Volume 10, 1
April 1997
A Subject and Author Index of Dissertations and Theses Including Abstracts

Health
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Microform Publications Bulletin

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BULLETIN 10, 1

This publication is the first issue of Bulletin 10. The bulletin represents microfiche published in April 1997. Previously, 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 thesis and dissertation titles and abstracts, as well as a section of keywords. Bulletin 10, 2 will appear in October 1997.

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- **PE** Physical Education
- **PH** Physiology and Exercise Epidemiology
- **RC** Recreation and Leisure
- **HE** Health Education
- **PSY** Psychology
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Western Ontario, University of
Western Washington University
Windsor, University of
Wisconsin, University of, at La Crosse

York University
Contents

Part I: Titles and Abstracts ....................................................................................................................... 1–43

Physical Education ................................................................................................................................. 1
    Administration ................................................................................................................................. 1
    Measurement and Evaluation ......................................................................................................... 3
    Pedagogy ......................................................................................................................................... 4
Dance ..................................................................................................................................................... 6
History and Philosophy .................................................................................................................... 7
Biomechanics ....................................................................................................................................... 8
Sports Medicine .................................................................................................................................. 15
Physiology and Exercise Epidemiology ............................................................................................ 18
Health Education .............................................................................................................................. 27
Recreation and Leisure ...................................................................................................................... 31
Psychology .......................................................................................................................................... 33
    Anxiety ........................................................................................................................................ 33
    Attitudes and Values .................................................................................................................... 33
    Behavior Analysis ......................................................................................................................... 34
    Creativity ..................................................................................................................................... 37
    Motivation ................................................................................................................................. 37
    Motor Learning and Control ....................................................................................................... 39
    Perception ................................................................................................................................... 40
    Self-Concept ............................................................................................................................... 40
    Social Psychology ...................................................................................................................... 42
    Stress .......................................................................................................................................... 43

Part II: Keywords .................................................................................................................................. 45
Index: ................................................................................................................................................... 55
Additional Items Available from Microfiche Publications ................................................................. 57
Order Form ............................................................................................................................................ 59
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

ADMINISTRATION

Blake, Noah C. On the need for, potential consequences and viability of NCAA deregulation, 1996. M.A., University of North Carolina at Chapel Hill (John Billing). (59pp 1f $4.00) PE 3685

The purpose of this study was to determine the opinions of selected NCAA Division I-A athletics administrators regarding the need for, potential consequences and viability of deregulating specific areas of NCAA legislation. Of the 323 thirty-item survey questionnaires sent to Division I-A athletic directors, senior woman administrators and faculty athletics representatives, 132 were returned for a rate of 40.9%. For every survey item, the range of responses observed fully spanned the possible range of responses. In the study’s search for opinion differences based on administrator job title or area of legislation facing potential deregulation, the academic requirements data by job title and the area of legislation variable produced statistically significant findings. In all of the different analyses of survey data, looking at need, potential consequences or viability, the administrators’ responses almost always centered around a score of uncertainty, making deregulation a practical impossibility at this time.

Kota, Jamie M. A survey study investigating the attitudes and opinions of North Carolina public high school wrestling coaches concerning weight classifications, growth allowances, and weight loss methods, 1996. M.A., University of North Carolina at Chapel Hill (Edgar D. Shields, Jr.). (57pp 1f $4.00) PE 3711

The purpose of the study was to investigate coaches’ opinions and attitudes concerning the weight classification system, growth allowance system, and weight loss methods used in North Carolina High School Wrestling. A questionnaire consisting of 27 questions was mailed to 244 schools belonging to the North Carolina High School Athletic Association. A 50% return rate was recorded. The data revealed that 67% were content with the present weight certification program, yet 62% felt the program did not help prevent misuse of weight reduction methods. This was evidenced by 67% losing 3-7 pounds between matches, 58% cut weight for ten or more matches, and forbidden weight reduction methods were being utilized. Over 68% supported bringing the growth allowance back and 70% supported the current weight classes. Recommendations were made that North Carolina redesign its weight control program including body composition assessment, possible urinalysis usage, the implementation of an educational program concerning weight reduction and nutrition, and institute the growth allowance system once the program has been revised.

Krege, James C. A business plan to convert the Cone-Kenfield Tennis Center into a revenue generating tennis club, 1996. M.A., University of North Carolina at Chapel Hill (John Billing). (95pp 1f $4.00) PE 3712

This study involved the construction of a business plan to convert the Cone Kenfield Tennis Center into a revenue generating tennis club. The plan analyzed both the current financial status and operations of Cone-Kenfield. The project researched the components of running a successful tennis club while comparing the Cone-Kenfield facility and its services, amenities and programs to several tennis clubs in the marketplace. Additionally, this study surveyed the current patrons of Cone-Kenfield in order to measure interests and satisfaction, or dissatisfaction levels relating to the facility. Finally, a four part business plan was created to increase revenues, reduce expenses and to improve both the operations and facility at Cone-Kenfield. This business plan is a practical, applicable plan that would enable the UNC Athletic Department to reduce expenses and generate more revenue at the Cone-Kenfield tennis center.

Litherland, Martha S. Youth sport coaches’ education: the parent perspective, 1995. Ph.D., Michigan State University (Marty Ewing). (283pp 3f $12.00) PE 3713

The purpose of this study was to examine what parents (a) believed sport should be like for their children, (b) saw their rights and responsibilities to be in the youth sport setting, and (c) thought should be included in coaches’ education curricula. Thirty eight parents of 8 to 12-year-old children playing summer baseball and softball participated in 13 focus group interviews to share their expectations of the youth sport experience for their children. Parents suggested that sport should be organized to provide a positive, fun, developmentally appropriate, fair, and educational experience for the child. Parents recognized that the coach exerted a major influence on the quality of
the child’s sport experience and proposed that many of the coaches in these leagues placed too much emphasis on winning. Parents suggested that communication between parents and coaches was minimal in this setting and that the parent-coach relationship was threatened if parents disagreed with the coach’s style. Parents perceived a barrier between coach and parent that discouraged many parents from approaching the coach to discuss a problem. The athletic triangle of coach, parent, and athlete was examined through a systems theory perspective to understand better this conflict between coach and parent. Recommendations from the parents regarding coaches’ education curriculum included greater emphasis on practical application of concepts currently taught in these programs. Secondly, parents argued that coaches’ education provides a forum for the articulation of goals and objectives that guide sport programs. Finally, parents maintained that the curriculum should reflect an understanding of the total child, not just the child in sport.

Martino, Judith A. Dr. William Henry Peacock, professional physical educator and Graduate School Director at the University of North Carolina, Chapel Hill: contributions to the department and to the profession, 1996. M.A., University of North Carolina at Chapel Hill (Ronald Hyatt). (46pp 1f $4.00) PE 3714

The purpose of this study is to gather information regarding the life and professional career of Dr. William Henry Peacock in respect to his contributions to the physical education profession and to the Department of Physical Education at The University of North Carolina. The importance of this study is to provide a biographical sketch of historical value to the Department of Physical Education. It covers his life since birth with an emphasis on the direction taken to become a professional educator. The contributions of Dr. Peacock to the department and to the university are covered. His contributions as a superb teacher and advisor are noted in detail. It proceeds with him serving as an instructor at the University in 1943 through his retirement as a full professor in 1974. The main focus will be on his teaching and his role as the first Director of the Graduate Students in the Physical Education Department. This documentation is in partial fulfillment of the “heritage” gathering effort of the Department of Physical Education through the view of its past faculty members.


The purpose of this paper was to gather information from college athletic directors from Division I-A and Division III institutions concerning the factors that they deem the most and least important in evaluating their institution’s head football coach for job retention. The study identified 10 factors that are instrumental in evaluating head football coaches. Athletic directors prioritized these 10 factors in order of importance when evaluating their head football coach. Surveys were sent to 106 Division I-A athletic directors and 106 Division III athletic directors. Of the 151 surveys returned, 47 from Division I-A athletic directors and 67 from Division III athletic directors were deemed usable. The surveys revealed that Division I-A athletic directors primarily evaluate their head football coaches by win/loss percentage and compliance with NCAA rules. Of the ten factors selected for this study, public relations and organizational skills were considered the least important factors in their evaluation process. For Division III athletic directors, the primary factors of evaluation for their head football coaches were knowledge of the sport, loyalty to the institution, and serving as a role model for student athletes. The least important factors were win/loss percentage and public relations. These findings suggest that the philosophy of athletics for each of these two levels is quite different. Head football coaches at the Division I-A level are expected to win games to maintain their jobs while Division III coaches do not experience the same pressure to win. Differences in the evaluation factors are illustrated for each level of collegiate athletics and understanding these differences may better guide aspiring young coaches who are pursuing a career in college football coaching.

Meyer, James R. Students’ perceptions of the North Carolina basketball student ticket distribution, 1996. M.A., University of North Carolina at Chapel Hill (Frederick O. Mueller). (79pp 1f $4.00) PE 3717

This study is an evaluation of whether or not student’s perceptions from past experiences with ticket distributions effects their participation in future distributions. The data was analyzed by the entire test group, by level of interest in Carolina basketball, and by undergraduate class. Even though the data suggested that a majority of the participants are dissatisfied with the student ticket distribution process, ninety-three percent stated that they would participate in the future. Thus, the findings of this survey refute the hypothesis that student’s perceptions of the student basketball ticket distribution process does effect whether or not they will participate in future distributions.

Pope, Darryl A. A comparison of demographic profiles and administrative roles of athletic directors at selected historically Black colleges and universities with athletic directors at selected predominately white colleges and universities, 1997. Ed.D., Temple University (Michael W. Jackson). (169pp 2f $8.00) PE 3722

This study examined the demographic profiles and administrative roles of athletic directors (ADs) of selected Historically Black Colleges and Universities (HBCU) with
African American administrators could be media misinformation and the social mobility myth. The purpose is to determine the number of African Americans holding administration positions compared to non-administration positions in the Mid-American athletic conference. The data collected will add to the database of information concerning the number of African American administrators at the collegiate level. A questionnaire designed to solicit information concerning the number of African American employees was sent to the athletic director and affirmative action director at each Mid-American Conference school. A cover letter designed to explain the purpose of the study and how the results would be used accompanied the questionnaire. Each institution was assigned a random number to help ensure confidentiality. Along with the number, the letter “A” was assigned to the athletic directors and the letter “B” was assigned to the affirmative action directors. This coding system was used to identify which questionnaire was being returned. Two weeks after the return deadline a follow-up letter was sent to those who had not returned the first questionnaire. The results were compiled to give an overall view of the African American representation in administration positions at Mid American Conference schools.


This study sought to develop a strategic fund raising plan for the Erskine College Department of Athletics. The plan addresses financial problems of the department and offers strategies to help offset each. The fund raising strategies included plans to increase revenue from athletic operations through gate receipts, concessions, and corporate sponsorships, to identify possible contributors to the Athletic Endowment Trust, and to increase contributions to the Flying Fleet Club’s annual campaign. The new revenue generated by the implementation of this plan would help offset the department’s dependency on general college support, would increase coaches salaries, and would increase the numbers of athletic scholarships offered.

MEASUREMENT AND EVALUATION

Santesteban, David. Soccer: a tactical analysis of goal scoring, 1995. M.A., California State University, Fresno (Richard W. Francis). (60pp 1f $4.00) PE 3725

The purpose of this study was to analyze scoring in NCAA Division I men’s soccer during the 1985 through 1994 seasons. The goals were analyzed as follows: (a) the number of goals scored from each zone, (b) the number of passes which preceded each goal, (c) the number of goals that occurred during standard or set plays, and (d) the
number of goals that were scored using the head. The sample consisted of 205 goals from videotapes of 71 NCAA Men’s Division I soccer games. The data were presented in frequencies and percentages using the SPSS/PC+ program. The results revealed that the greatest frequency of goals was scored from the penalty area. The highest concentration of goals was found in Zones 8, 9, and 7, respectively. The majority of goals followed zero to three passes. Set plays accounted for 44% of the goals. Head goals accounted for only 14.1% of the sample.

**PEDAGOGY**


This thesis presents a description of computer-mediated communication between preservice teachers and a faculty contact person during the field experience. Fifteen health and physical education preservice teachers participated in the study conducted on UNIBASE during internship in the 1992 Fall semester. Discourse analysis was used to examine communication patterns on the bulletin board, in the electronic journal, and in real time conferences. The analysis of data from computer transcripts, a questionnaire, and interviews with three high users describes the purposes for communication, topics of discussion, and communication patterns that emerged. Purposes for communication appeared to be guided by the roles, needs, and goals of the individuals. The intent of most messages by the preservice teachers was to offer information. The faculty contact person offered support, information and advice. Curriculum and planning ideas were shared between the preservice teachers and the faculty contact person. The mean score for usefulness for exchanging ideas was 3.92 on a 1-5 scale. The electronic journal was used for reflection on teaching practice. The third question was about emerging patterns of communication. Network conversations provided opportunities for problem-solving. The varied nature of the preservice teachers’ experiences and teaching contexts provided a broad perspective on schooling. The intellectual exchange and social support gained through dialogue was important in helping preservice teachers clarify what they believe good teaching practices should be.

Fuller, Donald V. *An analysis of critical thinking levels in undergraduate athletic training curricula*, 1995. Ph.D., University of Southern Mississippi (Sandy Gangstead). (159pp 2f $8.00) PE 3700

The purpose of this study was to examine undergraduate athletic training curricula to determine whether or not educators are providing their students with objectives and examination questions which foster critical thinking within the second, third, and fourth years (Class Levels) of undergraduate education. This study was designed to determine if there were any differences in cognitive skill levels (using Bloom’s Taxonomy) between the three class levels, and to determine if there were any relationships among the class levels with respect to opportunities for providing critical thinking learning experiences. Letters were sent to thirty undergraduate athletic training program directors who were seeking CAAHEP (Commission on Accreditation of Allied Health Education Programs) accreditation during the 1994-1995 academic year. Thirteen program directors (43%) submitted their course syllabi and examinations from all or some of their athletic training-specific courses. Curricular materials (educational objectives, examination questions, and written assignments) were submitted from all three class levels. These materials were classified into one of Bloom’s Taxonomies on the researcher’s Course Item Analysis instrument. A chi-square analysis was performed on the objectives and demonstrated a statistically significant relationship between the three class levels with respect to Cognitive Levels ($p<.005$), but not with respect to Critical Thinking Levels ($p>.05$). As the class level increased, there were more objectives distributed within the higher cognitive level. A statistically significant chi-square value ($p<.005$) was found between the three class levels with respect to examination question, but again, there was no significance with respect to critical thinking levels ($p>.05$). Although the data for written assignments was inadequate for statistical measure, all of the assignments were within critical thinking levels—specifically Synthesis and Evaluation. It was concluded that: (1) athletic training educators should be given training with respect to writing educational objectives, (2) examinations in higher class levels (juniors or seniors) should be written to assess students’ thinking, (3) educators need to write fewer multiple choice questions, and (4) critical thinking may be considered as a criteria for accreditation as it is for other medical professional preparation programs, such as nursing.

Howarth, Kathleen. *Qualitative study of the teaching of thinking skills in physical education*, 1996. Ph.D., Temple University (Thomas W. Evaul). (192pp 2f $8.00) PE 3707

The purpose of this study is to describe and analyze the teaching of thinking skills in physical education in the context of the middle school. It will attempt to answer the following research questions: How do teachers perceive teaching thinking skills in physical education? To what extent do teachers focus on teaching thinking skills in physical education? How do teachers plan and implement teaching thinking skills in physical education? What is the context in which teaching thinking skills have developed in physical education? Interview transcripts, notes from observations of lessons, and curriculum documents provided the data base for analysis using constant com-
comparison and analytic induction. The Value Orientation Inventory was employed to determine the curricular values of the three teachers and their respective departments. Results indicated that thinking skills were taught by the teachers, but with unequal emphasis. Problem solving received special emphasis from two teachers in their planning, as did group decision making. Critical thinking received less emphasis than problem solving as did creative thinking skills. The process of evaluation and analysis was seen by all as relevant to the observation process necessary to improve performance. Metacognition, or thinking about thinking, did not mesh with the teachers’ views of the purposes of physical education. The teachers facilitated the use of thinking skills by adapting teaching style, manipulating the learning environment and providing a variety of sources of information. The context, including teacher biography, colleagues’ values and school culture interacted with their decisions about, and commitment to, teaching thinking skills. In summary, whether teachers planned and implemented the teaching of thinking skills may depend on one or more of the following factors: (a) perceived role in teaching thinking skills, (b) view of the child, (c) view of the nature of knowledge and learning in physical education, and (d) context.


The purpose of this study was to survey the quality of physical education for students with disabilities in Pennsylvania. The PSAHPERD Task Force on Adapted Physical Education distributed a questionnaire to each school district involved in the Grass Roots Organization (n=250) as well as the Intermediate Units (n=29). School personnel were encouraged to duplicate the survey and distribute it to the appropriate physical education teachers. There were 210 returned questionnaires. Of the respondents 80% have received some adapted physical education training at the undergraduate level, while 20% have received training at the graduate level. Physical educators were questioned as to whether they believe their school district offers appropriate physical education in the least restrictive environment; 61% responded positively. Concerning after school sports programs for students with disabilities 44.3% responded positively. Sports programs included Special Olympics, intramural sports, and sports team managers, and statisticians. In deciding whether students with disabilities should be mainstreamed into regular physical education teachers were only involved about 30% of the time. Teacher input for IEP committees concerning students mainstreamed into regular physical education occurs only 20% of the time. Teacher input for IEP committees concerning students in adapted physical education occurs only 27% of the time. Teachers were also questioned as to whether they perceive themselves as needing additional training in adapted physical education; 81% responded affirmatively. Recommendations for further study include assessment practices of students with disabilities, transition services, IEP practices and placement, and administrative support of adapted physical education.

Sapp, Andrew. *Coaches' perceptions of the academic support program for student-athletes at UNC*, 1996. M.A., University of North Carolina at Chapel Hill (John Billings). (65pp $4.00) PE 3726

The purpose of this study was to determine the Coaches’ perceived attitude toward the current services provided by the Academic Support Program for Student Athletes at the University of North Carolina at Chapel Hill. It also tried to determine in what ways the Academics Center should be expanded when Kenan Field House is expanded. Questionnaires were sent to all 48 Olympic Sport Coaches at UNC including head coaches and assistant coaches. Twenty-nine coaches responded for a return rate of 60%. The findings of the study indicated that the coaches were pleased with the efforts of the Academic Support Staff as well as the programs and facilities offered at the Academics Center. The results showed that the major areas of concern were in trying to increase the ratios of Academic Counselor to student athlete and tutor to student-athlete. The main areas of desired facility expansion were in computers and study rooms. The coaches suggested there be more computers available and that more private study rooms for tutoring and group study be built. The responses of the coaches and their support of the Academic Program was very positive, and they believed that the Academic Support Program for Student-Athletes contributed greatly to their athletes’ academic success.


The purpose of this study was to determine if our present Physical Education Activities Program is meeting the interests of the student body at The University of North Carolina at Chapel Hill. Questionnaires were distributed to 1,900 students during their activities classes. Research was collected through the Department of Physical Education Handbook, Journals, Mini-theses, and personal interviews with past Physical Education Activities Directors. This study consists of a historical review of the origins of physical education which summarizes the evolution and potential for a required physical education curriculum within the school systems. The late 1800s mark historical records for the foundation of physical education. The period from 1900 to 1980 are known as the developmental years and are marked by various innovative ideas and
systems developed by the leaders of physical education of that time. These systems are still present in Physical Education as we know it today. The “recent years” are described as the years 1981 to 1994. It is during this time that actual available data was collected on the Physical Education Activities Program at the University of North Carolina. This data is the foundation for comparison in this thesis. A return rate of 64% female and 36% male surveyed, yielded the following conclusions: (1) There is no consistent trend in the variety of course selections that interest the students from the years 1981, 1986,1989, to 1994. However, there are similar trends in the different types of systems that were used in the late 1800s to 1940 that exist in our physical education courses today. (2) The Physical Education Program is offering courses that meet the students’ interests, however, there is room for modification. The possibility of adding new courses to replace those courses with decreasing interest is a strong contention. (3) In comparing the 7 questions consistent within each survey distributed in 1981,1986,1989, and 1994, it is apparent that we are partially meeting students’ interests although various recommendations are presented in order to better evaluate the activity program here at The University of North Carolina at Chapel Hill.

DANCE


This dissertation studies the choreographies of two artists of color, Chandrakula, a contemporary choreographer located in Madras, India, and Jawole Willa Jo Zollar, an African-American choreographer based in New York, Artistic Director of the Urban Bush Women Company. The analysis is based on a revisioning of the mainstream theses of postmodernism and feminism in the light of their contextualizing in non-hegemonic or marginalized populations. The dissertation aims to show that the artistic work of these two choreographers, which is simultaneous with their activist agendas, works through these alternative postmodernist and feminist modes to effect a deconstruction of several hierarchies that hold the field of cultural production in their grip. Further, through these processes, the choreographers also posit realities and identities which are hybrid and open-ended, laden with multiple possibilities of meaning and interpretation. At the center of these realities is the female performing body which thus come to be endowed with multiple significatory valences, acting as political and artistic signifier. The dissertation discusses how the moving body comes to signify on multiple levels in the works of these choreographers, and in terms of the specific contexts in which they are located. The first chapter introduces the project, discusses the specialized or delimited understanding of key terms, and states the major premises of the study. The second chapter reviews literature relevant to the research. The third and fourth chapters set the intellectual territory for the study, discussing, consecutively, the alternative understandings of postmodernism and feminisms on which the study is based. The fifth and sixth chapters analyze sections from pieces choreographed by Chandrakula and Jawole Willa Jo Zollar respectively, and discuss their discursive significances. The seventh chapter inquires into the possible location of such work and concludes the study.

Erickson, Veronica. *transforming a vision into movement: a practical guide for the choreography teacher, 1996. “A professional paper” M.F.A., Texas Woman’s University (Adrienne D. Fisk). (28pp 1f $4.00) PE 3698*

Choreography, as Doris Humphrey (1959) states, is not the dance itself, it is “the art of making dance(s)”. These dances are created by transforming ideas into movement. Because visions are in the mind, and movement is in the body, the choreographer must develop skills to facilitate this transformation process. Some of those skills include: abstracting, analyzing, associating, clarifying, developing, evaluating, forming, integrating, organizing, and reflecting. Four multi-step transformation experiences have been included in this paper, in order to help guide college-level choreography students to a clearer understanding of the process of transforming a vision into movement. These activities have been created for choreography teachers to adapt to their unique teaching/learning settings and provide the impetus for further teacher/student explorations.

Forss, Karen. *Dada and dance experimentalism in the 1960’s: path of continuity, 1996. M.S., University of Oregon (Jennifer Craig). (135pp 2f $8.00) PE 3699*

Significant relationships are identified between Dada and dance experimentalism in New York the 1960s. Commonalities are found within four separate themes: (1) the use of common objects or movements, (2) the legitimacy of amusement, (3) the use of chance techniques, and (4) the relationships between the audience and the performers. The appropriation of everyday objects into art existed for political and artistic motivations. Improvisation and the presence of the absurd coexisted as demonstrations of freedom. The compositional method of chance represented ways to utilize unconscious forces in the creation of art and to escape compositional decisions based upon personal choice. Participation with audiences occurred through the opposing strategies of provocation and inclusion. The
comparative methodology used was a way of conceptualizing historical ideas within a framework of renewal and transformation.

Messamer, Emily S. Gender roles in choreography: an examination of Pina Bausch, 1996. “A professional paper” M.F.A., Texas Woman’s University (Gayle Ziaks). (29pp 1f $4.00) PE 3716

Feminist perspectives can be used to perceive and analyze dance works by deconstructing patriarchal stereotypes of women in western society. Feminist analysis establishes that gender is socially and culturally constructed in our society, therefore, it is important to look “how” and “why” gender has been represented in choreography. Pina Bausch is a choreographer whose work reflects women’s roles and gender identities. Bausch presents many different subjects for the audience to react to in her works. Bausch exposes socially inscribed values in patriarchal societies by looking at stereotypes, male/female relationships, and cross-dressing. Bausch’s works look at “how” and “why” gender roles are constructed and, through this use of deconstruction, the spectator can move towards demystifying the “male” and “female” roles in order to attain a better understanding of stereotypes, male/female relationships, and gender roles in patriarchal societies.

Siegel, Leslie H. Movement as identity, 1996. “A professional paper” M.F.A., Texas Woman’s University (Penelope Hanstein). (28pp 1f $4.00) PE 3733

As individuals and as humans, we each have characteristic ways of moving. The purpose of this paper is to explore the relationship that exists between who we are and how we move, and specifically to understand how spatial and dynamic range of movement is linked to individual identity. The first half of the paper considers what and who we are, and why and how we move. The second half addresses what happens when we move in order to link spatial/dynamic range back to individual identity. The paper concludes with thoughts and questions that these issues raise for the teaching of dance technique and performance.

Stewart, Lisa D. The effects of ballet cross training on a high school football program, 1996. “A professional paper” M.A., Texas Woman’s University (Janice LaPointe-Crump). (35pp 1f $4.00) PE 3736

Dancers, like team athletes vary in size, shape, and their capacity for physical movement. This concept of variety correlates to another called cross training. Athletes cross train with different exercises or sports in order to achieve a blend of athleticism that will hone a particular skill or team sport. The blending of ballet class with conditioning in football is an interesting and fairly recent type of cross training. A case study on a football team at a private high school in Texas shows vast possibilities for ballet conditioning in sport. The incorporation of a ballet class into a high school football program can significantly improve the overall perception of the team’s abilities. This was indeed the case at Nolan Catholic High School, in Fort Worth, Texas where the program has been in place for three years. The goals of this endeavor were to improve player’s flexibility and coordination as well as reduce and prevent muscular injuries. The athletes, coaches, trainer and dance instructor all acknowledged specific physical benefits which they perceived resulted from this type of cross training has convinced those involved; therefore, they are all cooperative in their efforts to make it successful.

Swanson, Beth S. A history of the rise of aerobic dance in the United States through 1980, 1996. M.A., San Jose State University (Shirley Reekie). (223pp 3f $12.00) PE 3738

The objectives of this study were to identify those key individuals and historical factors which set the stage for the advent of aerobic dance, and to trace its appearance and spread across the U.S. during the 1970s. It was discovered that modern “aerobics” is based on exercise concepts adapted from European gymnastic exercise systems over two centuries. The most important ingredients in the birth of aerobic dance were: the use of the media (especially television) by fitness pioneers, the creation of many localized dance exercise programs by dancers and physical educators, the promotion of adult fitness by the academic community, the aerobic exercise movement of the late 1960s, and the women’s movement. Jacki Sorensen’s Aerobic Dancing and Judi Sheppard Missett’s Jazzercise spread because of their promotion in the YMCAs and among physical educators, their implementation of nationwide training systems, and the progression of participants from students to instructors and entrepreneurs.

HISTORY AND PHILOSOPHY

Gabele, Kimberley T.P. Ruth White Fink—professional educator at the University of North Carolina at Chapel Hill: contributions and remembrances, 1996. M.A., University of North Carolina at Chapel Hill (Ronald W. Hyatt). (104pp 2f $8.00) PE 3701

The purpose of this study was to record the contributions and achievements of Ruth White Fink, faculty member and Director of the Women’s Program in Physical Education at the University of North Carolina at Chapel Hill. In the form of a biography, her professional contributions at the State, Southern District, and National levels are examined, as well as her contributions to the Department of Physical Education at UNC. The biography is set in the context of social history. Fink’s career and role in the evolution of the
field is underscored by society's view of women with regard to achieving an education, having a career, and participating in physical activities from the early 1920s through the 1970s. Research was collected using Departmental and personal files, professional organizations' archives and reports, and personal interviews or questionnaires. Fink was a dedicated professional and pioneer in the field. She was a driving force in increasing opportunities for women, developing standards for physical education teachers and programs, advancing youth programs for the disadvantaged and mentally retarded, and pioneering the usage of educational television for physical education.

Hossain, Faruq M. Youth sport in Bangladesh, 1996. M.A., Dalhousie University (Anthony Richards). (137pp 2f $8.00) PE 3706

This study examines the nature of youth participation in sport, identifies the constraints, available facilities/opportunities and the need for additional facilities/opportunities necessary to participate in sport in Bangladesh. The comparison by gender and area of residence is also studied. In addition, the relationship between facilities/opportunities and participation in sport is examined. The study is based on primary data collected from Chittagong, Bangladesh using survey research methodology. Descriptive statistics, logistic regression, t-tests and chi square tests are used to analyze the data. The majority of youth in this study do not participate in sport. Participation rates of females and rural youth are lower than those of males and urban youth. Soccer, cricket, and badminton are the most popular sports in Bangladesh. Lack of opportunities in schools and in the community, lack of coaching, crowded facilities, lack of parental support, and academic pressure are the main constraints to participation in sport. Females are constrained more by intrapersonal constraints whereas males are constrained more by structural constraints. Bangladeshi youth have very limited facilities and opportunities for participation in sport. Youth need more coaching, equipment and tournaments in order to participate in sport. The study finds a positive relationship between available facilities/opportunities and participation in sport. The study suggests that if the constraints are minimized, then more young people would become participants in available sport programs.

BIOMECHANICS

Bachman, Greg. Biomechanical and physiological effects of cycling in two seat positions while using aerodynamic handlebars, 1995. M.S., Slippery Rock University (Nelson Ng). (70pp 1f $4.00) PE 3682

The purpose of this study was to determine the differences in performing a 5-km time trial cycling test in a normal aero position (NA) and a forward aero position (FA) in a group of eleven highly trained male competitive cyclists. Aerobars were used for both tests with the seat moved 5-cm forward and tilted -10 degrees for FA. Repeated measures ANOVA revealed significant differences (p<.05) for horizontal hip position and mean hip angle. There were no significant differences (p>.05) in: mean angle of the pelvis, knee, or ankle; peak values of absolute and relative oxygen consumption, heart rate, ventilation volume, breathing frequency, exercise metabolism, post exercise blood lactate concentration, and test indicate that a forward hip position increases mean hip angle and that FA does not impede intense cycling exercise of short duration.

Baishiki, Stephen. Pivoting the planted foot during execution of the roundhouse kick: its effect on force applied, 1996. M.A., California State University, Fresno (Tim R. Anderson). (42pp 1f $4.00) PE 3683

The effect of varying the amount of pivot of the support foot when executing a roundhouse kick was investigated. Ten participants kicked a 35-kg bag and contact was made with the area between the middle portion of the shank and the ankle. The three specific ranges of pivoting were 0 to 90, 91 to 135, and 136 to 180 degrees. One kick was also executed with the freedom of pivot. Kinematic analysis was used to indirectly measure force. Variables measured were angular velocity of the kicking knee (KNEEW) and hip (HIPW), and horizontal velocity of the kicking knee (KNEEV) and toe (TOEV). KNEEW, HIPW, and TOEV had the greatest mean value when pivoting 0 to 90 degrees. KNEEV had the largest mean value between 136 and 180 degrees. MANOVA revealed no significant differences; however, KNEEW approached a significant difference of p=.2069.

Bezner, Sharon A. The development of a gait evaluation tool, 1996. Ph.D., Texas Woman’s University (Jerry D. Winkler). (162pp 2f $8.00) PE 3684

The purpose of this study was to develop an original, written, gait evaluation tool which yielded a numerical score between 0 and 100 for both the right and left gait cycles, and to assess its reliability, objectivity, usability, and validity as compared to data taken from a PEAK5 Motion Analysis System. Subjects consisted of 22 females and 11 males, ranging in age from 22 to 44 years. All subjects
ambulated with a “normal” gait pattern. Two testers trained in gait assessment evaluated each subject using the developed tool. One of the testers evaluated the subjects a second time to permit reliability assessment. The testers filled out a usability questionnaire, developed by the investigator, following their involvement in the study. The subjects were filmed while walking with four cameras operating at a 60 Hz speed and one gait cycle from each leg was digitized using the PEAK5 automatic digitizing module. Joint angles and segment positions were calculated three-dimensionally by the PEAK5 software. Intrarater reliability was determined by performing a one-way repeated measures analysis of variance (ANOVA) on the tool scores obtained from Tester A’s two gait evaluations of each subject. An intraclass correlation coefficient was performed, yielding values of $r=.38$ and $.64$ for the left and right sides respectively. Objectivity was assessed by running a one-way repeated measures ANOVA on the gait tool scores obtained from the two testers, followed by the calculation of an intrarater correlation coefficient. Values obtained were $r=.58$ and $.59$ for the left and right sides. Usability was determined by counting the number of “true” responses to the 10 items on the questionnaire. Ninety-five percent of the responses were true, while 5% were false. Validity was determined by comparing the tool score results to the PEAK5 data. Pearson Product Moment Correlation Coefficients revealed values ranging from $r=.06$ to $.40$. It was concluded that the developed tool possessed strong usability, moderate reliability and objectivity, and poor validity.

Caster, Brian L. The effects of height and post-landing movement task on lower extremity landing biomechanics, 1996. Ph.D., University of Oregon (Barry T. Bates). (221pp 3f $12.00) PE 3687

The loading of various body structures during landing has been implicated as a source of injury in many sport activities, with injury prevention the focus of most contemporary sport related landing research. Subjects have typically been tested under isolated experimental conditions while performing the movement task of landing and remaining in a stable position. Though this movement modality may provide for a large degree of experimental control, such studies of discrete, endpoint landings may not account for all biomechanical aspects of landings performed in conjunction with other movements; a situation which is present in cases where high rates of injury have been reported. The purpose of the present study was therefore to evaluate selected aspects of lower extremity function during endpoint landings and during landings preparatory to a subsequent movement activity. Eight female subjects (four skilled athletes, four recreationally active individuals) performed five discrete landings followed by five drop jumps (a landing in preparation for a maximum vertical jump) from four initial drop heights. The study documented landing characteristics of each group employing global performance measures of ground reaction force and joint and segment linear and angular kinematics, and lower extremity stiffness. Functional differences between stable and preparatory landing movements were observed. Both skilled and recreational subjects allowed greater impact forces in the case of the discrete, endpoint landing as opposed to the landing in preparation for the vertical jump. Impact force modulation was attributed largely to differing roles of knee joint function relative to each category of landing. Relative to the preparatory landings, the skilled subjects were observed to maintain knee joint angular kinematics optimal for jump performance across the range of heights, where the recreational subjects employed knee joint kinematics indicating a dominant influence of landing demands as opposed to optimizing vertical jump performance.

Ciapponi, Teri M. A biomechanical comparison of two long jump approach techniques, 1996. M.A., California State University, Chico (Jackie L. Hudson). (61pp 1f $4.00) PE 3690

This study was conducted to compare intercollegiate athletes in the gather and the traditional approach techniques. One female and five male Division II track and field athletes were the subjects of this study. The subjects were videotaped while performing three trials each of the gather and the traditional technique. The jump with the farthest distance for each technique was analyzed with the Peak5 video analysis system. This system was also used to calculate several biomechanical variables of interest. The results of the study were interpreted for significance at the .15 level. It was determined that the following variables were significantly greater in the gather than the traditional technique: COG was dropped more, penultimate stride was longer, LOG was farther behind the BOS in the penultimate step, maximum horizontal velocity was greater, and the COG was elevated more during takeoff. The time on the takeoff board was similar for the gather and the traditional technique. Horizontal velocity at takeoff was less in the gather than the traditional technique for four subjects. Vertical velocity at takeoff was greater in the gather than the traditional technique for four subjects. The angle of takeoff was greater in the gather than the traditional technique for the preparatory landings, the skilled subjects were observed to maintain knee joint angular kinematics optimal for jump performance across the range of heights, where the recreational subjects employed knee joint kinematics indicating a dominant influence of landing demands as opposed to optimizing vertical jump performance.

Clarke, Richard. Effects of a 6-week slideboard training program as part of a preseason conditioning program on hamstrings strength and agility, 1996. M.Ed., Temple University (Iris F. Kimura). (82pp 1f $4.00) PE 3691

The purpose of this study was to investigate the effects of a 6-week slideboard training program as a component of a preseason conditioning program on concentric and eccentric hamstrings peak torque and, T-shuttle and
Shuttle Run agility of female college basketball players. Subjects were 8 members (18 to 20 years of age) of the Temple University NCAA Division I women’s basketball team. The Improved Human Performance (IHP), Inc. “Anaerobic, Lateral Foot Speed, and Agility Program” was utilized for the slideboard training regimen and administered three times a week for six weeks. Concentric and eccentric hamstrings peak torque and T shuttle and Shuttle Run agility tests were assessed before and after the 6-week training period. Peak torque modes were randomly ordered and data were collected on the Biodex B-2000 Isokinetic Dynamometer at 120 /sec. Agility data were collected with a stop watch and Marietta Millisecond Timer. Four 1 x 2 analyses of variance (ANOVA)s with repeated measures (p<.05) were used to analyze the dependent variables (concentric hamstrings peak torque, eccentric hamstrings peak torque, T-shuttle time, Shuttle Run time) during pretests and posttests. Results indicated a significant increase in concentric hamstrings peak torque production (11%) but not eccentric hamstrings peak torque production from the pretest to the posttest. Results indicated a significant decrease in T-shuttle time (7%) but not Shuttle Run time from the pretest to the posttest. Therefore, within the limits of this study a 6-week slideboard training program as a component of a preseason training program will increase concentric hamstrings strength and lateral agility.

Csontos, Christine M. Investigation of marker placement schemes for determining rearfoot motion, 1996. M.S., University of Wisconsin-La Crosse (Marilyn K. Miller). (83pp 1f $4.00) PE 3692

Twelve female recreational runners (mean age=24.5 yrs.) volunteered as Ss to determine whether there were differences in the measurement of rearfoot motion when using three different marker placement schemes during conditions of slow and fast running. Measurement of rearfoot motion consisted of touchdown angle (TA), maximum pronation angle (MPA), and time to maximum pronation (TMP). Ss were filmed running on a treadmill operating at speeds of 3.58 and 2.44 m/s at a 0% grade. The film was transferred to videotape and the ARIEL (APAS) system was used to create a 2-dimensional image of each S while running. A 2-way ANOVA with repeated measures (p<.05) was used to test the hypothesis. Results of the TA indicated significant differences between Schemes 1 and 2 and Schemes 2 and 3 for both slow and fast running conditions. Results of the MPA indicated significant differences between Schemes 1 and 2 and Schemes 2 and 3 for the slow running condition, and between Schemes 2 and 3 for the fast running condition. It appeared that markers placed on the Achilles tendon and the gastrocnemius muscle changed the mechanical axis of the lower leg and significantly influenced the measurement of rearfoot motion. Markers placed exclusively on soft tissue as in Scheme 1 appeared to move equally with similar rearfoot motion measurements as when markers placed on bony landmarks were used.

Eddings, Marc R. Effect of manipulating angle of projection on height of release and accuracy in the basketball free throw: a biomechanical study, 1996. M.A., California State University, Chico (Jackie L. Hudson). (47pp 1f $4.00) PE 3695

Biomechanical research has exposed two characteristics of skilled shooters: a high release point and a medium to high angle of projection. The purpose of this experimental study was to determine if angle of projection could be increased following a short training session and to explore the effect of manipulating angle of projection on height of release and accuracy. Twenty-two subjects, randomly assigned to a control or experimental group, participated in individual pre-tests to determine angle of projection, height of release, and accuracy. Free throws were videotaped and Peak Motion Measurement Analysis two-dimensional software was used to digitize and analyze the kinematic variables. One week later, subjects in both groups were given individual post-tests. The post-test for members of the experimental group included specific instruction during which verbal cues were provided to increase the subject’s angle of projection. Members of the control group received no instruction. T-tests revealed no significant differences (p=.49) between groups on the three variables during the pre-test. T-tests on the post-test data revealed significant differences between the groups on angle of projection (p=.000) and height of release ratio (p=.02). No significant difference was found with regard to accuracy.

Enomoto, Kaori. Kinematic and electromyographic analysis of backhand strokes in tennis players with and without lateral elbow pain, 1997. M.S., Oregon State University (Rod A Harter). (93pp 1f $4.00) PE 3696

Despite dramatic changes in tennis equipment and technique, more than 30% of recreational tennis players suffer from lateral elbow pain (“tennis elbow”). Certain kinematic and electromyographic characteristics in backhand strokes have been implicated as major factors responsible for lateral elbow pain. From a local tennis club, 22 recreational players who were rated 3.0 to 5.0 skill level (intermediate to advanced) by United States Tennis Association criteria participated in this study. Either one handed or two-handed backhand ground stroke techniques were used by the subjects according to their preference. Half of the subjects for each technique had lateral elbow pain related to playing tennis. Four groups (one-handed and two-handed technique with and without elbow pain) were analyzed in terms of kinematic and electromyographic characteristics. A three-dimensional kinematic analysis was performed using data obtained with 60 Hz videography. Electromyographic data were collected using a telemetered electromyography (EMG) system at 100 Hz.
through surface electrodes. Two-way ANOVA was used to analyze the data statistically to determine the relationship between these factors and the incidence of lateral elbow pain. Statistically significant differences (p<.10) were found for both the kinematic and EMG parameters with respect to backhand technique and elbow pain. The larger joint angular displacements observed in the one-handed backhand technique suggested that players who use the one-handed technique have a greater chance of lateral elbow pain because of a more unstable joint angle (loose packed position) at impact. A matching pattern of the peak elbow angular velocity and the racquet linear velocity was found in the no pain groups for both backhand techniques. Subjects with elbow pain may have modified their stroke to accommodate for the pain they experience. The EMG results were not in complete agreement with previous studies which reported larger wrist extensor EMG values in the one-handed backhand compared to the two-handed backhand stroke. The results of the present study indicated no significant differences were present for wrist extensor EMG values between the two techniques (p>0.10). Differences in subject demographics and EMG data collection methods in the present study are likely responsible for this lack of agreement. However, the no pain groups in both techniques demonstrated higher wrist extensor EMG activity, which agreed with previous reports. Future investigations should include statistical analysis of the differences in movement velocity within the three phases (preparatory, acceleration, and follow-through) of both the one-handed and two-handed backhand tennis strokes.


The purpose of this study was to determine the kinematics of normal and surgically repaired knee menisci during knee flexion through use of magnetic resonance imaging (MRI). The study was also designed to determine the clinical and functional outcomes of surgically repaired meniscus patients. Eleven normal subjects (7 males and 4 females) with no history of knee injury or pathology and 8 male meniscal repair subjects (average 3.8 years postsurgery) were examined by MRI. Average age of the normal and meniscal repaired subjects was 25 (postsurgery) were examined by MRI. Average age of the females) with no history of knee injury or pathology and 8 meniscal patients. Eleven normal subjects (7 males and 4 clinical and functional outcomes of surgically repaired (MRI). The study was also designed to determine the knee flexion through use of magnetic resonance imaging of normal and surgically repaired knee menisci during The purpose of this study was to determine the kinematics meniscal repair in the knee, and 6 mm, respectively. The mean composite MMX movements for the normal and repaired meniscal subjects was 8.22+2.73 mm and 5.91+.96 mm, respectively. Composite LMX movement was not significantly different between the normal and repaired groups, but composite MMX movement was significantly greater (p=.03) for the former. LMX and MMX anterior and posterior horn movements were not significantly different between the normal and meniscal repaired subjects except for the MMX posterior horn. Clinical and functional assessments of the meniscal repaired subjects revealed that the majority of subjects demonstrated normal clinical examinations and were able to resume premorbid functional activity levels. Within the limitations, delimitations, and research findings of this study, it was concluded that LMX repair results in normal composite and horn movement whereas MMX repair does not. However, LMX and MMX repairs do result in a clinically intact knee which has a positive functional outcome.

Hawes, Brandon P. Isokinetic evaluation of the shoulder rotators of competitive trap shooters, 1995. M.A., California State University, Fresno (Jacobo Morales). (59pp 1f $4.00) PE 3704

Seventeen male Trap shooters exposed to chronic shotgun recoil (1,000+ targets per month for 5 years or more) volunteered to participate in an investigation to establish the effects of chronic recoil upon the shoulder girdle musculature. Tests included bilateral goniometric measurements of shoulder ROM and isokinetic evaluation of rotator peak torque (PT) strength. External/internal ratio of muscle balance (ER/IR) and time rate of tension development (TRTD) were calculated from measurements of PT. Paired t tests revealed significant differences (p<.05) between shoulders for ROM during internal rotation (IR) and PT generated during IR at 300 deg·s⁻¹. ER/IR was established at 70.2% in the dominant arm and 80.5% in the nondominant, and a significant difference (p<.05) was identified in ER/IR as velocity of contraction increased. It was concluded that chronic shotgun recoil influences shoulder rotational ROM and ER/IR ratio but does not seem to affect rotational peak torque strength.

Hembree, Judith Ann. Three-dimensional analysis of stroke gait: a comparison of household ambulators, community ambulators, and normals, 1995. Ph.D., Texas Woman’s University (Jerry D. Wilkerson). (135pp 2f $8.00) PE 3705

The purpose of this study was to compare five biomechanical variables of gait among three groups: (a) subjects with hemiparesis due to stroke who are household ambulators, (b) subjects with hemiparesis due to stroke who are community ambulators, and (c) a control group with no incidence of stroke. Ten stroke and 10 normal subjects ranging in age from 43 to 82 years were filmed in the
Biomechanics Laboratory at Texas Woman’s University. Reflective markers were placed on lower extremity bony landmarks to identify lower extremity articulations. Subjects walked at a self-selected comfortable pace. Video data were collected with the Peak5 Motion Measurement System (Peak Performance Technologies, Inc, 1993). The Peak5 automatic digitizing module was used to determine three-dimensional coordinates of the lower extremities. These coordinates were used to calculate three kinematic variables: (a) velocity, (b) symmetry of swing time, and (c) symmetry of step length. Raw force data were collected with an AMTI (Advanced Medical Technology, Inc., 1991) force platform and recorded using the Peak5 analog sampling module. The Peak5 force platform analysis module was used to calculate two kinetic variables: (a) vertical impulse and (b) time for the fore-aft component of the ground reaction force to cross the force baseline as a percentage of the stance time. The null hypotheses of no difference among groups were tested using the Kruskal-Wallis one way analysis of variance by ranks. Post hoc comparisons were made using the Z statistic. The alpha level was adjusted from .05 to .01 to reduce the chance of incurring a Type I error with multiple comparisons. Four of the variables, velocity, swing symmetry, vertical impulse, and time for fore-aft component to cross the baseline, did show significant differences among groups. Post hoc comparisons, however, showed differences only between the household ambulator and normal control groups. There were no significant differences between the household and community ambulator groups or between the community ambulator and normal groups.

Imamura, Rodney T. A kinematic comparison to two styles of judo leg sweep in the major outer leg reap: Osotogari, 1996. M.A., California State University, Fresno (Tim R. Anderson). (36pp 1f $4.00) PE 3708

Ten black belt participants performed the Osotogari throw two times, once using a plantarflexed sweeping style and once using a dorsiflexed sweeping style. Differences in power between the two styles were inferred from the data and analyzed using a 2 x 3 x 4 factorial ANOVA with repeated measures on the last factor.で Anonymous, Karakostas, Tasos Biomechanics of the running gait of recreational runners who are blind, 1993. M.S., Michigan State University (John L. Haubenstricker). (281pp 3f $12.00) PE 3710

The purpose of this study was to analyze and compare selected kinematic and kinetic variables of the running gait of recreational runners: those who were blind and those who were sighted. The subjects consisted of two individuals whose age at onset of blindness was before five years, three individuals whose age at onset of blindness was after five years, and two individuals who were sighted. Age ranged from 36 to 47 years. Subjects who were blind ran using a guide cable. Sighted subjects ran under three conditions: naturally, using a guide cable, and blindfolded using the guide cable. Kinetic data were collected on six successful trials that ranged from 2.4 to 3.8 m/s. An AMTI force platform was used to obtain ground reaction forces. High-speed cinematography was used to obtain body motion and position information for five trials. Comparisons of performance were made among the groups for footstrike, mid-stance, and toe-off. Runners who were blind were less efficient in their running technique than sighted runners. Runners whose age at onset was before five were less efficient than runners whose age at onset was after five. Conclusions could not be drawn for the blindfolded runners.

Orendurff, Michael. The effect of mountain bicycle fork stiffness on impact acceleration, 1997. M.S., Oregon State University (Gerald A. Smith). (82pp 1f $4.00) PE 3721

Mountain bike suspension forks have been developed to reduce the accelerations transmitted to the rider. However, the effectiveness of suspension forks has not been systematically investigated. It was the goal of this project to quantify the amount of impact acceleration damping afforded by three stiffness settings of suspension forks compared to rigid mountain bike forks. Seven experienced mountain bike riders gave their informed consent to participate in the study. The subjects coasted down a ramp and impacted a bump at 5.4 m/s located about 2.3 m past the ramp end. Accelerometers were placed on the axle and frame of the bicycle which was fitted with either a rigid fork (FR) or suspension forks set on soft (F1), medium (F3), or firm (F6) stiffness. Bumps were either small (B1), medium (B2) or large (B3). Accelerometer data were telemetered to a computer, sampled at 1000 Hz and smoothed with Butterworth filter with 50 Hz cutoff. Peak acceleration during impact (P1) and landing (P2) as well as the slope of the impact acceleration peak (jerk, J) were extracted from the data and analyzed using a 2 x 3 x 4 repeated measures ANOVA for each of the dependent variables (P1, P2, J), and with linear contrasts as follow-up tests. A significance level of p<.01 was chosen. All forks were found to produce similar impact acceleration (P1) at the axle and frame on the small bump (B1). On larger bumps (B2 and B3), softer suspension forks (F1 and F3)
significantly reduced acceleration transmitted to the rider during bump impact (P1), while maintaining significantly higher axle acceleration than other forks (p<.001); Jerk was significantly reduced at the frame compared to the axle for each suspension fork with the larger bumps. Landing impacts (P2) were of similar magnitude for most fork conditions at both the axle and frame. It appears from these data that suspension forks with moderate stiffness may provide the best impact acceleration damping for mountain bikes encountering impacts with characteristics similar to the bumps and velocity used in this study. It is unclear how these results generalize to other conditions encountered while riding.

Serra, Christopher. *A kinetic analysis of the one-arm shoulder throw by judo players of varying skill levels*, 1993. M.S., Slippery Rock University (Thomas K. Lambert). (42pp 1f $4.00) PE 3729

The purpose of this study was to analyze and compare the kinetic differences in the throwing technique, Ippon Seoi Nage, between players of advanced Judo experience and players of novice Judo experience. A total of eight subjects were selected to participate in this investigation. Four pairs were established; one group of advanced Judoists and one group of novice Judoists, each pair weighing within five pounds of one another. Each subject performed the throwing technique once, while standing upon a multi component force measuring platform. Integral values were deduced from the force versus time graphs created by the systems software. The integral values from each pair were compared using a two-tailed Wilcoxon matched-pairs signed-ranks test. The results of this study indicated that there was a significant difference in the vertical impulse of force graphs produced between players of advanced Judo experience.

Shannon, Bradley J. *A cinematographical investigation of the rising fastball*, 1995. M.S., Slippery Rock University (Nelson Ng.). (96pp 1f $4.00) PE 3730

The purpose of this study was to investigate the trajectory of an overhand fastball, via 16-mm film analysis, as performed by members of the Slippery Rock University Baseball pitching staff to determine if there is a significant difference between predicted vertical displacement and observed vertical displacement. Six right-handed pitchers participated in the study. The difference between predicted vertical displacement and observed vertical displacement of fast-pitched baseballs was examined. Mean vertical displacements were utilized for analysis of the data. A Wilcoxon’s T-test was administered to determine the significance of the data. The analysis of data indicated that there was no significant difference between the mean amount of predicted vertical displacement and the mean amount of observed vertical displacement of an overhand fastball due to gravity and initial velocity.

Sidhilaw, Suwat. *Kinetic and kinematic analysis of Thai boxing roundhouse kicks*, 1997. Ph.D., Oregon State University (Gerald A. Smith). (147pp 2f $8.00) PE 3732

The purpose of this study was to determine kinetic and kinematic characteristics of Thai Boxing Roundhouse Kicks. In order to measure the kinetic variables of peak force and impulse, a triaxial accelerometer was inserted into a kicking bag. The force data were derived from the known mass and measured acceleration of the kicking bag. Validation testing comparing applied forces to estimated forces based on accelerometers output showed this instrument provided accurate estimates of the force applied to the kicking bag (r=.99). The MacReflex motion analysis system was utilized with three cameras operating at 120 frames per second to obtain the kinematic characteristics of final linear velocity of the kicking ankle, linear velocity of the kicking ankle and knee, angular velocity of the knee, and the angular velocity of the shank and thigh projected onto the horizontal plane. The subjects were ten male Thai Boxing performers with 8 to 48 months of training experience. The kicking trials were conducted at three height levels. It was hypothesized that the peak force, impulse, and the final linear velocity of the kicking ankle at impact would be greater for the lower level of kicks as compared to the higher level of kicks. It was also hypothesized that peak force and impulse would be positively related the subjects’ leg strength. For the relationship between kinetic variables and kinematic variables it was hypothesized that peak force and impulse would be positively related to the final linear velocity of the kicking ankle. In comparing the roundhouse kick at different height levels the middle level kick generated the greatest peak force and impulse, while the high level kick involved the least force and impulse. The amount of peak force and impulse were directly related to the final linear velocity of the kicking ankle. In comparing the roundhouse kick at different height levels the middle level kick generated the greatest peak force and impulse, while the high level kick involved the least force and impulse. The amount of peak force and impulse were directly related to the final linear velocity of the kicking ankle (r=.86, and r=.79 respectively), but they were not significantly related to the leg strength. This study found that the Thai Boxing roundhouse kick can easily generate enough force to cause neurological impairment, skull fractures, facial bone fractures, and rib fractures. These results suggest that there is a greater need for regulations protecting the competitors in Thai Boxing.

Smith, Susan S. *Investigation of an alternative method to quantify intersegmental lumbar spine kinematics*, 1996. Ph.D., Texas Woman’s University (Jerry D. Wilkerson). (214pp 3f $12.00) PE 3734

The purpose of this study was to explore alternative methodology to characterize selected lumbar spine kinematics. The problem of this investigation was to develop an objective, accurate, and reliable alternative method for determining intersegmental instantaneous axes of rotation (IARs) and range of motion (ROM) in the sagittal plane for the lumbar spine, L1-L2 through L5-S1, using magnetic resonance imaging (MRI). Subjects con-
sisted of 16 asymptomatic and two symptomatic women, aged 21-35 years, and weighing less than 68.2 kg. Five serial, mid-sagittal MR images the subjects’ lumbar spines in positions from extension through flexion were collected using a 1.5 Tesla magnet. Special computer software was developed and tested for accuracy, intra- and interexaminer and test-retest reproducibility with the images collected. Sagittal images of each lumbar vertebral body from L1 through S1 were digitized in the neutral spine position and templates were created. The templates were superimposed over each successive image. Intersegmental ROM and IARs normalized to the subjacent vertebra were calculated. Combined flexion and extension intersegmental ROM ranged from 5.33° at L1-L2 to 10.84° at L5-S1. Minimal valid IAR data could be obtained except where joint angles exceeded 5° of rotation and vector magnitudes exceeded 1.91 mm. Intraexaminer and interexaminer intraclass correlation coefficients (ICCs) were generally less than .75 for both the ROM and IAR data. Method error coefficients of variation were calculated for test-retest data and were generally greater than 10%. Data collected from the two patients suggested that their lumbar spine kinematics differed from that of the asymptomatic subjects. The results of this study demonstrate that the methods used in this initial effort to investigate an alternative method for determining intersegmental IARs and ROMs in the sagittal plane for the joints of the lumbar spine were generally not successful in achieving the desired criteria. The findings demonstrate problems with determining and interpreting IARs and suggest promising directions for future development in measuring intersegmental lumbar spine kinematics, including more direct measures of zygapophyseal joint movement.

Stannard, Gerard M. The effect of single-leg versus double-leg take-off plyometric training on unilateral and bilateral jump performance. 1996. M.S., Washington State University (Reid P. Elam). (50pp 1f $4.00) PE 3735

The purpose of this study was to determine the effect of single-leg versus double leg takeoff plyometric training on unilateral and bilateral jump performance. Male and female, untrained individuals, ages 18-26 years, were randomly assigned to three training groups: 1) single-leg takeoffs (SL, n=11); 2) double-leg takeoffs (DL, n=11); and 3) a single-leg plus double-leg group (Combo, n=10). Subjects were pre- and post-tested for performance on vertical jump (VJ), single leg vertical jump (SLVJ), and standing triple jump. Post-test only integrated electromyography (EMG) recordings were obtained on the gastrocnemius and vastus medialis muscles during the VJ and SLVJ. Significant increases in performance (p<.05) occurred for the SL and Combo groups for SLVJ, and for all groups for VJ. No differences were observed for the DL group for the SLVJ and the Combo group for the STJ. Performance was significantly different between the SL and DL groups for SLVJ but for VJ or STJ. Significant differences in motor unit activation were observed between the SL and Combo groups for the gastrocnemius but not the vastus medialis muscle in the VJ and SLVJ. These observations indicate that single-leg training produced significantly higher performance increases than double-leg training for a unilateral jump test; both types of training were beneficial for significantly increasing bilateral jump performance; and single leg plus double-leg training was beneficial for increasing unilateral and bilateral jump performance. However, more time may be needed for this group to realize greater significant increases.


Slips during walking are one of the leading causes of falls and injuries in older adults. The purpose of this study was to investigate the neuromuscular balance control mechanisms in response to various slips in young and older adults. The intent was to characterize the dynamic postural control mechanisms in this context as well as the effects of the normal aging process on this control. When young adults experienced a forward slip suddenly occurring at heel strike, their typical balance responses consisted of an early activation of bilateral anterior leg muscles as well as the anterior and posterior thigh muscles of both lower extremities. The activation of trunk muscles was not as frequent as that of the leg muscles. In response to the same anterior slip, older adults activated similar muscle groups. However, they were more likely to use arm movements in an attempt to stabilize the upper body. Older adults also differed from young adults in exhibiting longer onset latency, longer burst duration, and smaller burst magnitude in their muscle responses. Both age groups, however, showed a predominant distal-to-proximal muscle activation sequence. Comparisons of the postural responses to slips occurring at heel strike versus midstance revealed that both older and young adults were able to modulate their postural responses according to the different times at which a slip occurred during the gait cycle. Both age groups showed less frequent activation of most of the investigated muscles in midstance slips compared to heel strike slips, indicating that the heel strike slips were more challenging than the midstance ones. The age differences on the phase-dependent modulation of postural responses were primarily found in the modulation of the use of muscle groups, muscle burst duration and burst magnitude, but not in muscle onset latency. In particular, from the heel strike slips to the midstance slips, young adults modulated their postural responses by decreasing burst duration and magnitude; whereas older adults modulated the responses primarily by decreasing the burst duration. These findings suggest that both older and young adults...
can adjust their postural responses to different balance threats during walking, but they may adopt different neuromuscular mechanisms to make this adjustment.

**SPORTS MEDICINE**

Busby, Meredith A. *A retrospective study: the relationship between mechanism of injury, gender, femoral notch width and forefoot varus or valgus to acute anterior cruciate ligament rupture*, 1996. M.A., University of North Carolina at Chapel Hill (William E. Prentice Jr.). (45pp 1f $4.00) PE 3686

Prevention of anterior cruciate ligament (ACL) injuries may be possible if predisposing conditions can be identified. The purpose of this study was to determine the relationship between femoral notch width, forefoot to rearfoot relationship and the risk for non-contact acute ACL ruptures. The subject pool included 40 subjects (10 ACL deficient males, 10 ACL deficient females, 10 normal males, and 10 normal females). The forefoot to rearfoot relationship was measured with a goniometer and the femoral notch width was measured using plain radiographs. The intratester reliability for the two measuring techniques was high (r=.868, r=.919). Overall, none of the variables were significantly different from one another.


Anterior cruciate ligament (ACL) rehabilitation protocols have evolved rapidly over the past 15 years, making the nature of rehabilitation following surgical repair controversial and varied, based on the philosophies of the physician and the therapist/trainer. A survey of current techniques being used in ACL rehabilitation has not been conducted since 1984; moreover none could be found that involve athletic trainers in their unique setting. The purpose of this study was twofold: (a) to develop a survey of athletic trainers working with National Collegiate Athletic Association (NCAA) Division I-A football teams and National Football League (NFL) teams, regarding techniques used during ACL rehabilitation; and (b) to compile, analyze, and present the survey findings. Data obtained from an 82% return rate for the 136 surveys sent indicated several new recommendations. Of particular interest was the optimal time frame for initiation of jogging, which may help decrease rerupture rates.

Eber, Teresa. *Body composition responses to 12 weeks of training on various modes of home exercise equipment in sedentary adults*, 1996. M.S., University of Wisconsin-La Crosse (Jeffrey Paul Steffen). (44pp 1f $4.00) PE 3694

This study compared body composition responses as a result of 12 weeks of training on various home exercise equipment. Ninety-Four sedentary adults ranging in age from 23 to 49 years were randomly assigned to 1 of 5 groups: stationary bicycle (B=19); cross country ski simulator (XC=22); motorized treadmill (T=21); hydraulic stepper (S=15); or control (C=17). Data collected on subjects included various circumference measurements and body composition before and after training. Experimental groups trained 3 days a week, 30-45 min per day, at 81.1-87.1% HRmax. Triceps measurements were significantly (p<.05) decreased in male B group, and female B, XC, and T groups from pre-to posttest. The male B and XC groups significantly (p<.05) decreased chest measurements. Waist measurements were significantly (p<.05) decreased in the male B, XC, and T groups, and female B and XC groups. All exercise groups excluding the female B group significantly (p<.05) decreased hip measurements. Thigh measurements were not significantly (p>.05) altered in any of the groups. Subjects weight was significantly (p<.05) decreased in the B, XC, and T groups for both males and females. Males significantly (p<.05) decreased percent body fat by 8.1% (26.0% to 23.9%) in the B group, 10.3% (28.1% to 25.2%) in the XC group, 10.2% (27.4% to 24.6% in the T group, and 9.0% (25.6% to 23.3%) in the S group. Females significantly (p<.05) decreased percent body fat 4.6% (38.0% to 36.2%) in the B group, 6.6% (33.2% to 31.0%) in the XC group, and 4.5% (35.1% to 33.5%) in the T group. All male experimental groups were significantly (p<.05) different from the C group. There was no significant (p>.05) difference detected between groups for female groups.

Greicar, Margo B. *Immediate and delayed effects of cryotherapy on functional power and agility*, 1996. M.Ed., Temple University (Zebulon V. Kendrick). (71pp 1f $4.00) PE 3702

The purpose of this study was to determine the immediate and delayed effects of cryotherapy treatment on functional power and agility. Twenty-eight subjects (14 females and 14 males) volunteered to participate in this study. All subjects denied history of injury to the hip, knee, lower leg, and ankle and contraindications to cryotherapy prior to admittance to this study. Subjects completed 2 randomly ordered treatment conditions: cryotherapy and no cryotherapy. The cryotherapy treatment condition consisted of bilateral leg immersion 5 cm above the superior pole of the patella in a 1 C ice bath for 20 minutes. The no cryotherapy treatment condition consisted of no ice bath immersion. Subjects performed 3 trials of the vertical jump and 3 trials of the carioca timed test at 5 different intervals (test, immediately following treatment, and at 15, 30, and 45 minutes following treatment), respectively. Averages of the 3 trials for the vertical jump and carioca timed test were used as the criterion scores. A 2 X 5 analysis of variance with repeated measures for 2 levels of treatment and 5
levels of time was used to examine the immediate and delayed effects of cryotherapy on vertical jump height and the carioca timed test. A probability level of ≤0.05 was considered significant. A significant interaction was observed for vertical jump height with the greatest decrease (8.1 cm [31%]) from the pretest score occurring immediately following cryotherapy. Comparing treatment conditions, vertical jump heights were reduced by 18, 14, and 12% at 15, 30, and 45 minutes following cryotherapy treatment, respectively. A significant interaction between treatment and time was observed for the carioca timed test. The time to complete the carioca timed test increased immediately following cryotherapy by 1.8 seconds (21%). No differences between treatment conditions were observed at 15, 30, and 45 minutes following treatment. The results of this study indicate that bilateral application of cryotherapy to the lower legs reduces functional power immediately following and for at least 45 minutes following treatment. Functional agility is also adversely affected immediately following cryotherapy treatment.


Considerable research has been done to establish protocols for assessing postural control. The purpose of this study was to determine if there is a significant relationship between three variations (tandem, single leg-eyes open and single leg - eyes closed) of the Romberg test and the Sensory Organization Test (SOT) on the NeuroCom Equitest System. This study also focused on determining which of the subjective Romberg tests used in this study best predicts the scores on the SOT. Thirty-seven volunteers (14 men and 23 women) of various athletic ability were tested using three variations of the Romberg test and the SOT. Pearson’s Correlation results revealed a significant relationship between the number of touch-downs (TD’s) recorded during the tandem Romberg and both the composite score and the vestibular preference ratio of the SOT (r=-.484 and r=-.412; p<.05). A multiple regression using the number of TD’s for the three Romberg tests to predict the composite score on the SOT revealed a significant R-squared value of .280, F(3, 33)=4.272; p=.0118. It further revealed a significant R-squared value of .239, F(3, 33)=3.451; p=.0275, when the tandem, single leg - eyes open and single leg - eyes closed Romberg tests were performed to predict the vestibular preference ratio on the SOT. A simple regression run to predict the composite score and the vestibular preference ratio by using the number of TD’s during the tandem Romberg test revealed that the tandem Romberg test accounts for 23.4% of the variance, F(1, 35)=10.69, p=.0024, in the composite score and for 17.0% of the variance, F(1, 35)=3.122; p=.0111 in the vestibular preference ratio. The most important finding of this study was that the tandem Romberg test appears to have clinical application as the best indicator or predictor of most of the objective measures of balance.


The evaluation of the results of rehabilitation after knee surgery is critical. The purpose of this study was to determine the relationships that exist between limb symmetry index scores (LSIS) on three one-legged functional tests and LSIS on isokinetic concentric and eccentric average force at 90 degrees per second of quadriceps and hamstringis in anterior cruciate ligament patellar tendon graft (ACL-PTG) reconstructed knees. Thirty patients with a mean age of 25.6 years (range 16-33) from Hand and Orthopaedic Rehabilitation Associates of Raleigh, North Carolina, were randomly selected. Subjects were evaluated on distance for the following functional tests: 1) anterior hop; 2) posterior hop; and 3) anterior balance reach. Isokinetic testing was performed on a Kin-Com. Moderate correlations were noted between LSIS on concentric quadriceps average force and LSIS on hops in the anterior (r=.492; p=.0057) and posterior directions (r=.408; p=.0254). A negative relationship was found between LSIS on eccentric hamstrings average force and LSIS on anterior balance reach (r=-.382; p=.0373).

Mortimer, Brian K. Prediction of percent body fat in 18-26 year old men by skinfold caliper and underwater weighing methods, 1996. M.S., Slippery Rock University (Frances J. Brannon). (52pp 1f $4.00) PE 3718

The purpose of this study was to determine whether or not significant differences occurred in prediction of percent body fat as measured by a skinfold caliper (SC) on the right and left sides of the body compared with predictions obtained from underwater weighing (UWW). Twenty male, college student, age 18-26 participated in this study. The subjects volunteered by signing a sheet that was placed at the main desk of the Russell Wright Fitness Center. The 20 subjects were given individual appointments and reported to the West Gym swimming pool at Slippery Rock University for data collection. A repeated measures ANOVA was utilized, at the .05 level, to determine if there was a significant difference between the mean percent body fat attained from underwater weighing and the 7-site skinfold method on the right and left sides of the body. No significant differences were found to exist in prediction of body fat as measured by UWW, SC on the right and left sides of the body. A Pearson Product Moment Coefficient of Correlation was utilized to see if relationships were found between UWW, SC on the right.
and left sides of the body in prediction of body fat. At the .05 level, significant positive relationships were found between UWW, SC on the positive relationships were found between UWW, SC on the right and left sides of the body in prediction of percent body fat.

Oliaro, Scott M. The establishment of normative data on cognitive neuropsychological tests for comparison with collegiate athletes sustaining mild head injuries, 1996. M.A., University of North Carolina at Chapel Hill (Kevin M. Guskiewicz). (77pp 1f $4.00) PE 3719

The purpose of this study was to collect normative data on four cognitive tests for comparison with athletes sustaining mild head injuries (MHI). The mean scores for each test on each of three test dates were calculated as well as standard deviations and ranges. Additionally, a repeated measures ANOVA was calculated indicating significant learning effects on all tests except the HVLT. Correlational analysis indicated that there was a high correlation between the Stroop and the Trail Making tests. Analysis also indicated that all four tests were correlated with overall cognitive performance. This normal data can be used as a comparison to provide an objective measure of an athlete's cognitive ability following MHI. Through the addition of these cognitive tests to other physical and neurological tests, the decision to return an athlete to competition following MHI can be made with improved confidence and with less likelihood for reinjury.

Oliver, Pamela L. The effect of subtalar neutral support orthoses and forefoot/rearfoot post support orthoses on peak vertical pressures and peak vertical forces of human gait in relation to time, 1996. M.S., Slippery Rock University (Nelson Ng). (94pp 1f $4.00) PE 3720

The purpose of the study was to compare the peak vertical pressures and peak vertical forces of gait in relation to time during three conditions: (1) no orthotics, (2) forefoot/rearfoot post support orthotics, and (3) subtalar neutral support orthotics. Fourteen subjects who did not present with forefoot or rearfoot valgus deformities and had no previous history of foot orthoses utilization served as subjects. All subjects were tested with the Tekscan System (Boston, MA) for each of the three conditions. Vertical pressure-time curves and vertical force-time curves were acquired for three distinct stance phases of the individual's gait cycle. A two way ANOVA repeated measures design was used to analyze data at the .05 level of significance. The results revealed a significant difference existed in time to peak vertical forces and time to peak vertical pressures between the non-orthotic supported gait and both orthotic conditions. However, these numbers are small and it is important that they be put into perspective. Therefore when viewed clinically and practically orthotics have little effect on the time to peak forces and time to peak pressure during gait.

Schmalbach, Lisa A. Factors that predispose injuries in athletes who utilize wheelchairs, 1996. M.S., University of Wisconsin-La Crosse (Patrick DiRocco). (56pp 1f $4.00) PE 3727

The purpose of this study was to determine factors that predispose injuries in athletes who compete from a wheelchair. Athletes competing in basketball, tennis, bowling, quad rugby, and track and field were mailed questionnaires. One hundred and eleven (91M, 20F) responses were obtained. The average age of the athletes was 32.33±9.19 and they had been competing for 8.22±5.62 years. ANOVA was used to determine if the number of minor or significant injuries differed between sports. Results show that basketball players experienced a higher number of minor injuries than tennis players or bowlers. ANOVA was used to determine if body mass index (BMI), gender, coaching, and competitive years had an effect on the total number of injuries received during a 2 year period. No significant differences were found. In summary, the prevalence of minor injuries in basketball players when compared to tennis players and bowlers was significantly higher. Other trends were noted when looking at how BMI, competitive years, and coaching impacted on the total number of injuries reported. Further studies are needed before conclusions can be drawn in these areas.

Stout, Stephanie F. Athletic injury prevention and care among Washington High Schools: differences according to size school, and use of athletic trainers and team physicians, 1996. M.S., Purdue University (Marlene K. Tappe). (93pp 1f $4.00) PE 3737

This was a cross-sectional study of 314 athletic directors from high schools in the state of Washington. The primary purpose of this study was to describe the athletic injury care provided for high school athletes in the state of Washington. The secondary purpose of this study was to determine how this athletic injury care differed according to the size of the high school and the use of athletic trainers and team physicians. The initial mailing in February 1996, included a cover letter, questionnaire, and a stamped return envelope. There were two follow-ups. Two-hundred thirty-seven athletic directors responded to the questionnaire (75%, n=237). The results of this study were based on descriptive statistics and Chi-Square analyses. A statistical significance of p<.05 was established. This study found there is inadequate athletic injury care provided in high schools in the state of Washington. Although 35% of schools had an ATC, less than 25% physicians attended practices and scrimmages of all sports. Schools which had an athletic trainer utilized the athletic trainer for the care and prevention of injuries and attendance at practices and games significantly more often than schools which did not have an athletic trainer. Similarly, if the school had a team physician, the school was more likely to have an athletic trainer responsible for these duties. If the school did not
have an athletic trainer or team physician, the coach was responsible for the care and prevention of injuries. Larger schools were more likely to have both athletic trainers and team physicians than smaller schools. Smaller schools utilized coaches, EMTs and ambulances to cover practices and games more often than larger schools. This study determined the importance of utilizing team physicians, athletic trainers, and establishing an emergency medical plan. There is a need for further research to determine the athletic injury care provided in high schools nationwide and the effectiveness of athletic trainers in injury prevention.

Trulock, Scott C. A comparison of static, dynamic, and functional methods of objective balance assessment, 1996. M.A., University of North Carolina at Chapel Hill (Kevin M. Guskiewicz). (56pp 1f $4.00) PE 3740

The decision to return an athlete to participation following mild head injury or lower extremity injury has often been left to subjective methods in the past. The development of objective balance measurement systems which utilize Computerized Dynamic Posturography (CDP) allow for the quantification of balance performance. While the objectivity of these tests has been demonstrated, the ability of these tests to assess an athlete’s functional balance capabilities has not been demonstrated. In order to determine the functional balance assessment capabilities of systems which utilize CDP technology, the performance of 30 male subjects tested on the Chattec system was compared to their performance on a Fastex system test and the Modified Bass test. The test on the Fastex and the Bass test were used to demonstrate functional balance capabilities, as they incorporate anticipated locomotion. Statistical analysis suggest that although the Chattec is an effective test for objective balance assessment, it did not demonstrate the ability to determine the subjects’ functional balance capability. Testing on systems which utilize CDP should therefore be followed by functional tests which incorporate anticipated locomotion prior to returning an injured athlete to participation.

Ubinger, Mary E. Effect of closed kinetic chain training on neuromuscular control in the upper extremity using the Functional Activity System for Testing and Exercise (FASTEX), 1996. M.A., University of North Carolina at Chapel Hill (William E. Prentice, Jr.). (44pp 1f $4.00) PE 3741

The purpose of this study was to investigate the effect of a four week closed kinetic chain training program on the neuromuscular control of the upper extremity. Thirty-two normal, physically active subjects between the ages of 18 and 23, participated in the study. Subjects were randomly divided into two groups: The Training Group (n=16) and the Control Group (n=16). All 32 subjects were tested twice on the FASTEX and a stability index was recorded as the dependent variable. The Training Group participated in a four week, three times per week closed kinetic chain training program. The Control Group did not participate in the training program, between the two FASTEX measures. A mixed model (I between, 2 within) repeated-measures ANOVA revealed a statistically significant group by test interaction. Additionally, main effects were revealed for test and arm (skill-dominant vs. non-dominant). It was concluded that closed kinetic chain training significantly improved the Training Group’s ability to remain stable, decreasing the stability index for the post-test. The non-dominant limb tested significantly better for all Training Group subjects, suggesting an increased accuracy of joint position sense due to increased stimulation of the mechanoreceptors which may be attributed to closed kinetic chain training.

**PHYSIOLOGY AND EXERCISE EPIDEMIOLOGY**

Barnes, Patricia M. Exercise-induced muscle soreness following high-intensity eccentric weight lifting, 1996. M.S., California State University, Fresno (Richard W. Francis). (44pp 1f $4.00) PH 1516

This investigation was aimed at isolating individuals with a predominance of fast twitch muscle fibers and establishing whether they experience greater delayed onset muscle soreness response to high-intensity eccentric weight lifting than individuals with a predominance of slow twitch muscle fibers. The results of the two-way (group x time) ANOVA with multiple comparisons across time indicated no significant differences between groups for DOMS in the pectoralis major or triceps. Additionally, ANOVA revealed no significant interaction effect between the groups and DOMS in the pectoralis major or triceps. Significant differences were only observed through t-tests for paired samples for DOMS differences over time in the pecs (p<.028) and triceps (p<.047) between 24- and 72 hours; and an even greater difference in both muscle groups (p<.000) between 48- and 72 hours.

Beck, Belinda R. The relationship of streaming potential magnitude to strain and periosteal modeling, 1996. Ph.D., University of Oregon (Louis Osternig). (259pp 3f $12.00) PH 1517

Tibial overuse injuries may arise following load-induced adaptive bone modeling and remodeling. The mechanism by which bone senses and adapts to its strain environment is enigmatic. While a dose-response relationship exists between the magnitude of applied strain and bone adaptation at the organ level, the absence of maximal tissue response at the site of maximal strain suggests that strain
does not directly stimulate bone. Bioelectric environment modifications consequent to induced strain, effected by streaming potentials, may be the basis of signal transduction. To evaluate streaming potentials as a possible signal transducer, the purpose of the study was to establish the relationship of streaming potential magnitude to bone strain magnitude. Turkey ulnae osteotomy preparations were subjected, in vivo, to axial and bending loads. Streaming potentials were measured from known sites of minimum and maximum engendered strain. Results revealed, at 1 Hz loading, a moderately strong, positive relationship exists between strain and streaming potentials at sites of minimum and maximum strain under bending loads, and at the maximum strain site under axial loading. Streaming potential differences between sites of maximum and minimum strain under bending and axial high load conditions, however, were not significant. Findings suggest that while streaming potentials exhibit a relationship with strain, an observation which is intuitive, the relationship is complex. Increased intramedullary pressure during loading may modify strain gradient-derived fluid flow, thereby altering streaming potentials, particularly at sites of compression. Intracortical, segment-specific zona potential variations may also possibly effect variations in streaming potential expression across bone sections. It is concluded that adaptive responses of bone to chronic loading do not directly reflect transcortical streaming potential magnitudes. Consequently, the use of electrical modalities for the treatment of tibial overuse injuries gains no direct support from these data.


The purpose of the study was to determine if the water exercise program utilized by Routi et al. (1994) would improve the muscular strength, muscular endurance, and cardiovascular function of elderly inner city adults. Ten elderly (mean age 70.5 ± 1.8 years) inner city African American women participated in a 10-week water exercise program. Muscular strength was evaluated by right and left hand-grip strength and the maximal amount of weight that could be lifted through the correct range of motion for the biceps curl, bench press, and leg press muscle groups. Muscular endurance was determined by timed repetitive shoulder vertical abduction/adduction and horizontal abduction/adduction maneuvers in the water. Cardiovascular function was determined using a graded treadmill test and a timed walk test in the water. The water exercise program was conducted twice a week for 10 weeks and consisted of: a 10-minute warm-up, a series of conditioning exercises which progressed from 15 minutes during Week 1 to 45 minutes during Weeks 5 to 10, and a 5-minute cool-down. Subjects exercised between 50 and 75% of their functional capacity determined from the graded treadmill test. Data were analyzed by paired t-Tests with significance determined at a probability level of .05. Significant improvements in muscular strength were observed for the right hand-grip (10.0 ± 1.0 to 12.4 ± 1.8 psi), and left hand-grip (10.4 ± 0.5 to 13.0 ± 0.7 psi), biceps curl (17.8 ± 1.9 to 23.5 ± 1.8 lbs), and leg press (117 ± 6.2 to 152 ± 6.3 lbs). No significant improvement in the bench press was observed (56.7 ± 4.7 to 60.6 ± 2.9 lbs, p < .09). Timed shoulder horizontal abduction/adduction (185.0 ± 31.5 to 417.7 ± 70.9 sec) increased significantly with a nonsignificant increase of 35% for the timed shoulder vertical abduction/adduction (230.6 ± 47.4 to 310.3 ± 77.0 sec, p < .06). Peak oxygen uptake did not significantly increase. The heart rate response to the timed water walk was significantly lower at the posttest (95.2 ± 6.5 to 84.0 ± 6.2 beats·min⁻¹). It was concluded that water exercise improves muscular strength and endurance while maintaining cardiovascular function in elderly inner city African American women.


The purpose of this study was to measure the catecholamine (norepinephrine and epinephrine) responses of 10 pregnant women in the 20 to 30 week gestation period performing aerobic dance and treadmill walking exercises at similar maternal heart rates. In addition, an attempt was made to determine if catecholamine levels had any differing effect on fetal heart rates during aerobic dance. Catecholamine levels were measured prior to exercise and at minutes 20, 30, and 40 of exercise, using standard HPLC methodology with electrochemical detection. An association between maternal catecholamines and maternal and fetal heart rate responses during exercise was evident. Therefore, aerobic dance at 40% VO₂max elicited the same catecholamine response as treadmill walking at 60% of capacity. However, statistical analysis did not show any effect between the 2 exercise trials and the catecholamine responses.

Bressel, Eadric. *Anaerobic power, leg volume, and muscle composition as factors influencing efficiency of cycle ergometry*, 1995. M.A., California State University, Fresno (Jacobo Morales). (72pp 1f $4.00) PH 1520

Sixteen male cyclists participated in an investigation to establish how anaerobic power, leg volume, and muscle composition (%FT) influence exercise efficiency. Participants completed two separate 16-min exercise bouts on a cycle ergometer set at 1 kp and 2.5 kp, respectively (80 rpm). At Min 5 of each trial, participants attempted a 30-s Wingate test, after which the resistance was set back to 1 kp or 2.5 kp. From absolute VO₂ readings and cumulative
external work (EW), gross efficiency (GE%) was calculated (EW/VO2) before and after the anaerobic effort. T tests revealed that regardless of workload GE% pre was greater than all post values (p<.000). ANOVAs and correlations failed to establish %FT as a factor influencing efficiency. Significant correlations were established between GE% and leg volume (cm3; r=-.501, -.683; p<.05, .01) and body mass (kg; r=-.517, -.711; p<.05, .01). It was concluded that an all-out anaerobic effort decreases GE% due to a carry-over effect of excess gross VO2.


Fencers train equally as hard as other athletes, yet little is known about the nutritional patterns of fencers. Thus, nutritional habits and nutritional intakes (3 day recalls) of 28 collegiate fencers (13 men and 15 women) were examined. The results indicated 75% consumed 3 meals per day. However, the general eating habits were erratic; 86% routinely snacked. The fencers macronutrient composition was 14% protein, 57% carbohydrates (30% from simple carbohydrates), and 29% fat. Protein intake average 1.9 g/kg for both genders with red meat and poultry, the primary sources. Women received a larger portion of their calories from saturated fat. Less than 30% of fencers were found to be deficient in any vitamins or minerals. Iron and calcium intakes were above the RDA, with only 10% being deficient. These results indicate that these fencers have an irregular eating pattern, but generally have good nutritional status.

DeJong, Glenna K. The role of oxygen delivery in limiting the immediate adjustment of oxygen uptake during the transition from rest to submaximal exercise, 1994. Ph.D., Michigan State University (William Heusner). (105pp 2f $8.00) PH 1522

The purpose of this investigation was to determine the effects of increased and decreased O2 delivery on the rate of adjustment of VO2 at the onset of aerobic exercise. Graded levels of lower body positive and negative pressure were used in an attempt to increase and decrease blood flow to working arm muscles. Seven healthy subjects performed a rest-to-exercise transition on an arm ergometer under each of five experimental pressures (-40, -20, +20, +40 mm Hg and ambient pressure). Each ten-minute bout of submaximal exercise was preceded by ten minutes of rest, divided into five minutes at ambient pressure and five minutes at the experimental pressure. Limb circumferences, heart rate, VO2, mean arterial pressure and forearm blood flow were measured. Application of lower body negative pressure resulted in graded translocation of blood volume from the upper to the lower body and graded increases in heart rate which reached statistical significance at -40 mm Hg. Mean arterial pressure and blood flow were not statistically altered, although blood flow decreased an average of -21.5% and -23.4% at -20 and -40 mm Hg, respectively. Application of lower body positive pressure (+20 and +40 mm Hg) resulted in graded translocation of blood volume from the lower to the upper body. Heart rate and oxygen consumption were unaffected, while mean arterial pressure was greater than that seen at both -20 and -40 mm Hg. Decreases of -3.5% and -7.3% in forearm blood flow were detected at +20 and +40 mm Hg respectively. No statistically significant differences were detected in either t or MRT, the kinetic parameters used to assess the rate of VO2 adjustment. Multiple correlation shows that experimental lower body pressure and forearm blood flow are more strongly correlated with MRT (R=.45, P<.05) than they are with t (R=.28, P=.05). The coefficient of determination (R2) indicates that the parameters experimental pressure and forearm blood flow together account for approximately 20% of the total variance in MRT. Individually, the contribution by forearm blood flow was statistically significant (P<.05), but the contribution by experimental pressure was not.


Calcium channel blockers (CCB) was studied extensively in cardiology for their tissue protective effect following myocardial infarction; we hypothesized that administration of a CCB would interfere with the processes that result in exercise-induced muscle damage (EIMD) and delayed onset muscle soreness. To investigate the effects of a CCB on a development and recovery from EIMD, we used a double blind, placebo controlled protocol to administer CARDIZEM CD, 240 mg/day, for 6 days to 30 college age males and females. To induce EIMD, subjects performed 4 sets of 10 repetitions of squat, leg press, leg extension, and leg curl. We observed no treatment related difference in CPK or DOMS levels. Overall, peak quadriceps force (PQF) were not different between the Placebo and Diltiazem groups, but PQF was significantly greater in the Diltiazem groups immediately after the weight lifting bout. Average quadriceps force (AQF) values decreased in both groups following the exercise bout; however, no difference existed between the groups (p>.05). The Diltiazem group PQF and AQF values returned to the pre-exercise levels 24 hours earlier than did the Placebo group. Neutrophils decreased by 21% in the Diltiazem group compared with a 1.4% increase in the Placebo group, due to large variability in the neutrophil count at the baseline, this difference was not significant. Lymphocytes were not affected by CCB treatment. Administration of diltiazem did not interfere with the development of EIMD as measured by CPK release and the DOMS scores. Diltiazem appeared to affect quadriceps force generation immediately following the weight lifting bout and to speed the recovery of muscle force to pre-exercise level in our sample of college age
adults. Heart rate was significantly lower in the Diltiazem group after the administration. There was no difference in either systolic or diastolic blood pressure after the administration between the Diltiazem and Placebo groups. The incidence of side effects was very low and similar in both groups. The administration of this dose and preparation of diltiazem does not change heart rate or blood pressure in a clinically significant fashion, and was well tolerated in our sample of college age adults.

Dwyer, James W. The validity of a simulated forcible entry test for fire fighters, 1996. M.S., Dalhousie University (Ron Pelot, John McCabe). (149pp 2f $8.00) PH 1524

Fire fighting is widely viewed to be one of the most dangerous and physically demanding of all the emergency services. Fire fighting, by its inherent nature, lends itself to require both physically and mentally well conditioned employees. Over the past three decades there has been an increase in the development of simulated fire fighting circuit tests. These circuits were developed to condition, screen and train fire fighters in order to improve their skills and to decrease the risks of injury. The purpose of this study was to examine the validity of the forcible entry component of Department of National Defence’s (DND) circuit test. Twenty male DND fire fighters from 12 Wing Shearwater in Nova Scotia, wearing the full fire fighter turnout clothing, completed eight forcible entry tasks and six one page questionnaires for this study. The eight tasks were divided into two sets: SET 1 (task 1-4) had the subjects complete 10 swings on the reinforced structure and on a weighted tire; SET 2 (tasks 5-8) had the subjects move the weighted tire various distances as part the Simulated Forcible Entry Test (SFET). There were seven measurements collected during the eight tasks in the study: (1) task completion time, (2) number of swings, (3) distance the tire moved, (4) speed of the hammer head, (5) heart rate, (6) force, and (7) perceived exertion and similarities between the tasks. A randomized complete block design ANOVA was completed to test for significant differences and a day effect analysis using a General Linear Model was completed for all the performance data and normalized heart rates. Significant differences at p≤0.05 were examined post hoc using Duncan’s Multiple Range Test. Responses to individual questions in the questionnaires were summarized by question and then grouped into four main topic areas: task difficulty, strength requirement, tiredness, and similarity. Friedman’s Nonparametric ANOVA was then completed to test for significant differences between the tasks for each topic area. Significant differences at p≤0.05 were examined using Friedman’s post hoc comparison test. Hitting the tire was determined to be not significantly different to hitting the reinforced structure. The physiological response, performance measures, and perceived exertion and similarities were equivalent when the subjects completed 10 swings on the reinforced structure and on the tire. The more appropriate distance for the SFET was shown to be 30 cm. The 15 cm distance was too short in duration, did not force the subjects to take very many swings and the subjects did not show a sufficient increase in heart rate. On the other hand, the 45 cm distance did not provide an appreciable advantage over the 30 cm distance in terms of physiological response, performance, or perceived difficulty. It also seemed appropriate to use the standard issue 4.54 kg sledge hammer for the SFET because the subjects had similar performances compared to the 5.6 kg sledge hammer. In conclusion, based on all of the information presented in this study, the investigator demonstrated that the parameters for SFET make it a “bona fide” test of a real life task that fire fighters must complete in their job.

Earhart, Michael G. The acute effect of walking with hand-held weights upon the heart rate and blood pressure responses of 20 to 24 year-old females, 1995. M.S., Slippery Rock University (Gary S. Pechar). (51pp 1f $4.00) PH 1525

The investigation examined the effect of using hand-held weights while walking on heart rate and blood pressure of 25 volunteer females at Slippery Rock University. Mean increase responses in heart rate and systolic blood pressure, and mean diastolic blood pressure response changes were compared. Significant differences (P<0.05) were found with mean heart rate and mean systolic blood pressure increase responses when carrying five pound weights versus no weight or three pound weights, and between carrying three pound weights, and between carrying three pound weights and no weight. Diastolic blood pressure changes revealed significant differences between carrying five or three pound weights versus no weight, but no significant difference was indicated between carrying three and five pound weights. The following conclusions appear warranted within the limitations of the investigation. The analysis of the data indicated that using hand-held weights while walking will significantly increase heart rate, systolic and diastolic blood pressure.

Fahrner, Cheryl L. The effect of a moderate intensity, prolonged exercise bout on serum levels of testosterone and sex-hormone binding globulin, 1996. M.A., University of North Carolina at Chapel Hill (Anthony C. Hackney). (79pp 1f $4.00) PH 1526

The purpose of this study was to examine the effects of a moderate intensity, prolonged exercise bout on serum levels of total testosterone, free testosterone, and sex-hormone binding globulin (SHBG) in addition to investigating the effects of exercise on the binding affinity of the SHBG protein. The subjects (n=10) exercised at a mean of 64% VO2max for 45 minutes. Blood samples were obtained and analyzed immediately pre and immediately post exercise. Hemoconcentration effects were examined and post values for total testosterone and SHBG were corrected for plasma volume shifts. Using an ANOVA, significant
increases (pre vs. post exercise) were detected in total testosterone (13% increase) and free testosterone (39.6% increase) with no associated significant changes in SHBG levels or SHBG binding affinity. Additionally, the relative increase in free testosterone was found to be significantly greater than the relative increase in total testosterone. The results suggest that the increases in total testosterone and free testosterone were due to an increase in production or a decrease in metabolic clearance rate and not an effect of a decrease in binding affinity of the SHBG protein.

Higdon, Jane V. Effects of acute heavy resistance exercise on serum insulin-like growth factor-I and insulin-like growth factor binding protein-3 levels in older men and women, 1997. M.S., Oregon State University (Daniel P. Williams). (41pp 1f $4.00) PH 1527

The purpose of the present study was to assess changes in circulating levels of insulin-like growth factor-I (IGF-I) and insulin-like growth factor binding protein-3 (IGFBP-3) resulting from a single session of heavy resistance exercise, in previously inactive men (n=9) and women (n=6) between the ages of 50 and 60. Acute changes in IGF-I and IGFBP-3 were assessed in order to provide information useful in standardizing blood collection protocols for resistance training studies, with respect to the timing of the last acute exercise session, and to determine whether the acute changes in IGF-I or IGFBP-3 after heavy resistance exercise are sufficient to be considered a putative humoral mechanism contributing to increases in muscular strength and fat free mass, associated with resistance exercise training. Participants performed 3 sets of 6 repetitions of 6 resistance exercises, at an intensity of 85% of 1-repetition maximum (1-RM) with 3 minutes rest between sets. Serum IGF-I concentrations were measured by radioimmunoassay after acid ethanol cryoprecipitation. IGFBP-3 concentrations were measured using a 2 site immunoradiometric assay. All post exercise values for IGF-I and IGFBP-3 were corrected for plasma volume change, estimated from hemoglobin and hematocrit. A single bout of heavy resistance exercise in 50 to 60 year old men and women did not result in any significant changes from baseline in plasma volume adjusted-serum IGF-I (143±43 ng/mL, pre-ex; 143±37, post-ex; 138±37, 12h; 137±35, 24h; 140±35, 48h; p=.32) or serum IGFBP-3 (2617±412 ng/mL, pre-ex; 2594±370, post-ex; 2636±390, 12h; 2558±417, 24h; 2617±360, 48h; p=.72) concentrations over a 48 hour period. The changes in IGF-I and IGFBP-3 concentrations over time did not differ by gender. The apparent lack of change in IGF-I and IGFBP-3 concentrations following a single session of acute resistance exercise does not preclude the possibilities that resistance exercise may augment the mitogenic effects of IGF-I through proteolysis of the IGF-I-IGFBP-3 ternary complex or that resistance exercise may increase tissue sensitivity to circulating IGF-I levels. Data from the present study suggest that post-resistance exercise training samples for basal serum IGF-I and IGFBP-3 could be collected as early as 12 to 24 hours after the last acute bout of resistance exercise.


The study compared the physiological responses between HealthRider exercise and treadmill walking/running. Ten volunteer female students (mean age=24±3.2) served as Ss. On the first day, Ss completed a maximal treadmill test. The subsequent two days involved 6 submaximal exercise bouts on the HealthRider, utilizing a combination of three different arm/leg positions (LLRA=lower leg rear arm, LLFA=lower leg front arm, and ULFA=upper leg front arm), performed at an elevated and nonelevated position (elevated position is defined as placing a 6” riser under the front end of the HealthRider). Each bout lasted 5 minutes with a 5-minute rest period between each exercise bout. There was a significant (p<.05) main effect for position, with the LLFA position producing significantly lower HR, VO, and RPE values than either LLRA or ULFA. Results were consistent for both the no elevation and elevated positions. On average, Ss exercised at 71% of HRmax and 52% of VO2max, at an average RPE of 12. For all positions, the predicted VO2 that would have been elicited on the treadmill at a same HR from the HealthRider was higher than that achieved on the HealthRider. However only the ULFA, LLRAE, LLFAE, and ULFAE positions were significantly (p<.05) different. The results of this study indicate HealthRider exercise is capable of providing only a relatively low intensity aerobic workout and furthermore, the HR/VO2 relationship during HealthRider exercise is different than that of treadmill exercise.


The aim of the current study was to determine the effects of exercise (weight-lifting or running) and dietary calcium source (calcium citrate malate (CCM), or milk) on bone growth and calcium absorption in young female rats. Six groups of ten weanling rats per group (N=60) were randomly assigned to combinations of no exercise (sedentary), treadmill running, or weight-lifting coupled with diets containing milk calcium or CCM. Femur measurements performed included dry and ash weight, length, circumference, and calcium and phosphorous contents. Bone mineral density (BMD) and bone mineral content (BMC) were quantified using a dual energy x-ray absorptiometry scanner. Metabolic studies were conducted to determine calcium absorption. Results of the 2x3 analysis (MANOVA) revealed no significant interactions between diet and exercise (F=0.84, p>.05). Weight-lifting
significantly decreased calcium absorption (27.39%) compared with treadmill running (30.34%) and no exercise (31.24%, p<.05). Milk-fed rats had significantly higher osteocalcin levels (126.9 ng/ml) compared with CCM-fed rats (102.0 ng/ml; p<.05). Calcium and pyridinoline concentrations were statistically similar for the milk-fed rats (105.9 mg/femur and 236.64 nM/mM) compared with the CCM-fed group (102.6 mg/femur and 193.7 nM/mM, respectively). Bone formation (osteocalcin) was significantly greater for the milk diet even though BMD and BMC were not significantly different between groups.


This doctoral dissertation project examines the relationships between the elastic and physicochemical properties of cortical bone as well as the efficacy of the use of recombinant human growth hormone (hGH) as a treatment to counter the effects of hormonal growth disruption (dwarfism) in a rat model. The goals of the project are to refine the ultrasonic elasticity technique for use with small specimens (<1.0 mm) and determine if the administration of hGH can counter the degenerative elastic and physicochemical characteristics of cortical bone resulting from hormonally-suppressed downregulation. Ultrasonic wave propagation and density measurements were used to determine the three-dimensional material properties of rat femoral cortical bone. X-ray powder diffraction, morphometry, and biochemical analysis techniques were used to describe physicochemical properties including mineral crystal size, cortical porosity, and mineral and nonmineral content. Microstructural characteristics were also explored via scanning electron microscopy. Mathematical relationships between the local physicochemical (independent variable) and elastic (dependent variable) properties have been formulated via linear and nonlinear regression analysis. Generally, apparent density was found as the highest correlate with most of the Young’s and shear moduli (R²=0.300 to 0.600). Concomitantly, mineral crystal width and porosity offered the closest descriptions of Poisson’s ratios (R² up to 0.600). These correlations contribute to the fundamental relationships between microstructure and material properties within cortical bone. Evaluation of the changes due to the treatment of dwarfism with hGH have also been quantified. Wilcoxon t-tests verified a significant decrease in the elastic properties in dwarf rat cortical bone after hGH treatments (p<0.05). Physicochemical measures of bone quality (density, crystal size) generally decreased while measures of bone quantity (cortical area, moments of inertia) generally increased (p<0.05) after hGH treatments. Some mineral and nonmineral properties were unchanged. The unique contributions of this project are determination of a quantifiable link between cortical bone elasticity and its composite construction and determination of elasticity and physicochemical changes between dwarf bone and hGH treated dwarf bone. The methodology for the measurement of orthotropic elastic constants of small bone specimens is proven to be a unique and valuable research tool. The clinical importance of this study determines that the treatment of pituitary dwarfism with hGH increases bone formation and alters bone elastic characteristics.

Lovitt, Michelle L. The effects of caffeine on lipolytic activity during walking in untrained females who are naive or habitual caffeine consumers, 1995. M.A., California State University, Fresno (Donald C. Diboll). (71pp 1f $4.00) PH 1531

Ten untrained females participated in an investigation aimed to determine if caffeine consumption affected lipolytic activity during treadmill walking. The specific problems were to determine if caffeine significantly (p<.05) enhanced the concentration of FFA and significantly lowered the RER in untrained women. Secondly, determine if, as a result of caffeine ingestion, there was a significant difference between FFA and RER in the untrained women who are naive compared to those who are habitual caffeine consumers during treadmill walking. Sixty minutes before the test began, subjects ingested artificially sweetened lemonade with (treatment) or without (control) the addition of 400 mg of a caffeine anhydrous. An Omnibus MANOVA revealed that there were no significant differences between groups in either FFA or RER data. Therefore, within the parameters of this study, caffeine as an aid for health-related benefits, specifically a reduction in body fat, is not effective.

Marcuk, Devon J. The effects of ergogenic aid supplementation on aerobic economy in competitive long-distance runners, 1996. M.Ed., Western Washington University (Lorraine Brilla). (152pp 1f $8.00) PH 1532

The purpose of this investigation was to examine the effects of ergogenic aid supplementation on aerobic economy in endurance trained athletes. Twenty-two (11 males and 11 females) competitive long-distance runners (mean age 20.3±1.5 years) volunteered for the investigation. Following a double-blind format the subjects were randomly assigned to two different formulations of complex ergogenic aids. All subjects completed baseline testing, including height, weight, maximal voluntary ventilation (MVV), and a 13 minute treadmill run to determine aerobic economy (steady-state VO₂), pulmonary ventilation (V̇₁), and heart rate (HR). MVV and V̇₁ were used in the calculation of breathing reserve (BR). After 3 weeks of supplementation the subjects completed the same laboratory tests followed by a cross-over to the other treatment for an additional 3 weeks and post-tests. During each supplementation period a 3-day diet history was kept by each subject and analyzed using the Nutritionist III (Silvertown, OR) software. Based on the diet analyses, all subjects were magnesium replete. An independent t-test revealed a
significant difference (p<0.05) in magnesium concentration between the two ergogenic aids. A repeated measures ANOVA indicated no significant differences (p>0.05) between the various measures of VO2, VE, HR, BR, or performance time. Overall, the results of this investigation suggest that ergogenic aid supplementation may not improve aerobic economy in magnesium replete competitive long-distance runners.

Mende, Gent N. *A comparison of the effects of stretch duration and repetitions on hamstring extensibility*, 1997. M.S., Oregon State University (Anthony Wilcox). (56pp 1f $4.00) PH 1533

The increase in tissue extensibility and joint range of motion through stretching has often been demonstrated. However, the existence of an optimal stretch duration has not been proven and the identification of an ideal number of repetitions of a stretch has received little attention in the literature. The purpose of this study was to examine and clarify the relationship of duration and number of repetitions of a stretch and their effect on changes in hamstring extensibility (HE) resulting from a stretching program. The HE of 33 subjects who were randomly assigned to a control group or one of three treatment groups was assessed before and after a three-week stretching program. The subjects in the three treatment groups stretched once a day, five times a week, and either once for 15 seconds (1 x 15), twice for 15 seconds (2 x 15), or once for 30 seconds (1 x 30). A repeated measures ANOVA showed no statistically significant effect for treatment group (P=0.181) or for treatment by pre- and post treatment measurements (P=0.140), but indicated a significant difference between pre- and post-treatment measurements (P<0.001). The HE of the control group (which did not stretch) changed only slightly (0.9°, SD 5.7), the 1 x 15 and 1 x 30 groups improved more clearly (4.2°, SD 3.1 and 3.8°, SD 6.7, respectively), and the 2 x 15 group’s HE increased the most (6.8°, SD 3.9). The results suggest that varying durations and repetitions of a stretch may influence the magnitude of improvement of HE. However, with the relatively low power (0.46) in the present study, no statistically significant difference between stretching protocols of 1 x 15 seconds, 2 x 15 seconds, and 1 x 30 seconds could be found.

Murr, M. Scott. *Effects of continuous heart rate monitoring on cycling time trial performance times*, 1993. M.S., Slippery Rock University (Frances J. Brannon). (73pp 1f $4.00) PH 1534

The purpose of this study was to investigate the effects of continuous heart rate monitoring on 40 kilometer cycling time trial performance times. Because endurance athletes are beginning to use heart rate monitors in training and racing, it was important to determine their value in endurance performance. Ten endurance athletes volunteered for participation in this study. Subjects completed a 40 kilometer time trial for time on a stationary mag turbo trainer. Subjects used speed, time, distance, rate of perceived exertion, general fatigue, localized fatigue, and ventilatory rate as feedback cues for pacing. Seven to 10 days later, subjects repeated the 40K TT. In addition to the traditional cues for pacing, subjects were able to monitor performance intensity with the continuous feedback of a heart rate monitor. Data obtained from the pre test time trials and post test time trials were statistically analyzed utilizing a t-test for dependent samples. The results of this investigation indicated that continuous heart rate monitoring did not improve 40K cycling time trial performance times.

Murray, Jock. *The effects of exercise on humoral immunity in BALB/c mice*, 1995. M.S., Dalhousie University (Phil Campagna). (90pp 1f $4.00) PH 1535

The objective of this study was to determine the effects of exercise on immune responses in mice and the influence of adjuvant on these effects. 74 BALB/c mice were divided into four groups. Group 1 was an exercise group which was immunized with adjuvant while Group 2 was sedentary and immunized with adjuvant. Group 3 was treated as for group 1 but no adjuvant was used. Group 4 was treated in the same manner as group 2 except for the lack of adjuvant. Animals in the exercise groups were exercised five days a week for 25 minutes on a treadmill at a velocity of 24m/minute over four weeks. Immunization was performed with ovalbumin intraperitoneally one week after the beginning of training and then again three weeks after initiation of exercise for both the exercised and sedentary groups. Groups 1 and 2 were immunized with adjuvant while no adjuvant was used in groups 3 and 4. Antibody production was measured using an ELISA assay. Significantly higher antibody titers were produced to the injected antigen 14 post immunization in the exercised animals who did not receive adjuvant relative to unexercised controls. However, no difference was seen between the two groups that did receive adjuvant. The Mann-Whitney rank sum test was used for statistical analysis. Exercise training was found to alter immune responses in BALB/c mice. This effect is masked by the stimulating effect of Freund’s Complete Adjuvant.

Nichols, David L. *Resistance training and bone mineral density in adolescent females*, 1996. Ph.D., Texas Woman’s University (Charlotte F. Sanborn). (140pp 2f $8.00) PH 1536

The purpose of this study was to examine the effects of 5 months of resistance training on bone mineral density (BMD) in female adolescents. An additional purpose was to determine if any significant predictors exist for BMD. Females between the ages of 14 and 17 with at least 2 years of regular menses were randomly assigned to either a training (n=13) or control group (n=12). Bone mineral densities of the lumbar spine, femoral neck, and total body were determined using dual energy x-ray absorptiometry (DXA) (Lunar DFX). Body composition was determined...
using the total body scans done with the DXA. Strength was assessed using one repetition maximums for the leg press and bench press. The training group trained 3045 minutes a day, 3 days per week using 15 different resistance exercises designed to train major muscle groups of the back, chest, legs, arms, and shoulders, while the control group remained sedentary (<2.5 hours per week of exercise). At baseline, mean age, height, weight, and menarche did not differ between the groups (15.6±0.7 yr, 160.3±6.5 cm, 67.0±19.3 kg, and 12.4±0.9 yr, respectively) nor did BMD at any site. After 5 months, strength increased 15-20% in the exercise group but there were no changes in body composition in either group. Total body BMD increased significantly in the training group (1.150 to 1.160 g/cm², p<.05) but not in the control group (1.102 to 1.106). No significant changes were seen in either group in lumbar spine or femoral neck BMD (1.160 to 1.176 and 1.054 to 1.054, respectively). In conclusion, resistance training may be a viable method of increasing bone density in adolescents.

Payne, Susan G. The effects of weight training on bone mineral density of premenopausal females, 1995. Ph.D., Texas Woman’s University (Charlotte F. Sanborn). (132pp 2f $8.00) PH 1537

The purpose of this study was to determine the effects of a 6-month weight training program on the bone mineral density (BMD) of premenopausal females. There were 28 experimental participants and 19 controls. BMD and body composition were measured using dual energy x-ray absorptiometry (Lunar DPX). The strength training consisted of high resistance, high volume exercises which produced compression force through the vertical vector of the body. Also measured were 1 repetition maximum (RM) strength values, Insulin-like Growth Factor 1 (IGF-1), and a 3-day dietary record. Multivariate analysis of covariance was used to determine if differences existed between groups in mean lumbar and femoral neck BMD. A multiple correlation was used to determine if a relationship existed between 1 RM of the back and lumbar BMD and leg press 1 RM and femoral BMD. For the experimental group, 1 RM of the back and leg press increased 25% and 21% respectively. There were no significant differences between the groups for any of the adjusted mean BMD posttest measures after the 6-month training period. No relationships were observed between 1 RM strength measures and bone mineral density at the corresponding sites. The average dietary calcium intake for both groups was 50% of the RDA. It is likely that a periodic change in weight lifting exercises and a RDA level of dietary calcium intake is necessary to induce significant increases in BMD. Overall, a high-intensity weight training regimen for 6 months produced no significant increase in BMD in premenopausal women.

Reynolds, Heather D. Physical characteristics including strength, flexibility and body anthropometry of sport climbers at the recreational and elite levels, 1995. M.S, Dalhousie University (Phil Campagna). (90pp 1f $4.00) PH 1538

With the increase in popularity of rock climbing, it is a field of increasing interest to sport scientists. It was the intention of this study to examine the physical characteristics, including upper and lower body strength, flexibility and body anthropometry. Of the 56 volunteers, 20 elite and 14 recreational male climbers and 8 elite and 11 recreational female climbers participated in the study during a course of 3 weeks in Boulder, Co. The variables measured included height, weight, arm length, shoulder breadth, leg length, sum of skin folds, grip strength to weight, shoulder strength to weight, leg power and hip and groin flexibility. The variable of arm and shoulder length was divided by body height to determine the ratio of arm span to height. The results of the t-tests indicated that the upper body strength to weight ratios were significantly different between the elite and recreational groups, for both the male and female groups. The variables of sum of skin folds and abduction were not significantly different between the two groups and no significant differences in age, weight, height, arm, shoulder and leg length was divided by body height to determine the ratio of arm span to height. The results of the t-tests indicated that the upper body strength to weight ratios were significantly different between the elite and recreational groups. The discriminant function analysis discriminated between upper body strength, abduction and sum of skin folds for both the male and female groups. This supported the findings of the t-test.

Soine, Mary J. A longitudinal study of aging and muscular endurance in women., 1996. M.S, University of Wisconsin-La Crosse (Nancy K. Butts). (80pp 1f $4.00) PH 1539

The changes that occurred in upper and lower body muscular endurance (ME) in women 12 yrs after participating in a 12-week resistance training program were investigated. From the group of 68 Ss in the initial training program, 29 Ss volunteered to participate in a follow-up study. ME was assessed on 8 different Nautilus weight machines utilizing a maximum repetition test at a resistance predetermined in the original study. Changes in ME among original pretest, original posttest, and current test were analyzed with a 1-way REANova and Tukey’s post hoc test. All current ME measurements were significantly (p<.001) greater than their respective pretest measurements, but significantly (p<.01) lower than posttest measurements in 5 of the 8 exercises. A 2-way REANOVA was used to determine the influence of continued resistance training and age upon changes in ME. There was no significant (p>.05) interaction for age or continued resistance training. However, the group who had not participated in any resistance exercise since the original study experienced greater declines in ME than the group who had been involved in resistance exercise within the last 5
Strayton, Daniel C. *Creatine supplementation and its effects on anaerobic capacity, muscular strength and body composition,* 1996. M.A, University of North Carolina at Chapel Hill (Robert G. McMurray). (55pp 1f $4.00) PH 1540

Creatine supplementation and it's effects upon body composition, anaerobic capacity and muscular strength (Under the direction of Dr. Robert G. McMurray.) Eighteen college-aged males received a creatine supplement (Creatabolin C-10, 7.5 g/day) or a placebo (500 mg saccharine) for 3 weeks. Subjects were measured for body weight (BW), total body water (TBW), percent bodyfat (BF), muscular strength and anaerobic power. The creatine group had an increase of 1.2±.9 kg BW after 11 days with only a 1.1±1.0 kg increase by the end of the three weeks. This was greater (p<.05) than the control group. TBW of the creatine group increased 1.5±1.4L by the mid-point with an overall increase of 1.33±1.4L by the end of the 21 days. This increase in TBW by the mid-point was greater than the control group (p<.05). No significant effects occurred for any components measured during the six 10-s. sprints on a cycle ergometer or maximal bench press. These results suggest that creatine supplementation increases body weight through an increased water retention, but does not provide any significant ergogenic effects.

Wagner, Mark E. *The effects of hydraulic resistive simulated climbing on cardiorespiratory fitness in college men and women,* 1995. M.S, Slippery Rock University (Frances J. Brannon). (54pp 1f $4.00) PH 1541

The purpose of this study was to determine the effects of hydraulic resistive simulated climbing training upon the cardiovascular fitness of college aged men and women. The investigation included 27 college men and women enrolled at Slippery Rock University. These individuals were divided into two groups. The experimental group was comprised of 16 college men and women enrolled in the personal physical fitness classes at Slippery Rock University, and engaged in the hydraulic resistive simulated climbing study. The study consisted of 15 minutes of hydraulic resistive simulated climbing for nine weeks with a frequency of three sessions per week. The intensity of the hydraulic resistive simulated climbing was 5-65% of heart rate reserve. The control group consisted of 11 college men and women who were not enrolled in the personal physical fitness classes at Slippery Rock University and did not participate in the hydraulic resistive simulated climbing. All subjects were evaluated by a pre-test and a post-test by utilizing the YMCA protocol for the stationary exercise bike established for cardiovascular testing. A dependent t-test was utilized to determine if there were any significant cardiorespiratory training differences between pre and post scores within the experimental group and the control group. An independent t-test was utilized to determine if there were any significant difference in cardiorespiratory training between the experimental and the control group. The hypothes were tested in the null form at the .05 level of significance. The observed results indicated that there was no significant differences in predicted Max VO₂ within the experimental and the control group, and there were no significant differences after the nine week training program between the experimental and the control group. It was concluded that 15-minute sessions of hydraulic resistive simulated climbing at 50-65 % of heart rate reserve, three times a week for nine weeks was not effective in increasing cardiorespiratory endurance in college men and women.

Welker, Eric J. *Lower leg strength in athletes with and without exercise induced leg pain,* 1996. M.A, San Jose State University (Robert Kersey). (96pp 1f $4.00) PH 1542

Twenty athletes without (control=20) and 21 athletes with (test=21) a history of exercise induced leg pain (EILP), had reciprocal sagittal plane ankle strength isokinetically tested at 60, 90, and 120 deg/s using a Cybex II. Groups were compared on mean torque strength ratios. A repeated measures nested-factorial analysis of variance (alpha=.05) and Fisher’s Least Significant Difference (LSD) Multiple-Comparison Test (alpha=.05) were conducted. ANOVA results indicated the main effects of group (ps<.001) and speed (p<.05) were significant. No significant strength differences were found between subjects, within the two groups. Post hoc analysis indicated significant differences between groups at each of the three speeds of testing. The results suggest lower leg strength differences between athletes with and without a history of (EILP).

Wesolek, Brent J. *Development of a VO₂max protocol for cross-country ski racers for use with the NordicTrack 900,* 1996. M.S., University of Wisconsin-La Crosse (William Floyd). (38pp 1f $4.00) PH 1543

The purpose of the study was to develop a VO₂ max protocol for cross-country ski racers for use with the NordicTrack 900 (NT). It was desirable that the values obtained using the NT should compare favorably with VO₂ max values obtained from a treadmill (TM) test in order for it to be considered valid. A protocol was developed from the findings of previous studies and was compared to a modified Balke TM VO₂ max test (self-selected speed with an increase in grade of 2.5% every 2 min). Eight female and 4 male volunteers with a minimum of 2 years skiing experience and 1 year of racing experience served as subjects and completed both the NT and TM tests. There was no significant (p>.05) difference in VO₂ ml·kg·min⁻¹ (52.9 versus 51.3), VO₂ L·min⁻¹ (3.38 versus 3.28),
HEALTH EDUCATION

Buchanan, Hazel A. Ageing women and virility: the value of health promotion for ageing women and the obstacles to its implementation, 1996. M.A., University of Nottingham. (53pp 1f $4.00) HE 572

This paper is concerned with a group who are targeted for their costs to society but for which adequate means of increasing well-being and lowering these costs are not provided. Health promotion, as a part of the Health for All initiative, is a means for society to allow for the increase in quality of life for ageing women. However, the lives of this group are overshadowed by two stereotypes - ageism and sexism. These result in obstacles throughout all facets of ageing women's lives and are a deterrent to the effective inception of health promotion strategies. It is necessary for society as a whole to become involved in improving quality of life for ageing women through changes in attitudes and beliefs and through positive action. Governments must take an active role in implementing policies towards health promotion. Ageing women must themselves believe in the benefits that positive behaviour can become a part of women's lives at all ages.

Buzza, Windsor S. Effects of an educational program on full-time firefighters' total cholesterol:high-density lipoprotein ratio and treadmill time to exhaustion, 1995. M.A., California State University, Fresno (Tim R. Anderson). (51pp 1f $4.00) HE 573

The purpose of this study was to determine the effects of an educational program on full-time firefighters' total cholesterol to high-density lipoprotein (CHOL:HDL) ratios and times to exhaustion on a treadmill. Forty-four male firefighters underwent cholesterol and treadmill testing. Of the 44 firefighters tested, 6 of the 16 with pretest CHOL:HDL ratio values of 4.5 or more, and 8 of the 21 who reported engaging in less than 20 minutes of moderate intensity aerobic exercise three times a week were included in posttesting. Posttesting was conducted approximately 30 weeks following an individual counseling session which focused upon lifestyle modifications to decrease risk for heart disease. The counseling session, combined with four group educational sessions addressing various health-related topics, comprised the educational program. An analysis of the pretest and posttest CHOL:HDL ratios and treadmill times using paired t-Tests revealed no significant differences at the 0.05 alpha level.

Caputo, Jennifer L. Psychological stress, hypertension, and cardiovascular risk in children, 1996. M.S., University of North Carolina at Greensboro (Don Morgan). (121pp 2f $8.00) HE 574
This study investigated the power of psychological stress to predict blood pressure in children. Perceived daily, major, and total stress, resting blood pressure, and several established cardiovascular risk factors (dietary sodium and potassium intake, self-reported parental history of hypertension, physical activity levels, height, body mass, waist and hip circumferences, and triceps and calf skinfolds) were measured in 93 sixth-grade students (mean age=11.8). Body mass index and sodium-to-potassium ratio were significant predictors of diastolic blood pressure, whereas, body mass index was the only significant predictor of systolic blood pressure. The established risk factors of hypertension accounted for 25 to 30 percent of the variance in systolic and diastolic blood pressure. Results from hierarchical regression analyses revealed that the psychological stress variables did not significantly add to the predictive power of the regression models after controlling for the established cardiovascular risk factors. It was concluded that perceived psychological stress is not a significant individual predictor of childhood blood pressure after accounting for known hypertension risk factors.

Dallmann, Carrie A. Women’s physiological responses to a 10 week cardiac rehabilitation program, 1996. M.S., University of Wisconsin La-Crosse (John P. Porcari). (71pp 1f $4.00) HE 575

This study investigated the effectiveness and overall satisfaction of a pilot cardiac rehabilitation program designed for women. The study looked at changes in functional capacity and endurance, body composition, and blood lipids. Ten female cardiac patients who were at least 3 months post cardiac event volunteered to participate in the program. Subjects exercised 3 days per week for 60 minutes at 40-60% of HRR determined from a symptom-limited GXT. Subjects underwent an identical battery of tests before and after the program. The tests were a 6 minute walk test, a single stage treadmill test, body fat via skinfolds, and blood lipids. At the completion of the program a 3 part questionnaire was also completed to assess general preference to participate in a cardiac rehabilitation program. Results were compared with paired t-tests. There were significant improvements (p<.05) in body fat, predicted VO₂ and distance walked in the 6 minute walk test. Body fat decreased 7.9%, predicted VO₂ increased 12.2%, and 6 minute walk distance increased 5.8%. There were no significant differences (p>.05) in body weight, total cholesterol, HDL, LDLs, and triglycerides, however small improvements were seen in all of the variables. Family obligations and clinical depression were the reasons for two women to dropout of the program. The women enjoyed the activities offered, felt the time and location were convenient, and felt no significant changes should be made to the pilot program. These findings indicate that a similarly designed program can positively improve outcome measures, and increase perceived satisfaction and compliance in women who participate in cardiac rehabilitation.

Eggers, Joe M. Corporate health promotion programs in North Central Texas: a descriptive study, 1995. M.S., Texas Woman’s University (Judith A. Baker). (63pp 1f $4.00) HE 576

This descriptive research was conducted to identify characteristics shared by corporate health promotion (CHP) programs as well as the characteristics and professional preparation of individuals responsible for CHP. Data was obtained by a mailed questionnaire to coordinators of CHP programs in the Dallas/Ft. Worth area. Frequencies, percentages and totals for various categories were reported. Spearman Rho correlations were used and tested at the 0.5 level for significance. A significant relationship was found between the coursework/training earned by the respondents and the importance they ascribed to competence in most CHP topics and competencies. Some notable findings included: CPR certification, job experience and program planning/administration were ranked highest in terms of personal expertise among respondents, as well perceived importance for the job of CHP coordinator. Respondents indicated a lack of training and need for more expertise in marketing, counseling/psychology/motivation, computer skills, stress management/relaxation skills, and communication/presentation skills.

Frank, Randall. Impact evaluation of a communitywide intervention to reduce over-the-counter cigarette retail sales to youth in a southwestern Wisconsin county, 1996. M.P.H, University of Wisconsin-La Crosse (Gary Gilmore). (85pp 1f $4.00) HE 577

Over-the-counter (OTC) cigarette retailer compliance checks were conducted to determine the impact of a cigarette retailer and community education program (intervention) on reducing the number of retailers illegally selling cigarettes to youth in La Crosse County, WI. Male and female youth (11-17 yr) were enlisted to attempt cigarette purchases at OTC cigarette retailers categorized as “large store”, “small store”, and “other business”. Eight null hypotheses were examined. Applying the McNemar change test, a statistically significant change (p<.05) was seen between the number of OTC retailers illegally selling cigarettes during the preintervention (n=21) and the postintervention checks (n=9). Applying the chi-square test for independence a statistically significant difference (p<.05) was also seen between the number of large stores (n=2), small stores (n=7), and other businesses (n=3) illegally selling cigarettes to study youth (postintervention). As indexed by Cramer’s statistic the strength of the relationship was .71, suggesting that large stores were less likely to sell cigarettes to study youth (postintervention). A change (reduction), though not
statistically significant, was also seen in the number of small stores, and large stores within their respective categories, preintervention to postintervention. Exploration of the other null hypotheses yielded nonsignificant results. This investigation suggests a cigarette retailer and community education program may reduce the number of retailers illegally selling cigarettes to youth.


The purpose of this study was to investigate what differences exist between 1982 and 1994 middle years students in Saskatchewan schools for selected self-reported health related behaviours concerning a) Diet and Nutrition, b) Exercise and Recreational Activity, c) Health and Safety Attitudes and Practices, d) Personal Feelings and School Experiences, e) Rest, Relaxation, and Stress and f) Health Concerns and Control. Differences between samples of 1994 urban, 1994 peripheral urban and 1994 rural students were also investigated. The study found that the 1994 subjects recorded the highest mean score in three out of six health-related behaviour categories. This included health-related behaviours concerning Health and Safety Attitudes and Practices, Personal Feelings and School Experiences, and Health Concerns and Control. The 1994 peripheral urban sample had highest mean scores concerning Exercise and Recreational Activity, Health and Safety Attitudes and Practices, and Health Concerns and Control. The 1994 urban sample had highest mean scores concerning Exercise and Recreational Activity, and Personal Feelings and School Experiences. The 1982 urban sample had the highest mean score concerning Diet and Nutrition. The highest mean scores were found to be significantly higher. A discussion of the findings was presented. Implications for consideration by health educators, health consultants and school administrators were addressed. A number of recommendations for further study were suggested.

Lenz, Holly H. Factors influencing individual attitudes toward environmental health communications, 1996. Ph.D., Oregon State University (Anna K. Harding). (106pp 2f $8.00) HE 580

The likelihood of achieving an effective environmental health communications program increases with a knowledge of the target audience’s attitudes toward their environmental health concerns, source credibility, preferred channels of communication, and desire to participate in environmental issues. With this in mind, the purpose of this study was threefold: 1) to examine selected personal and social variables that influence attitudes towards environmental health communications; 2) to explore differences in those attitudes between groups that share a common environmental hazard within a defined geographic region; and, 3) to develop a communication needs assessment tool that other public health agencies might be able to use. A stratified random telephone sampling of 407 households was conducted in Idaho’s Coeur d’Alene River Basin. Nonparametric statistical methods, Mann-Whitney U and Kruskal-Wallis one-way analysis of ranks, were utilized for the data analysis. The results, showed significant differences in the environmental concerns between the residents of Coeur d’Alene and residents of the Silver Valley. Respondents in Coeur d’Alene were more concerned with air pollution, while respondents in the Silver Valley were more concerned with the effects of mining. Secondly, the state government was less negatively received as a source of environmental information than was the local or federal governments. In addition, respondents earning between $50,000 and $75,000 a year have the highest amount of trust in information coming from the federal government. Both TV news and local newspaper were the preferred channels of communication for the majority of respondents in the region. Qualitative data revealed that media sources from Spokane, Washington were a dominant influence in the region. Respondents with a college degree were less likely than respondents from other educational levels to prefer TV news as a source of environmental information. They were, however, more likely to participate in a public meeting than were respondents from other educational levels. Finally, research findings suggest that women, and respondents earning less than $10,000 per year, feel less control over their environmental health than do men and respondents from higher income levels. They are also less
likely than either men or respondents earning more than $10,000 per year to feel that a citizen's efforts to protect the environment are usually effective.


This research used M. Van Manen’s 1990 interpretive phenomenological method, and P. Munhall’s 1994 organizing model, to examine and describe what is taken-for-granted in patients’ everyday lived experience of acute physical rehabilitation & recovery. Data were generated by using the researcher’s personal experience; tracing etymological sources; obtaining descriptions from four patients as participants through interviews, artwork, and recording progress in their Creative Journals; and locating verifying descriptions in literary and journaled accounts of physical rehabilitation and hospitalization including Christopher Reeve as a paradigm example. Twelve themes describing the essence of acute rehabilitation & recovery emerged and were presented in an organizing framework of LIVED BODY (profound loss creates vulnerability; paradoxical self-alienation/self-acceptance; bodily preoccupation; embodied multiple challenge—physical, social, emotional, mental, and existential; and paradoxical motivation compromised/motivation sparked); LIVED SOCIAL RELATIONSHIPS (paradoxical dependence/independence/interdependence, and paradoxical connection/disconnection); LIVED SPACE (a paradox of threat/security, and a place of rehearsal for the ‘real world’); and LIVED TIME (a time of metaphoring identity and revitalizing biography; a time of paradoxical expected/unexpected routine; a time contained in a journal and made sense of through art, interview conversation, and journaling; and a time of uncertainty). Participants affirmed the importance of the study as “therapeutic” and results were presented with action-sensitive implications for health care professionals and recreation therapists in their research, teaching, and practice.

Ni, Hanyu Evaluation of the Oregon bicycle helmet use law on bicycle helmet usage and bicycle-related head injuries, 1996. Ph.D., Oregon State University (Annette M. Rossignol). (89pp 1f $4.00) HE 582

The objectives of this study were to 1) assess the effectiveness of the law in increasing helmet use and compare methods of measuring helmet use, and 2) determine the impact of the law on bicycle-related head injury and fatalities. To measure changes in helmet use by children under 16 years of age, we conducted three statewide pre- and post-law surveys: direct observations, telephone surveys of parents, and classroom surveys of students. We identified bicycle-related head injury cases during July 1989 - June 1995 through the Oregon Trauma Registry and Vital Statistical Department. Time series analysis was employed to determine if the secular trend and intervention were actual effects rather than random noise. Observed helmet use increased from 24.5% pre-law to 49.3% post-law (P<0.01). Classroom survey self-reported “always” use of helmets increased from 14.7% to 39.4% afterwards (P<0.01). Younger girls were more likely to comply the law. Helmet ownership increased from 51.5% pre-law to 75.5% afterwards on the student surveys (P<0.01) and from 67.4% to 83.9% on the parent surveys (P<0.01). The increase in helmet ownership was greater among children with low household-income. The results obtained from classroom surveys and direct observations were correlated (r=0.76, P<0.01). The majority of students (87.8%) and parents (95.4%) knew about the Oregon bicycle helmet law, but only half of the students thought the law was a “good idea.” One year after the law was effective, the incidence rate of statewide bicycle related head injury decreased from 3.9 per 100,000 person-years pre-law to 2.9 per 100,000 person-years (P<0.001). The decrease was most profound in children under 16 years of age. For children under 16 years of age, the decreasing trend of bicycle-related head injuries appeared to mirror the increasing trend of helmet usage. We conclude that 1) the law increased helmet use; 2) the law helped reduce the bicycle-related severe head injuries; and 3) although use estimates differ, all helmet surveys showed similar degrees of pre- and post-law change. Our results suggest that the laws may be an effective approach to increase helmet use and reduce head injury in other states.

Pensenstadler, Elaine M. Functional aerobic capacity and anxiety at selected time intervals during a 12-week cardiac rehabilitation program, 1993. M.S., Slippery Rock University (Gary S. Pechar). (47pp 1f $4.00) HE 583

The data collected for this study were obtained at Beaver Medical Center, Beaver, PA. Eighty cardiac rehabilitation patients (males and females ranging in age from 37-76) were evaluated at the beginning, 4th, 8th, and 12th week of a cardiac rehabilitation program. A subgroup of 30 of those patients participated in anxiety analysis by answering the Institute for Personality and Ability Testing Inc. (IPAT) anxiety questionnaire before the program began and at the end of 12 weeks. Functional aerobic capacity was measured by NET level accomplished while exercising on the treadmill. A compliance rate of 75% was achieved. Patients were supervised for 45-60 minutes, during three exercise sessions a week. Anxiety results were analyzed through use of a dependent t-test at the .05 level of significance, and showed no statistically significant decrease in overall anxiety levels by the end of the program. MET level comparisons during each four week interval were analyzed by repeated measures ANOVA and the Scheffé follow up
test was completed to pinpoint significant (p≤.05) differences. NET levels showed significant overall increases during each interval throughout the 12-week program.

Riehl, Gretchen K. Critical care clinic role expectations of Level I respiratory care students, 1995. M.S., Texas Woman’s University (Barbara J. Cramer). (83pp If $4.00) HE 584

Clinical education is an essential part of most allied health education programs, including Respiratory Care Programs, as well as nursing and medical schools. The purpose of this study was to determine the difference between the role expectations of the Level I critical care clinic students and the clinical faculty. The population was identified as all the Level I Respiratory Care students at a large metropolitan community college and the critical care clinical instructors at the same community college. A 30-item investigator-made Critical Care Clinic Role Expectation Inventory (CCCREI) was developed from the clinical scoring tool used at that college. The difference between faculty scores and students were determined by the Mann-Whitney U test. Analysis of data revealed no statistically significant difference in the perceived critical care role expectations between students and faculty.

Sleight, Kristen. The effects that participation in two rehabilitation programs had on body weights, resting heart rates, and resting blood pressures in cardiac patients, 1994. M.S., Slippery Rock University (Frances J. Brannon). (71pp If $4.00) HE 585

The study included 68 cardiac rehabilitation patients from the Indiana University of Pennsylvania’s Cardiac Rehabilitation Program and 33 cardiac rehabilitation patients from the Mars Rehabilitation program. A comparison of the effects that these two 12 week cardiac rehabilitation programs had on body weights, resting heart rates, and resting blood pressures in cardiac patients was examined. Multiple One-Way ANOVA’s and multiple dependent t-tests were utilized to analyze the data. Within the limitations of the investigation, the following conclusions appear warranted. Participants in the Indiana University of Pennsylvania’s program showed no significant decrease in body weights, however, decreases in both systolic and diastolic blood pressures and resting heart rates were significant (p<.05) in this group. Participants in the Mars Rehabilitation program showed a significant (p<.05) decrease in body weight, however, resting heart rates and resting blood pressures showed no significant decrease. In comparing results for the Indiana University of Pennsylvania’s program with those from the Mars Rehabilitation program, significant (p<.05) differences were found in resting diastolic blood pressures and resting heart rates of cardiac patients in the IUP program. No significant differences were found in weight loss and resting systolic blood pressures in cardiac patients from either group.

RECREATION AND LEISURE

Frater, Joel L. Resident’s perceptions of the impact of tourism in Jamaica, 1996. Ed.D., Temple University (Elizabeth H. Barber). (180pp 2f $8.00) RC 499

Despite the acknowledged importance of tourism to global economies, and the attention given to empirical research in developed countries, little attention has been paid to research in less developed countries. The purpose of this study was to investigate the perceptions of residents of Jamaica on the economic, socio-cultural, and ecological impact of tourism. The subjects in this study (N=403) were drawn from the tourism resort communities of Negril, Montego Bay, and Ocho Rios, Jamaica. Cross community comparisons were made among the three geographic settings. MANOVA was used to determine statistical significance, while ANOVA was used to delineate where among the demographic variables: gender education level, employment, place of employment, income, and age these differences existed. Factor analysis was used to identify the factor structure of the instrument. Descriptive statistics were used to compare respondents with non-respondents. The results indicate that in general, residents had a slightly positive perception of the economic and socio-cultural impact of tourism. However, residents had a slightly negative perception of the ecological impact of tourism. There were statistically significant differences based on gender, employment, place of employment, income, and age. The factor analysis revealed that the questionnaire had ten underlying dimensions that measured the economic, socio-cultural, and ecological impact of tourism. The descriptive statistics showed that respondents were similar to non-respondents in both their demographic profile and overall perceptions of tourism impact. The results imply that in the future planning and development of the tourist industry in Jamaica, tourism planners need to identify issues related to residents’ perceptions of tourism impact. In particular, there needs to be an action agenda for educating residents and tourism interest groups about the value of preserving the ecosystem in order to guarantee a future for tourism as an industry and the guaranteed high quality of life for the residents of Jamaica.


The purpose of this study was to investigate and analyze the effects of ethnicity on leisure behavior and its meaning in the life of a selected group of South American immigrants. In this interpretative study the main issue was understanding the leisure experiences of a group of immigrants from various South American countries living in the United States. Through a qualitative approach using
in-depth interviews of 18 South American immigrants, this study examined the leisure and recreation experiences of the immigrants prior to and after their arrival in the United States. The process of data collection and analysis indicated changes in the immigrants’ lifestyles after migrating to the United States. The immigrants experienced a process of adjustment to the new system during which they integrated behaviors from the mainstream culture. As perceived by the informants, placing a high priority on work, acquiring a need for more material things, and becoming more individualistic, were examples of behavioral changes. These changes had an impact on each individual’s socialization patterns, leisure experiences, and recreation participation. Even though there was a considerable diversity between the informants’ cultural and social backgrounds, the process of immigration and adaptation had a significant impact on the informants’ leisure and socialization experiences. Middle-class informants tended to associate with others more in terms of personal and professional interests; while, the working-class individuals tended to associate with their extended family members and friends of their same ethnic background. Lack of free time was common among the informants regardless of their social class. Good command of the English language was seen by all the informants as an essential factor for success in this society. The working-class immigrants found that a lack of English skills was a significant barrier for communication with the mainstream and a major obstacle in taking advantage of all the opportunities offered by this country. Other factors not related to the immigration process had an impact on the individuals’ recreational and social experiences. Gender differences, age, family, climate, education, and socio-economic status were common factors of influence on the informants’ life experiences.


The purpose of this study was to examine a portion of the Interagency Committee for Outdoor Recreation’s decision making mechanism and funded project outcomes in the Local Parks category of the Washington Wildlife and Recreation Program between the years 1990 and 1995. The atmosphere in which this state agency was established, the structure of the agency itself, and the structure of one of its grant programs, the Washington Wildlife and Recreation Program, has shaped the function and role of this important recreation agency within the State of Washington. It is a unique agency implementing innovative techniques to assist in funding recreation projects throughout Washington State. Data from every submitted project evaluated by the IAC were used for this study. The scores from each of the 299 projects evaluated during that time provided for an analysis of the two evaluation instruments used by the IAC and the initial portion of their decision making process. Of those 297 projects, all funded projects, 110, were used to evaluate the distribution of projects and grant money and their proportionality to Washington’s population. Repeated measures analysis of variance and paired t-tests were used to test the distribution of approved and/or funded projects to the distribution of the population. Chi-square analysis tested the effectiveness of the evaluation instrument’s weighted questions against the same evaluation criteria without weights. Logistic regression assessed the individual contribution of each evaluation question in determining a project’s funding. Given the relatively short time period of this study, the results indicated that (1) the distribution of projects and funding were conceptually consistent with the Washington State’s population distribution, (2) the weighted evaluation question are effective in directing the outcomes of project funding, and (3) projects with strong technical aspects are more likely to receive higher evaluation scores.

Ohe, Shelley A. A business plan for the development of Outdoor Quest sporting goods store, 1996. “A seminar paper” M.S., University of Wisconsin-La Crosse (George Arimond). (69pp 1f $4.00) RC 502

A business plan was developed to investigate the feasibility of owning and operating a retail sporting goods store. White Bear Lake, MN was selected and examined as a potential site for the business. Products of the business will include equipment for camping, backpacking, canoeing, kayaking, in line skating, ice skating, snowshoeing, and cross country skiing. Services will include custom fitting, prepurchase testing, equipment repair, and equipment rental. The business will be highly customer oriented. Demographic factors including population, age, gender, and income were examined to determine potential market size. Growth rates for market population and income levels were examined. Market population was projected to increase 15.5% from 1990 to 1998. Median household income was projected to increase 9.6% from 1990 to 1998 and average household income was projected to increase 26.2% from 1990 to 1998. Market participation rates were determined to project market share and annual sales for the first year of operation. Annual sales were projected to be $900,000 for 1996; $1,071,000 for 1997, and $1,274,490 for 1998. Profit margin was estimated to be 1.1% in 1996; 4.1% in 1997, and 5.4% in 1998. Return on assets was estimated to be 3.1% in 1996; 12.2% in 1997, and 16.0% in 1998. It was concluded that Outdoor Quest would be a profitable business venture in the White Bear Lake, MN location.
The purpose of this study was to explore and describe the effects of a multifaceted treatment intervention, Anxiety Reduction Through Imagery and Self-Talk (ARTIST), self-psychological therapy, and Self-Contained Underwater Breathing Apparatus (SCUBA) on perceived anxiety, perceived efficacy, SCUBA performance, and progress in therapy of two therapy clients who were beginning SCUBA students. This research was designed, using a case study approach, to describe the effects of a combination of a traditional cognitive behavioral psychological skills training program (ARTIST), self-psychological therapy, and SCUBA training on selected psychological variables. The study focused on two beginning SCUBA students who were also therapy clients. The subjects were diagnosed by the researcher, a licensed psychologist, as having Generalized Anxiety Disorder, which is characterized by excessive anxiety and worry far out of proportion to the actual likelihood or impact of the feared event. The subjects participated in self-psychological therapy once a week for six months, ARTIST, and were concurrently enrolled in a basic National Association of Underwater Instructors (NAUI) SCUBA diving course. The subjects wrote their thoughts and feelings about SCUBA and therapy in a journal, which was discussed each week. The process of journal writing served a twofold purpose. It was part of the treatment plan, and was also used as an assessment of progress in therapy. Effects of this multicomponent treatment program were analyzed using the Spielberger State-Trait Anxiety Inventory, the Subjective Units of Distress Scale, the Generalized Expectation for Success Scale, and qualitative analysis of subjects’ journals. The use of the multifaceted treatment intervention, ARTIST, self-psychological therapy, and SCUBA training, resulted in reduction in perceived anxiety levels, successful completion of a basic NAUI SCUBA diving course, an increase in reported self-efficacy, and an increase in assessed progress in therapy of these two beginning SCUBA students. Given the exploratory nature of this type of research, there was no attempt to demonstrate causal effects between and among the variables. Much further replication is necessary before generalizability of results can be assumed.

Champeau, Donna A. Factors influencing individual attitudes toward voluntary active euthanasia and physician assisted suicide, 1995. Ph.D., Oregon State University (Rebecca Donatelle). (96pp 1f $4.00) PSY 1909

Issues of right to life, as well as death have surfaced as topics of hot debate. In particular, questions about when and if individuals have the right to end their own lives have emerged and gained considerable attention as health policy issues having the potential to affect all Americans. The purpose of this study was to identify the factors that are most likely to influence an individual’s decision to support or not support voluntary active euthanasia (VAE) and physician assisted suicide (PAS) in terms of specific medical situations. This study also examined the differences in medical vignettes by various demographic and attitudinal factors. Data were collected from a sample of classified staff members at two institutions of higher learning in Oregon. A survey was used to collect all data. Paired sample T tests, stepwise multiple regression analysis and repeated measures multiple analysis of variance (MANOVA) were used to analyze the data. Based on survey results, there were significant differences in attitudes toward PAS and VAE for each medical vignette. Religious beliefs, fear of dependency, and fear of death were the most powerful predictors of individual support for PAS in each medical situation. In the case of VAE, there were differences in support on each medical situation in terms of the most powerful predictors: fear of dependency and religious beliefs for the cancer vignette, fear of dependency, religious beliefs, and age for the ALS vignette, and religious beliefs and fear of dependency for the paralysis vignette. The repeated measures MANOVA revealed that in general, the older the individual was, the less likely they were to support PAS or VAE. However, women over age 66 in this study were more likely to support VAE than were the males age 66 and over. Males in the 51-65 year old category were more supportive of VAE than females in this age category. Also, those who were more fearful of death were more likely to have a higher level of support for VAE. In all three vignettes (Cancer, Amyotrophic lateral sclerosis (ALS), and paralysis) for both PAS and VAE, there was a significantly different level of support measured on a seven point Likert scale.

Thornton, Daniel T. An attitudinal survey of University of North Carolina at Chapel Hill football season ticket holders, 1996. M.A., University of North Carolina at Chapel Hill (John Billing). (64pp 1f $4.00) PSY 1932

An attitudinal survey of University of North Carolina at Chapel Hill football season ticket holders. (Under the direction of DR. JOHN BILLING.) This study identified
The purpose of this study is to investigate American conceptualizations of Asian martial arts practice. The study collected American martial arts literature that were known as influential to the American martial arts community and analyzed them to grasp how American literature conceptualizes Asian martial arts practice in American society. On the other hand, the study collected narratives of American martial arts practitioners to investigate how ordinary American participants interpret martial arts practice in the contexts of their own social lives. The informants were selected from the population of over 35 year old adult male and female taekwondo black belts. Through the open-ended interview, narratives were collected from 18 informants (male: 9, female: 9). American martial arts literature conceptualized Asian martial arts as a spiritual discipline and rejected the practically oriented perspective of martial arts including the competitive and sport-oriented modern version of martial arts. American martial arts literature emphasized the value of the traditional Asian cultures of martial arts practice and viewed some Asian world views and philosophies as a significant part of the arts. American literature accepted Japanese perspectives of martial arts as the main referential framework and neglected to discuss other cultures of martial arts, particularly the Chinese and Korean resources. American middle-aged martial arts practitioners viewed martial arts training as self-defense, physical exercise, and a medium for self-improvement. They valued martial arts training as offering meaningful experiences that help them enhance self-confidence, self esteem, and self-discipline. Adult female practitioners interpreted martial arts training to propose challenging experiences that help them reflect on their social self and personal potentials and reconceptualize themselves as more confident and self-centered beings. Adult participants defined their physical condition for the training but at the same time, reframed the training for their age and gender. They attempted to find meanings for their own purposes and conditions of life from the martial arts training. Whereas American martial arts literature conceptualized martial arts as a spiritual, philosophical, and educational discipline, ordinary American practitioners defined their training in practical, physical, and personally meaningful ways. The spiritual version of martial arts framed by literature was not accepted by the ordinary practitioners. American practitioners’ narratives did not reveal a significant influence from the languages of American martial arts literature.

**BEHAVIOR ANALYSIS**

Chiasson, David S. Mental models of industrial jobs, 1996. M.S., Dalhousie University (John McCabe). (185pp 2f $8.00) PSY 1910

In making use of recent computer technology, a two part study was conducted to examine the mental models of industrial jobs. Experiment One examined the influence of movement based visual information on the development of mental models. Experiment Two examined the cognitive differences in the mental models of engineers, healthcare professionals, and tradespersons pertaining to industrial job tasks. Elements consisting of video presentations of task examples and the sorting manipulation of the examples were combined for a clear and consistent interface that allowed the user to form the appropriate clusters of the examples with minimum practice. Subjects in Part A of Experiment One used the system to categorize and sort twenty-five different images of industrial job tasks into clusters in icons of file folders. Subjects in Part B of Experiment One and subjects in Experiment Two used the system to categorize and sort twenty-five different video clips of industrial job tasks into clusters in icons of file folders. A cluster analysis was used to examine differences in the categorization and sorting patterns of subjects in both experiments. Results of Experiment One demonstrated that the type of visual information presented to a group of undergraduate kinesiology students had an influence on the content of their mental models. Experiment Two established differences in the mental models of engineers, healthcare professionals, and tradespersons pertaining to industrial job tasks. The results are discussed in terms of their theoretical and methodological significance; their practical significance as a means of educating individuals involved with maintaining industrial and ergonomic factors; and further uses of this computer program in research.
The purposes of this study were to test the reliability and validity of the TAIS and a batting-specific version (B-TAIS) with high school baseball players, and to investigate differences between players in the United States and Puerto Rico. Tests of reliability failed to reach significant statistical levels for both the TAIS and B-TAIS. With respect to validity, the reduce-attention subscale of the B-TAIS was positively correlated to SCAT, and the OET-OIT subscales of the TAIS were significantly correlated with SCAT. The CSAI-2 was positively correlated with the OIT subscale, and negatively correlated with the NAR of the B-TAIS. OET-OIT subscales of the TAIS were positively correlated with the CSAI-2, the NAR was negatively correlated with the CSAI-2. Attentional styles were not significantly correlated with batting performance. There were no significant statistical differences between the US and PR players on subscales of either test. Discussion focuses on the lack of psychometric strength, age bias, and the TAIS and B-TAIS failure to predict batting performance.

Conroy, David E. A test of the utility of alpha-chamber technology and imagery training for enhancing decision making in tennis, 1996. M.A., University of North Carolina at Chapel Hill (John M. Silva III). (172pp 2f $8.00) PSY 1912

Imagery rehearsal has been shown to be effective in conditioning various sport skills both on its own and as a supplement to physical practice. Recently, however, the alpha-chamber system has been introduced as a tool for facilitating relaxation and covert rehearsals. The present study was designed to compare the effectiveness of these two tools in relation to a control group with regard to participants’ decision behavior in tennis situations. Results indicated that neither alpha-chamber rehearsals nor relaxation-imagery sessions were effective at either shortening decision time or increasing decision accuracy. The study also sought to examine some of the personal characteristics in image theory (Beach, 1990) which are hypothesized to influence decision behavior. Results provided support for the existence of the latent image theory constructs of the frame/value image and the strategic image. Recommendations are made for future research into covert rehearsal strategies for enhancing decision behavior. Researchers are also encouraged to pursue image theory as a possible descriptive model for decision behavior in sport.


The purpose of this study was to determine if obese individuals differ from non-obese individuals in their perceptions of barriers and benefits to exercise. The subjects consisted of 660 law enforcement trainees (176 females; 88 obese and 88 non-obese and 484 males; 242 obese and 242 non-obese). The Exercise Benefits and Barriers Scale (EBBS) questionnaire was self-administered to all of the subjects. All subjects were measured for height, weight, BMI, percent body fat and VO2 max. The non-obese subjects were found to be significantly (p<.05) more aerobically fit than the obese subjects. Based upon the results from the EBBS, obese subjects perceived more barriers and less benefits to exercise than the non-obese subjects. The obese and non-obese subjects consistently rated physical exertion barriers, such as exercise is hard work, exercise is tiring, or exercise tires me, higher than other barriers. Thus, future effort needs to be directed towards changing the attitudes or environment of obese people to improve exercise compliance.

Hayes, Kerrilyn. The psychological responses of participants in a women’s cardiac rehabilitation program, 1996. M.S., University of Wisconsin-La Crosse (John P. Porcari). (79pp 1f $4.00) PSY 1918

Early participation in cardiac rehabilitation has been shown to enhance the psychological functioning and psychosocial health-related aspects of quality of life. The purpose of this study was to design, pilot, and evaluate a phase IIII cardiac rehabilitation for women and to assess quality of life, general health and well-being, and mood states before and after the exercise program. A convenience sample of 10 women age 39-82 years from the La Crosse community with known coronary disease participated in the cardiac rehabilitation program. The 10 week program included 1 hr sessions on Monday, Wednesday, and Friday, from 10:00 to 11:00 a.m. A variety of activities were offered and included indoor track walking, stationary bicycling, low impact aerobics/country dance, and light toning with surgical tubing. The sessions included a 10 minute warm-up/stretch, 20-40 minutes of aerobic exercise at 40-60% of maximal heart rate, and 10 minutes of cool-down/stretch/relaxation. Education lectures of participant preference were offered weekly. Subjects completed the Medical Outcomes Study Short Form Health Survey (MOS SF-36) and the Profile of Mood States questionnaire (POMS) before and after the program. Program participants also completed the Cardiac Rehabilitation Program Questionnaire designed to obtain feedback about the current program, preferred program features, perceived satisfaction, and compliance. Results were compared using

The purpose of this study was to quantitatively test Csikszentmihalyi’s model of flow (1990). College students (N=236) performed on a Tertis video game to examine the relationship of flow, anxiety, apathy, boredom, performance, and heart rate with challenge level, skill level, and gender. A 3x3x2 MANOVA as well as 3x3x2 ANOVAs with repeated measures over time were conducted on the data. The results revealed: 1) challenge level was a significant factor in the affective states and in performance, 2) skill level was only a significant factor in some repeated measures, and 3) flow and performance appeared to have a direct relationship which supports previous research (Jackson and Roberts, 1992). In the repeated measure analyses, a 2-way interaction between challenge level and time was found on flow and apathy while a 3-way interaction between skill level, challenge level, and time was found on boredom. Based on these results, little support was found for Csikszentmihalyi’s model (1990).

McClure, Amy J. The prevalence of eating disorders within Division I and Division III intercollegiate athletics, 1996. M.S., Ball State University (Arlene A. Ignico). (79pp 1f $4.00) PSY 1924

This study examined the prevalence of eating disorders within Division I and Division III intercollegiate athletic programs. A secondary purpose was to examine gender and sport differences. The participants, 191 head coaches from 31 purposefully selected colleges and/or universities, completed a respondent information sheet and questionnaire which were created specifically for the purpose of this study. A chi-square analysis indicated no difference in the prevalence of eating disorders between Division I and Division III athletes. The results also indicated that the female athletes had a higher proportion of eating disorders than the male athletes. Women’s gymnastics and cross country and men’s wrestling and cross country had higher proportions of eating disorders than the other sports examined.


The purpose of this study was to determine if relationships existed between an athlete’s propensity for eating disorders and coach’s influences, role of family, and involvement in recreational activities. The literature to date, points to the rather significant role of the coach upon the athlete’s level of risk for developing Anorexia and/or Bulimia. Three hypothesis were presented in this study. The first examined the relationship between the occurrence of eating disorders in the athlete and the level of sensitivity their coach had regarding eating disorders. The second examined the relationship between the role of the family and the athlete’s likelihood for developing an eating disorder. The third hypothesized that consistent involvement in recreational activities would reduce the risk of the athlete developing Anorexia and/or Bulimia. Fifty-two female collegiate cross country runners from Oregon, Idaho, and Washington were given surveys regarding their experiences as high schools athletes. The researcher traveled to each of the eight campuses involved in the study to administer the surveys. The results from this study indicate that there is a significant relationship between the role of the family and the athlete’s propensity for eating disorders. Involvement in recreational activities appears to have no significant affect upon the development of Anorexia and/or Bulimia in the athlete. In addition, the contribution of the coach with respect to eating disorders, was not seen in the results. This result contradicts the majority of research focusing on this topic to date.


This study examined the impact of a new seashore boardwalk in Nova Scotia on walking behaviour of adults in the surrounding community. A secondary purpose was to examine users’ perceptions of the impact of the boardwalk on their health. Methodological triangulation was established through a) 84 hours of direct observation of the boardwalk over three weeks, b) questionnaires administered on-location (n=151), and c) focus group interviews. The study was descriptive and exploratory in nature. Observation data collected were reported through descriptive statistics. Frequency of responses and percentages were used to report questionnaire data with chi square
tests used to estimate differences in patterns of use by age and by gender. Focus group data were analyzed and interpreted using qualitative methodology. Survey results showed that users are benefiting from the availability of the boardwalk. Further, it is clear that for a high percentage of users, the presence of the boardwalk coincided with an increase in exercise and walking; 77.7% of respondents reported walking more often than before, and 82.2% experienced more exercise since using the boardwalk. Findings suggest that the boardwalk has led to positive changes for individuals who reported getting little exercise (less than 20 minutes three times a week) prior to using the boardwalk as a location to walk; of the 43 (28.9%) respondents in this category, essentially all (97.7%) reported an increase in exercise. Patterns of boardwalk use did not differ significantly by age or gender. Respondents reported walking for a variety of reasons, and cited numerous health benefits experienced since starting to use the boardwalk. Themes from the focus groups supported the multiple benefits of using the boardwalk, and illustrated how attributes of the boardwalk itself facilitated an increase in walking behaviour. This study provides a local case example of how one community’s endeavour has contributed to health promotion, recreation, and a healthier community. It supports the idea that health promotion can take many forms, and demonstrates the value and implication of passive measures involving environmental change for promoting community health.


The purpose of this study was to investigate the relationship among perceived social support, psychological coping resources, life events stressors, and injury frequency and severity in elite Israeli athletes. In addition, differences were examined among team handball, soccer, and basketball players on the variables under study. Participants were 129 male athletes, 18 to 36 years old, from 12 clubs of Israeli national leagues. Three team handball clubs, six soccer, and three basketball were sampled (30, 78, and 21 players respectively). In order to analyze perceptions of social support, psychological coping resources, and life event stressors, three questionnaires were administered during the preseason: the Social Support Survey-Clinical (SSS-C), the Coping Resources Inventory (CRI), and the Life Experiences Survey for Collegiate Athletes (LES-CA) (modified version). During the season, injury statistics were recorded by the team’s physical therapist, including time of occurrence, severity, and type. It was hypothesized that there will be no statistically significant difference in scores on psychosocial variables related to injury occurrence and severity. Additionally, differences were investigated among injuries in the differing sport types. The investigation found that injured athletes reported higher scores on personal assistance, number of support providers, and emotional coping resources than non-injured athletes. Athletes with high scores on task appreciation, task challenge, and reality confirmation had higher injury severity than athletes with low scores, and athletes with high scores on perceived importance of support had lower injury severity than athletes with low scores. Athletes who experienced positive life events became injured less often than other athletes. Among athletes, basketball players reported the highest scores on number of support providers. Soccer players reported the highest scores on half of the CRI scales, and their injury severity was the highest. Most injuries occurred in the lower part of the body. Each sport was described with typical injuries: knee and related structures; thigh, hip, groin and pelvis; and ankle and lower leg (for team handball, soccer, and basketball respectively). This study partially supported existing models of stress and athletic injury and suggested a different pattern of life-stress relationship for professional elite Israeli athletes.

**CREATIVITY**

Hess, Martha E. *Over, under, around, and through creative block*, 1995. “A professional paper” M.F.A., Texas Woman’s University (Penelope Hanstein). (26pp 1f $4.00) PSY 1919

Creative block is part of most creative processes to varying degrees and is experienced differently by each individual. Overcoming creative block involves freeing oneself through play, building confidence, developing strategies, focusing on what we know, and generating ideas. This paper focuses on the “whys” and “hows” of creative block and proposes play strategies developed from Synectics and improvisation.

**MOTIVATION**

Beckerman, Natalie D. *The effects of random success or failure feedback and perceived competence on intrinsic motivation of collegiate elite and non-elite athletes*, 1993. M.A., Michigan State University (Martha E. Ewing). (141pp 2f $8.00) PSY 1907

This study explored the effects that perceived competence and random feedback have on intrinsic motivation for elite and non-elite athletes after performance on the Wayne Saccadic Fixator motor task. The experiment investigated cognitive evaluation theory’s (Deci, 1975; Deci & Ryan, 1985) proposition that perceptions and feelings of competence increase intrinsic motivation while those of incompetence diminish levels of intrinsic motivation. A 2 x 2 x 2
Athlete Status (elite or non-elite) by Sex (male or female) by Feedback (success or failure) design was employed. Ninety male and female undergraduate elite and non-elite athletes were randomly assigned to a feedback condition. Perceived competence was measured by the Intrinsic Motivation Inventory (IMI). Results supported cognitive evaluation theory. Athletes receiving success feedback displayed increases in intrinsic motivation. Athletes receiving failure feedback displayed decreases in intrinsic motivation. There were no significant differences between status of athletes, sex, or feedback on persistence during a free choice period.

Kim, Byoung J. Goal orientation and sources of enjoyment and stress in youth sport, 1997. Ph.D., University of North Carolina at Greensboro (Diane L. Gill). (207pp 3f $12.00) PSY 1921

The study examined sources of enjoyment and stress in youth sport within the framework of goal perspective theory. The specific purposes were (a) to develop reliable measures of sources of enjoyment and stress, (b) to identify sources of enjoyment and stress in the context of Korean youth sport, (c) to determine demographic variations in sources of enjoyment and stress, (d) to determine contributions of sources of enjoyment and stress to global sport enjoyment and stress, and (e) to examine the relationship between goal orientation and sources of enjoyment and stress. A total of 426 middle school-aged athletes (356 males, 70 females) in soccer, baseball, and track and field responded to the measures on sources of enjoyment, sources of stress, and goal orientation. Major sources of enjoyment included perceptions of competence, practice and its benefits, team atmosphere, opportunity for continued education, winning and competition, and family support. Major stress factors included fear of failure, competition demands, fear of punishment, academic concerns, worry of continued education, financial demands, senior-junior conflicts, and worry of injury. Male athletes experienced greater enjoyment due to parental support, practice and its benefits, and winning, while female athletes worry more about poor performance and study-sport conflicts. Grade differences in academic and financial issues reflect the competitive nature of the school sport system in Korea. Multiple regression analyses indicated the practice and its benefits factor contributed most to global enjoyment. Fear of failure made the greatest contribution in predicting global stress. Canonical analyses and MANOVAs revealed significant relationships between goal orientation and the sources of enjoyment and stress. High task-oriented athletes endorsed factors related to learning and team interactions as important sources of enjoyment. High ego-oriented athletes reported that factors related to displaying superiority (e.g., perceived competence, winning and competition) led to enjoyment. High task-oriented athletes tended to be concerned more about learning and performance-related issues, while high ego-oriented athletes were more worried about negative evaluation from others and external factors (e.g., financial costs). These findings extend our understanding of achievement motivation in youth sport by demonstrating conceptually coherent links between goal orientation and sources of enjoyment and stress.


Building upon Deci and Ryan’s (1985, 1991) self-determination theory as well as previous empirical work on motivation, the present study was designed to develop a multifaceted 31-item Exercise Motivation Scale (EMS). A series of pilot studies were first conducted in order to generate the 31 scale items. The EMS was then administered to male and female college students (N=592) who participated in various exercise activity classes offered through university physical activity programs. Using structural equation modeling methodology, evidence for a robust factor structure, subscale reliabilities, and convergent and discriminant validity was sought for the proposed eight facets of the exercise motivation construct. These facets included amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, intrinsic motivation to learn, intrinsic motivation to accomplish things, and intrinsic motivation to experience sensation. Results provided adequate evidence for the a priori hypothesized EMS factor structure, and acceptable subscale reliability estimates. Further analyses on the EMS structural relationships revealed a simplex pattern of the self-determination continuum underlying the various motivational orientations assessed by the EMS. Finally, selected antecedents and consequences of exercise motivation showed that the EMS facets had nomological validity and depicted differential relationships with the various antecedents and consequences examined. These results provided initial empirical support for the applicability of self-determination theory in the context of exercise, and suggested a multifaceted approach to the conceptualization of exercise motivation.

Wiesner, Alexandra R. Perceived parental influences of youth tennis players within Harter’s Competence motivation theory. 1995. M.S., Michigan State University (Martha Ewing). (133pp 2f $8.00) PSY 1934

The purpose of this study was to investigate perceived parental influences on youth tennis players and was grounded Harter’s (1978) Competence Motivation Theory. This study was a partial replication of Brustad’s (1988) research in which positive and negative affect experienced by young athletes during a competitive sport season was investigated. Brustad’s hypotheses concerning enjoyment
were explored along with hypotheses testing the constructs of the model within the tennis arena. Subjects for the study were 46 male and female elite junior tennis players between the ages of 11-14. Portions of five instruments were utilized to test the hypotheses. The instruments were subscales from Harter’s Social Support Scale (Harter, 1985); Intrinsic vs. Extrinsic Orientation Scale (Harter, 1980); Adolescent Self Perception Profile (Harter, 1988); and Scanlan and Lewthwaite’s Significant Adult Factors Scale (Scanlan & Lewthwaite, 1984); and Enjoyment Scale (Scanlan & Lewthwaite, 1986). Positive parental social support and parental pressure were significant predictors of a tennis player’s enjoyment level.

**MOTOR LEARNING AND CONTROL**


This study was designed to determine if mental imagery techniques with physical practice can aid the improvement of sport climbing performance. The sample included 47 male and female Ss (18-27 yr). Subjects were self-assigned into either a control (n=22) or treatment (n=27) group. Groups were determined via a coin toss. Subjects completed a sport climbing performance test before and after the training program. Treatment subjects participated in a total of 100 minutes of mental imagery techniques during the 10 day program. Results of the 2-way ANOVA indicated no significant (p>0.05) interaction for gain score performance between the variables of gender and treatment. No significant (p>0.05) difference for gain score performance between males and females by control and treatment groups. No significant (p>0.05) difference for gain score performance between the control and treatment groups. Pearson product-moment correlations indicated no significant (p>0.05) correlation between the variables of age, height, weight, gender, and gain score performance.


The purpose of this study was to compare the effectiveness of four different imagery conditions on performance in the seated shot-put and pushups to exhaustion. The four different imagery conditions were Future Perspective Imagery, Bioinformational Imagery, Metaphorical Imagery, and a control (no imagery) group. The Vividness of Movement Imagery Questionnaire (VMIQ) was used to determine if those scoring higher in imagery ability performed better on the seated shot-put and pushups to exhaustion than those scoring lower in imagery ability. The imagery perspectives were adapted to the sport setting. Future perspective imagery was developed from a psycho-therapeutic technique that used the future to positively shape behavior; bioinformational imagery was adapted from successful work with phobic disordered patients; and metaphorical imagery harnessed the teaching power of metaphors. Each group received an audiotape designed for this research. The metaphor group received metaphors designed to increase performance on shot-put and pushups to exhaustion just prior to and during the posttest. Subjects numbered 48 volunteers with 12 in each group. All groups were pre and posttested on the seated shot-put and pushups to exhaustion, following an interval days during which treatment was applied. The following conclusions were drawn: 1. Appropriate and well-timed metaphors (the treatment condition) can have a positive effect on a person’s power output. 2. Imagery training programs such as those outlined in the study can have a positive effect on a person’s muscular endurance. 3. It appears that metaphors are highly effective in increasing strength regardless of which kind (power or muscular endurance) of task is used.


The purpose of this study was to explore performance during three practice schedules across acquisition, retention and transfer. Forty-five female student volunteers enrolled in activity classes at the University of North Carolina at Chapel Hill during the fall semester of 1994 served as subjects for this study. The subjects were randomly assigned to one of three groups: large blocked descending to random, small blocked descending to random, and random. Three velocities were presented to the subjects, on the Bassin Anticipation Timer, during sixty acquisition and fifteen retention trials. The thirty transfer trials were presented using three novel velocities with speeds inside and outside the acquisition and retention speeds. The retention and transfer trials were presented randomly to the three groups. The results of this study did not significantly support a difference between the groups during acquisition, retention or transfer; however, improvement did occur for all three groups. Schmidt’s schema theory and Battig’s theory on contextual interference are mildly supported in the results of this study. The variety in the presentation of velocities in the large blocked descending to random group and the small blocked descending to random group aided their performance to be close to that of totally random group. In earlier studies the random group has out performed the other groups. The contextual interference (variety in presentation) aided the two descending groups performance to match the random
The purpose of this study was to determine whether mental imagery affects tennis serving performance and to assess any differences with imagery effectiveness across African American and Caucasian races. Thirty-five male college-aged tennis players participated. Twenty were of Caucasian descent and 15 were African American. High- or low-ability tennis players were determined according to the National Tennis Rating Program (NTRP). Pre- and post-intervention skills tests were used to specifically assess subjects' serving ability. Treatment group subjects were led through group relaxation and imagery procedures and given a tape of the session. Control group subjects were introduced to a placebo tape of nature sounds. After seven days of practice with the tapes, subjects' serving performances were recorded during a match. Results revealed no significant performance differences between treatment and control subjects. Although no significant race differences in performance surfaced, certain noteworthy trends were observed.


The purpose of this research was to determine whether specific learning disabled students would respond more quickly, accurately, and in the correct sequence to visual and auditory stimuli according to their predetermined modality preference within the context of the gymnasium and using motor skills. Male and female SLD college students (N=58) were the participants for the study. Students attending Muskingum College were divided into four groups according to their modality preference toward auditory instruction or visual instruction. Modality preference was determined by the Incomplete Word and Visual Closure subtests of the Woodcock-Johnson Tests of Cognitive Ability. One of the visual learner groups (n=18) received only visual stimuli while the other visual learner group (n=15) received only auditory stimuli. One of the auditory learner groups (n=10) received only auditory stimuli while the other auditory learner group (n=15) received only visual stimuli. The participants were asked to perform the four skills of galloping, striking, kicking, and jumping. Scores were obtained on each participant's response speed, process accuracy, and sequence accuracy. Participant's performed two trials of the same skill sequence. There were non-significant differences between the auditory learners receiving auditory stimuli (AL-AS) and those receiving visual stimuli (AL-VS). There were significant differences between the auditory learners receiving visual stimuli (AL-AS) and those visual learners receiving auditory stimuli (VL-AS). There was a significant difference between the visual learners receiving visual stimuli (VL-VS) in one of the three measures (sequence accuracy) than the auditory learners auditory stimuli (AL-AS). There were significant differences between the visual learners receiving visual stimuli (VL-VS) and those visual learners receiving auditory stimuli (VL-AS). There were significant differences between the visual learners receiving visual stimuli (VL-VS) in two of the three measures (process accuracy and sequence accuracy) compared with auditory learners receiving visual stimuli (AL-VS). There were significant differences between those groups receiving their preferred modality (AL-AS-VS) and those groups not receiving their preferred modality (AL-VS-VL). There was a significant difference between the participant's response time between trial one and trial two but no difference in process accuracy or sequence accuracy.

**PERCEPTION**

Cash, Jocelyn "The relationship of dynamic visual acuity to skill on a tennis-related task," 1996. M.A., University of North Carolina at Chapel Hill (Ronald Hyatt). (54pp 1f $4.00) PSY 1908

A group of thirty-two students (females n=26; males n=6) from intermediate tennis classes at Central Piedmont Community College were recruited for this study. All subjects possessed at least 20/40 vision (corrected or uncorrected) as measured with the Snellen wall chart. In the first portion of the study each subject participated in a computer-generated test to measure his dynamic visual acuity. In the second portion of the study the subject viewed film clips of a tennis player serving a ball and asked to predict where the ball would land. A correlation of 0.54 was observed between the two sets of scores, allowing the conclusion that performance on the two tests was correlated. Suggestions are made for future study in the field of DVA.

**SELF-CONCEPT**

Aghazarian, Tanya L. "Use of a challenge course as an intervention tool to adolescent self-esteem," 1996. M.S., San Jose State University (Maureen Glancy). (146pp 2f $8.00) PSY 1904

This thesis addressed the question of whether a one-day challenge ropes course can be used as a tool to positively intervene adolescent self-esteem. The question was tested
by having 17 male and female high school students voluntarily participate on the course as the experimental group, and another 23 not participate as the control group. Self-esteem was measured three times (pre, post, and follow-up) by the Self-Perception Profile for Adolescents (Harter, 1988c) and personal written comments. A two-way t-test comparing gain scores showed a significant increase in global self-worth for experimental subjects. In addition, a qualitative analysis of written comments demonstrated that the thesis hypothesis was supported. Conclusions noted that the use of the challenge ropes course was successful in its aim to increase adolescent self-esteem. The program not only allowed the opportunity to take a risk of doing something new and challenging, but also provided the individuals with supportive feedback from their peers and leaders.

Babkes, Megan L. *Parental influence on children’s cognitive and affective responses to sport participation*, 1996. M.S., University of Oregon (Maureen R. Weiss). (142pp 2f $8.00) PSY 1905

This study examined the relationship between children’s psychosocial responses to competitive soccer participation and (a) children’s perceptions of parents’ attitudes and behaviors and (b) parents’ report of their own influence. Female (n=114) and male (n=113) athletes completed self-reports of their soccer competence, enjoyment, intrinsic motivation, and parents’ influence in their soccer participation. Mothers (n=160) and fathers (n=123) reported their own attitudes and behaviors toward their child’s soccer participation. Multivariate multiple regression analyses revealed that mothers and fathers who were perceived as positive exercise role models, who had more positive beliefs about their child’s competency, and gave more frequent positive contingent responses to performance successes were associated with athletes who had higher perceived competence, enjoyment, and intrinsic motivation. Children who also perceived their fathers as being more involved in their soccer participation and who exerted lower amounts of pressure to perform had more positive psychosocial responses. A nonsignificant relationship was found for mother’s and father’s reported influence with children’s psychosocial responses. Results indicated that children’s perceptions of mothers’ and fathers’ influence are more important contributors to their cognitive and affective experiences than are parent-reported attitudes and behaviors.


This study was designed to examine ethnic identity of college athletes in both an historically African American and a predominantly white institutional setting. Subjects for the study were members of varsity athletic teams. Of the 168 subjects, 74 athletes were from the historically African American institution (15 white and 59 African American) and 94 athletes were from the predominantly white institution (79 white and 15 African American). The study also examined the association between ethnic identity and cross racial experiences of all subjects. Previous studies reported higher scores of ethnic identity among college students of color than for white students. In athletic populations, no empirical studies have been conducted on the role of ethnic identity alone or on cross racial experiences and ethnic identity. High school studies indicated that most cross racial interactions took place on the team rather than in other social settings. Using a one-way analysis of variance (four race x institution groups) and on the Hall Demographic Questionnaire (HDQ) were determined. In addition, a Pearson product-moment correlation was used to measure the significance of the relationship between the MEIM and the cross racial experience of each athlete. The results indicated that African American athletes had stronger ethnic identity scores on the MEIM than did white athletes. Secondly, there was no significant correlation between ethnic identity and cross racial experiences for these athletes. The results suggested that African American athletes perceived ethnic identity as more integral to self-concept than white athletes. In addition, cross racial experiences were not related to ethnic identity. This result may be due to low levels of cross racial experiences these athletes report.

Petrick, James F. *The effects of participation in organized baseball on eight year old boys’ locus of control*, 1996. M.S., University of Wisconsin-La Crosse (George Arimond). (57pp 1f $4.00) PSY 1925

This study examined the psychological effects of a first-time experience in organized baseball. Specifically, this study investigated the effects of a 10-week summer baseball program on the locus of control of 8-year-old boys. Participants in the study (N=48) consisted of 8-year-old boys who participated in their first organized baseball program (n=25), as well as nonplayers from the same school district (n=23). Subjects were administered a condensed version of Connell’s (1985) Multidimensional Measure of Children’s Perceptions of Control (MMCPC). The MMCPC analyzed locus of control in the cognitive, social, physical, and general domains. Within each domain, three dimensions of control were assessed: internal control, powerful others control, and unknown control. MANOVA with repeated measures was used to measure changes, but no significant differences in the main effects were found. Post hoc analysis, however, revealed that players as compared to nonplayers, experienced small increases in internal locus of control. These results suggest that
organized baseball at best promoted children’s social and psychological development, and at worst, did not negatively affect their perceptions of control.

Ross, Suzy L. The therapeutic effects of an adventure challenge program on the personal empowerment of women survivors of sexual trauma, 1996. M.S., University of Wisconsin-La Crosse (Nancy H. Navar). (120pp 2f $8.00) PSY 1927

The number of women known to have experienced sexual trauma is more than 1 in 3. Critical to surviving and healing from the atrocity of such terror is the process of reconnection and claiming one’s personal power. In order to meet these needs, health care must begin to offer comprehensive therapeutic approaches for connection and empowerment. This study examined the effects of a 3 day adventure therapy program, Survivors of Abuse Growing Experientially through Therapeutic Recreation and Experiential Education or SAGE TREE, on the personal empowerment of women survivors of sexual trauma. The program goals and content were designed and based upon a group process model of empowerment designed by Goodwill and Hultberg (1992) intended for women surviving trauma. The model is theory-based drawing upon current theories of women’s psychological development and social interaction theory, and offers a qualitative program evaluation instrument. The methodology of this study utilized pre- and poststructured in-depth interviews, and a postexperience short-answer and quantitative evaluation. Results were determined through analytic induction where themes emerged and were refined. The themes that developed from the testimony of the women revealed that those who participated in the program displayed acts of personal power during and following SAGE TREE. These themes attested that the women developed increased capacities of self-value, self-care/self empathy, self-in-relation, and personal competence. This study provides questions for further investigation in several areas. Study could focus upon the effectiveness of adventure challenge intervention during various stages of healing, and the effects that a specifically facilitated context of connection has upon program outcomes.

Schell, Lea A. Adaptation to transition: the woman athlete’s experience with intercollegiate sport retirement, 1995. M.S., Slippery Rock University (Catriona Higgs). (144pp 2f $8.00) PSY 1929

A paucity of research exists that explore the sport retirement experiences of intercollegiate women athletes. The purpose of this study is to investigate the retirement experiences of Slippery Rock University women athletes who competed between 1980 and 1993 in one or more of the following intercollegiate sports: (1) Field Hockey, (2) Gymnastics, (3) Lacrosse, and (4) Tennis. A pilot study was conducted with 16 randomly selected subjects to assist with the modification of a survey format originally developed by Greendorfer and Blinde (1985). Research data then were obtained from a stratified random sample of 15 athletes from each sport (n=60) using a 50-item modified questionnaire. Lastly, follow-up interviews were conducted with 12 subjects who indicated agreement on the survey. Using descriptive and chi-square (p<.05) statistics, results suggested that variables such as mode of retirement influenced the transitional experiences of intercollegiate women athletes.

SOCIAL PSYCHOLOGY


The purpose of this study was to compare the divorce rates between Divisions I, II, and III head basketball coaches. The hypotheses were that Division I head basketball coaches will have a greater likelihood of divorce, time away from home, job relocation, and marital difficulties resulting from coaching pressure than will Division II and III coaches. One-way analysis of variance was used to determine the difference between Division I, II, and III head basketball coaches. The alpha level was set at .05. The Scheffé test of multiple comparisons was used to determine mean differences when a significant F was found. Only Hypotheses 3 and 4 were supported in this study. Division I head basketball coaches had more job relocations and experienced more stress than did Division II and III head basketball coaches.

Smith, Joseph W. The effect of an intervention program on cohesion with ninth grade female basketball teams, 1997. M.S., Oregon State University (Vicki Ebbeck). (108pp 2f $8.00) PSY 1931

The purpose of this study was to determine if team cohesion could be enhanced for 9th grade female basketball teams with the implementation of a 14-week intervention program. The intervention program was designed from cohesion building strategies proposed in the literature with the help of three coaches and a leading sport psychologist in the field of cohesion. 41 ninth grade female basketball players belonging to four teams participated in the study. The Group Environment Questionnaire was used to measure cohesion. It was administered on the third week of the season and again at the end. The data were analyzed using both the individual and the team as the unit of analysis. The findings varied according to which unit of analysis was used. When the team was used, no posttest differences were found, however, the effect sizes suggested that the intervention was effective for the task.
subscales of the GEQ. A lack of statistical power for the team analysis greatly reduced the probability of finding that the meaningful differences were statistically significant. When the individual was used, the intervention was found to be statistically detrimental for the task subscales. The effect sizes supported this finding. The qualitative data that was collected suggested that the coaches believed the intervention had practical utility, and was effective. While this study did not empirically show that the intervention was effective, it did demonstrate that the intervention is practical enough to implement. Furthermore, the qualitative data and the effect sizes for the team analysis provide some evidence that the intervention may have been effective for the task dimension of team cohesion. Therefore this study produced an intervention that can be used as a starting point for future cohesion building investigations.

**STRESS**


There were three purposes of this study. The first purpose was to identify and compare perceived levels of stress reported by National Collegiate Athletic Association Division I freshmen student-athletes (FSAs) and freshmen non-athlete students (FNAs) in four areas of life: (a) academic, (b) general, (c) social, and (d) career, and identify the perceived level of stress regarding athletic issues for FSAs. The second purpose was to determine effects of investigator-designed and established university sponsored athletic department academic and athletic mentoring, career development, and study skills intervention programs on levels of stress identified by FSAs. The third purpose was to evaluate the effectiveness on topic-relevant skills and knowledge and popularity of these intervention programs for FSAs. Subjects included 148 FSAs and 106 FNAs at a large Midwestern university. FSAs were tested at the beginning and end of the fall semester on the Freshman Athletes Stressors Scale (FASS), which measures academic, general, social, career, and athletic stresses. FNAs were tested on the Freshman Student Stressors Scale (FSSS), which was the FASS with the athletic stress subscale omitted. A comparison between mean levels of stress reported by FSAs and FNAs on the subscales and overall score at the beginning and end of the fall semester revealed that FSAs scored lower than FNAs on every subscale and the overall scale. Levels of stress decreased on every subscale except career stress for FSAs and FNAs. Comparison of early and late fall semester means indicated FSAs' scores on academic and athletic stress subscales decreased significantly. The FNAs had a significant reduction only on general stress. During the semester, intervention programs were offered to FSAs. Findings for the 29 FSAs indicated mentor and study skills programs had an effect of increasing mean scores, but this was not always statistically significant. However, participants found all programs valuable. Comparisons of mean stress subscale scores for participants in different combinations of programs revealed inconsistency in stress reduction or increase based upon participation in different programs. Because of this, it was not possible to determine if participation in the programs had an effect on any of the subscale stress scores.
This index includes keywords for titles published in microfiche format by Microform Publications in Volume 10, No. 1 (April 1997).

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 keywords list for each title. 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 first keyword for each title was used to generate the primary topical categories for the index; they appear in bold typeface. Titles having the same first keywords (primary topical category) are grouped under that category. The remaining keywords for each separate title are indented and listed, from general to specific, followed by the research and statistical methods used in the study contained in brackets (note that letters before the dash refer to the research methods, those after the dash denote the statistical methods), the author’s last name and initials, and the identification number for the title. The following example illustrates the elements of each entry.

**BIOMECHANICS**

ANKLE JOINT, RANGE OF MOTION, BRACE, STEP TRAINING, INJURY, SPRAIN, SEGMENTAL ANALYSIS TECHNIQUE, VARIANCE; [D,MA-DE,MR]. Money, S.M., PE 3439

*Biomechanics* is the primary topic of this study; keywords *ankle joint* through *variance* further delimit it. The research methods include descriptive and mechanical analysis techniques; statistics are descriptive and multiple regression. The author is S.M. Money and the study’s identification number is PE 3439. To find the title of the study as listed in part I of the Bulletin, use the author index at the end of the publication to find the page number on which the study by S.M. Money 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**

<table>
<thead>
<tr>
<th>A</th>
<th>Anthropometry</th>
<th>E</th>
<th>Experimental</th>
</tr>
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<tbody>
<tr>
<td>AR</td>
<td>Action Research</td>
<td>GE</td>
<td>Genetic</td>
</tr>
<tr>
<td>C</td>
<td>Case Study</td>
<td>H</td>
<td>Historical</td>
</tr>
<tr>
<td>CA</td>
<td>Content Analysis</td>
<td>I</td>
<td>Interview</td>
</tr>
<tr>
<td>CH</td>
<td>Choreography</td>
<td>IA</td>
<td>Item Analysis</td>
</tr>
<tr>
<td>CI</td>
<td>Critical Incident Analysis</td>
<td>J</td>
<td>Jury</td>
</tr>
<tr>
<td>COM</td>
<td>Comparative Study</td>
<td>JA</td>
<td>Job Analysis</td>
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<tr>
<td>D</td>
<td>Descriptive</td>
<td>L</td>
<td>Laboratory</td>
</tr>
<tr>
<td>DA</td>
<td>Documentary Analysis</td>
<td>LR</td>
<td>Library Research</td>
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</table>

**STATISTICS**

<table>
<thead>
<tr>
<th>AC</th>
<th>Analysis of Covariance</th>
<th>MAC</th>
<th>Multivariate Analysis of Covariance</th>
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<tbody>
<tr>
<td>AV</td>
<td>Analysis of Variance</td>
<td>MAV</td>
<td>Multivariate Analysis of Variance</td>
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<tr>
<td>AV(F)</td>
<td>Analysis of Variance (Friedman)</td>
<td>MDA</td>
<td>Multivariate Discriminant Analysis</td>
</tr>
<tr>
<td>B</td>
<td>Binomial</td>
<td>N</td>
<td>Normative</td>
</tr>
<tr>
<td>BC</td>
<td>Biserial Correlation</td>
<td>PA</td>
<td>Path Analysis</td>
</tr>
<tr>
<td>BON</td>
<td>Bonferroni Method</td>
<td>NK</td>
<td>Newman-Keuls</td>
</tr>
<tr>
<td>CAN</td>
<td>Canonical Correlation</td>
<td>MR</td>
<td>Multiple Regression</td>
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<tr>
<td>CC</td>
<td>Contingency Coefficient</td>
<td>R</td>
<td>Multiple Correlation</td>
</tr>
<tr>
<td>CO</td>
<td>Cohen’s Coefficient of Agreement</td>
<td>PR</td>
<td>Phi Coefficient</td>
</tr>
<tr>
<td>CQ</td>
<td>Cochrans Q Test</td>
<td>R</td>
<td>Percent</td>
</tr>
<tr>
<td>CS</td>
<td>Chi Square</td>
<td>%</td>
<td>Percent</td>
</tr>
<tr>
<td>CV</td>
<td>Coefficient of Variation</td>
<td>SI</td>
<td>Sign Test</td>
</tr>
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<td>DE</td>
<td>Descriptive</td>
<td>SP</td>
<td>Split Plot Repeated Measures Analysis</td>
</tr>
<tr>
<td>DEL</td>
<td>Delphi Method</td>
<td></td>
<td>Standard Error of the Estimate</td>
</tr>
<tr>
<td>DisA</td>
<td>Discriminant Analysis</td>
<td></td>
<td>Scheffe’s Method</td>
</tr>
<tr>
<td>DU</td>
<td>Duncan Multiple Regression</td>
<td></td>
<td>Sch. Method</td>
</tr>
<tr>
<td>DUN</td>
<td>Dunn Test</td>
<td></td>
<td>Spearman Rank Correlation</td>
</tr>
<tr>
<td>Eta</td>
<td>Curvilinear Correlation</td>
<td></td>
<td>Spearman Product-Moment Formula</td>
</tr>
<tr>
<td>F</td>
<td>Flanagan Procedure</td>
<td></td>
<td>Spearman-Brown Prophecy</td>
</tr>
<tr>
<td>FA</td>
<td>Factor Analysis</td>
<td></td>
<td>Formula</td>
</tr>
<tr>
<td>G</td>
<td>Graphic</td>
<td>SCH</td>
<td>Scheffe’s Method</td>
</tr>
<tr>
<td>GA</td>
<td>Gamma Method of Association</td>
<td>SEE</td>
<td>Standard Error of the Estimate</td>
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<tr>
<td>GG</td>
<td>Greenhouse Geisser Conservative Test</td>
<td></td>
<td>Sign Test</td>
</tr>
<tr>
<td>HA</td>
<td>Hartley’s Method</td>
<td></td>
<td>Split Plot Repeated Measures Analysis</td>
</tr>
<tr>
<td>HS</td>
<td>Hull’s Method</td>
<td>SR</td>
<td>Signed Ranks</td>
</tr>
<tr>
<td>HV</td>
<td>Homogeneity of Variance</td>
<td>SSP</td>
<td>Split-Split Plot Repeated Measures Analysis</td>
</tr>
<tr>
<td>K</td>
<td>Kirk’s Test</td>
<td></td>
<td>Measures Analysis</td>
</tr>
<tr>
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<td>Coefficient of Consistence</td>
<td>T</td>
<td>T Ratio</td>
</tr>
<tr>
<td>KR</td>
<td>Kuder-Richardson</td>
<td>TA</td>
<td>Trend Analysis</td>
</tr>
<tr>
<td>KS</td>
<td>Kolmogorov-Smirnov</td>
<td>TAU</td>
<td>Kendall’s Rank Coefficient</td>
</tr>
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<td>Kruskal-Wallis</td>
<td>TR</td>
<td>Tetrachoric Correlation</td>
</tr>
<tr>
<td>LR</td>
<td>Logistic Regression</td>
<td>TU</td>
<td>Tukey’s Test</td>
</tr>
<tr>
<td>LSD</td>
<td>Least Significant Variance</td>
<td>U</td>
<td>Mann-Whitney U Test</td>
</tr>
</tbody>
</table>
KEYWORDS

ACHIEVEMENT MOTIVATION
GOAL SETTING, PLEASURE, STRESS, SPORT, ELEMENTARY SCHOOL, KOREA, MULTIVARIATE ANALYSIS; [D,CA,Q,TC-DE,CAN,MAV,MR]. Kim, B.J., PSY 1920

AEROBIC CAPACITY
INSTRUMENTATION, CROSS-COUNTRY SKIING, NORDICTRACK, TEST RELIABILITY; [D,TC-DE,T]. Wesolek, B.J., PH 1543

AEROBIC DANCE
SORENSEN, J., MISSETT, J., HISTORY, UNITED STATES, 1970D, RETROSPECTIVE STUDY; [D,H,I-]. Swanson, B.S., PE 3738

ANXIETY
SELF-EFFICACY, SCUBA DIVING, APPLIED BEHAVIOUR ANALYSIS, CASE STUDY; [D,C,DA-DE]. Fields, B.R., PSY 1912

AQUATIC ACTIVITIES
WATER AEROBICS, PHYSICAL FITNESS, STRENGTH, GRIP, BENCH PRESS, WOMAN, MIDDLE AGE, AGED,.blacks, COMPARATIVE STUDY; [D,DE,T]. Binkley, H.M., PH 1518

ARTICULAR LIGAMENT
INJURY, ETIOLOGY, CONIOMETRY, BIOMECHANICS, SEX FACTOR, RETROSPECTIVE STUDY; [D,MA-DE,CS,T]. Busby, M.A., PE 3686

ARTIFICIAL INJURY, SURGERY, POSTOPERATIVE CARE, REHABILITATION, ATHLETIC TRAINER, SURVEY; [D,S-DE]. Chemiss, K.T., PE 3689


ATHLETE
ACADEMIC ACHIEVEMENT, COACH, ATTITUDE INVENTORY, NORTH CAROLINA; [D,S-DE]. Sapp, A., PE 3726

ATHLETIC DIRECTOR
UNIVERSITY, BLACKS, CAUCASIAN, SURVEY, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, COMPARATIVE STUDY; [D,IS-DE,CS]. Pope, D.A., PE 3722

ATHLETIC TRAINER
PROFESSIONAL PREPARATION, PROGRAM, MENTAL PROCESS, THINKING, SURVEY, COMPARATIVE STUDY; [D,S-DE,CS]. Fuller, D.V., PE 3700

BASEBALL
BATTING AVERAGE, TEST OF ATTENTIONAL AND INTERPERSONAL STYLE, SECONDARY SCHOOL, BOY, UNITED STATES, PUERTO RICO, CROSS-CULTURAL STUDY; [D,COM,DE,RC,T,Z]. Colon, C., PSY 1910

CHILD, BOY, INTERNAL-EXTERIOR CONTROL, ATHLETE, NON-ATHLETE, COMPARATIVE STUDY; [D,DE,MAV,RM,T]. Petrick, J.F., PSY 1924

SOFTBALL, CHILD, COACHING, PROFESSIONAL PREPARATION, ATTITUDE INVENTORY, INTERVIEW, PARENT, PROSPECTIVE STUDY; [D,I-DE]. Litherland, M.S., PE 3713

BASKETBALL
COACH, MARRIAGE, MARITAL STATUS, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, SURVEY, COMPARATIVE STUDY; [D,MA-DE,AV,CS,SCH]. Fisher, C., PSY 1913

FREE THROW, BIOMECHANICS, TRAINING, COMPARATIVE STUDY; [E,MA-DE,T]. Eddings, M.R., PE 3695

UNIVERSITY, NORTH CAROLINA, TICKET, STUDENT, USER DEMAND, SURVEY, APPLIED BEHAVIOUR ANALYSIS; [D,S-DE,%.] Meyer, J.R., PE 3717

BICYCLE
HELMET, CHILD, LEGISLATION, OREGON, SURVEY, COMPLIANCE, INJURY, TREND ANALYSIS; [D,DAS,DE,CS,TA]. Ni, H., HE 582

CINEMATOGRAPHY, RUNNING, SHOES, WOMAN, COMPARATIVE STUDY; [D,MA-DE,AV,RM,TU]. Csontos, C.M., PE 3692

FORCE PLATE, ELECTROGONIOMETRY, FOOT, WALKING, GAIT, ORTHOTIC DEVICE, VARIANCE; [D,MA-DE,AV,RM,SCH,TU]. Oliver, P.L., PE 3720
GAIT, INSTRUMENTATION, TEST RELIABILITY; [D,MA,TC-DE,AV,RC,RM,RPM]. Bezner, S.A., PE 3684

GROUND REACTION FORCE, JUMPING, DEPTH JUMPING, LANDING, KINESIOLOGY, VARIANCE; [D,LM,MA-DE,AV,GR,VM]. Caster, B.L., PE 3687

KINEMATICS, LUMBAR VERTEBRAE, RANGE OF MOTION, PATHOLOGY, NUCLEAR MAGNETIC RESONANCE, THEORETICAL MODEL, TEST RELIABILITY; [D,AM,MA-DE,AV,RC,SM]. Smith, S.S., PE 3734

RUNNING, GAIT, KINEMATICS, KINETICS, BLINDNESS, CORRELATION; [D,MA-DE,AV]. Karakostas, T., PE 3710

BLACKS
MANAGER, COACH, SPORT, UNIVERSITY, MID-AMERICAN CONFERENCE, SURVEY; [D,S-DE]. Powers, J., PE 3723

BODY COMPOSITION
ANTHROPOMETRY, ADIPOSE TISSUE, SKINFOLD THICKNESS, HYDROSTATIC WEIGHING, MAN, VARIANCE; [D,L,DE,AV,GR,PM]. Mortimer, B.K., PE 3718

NON-ATHLETE, AEROBIC TRAINING, TREADMILL, BICYCLE ERGOMETRY, STEP ERGOMETRY, CROSS-COUNTRY SKIING, SEX FACTOR, COMPARATIVE STUDY; [D,DE,AV,GR,PM]. Eber, T., PE 3694

BONE
BONE DEVELOPMENT, TISSUE, ELASTICITY, FEMUR, SOMATOTROPIN, RAT, VARIANCE; [E,LM-DE,AV,CM,RE,GI]. Kohles, S.S., PH 1530

BONE DEVELOPMENT
BONE DENSITY, EXERCISE, TREADMILL, RUNNING, WEIGHTLIFTING, CALCIUM, DIET, DIETARY SUPPLEMENTATION, RAT, MULTIVARIATE ANALYSIS; [E,LM-DE,AV,CM,GR,PM]. Jones, M., PH 1529

BONE DENSITY, ULNA, BIRD, LABORATORY, TIBIA, OVERUSE SYNDROME, ILIOTIBIAL TRACT FRICTION SYNDROME, STRESS FRACTURE, VARIANCE; [E,LM-DE,AV,GR,PM]. Beck, B.R., PH 1517

BONE-DENSITY
WEIGHT TRAINING, WEIGHT RESISTANCE MACHINE, GIRL, ADOLESCENT, NON-COMPETITOR, NON-ATHLETE, COMPARATIVE STUDY; [E,A-DE,AV,MR,GR]. Nichols, D.L., PH 1536

CAFFEINE
ERGONOMIC AID, ENERGY METABOLISM, LIPOLYSIS, FATTY ACID, TREADMILL, NON-ATHLETE, WOMAN, MULTIVARIATE ANALYSIS; [D,L,DE,AV,MR,GR]. Lovitt, M.L., PH 1531

CALCIUM CHANNEL BLOCKER
WEIGHTLIFTING, MUSCLE METABOLISM, SORENESS, HEART RATE, BLOOD PRESSURE, YOUNG ADULT, VARIANCE; [D,L,DE,AV,GR,PM]. Dvorak, R., PH 1523

CHOREOGRAPHY
TEACHING, MANUAL; [D,CH-]. Erickson, V., PE 3698

CLIMBING
MENTAL TRAINING, VISUO-MOTOR BEHAVIOUR REHEARSAL, SEX FACTOR, COMPARATIVE STUDY; [E,DE,AV,GR,PM]. Barton, K., PSY 1905

ROCK CLIMBING, ROPE CLIMBING, MUSCLE, STRENGTH, POWER, FLEXIBILITY, ANTHROPOMETRY, ATHLETE, ELITE ATHLETE, SEX FACTOR, DISCRIMINANT ANALYSIS; [D,A-DE,AV,GR,PM]. Reynolds, H.D., PH 1538

CLIMBING MACHINE
WEIGHT RESISTANCE MACHINE, AEROBIC CAPACITY, PHYSICAL FITNESS, BICYCLE ERGOMETRY, NON-COMPETITOR, NON-ATHLETE, COMPARATIVE STUDY; [E,DE,GR,PM]. Wanger, M.E., PH 1541

COACH
FOOTBALL, PRODUCTIVITY, EFFICIENCY, EVALUATION, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, SURVEY, COMPARATIVE STUDY; [D,S-DE,CS]. McClowry, J.E., PE 3715

CREATINE
DIETARY SUPPLEMENTATION, ANAEROBIC CAPACITY, MUSCLE, STRENGTH, BODY COMPOSITION, BODY WEIGHT, COMPARATIVE STUDY; [E,A-DE,AV,GR,PM]. Strayton, D.C., PH 1540

CREATIVITY
DANCE, MODERN DANCE, CHOREOGRAPHY, CASE STUDY; [D,C,CH,P-]. Hess, M.E., PSY 1918

CROSS-COUNTRY CYCLING
BIOMECHANICS, MOUNTAIN BICYCLE, SUSPENSION SYSTEM, SHOCK ABSORPTION, VARIANCE; [D,LM-DE,AV,GR,PM]. Orendurff, M., PE 3721
CROSS-TRAINING
DANCE, BALLET, FOOTBALL, SECONDARY SCHOOL, PROSPECTIVE STUDY; [D, I, O, Q-]. Stewart, L.D., PE 3736

CRYOTHERAPY
MUSCLE, STRENGTH, AGILITY, VERTICAL JUMP, VARIANCE; [D, L, MA-DE, AV, RM]. Greicar, M.B., PE 3702

CYCLING
CYCLE ERGOMETRY, ENERGY EXPENDITURE, ANAEROBIC CAPACITY, BODY COMPOSITION, LEG, MUSCLE, VARIANCE; [D, A, L-DE, AV, DEL, RM, T]. Bressel, E., PH 1520
TIME TRIAL, BIOMECHANICS, AERODYNAMICS, SADDLE, OXYGEN CONSUMPTION, HEART RATE, RESPIRATION, ENERGY METABOLISM, LACTATE, COMPARATIVE STUDY; [D, I, MA-DE, AV, RM]. Bachman, G., PE 3682
TIME TRIAL, HEART RATE, PACING, PSYCHOMOTOR PERFORMANCE, COMPARATIVE STUDY; [D, L-DE, T]. Murr, M.S., PH 1534

DANCE
MODERN DANCE, CHOREOGRAPHY, BAUSCH, P., SEX ROLE, FEMINISM, STEREOTYPE; [D, CH-]. Messamer, E.S., PE 3716
MODERN DANCE, CHOREOGRAPHY, FEMINISM, SOCIOCULTURAL FACTOR, INDIA, UNITED STATES, BLACKS, CASE STUDY; [D, C, CH, P-DE]. Chatterjea, A., PE 3688
MODERN DANCE, HISTORY, NEW YORK, 1960 D, REVIEW; [D, H-]. Forss, K., PE 3699

DEATH
SUICIDE, PHYSICIAN, QUALITY OF LIFE, VALUES, ATTITUDE INVENTORY, MULTIVARIATE ANALYSIS; [D, S-DE, AV, MAV, MR, RM, T]. Champeau, D.A., PSY 1908

EATING DISORDER
ATHLETE, SEX FACTOR, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, SURVEY, COMPARATIVE STUDY; [D, S-DE, CS]. McClure, A.J., PSY 1923
BULIMIA, ANOREXIA NERVOSA, ATHLETE, WOMAN, CROSS-COUNTRY RUNNING, COACH, FAMILY, QUESTIONNAIRE, APPLIED BEHAVIOUR ANALYSIS; [D, Q-DE, MR, RC, G, %]. Schubiger, R.C., PSY 1929

ENERGY EXPENDITURE
HEART RATE, OXYGEN CONSUMPTION, TREADMILL, HEALTHRIDER, COMPARATIVE STUDY; [D, L-DE, AV, RE, RM, TU]. Hvam, J., PH 1528

ENVIRONMENTAL HEALTH
COMMUNICATION, ATTITUDE INVENTORY, INTERNAL-EXTERNAL CONTROL, SOCIOECONOMIC FACTOR, VARIANCE; [D, I, DE, CS, KW, RC, U]. Lenz, H.H., HE 580

EQUILIBRIUM
MEASUREMENT, INSTRUMENTATION, TEST RELIABILITY, COMPARATIVE STUDY; [D, MA-DE, AV, RM, RPM]. Trulock, S.C., PE 3740
POSTURE, TESTING, INSTRUMENTATION, TEST RELIABILITY, COMPARATIVE STUDY; [D, MA-DE, MR, RPM]. Gruenhagen, C.R., PE 3703

ERGONOMICS
INDUSTRY, HUMAN INFORMATION PROCESSING, COMPUTER ASSISTED INSTRUCTION, COMPUTER PROGRAM, THEORETICAL MODEL; [D, I-DE]. Chiasson, D.S., PSY 1909

EXERCISE
COMPLIANCE, DROP-OUT, CONSTRAINT, APPLIED BEHAVIOUR ANALYSIS, SEX FACTOR, OBESITY, VARIANCE; [D, A, Q-DE, AV]. Hardouin, B.M., PSY 1916
TRAINING, RUNNING, TREADMILL, IMMUNE SYSTEM, ANTIGEN, MOUSE, COMPARATIVE STUDY; [E, L-DE, U]. Murray, J., PH 1535
TREADMILL, TESTOSTERONE, ATHLETE, VARIANCE; [D, A, L-DE, AV, RM]. Fahrner, C.L., PH 1526

FENCING
ATHLETE, NUTRITION, SEX FACTOR, COMPARATIVE STUDY; [D, A, Q-DE]. Campi, L.M., PH 1521

FIRE FIGHTERS
PHYSICAL FITNESS, TESTING, HEART RATE, CANADA, INSTRUMENTATION, TEST RELIABILITY; [D, DE, AV, DU, Z]. Dwyer, J.W., PH 1524

GAIT
CEREBROVASCULAR DISORDER, NON-HANDICAPPED, BIOMECHANICS, KINEMATICS, KINETICS, VARIANCE; [D, L, MA-DE, AV, BON, KW, Z]. Hembree, J.A., PE 3705
GROUP COHESION
GROUP DYNAMICS, BASKETBALL, GIRL, COMPARATIVE STUDY; [D-DE,AV,RC,RM]. Smith, J.W., PSY 1930

HAND WEIGHTS
WALKING, TREADMILL, HEART RATE, BLOOD PRESSURE, WOMAN, VARIANCE; [D-DE,AV,RM,SCH]. Earhart, M.G., PH 1525

HANDBALL
SOCCER, BASKETBALL, INJURY, ELITE ATHLETE, ISRAEL, SOCIAL REINFORCEMENT, INTERPERSONAL RELATION, COPING BEHAVIOUR, STRESS, CORRELATION; [D,Q-DE,AV,RC,RPMT]. Zach, S., PSY 1935

HEAD
INJURY, NEUROPSYCHOLOGY, TESTING, INSTRUMENTATION, VARIANCE; [D-DE,AV,RM,T]. Oliaro, S.M., PE 3719

HEALTH
APPLIED BEHAVIOUR ANALYSIS, CHILD, ADOLESCENT, QUESTIONNAIRE, SASKATCHEWAN, 1982, 1994, COMPARATIVE STUDY; [D,Q-DE,AV,NK]. Kuz, T.C.S., HE 579

HEALTH EDUCATION
CHOLESTEROL, HDL LIPOPROTEIN, TREADMILL, FIRE FIGHTER, VARIANCE; [E,L-DE,RC,T]. Buzz, W.S., HE 573

HEALTH PROMOTION
APPLIED BEHAVIOUR ANALYSIS, CHILD, ADOLESCENT, QUESTIONNAIRE, SASKATCHEWAN, 1982, 1994, COMPARATIVE STUDY; [D,Q-DE,AV,NK]. Kuz, T.C.S., HE 579

HEART DISEASE
REHABILITATION, AEROBIC CAPACITY, ANXIETY, VARIANCE; [D,Q-DE,AV,RC,SCH,T]. Pensenstadler, E.M., HE 583

LONG JUMP
APPROACH, BIOMECHANICS, COMPARATIVE STUDY; [D,MA-DE,T]. Ciapponi, T.M., PE 3690
MARTIAL ARTS
JUDO, HIP THROW, BIOMECHANICS, KINESIOLOGY, VARIANCE; [D,MA-DE,AV,MAV,RM,RPM]. Imamura, R.T., PE 3708
KICKING, ROUNDHOUSE KICK, BIOMECHANICS, MULTIVARIATE ANALYSIS; [D,MA-DE,MAV,RM,TU]. Baishiki, S., PE 3683
UNITED STATES, HISTORY, 1900H, PHILOSOPHY, ATTITUDE INVENTORY; [D,H,I,Q-DE]. Yang, J.B., PSY 1934

MOTIVATION
EXERCISE, APPLIED BEHAVIOUR ANALYSIS, INSTRUMENTATION, TEST RELIABILITY; [D,J,Q,TC-DE,DEL,FA,RC]. Li, F., PSY 1922

MOTOR SKILL
LEARNING, LEARNING DISORDER, CUE, AUDITORY STIMULATION, VISUAL STIMULATION, COMPARATIVE STUDY; [D-DE,AV,RM]. Zicha, E., PSY 1936

MOVEMENT
PATTERN, BODY AWARENESS, SELF-CONCEPT, DANCE, MODERN DANCE, TEACHING; [D,CH,P-]. Siegel, L.H., PE 3733

MUSCLE
STRENGTH, LEG, OVERUSE SYNDROME, ETIOLOGY, ATHLETE, VARIANCE; [D,L-DE,AV,LSD,RM]. Welker, E.J., PH 1542

NEUROMUSCULAR SYSTEM
ARM, SHOULDER, TRAINING, STABILITY, ENDURANCE, STABILOMETRY, VARIANCE; [E,L,MA-DE,AV,RM]. Ubinguer, M.E., PE 3741

OUTDOOR RECREATION

OXYGEN CONSUMPTION
BLOOD PRESSURE, AEROBIC CAPACITY, ARM ERGOMETRY, REST, EXERCISE, VARIANCE; [D,L-DE,AV,RM,TU]. Dejong, G.K., PH 1522

PHYSICAL EDUCATION
HANDICAPPED, PENNSYLVANIA, TEACHER, TEACHER TRAINING, SURVEY; [D,S-DE]. Russell, L.M., PE 3724

PROGRAM, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL, STUDENT, ATTITUDE INVENTORY; [D,H,I,Q-DE,%]. Schorn, M., PE 3728

TEACHER, TEACHER TRAINING, NORTH CAROLINA, BIOGRAPHY, FINK, R.W., RETROSPECTIVE STUDY; [D,H,I,Q-]. Gabele, K.T.P., PE 3701


PHYSICAL THERAPY
RECREATION, THERAPY, REHABILITATION, PHENOMENOLOGY, CASE STUDY, LONGITUDINAL STUDY; [D,CA,J-I]. Murray, S.B., HE 581

PLYOMETRIC TRAINING
TAKE-OFF, VERTICAL JUMP, TRIPLE JUMP, ELECTROMYOGRAPHY, BIOMECHANICS, COMPARATIVE STUDY; [E,L,MA-DE,AV,RM,T]. Stannard, G.M., PE 3735

PSYCHOMOTOR PERFORMANCE
REACTION TIME, TRANSFER OF LEARNING, DRILL, TRAINING, NOVICE ATHLETE, WOMAN, COMPARATIVE STUDY; [D,L-DE,AV]. Plunket, J.H.W., PSY 1925

PSYCHOPHYSIOLOGY
EMOTION, ANXIETY, BOREDOM, COMPETITION, PSYCHOMOTOR PERFORMANCE, SEX FACTOR, VIDEO GAME, MULTIVARIATE ANALYSIS; [D,L-DE,AV,MAV,RM]. Johnson, M.S., PSY 1919

RECREATION
THERAPY, ADVENTURE EDUCATION, WOMAN, SEXUAL ASSAULT, SELF-ESTEEM, COMPARATIVE STUDY; [D,I-DE]. Ross, S.L., PSY 1926

RETIREMENT
ADAPTATION, QUALITY OF LIFE, SELF-PERCEPTION, ATHLETE, UNIVERSITY, WOMAN, SURVEY, RETROSPECTIVE STUDY; [D,S-DE,CS,T]. Schell, L.A., PSY 1928

RUNNING
DISTANCE RUNNING, ERGOGENIC AID, MAGNESIUM, AEROBIC METABOLISM, AEROBIC CAPACITY, OXYGEN CONSUMPTION, HEART RATE, SEX FACTOR, ELITE ATHLETE, VARIANCE; [D,L-DE,AV,RM,T]. Marcuk, D.J., PH 1532
SELF-CONCEPT
ETHNIC GROUP, RACIAL RELATIONS, ATHLETE, UNIVERSITY, CAUCASIAN, BLACKS, QUESTIONNAIRE, SOCIO-CULTURAL FACTOR, VARIANCE; [D,Q-DE,AV,KW,WM,RP,WS,CS,T]. Hall, R.L., PSY 1915

SELF-ESTEEM
ADOLESCENT, BOY, GIRL, ROPE CLIMBING, NON-COMPETITOR, NON-ATHLETE, COMPARATIVE STUDY; [E,Q-DE,T]. Aghazarian, T.L., PSY 1545

SHOT-PUT
PUSH-UP, VISUO-MOTOR BEHAVIOUR REHEARSAL, ACHIEVEMENT, VARIANCE; [E,J-DE,AV,MA,VM,RP]. Gassner, G.J., PSY 1914

SLIDEBOARD
STRENGTH, TRAINING, HAMSTRING, TORQUE, AGILITY, BASKETBALL, ATHLETE, WOMAN, VARIANCE; [D,MA-DE,AV,VM]. Clarke, R., PE 3691

SOCCER
CHILD, SELF-PERCEPTION, INTRINSIC MOTIVATION, EMOTION, PARENT-CHILD RELATION, MULTIVARIATE ANALYSIS; [D,Q-DE,CAN,MAV,MR,RC]. Babkes, M.L., PSY 1904

GOAL KICK, SUCCESS, STATISTICS, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, RETROSPECTIVE STUDY; [D,CA-DE,%.] Santesteban, D., PE 3725

SPECTATOR
FOOTBALL, UNIVERSITY, NORTH CAROLINA, ATTITUDE INVENTORY, SURVEY; [D,S-DE,G]. Thornton, D.T., PSY 1931

SPORT
CAMPING, EQUIPMENT, RETAILING, MARKET RESEARCH, PLANNING; [D,M-DE,%.] Ohe, S.A., RC 502

PARTICIPATION, ADOLESCENT, BANGLADESH, QUESTIONNAIRE, RURAL POPULATION, URBAN POPULATION, SEX FACTOR, COMPARATIVE STUDY; [D,Q-DE,CS,LR,T]. Hossain, F.M., PE 3706

SECONDARY SCHOOL, WASHINGTON STATE, ATHLETIC TRAINER, TEAM, PHYSICIAN, SURVEY, COMPARATIVE STUDY; [D,S-DE,CS,%.] Stout, S.F., PE 3737

UNIVERSITY, ATHLETIC DIRECTOR, ADMINISTRATION, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, POLICY, ATTITUDE INVENTORY, SURVEY; [D,S-DE,AV,WR,T]. Blake, N.C., PE 3685

STRESS
STRESS MANAGEMENT, ATHLETE, NON-ATHLETE, UNIVERSITY, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, COMPARATIVE STUDY; [D,M,Q-DE,BON,RC,T]. Kudlacek, T.L., PSY 1921

STRETCHING
HAMSTRING, KNEE JOINT, RANGE OF MOTION, COMPARATIVE STUDY; [E-DE,AV,AC,RC]. Mende, G.N., PH 1533

STUDENT TEACHER
SUPERVISION, COMMUNICATION, CONTENT ANALYSIS, COMPUTER ASSISTED INSTRUCTION, INTERVIEW; [D,CA-DE,F]. Dzuba, E.J., PE 3693

TENNIS
BACKHAND, TWO-HANDED BACKHAND, BIOMECHANICS, KINEMATICS, ELECTROMYOGRAPHY, TENNIS ELBOW, VARIANCE; [D,MA-DE,AV,RP]. Enomoto, K., PE 3696

COURT, FACILITY, ENTREPRENEURSHIP, MARKETING; [D,LM,S-DE,%.] Krege, J.C., PE 3712

IMAGERY, VISUALIZATION, DECISION-MAKING, RELAXATION, MULTIVARIATE ANALYSIS; [E,Q-DE,LR,MAV,RP]. Conroy, D.E., PSY 1911

SELF-EFFICACY, MOTIVATION, PARENT-CHILD RELATION, CHILD, ADOLESCENT, COMPARATIVE STUDY; [D,Q-DE,AV,FA,MAV,RC,T]. Wiesner, A.R., PSY 1933

SERVE, VISUALIZATION, VISUO-MOTOR BEHAVIOUR REHEARSAL, CROSS-CULTURAL STUDY, CAUCASIAN, BLACKS, SOCIOCULTURAL FACTOR, COMPARATIVE STUDY; [E,COM,Q-DE,AV,MAV,T]. Scales, W.D., PSY 1927

THAI BOXING
KICK, ROUNDHOUSE, BIOMECHANICS, KINETICS, KINEMATICS, FORCE, EVALUATION STUDY; [D,MA-DE,AV,BON,RP]. Sidthislaw, S., PE 3732

THINKING
DECISION-MAKING, PROBLEM SOLVING, CREATIVITY, MENTAL PROCESS, TEACHING, PHYSICAL EDUCATION, ELEMENTARY SCHOOL, COMPARATIVE STUDY; [D,I-DE]. Howarth, K., PE 3707

TOBACCO
SMOKING, RETAILING, ADOLESCENT, WISCONSIN, HEALTH SURVEY; [D,DE,CS]. Frank, R., HE 577
TOURISM
ENVIRONMENT, JAMAICA, ATTITUDE INVENTORY, SURVEY; [D,J,S-DE,AV,FA,MAV,RC]. Frater, J.L., RC 499

TRAP SHOOTING
RECOIL, BIOMECHANICS, SHOULDER JOINT, ROTATOR CUFF, ISOKINETIC, RANGE OF MOTION, GONIOMETRY, TORQUE, VARIANCE; [D,A,MA-DE,AV,RM,RPM]. Hawes, B.P., PE 3704

VISION
VISUAL ACUITY, ATHLETE, TENNIS, PERFORMANCE PREDICTION, CORRELATION; [D,L-DE,RPM]. Cash, J., PSY 1907

WALKING
APPLIED BEHAVIOUR ANALYSIS, NOVA SCOTIA, HEALTH PROMOTION, HEALTH SURVEY; [D,CA,I,O,Q-DE,CS]. Viscount, P.W., PSY 1932

WEIGHT RESISTANCE MACHINE
NAUTILUS, ENDURANCE, WOMAN, AGE FACTOR, LONGITUDINAL STUDY; [D-DE,AV,RM,T,TU]. Soine, M.J., PH 1539

WEIGHT TRAINING
WOMAN, BONE DENSITY, CORRELATION; [E,A,L-DE,BON,MAC,RPM]. Payne, S.G., PH 1537

WEIGHTLIFTING
BENCH PRESS, MUSCLE METABOLISM, FAST-TWITCH FIBRE, SLOW-TWITCH FIBRE, SORENESS, VARIANCE; [D,L-DE,AV,RM,T]. Barnes, P.M., PH 1516

WHEELCHAIR SPORT
BASKETBALL, QUAD RUGBY, TENNIS, BOWLING, TRACK AND FIELD, INJURY, SURVEY, VARIANCE; [D,S-DE,AV,G]. Schmalbach, L.A., PE 3727

WRESTLING
SECONDARY SCHOOL, WEIGHT CONTROL, WEIGHT GAIN, WEIGHT LOSS, COACH, NORTH CAROLINA, ATTITUDE INVENTORY, SURVEY; [D,S-DE,]%]. Kota, J.M., PE 3711
<table>
<thead>
<tr>
<th>Name</th>
<th>Course</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aghazarian, T.L.</td>
<td>PSY 1904</td>
<td>40</td>
</tr>
<tr>
<td>Babkes, M.L.</td>
<td>PSY 1905</td>
<td>41</td>
</tr>
<tr>
<td>Bachman, G.</td>
<td>PE 3682</td>
<td>8</td>
</tr>
<tr>
<td>Baishiki, S.</td>
<td>PE 3683</td>
<td>8</td>
</tr>
<tr>
<td>Barnes, P.M.</td>
<td>PH 1516</td>
<td>18</td>
</tr>
<tr>
<td>Barton, K.</td>
<td>PE 1906</td>
<td>39</td>
</tr>
<tr>
<td>Beck, B.R.</td>
<td>PH 1517</td>
<td>18</td>
</tr>
<tr>
<td>Beckerman, N.D.</td>
<td>PE 1907</td>
<td>37</td>
</tr>
<tr>
<td>Bezner, S.A.</td>
<td>PE 3684</td>
<td>8</td>
</tr>
<tr>
<td>Binkley, H.M.</td>
<td>PH 1518</td>
<td>19</td>
</tr>
<tr>
<td>Blake, N.C.</td>
<td>PE 3685</td>
<td>1</td>
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<tr>
<td>Braham, V.W.</td>
<td>PH 1519</td>
<td>19</td>
</tr>
<tr>
<td>Bressel, E.</td>
<td>PH 1520</td>
<td>19</td>
</tr>
<tr>
<td>Buchanan, H.A.</td>
<td>HE 572</td>
<td>27</td>
</tr>
<tr>
<td>Busby, M.A.</td>
<td>PE 3686</td>
<td>15</td>
</tr>
<tr>
<td>Buzza, W.S.</td>
<td>HE 573</td>
<td>27</td>
</tr>
<tr>
<td>Campi, L.M.</td>
<td>PH 1521</td>
<td>20</td>
</tr>
<tr>
<td>Caputo, J.L.</td>
<td>HE 574</td>
<td>27</td>
</tr>
<tr>
<td>Cash, J.</td>
<td>PE 1908</td>
<td>40</td>
</tr>
<tr>
<td>Caster, B.L.</td>
<td>PE 3687</td>
<td>9</td>
</tr>
<tr>
<td>Champeau, D.A.</td>
<td>PE 1909</td>
<td>33</td>
</tr>
<tr>
<td>Chatterjee, A.</td>
<td>PE 3688</td>
<td>6</td>
</tr>
<tr>
<td>Chemiss, K.T.</td>
<td>PE 3689</td>
<td>15</td>
</tr>
<tr>
<td>Chiasson, D.S.</td>
<td>PSY 1910</td>
<td>34</td>
</tr>
<tr>
<td>Ciapponi, T.M.</td>
<td>PE 3690</td>
<td>9</td>
</tr>
<tr>
<td>Clarke, R.</td>
<td>PE 3691</td>
<td>9</td>
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