gait patterns, while a small percentage (30%) of the P-L patients demonstrated normal gait. While these differences are numerically significant, the clinical significance is unknown and linked to the duration that they persist.

McClellan, Emily C. *A comparison of myofascial release and static stretching on active range of motion and muscle activity*, 2003. M.A., University of North Carolina, Chapel Hill (Darin Padua). (123pp 2f \$12.00) PE 4495

The purpose of this study was to examine the effects of static stretching (SS) and myofascial release with a Small Ball (SB) on active hip extension range of motion (ROM), gluteus maximus (GM) activation during running and prone hip extension in individuals with a  $10^\circ$  hip flexion contracture. A repeated measures design was used to compare the ROM and GM activation data collected before and after the treatment protocols. Forty college-aged recreational athletes were recruited for this study. Surface electromyography was used to record GM activity. SB and SS groups both demonstrated increased hip extension ROM at the post-treatment and 15-minute post-treatment time periods compared to pre-treatment measures. SS showed greater increases in ROM than SB at both post-treatment measures. SS and SB treatment protocols did not influence GM activation during running; however, GM activity was increased during prone hip extension for both groups. There was no correlation between GM activation and active hip extension ROM gains. These results are clinically significant because by increasing hip flexor flexibility GM activation amplitude can be increased.

Michell, Thomas B. *The effect of training in balance shoes on time to stabilization and postural stability in subjects with functional ankle instability*, 2002. M.A. University of North Carolina, Chapel Hill, (Kevin M. Guskiewicz). (93pp 1f \$6.00) PE 4496

Ankle instability has been found to be a common cause of lower extremity dysfunction in physically active individuals. The purpose of this study was to evaluate the use of balance shoes in an eight-week training program designed to improve static and dynamic postural stability in individuals with functionally stable and unstable ankles. Subjects who completed an eight-week training program in the balance shoes performed significantly better in regard to the post-test anterior/posterior and medial/lateral center of pressure mean sway and mean sway speed measurements during a static single leg stance. Subjects who did not wear balance shoes during the eight-week training program did not show improvements in the static and dynamic postural stability measurements compared to their pre-test session. These results indicate that training in balance shoes can improve center of pressure sway measurements during static postural stability assessment. The use of balance shoes may allow for athletes to participate in a more functional rehabilitation program. In using balance shoes, subjects may be able to increase their ability to adapt to unstable surfaces.

Onoda, Kazukata. *The effect of the flexible magnetic patch on human performance and recovery from exercise*, 2002. M.S., Springfield College (V. Paolone). (114pp 2f \$12.00) PE 4467

This study was designed to investigate the effect of Phild Power Tape on a 5000 m run, and on recovery following the 5000 m run. Subjects ( $N=7$ ) were college-aged males and possessed at least  $45 \text{ mL} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$  of  $\text{VO}_{2\text{peak}}$ . Subjects ran 5000 m on two different occasions, one with the Phild Power Tape and the other with Kinesio tape. Performance time was measured by a stop watch. Blood samples were obtained via capillary punctures in order to measure lactate concentration at five different test occasions. Rating of Perceived Exertion (RPE) was measured during 5000 m run. In the magnetic session, the lactate concentrations of the subjects were lower than placebo session throughout the 15 min of recovery ( $p=.01$ ;  $df=6$ ;  $M_{\text{magnet}}=4.74 \text{ mmol} \cdot \text{L}^{-1}$ ,  $SD_{\text{magnet}}=2.80 \text{ mmol} \cdot \text{L}^{-1}$ ;  $M_{\text{placebo}}=6.24 \text{ mmol} \cdot \text{L}^{-1}$ ,  $SD_{\text{placebo}}=3.38 \text{ mmol} \cdot \text{L}^{-1}$ ). The RPE was higher in magnet session than placebo session ( $p=.05$ ;  $df=6$ ;  $M_{\text{magnet}}=4.34$ ,  $SD_{\text{magnet}}=2.44$ ;  $M_{\text{placebo}}=3.71$ ,  $SD_{\text{placebo}}=2.47$ ). No significant ( $p=.07$ ) difference was found in 5000 m run time between magnet and placebo sessions. The magnetic patch did not improve human performance; however, the magnet may be effective after high intensity exercise and during daily life. The magnetic patch may enhance the circulation in order to reduce muscle soreness, stiffness, and healing process after microtrauma in skeletal muscle.



Pearce, Teri L. *Eccentric drop squats as a means of conservative treatment for patellofemoral pain syndrome*, 2003. M.S., University of British Columbia (Jack Taunton). (105pp 2f \$12.00) PE 4518

Patellofemoral pain syndrome (PFPS) is one of the most common causes of anterior knee pain seen in the field of sport medicine. The multiple variations in the pathophysiology of patellofemoral syndrome provide clinicians with numerous challenges when formulating appropriate treatment plans, with treatment often providing transient relief. The purpose of the present study was to determine if individuals suffering from PFPS are weak eccentrically in comparison to healthy controls, and if a closed kinetic chain (CKC) eccentric drop squat program can improve muscular strength and functional capacity in this group. Seventeen individuals suffering from PFPS between the ages of 19 to 35 years, and 18 healthy controls between the ages of 20 to 36 years participated in the study. Both groups were put on a 12 week CKC home eccentric drop squat program, and tested at 0, 4, 8, and 12 weeks using the kinetic communicator (KINCOM®) to measure isokinetic eccentric and concentric strength and using the Victorian Institute of Sport Assessment (VISA) Score as a subjective measure of pain and function. Results indicated that there were no statistically significant improvements in eccentric and concentric strength of the quadriceps and hamstrings of the injured and noninjured legs in the PFPS group and the control group at 60 and 120 degrees per second. Analysis of the graphs shows that the healthy controls were in fact stronger eccentrically, but not to a degree of statistical significance. The VISA score was significantly higher for the control group in comparison to the PFPS group. The results do not statistically support the hypotheses of this study, although the graphs suggest that the PFPS group is weaker than the control group, and feedback from the PFPS group suggests that the eccentric drop squat program has improved their perceived pain and function, which is of clinical relevance to practitioners.

Salacinski, Amanda. *A comparison of bone mineral density in Division I and Division III female gymnasts*, 2002. M.S., Springfield College (V. J. Paolone). (104pp 2f \$12.00) PE 4468

The study was designed to compare bone mineral density of NCAA Division I and Division III female gymnasts with the normative average. Further, this study was designed to determine if differences existed between the Division I and Division III female gymnasts with regard to bone mineral density, career years involved in gymnastics, and pathogenic weight control scores. Bone mineral density measurements were taken from the anterior and posterior lumbar spine. A survey, *Identifying Eating Disorders in Female Athletes* (2001), was used to identify eating disorders. A menstrual questionnaire was administered to determine cycle status of all subjects. Bone mineral density was

measured by a dual energy x-ray absorptimeter (DXA; Hologic QDR 4500A). Data analysis revealed that Division I and Division III female gymnasts had greater ( $p < .05$ ) bone mineral density than the normative average. No significant ( $p > .05$ ) differences existed between the bone mineral density of the Division I and Division III female gymnasts.

Schwartz, Adam. *Body composition of vegetarian and omnivorous men*, 2003. M.S., University of British Columbia (Alan Martin). (81pp 1f \$6.00) PE 4473

The relationship between diet and human body composition has become a popular topic in recent years. Despite the popularity of vegetarianism, little research has been conducted in the area of vegetarianism and body composition, and the focus of the minimal research to date has been on children and women. There is recent evidence that suggests that, among older men, the ability to gain skeletal muscle with resistance training may be substantially diminished for individuals consuming a vegetarian versus an omnivorous diet. This issue has yet to be examined in a group of younger males. There is also some evidence to suggest that vegetarians may have lower levels of body fat in comparison to omnivores. The objective of this study was to identify body composition differences (muscle and fat) between young men consuming either a vegetarian or omnivorous diet. 54 young males between 18-30 years participated in this study. Half of these subjects were vegetarians. Body fat and muscle mass were estimated from anthropometry. In addition, subjects completed the Three-Factor Eating Questionnaire (TFEQ) and the Godin Leisure-Time Exercise Questionnaire (GLTEQ), which were used as indicators of eating habits and activity levels. All subjects completed 3-day diet records. Vegetarians had significantly lower predicted muscle mass (30.9kg vs. 32.7,  $p = 0.049$  1-tailed), and a lower sum of 12 corrected muscle girths compared to omnivores ( $2.5 \times 10^6 \text{cm}^3$  vs.  $2.7 \times 10^6 \text{cm}^3$ ,  $p = 0.033$  1-tailed). Vegetarians had higher dietary intakes of fiber (139.8 vs. 92.3,  $p = 0.006$ ) and polyunsaturated fats (67.5 vs. 42.7,  $p = 0.001$ ) and lower intakes of saturated fats (93.8 vs. 129.1,  $p = 0.031$ ) than omnivores. There were no significant differences between groups with regard to body fat, dietary restraint (TFEQ), activity levels (GLTEQ and reported hours of weekly activity), or other dietary intake variables. Vegetarian men were found to have significantly lower muscle mass than omnivores, and these differences could not be accounted for by dietary restraint or activity levels.

Verscheure, Susan D. *The effect of sex hormones on anterior tibial displacement and anterior tibial shear in normal ovulating women and oral contraceptive users*, 2003. Ph.D., University of Oregon (Louis R. Osternig). (168pp 2f \$12.00) PE 4474

The purpose of this study was to determine the effect of fluctuating hormone levels on anterior tibial displacement (ATD) and anterior tibial shear (ATS) both in ovulating



women and in oral contraceptive users. Eighteen uninjured, ovulating women (NORM) and 20 oral contraceptive (OC) users participated. The NORM subjects were tested for ATD, ATS, and hormones at three time periods during one complete menstrual cycle, including: 1) the immediate onset of menses (M1), 2) the estimated occurrence of estrogen peak (E), and 3) the immediate onset of the next menses (M2). OC subjects were tested after ingesting estrogen supplements for 7 days (E), and when no supplement was taken (M1, M2). ATD was produced by instrumented forces (KT-2000) and ATS was recorded on a closed-chain dynamometer. Hormone levels were assessed for each test time in the NORM group. ANOVA were used to identify significant differences in ATD and ATS ( $P < 0.05$ ), if any, between test periods, groups, and conditions. No significant differences in ATD or ATS were found; however, the effect of test time on normalized ATD approached significance ( $P < 0.08$ ). The predominant pattern of ATD and ATS change across time period in the NORM group (7 of 18 subjects) was an increase from M1 to E and a decrease from E to M2. The predominant pattern of ATD (6 of 20 subjects) and ATS (9 of 20 subjects) change across test time observed for the OC group was a decrease from M2 to E and an increase from E to M2, the opposite of the NORM group. There were no significant correlations between hormone levels and ATD or ATS across all NORM subjects, but significant correlations ( $P < 0.05$ ) were observed in this sub-group with the predominant pattern (7 of 18 subjects). Peak blood estrogen levels occurring during ovulation may be linked to an increase in ATD and ATS in some ovulating women, and ingested synthetic hormones may be linked to a decrease in ATD and ATS in some OC users. Changes in ATD may be due to a temporary effect of estrogen or synthetic progestin on ACL tissue, and changes in ATS may be due to a transient effect of natural or synthetic hormones on quadriceps activation.

Yeung, Peter L. *The effects of the Generation II Unloader Express Brace on medial compartment knee osteoarthritis*, 2003. M.S., University of British Columbia (Jack Taunton). (57pp 1f \$6.00) PE 4481

Osteoarthritis (OA) is a disease characterized by the deterioration of cartilage, formation of osteophytes, and subchondral sclerosis. So far, there is nothing available to stop disease progression or reverse disease symptoms. Bracing has been found to be an alternative to more invasive measures to reduce symptoms in individuals with knee OA. Twenty-one subjects (14 male, 7 female) enrolled in a twelve-week repeated measures study. There were three brace conditions: no brace (control), brace in neutral (placebo), and brace adjusted to four degrees valgus. All subjects underwent each condition in the same sequence. There was a three week washout period between the neutral and valgus brace conditions. A questionnaire, adapted from the WOMAC, was designed for this study and showed good reliability ( $r = 0.89$  to  $r = 0.93$ ) for the three

parameters assessed. This study found wearing the valgus brace significantly minimized the increase in pain ( $p = 0.037$ ), difficulty in function ( $p = 0.032$ ), and stiffness ( $p = 0.021$ ) experienced after activity compared to wearing the neutral brace. The results of this study suggest that the Generation II Orthotics Unloader Express is an effective treatment for those suffering mild forms of osteoarthritis.

## PHYSIOLOGY AND EXERCISE EPIDEMIOLOGY

Adamson, Carisa H. *Glucoregulation during an acute bout of exercise in post pancreatic-kidney transplant recipients*, 2002. M.S., San Francisco State University (Marialice Kern). (107pp 2f \$12.00) PH 1779

The purpose of this study was to examine glucoregulation during an acute bout of exercise in pancreas and kidney transplant patients. Twenty-three patients, including 10 simultaneous pancreas and kidney (SPK) transplant recipients, 4 kidney alone (KA) transplant recipients, and 9 metabolically normal (MN) non-diabetic and non-transplant recipients, exercised for thirty minutes at 65% of their  $VO_2$  max, with blood samples taken at rest, at 5 minute intervals throughout exercise, and at 5, 15, and 30 minutes post-exercise. Blood samples were analyzed for glucose, insulin, and glucagon concentrations. The KA group had significantly higher blood glucose levels at rest than the MN group ( $p = 0.002$ ) and the SPK group ( $p = 0.006$ ). The KA group also had significantly higher insulin concentrations than the MN group at rest ( $p = 0.023$ ) and during exercise ( $p = 0.009$ ), and the SPK group during exercise ( $p = 0.042$ ). Although the SPK group had consistently higher glucagon concentrations throughout the test, there were no significant differences in glucagon concentrations among groups during rest, exercise, or recovery. An SPK transplant provided similar levels of glucoregulation in Type I diabetics at rest, during exercise, and during exercise recovery when compared to metabolically normal participants.

Behr, Laura. *Effect of sodium bicarbonate and glycogen depletion on 1500M time trials*, 2002. M.S., University of Wisconsin, La Crosse (Carl Foster). (43pp 1f \$6.00) PH 1781

Previous studies have demonstrated the importance of anaerobic capacity to performance during high intensity exercise. Competitive cyclists/skaters ( $N = 9$ ) performed three randomly ordered control (C), sodium bicarbonate (SB), and glycogen depletion (GD) 1500m cycling time trials. Power output was recorded using a strain gauge interfaced with a windload simulator attached to a racing bicycle.  $VO_2$  was measured by open circuit spirometry. Power output and  $VO_2$  were linked based on steady state



exercise completed before the trials. Repeated measures ANOVA analyzed the outcomes. The GD trial took significantly longer than the C or SB trials (C133.96, SB133.49, & GD137.73s)  $p < .05$ . Mean total and anaerobic power output during the last 200m segment was significantly greater in SB compared to GD (C42879, SB44956 & GD40642 J), and (C20189, SB22194 & GD18741 J), but not for aerobic work (C22683, SB22762 & GD21901 J). Results support the hypothesis of augmenting anaerobic capacity during the sodium bicarbonate trial and reducing anaerobic capacity with glycogen depletion.

Bowman, Steven A. *The effect of different dosing strategies of sodium bicarbonate upon collegiate swimmers*, 2002. M.S., University of Wisconsin, La Crosse (Travis McBride). (49pp 1f \$6.00) PH 1782

This study evaluated the efficacy of different dosages of sodium bicarbonate on time trial performance, blood lactate concentrations, and incurred side effects. Participants included 10 volunteer male ( $n=3$ ) and female ( $n=7$ ) members of the University of Wisconsin, La Crosse, swimming team. Participants were divided into groups by in-season specialization of 100 yards, 200 yards or 400 yards. Each participant completed a time trial under a control condition, and under 0.1 g/kg body weight, 0.2 g/kg body weight, and 0.3 g/kg body weight. Blood lactate was collected before and after the time trial. Side effects were recorded every 10 minutes from consumption to 20 minutes post-trial. Performance times were all significantly faster under the experimental conditions vs. control ( $p=0.001$ ). The 0.1 g/kg body weight produced the fastest time (97% of the control time), then 0.2 g/kg body weight (98.19% of the control time), and 0.3 g/kg body weight (99.10% of the control time). Pre- and post-trial lactate values all increased proportionately with the dosage of sodium bicarbonate and were significantly higher than the control values in both pre-trial ( $p=0.02$ ) and post-trial ( $p=0.001$ ). Side effects were similar in type and frequency under the 0.1 g/kg body weight (7) and 0.2 g/kg body weight (10) conditions; however, they increased in severity under the 0.3 g/kg body weight (27) condition. Findings suggest that bicarbonate loading is effective even at lower dosages; however, as dosage increases, side effects can impede any ergogenic effect. Reduced water consumption during dosing may help

Cannon, Christina. *Relationship between the talk test and the ischemic threshold*, 2002. M.S., University of Wisconsin, La Crosse (Carl Foster). (51pp 1f \$6.00) PH 1783

The Talk Test (TT) has been shown to be associated with intensities within ACSM guidelines for exercise training, and very close to the ventilatory threshold (VT). VT often precedes the ECG ischemic threshold, and complications during exercise occur when the ischemic threshold is exceeded. Therefore, the TT may be an effective way to

avoid myocardial ischemia during exercise training. Patients recited a standard paragraph during incremental exercise. The time, HR, and RPP of those demonstrating ST changes (the first evidence of ischemia (ISCH)) were compared to the 3 stages of the TT (I can speak comfortably= +TT, I am not sure=+/-TT, and I can't speak comfortably=-TT).

Marker	Time (minutes)	HR( beats/ min)	RPE
+TT	2.63±1.67*	112.2±11.1*	17.9±3.5*
+/-TT	4.05±2.18	123.4±15.9	20.0±4.4
-TT	5.58±2.34	137±15.1*	24.5±4.2*
ISCH	4.16±2.14	123±16.7	20.7±4.1

(\*significant difference ( $p < 0.05$ ) compared to ISCH.)

During +TT, all variables were significantly less than ISCH, 18/19 patients were at or below (2 were at) the HR, RPP, and time of ISCH. Additionally, HR at +TT was approximately 10 bpm below ISCH, which is a normal strategy for prescribing exercise when patients have ISCH. When patients are able to speak comfortably, they are unlikely to have exertional ischemia.

Carlson, Lara A. *The effect of carbohydrate ingestion on immunocompetence following acute exhaustive resistance exercise*, 2002. D.P.E., Springfield College (Samuel A. Headley). (197pp 3f \$18.00) PH 1795

The aim of this investigation was to study changes in leukocyte subsets following an acute bout of resistance exercise (ARE), and determine whether the ingestion of carbohydrate (CHO) could attenuate those immune responses. Nine male track and field athletes (age  $21.11 \pm 1.36$  yrs), with a minimum of 2 years of weight lifting experience, performed resistance exercise: six sets of leg press and lat pull-downs, and six sets of bench press and leg curls. All exercises included two warm-up sets of 10 repetitions at 35% and 45% of 1-RM, and four sets of 10 repetitions at 55% of 1-RM. Following a counterbalanced double-blind research design, subjects consumed either a CHO or placebo (P) beverage prior to, during, and following the weight lifting session in a volume to deliver CHO at 1g per kg of body weight. Total leukocytes, neutrophils, and monocytes increased significantly ( $p < .05$ ) from baseline to post-exercise. Lymphocytes decreased significantly ( $p < .05$ ) from baseline to 90 min recovery. Also, lymphocytes were significantly ( $p < .05$ ) lower for the CHO condition compared to P. In conclusion, ARE appears to evoke changes in immune cells similar to endurance exercise. Glucose attenuates lymphocytosis during ARE.

Davis, James C. *Short term creatine supplementation: effects on metabolic rate and respiratory exchange ratio*, 2002. M.S., Springfield College (Vincent Paolone). (95pp 1f \$6.00) PH 1796

The investigation was designed to determine the effects of short-term creatine supplementation on metabolic rate, body mass, respiratory exchange ratio (RER), and glycerol



concentration of the blood at rest and during exercise. Subjects ( $N=7$ ) consumed either creatine or placebo for 5 days in a repeated measures fashion. Subjects were tested for body mass, resting metabolic rate (RMR), and resting and exercise RER and glycerol. A significant ( $p<.05$ ) increase was found in the body mass when the subjects were consuming creatine. No significant difference ( $p>.05$ ) was found in the RMR data. A significant interaction ( $p<.05$ ) was found in RER when comparing the creatine trials to the exercise condition. No significant differences ( $p>.05$ ) were found for any of the simple effect comparisons. No significant interaction ( $p>.05$ ) or significant main effects ( $p>.05$ ) were found for glycerol when comparing the creatine trials to the exercise condition. The increase in body mass with creatine supplementation was most likely due to water retention in the cells.

Day, Meghan L. *Monitoring work intensities during resistance training using a session RPE scale*, 2003. M.S., University of Wisconsin, La Crosse (Carl Foster). (41pp 1f \$6.00) PH 1784

This study investigated the reliability of the session WE scale to quantify work during high intensity (HIP), moderate intensity (MIP), and low intensity (LIP) resistance training. Nine men ( $24.7\pm 3.8$  years) and 10 women ( $22.1\pm 2.6$  years) performed each intensity twice. Each protocol consisted of one set of five exercises: back squat, bench press, overhead press, biceps curl, and triceps pushdown. The HIP consisted of 4-5 repetitions at 90% of the subject's 1 repetition maximum (1-RM). The MIP consisted of 10 repetitions at 70% 1-RM and the LIP consisted of 15 repetitions at 50% 1-RM. RPE was collected following the completion of each set and thirty minutes post-exercise (session RPE). Session RPE was higher for the HIP than MIP and LIP ( $p<0.05$ ). Performing fewer repetitions at a higher intensity is perceived to be more difficult than performing more repetitions at a lower intensity. The intraclass correlation coefficient for the session RPE was 0.88. The session RPE is a reliable method to quantify various intensities of resistance training.

Guy, Molly. *The effect of creatine loading on glomerular filtration rate*, 2003. M.S., Springfield College (Samuel A. Headley). (105pp 2f \$12.00) PH 1797

The current study was designed to examine the effect of creatine (Cr) monohydrate supplementation on glomerular filtration rate as an estimation of kidney function. Creatinine clearance, urinary creatinine, and plasma creatinine of the subjects ( $N=9$ ) were tested on four occasions over a 15 day period. The subjects were instructed to ingest 5 g of Cr 5 times per day with 4 hr between doses during the supplementation period. Glomerular filtration rate was tested under each condition, which included immediately following supplementation and then 5 days after stopping creatine consumption to determine the residual effect of creatine on GFR. As a result of creatine supplementation,

there was a significant ( $p<.05$ ) difference in creatinine clearance and urinary creatinine values. As a result of this investigation, creatine supplementation appeared to have no effect on plasma creatinine. Based on this investigation creatine monohydrate supplementation may acutely raise glomerular filtration rate.

Kelso, Amy. *Strategies for provoking speech during the talk test*, 2002. M.S., University of Wisconsin, La Crosse (Carl Foster). (33pp 1f \$6.00) PH 1785

The Talk Test (TT) has been shown to be effective in prescribing exercise. Two strategies have been widely used: recitation of a standard paragraph during incremental exercise, and responding to recorded interviews during steady-state exercise. We compared heart rate (HR) and work rate (METs) responses using the two strategies. Healthy volunteers ( $n=20$ ) performed incremental exercise tests to define ventilatory threshold (VT) and intensity associated with TT and a free-range walk while responding to recorded questions. During the TT, %HRR ( $78\pm 9$  vs  $78\pm 7$ ), % METs ( $77\pm 6$  vs  $79\pm 6$ ), HR  $166\pm 18$  vs  $165\pm 13$  bpm), and METs ( $9.7\pm 0.9$  vs  $9.9\pm 0.8$  METs) for the strategies weren't significantly ( $p<0.05$ ) different from each other and were within ACSM guidelines. HR and METs during TT were not different from HR and METs at VT ( $174\pm 18$  bpm and  $10.6\pm 0.9$  METs). HR ( $r=0.79$ ) and METs ( $r=0.65$ ) were well correlated between the strategies. Different strategies for using the TT result in a common exercise intensity that is very close to VT. Data support the generalizability of the TT as a method of prescribing exercise.

Lynn, Brenna M. *Prevalence of exercise-induced arterial hypoxemia in female asthmatic athletes*, 2003. M.S., University of British Columbia (Donald McKenzie). (121pp 2f \$12.00) PH 1780

It has been suggested that habitual exercise training may cause mechanically or chemically mediated endothelial dysfunction during heavy exercise, which may lead to exercise-induced arterial hypoxemia. Cellular adhesion molecules E- and P-selectin have been used as direct markers of endothelial injury. Elevated plasma levels of these inflammatory mediators along with IL-6 have been present in acute lung injury and also after intense exercise. To determine whether asthmatic female athletes have higher incidence of exercise-induced arterial hypoxemia (EIAH) and higher plasma levels of soluble P-selectin and IL-6 when compared to controls, 16 female asthmatics (age= $26.4\pm 5.7$  yrs; ht= $165.7\pm 7.6$  cm; wt= $61.7\pm 10.9$  kg;  $VO_{2max} = 46.8\pm 8.0$  mL $\cdot$ kg $^{-1}\cdot$ min $^{-1}$ , range 29.3 to 57.3 mL $\cdot$ kg $^{-1}\cdot$ min $^{-1}$ ) and 16 female non-asthmatic athletes (age= $26.2\pm 4.2$  yrs; ht= $167.2\pm 6.8$  cm; wt= $57.5\pm 6.0$  kg;  $VO_{2max} = 51.9\pm 8.2$  mL $\cdot$ kg $^{-1}\cdot$ min $^{-1}$ , range 40.0 to 67.9 mL $\cdot$ kg $^{-1}\cdot$ min $^{-1}$ ) were tested during the mid-follicular phase of their menstrual cycle. Subjects completed an incremental maximal treadmill test on the first day of testing. Exercise-





induced arterial hypoxemia ( $\%SaO_2 \leq 93\%$ ) was seen in 7 of the 16 asthmatics and in 8 of the 16 control subjects. On day 2 during the run to exhaustion test, 6 of 16 asthmatics decreased  $\%SaO_2$  to less than 93%, whereas 9 of the 16 controls developed EIAH. The data failed to show significance ( $p > 0.05$ ) in  $\%SaO_2$  between groups on Day 1 ( $p = 0.74$ ) and Day 2 ( $p = 0.93$ ). There was a significant decrease in saturation over time for both groups ( $p = 0.00$  and  $p = 0.00$ ). P-selectin and IL-6 were measured on Day 2 by enzyme immunoassay before and after the treadmill run to exhaustion test. With exercise, there was a significant change over time for both P-selectin ( $p = 0.00$ ) and IL-6 ( $p = 0.00$ ). No significant group by time interaction was seen in pre-post concentration of P-selectin ( $p = 0.37$ ) or IL-6 ( $p = 0.43$ ). There was however a significant difference in pre-post concentration of IL-6 ( $p = 0.04$ ) between those controls that displayed EIAH and those that did not develop EIAH. No significance was seen in asthmatics with respect to IL-6 and EIAH. Plasma concentrations of soluble P-selectin ( $p = 0.94$ ) and IL-6 ( $p = 0.27$ ) were not significantly different between groups. No statistical significance was apparent in P-selectin and hypoxemia between groups. The incidence of EIAH in an asthmatic population is not significantly higher in asthmatics when compared to controls. The increased levels in plasma P-selectin and IL-6 after intense exercise may represent endothelial dysfunction. However, increased plasma level of P-selectin and IL-6 was seen in both groups and therefore cannot support the hypothesis that asthmatics show increased levels of inflammatory markers due to lung damage from chronic-recurrent high stresses of breathing during exercise training.

O'Neill, Elizabeth C. *Effects of cigarette smoking on physiological parameters during resistance training*, 2003. D.P.E., Springfield College (Vincent Paolone). (200pp 3f \$18.00) PH 1798

The current investigation was designed to examine the impact of cigarette smoking on various physiological parameters during resistance exercise in nonsmoking males ( $N = 10$ ). Repeated Measures ANOVA procedures were used to evaluate the mean change in all variables at baseline, rest, exercise, and recovery time periods. A significantly ( $p < .05$ ) higher diastolic blood pressure (DBP) existed for the smoking session during exercise, rest, and recovery. A significant ( $p < .05$ ) interaction existed between protocol and time with regard to heart rate (HR) and cardiac output (CO). Significantly ( $p < .05$ ) higher mean HR and CO were observed during the smoking protocol for the second baseline measurements. HR was significantly ( $p < .05$ ) higher for the smoking protocol for exercise, rest, and recovery. CO was significantly ( $p < .05$ ) higher during the smoking protocol during exercise but not during rest and recovery. Peak torque flexion was significantly ( $p < .05$ ) lower for the smoking session. SBP was significantly ( $p < .05$ ) lower during baseline two compared to exercise,

but not for DBP. Further research is needed to evaluate mechanisms that alter physiological responses that occur when smoking and resistance training are combined.

Panning, Jill K. *Accuracy of exercise prescription methods compared to the ventilatory threshold*, 2002. M.S., University of Wisconsin, La Crosse (Carl Foster). (49pp 1f \$6.00) PH 1786

Many exercise professionals use non-invasive methods to determine exercise prescription. These methods have the risk of prescribing exercise intensities that are below or above the ventilatory threshold (VT). This study compared the ACSM recommended exercise prescription percentages to variables (HR,  $VO_2$ ) at VT. Twenty healthy volunteers ( $n = 20$ ) performed a maximal exercise test to determine VT, peak  $VO_2$ , HRmax. The variables at VT were compared to the percentages (40, 60, 80%  $VO_2$ peak, 55, 70, 90% peak HR, and 40, 85% HRR) that were widely used to prescribe exercise. There was a statistically significant difference ( $p < .05$ ) between the variables at VT and at numerous recommended percentages; however, there were no significant correlations between the percentages and variables at VT. Intensities of 60%  $VO_2$ peak and 75% HRmax were associated with intensities that are equivalent to the VT.

Ramirez, Rachael. *Evaluation of the validity of a non-exercise technique of estimating  $VO_{2max}$* , 2003. M.S., Western Washington University (Lorraine Brilla). (64pp 1f \$6.00) PH 1790

The purpose of this investigation was to compare estimated  $VO_{2max}$  values obtained from a new, non-exercise technique marketed by OmegaWave Sport Technologies (OmegaWave) to those from direct measurement during maximal exercise test (GXT) in healthy young athletes. The evaluation of this technique will provide valuable information on the effectiveness and accuracy of the new equipment and provide information for the consumer to base decisions on use of the equipment. Twenty-six (15 male, 11 female) competitive or recreational athletes completed both tests to obtain two measures of  $VO_{2max}$  measurements (Omega mean = 66 ml/kg/min, GXT mean = 59.7 ml/kg/min). Statistical analysis revealed a weak correlation ( $r = 0.37$ ), large standard error of the estimate ( $SEE = 6.265$  ml/kg/min), and wide range in confidence intervals ( $\pm 12.3$  ml/kg/min). Additionally, the Bland-Altman analysis indicates that in 95% of tests the value reported by the OmegaWave may be well under or greater (-11% to 38%) than the  $VO_{2max}$  determined by the GXT. Results suggest the OmegaWave overestimates  $VO_{2max}$  in young athletes compared to GXT measurements and it appears that the OmegaWave is a relatively poor predictor of  $VO_{2max}$  in the study population. Further research is required to support the findings of this study and to investigate the accuracy of the OmegaWave system more thoroughly.



Smaczny, Denise M. *Relationship between the talk test and ventilatory threshold during stochastic exercise*, 2002. M.S., University of Wisconsin, La Crosse (Carl Foster). (48pp 1f \$6.00) PH 1788

Previous studies with a variety of populations have demonstrated that the ventilatory threshold (VT) is closely associated with the highest exercise intensity at which subjects may speak comfortably, the Talk Test (TT). These studies have all been conducted using incremental exercise sessions rather than stochastic exercise sessions. In this study, the relationship between the TT and VT during stochastic exercise was evaluated. Subjects (N=18) performed incremental exercise with gas exchange to define VT. Following the initial test, subjects performed the same incremental test with the TT (Pledge of Allegiance). The last two tests were 30-minute stochastic exercise sessions with gas exchange and then with the TT. The subjects' ability to speak during stochastic exercise matched expected responses relatively well: (vs  $\dot{V}O_2$  as %VT, 73%), (vs  $\dot{V}O_2$  at last positive (LP) stage of the TT, 75%), (vs HR at VT, 69%), (vs HR at LP, 66%), (vs  $B_i$  at VT, 51%), and (vs  $B_i$  at LP, 39%). Results suggest that the TT is a good measure of intensity during stochastic exercise, although not as good as predicted from previous studies based on incremental exercise.

Smelker, Christy L. *Intensity thresholds for post exercise hypotension*, 2002. M.S., University of Wisconsin, La Crosse (Carl Foster). (55pp 1f \$6.00) PH 1789

Hypertension is a risk factor for heart disease that responds to both acute and chronic exercise. This study evaluates the effects of different exercise intensities on post exercise hypotension in hypertensive subjects. Subjects (N=10) were healthy, mildly hypertensive individuals. Each performed a maximal test to allow for intensity prescription, then completed four randomly ordered 120min exercise trials and one control trial. The exercise trials consisted of 25 min cycling at 70, 80, 90, or 100% of the  $\dot{V}O_2$  at the ventilatory threshold (VT) (e.g., quite easy to rather hard). Blood pressure was measured at 0, 30, 60, 90 and 120 minutes of each trial. There was a significant ( $p \leq 0.05$ ) reduction in systolic blood pressure at 30, 60, 90 and 120 min for 100%VT; at 60, 90 and 120 min for 90%VT; at 90 and 120 min for 80%VT; and at 120 min for 70%VT. There was no change with diastolic blood pressure. Mean arterial pressure was significantly reduced at 60, 90 and 120 min for 90%VT, and at 60 and 90 min of 100%VT. We conclude that exercise acutely lowers blood pressure in mildly hypertensive individuals and that a higher intensity exercise session may have a greater effect.

Timmerman, Kyle L. *The effect of training status and an acute bout of endurance exercise on osteoblast proliferation and alkaline phosphatase activity*, 2003. M.S., Purdue University (Michael G. Flynn). (70pp 1f \$6.00) PH 1791

The purpose of the present study was to determine the effect of training status and an acute bout of endurance exercise on serum parathyroid hormone levels, osteoblast (OB) alkaline phosphatase activity (ALP), and OB proliferation using an in vitro model. Researchers suggest that endurance exercise has a beneficial impact on various indices of bone metabolism, including alkaline phosphatase activity. However, the mechanisms linking exercise to these positive effects on bone metabolism are not widely known. One proposed mechanism involves parathyroid hormone (PTH), and, more specifically, fluctuating levels of serum PTH in endurance trained subjects. Consequently, in the present study, serum from endurance trained (ET) and untrained (UT) subjects at rest and ET following 60 min of endurance exercise were measured for PTH and used to supplement osteoblasts in vitro. Alkaline phosphatase activity of OBs was measured following 2, 6, and 9 d of supplementation, and cell proliferation was determined following 6 d. Levels of PTH were not significantly different between ET and UT, but PTH levels increased significantly following 60 min exercise in ET. Additionally, levels of PTH were not significantly correlated with ALP or osteoblast proliferation. A time effect was observed for ALP such that OB supplemented with resting serum (ET and UT) elicited more ALP at 6 d than at 2 d. However, the time effect appeared to be driven by an ALP increase in OB supplemented with serum from ET at rest ( $p = 0.08$ ). Following 6 d of supplementation with serum from UT-rest, ET-rest, and ET post-exercise osteoblast number increased by  $115 \pm 32\%$ ,  $154 \pm 23\%$ , and  $96 \pm 35\%$ , respectively. The differences weren't significant, but there was a trend for OBs to proliferate more when supplemented with serum from ET-rest when compared to ET post-exercise. The present study shows that an acute bout of endurance exercise led to a significant increase in serum PTH levels in ET, and that OBs supplemented with serum from ET at rest tended

Timmerman, Stacia. *The effect of exhaustive exercise on circulating thyroid hormones*, 2003. M.A., University of North Carolina, Chapel Hill (A. C. Hackney). (65pp 1f \$6.00) PH 1793

Previous research has been unable to agree upon how thyroid hormones respond to exercise. The purpose of this study was to determine thyroid hormone responses to an exhaustive bout of exercise. Ten endurance-trained males ( $22.3 \pm 2.5$  yrs) ran until exhaustion ( $52.5 \pm 6.2$  minutes) at an intensity that was  $\sim 74\%$  of maximal oxygen uptake ( $\dot{V}O_{2max}$ ). Blood samples collected at baseline (pre-exercise rest); exhaustion; 90 minutes post-exercise; and 24 hours after the baseline sample showed no change in free thyroxine ( $fT_4$ ). Free triiodothyronine ( $fT_3$ ) and thyroid stimulating hormone (TSH) both showed a significant increase from baseline to exhaustion ( $p < 0.005$ ;  $p < 0.001$ ); a reduction to near baseline levels 90 minutes post-exercise ( $p < 0.005$ ;  $p < 0.001$ ); and a decrease 24 hours after the



baseline sample to levels significantly lower than baseline ( $p < 0.005$ ). It was concluded that the exhaustive exercise bout in the present study caused disturbances in thyroid hormone levels that persisted even after a 24-hour recovery period.

Wilkins, Brad W. *Cutaneous active vasodilation in humans: contribution of nitric oxide and vasoactive intestinal peptide*, 2003. Ph.D., University of Oregon (Christopher T. Minson). (158pp 2f \$12.00) PH 1792

When humans are exposed to hyperthermic conditions, the dilation of cutaneous vessels directs heated blood from the body's core to the cooler skin surface which, along with sweating, effectively limits the rise in core body temperature. This active vasodilation of cutaneous vessels is reflexively controlled by the sympathetic nervous system. Although a number of studies have described the control of skin blood flow in humans exposed to hyperthermia, the basic mechanism of cutaneous active vasodilation remains unknown. The experiments described in this dissertation were designed to examine the contribution of nitric oxide (NO) and vasoactive intestinal peptide (VIP) in cutaneous active vasodilation. The first study was designed to assess a potentially permissive role of NO in active vasodilation. The results suggest NO directly mediates a portion of active vasodilation and may act synergistically with another neurotransmitter to enhance the overall response. The second study was designed to characterize VIP-mediated dilation and assess the potential interaction between VIP and NO. The results demonstrated that the response to exogenous VIP was consistent with receptor mediated dilation and includes a NO-independent component in addition to a substantial NO-dependent portion. This NO-dependent dilation was likely due to a direct effect of NO and not a synergistic interaction with VIP. However, NO may pre-junctionally enhance the release of VIP during hyperthermia, explaining the synergistic role for NO observed in the first study. The third study was designed to assess the contribution of VIP in active vasodilation. The results suggest VIP not only participates, but plays a primary role, in cutaneous active vasodilation in human skin. A fourth study was designed to measure VIP in microdialysis samples using a dot immunoblot assay technique. The initial results demonstrated the necessity to either increase the sensitivity of the assay or increase the recovery of VIP during hyperthermia. Based on the results from these studies, we proposed a model for the contribution of VIP in active vasodilation: VIP release stimulates NO production and together they produce dilation via parallel pathways. Additionally, NO may pre-junctionally enhance the release of VIP from sympathetic nerve terminals, further contributing to the overall response. This dissertation includes both my previously published and my co-authored materials.

Williams, David K. *Fluid intake during an Olympic distance triathlon*, 2002. M.A., University of North Carolina, Chapel Hill (Robert McMurray). (67pp 1f \$6.00) PH 1794

Seven male volunteer triathletes, age range 18 to 35 years, were tested during two simulated triathlons to determine whether run performance was different when consuming six ounces of water at 8, 16, 24, and 32 kilometers (Early Trials) or 10, 20, 30, and 40 kilometers (Late Trials) during the cycling leg of an Olympic distance triathlon. Swim times for 1500 meters were similar between trials; 40-kilometers cycling were 12 s faster during the late trials; however, 10-kilometers running were faster during the Early Trials ( $p < 0.05$ ). The change in lactic acid (pre to post trial) was greater for the Early Trials vs. Late Trials ( $p < 0.05$ ). No significant differences between trials were found for the rating of perceived exertion, oxygen uptake, heart rate, and change in urine specific gravity. It was concluded that the Early Trial regimen resulted in faster running times during an Olympic distance triathlon than the Late Trial regimen.

Witt, Lindsey E. *The effects of superoxygenated water compared with regular bottled water on heart rate and arterial oxygen saturation*, 2002. M.S., University of Wisconsin, La Crosse (John Porcari). (39pp 1f \$6.00) PH 1787

This study measured and compared the effects of superoxygenated water (SW) to regular bottled water (RW) on heart rate (HR), arterial oxygen saturation (% saturation), and rates of de-saturation/re-saturation (1/2 times) in response to artificially induced hypoxia. Methods: 20 subjects were randomly assigned to drink either 20 oz or 40 oz of SW for one trial and RW for the other trial. After a 30-minute rest period following ingestion of the assigned water, subjects inhaled a 10% oxygen mixture for 3 minutes followed by 5 minutes of breathing room air. This breathing cycle was repeated 2 more times consecutively. No significant differences were found in HR, % saturation, or 1/2 times between SW and RW trials. In artificially induced hypoxia, SW results in no significant changes in HR, % saturation, or rates of saturation change compared to RW, suggesting benefits to exercise performance would be unlikely to result from ingestion of SW.

## HEALTH AND HEALTH EDUCATION

Applegate, Trent E. *Coordinated school health programs (CSHP) for promoting health among college students*, 2003. H.S.D., Indiana University (Mohammad R. Torabi). (120pp 2f \$12.00) HE 768



This study examined whether health education faculty and administrators in higher education are working with other components of the Coordinated School Health Programs (CSHP) model to help college students learn about health. The study also determined whether an institution's Carnegie classification played a role in its use of the CSHP model. The attitudes of health education faculty and administrators regarding the effectiveness of the model were also examined. A panel of professionals from each CSHP component area was used to help review and develop the survey questionnaire. Then it was pilot tested by a sample of school and college health experts. Using a purposive sampling technique, the questionnaire was administered to a representative sample of faculty and administrators from the different Carnegie classifications of institutions. A total of 209 health education faculty and/or administrators representing 172 institutions were selected. The hypotheses examined in this study related to the interaction of health education with the other seven components of CSHP, differences in the Carnegie classifications, and attitudes on the benefits of CSHP. The results of this study provided evidence of moderate use of the CSHP model. This study also revealed that there were some differences in the interaction and attitudes of the faculty and administrators from baccalaureate institutions as compared to those from masters and doctoral institutions. However, there were no significant differences in health education faculty and administrators interaction with at least four of the components of CSHP in the past 12 months. Overall, statistically significant positive attitudes toward the benefits of CSHP were found. The results suggested that there needs to be more interaction among the components of CSHP. Therefore, college health faculty and administrators should reach out to all CSHP areas on campus to help improve student learning about health.

Blaak, John B. *Effects of volume and exercise complexity on neural adaptations, strength gains, and lean body mass in untrained adults*, 2002. M.S., University of Wisconsin, La Crosse (Jeff McBride). (58pp 1f \$6.00) HE 767

This study was designed to examine the effects of a 12-week resistance-training program using single vs. multiple sets of a complex vs. simple exercise. Twenty-eight untrained men ( $n=15$ ) and women ( $n=13$ ) (mean age  $21.6 \pm 2.5$ ) performed several resistance exercises twice per week: a complex movement, the leg press (LP); and a simple movement, the biceps curl (BC). Group one (S-1,  $n=9$ ) performed one set of each exercise, group two (M-6,  $n=9$ ) performed six sets of the same exercises, and group three (control,  $n=10$ ) was the control group. One-repetition maximums and EMG were measured in the LP and BC during pre-, mid-, and post-training. Lean body mass of the legs and arms was measured pre- and post-training by dual energy x-ray absorptiometry (DEXA). Results of the study indicated that S-1 and M-6 groups each significantly increased percentage strength pre- to post-training in both

the LP and BC (S-1 pre-post LP= $41.2\% \pm 23.7\%$ , BC= $8.5\% \pm 6.71\%$ ), (M-6 pre-post LP= $52.6\% \pm 12.6\%$ , BC= $22.8\% \pm 15.6\%$ ). However, compared to S-1, M-6 showed a significantly greater increase in percentage strength in the BC ( $p=0.05$ ) from pre- to post-testing. Results also showed that M-6 produced a significant increase in biceps (single-joint) muscle EMG adaptations pre- to mid-testing ( $p=0.05$ ) compared to S-1. There were no significant differences found in lean muscle mass percent increases for the legs or arms in either training group ( $p=0.05$ ). The data from this study suggest that multiple sets produce greater increases in percentage strength gains for simple exercises in untrained adults. It is possible that neural mechanisms are responsible for the observed differences.

Chen, Lee-hwa. *Physical activity patterns [pattern] and its relationship to cardiovascular risk factors in an adult Taiwanese population*, 2003. P.E.D., Indiana University (Janet P. Wallace). (204pp 3f \$18.00) HE 769

The purpose of this study is to investigate the pattern of physical activity (PA) and its relationship to cardiovascular risk factors (CVRFs) among apparently healthy middle-age adults in Taiwan, R.O.C. The first phase of the study was to develop a PA questionnaire from WHO-MONICA Optional Study of Physical Activity (MOSPA). The second phase was to assess PA and selected risk factors for 1,620 adults (female=800, male=820,  $38.6 \pm 0.4$  vs.  $38.5 \pm 0.4$  yo) at the Meei Jaw Health Screening Center in Taiwan. The selected CVRFs included body mass index (BMI), blood pressures, fasting serum glucose, serum triglyceride, total cholesterol, HDL, LDL, and smoking. The modified MOSPA was found to be reasonably valid and reliable. Physical activity was found to be basically sedentary with men reporting more PA than women ( $11479.0 \pm 177.9$  kcal·wk<sup>-1</sup> vs.  $8093.8 \pm 156.0$  kcal·wk<sup>-1</sup>). Older adults (55-64 yo =  $9451.4 \pm 467.9$  kcal·wk<sup>-1</sup>) reported less PA than younger groups. The highest PA was found in the 45-54 age group ( $10899.2 \pm 339.6$  kcal·wk<sup>-1</sup>). There was a positive correlation between occupational and total PA and all CVRFs. Occupational activity exhibited the strongest association with BMI, HDL and smoking. BMI, male sex and smoking status tended to characterize people with higher occupational activity. Light occupational activity appears to be related to higher risk of cardiovascular disease in Taiwan. These findings may be influenced by ethnic differences and other factors related to work.

Glazener, Hope. *Changes in physical activity after using a pedometer*, 2002. M.S., Colorado State University (Dale DeVoe). (43pp 1f \$6.00) HE 763

The purpose of this study was to investigate the use of a pedometer to increase physical activity in women 35-65 years of age that were not already enrolled in a formal exercise program. Fourteen women were recruited to participate in the six-week study. Each participant wore a



Walk4Life pedometer (MLS 2100, Plainfield, IL) each day for the duration of the study and recorded daily step counts on the log provided to them. The first two weeks of the study determined baseline data. For the remaining four weeks, the participants were randomly assigned to either an experimental ( $n=7$ ) or control ( $n=7$ ) group. The experimental group was given an individualized goal in steps per day to achieve while the control group was advised to set its own goal. It was determined that there was a significant increase in mean step counts from the two-week baseline ( $7050 \pm 2245$ ) to the four week intervention ( $9118 \pm 1837$ ) within the experimental group. There was no significant increase within the control group ( $9763 \pm 3104$  vs.  $10293 \pm 3165$ ). Further analysis revealed that goal compliance within the experimental group steadily increased from week 3 to week 6, substantiated by a significant linear trend. This is the first treatment/control study that demonstrates the potential to increase daily physical activity in individuals with the use of pedometers. By the end of the six-week study, six out of seven participants in the experimental group were reaching their prescribed goal indicated by weekly mean steps/day. The results of this investigation show that the pedometer has the potential to be a useful tool not only to monitor physical activity but also to motivate an increase in physical activity when combined with specific, individual target values.

Kaufman, Christopher L. *The validity of ratings of perceived exertion of ACSM exercise guidelines: an investigation of individuals high vs. low in aerobic fitness*, 2003. M.S., University of Nebraska, Omaha (Kris Berg). (87pp 1f \$6.00) HE 764

Low fit/inactive (LFI) individuals may perceive exercise intensity differently from high/fit active (HFA) individuals. Recent research in the area of perceived exertion has been equivocal in its findings regarding the two populations. The purpose of this study was to further examine the potential differences in these groups and to directly compare their physiologic response to a given perceived exercise intensity with ranges provided by the American College of Sports Medicine (ACSM). A total of 15 subjects between the ages of 22 and 26 served as subjects for this study. All performed  $VO_{2peak}$  and LT tests for baseline measurement. On subsequent visits, subjects performed 15 min experimental runs in which they were asked to exercise at a constant perceived intensity (RPE 13 and 17).  $VO_{2r}$ , HR, LA, and velocity data were recorded during each run. The LFI group exhibited significantly greater %  $VO_{2R}$  ( $p < .05$ ) and % vLT ( $p < .01$ ) values than HFI at RPE 13 and 17. Both groups had significantly greater %  $VO_{2R}$  ( $M=74.3 \pm 4.8\%$ ) and %  $HR_{max}$  ( $M=81.4 \pm 4.4\%$ ) values at RPE 13 in comparison with the ACSM ranges using the highest value for the given range (59%  $VO_{2R}$  and 69%  $HR_{max}$ ) ( $p \leq .001$ ). Sensitivity analysis substantiated this difference by indicating that no subjects were appropriately classified using the ACSM ranges for %  $VO_{2R}$  and %  $HR_{max}$  at RPE

13. However, the sensitivity of the ACSM scheme for %  $VO_{2R}$  at RPE 17 appear to be sufficient as 75 % of HFA and 100 % of LFI were properly classified. In conclusion, the LFI individuals tended to use a greater % of their  $VO_{2R}$  and run at a greater % of vLT than their HFA counterparts for both perceived intensities (RPE 13 and 17). At RPE 13, all subjects were exercising at a greater % of  $VO_{2R}$  and HR than is currently suggested by the ACSM. These results indicate that exercising at RPE 13 might impose a greater physiologic challenge than is currently being recommended. Consequently, when using the RPE scale for exercise prescription in LFI and HFA young males, these data suggest that the minimal perceived intensity to achieve aerobic benefit might be lower (i.e., RPE 10 or 11) than is currently being recommended by the ACSM (RPE 12-13).

Lee, Heng-Ju. *Correlation between muscular strength and dynamic stability in the elderly*, 2003. M.S., University of Oregon (Li-Shan Chou). (91pp 1f \$6.00) HE 765

The purpose of this study was to understand the association, in the elderly, between lower extremity strength and control of the whole body center of mass (COM) while negotiating obstacles. Whole body motion, electromyography (EMG), and isometric muscle strengths were collected from twenty healthy elderly adults. The COM measurements related to dynamic balance in the sagittal and frontal planes were found to be challenged when stepping over a higher obstacle. No significant correlations were detected between isometric muscle strength and COM measurements. However, normalized EMG activation ratios of the gluteus medius were found to correlate significantly with the peak COM medio-lateral velocity during unobstructed walking and when stepping over the obstacle of 2.5% body height. Results of this study indicated that the normalized EMG activation ratio might enable us not only to monitor muscle recruitment but also to better quantify the level of mechanical challenge imposed on the selected muscle.

Muck, Erin L. K. *Knowledge and behavior in non-institutionalized elderly following an educational intervention on hydration*, 2003. M.S., Purdue University (Roseann M. Lyle). (109pp 2f \$12.00) HE 770

This study examined the effectiveness of an educational intervention for changing older adults' knowledge of, and fluid consumption behavior regarding, dehydration and its prevention. Older adults from churches, retirement communities, assisted-living facilities, and senior centers participated in either an experimental group ( $n=37$ : three 45-minute lessons regarding dehydration, the importance of water, and urinary incontinence over a three-week period) or control group ( $n=40$ : no intervention). Knowledge questionnaires and fluid intake records were completed before, after, and three weeks following the intervention. One-way ANOVA indicated no differences in



knowledge scores or behaviors between groups at baseline. Pearson's  $r$  revealed that age was related to knowledge scores ( $r=-.38$ ) and to the consumption of dehydrating fluids ( $r=-.37$ ) at baseline. Repeated measures ANOVA of knowledge scores resulted in a significant group by time interaction ( $p<0.0001$ ). *Post hoc* analyses indicated that the experimental group significantly ( $p<0.0001$ ) increased knowledge scores from baseline to post-test one and maintained these scores through post-test two while there was no change in the control group. Repeated measures ANOVA of self-reported fluid consumption resulted in a significant group by time effect ( $p<0.005$ ). *Post hoc* analyses indicated that the control group significantly ( $p<0.05$ ) decreased consumption of hydrating fluids between baseline and post-test two, and the experimental group marginally ( $p<0.06$ ) increased consumption of hydrating fluids between baseline and post-test one. There were no significant changes seen in either group with regards to consumption of dehydrating fluids. Results did not change after controlling for variables such as age, gender, education, marital status, and limitations of activities of daily living. Although the educational intervention in this study improved knowledge, six weeks did not appear to be enough time to influence behavior. However, process evaluation contentment scores revealed that the participants' satisfaction with the intervention was very high. Thus, exploration of the use of educational interventions as a means of promoting healthy behaviors in older adults warrants further research in the area of hydration. Future studies should include quantitative assessments of hydration, as well as factors related to decision-making and motivation for changing fluid consumption behaviors.

Parker, Tami K. *Determining the need for program development for women in their childbearing years*, 2001. M.P.T., University of North Dakota (Beverly Johnson). (105pp 2f \$12.00) HE 771

The childbearing year for a woman is a time of physical change and adaptation that can potentially result in a variety of musculoskeletal problems. Acting as a clinician, educator, or consultant, a physical therapist can offer a variety of services that would benefit women in their childbearing years. Despite the skilled services physical therapists have to offer, this population continues to display problems. As a result of these existing problems, a survey was constructed to provide direction for program development to promote the health and wellness of women in their childbearing years. The purpose of this study was to develop an understanding of what interventions are currently offered in the Devils Lake and Grand Forks, North Dakota, communities to pre- and post-partum women and compare it to an ideal treatment protocol addressing pelvic floor muscles, abdominals, posture, scar mobilization, and the cardiovascular system. A survey was provided to women at their six-week postpartum physician appointment. Criteria included women over the age of

18, and the survey completed within six months of delivery. Results consisted of descriptive statistics from the 58 women studied. The most significant problems reported throughout pregnancy were low back pain and stress urinary incontinence (SUI). Sixty one percent of women experienced SUI following an episiotomy, while only 4.3% of these women sought treatment. This common trend, high number of problems experienced with minimal treatment sought, was found throughout the survey. Other findings showed that walking was the preferred mode of exercise, and medical doctors and reading materials were most readily used resources. The childbearing year is a time when the woman is susceptible to injury, and thus a time when dysfunctions could be prevented. Despite the available resources regarding this population, there is a gap in vital information concerning the health and wellness of this population. Through this survey, insight was gained on what issues women are educated on, prevalence of musculoskeletal dysfunctions, and also if treatment was sought. This study has shown the need for physical therapists specializing in women's health to get involved in the programming and education of health care providers and women.

Shomaker, Kayla E. *The effect of pedometers on motivation and steps in fitness walking classes*, 2003. M.S., Ball State University (Valerie Wayda). (71pp 1f \$6.00) HE 775

The primary purpose of this study was to examine the motivational effects of pedometers for college students in a fitness walking class, and secondly to determine if the use of pedometers increased the number of steps taken by students. Previous pedometer research has focused on monitoring total daily activity levels, with limited research completed within the classroom. Participants ( $N=45$ ) completed a motivation questionnaire at the beginning and ending of the study. The control ( $n=16$ ) and treatment ( $n=29$ ) groups wore pedometers every day of class, but the control group's pedometers were sealed to conceal the number of steps. The treatment group could view the number of steps for feedback about their performance on a daily basis. The number of steps for each participant was logged after each class. No statistically significant change in motivation was observed over the course of the six-week class for either group. A significant change was observed for number of steps taken over time, with the control group recording fewer steps per minute by the end of the class, while the use of the pedometers appeared to facilitate the treatment group maintaining a constant rate of steps per minute over time.

Sullivan, Stephenie J. *Effects of simulated body weight increases on joint moments and muscular activity while rising from a chair*, 2003. M.S., Springfield College (H. Joseph Scheuchenzuber). (115pp 2f \$12.00) HE 774



Rising from chair is a daily activity that is performed without effort by many people, yet for many obese individuals this common task can be difficult. While there is abundant research on obesity and locomotion, very little focus has been directed towards obesity and rising from a seated position. This study was designed to investigate the effects of simulated body mass increases on the kinematics and muscular activity of subjects performing the sit-to-stand (STS) test. Subjects wore external loads of 25, 35, 45, and 55% of their lean muscle mass in a vest and performed the STS rising from a bench. Data from the samples ( $N=8$ ) were analyzed using seven simple repeated measures. No statistically significant differences ( $p>.05$ ) existed between peak hip and knee joint moments and four load conditions. Significant differences ( $p<.05$ ) did exist between peak ankle joint moments and load conditions of simulated body weight increases. Muscular activation patterns of the gastrocnemius and quadriceps muscles, and the center of mass projection vector were not significantly ( $p>.05$ ) different among load conditions. In conclusion, the addition of external load did not elicit differences in the biomechanical and muscular properties of the STS. Future studies should incorporate a greater depth of research on muscular activation and should compare the effects of excess mass to the effects of increased girth on the rising motion to determine which has a more detrimental effect.

Threlkeld, Rebecca J. *The impact of an educational intervention on cardiovascular disease knowledge, behavior, and risk factor status in Hispanic women*, 2003. M.S., Purdue University (Roseann M. Lyle). (85pp 1f \$6.00) HE 772

This study compared cardiovascular disease (CVD) knowledge and risk factors, and examined the effectiveness of a culturally appropriate vs. traditional educational intervention in Hispanic and non-Hispanic white women. Hispanic women (20-59 years) were randomized into a traditional ( $n=13$ , mean age =38+SD 10.9) or culturally appropriate ( $n=9$ , mean age =33+SD 7.8) intervention. Non-Hispanic white women ( $n=9$ , mean age =39+SD 10.5) served as a control. Baseline ( $B_0$ ), post-intervention ( $T_1$ ) and 3 month ( $T_2$ ) knowledge was assessed with the Stanford Five-City CVD knowledge test.  $B_0$  and  $T_2$  risk factor assessment included a blood chemistry analysis, anthropometric and blood pressure measurements, and smoking and physical activity behaviors (Por la Vida Health Survey). ANOVA indicated that non-Hispanic white women had a greater level of CVD knowledge at  $B_0$  ( $p=.006$ ). ANCOVA controlling for baseline knowledge indicated no group differences at  $T_1$  or  $T_2$ . However, within-group analysis demonstrated that knowledge increased from  $B_0$  to  $T_1$  in all groups. Group 2 knowledge also increased from  $B_0$  to  $T_2$  ( $p=.007$ ). Chi Square analysis demonstrated that more non-Hispanic women smoked at baseline and  $T_2$ . ANCOVA controlling for baseline values resulted in a main effect of group ( $p=.01$ ) for BMI at  $T_2$ .

Post-hoc analysis indicated that the Hispanic group receiving the culturally appropriate intervention exhibited a lower BMI than the Hispanic women receiving the traditional intervention ( $p=.03$ ) and the non-Hispanic women ( $p=.003$ ). Within group analysis showed that only the Hispanic women who received the culturally appropriate intervention decreased their weight ( $p=.009$ ) and BMI ( $p=.008$ ) from  $B_0$  to  $T_2$ ; however, glucose level increased ( $p=.02$ ). Thus the Hispanic women in this small sample had less CVD knowledge but were not at increased risk for CVD. Group 2 results suggest that a culturally appropriate intervention may be more effective in changing CVD knowledge. However, the mixed impact on risk factor results indicate that further research is warranted in a larger sample of Hispanic women.

Vincent, Susan D. *Determining baseline activity levels in children*, 2001. Ph.D., Arizona State University (Robert P. Pangrazi). (58pp 1f \$6.00) HE 766

The Surgeon General's Report on Physical Activity and Health has focused the attention of physical educators on the need to promote lifetime physical activity as a major objective of their curriculum. Research has suggested a trend of decreasing activity with age necessitating this emphasis on physical activity with children. The pedometer has been shown to be a valid, reliable, objective and affordable method of measuring activity levels which teachers can use to assess their students. The purpose of this study was to assess the current physical activity levels of elementary school children, attempting to describe how active children currently are on the weekdays and on the weekends, and to determine if there are differences in activity levels by age and sex. Children, ages 6 to 12 years ( $N=711$ ), wore sealed pedometers for 7 consecutive days. Data was recorded each weekday and once after the weekend. Height and weight measures were also collected. Factorial ANOVA found no significant differences among age ( $F=0.78$ ,  $p=.587$ ) but did find a significant difference between sex ( $F=90.16$ ,  $p=.000$ ). A t-test between weekday and weekend activity counts found a significant difference ( $t=2.57$ ,  $p=.01$ ). Follow-up analysis found that this difference occurred for girls but not for boys. These results differ from some of the literature in that activity levels did not decline in this study. Boys were significantly more active than girls, as was expected, and girls appeared to be less active on the weekends than on the weekdays. The descriptive nature of this study provides insights into the activity patterns of children and the mean activity counts for boys and girls at each age can serve as a preliminary guide to physical educators and parents for determining how active children should be based on pedometer counts.

Wilson, Gary. *Gender differences in cardiovascular response to cold water facial immersion*, 2001. M.S., Slippery Rock University (Daniel G. Drury). (58pp 1f \$6.00) HE 773



The subject sample in this study was composed of 60 apparently healthy college aged individuals from the student population of Slippery Rock University. The subjects were between the ages of 18 and 35, not taking medication that would alter the chronotropic response of the heart, and free from the use of alcohol, tobacco, or caffeine products for the 12 hours prior to commencement of the study. Gender differences in the cardiovascular response to facial immersion in cold water were studied. Comparisons were made of the heart rate scores, systolic blood pressure scores, diastolic blood pressure scores, double product scores, and pulse pressure scores, of the subjects before and during facial immersion in a cold water slurry. The data were analyzed using an independent groups t-test at the .05 level of significance. There were no significant differences between the genders in any of the studied parameters.

## RECREATION AND LEISURE

Bergner, Blair M. *The development of PLAA: a pictorial leisure activity assessment for adults with cognitive disabilities*, 2002. M.S., University of Wisconsin, La Crosse (Nancy Navar). (43pp 1f \$6.00) RC 563

The Pictorial Leisure Activity Assessment (PLAA) was developed to assess the leisure competencies and preferences of people with cognitive disabilities. The PLAA is based on the State Technical Institute Leisure Activities Project (STILAP), a well-established assessment widely used in therapeutic recreation. An initial comparison of the STILAP with the PLAA was conducted to verify the feasibility of a pictorial version of the STILAP. Participants of the study were two adults with developmental disabilities living in a nursing home setting, who were initially assessed by three separate raters; one of the raters assessed while the two others watched and documented responses. The first test used the written version of the STILAP. Then participants were assessed with the pictorial version, PLAA. The PLAA took less time to administer than the STILAP, and provided more valid results based on participants' affective responses (this has yet to be formally determined). Subjects appeared more interested in pictures, less bored, and provided answers that were more varied; the PLAA provided more opportunity for rapport building with the participants. The entire PLAA was too long for clients. Based on these observations, the PLAA is a useful assessment due to its ease of administration, rapport building opportunities, and engaging properties. This assessment warrants further testing to determine its validity and reliability.

Curtin, Kelly A. *A needs assessment of the residents of Perry (Oklahoma) and evaluation of the city parks system*, 2001. M.S., Oklahoma State University (Lowell Caneday). (178pp 2f \$12.00) RC 564

The goal of this study was to understand what the citizens of Perry, Oklahoma, want in their parks system and how the parks can best meet these demands. Five hundred households were randomly chosen to receive a 19 item pen and paper survey marked with a blue cover. An additional three hundred surveys, marked with a yellow cover, were made available to those residents that wished to have their voices heard, but were not chosen in the random sample. ANOVA, T-test, and Spearman Correlations were used to test four null hypotheses. Additionally, the U.S. Consumer Products Safety Commission's Handbook for Public Playground Safety was used to evaluate the safety of the various playgrounds. It was discovered that Perry residents do not use the parks for a variety of reasons, but mostly because the parks do not meet their needs or the needs of their household. Walking/jogging were rated as being most important by Perry residents followed by picnicking and using playground equipment. Fishing was also an important activity. It was discovered that none of the parks complied with the USCPSC Handbook for Public Playground Safety. Recommendations were made to meet the needs of the city. It was recommended that walking trails be developed and that the picnic areas be repaired and maintained. It was also recommended that fishing docks be provided at the lakes and that the banks be landscaped to provide fishing access as well. It was also recommended that steps be taken in order to make the playground areas safer for children.

Kay, Joanne. *The social signification of new sport practice: the case of adventure racing*, 2001. Ph.D., University of Montreal (Suzanne Laberge). (258pp 3f \$18.00) RC 562

This project is an examination of adventure racing (AR) discourse and practice that explores the AR field, its values, tenets, stakes and struggles, its patterns of production, consumption and transformation, in light of its position and boundaries within the larger field of sport practice and in the wider context of postmodernity—or Late Capitalism. Through this empirical investigation, the research objective is to understand the social signification of an emerging sport practice in the field of sport supply. Further, through an investigation of AR as a new sociocultural practice—and thus as a new symbolic system—this project seeks to highlight the power of Pierre Bourdieu's theoretical model, which has not yet been extensively exploited in sport studies, as a heuristical tool to understand the struggles and strategies that define sport practice. The focus of this ethnography is the *Discovery Channel Eco-Challenge* (DCEC), which has not only grown into one of the most acclaimed adventure races in the world, but also into a yearly "documentary" sold to TV networks world-





wide with sponsorship and advertising as well as racer entry fees generating millions of dollars in revenue. The study relies on multiple modes of data generation blending qualitative analysis of on-site interviews that took place in Patagonia, Argentina in December 1999, with email communications, media analysis, participant-observation and Adventure Race Association Listserve (ARA-L) content analysis, as well as quantitative data supplied by the *Eco-Challenge* communications department and email questionnaire. Four distinct but interconnected data analyses are presented in this project in an effort to investigate the practice of AR in all its important dimensions. Drawing on Pierre Bourdieu's concept of field, the first data analysis aims to uncover the particular stakes and struggles that animate the relationships among AR participants and the competition among race organizers, in order to understand its historical and contemporary evolution. The next analysis explores the over-representation of management-level corporate participants in DCEC as a suggestion of the emergence of a new class—or social group—habitus common to both “new” corporate culture and AR. The aim of the analysis, which examines the parallels in AR and “new” corporate discourses is twofold: first, to uncover the practice-generating principles in the AR field; second, to explore the relationship between the AR and “new” corporate habitus through AR's *purported* benefit of “transferability.” A third data analysis draws on Bourdieu's notions of capital and symbolic power as a framework to examine AR discourse, which presents AR as a site of subversion and transformation of the gender regime in sport. The examination, however, reveals the dissonance between participant discourse and practice as a legitimating process of masculine domination. The first analysis explores the field of entertainment/ media as it articulates with the field of AR. This analysis demonstrates that the DCEC practitioner, as a contemporaneous DCEC viewer, significantly molds his/her perceptions and judgments of his/her AR experience through TV discourse that simultaneously constructs and relies on viewer/ practitioners' collusion. These analyses together contribute to a larger project of exploration into the symbolic system of sport supply as well as into the stakes, struggles, and strategies that define new sport culture and other lifestyle sports.

Moffitt, Jill. *Programmatic considerations for camp administrators*, 2003. M.S., Ball State University (Jacalyn Lund). (86pp 1f \$6.00) RC 565

The purpose of this study was to ascertain differences in program considerations between camp administrators affiliated with the American Camping Association (ACA) and with the National Intramural Recreational Sports Association (NIRSA). A review of literature outlined programmatic factors to help develop an instrument. The Current Program Practice Analyzer (CPPA) was created for

this study and electronically distributed to 195 camps nationwide. Significant differences ( $p < .01$ ) were found between ACA and NIRSA participants in four categories: organizational standards, child development training, funds and donations, and physical activity and fitness standards. The secondary purpose of this study was to determine if middle school campers were involved in program planning. Camps did not include this population, but a significant difference ( $p < .05$ ) was noted between affiliations.

## PSYCHOLOGY

Beggs, Brent A. *Activity satisfaction in golf and simulated golf*, 2002. Ph.D., Indiana University (Craig Ross). (133pp 2f \$12.00) PSY 2285

The problem of this study was to examine the activities of golf and simulated golf to determine and compare the satisfying dimensions of each activity. The study used a multiple methods approach, consisting of observation, nominal group technique, and surveys, in examining satisfaction in golfers and simulated golfers. Sampling consisted of convenience and theoretical samples of subjects from a commercial golf facility and a from commercial simulated golf facility in the Bloomington, Indiana, area. Golfers and simulated golfers were observed participating in a round of golf or simulated golf. The same groups that were observed participated in nominal group interviews immediately following their round of golf or simulated golf. Data from these two qualitative procedures were categorized and coded for the purpose of convergence with data collected from the surveys. Surveys were distributed and returned on-site at the same facilities, but to different subjects. The survey instruments were the Golf Satisfaction Scale (GSS) and the Simulated Golf Satisfaction Scale (SGSS) that were developed through modification of the Leisure Satisfaction Scale (Beard & Ragheb, 1980). These instruments were pilot tested prior to use in the study. The quantitative phase consisted of t-test analyses of the 24 items on the GSS and SGSS. Data from all three data collection methods were then triangulated to address the research questions of the study. The satisfying dimensions in the activity of golf were the psychological, educational, social, relaxation, physiological, and aesthetic dimensions. The satisfying dimensions in the activity of simulated golf were the social and relaxation dimensions. The only satisfaction dimension between golf and simulated golf that was similar was the social dimension. In addition, golf was significantly more satisfying than simulated golf. The overall mean score on the GSS was statistically higher than the overall mean score on the SGSS. In addition, scores on 22 of the 24 items of the satisfaction instruments were significantly higher on the GSS. These findings, along with



data collected during qualitative phases of the study, support that golf is a satisfying activity and that it is significantly more satisfying than simulated golf.

Carson, Russell L. *Physical education teacher motivation: an examination of self-determination theory*, 2001. M.S., Miami University (Oxford, OH) (Melissa A. Chase). (118pp 2f \$12.00) PSY 2281

Self-determination theory (Deci & Ryan, 1985) has proven salient for examining motivation, and posits that intrinsic, extrinsic, and amotivated behavior stems from three innate psychological needs of self-determination: the need for competence, relatedness, and autonomy. Considerable research using this theoretical approach has been generated in the sport, exercise, and education settings; however, none has addressed this relationship in physical education. Therefore, the purpose of this study was to examine whether physical educators' perceived competence, relatedness, and autonomy affects their type of motivation, as defined by self-determination theory. In addition, the relationship between certain personal, professional, and environmental factors among physical education teachers and their perceived competence, relatedness, and autonomy was investigated. 247 physical education teachers were surveyed using questionnaires to assess perceived motivation, competence, relatedness, and autonomy levels as well as personal, professional, and environment factors. A modified version of the Sport Motivation Scale (1995) was used to assess types of motivation. Perceived teacher competence was measured using the Teacher Efficacy Scale in Physical Education (2001). Perceived teacher relatedness was assessed using a revised affiliation subscale from the Work Motivation Inventory (1996). The perceived teacher autonomy measure was created using theoretically based autonomy concepts. A demographic questionnaire was used to assess personal (i.e., level of education and number of years teaching physical education), professional (i.e., conference attendance and professional membership), and environmental (i.e., perceived facility quality and administration support) variables. Physical education teachers were randomly selected from the state of Ohio, varying in age, level of experience, and grade level taught. All questionnaires were distributed and returned by mail. Multivariate multiple regression analyses indicated that physical educators' needs for competence, relatedness, and autonomy was moderately related to their type of motivation. Furthermore, the relationship between personal factors and physical educators' needs for competence, relatedness and autonomy was not supported; however, support and partial support were found with professional and environmental factors, respectively.

Crandall, Kyle R. *Events indicating the start of behavioral momentum in men's Division I-A intercollegiate basketball games*, 2003. M.S., State University of New York, Brockport (Robert C. Schneider). (44pp 1f \$6.00) PSY 2297

The purpose of this study was to determine which events indicate the start of behavioral momentum in men's Division I-A intercollegiate basketball games. The researcher videotaped 15 televised games, and recorded offensive and defensive events for both teams in sequence on a frequency chart. Each event was assigned a specific momentum point value. Defensive events began a period of momentum 50% of the time, and offensive events began a period of momentum 50% of the time. A chi-square analysis indicated that there was no significant difference between a defensive event and an offensive event in relation to the start of a period of behavioral momentum. Once a period of momentum was established, the team with momentum outscored the opponent 94.7% of the time during the given momentum period. However, there was no evidence to indicate the team that established more momentum periods during a game had a better chance of winning the contest. The use of a time-out called by the non-momentum team was determined to be an effective intervention to end the period of momentum. The instrument used in this study was found to be more objective and sensitive than previously used instruments, but future research is necessary to further develop and validate an instrument to reliably measure periods of momentum.

Dineen, Randy. *Personality characteristic differences of university student-athletes and non-athletes*, 2003. M.A., Ball State University (Jeff Pauline). (59pp 1f \$6.00) PSY 2288

The purpose of this study was to measure the differences in personality characteristics between student-athletes and non-athletes. Secondly, this study measured the differences in personality characteristics between athletes in contact versus non-contact sports, and athletes in individual versus team sports. A sample of 105 student-athletes and 104 non-athletes were chosen from a Mid-western university. Each participant in the study completed the Profile of Mood States (POMS) and the NEO Five Factor Inventory (NEO FFI). Upon completion of the study, a statistical analysis, using a series of MANOVA, was performed ( $p < .05$ ). No significant differences were found between any of the groups associated with the POMS. The following differences were found between groups associated with the NEO FFI: non-athletes scored significantly higher than student-athletes on the Neuroticism scale, male non-athletes scored significantly higher than male student-athletes on the Conscientiousness scale, female student-athletes scored significantly higher than female non-athletes on the Extraversion scale, but female non-athletes scored significantly higher on the Openness scale, team sport student-athletes scored significantly higher than individual sport student-athletes on the Extraversion and



Openness scales, and, lastly, contact sport student-athletes scored significantly higher than non-contact sport student-athletes on the Neuroticism scale.

Gordon, Erin. *Changes in state anxiety levels and mood state following an acute bout of steady-state aerobic exercise versus interval training*, 2002. M.S., University of Wisconsin, La Crosse (John Porcari). (50pp 1f \$6.00) PSY 2284

This study investigated the effects of a 30-minute steady-state or interval exercise bout on anxiety, mood states, heart rate (HR), and blood pressure (BP) in 17 active adults, aged 18 to 28 years. All subjects performed a  $VO_2$  max test, a steady-state session, and an interval training session on a treadmill. Psychological profiles were completed pre-exercise, immediately post-exercise (IPE), 1, and 2 hours post-exercise with the State Trait Anxiety Inventory (STAI) and Profile of Mood States (POMS). HR and BP were also measured. STAI scores showed no significant ( $p < .05$ ) decrease from pre-exercise to IPE, 1, and 2 hours post-exercise in steady-state or interval workouts. Total POMS scores showed a significant time effect ( $p < .05$ ) and scores at IPE, 1, and 2 hours post-exercise were significantly lower than pre-exercise ( $p < .05$ ). There was no significant difference between workouts ( $p > .05$ ). Tension and depression were the only subscales that showed a significant time effect from pre-exercise to IPE, 1, and 2 hours post-exercise. Systolic BP was significantly ( $p < .05$ ) lower at PE, 1, and 2 hours post-exercise. No difference was found between exercise types. Diastolic BP and HR failed to show significant ( $p < .05$ ) changes.

Hoffman, Jeffery D. *Development and validation of the perceived coaching behavior inventory*, 2003. D.P.E., Springfield College (Mimi Murray). (255pp 3f \$18.00) PSY 2292

The current study was designed to examine the factors associated with the development of a quantitative psychometric used to assess perceptions athletes have regarding the behaviors exhibited by their coach. In the initial phase of the study, items were developed through a review of literature and from expert input. In addition, the expert panel assisted in establishing item content-relevance following item construction. In the second phase, the Perceived Coaching Behavior Inventory (PCBI) was tested using an exploratory factor analysis (EFA) of 604 male and female student-athletes competing in individual and team sports on the high school and collegiate levels. A 10-factor model was proposed a priori. A confirmatory factor analysis (CFA) was also computed with the same data in order to assist with the selection of appropriate items for the PCBI. In the final phase, a CFA was computed for the 46-item PCBI with 1,054 student-athletes on a nine-factor model. Initial support was found for the nine-factor model of the PCBI. Internal consistency of the PCBI was supported through alpha reliability and weighted omega estimation methods.

Kang, Boungh Jin. *A comparison of preferred coaching leadership behaviors in selected sports by United States and Korean collegiate athletes*, 2003. M.S., Ball State University (Marilyn Buck). (72pp 1f \$6.00) PSY 2296

The purpose of this study was to compare U.S. National Collegiate Athletic Association (NCAA) Division III level and Korean basketball and track and field collegiate student-athletes' preferred leadership styles for their coaches as measured by the Leadership Scale for Sports (LSS). A total of 16 schools participated in this study: seven schools from the USA and nine schools from Korea. 322 surveys were sent to athletes. 229 surveys were returned. Seven U.S. Division III level ( $n=65$ ) and nine Korean collegiate ( $n=164$ ) schools were represented. Participants' e-mail addresses were obtained through their schools' homepages on the Internet. With the athletes' permission, the researcher sent the cover letter by e-mail with a link to the inQsit online questionnaire webpage address (<http://www.bsu.edu/inqsit/>) to the selected athletes. For the Korean participations, the researcher translated the questionnaire and cover letter into Korean. The questionnaire packet contained the cover letter, the questionnaire, and a self-addressed stamped envelope for returning the questionnaire. The statistical treatment for this study was a  $2 \times 2$  ANOVA used to compare USA and Korean athletes on each of five factors ( $\alpha=.05$ ). U.S. athletes preferred a greater degree of Training and Instruction, Social Support, and Positive Feedback than Korean athletes. On the other hand, Korean athletes preferred a greater degree of Autocratic Behavior than U.S. athletes. Individual sport athletes preferred a greater degree of Democratic Behavior than team sport athletes and team sport athletes preferred a greater degree of Training and Instruction than individual sport athletes.

Krynski, Melanie L. *The effects of perceived leadership behaviors and goal orientation on female collegiate athletes' level of motivation*, 2002. M.S., Eastern Illinois University (William D. Russell). (100pp 2f \$12.00) PSY 2278

The purpose of this study was to examine the relationship between perceived coaching behaviors, goal orientation, and motivation among female collegiate athletes. Female athletes from Eastern Illinois University ( $n=66$ ) and Valparaiso University ( $n=25$ ) took part in the study. Specifically, the purposes of the study were: a) to examine if athletes who perceived their coaches to exhibit more democratic behavior, praise and encouragement, and training and instruction behaviors, would demonstrate higher levels of intrinsic motivation; and b) to examine if athletes with a positive goal profile (high task/high ego) would have significantly greater motivation levels compared to other goal profiles. Measures used for the study included the Sport Motivation Scale (SMS-28), Leadership in Sport Scale, the Perceived Version (LSS), and Task and Ego Sport Questionnaire (TEOSQ). To test the first purpose



of perceived leader behaviors and motivation, several multiple regression analyses and bivariate correlations were performed across each category of motivation to determine which coaching behaviors were predictive of each isolated dimension of motivation. Results revealed that IM To Know was significantly predicted by democratic behavior ( $t(90)=1.69, p=.09$ ); IM To Accomplish was significantly predicted by democratic behavior ( $t(90)=2.19, p<.05$ ), performance feedback ( $t(90)=1.99, p<.05$ ), and social support behavior ( $t(90)=-2.26, p<.05$ ); and none of the behaviors predicted IM To Experience Stimulation at the  $p<.05$  level. To test the second purpose of goal orientation and motivation, a one-way MANOVA was conducted with goal profile as the independent variable and SMS-28 scale scores as the dependent variables. Results showed an overall non-significant interaction (Wilk's Lambda = .74, ( $F(21,233)=1.22, p=.23$ )), showing that athletes' goal profile did not interact to affect all motivation categories. Results of the follow-up univariate ANOVA showed a significant effect for IM To Know ( $F(3,90)=2.77, p<.05$ ). The follow-up Tukey Studentized Range Test indicated a significant value ( $F(87)=3.70, p<.05$ ) and indicated that high task/low ego athletes ( $5.28\pm.92$ ) were significantly higher in IM To Know compared to low task/low ego ( $4.33\pm1.23$ ). Results suggest that there is a relationship between perceived leader behavior, goal orientation, and athletes' level of motivation. Recommendations for future studies include using a larger sample size, incorporating athletes' starting status, and assessment of actual coaches' behaviors.

Mason, Elizabeth. *Sources of pressure of competitive divers*, 2003. M.S., Springfield College (Mimi Murray). (124pp 2f \$12.00) PSY 2294

This investigation was designed to analyze sources of [performance] pressures that competitive divers experience and to determine if differences exist between gender and competition level regarding internal/external as well as positive/negative pressures. The Sport Pressure Checklist (1987) was used and consists of 16 pressure items with four subscale scores: Positive, Negative, Pressure, and External Pressure. A total of four 2 X 3 analyses of variance were computed. No significant ( $p\geq.05$ ) interaction was found between gender and competition level for the four subscales. No significant ( $p\geq.05$ ) main effects were found for gender or for competition levels. Paired-sample t-tests were computed to compare the scores of the Positive/Negative subscales and the Internal/External subscales. The mean Positive score was significantly ( $p\leq.05$ ) higher than the mean Negative score. The mean Internal score was significantly ( $p\leq.05$ ) higher than the mean External score. No gender or competition level differences were expected for the four sources of pressure; however, the divers considered their sources of pressure to be more positive than negative and more internal than external.

Szajda, Adam A. *Differences in physical education teacher expectations for somatotype and gender of middle school students*, 2002. M.S., Springfield College (Deborah A. Sheehy). (151pp 2f \$12.00) PSY 2295

This investigation was designed to determine middle school physical education teachers had different expectations for middle school students of different somatotypes and gender. Middle School PE teachers currently teaching in Massachusetts (N=43) responded to the questionnaire. A total of four 3 x 2 x 2 Mixed Factorial ANOVA were used to analyze the data. Teacher expectations were measured on a Likert scale across four student categories: overall performance in physical skill, social relations with peers, cooperative behavior during class, and ability to reason. A significant interaction ( $p\leq.000$ ) was found between the somatotype of the student, gender of the student, and gender of the teacher in regard to overall performance in physical skill; between gender of the student and somatotype in regard to social relations with peers ( $p\leq.000$ ); between gender of the student and somatotype in regard to cooperative behavior during class ( $p\leq.012$ ); and between gender of the student and somatotype in regard to the ability to reason ( $p\leq.003$ ). Teachers do form expectations based on the initial appearance of the student in regard to somatotype and gender of the student. Different teacher expectations may affect the number and quality of teacher-student interactions. The expectations and actions of the teacher initiate a performance from the students, who attempt to meet the expectations placed on them. PE teachers should strive to facilitate the learning environment in a way that provides equal opportunities for all students.

## MOTOR LEARNING AND CONTROL

Carlsen, Anthony N. *Auditory startle response and reaction time*, 2003. M.A., University of British Columbia (Ian Franks). (180pp 2f \$12.00) PSY 2280

Recent experiments involving the use of a startling acoustic stimulus during a simple reaction time (RT) task have shown that pre-motor RT (PMT) can be significantly reduced when participants are startled. This effect is not produced by an early startle reflex adding on to a later voluntary response, as EMG profiles remain largely unmodified. Further, the lack of an effect of the startle on final position and aiming accuracy suggests that the response produced is indeed the prepared response. These findings suggest that a startle stimulus may act to trigger a prepared movement earlier in comparison to voluntary initiation. It has been shown that individuals habituate to a startling stimulus at different rates depending on the



required activity level of the participant in the task. The aim of the first study of this thesis was to determine the rate at which participants habituate to a startle during the completion of a RT task. Participants performed a targeted wrist extension in a Simple RT task. An auditory startle stimulus (124 dB) replaced the imperative stimulus in some of the trials. For the duration of the experiment, startle response electromyographic (EMG) activity continued to be produced, but not on every startle trial, indicating habituation was not complete after 20 startle trials. PMT in the startle (ST) condition was significantly shorter than control PMT; however, within the ST condition, when a measurable EMG burst in the SCM was present, PMT was significantly shorter than when no SCM burst was present. It has been suggested that a startling stimulus activates structures in the lower CNS that are common to the startle and voluntary response pathways, acting to trigger a pre-programmed movement. In a Choice RT paradigm, however, it is thought that cortical processing must occur before a response can be prepared, since the appropriate response is not known in advance. The second experiment of the thesis addressed the issue of response preparation through the use of a Choice RT paradigm. Participants performed targeted wrist flexion / extension movements involving 1, 2, or 4 Stimulus-response (S-R) alternatives. Results showed that, while in the Simple RT situation PMT was significantly shorter when participants were startled, no difference in PMT was observed when participants were startled in the Choice RT situations. Furthermore, more errors occurred when participants were startled during the Choice RT conditions, suggesting that the startle may actually interfere with ongoing cortical processes. These results support the hypothesis that a startle acts to trigger a prepared response, rather than only increasing systemic activation.

da Costa, Rita M. A. G. *Proprioception coding and retention ability in visually and non-visually impaired children*, 2002. M.S., Indiana University (David L. Gallahue). (91pp 1f \$6.00) PSY 2287

This research analyzed proprioception coding and retention ability of blind and non-visually impaired children. It is believed that blind individuals have superior proprioception abilities due to the extensive practice of the tactile sense. However, it has been demonstrated that, due to previous visual experience, proprioception levels in late blind and blindfolded children is higher. Physiological studies have demonstrated that special coding is different with and without visual cues. It is important to understand how visual ability affects short-term memory so appropriate adaptations can be made in terms of pedagogy skills for blind and sighted children. Forty-five children, between nine and sixteen years old, were evaluated with a kinesthesisometer (16014/ Lafayette Company) in the arm reproduction position under three retention conditions. Group 1 (n=15) were totally blind children, Group 2 (n=15) were

legally blind children and Group 3 (n=15) were children without visual impairments. The evaluation occurred under three randomly ordered situations: 0 seconds, 15 seconds, and 30 seconds recall. Subjects had 5 trials for each situation. Means were calculated for each situation. ANOVA was used to correlate the means (<.05) of constant and variable error scores. The results show that for all groups the mean of error increases with the increase in recall time. There is no significant difference between sighted and legally blind, but there is a significant difference between sighted and totally blind. The second finding reveals that across time there is no significant difference between the first and second recall times (0 and 15 seconds) but there is a significant difference between 0 and 30 seconds recall time.

Maher, Lora S. *Retrieving movement memory with and without the use of musical cues*, 2003. M.S., University of Nebraska, Omaha (John M. Noble). (60pp 1f \$6.00) PSY 2282

The purpose of this study was to investigate the relationship between learning and retrieving movement with and without musical cues. Twenty-three students all of whom had not had any formal dance training participated in this study. The subjects were required to make two visits for data collection purposes. Testing included performance of the "Mayim" folk dance on day one and then again on day two. Subjects in groups one and two learned the dance with music, and subjects in groups two and three learned the dance to the beat of the metronome. On their second visit, groups one and three performed the dance with the music while groups two and four performed the dance with the metronome. It was hypothesized that the subjects who learned the folk dance with the music would be able to perform the folk dance better than the subjects who learned the folk dance without the music and that the recall performance of the folk dance would be greater by the subjects who had the music as their cue rather than by the subjects who only had the metronome as their cue. However, the results indicated that learning the folk dance with and without the music did not produce any significant performance differences. Yet there were significant differences found between the movement performance scores on day one and day two ( $F=4.004$ ,  $p<.05$ ). The groups' total movement scores for days one and two went from a mean of 95.3 down to a mean of 78.8. Although no significant differences were found between the groups on day 2, three out of the four groups showed a decrease in retention performance. The results of this investigation did not provide enough evidence to support the theory that music does enhance one's ability to recall movement with the aid of musical cues.

Woollacott, Marjorie H. *Neural correlates of the prey capture response of *Navanax inermis**, 1973. Ph.D., University of Southern California (Bernard C. Abbott). (130pp 2f \$12.00) PSY 2298



The present investigation was undertaken in an attempt to correlate specific neuronal and muscular activities with a complex, repeatable behavioral pattern. The gastropod mollusc *Navanax inermis* was used for the study because it possesses characteristics desirable in the investigation of neuronal and muscular response patterns: 1) a stereotyped behavioral sequence, the prey capture response, involving the extrinsic and intrinsic muscles of the pharynx; 2) large, identifiable motoneurons in the buccal ganglion, mediating the response cycle, whose electrical activity can be easily monitored, and whose axons reach the pharynx via well-defined connective pathways; and 3) discrete bands of muscles in the pharynx, whose contractions correspond to various phases of the cycle. The functional roles of the identifiable neurons and muscles were explored in experiments in which the intact animal was immobilized in a small aquarium. The buccal ganglion and pharynx were exposed in such a way as to allow prolonged intracellular stimulation of, and recording from, individual neurons. In addition to the intra-cellular records, extracellular records were obtained from the nerve trunks and muscles. Pharyngeal muscle tension was monitored with a strain gauge. The prey capture response was observed to consist of the following sequentially overlapping series of muscle contractions: 1) contraction of the dorsal and ventral pharyngeal protractor muscles, causing movement of the pharynx in the anterior direction; 2) weak contraction of the circumferential and radial muscles of the 1 pharynx for one to five seconds; 3) intense contraction of the radial muscles for two to four seconds, accompanied by circumferential relaxation, causing pharyngeal expansion; 4) contraction of the circumferential fibers for one to five seconds, with relaxation of the radial fibers, causing pharyngeal constriction; 5) and contraction of the dorsal and ventral retractor muscles, causing movement of the pharynx in the posterior direction. The response cycle was elicited in the whole animal preparation by the presentation of prey, or by extracellular stimulation of the cerebrobuccal connectives. Of seventeen identified neurons in the buccal ganglion, all were found to change their pattern of firing during a contraction cycle. On the basis of their response patterns, neurons were divided into four classes: 1) cells which fire during pharyngeal expansion and which are presumed to be related to the motor control of the radial muscle fibers; 2) cells which fire in conjunction with contraction of the anterior circumferential and sphincter muscles of the pharynx and cause anterior pharyngeal constriction; 3) cells which fire in conjunction with contraction of the posterior circumferential muscles of the pharynx and cause posterior pharyngeal constriction; and 4) cells which slow in firing rate during some phase of the contraction cycle. Since the neurons participating in the response cycle show similar firing patterns both in isolated ganglion and in whole animal preparations, the response pattern is presumed to be intrinsic to the buccal ganglion.

## SOCIAL PSYCHOLOGY

Anderson, Megan L. *Training vs. body image: does training improve subjective attractiveness ratings?*, 2002. M.S., University of Wisconsin, La Crosse (Carl Foster). (61pp 1f \$6.00) PSY 2283

Appearance ratings were taken on 25 adult males before and after an exercise intervention program, to determine the relationship between a 6-week training program and improved physical appearance, and to identify a relationship between shoulder-to-waist ratio and appearance scores. Previously sedentary adult male subjects (18-40 yrs) were randomly assigned to one of three groups: cardiovascular, strength, or control. Subjects participating in an exercise group performed assigned activities for an average of 34 minutes, 3 times a week. All subjects were pre- and post-tested on body composition, strength, and cardiovascular fitness. Subjects were also digitally photographed from 4 angles. The photographs were rated by the subjects and a panel of 6 judges with an analog scale. This study shows that a 6-week training program is not sufficient to change self-rated or panel-rated attractiveness scores for adult males. In addition, insignificant changes in attractiveness precluded further analysis on the relationship between shoulder-to-waist ratio and appearance scores.

Baccas, Sakeena E. *Sportspersonship differences among NCAA Division III track and field athletes*, 2003. M.S., Springfield College (Mimi Murray). (120pp 2f \$12.00) PSY 2289

This investigation was designed to determine if differences in "sportspersonship" exist among track and field student-athletes. The Multidimensional Sportspersonship Orientation Scale (MSOS; 1997) was administered to male and female track and field athletes ( $N=204$ ) from colleges and universities in the New England area. A 2 X 3 independent groups factorial Analysis of Variance (ANOVA) was computed for the five subscales of the MSOS. Long distance runners scored significantly ( $p \leq .021$ ) higher than sprinters and throwers on the Social Conventions subscale. Throwers scored significantly ( $p \leq .000$ ) higher than long distance runners and sprinters on the Opponent subscale. For the Rules and Officials subscale, females scored significantly ( $p \leq .000$ ) higher than males; however, males scored significantly ( $p \leq .039$ ) higher than females on the Negative Approach subscale. No significant ( $p > .05$ ) differences were found on the Commitment subscale for gender or event. No interaction existed between gender and event for any of the subscales of the MSOS. The findings of the current study are important to research in sportspersonship because the events that athletes participate in may influence sportspersonship orientations.



Chen, Hsiao-Fu. *The relationship between leisure attitude and leisure motivation in junior high school students*, 2002. M.S., Springfield College (Anne Rothschild). (123pp 2f \$12.00) PSY 2290

The present investigation was designed to examine the relationship between leisure attitude and leisure motivation in junior high school students. The participants ( $N=118$ ) were junior high school students in Taiwan. Leisure attitude was measured by using the Leisure Attitude Scale (LAS; 1982). Leisure motivation was measured by using the Leisure Motivation Scale (LMS; 1983). Pearson product moment correlations were used to determine the relationship between the variables of leisure attitude and leisure motivation. The correlations between the cognitive component of leisure attitude and the intellectual ( $r=.55$ ), social ( $r=.50$ ), competency-mastery ( $r=.55$ ), and stimulus-avoidance components ( $r=.25$ ) of leisure motivation were all significant ( $p<.05$ ). The correlations between the affective component of leisure attitude and the intellectual ( $r=.61$ ), social ( $r=.57$ ), competency-mastery ( $r=.66$ ), and stimulus-avoidance components ( $r=.35$ ) of leisure motivation were all significant ( $p<.05$ ). In past studies of leisure attitude and leisure motivation, researchers have focused on adults. Based on the results of this study, leisure attitude and leisure motivation may be fundamentally different for adolescents.

Chiang, I-Tsun. *Effects of a therapeutic recreation intervention within a technology-based physical activity context on the social interaction of male youth with autism spectrum disorders*, 2003. Ph.D., Indiana University (David R. Austin and Georgia Frey). (134pp 2f \$12.00) PSY 2286

The purpose of this study is to examine the effect of a therapeutic recreation intervention, within a technology-based physical activity context, on the social interaction of male youth with autism spectrum disorders (ASDs). Youth with ASDs report greater feelings of loneliness and poorer quality friendships than youth without ASDs, due to deficits in social interaction inherent to the condition. Social rank theory stipulates that low social rank leads to de-escalating strategies, which include low self-esteem, avoidance, and keeping a distance from peers. Youth with ASDs are typically in a position of lower social rank compared with peers. Implementing a situational reverse social rank (SRSR) to create reciprocal social interaction may decrease loneliness and increase friendship quality in this population. Six male youth ages 10-14 years with high functioning ASDs and 6 age and gender matched typically developing peers were recruited. Participants with ASDs were trained to use the Dance Dance Revolution® (DDR), a technology-based physical activity device, for three to six weeks. Following training, they taught a typically developing peer to play the DDR for four sessions. A combination of quantitative and qualitative methodologies was used to triangulate the effects of the intervention. Youth with ASDs

reported significantly higher levels of loneliness and lower quality friendships than peers. Both groups reported significantly higher quality of friendship following the intervention. Qualitative information illustrated their desires for friendship and a cycle of losing friends. The results should prompt reconsideration of traditional peer-mediated interventions and suggest inclusion of social rank in social interventions for youth with ASDs. Traditional peer-mediated interventions may actually jeopardize the development of friendship by increasing the gap in social rank between youth with ASD and their peers, because peers will continue to maintain a higher social status. A situational reverse social rank approach provides greater opportunities for generalization to natural settings and may improve the social status of youth with ASDs. This will help decrease levels of loneliness and increase quality of friendships in these individuals.

Damato, Gregory C. *Collective efficacy, cohesion, and winning percentage in high school and Division III collegiate male and female student-athletes*, 2003. M.S., Springfield College (Mimi Murray). (139pp 2f \$12.00) PSY 2291

The investigation was designed to determine the relationships of collective efficacy, cohesion, and winning percentage as well as gender and participation level differences. Participants ( $N=204$ ) from six high school ( $n=102$ ) and six collegiate Division III ( $n=102$ ) soccer teams completed a collective efficacy measure and the Group Environment Questionnaire (GEQ; 1985). Significant positive ( $p\leq.05$ ) relationships were found between the Attraction to Group-Task (ATG-T) subscale with collective efficacy as well as winning percentage, and between the Group Integration-Task (GI-T) subscale with collective efficacy and winning percentage, and between collective efficacy and winning percentage. A 2 X 2 factorial analysis of variance (ANOVA) was computed and collegiate Division III players had significantly ( $p\leq.05$ ) higher collective efficacy than high school players for the two social subscales and GI-T, while no differences in gender were found. The findings are congruent to the extant literature regarding the relationships of collective efficacy, cohesion, and winning percentage. In addition, the results added to the knowledge base from high school and collegiate student-athletes.

Hoar, Sharleen D. *Social support and coping with interpersonal sport stress during early adolescence*, 2003. Ph.D., University of British Columbia (Peter Crocker). (285pp 3f \$18.00) PSY 2293

This dissertation investigated early adolescent athletes' social resources and coping responses during sport-specific stressful events. Guided by Lazarus' Cognitive-Motivational-Relational theoretical model of stress and emotion, a multi-step approach was used to examine theoretical and descriptive questions about early adolescents coping and social support. Specifically, 575 adolescent team sport



athletes ( $n=290$  male,  $n=285$  female) between the ages of 11 and 15 years identified the individuals who provide supportive resources to the athlete (i.e., social support network), the types of social supportive resources obtained in sport (i.e., received social support), perceptions of social support (i.e., perceived social support), as well as the coping strategies and coping function(s) used to manage interpersonal difficulties in sport. The findings extend empirical research within the youth sport literature. An important finding concerns the relatively few coping strategies that athletes reported ( $M=2.42$ ,  $SD=1.40$ ) when asked to recall the management of a stressful interpersonal event with a semi open-ended questionnaire. Confirmatory factor analyses revealed an acceptable fit for the multidimensional structure of social support for both males (TLI=.947, CFI=.961) and females (TLI=.949, CFI=.962). Descriptively, findings demonstrated that early adolescent athletes' social support network size, received social support, and perceived social support were similar to that reported in the social support literature. MANOVA analyses revealed a main effect in favour of girls, for all three social support dimensions. Structurally, support for a direct effect model between social support dimensions and coping was demonstrated. No support was found for the mediation of perceived social support between the relations of the other social support dimensions and coping. The structural relation, however, was moderated by gender. Received social support was related to boys' coping, while perceived social support and social support network size significantly related to girls' coping. The findings are discussed with respect to the implications for the conceptual understanding and measurement of early adolescent coping and social support in sport.

Lucero, Cynthia. *Effects of a marathon training program on family members and friends of cancer patients*, 2002. Psy.D., Massachusetts School of Professional Psychology (Frances Mervyn). (112pp 2f \$12.00) PSY 2279

There are an increasing number of fundraising athletic events organized by charity groups. This study explores the experience of family members and friends of cancer patients who participated in a fundraising marathon-training program. Three main areas of literature are reviewed: the grieving process that family and friends of cancer patients undergo, the meaning-making aspects of their experience and the psychological effects of exercise. Eleven men and women who participated in a fundraising marathon-training program in northeastern Massachusetts were interviewed. A qualitative research approach was used in order to obtain the participants' description of their experience in the program. All participants reported their experience as positive and meaningful. An analysis of the data has been organized into eight common themes: a need to do something to help and/or make a difference; the healing and therapeutic aspects of group support; physical challenge as a way to connect with a loved one; the

integration of physical, mental and spiritual aspects of the training process; using running as a coping mechanism; turning a bad experience into a positive experience by finding meaning in grief and loss; and how to gain self-confidence and learn to prioritize what is really valued in life. Results suggest that participating in a fundraising marathon-training program has positive effects on family members and friends of cancer patients because it attends to their physical, mental and spiritual need. This study highlights the importance of integrating those aspects in the clinical treatment. It also highlights a similar process between how runners learn to hold the physical pain during the training process and go beyond it and how they learn to cope with their loss and go beyond it.





**PART II**

**KEYWORDS INDEX**

*for*

**VOLUME 16, NO. 2**

This index includes keywords for titles published in microfiche format by Kinesiology Publications in *Kinesiology Abstracts*, Volume 16, No. 2 (October 2003).

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 the 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 in front of the dash refer to the research methods, those following 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 *Kinesiology Abstracts*, 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

A	Anthropometry	GE	Genetic	MAN	Manual
AR	Action Research	H	Historical	O	Observational
C	Case Study	I	Interview	P	Philosophical
CA	Content Analysis	IA	Item Analysis	Q	Questionnaire
CH	Choreography	J	Jury	REV	Review
CI	Critical Incident Analysis	JA	Job Analysis	S	Survey
COM	Comparative Study	L	Laboratory	SD	Semantic Differential
D	Descriptive	LR	Library Research	TC	Test Construction
DA	Documentary Analysis	M	Model		
E	Experimental	MA	Mechanical Analysis		

## STATISTICS

%	Percent	KC	Coefficient of Consistence	T	T Ratio
AC	Analysis of Covariance	KR	Kuder-Richardson	TA	Trend Analysis
AV	Analysis of Variance	KS	Kolmogorov-Smirnov	TAU	Kendall's Rank Coefficient
AV(F)	Analysis of Variance (Friedman)	KW	Kruskal-Wallis	TR	Tetrachoric Correlation
B	Binomial	LR	Logistical Regression	TU	Tukey's Test
BC	Biserial Correlation	LSD	Least Significant Variance	U	Mann-Whitney U Test
BON	Bonferroni Method	MAC	Multivariate Analysis of Covariance	V	Votaw Formula
CAN	Canonical Correlation	MAV	Multivariate Analysis of Variance	W	Kendall Coefficient of Concordance
CC	Contingency Coefficient	MDA	Multivariate Discriminant Analysis	WD(R)	Wherry-Doolittle Method (Multiple Correlation)
CO	Cohen's Coefficient of Agreement	MMM	Multivariate Mixed Model	WI	Wilcoxon Test
CQ	Cochran Q Test	MR	Multiple Regression	WL	Wilks's Lambda
CS	Chi Square	N	Normative	Z	Standard Score
CV	Coefficient of Variation	NK	Newman-Keuls		
DE	Descriptive	PA	Path Analysis		
DEL	Delphi Method	PC	Phi Coefficient		
DisA	Discriminant Analysis	R	Multiple Correlation		
DU	Duncan Multiple Regression	RC	Reliability Coefficient		
DUN	Dunn Test	RD	Spearman Rank Correlation		
Eta	Curvilinear Correlation	RE	Regression Equation		
F	Flanagan Procedure	RM	Repeated Measures		
FA	Factor Analysis	RPM	Pearson Product-Moment		
FET	Fisher's Exact Test	SB	Spearman-Brown Prophecy Formula		
FZ	Fisher's Z	SCH	Scheffe's Method		
G	Graphic	SEE	Standard Error of the Estimate		
GA	Gamma Method of Associa- tion	SI	Sign Test		
GG	Greenhouse Geisser Conser- vative Test	SP	Split Plot Repeated Measures Analysis		
HA	Hartley's Method	SSP	Split-Split Plot Repeated Measures Analysis		
HS	Hull's Method				
HV	Homogeneity of Variance				
K	Kirk's Test				



## KEYWORDS

### ACADEMIC ACHIEVEMENT

- Chambers, C. P. [D, DA-DE, RPM] PE 4488  
Kaufmann, A. M. [D, H, DA-DE, AV, G] PE 4465

### ACCURACY

- Panning, J. K. [D, L-DE, AV, TU, RM, RE, G] PH 1786

### ADAPTATION

- Curtis, M. T. [D-DE] PE 4501

### ADAPTED

- Meehan, B. P. A. [D-DE] PE 4529

### ADMINISTRATION

- Babiak, K. M. [D, I, DA, C-DE] PE 4522  
Brown, K. V. [D, Q-DE, CS, T, G] PE 4486  
Brunner, J. F. [D, Q-DE, FA, %] PE 4487  
Dingle, C. R. [D, Q-DE, CS] PE 4477  
Hay, T. A. [D, Q-DE] PE 4527  
Moffitt, J. [D, Q-DE, %, T] RC 565

### ADOLESCENT

- Geithner, C. A. [D, A-DE, RM, AV, MAV, G] PE 4464  
Hoar, S. D. [D, Q, CA-DE, MAV] PSY 2293

### ADVENTURE RACING

- Kay, J. [D, I, Q, CA, DA-DE] RC 562

### ADVERTISING

- Klubberud, A. [D, Q-DE, %, TA, G] PE 4494

### AEROBIC CAPACITY

- Ramirez, R. [D, A, L-DE, RC, SEE, G] PH 1790

### AEROBIC TRAINING

- Gordon, E. [D, Q, S-DE, AV, RM, TU, G] PSY 2284  
Kaufman, C. L. [D, Q, L-DE, T, &, G] HE 764

### AERODYNAMICS

- Arnett, M. S. [D, Q, A, L-DE, RM, AV, TU, G] PE 4475

### AGED

- Muck, E. L. K. [D, Q-DE, AV, RPM, CS, FET, T, G] HE 770

### AGING

- Lee, H. [D, AR, MA-DE, RM, AV, T, BON, RPM, RE, G] HE 765

### AIR RESISTANCE

- Arnett, M. S. [D, Q, A, L-DE, RM, AV, TU, G] PE 4475

### AMERICAN COLLEGE OF SPORTS MEDICINE

- Kaufman, C. L. [D, Q, L-DE, T, &, G] HE 764

### AMERICAN RED CROSS

- Kramer, C. [D, Q-DE, %, G] PE 4485

### ANKLE JOINT

- Michell, T. B. [D, Q, A, AR-DE, RM, AV, G] PE 4496

### ANOXEMIA

- Lynn, B. M. [D, Q-DE, AV, RM, %, SCH, G] PH 1780  
Witt, L. E. [D, E-DE, AV, RM, %, G] PH 1787

### ANTERIOR CRUCIATE

- Fuller, L. [D, A, L-DE, AV, RM, TU, G] PE 4471  
Verscheure, S. D. [D, A, L, I, AR-DE, R, AV, CS, G] PE 4474

### ANTHROPOMETRY

- Geithner, C. A. [D, A-DE, RM, AV, MAV, G] PE 4464

### ANXIETY

- Gordon, E. [D, Q, S-DE, AV, RM, TU, G] PSY 2284  
Mason, E. [D, Q-DE, FA, AV, T, G] PSY 2294

### ARENA

- Millar, M. D. [D-DE] PE 4506

### ARTHROPLASTY

- Madsen, M. [D, E, Q, A, AR-DE, AV, RPM, DisA, G] PE 4479

### ASTHMA

- Lynn, B. M. [D, Q-DE, AV, RM, %, SCH, G] PH 1780

### ATHLETE

- Fuller, L. [D, A, L-DE, AV, RM, TU, G] PE 4471  
Krynski, M. L. [D, Q-DE, MR, RC, MAV, AV, TU] PSY 2278

### Kubik, J. M.

- Lynn, B. M. [D, Q-DE, AV, RM, %, SCH, G] PH 1780  
Verscheure, S. D. [D, A, L, I, AR-DE, R, AV, CS, G] PE 4474

### ATHLETIC DIRECTOR

- Bamford, R. G. [D, Q-DE, U, T, G] PE 4509  
Brunner, J. F. [D, Q-DE, FA, %] PE 4487  
Chambers, C. P. [D, DA-DE, RPM] PE 4488  
Mikel, D. J. [D, Q-DE, %, AV, G] PE 4505

### ATHLETIC TRAINER

- Dingle, C. R. [D, Q-DE, CS] PE 4477  
Guyer, M. S. [D, I-DE] PE 4511

### AUDIO-VISUAL AID

- Meehan, B. P. A. [D-DE] PE 4529

### AUDITORY STIMULATION

- Carlsen, A. N. [D, AR-DE, RM, AV, TU] PSY 2280

### AUTISM

- Chiang, I. [D, I, Q-DE, U, WI] PSY 2286  
Goto, K. [D-DE, G] PE 4478

### BASEBALL

- Stevens, A. [D, Q-DE, %, MAV] PE 4531

### BASKETBALL

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Brown, K. V. [D, Q-DE, CS, T, G] PE 4486  
Crandall, K. R. [D-DE, CS, T] PSY 2297  
Frost, R. [D, Q-DE, %, AV] PE 4526  
Hudson, N. A. [D, I, DA-DE] PE 4493

### BEHAVIOUR

- Krynski, M. L. [D, Q-DE, MR, RC, MAV, AV, TU] PSY 2278

### BIOGRAPHY

- Haesey, M. J. [D, I, DA, C, H-DE, TA] PE 4472

### BIOLOGY

- Woollacott, M. H. [D, TC, L-DE, O, RM, G] PSY 2298

### BIOMECHANICS

- Brucker, J. B. [D, Q, AR-DE, FA, RM, CV, R, BON, G] PE 4470

- Fava, N. M. [D, A, AR-DE, RM, AV, T, G] PE 4490  
Killgore, G. L. [D, Q, A, AR-DE, AV, RM, BON, T, G] PE 4483

### Lee, H.

- [D, AR, MA-DE, RM, AV, T, BON, RPM, RE, G] HE 765

### Lewis, F. J.

- Perdios, A. [D, AR-DE, FA, AV, RM] PE 4515  
[D, Q, L-DE, RM, AV, CS, G] PE 4530

### BLACKS

- Hudson, N. A. [D, I, DA-DE] PE 4493

### BLINDNESS

- da Costa, R. M. A. G. [D, AR-DE, AV, TU] PSY 2287

### BLOOD GLUCOSE

- Adamson, C. H. [D, L-DE, MAC, MAV, AV, TU] PH 1779

### BLOOD VESSEL

- Wilkins, B. W. [D, L-DE, RM, AV, TU, T, G] PH 1792

### BODY AWARENESS

- Wesley, N. L. [D-DE] PE 4507

### BODY COMPOSITION

- Schwartz, A. [D, A, Q-DE, AV, U, AC, RD, G] PE 4473



- BODY FLUID**  
Williams, D. K. [D, A, L-DE, RM, AV, NK, T] PH 1794
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- BODY TEMPERATURE REGULATION**  
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- BONE DENSITY**  
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- BONE DEVELOPMENT**  
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Salacinski, A. [D, A, Q, COM-DE, T] PE 4468  
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- BURNOUT**  
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- CAMBER**  
Perdios, A. [D, Q, L-DE, RM, AV, CS, G] PE 4530
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- CANADA**  
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- CAREER**  
Haahes, M. J. [D, I, DA, C, H-DE, TA] PE 4472
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Hudson, N. A. [D, I, DA-DE] PE 4493
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Kaufman, C. L. [D, Q, L-DE, T, &, G] HE 764  
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- Fava, N. M. [D, A, AR-DE, RM, AV, T, G] PE 4490

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MacLean, L. B. [D, A, Q, E-DE, AC, RPM, %, G] PE 4528  
Salacinski, A. [D, A, Q, COM-DE, T] PE 4468

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- Salacinski, A. [D, A, Q, COM-DE, T] PE 4468

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**HEART DISEASE**

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Williams, D. K. [D, A, L-DE, RM, AV, NK, T] PH 1794
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Smelker, C. L. [D-DE, AV, TU, G] PH 1789
- IMMUNE SYSTEM**  
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- INDIA**  
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Brucker, J. B. [D, Q, AR-DE, FA, RM, CV, R, BON, G] PE 4470  
Fuller, L. [D, A, L-DE, AV, RM, TU, G] PE 4471  
Verscheure, S. D. [D, A, L, I, AR-DE, R, AV, CS, G] PE 4474
- INTERESTS**  
Bergner, B. M. [D, TC-DE, TA] RC 563
- INTERNET**  
Klubberud, A. [D, Q-DE, %, TA, G] PE 4494
- IOWA**  
Haahes, M. J. [D, I, DA, C, H-DE, TA] PE 4472
- ISCHEMIA**  
Cannon, C. [D-DE, RM, AV, TU, G] PH 1783
- ISOMETRIC**  
Blaak, J. B. [D, Q, A, L-DE, RM, BON, AV, G] HE 767  
Carlson, L. A. [D, E, A, A, L-DE, RM, AV, BON] PH 1795  
Day, M. L. [D, Q, A-DE, %, RM, AV, G] PH 1784
- ISOMETRIC TRAINING**  
Bernard, E. M. [D, Q-DE, AV, MAV, G] PE 4523  
O'Neill, E. C. [D, A, Q, L-DE, RM, AV] PH 1798
- JAPAN**  
Fukumura, T. [D, Q-DE, T] PE 4510
- JOINT**  
Brucker, J. B. [D, Q, AR-DE, FA, RM, CV, R, BON, G] PE 4470
- JOURNALISM**  
Krist, K. D. [D, CA-DE, %] PE 4466
- KIDNEY**  
Adamson, C. H. [D, L-DE, MAC, MAV, AV, TU] PH 1779
- KIDNEY FUNCTION TEST**  
Guy, M. [D, L-DE, RM, AV] PH 1797
- KINEMATICS**  
Madsen, M. [D, E, Q, A, AR-DE, AV, RPM, DisA, G] PE 4479
- KNEE**  
Fuller, L. [D, A, L-DE, AV, RM, TU, G] PE 4471  
Verscheure, S. D. [D, A, L, I, AR-DE, R, AV, CS, G] PE 4474
- KNEE JOINT**  
Culp, M. T. [D, AR, Q-DE, RM, AV, G] PE 4489  
Yeung, P. L. [D, Q, AI, AR-DE, RPM, T, AV, RM] PE 4481
- KNOWLEDGE LEVEL**  
Threlkeld, R. J. [D, Q, A, L-DE, T, AV, AC, CS, G] HE 772
- KOREA**  
Kang, B. [D, Q, COM-DE, AV, %, RC, G] PSY 2296
- LACROSSE**  
Gardiner, L. C. [D, AR-DE, RM, AV, G] PE 4491
- LACTATE**  
Onoda, K. [D, A, L, Q, E-DE, RM, AV, T, G] PE 4467
- LEADERSHIP**  
Butcher, J. P. [D, Q-DE, T] PE 4499  
Haahes, M. J. [D, I, DA, C, H-DE, TA] PE 4472  
Kang, B. [D, Q, COM-DE, AV, %, RC, G] PSY 2296  
Krynski, M. L. [D, Q-DE, MR, RC, MAV, AV, TU] PSY 2278
- LEARNING**  
Guyer, M. S. [D, I-DE] PE 4511  
Turner, T. W. [D, Q-DE] PE 4469
- LEG**  
Brucker, J. B. [D, Q, AR-DE, FA, RM, CV, R, BON, G] PE 4470  
Fava, N. M. [D, A, AR-DE, RM, AV, T, G] PE 4490  
McClellan, E. C. [D, AR-DE, RM, AV, TU, RPM, G] PE 4495
- LEISURE**  
Bergner, B. M. [D, TC-DE, TA] RC 563  
Chen, H. [D, Q-DE, T, RPM] PSY 2290
- LIFEGUARD**  
Kramer, C. [D, Q-DE, %, G] PE 4485
- LIGAMENT**  
Fuller, L. [D, A, L-DE, AV, RM, TU, G] PE 4471  
Verscheure, S. D. [D, A, L, I, AR-DE, R, AV, CS, G] PE 4474
- LOCOMOTION**  
Lee, H. [D, AR, MA-DE, RM, AV, T, BON, RPM, RE, G] HE 765
- LONGITUDINAL STUDY**  
Blaak, J. B. [D, Q, A, L-DE, RM, BON, AV, G] HE 767  
Geithner, C. A. [D, A-DE, RM, AV, MAV, G] PE 4464
- LUMBOSACRAL REGION**  
Mills, J. D. [D, E, Q, AR-DE, RM, AV, WI, RPM, G, U] PE 4517
- MAGNETIC FIELD THERAPY**  
Onoda, K. [D, A, L, Q, E-DE, RM, AV, T, G] PE 4467
- MAN**  
Anderson, M. L. [D, Q, E, A-DE, RM, AV, G] PSY 2283
- MANAGEMENT BY OBJECTIVES**  
Moffitt, J. [D, Q-DE, %, T] RC 565
- MANAGEMENT SYSTEM**  
Babiak, K. M. [D, I, DA, C-DE] PE 4522
- MANUAL**  
Moky, K. A. [D, DA-DE] PE 4476
- MARATHON**  
Lucero, C. [D, I-DE, TA] PSY 2279
- MARKETING**  
Fukumura, T. [D, Q-DE, T] PE 4510  
Johnston, J. [D, I-DE, %, MR, G] PE 4482  
Krist, K. D. [D, CA-DE, %] PE 4466  
Lee, A. N. [D, Q-DE, FA, AV] PE 4513  
Wilson, R. J. [D, Q-DE, %] PE 4508
- MASS MEDIA**  
Krist, K. D. [D, CA-DE, %] PE 4466

**MAXIMAL VOLUNTARY VENTILATION**

Smaczny, D. M. [D, Q-DE, %, G] PH 1788

**MEASUREMENT**Glazener, H. [D, E-DE, T, RPM, RM, AV, G] HE 763  
Ramirez, R. [D, A, L-DE, RC, SEE, G] PH 1790  
Vincent, S. D. [D, A-DE, AV, FA, T, G] HE 766**MEDIA COVERAGE**

Krist, K. D. [D, CA-DE, %] PE 4466

**MEMORY**da Costa, R. M. A. G. [D, AR-DE, AV, TU] PSY 2287  
Maher, L. S. [D, Q, AR-DE, AV, RM, RC, G] PSY 2282**MENSTRUATION**

Fuller, L. [D, A, L-DE, AV, RM, TU, G] PE 4471

**MENTAL DISORDER**

Bergner, B. M. [D, TC-DE, TA] RC 563

**METABOLISM**Behr, L. [D, A-DE, AV, RM, G] PH 1781  
Bowman, S. A. [D, A, L-DE, AV, TU] PH 1782  
Davis, J. C. [D, E, L-DE, RM, T, AV] PH 1796  
Guy, M. [D, L-DE, RM, AV] PH 1797  
Schwartz, A. [D, A, Q-DE, AV, U, AC, RD, G] PE 4473  
Timmerman, K. L. [D, A, L-DE, TA, AV, RM, T, TU, RPM, G] PH 1791  
Timmerman, S. [D, L, A-DE, AV, LSD] PH 1793  
Witt, L. E. [D, E-DE, AV, RM, %, G] PH 1787**METHOD**Collen, R. L. [D, I, Q, C-DE] PE 4463  
Krynski, M. L. [D, Q-DE, MR, RC, MAV, AV, TU] PSY 2278  
Turner, T. W. [D, Q-DE] PE 4469**MINNESOTA**

Moky, K. A. [D, DA-DE] PE 4476

**MINORITY**

Brunner, J. F. [D, Q-DE, FA, %] PE 4487

**MODERN DANCE**Ashley, T. [D-DE] PE 4497  
Caldwell, L. A. [D, I-DE] PE 4500  
Curtis, M. T. [D-DE] PE 4501**MORAL DEVELOPMENT**

Kubik, J. M. [D, Q-DE, T, RPM] PE 4512

**MOTIVATION**Carson, R. L. [D, Q-DE, %, MAV] PSY 2281  
Chen, H. [D, Q-DE, T, RPM] PSY 2290  
Kosma, M. [D, Q, E-DE, RM, AV, CS] PE 4484  
Krynski, M. L. [D, Q-DE, MR, RC, MAV, AV, TU] PSY 2278  
Shomaker, K. E. [D, Q-DE, %, AV, RM] HE 775**MOTOR CONTROL**

Carlsen, A. N. [D, AR-DE, RM, AV, TU] PSY 2280

**MOVEMENT**Maher, L. S. [D, Q, AR-DE, AV, RM, RC, G] PSY 2282  
McClellan, E. C. [D, AR-DE, RM, AV, TU, RPM, G] PE 4495**MUNICIPAL**

Lee, A. N. [D, Q-DE, FA, AV] PE 4513

**MUSCLE**Bernard, E. M. [D, Q-DE, AV, MAV, G] PE 4523  
Blaak, J. B. [D, Q, A, L-DE, RM, BON, AV, G] HE 767  
Fava, N. M. [D, A, AR-DE, RM, AV, T, G] PE 4490  
McClellan, E. C. [D, AR-DE, RM, AV, TU, RPM, G] PE 4495**MUSCLE TONUS**

Mills, J. D. [D, E, Q, AR-DE, RM, AV, WI, RPM, G, U] PE 4517

**MUSCULOSKELETAL SYSTEM**

Gardiner, L. C. [D, AR-DE, RM, AV, G] PE 4491

Lee, H. [D, AR, MA-DE, RM, AV, T, BON, RPM, RE, G] HE 765  
Sullivan, S. J. [D, AR-DE, %, RM, AV, BON] HE 774**MUSIC**

Maher, L. S. [D, Q, AR-DE, AV, RM, RC, G] PSY 2282

**MYOFASCIAL PAIN SYNDROME**

McClellan, E. C. [D, AR-DE, RM, AV, TU, RPM, G] PE 4495

**NATIONAL BASKETBALL ASSOCIATION**

Hepp, J. M. [D, DA-DE, G] PE 4492

**NATIONAL COLLEGIATE ATHLETIC ASSOCIATION**Baccas, S. E. [D, Q-DE, FA, G] PSY 2289  
Bamford, R. G. [D, Q-DE, U, T, G] PE 4509  
Brown, K. V. [D, Q-DE, CS, T, G] PE 4486  
Burns, E. T. [D, Q-DE, %, CS] PE 4498  
Chambers, C. P. [D, DA-DE, RPM] PE 4488  
Crandall, K. R. [D-DE, CS, T] PSY 2297  
Damato, G. C. [D, Q-DE, R, RPM, AV, G] PSY 2291  
Haheesy, M. J. [D, I, DA, C, H-DE, TA] PE 4472  
Hay, T. A. [D, Q-DE] PE 4527  
Ludwig, C. A. [D, Q-DE] PE 4503  
Mikel, D. J. [D, Q-DE, %, AV, G] PE 4505  
Phillips, T. [D, Q-DE, T] PE 4519  
Salacinski, A. [D, A, Q, COM-DE, T] PE 4468  
Stevens, A. [D, Q-DE, %, MAV] PE 4531**NATIONAL DANCE**

Davis, C. U. [D-DE] PE 4502

**NATIONAL INTRAMURAL RECREATIONAL****SPORTS ASSOCIATION**

Moffitt, J. [D, Q-DE, %, T] RC 565

**NATIONAL JUNIOR COLLEGE ATHLETIC ASSOCIATION**

Mikel, D. J. [D, Q-DE, %, AV, G] PE 4505

**NEOPLASM**

Lucero, C. [D, I-DE, TA] PSY 2279

**NEURAL CONDUCTION**

Woollacott, M. H. [D, TC, L-DE, O, RM, G] PSY 2298

**NEUROLOGY**

Woollacott, M. H. [D, TC, L-DE, O, RM, G] PSY 2298

**NEUROMUSCULAR SYSTEM**Blaak, J. B. [D, Q, A, L-DE, RM, BON, AV, G] HE 767  
Woollacott, M. H. [D, TC, L-DE, O, RM, G] PSY 2298**NEUROPSYCHOLOGY**

Carlsen, A. N. [D, AR-DE, RM, AV, TU] PSY 2280

**NITRIC OXIDE**

Wilkins, B. W. [D, L-DE, RM, AV, TU, T, G] PH 1792

**NORTH DAKOTA**

Parker, T. K. [D, Q-DE] HE 771

**NOTATION**

Maher, L. S. [D, Q, AR-DE, AV, RM, RC, G] PSY 2282

**NUTRITION**Bowman, S. A. [D, A, L-DE, AV, TU] PH 1782  
Schwartz, A. [D, A, Q-DE, AV, U, AC, RD, G] PE 4473**OBESITY**

Sullivan, S. J. [D, AR-DE, %, RM, AV, BON] HE 774

**OCCUPATION**

Dingle, C. R. [D, Q-DE, CS] PE 4477

**OHIO**

Carson, R. L. [D, Q-DE, %, MAV] PSY 2281

**OLYMPIC GAMES, SYDNEY 2000**

Krist, K. D. [D, CA-DE, %] PE 4466

**ORGANIZATIONAL DEVELOPMENT**

Alexander, E. W. [D, DA, I-DE] PE 4521

**ORIENTATION**

da Costa, R. M. A. G. [D, AR-DE, AV, TU] PSY 2287

**ORTHOPEDIC EQUIPMENT**

- Michell, T. B. [D, Q, A, AR-DE, RM, AV, G] PE 4496  
 Yeung, P. L. [D, Q, AI, AR-DE, RPM, T, AV, RM] PE 4481

**OSTEOARTHRITIS**

- Yeung, P. L. [D, Q, AI, AR-DE, RPM, T, AV, RM] PE 4481

**OVERTRAINING**

- Bernard, E. M. [D, Q-DE, AV, MAV, G] PE 4523

**OXYGEN CONSUMPTION**

- Witt, L. E. [D, E-DE, AV, RM, %, G] PH 1787

**PANCREAS**

- Adamson, C. H. [D, L-DE, MAC, MAV, AV, TU] PH 1779

**PARK**

- Curtin, K. A. [D, Q-DE, %, CS, T, AV, RD] RC 564

**PARTICIPATION**

- Kaufmann, A. M. [D, H, DA-DE, AV, G] PE 4465

**PATELLOFEMORAL PAIN SYNDROME**

- Pearce, T. L. [D, Q, AR-DE, T, RM, AV, TU, G] PE 4518

**PEAK EXPIRATORY FLOW RATE**

- Cannon, C. [D-DE, RM, AV, TU, G] PH 1783  
 Panning, J. K. [D, L-DE, AV, TU, RM, RE, G] PH 1786

**PEDOMETER**

- Glazener, H. [D, E-DE, T, RPM, RM, AV, G] HE 763  
 Shomaker, K. E. [D, Q-DE, %, AV, RM] HE 775

**PELVIS**

- Mills, J. D. [D, E, Q, AR-DE, RM, AV, WI, RPM, G, U] PE 4517

**PENNSYLVANIA**

- Curtin, K. A. [D, Q-DE, %, CS, T, AV, RD] RC 564  
 Kramer, C. [D, Q-DE, %, G] PE 4485

**PEPTIDE**

- Wilkins, B. W. [D, L-DE, RM, AV, TU, T, G] PH 1792

**PERCEIVED EXERTION**

- Day, M. L. [D, Q, A-DE, %, RM, AV, G] PH 1784  
 Kaufman, C. L. [D, Q, L-DE, T, &, G] HE 764

**PERSONALITY DEVELOPMENT**

- Dineen, R. [D, Q-DE, MAV, T, G] PSY 2288

**PHILOSOPHY**

- Caldwell, L. A. [D, I-DE] PE 4500  
 Wesley, N. L. [D-DE] PE 4507

**PHYSICAL ATTRACTIVENESS**

- Szajda, A. A. [D, Q-DE, FA, AV, G] PSY 2295

**PHYSICAL EDUCATION**

- Adams, R. N. [D, E-DE, T, AC] PE 4514  
 Carson, R. L. [D, Q-DE, %, MAV] PSY 2281  
 Goto, K. [D-DE, G] PE 4478  
 Meehan, B. P. A. [D-DE] PE 4529  
 Smith, D. M. [D, J-DE, %] PE 4520  
 Szajda, A. A. [D, Q-DE, FA, AV, G] PSY 2295

**PHYSICAL FITNESS**

- Adams, R. N. [D, E-DE, T, AC] PE 4514  
 Chen, L. [D, Q-DE, RPM, RC, KS, T, G] HE 769  
 Glazener, H. [D, E-DE, T, RPM, RM, AV, G] HE 763  
 Kosma, M. [D, Q, E-DE, RM, AV, CS] PE 4484  
 Shomaker, K. E. [D, Q-DE, %, AV, RM] HE 775  
 Vincent, S. D. [D, A-DE, AV, FA, T, G] HE 766

**PHYSIOLOGIC MONITORING**

- Ramirez, R. [D, A, L-DE, RC, SEE, G] PH 1790

**PHYSIOLOGICAL STRESS**

- O'Neill, E. C. [D, A, Q, L-DE, RM, AV] PH 1798

**PHYSIOLOGY**

- Adamson, C. H. [D, L-DE, MAC, MAV, AV, TU] PH 1779  
 Arnett, M. S. [D, Q, A, L-DE, RM, AV, TU, G] PE 4475

- Bowman, S. A. [D, A, L-DE, AV, TU] PH 1782  
 Brucker, J. B. [D, Q, AR-DE, FA, RM, CV, R, BON, G] PE 4470

- Fuller, L. [D, A, L-DE, AV, RM, TU, G] PE 4471  
 Glazener, H. [D, E-DE, T, RPM, RM, AV, G] HE 763  
 Kelso, A. [D-DE, %, AV, RM, G] PH 1785  
 Killgore, G. L. [D, Q, A, AR-DE, AV, RM, BON, T, G] PE 4483

- Lynn, B. M. [D, Q-DE, AV, RM, %, SCH, G] PH 1780  
 Onoda, K. [D, A, L, Q, E-DE, RM, AV, T, G] PE 4467  
 Salacinski, A. [D, A, Q, COM-DE, T] PE 4468  
 Smaczny, D. M. [D, Q-DE, %, G] PH 1788  
 Smelker, C. L. [D-DE, AV, TU, G] PH 1789  
 Verschueren, S. D. [D, A, L, I, AR-DE, R, AV, CS, G] PE 4474  
 Witt, L. E. [D, E-DE, AV, RM, %, G] PH 1787

**PICTORIAL WORK**

- Bergner, B. M. [D, TC-DE, TA] RC 563

**PLANNING**

- Curtin, K. A. [D, Q-DE, %, CS, T, AV, RD] RC 564

**POLAND**

- Caldwell, L. A. [D, I-DE] PE 4500  
 Geithner, C. A. [D, A-DE, RM, AV, MAV, G] PE 4464

**POLICY**

- Bamford, R. G. [D, Q-DE, U, T, G] PE 4509

**PREGNANCY**

- Parker, T. K. [D, Q-DE] HE 771

**PREJUDICE**

- Szajda, A. A. [D, Q-DE, FA, AV, G] PSY 2295

**PRENATAL CARE**

- Parker, T. K. [D, Q-DE] HE 771

**PREVENTION**

- Cannon, C. [D-DE, RM, AV, TU, G] PH 1783  
 Chen, L. [D, Q-DE, RPM, RC, KS, T, G] HE 769  
 Fuller, L. [D, A, L-DE, AV, RM, TU, G] PE 4471  
 Lewis, F. J. [D, AR-DE, FA, AV, RM] PE 4515  
 McClellan, E. C. [D, AR-DE, RM, AV, TU, RPM, G] PE 4495  
 Verschueren, S. D. [D, A, L, I, AR-DE, R, AV, CS, G] PE 4474

**PROBLEM SOLVING**

- Guyer, M. S. [D, I-DE] PE 4511

**PROFESSIONAL**

- Kubik, J. M. [D, Q-DE, T, RPM] PE 4512

**PROGRAM**

- Adams, R. N. [D, E-DE, T, AC] PE 4514  
 Smith, D. M. [D, J-DE, %] PE 4520  
 Threlkeld, R. J. [D, Q, A, L-DE, T, AV, AC, CS, G] HE 772

**PROPRIOCEPTION**

- Culp, M. T. [D, AR, Q-DE, RM, AV, G] PE 4489  
 da Costa, R. M. A. G. [D, AR-DE, AV, TU] PSY 2287

**PSYCHOLOGICAL MOMENTUM**

- Crandall, K. R. [D-DE, CS, T] PSY 2297

**PSYCHOLOGY**

- Anderson, M. L. [D, Q, E, A-DE, RM, AV, G] PSY 2283  
 Beggs, B. A. [D, Q-DE, T] PSY 2285  
 Carson, R. L. [D, Q-DE, %, MAV] PSY 2281  
 Day, M. L. [D, Q, A-DE, %, RM, AV, G] PH 1784  
 Dineen, R. [D, Q-DE, MAV, T, G] PSY 2288  
 Glazener, H. [D, E-DE, T, RPM, RM, AV, G] HE 763  
 Gordon, E. [D, Q, S-DE, AV, RM, TU, G] PSY 2284  
 Kaufman, C. L. [D, Q, L-DE, T, &, G] HE 764  
 Krynski, M. L. [D, Q-DE, MR, RC, MAV, AV, TU] PSY 2278  
 Lucero, C. [D, I-DE, TA] PSY 2279  
 Maher, L. S. [D, Q, AR-DE, AV, RM, RC, G] PSY 2282

**PUBLIC RELATIONS**

- Lee, A. N. [D, Q-DE, FA, AV] PE 4513



**PULMONARY GAS EXCHANGE**

Kelso, A. [D-DE, %, AV, RM, G] PH 1785

**RANKING**

Brown, K. V. [D, Q-DE, CS, T, G] PE 4486

**RATING SCALE**

Day, M. L. [D, Q, A-DE, %, RM, AV, G] PH 1784

**REACTION TIME**

Carlsen, A. N. [D, AR-DE, RM, AV, TU] PSY 2280

**RECOVERY**

Onoda, K. [D, A, L, Q, E-DE, RM, AV, T, G] PE 4467

**RECREATION**

Alexander, E. W. [D, DA, I-DE] PE 4521

Bergner, B. M. [D, TC-DE, TA] RC 563

Chen, H. [D, Q-DE, T, RPM] PSY 2290

Chiang, I. [D, I, Q-DE, U, WI] PSY 2286

Lee, A. N. [D, Q-DE, FA, AV] PE 4513

Moffitt, J. [D, Q-DE, %, T] RC 565

**RECRUITING**

Bamford, R. G. [D, Q-DE, U, T, G] PE 4509

Brunner, J. F. [D, Q-DE, FA, %] PE 4487

Frost, R. [D, Q-DE, %, AV] PE 4526

Stevens, A. [D, Q-DE, %, MAV] PE 4531

**RESPIRATION**

Kelso, A. [D-DE, %, AV, RM, G] PH 1785

Panning, J. K. [D, L-DE, AV, TU, RM, RE, G] PH 1786

Smaczny, D. M. [D, Q-DE, %, G] PH 1788

**RESPIRATORY EXCHANGE RATIO**

Davis, J. C. [D, E, L-DE, RM, T, AV] PH 1796

**RETENTION**

Phillips, T. [D, Q-DE, T] PE 4519

**RISK**

Chen, L. [D, Q-DE, RPM, RC, KS, T, G] HE 769

**RUNNING**

Arnett, M. S. [D, Q, A, L-DE, RM, AV, TU, G] PE 4475

Fava, N. M. [D, A, AR-DE, RM, AV, T, G] PE 4490

Killgore, G. L. [D, Q, A, AR-DE, AV, RM, BON, T, G] PE 4483

Lucero, C. [D, I-DE, TA] PSY 2279

Timmerman, S. [D, L, A-DE, AV, LSD] PH 1793

**SATISFACTION**

Beggs, B. A. [D, Q-DE, T] PSY 2285

**SCHOOL**

Vincent, S. D. [D, A-DE, AV, FA, T, G] HE 766

**SECONDARY SCHOOL**

Blake, M. C. [D, Q-DE, T] PE 4524

Chen, H. [D, Q-DE, T, RPM] PSY 2290

Damato, G. C. [D, Q-DE, R, RPM, AV, G] PSY 2291

Kaufmann, A. M. [D, H, DA-DE, AV, G] PE 4465

Moky, K. A. [D, DA-DE] PE 4476

Smith, D. M. [D, J-DE, %] PE 4520

**SELECTION**

Ludwig, C. A. [D, Q-DE] PE 4503

Stevens, A. [D, Q-DE, %, MAV] PE 4531

**SELF-DETERMINATION**

Carson, R. L. [D, Q-DE, %, MAV] PSY 2281

**SELF-EFFICACY**

Haesey, M. J. [D, I, DA, C, H-DE, TA] PE 4472

**SEX DISCRIMINATION**

Hay, T. A. [D, Q-DE] PE 4527

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