Health
Physical Education
and Recreation

Exercise and Sport Sciences

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BULLETIN 9, 1
This publication is the first issue of Bulletin 9. The bulletin represents microfiche published in April 1996. Previously, bulletins were published every 5 years, except for Bulletin 7, which covers two and a half years. Beginning with Bulletin 8, there will be 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 9, 2 will appear in October 1996.

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The price of each title in this bulletin is indicated in parentheses at the end of the title listing. The price includes the library catalog card for the title. All titles have proper catalog headings, including both Dewey Decimal and Library of Congress classification numbers, as well as subject headings chosen from the Library of Congress Subject Headings.

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128 titles - 220 fiche $605.00

## Key

- PE = Physical Education
- PH = Physiology and Exercise Epidemiology
- RC = Recreation and Leisure
- HE = Health Education
- PSY = Psychology
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San Jose State University
Saskatchewan, University of, at Saskatoon
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Slippery Rock University
Sonoma State University
South Australia College of Advanced Education
South Dakota State University
Southeast Missouri State University
Southern Illinois University

Southern Mississippi, University of
Southwest Missouri State University
Southwest Texas State University
Sport Information Resource Center (Coaching Association of Canada)
Springfield College
State University of New York (Brockport)
State University of New York (Cortland)

Temple University
Tennessee, University of
Texas A&M University
Texas, University of, at Austin
Texas Tech University
Texas Woman’s University
Toledo, University of
Trenton State College

Utah, University of

Victoria Institute of Technology (Footscray, Australia)

Washington State University
Wayne State College (Nebraska)
Wayne State University (Michigan)
West Chester State College
Western Illinois University
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
  Pedagogy ........................................................................................................................................ 2
Dance ................................................................................................................................................... 5
Biomechanics ......................................................................................................................................... 6
Sports Medicine ................................................................................................................................... 8
Physiology and Exercise Epidemiology ............................................................................................ 13
Health Education .............................................................................................................................. 23
Recreation and Leisure ........................................................................................................................ 26
Psychology ......................................................................................................................................... 26
  Anxiety ........................................................................................................................................ 26
  Attitudes and Values ...................................................................................................................... 27
  Behavior Analysis .......................................................................................................................... 28
  Motivation .................................................................................................................................. 32
  Motor Learning and Control .......................................................................................................... 33
Personality .......................................................................................................................................... 34
Self-Concept ...................................................................................................................................... 35
Social Psychology ............................................................................................................................ 37
Stress ............................................................................................................................................... 39

Part II: Keywords ....................................................................................................................................... 41

Index: .................................................................................................................................................... 53

Additional Items Available from Microfiche Publications .............................................................. 55

Order Form ........................................................................................................................................... 57
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

Jacob, Michael P. College women athletes’ knowledge and perceptions of Title IX, 1993. M.S., Iowa State University (Sharon Ann Mathes). (118pp 2f $8.00) PE 3603

The purpose of the study was to: (1) determine athletes’ knowledge about Title IX; (2) assess athletes’ perceptions of Iowa State’s compliance with Title IX; (3) determine if athletes’ knowledge and perceptions of Title IX varied by academic standing, gender of head coach, college athletic honor, team affiliation, age, year of eligibility, residency and academic honor; (4) compare athletes’ knowledge of title IX with how they rated their athletic program across all areas of Title IX.

McKinstry, Jay P. Risk management behaviors of NCAA Division III head football coaches, 1993. M.S., Iowa State University (Gary R. Gray). (123pp 2f $8.00) PE 3612

The problem was to examine safety-related behaviors exhibited by the 225 NCAA Division III head football coaches in operating a college football program. The instrument used in the study was a questionnaire designed by the investigator to obtain a self report by these coaches regarding specific risk management behaviors utilized in their football programs. The survey was based on recommendations from legal authors and relevant court decisions. A total of three mailings were conducted to obtain 182 respondents. Calculations of composite means and standard deviations for all survey items were conducted. Also, t-tests were conducted on the grand composite means, the composite mean scores for each of the six conceptual areas, and on the mean scores of the individual survey items by: current coaching status, other sports coached, educational background, undergraduate major, graduate major, first aid certification, and CPR certification. The results showed no significant differences existed when analyzed by grand composite means, two significant differences existed in the analysis of composite means by conceptual areas, and 13 significant differences existed in the mean scores of individual survey items.

Wingate, Allison M. An investigation into the state of crisis management plans at National Collegiate Athletic Association Division I-A athletic departments, 1995. M.A, University of North Carolina at Chapel Hill (Frederick O. Mueller). (99pp 2f $8.00) PE 3624

The purpose of this study was to assess the number of Division I-A athletic departments that have crisis management plans, the extent to which those athletic departments have developed their crisis management plans, and the common attitudes toward crisis management in Division I-A athletic departments. Questionnaires were mailed to all 107 NCAA Division I-A athletic departments; the return rate was 45%. The average responding school had an enrollment of 21,765 and offered 19 varsity sports. The element of crisis management that the greatest number of athletic departments have in place is the crisis team, and many also have systematic, formalized ways to track potential crises. NCAA violations are considered the greatest threat to athletic departments, as well as natural disasters and crowd control. Athletic administrators feel best prepared to handle medical emergencies, due to the large number of trained personnel on duty at events. The greatest number of athletic departments are least prepared to handle natural disasters, due to the unpredictable nature of the crisis. Athletic administrators have an enlightened attitude toward crisis management; they agree that their departments need crisis management, that crisis management efforts make their programs more effective, and that their programs are vulnerable to crisis.

Yablunosky, Matthew S. Analyzing the private contributions among collegiate letterwinners, 1995. M.A, University of North Carolina at Chapel Hill (John Billing). (66pp 1f $4.00) PE 3625

The purpose of this study was to analyze the status and contribution practices of letterwinner donors to the Educational Foundation, Inc. at the University of North Carolina at Chapel Hill. One hundred-ten individuals, from a total population of 164 (67% response rate), who both earned a varsity letter in athletics at the University of North Carolina during the years 1979-1989 and currently donate money to the Foundation comprised the sample. Letterwinner donors ranked the motives of school loyalty, opportunity to provide scholarships, and personal enjoyment as the three most influential reasons, respectively, for
their contributions. A repeated measures, two factor ANOVA failed to show any significant interaction effect between these three donor motives and the donor characteristics of gender, sport participation, and honors received. The effect of school loyalty as a motive was found to be significantly more important than personal enjoyment and the provision of scholarships across all three segments of donor characteristics. A chi-square test for independence revealed that letterwinner donors showed a significant preference in selecting an initial level of contribution. Forty percent of the sample contributed in the $1-50 level. The principle of reciprocity suggests that society obligates people to give back the form of behavior that they receive. A belief in this mindset will signal to athletic fund-raisers that collegiate letterwinners represent a prime source for increased contributions.

**PEDAGOGY**

Allam, Paul F. W. *System 5: an information processing approach to teaching tennis*, 1995. M.A, University of North Carolina at Chapel Hill (Frank Pleasants). (89pp 1f $4.00) PE 3581

Eighteen advanced-intermediate women tennis players were placed into two balanced ability groups. The groups were named the Conventional Group (n = 9), and the Five Keys Group (n = 9). All the players in the Conventional Group played against all the players in the Five Keys Group in a pre-treatment rally match tournament (a total of 81 matches). Each group received ten, one-hour coaching sessions in one of two contrasting coaching styles. The Conventional group received instruction with a technical emphasis, while the 5 Keys Group received instruction designed to improve tactical awareness and decision making through the 5 Keys to Tennis. A week after the completion of the 10 coaching sessions, the players of both groups played against each in a post-treatment rally match tournament structured identically to the first tournament with each player facing the same nine opponents. A 2 x 2 ANCOVA showed that there was a significant main effect on matchplay performance due to the type of coaching received by both groups. Subjects in the Keys Group improved their matchplay performance significantly more than those subjects in the Conventional group.

Ballat, Paul C. *Effects of selected curriculum materials and teaching experience on the preactive planning of physical educators*, 1995. Ph.D., Temple University (Thomas W. Evaul). (269pp 3f $12.00) PE 3582

The purpose of this study was to determine the effects of two types of curriculum materials (learning activity cards vs. traditional unit plans) and/or teaching experience (inservice vs. preservice) on decisions made by physical educators during the preactive planning process. The subjects for this study were 12 inservice teachers and 12 preservice physical education majors. Six teachers of each type were randomly assigned to one of two types of curriculum materials to plan five lessons in self-defense. A two-factorial experimental design was employed to compare data collected from the four treatment groups: (a) inservice teachers using traditional curriculum materials, (b) inservice teachers using learning activity cards, (c) preservice teachers using traditional curriculum materials, and (d) preservice teachers using learning activity cards. The teachers were instructed to “think aloud” into an audio tape recorder as they planned. The audiotapes were coded based on the types and frequency of planning statements and the origin of the statements. The coded data provided the basis for the statistical comparisons of group means. Differences in the frequency of planning statements, time spent planning, and total number of decisions made were not found to be statistically significant. Statistically significant differences were not found in the percent of planning statements that were taken directly from the materials provided, based on the materials used or the level of teaching experience. Additional data were gathered during interviews after the planning sessions were completed. Qualitative responses to the interview questions indicated that teachers who used the learning activity cards preferred this type of materials over traditional materials they had used in the past. Teachers who used the traditional unit plans requested additional information and materials that existed within the learning activity cards of parallel content.

Bodette, Derek R. *The perceptions of college physical education teaching majors with respect to teacher enthusiasm*, 1995. M.S., Springfield College (Gretchen A. Brockmeyer). (118pp 2f $8.00) PE 3584

This study involved obtaining the perceptions of teacher enthusiasm by college physical education teaching majors. All subjects (N=90, 45 male and 45 female) had taken ‘none’, ‘one-two’, or ‘three-four’ specified physical education methods courses, and were given a modified version of the Teacher Enthusiasm Rating Instrument developed by Fischer (1992) to measure teacher enthusiasm in secondary physical education. A 2 X 3 factorial analysis of variance (ANOVA) as well as a repeated measures ANOVA were utilized. No significant (p>.05) interaction was found between gender and the number of specified methods courses taken. However, significant (p<.05) differences were found among the three specified course levels for four of the factors incorporated in the instrument: ‘direct teaching’; ‘expressive’; ‘responsive teaching’; and ‘interpersonal interaction’. However, only for the last factor was there an increase in the ratings given with an increase in the number of courses taken. Lastly, no significant (p>.05) gender differences were found among any of the factors, but four of the seven factors were rated significantly (p<.05) higher than the others by all of the students.

The purpose of this study was to attempt to identify the relationship of high and low levels of teacher enthusiasm on the Academic Learning Time of elementary students in a physical education environment. A randomized multi-element design was utilized to permit comparisons of the effects of the treatments (high and low enthusiasm) across 16 days of instruction with each of the interventions being equally balanced (eight days of high enthusiasm, eight days of low enthusiasm). An enthusiasm rating scale developed by Collins (1976) was used to train the instructor to purposefully exhibit high and low levels of enthusiasm. The West Virginia University Teaching Evaluation System (WVU TES) was used to assess the dependent variable (ALT-PE). The student behaviors were of main concern. Data was recorded on an electronic microcomputer (NEC PC-8300) by the investigator. An analysis of the percentages of ALT-PE observed indicated that enthusiastic teaching positively related to the students sustaining motor appropriate behavior for higher, percentages of time. Unenthusiastic teaching in turn produced higher rates of motor inappropriate behavior and non-subject matter behaviors (specifically interim). Results also indicated that enthusiastic teaching produced a statistically significant rate of behavior change in the instructor. The teacher behavior of positive feedback was also found to significantly correlate with level of enthusiasm. The enthusiastic teacher emitted a higher rate of positive feedback. The results of the study indicate that a functional relationship exists between teacher enthusiasm and ALT-PE. Results also indicated that a teacher trained to exhibit enthusiastic behaviors can sustain those behaviors in an actual teaching setting.

Hammel, Patricia A. *Changes in clinical students' perceptions of developmental physical education and effective teaching*, 1995. M.S., University of Wisconsin-La Crosse (Jeffrey Paul Steffen). (74pp 1f $4.00) PE 3595

Male and female (N=51) college students in a physical education teacher preparation program completed a questionnaire to record their perceptions of developmental physical education and effective teaching methods before and after a 20 hour clinical experience. Subjects were in either their first 20 hour clinical experience (Group A) or their second 20 hour clinical experience (Group B). The questionnaire contained 25 multiple choice questions about developmental physical education and effective teaching methods. The remaining 11 questions determined background information about where the subjects perceived they gained the knowledge to answer the questions and a description of their elementary, middle, and high school physical education experiences. An ANOVA determined that there was no significant change (p>.05) in the subjects' perceptions from the beginning of the clinical experience to the end. Thirty-nine percent of the subjects attributed their influence in answering the effective teaching and developmental questions as being the university professors and another 27% attributed influences as coming from cooperating teachers. Further investigation of the changes in the subjects' perceptions is warranted. A more extensive questionnaire and qualitative analysis would help to obtain this information.

Harris, Johanna L. *The development of competency guidelines for riding instructors and equestrian coaches*, 1995. M.A, University of North Carolina a Chapel Hill (Pamela S. Robinson). (101pp 2f $8.00) PE 3596

The purpose of this study was to (a) develop competency guideline statements that indicate the knowledge and skills that riding instructors and equestrian coaches should possess or demonstrate, and (b) determine if significant differences exist regarding the importance of statements for inclusion in competency guidelines for riding instructors and equestrian coaches. A knowledge synthesis process was used by the researcher to allow categories and classes of information to emerge from the available literature. Competency guideline statements were then created to satisfy each class of information. The competency guideline statements and two questionnaires were submitted to experts affiliated with 77 national equestrian-related organizations; 14 subjects responded (18%). Results of this study revealed that significant differences exist in the importance of competency guideline statements for...
An attempt was made to develop a teacher effectiveness scale (TES) to evaluate teacher behaviors of student teachers for the teacher preparation program in Hong Kong. Respondents for the content validity phase were experienced experts (N = 59) in the area of teacher preparation. As a result of content verification, the experts identified items for a four-factor model of TES which was then quantitatively assessed by confirmatory factor analysis (CFA) and alpha reliability. Respondents for the construct validity phase were college students (N = 477) of the physical education major in the teacher preparation program in Hong Kong. Weighted Least Squares (WLS) and Maximum Likelihood (ML) methods were used to compute parameter estimates and to select appropriate items for each factor. With CFA, four TES factors were identified: ‘planning and preparation’, ‘instructional strategies’, ‘interaction and feedback’, and ‘classroom management’. The four factor model was an adequate fit to the data, and a plausible representation of the factor structure of teacher effectiveness.

Investigated in this study was whether participation in a conceptually based physical education curriculum would influence attitudes of international school students toward physical activity. The Children’s Attitudes Toward Physical Activity (CATPA) inventory was administered to Grade 8 students who had experienced a conceptually based curriculum for 2 years and Grade 6 students who had not participated in such a curriculum to determine whether there were differences in attitudes between curriculum groups, between males and females, or among three cultural zones as measured by the CATPA subscales. No differences in attitudes were found between curriculum groups. However, eighth grade American zone students scored higher than eighth grade Asian zone students on the ‘Social Continuation’ subscale; American and European zone females scored higher than their male counterparts on the ‘Aesthetic’ subscale; males scored higher than females and American zone students scored higher than either European or Asian zone students on the ‘Vertigo’ subscale; males scored higher than females on the ‘Catharsis’ subscale.

School districts (N = 417) in Wisconsin were surveyed at the elementary level to determine what assessment tools were being used. A total of 131 surveys with responses were returned. These 131 surveys accounted for 175 districts and a 42% return rate. Of the 131 teachers responding 84% had the state of Wisconsin 860 add-on certification in Adapted Physical Education. Data were analyzed by grade level (early childhood, K-3 & 4-6). Results showed that the three most frequently used tools were Bruininks-Oseretsky Test of Motor Proficiency, Test of Gross Motor Development, and the Peabody Developmental Motor Scales. No single test was found to be used for any specific disability. Early childhood students were assessed most frequently with the Peabody Developmental Motor Scales for IEP objectives, programming services, or both. Kindergarten through 6th grade students were assessed with the Bruininks-Oseretksy Test of Motor Proficiency most often for IEP objectives, programming services, or both. There appeared to be a different variety of assessment tools used for early childhood than for the elementary students. However, at each level, three tools were predominantly used. Given the number of variables that should be attended to (e.g., age level, disability, and curriculum needs) there appeared to be a lack of well defined criteria used by districts to determine appropriate assessment tools for each student.

The purpose of this study was to determine what factors contributed to success, or low scoring average, in male college golfers and how male college golfers compared to PGA Tour golfers. More than 9,000 rounds played by 222 golfers from across the U.S. were analyzed. The independent variables of fairways hit, greens hit in regulation, putts per round, sand saves and non-sand saves were examined to see how they affected the dependent variable, scoring average. The method used was regression analysis. Data analysis revealed that greens hit in regulation was the biggest determinant of low scoring average, followed by putting, non-sand saves, sand saves and fairways hit. Greens hit in regulation, putting and non-sand saves were the only significant factors. This provides an argument against the traditional advice given by professional golfers regarding the extreme importance of accurate drives.
When comparing college golfers to PGA Tour golfers, it was discovered that the best college golfers had better statistics than those ranked in the bottom 25 on the PGA Tour—except for low scoring average. The best college player in each category was superior to the PGA Tour leader except scoring average, where the collegian was three shots worse per round. The averages of the college golfers were inferior to the averages of PGA Tour players in every category with the exception of putts per round.

Williams, Emyr W. Effects of a multimedia performance principle training program on correct analysis and diagnosis of throwlike movements, 1995. Ph.D., Ohio State University (Deborah Tannehill). (271pp $12.00) PE 3623

The purpose of this study was to investigate the effectiveness of a multimedia performance principle training protocol on subjects’ ability to analyze and diagnose throwlike sport skill movements. This study also examined the extent to which subjects’ analytic and diagnostic skills generalized to untrained throwlike movements. The design used for this study was a multiple probe baseline design across four performance principles: magnitude of force, point of application of force, horizontal direction of force, and vertical direction of force. Subjects included six undergraduate volunteers who had an interest in physical education, sport studies, and/or coaching. The study was conducted over a six week period. Performance principle interventions were administered in the order listed above. Subjects completed training in pairs. At the end of each instructional module, a mastery test score of 80% or higher allowed subjects to exit the program, otherwise subjects were forced to review certain components of the instruction and re-take the mastery test. Probes asked subjects to: 1) discriminate between correct and incorrect performance, 2) select which performance principle was most deficient, and 3) to indicate which sequential phase of the throwing movement first exhibited performance deficiencies. Data was visually analyzed for changes in level, trend, and variability. Results indicate that prior to intervention baseline measures for correct discrimination of performance were moderately high, however appropriate performance principle and throwing sequence identification were low. Following intervention, subjects’ correct and incorrect performance discrimination scores improved from already high level. Immediately following intervention proficiency levels improved for performance principle identification, however the degree to which subjects maintained proficiency levels varied across subjects and performance principles. Proficiency levels for identification of throwing phase errors was moderate at best and varied across subjects and phases. Training for diagnosis was not as effective as discrimination and analysis training, with the instructional format employed. Discrimination, analytic, and diagnostic skills acquired through intervention generalized to untrained throwlike movements. For the analysis of movement, a theoretical framework that examines errors in relation to a movement sequence may provide more answers to the diagnosis of errors. Collaborative research efforts between pedagogy and biomechanics to identify sequential movement patterns and errors would enhance our understanding of movement and the training of those who teach in schools. And finally, although students can learn through multimedia instruction, individual development of computer based instructional programs may be impractical which suggests that collaborative projects aimed at supplementing instruction may be more beneficial.

DANCE


In my choreographic investigation I linked Julia Kristeva’s insight into the instability of language to my own choreographic process. I produced a concert of new dance works in which I investigated gender as a discourse in order to broaden boundaries that encompass many ranges of gender. Conscious choices were made to abide by our socio-cultural understanding of gender roles, to uncover the instability of the dominant paradigm, and to explore what exists between the two poles. While acknowledging the fact that I am always being constructed, I attempted to remake or suggest alternatives to our social ideal. My choreographic process involved discovering the specific subjectivities of the twelve dancers in the concert in order to combat the rigidity of fixed ideas about gender, and to open doors to new and rich choreographic choices.

Christensen, Kimberly M. Effects of an interval training dance class on select cardiovascular variables, 1994. M.S., University of Oregon (Steven J. Chatfield). (95pp $4.00) PE 3585

The purpose of this study was to determine if concepts of interval training could be applied to a modern/jazz dance class to increase the cardiovascular fitness of participants. The class met 55 minutes, 3 times weekly for 10 weeks. Fourteen collegiate female volunteers were tested (9 experimentals and 5 controls). Pre and posttest submax heart rate and max VO₂ responses were measured during a graded exercise treadmill test. ANOVA found a significant (p=.04) posttest mean submax HR decreases for experimentals’ response to a given workload (146.4±22.6 to 127.7±20.2 bpm). No significant max VO₂ differences were detected between experiments and controls for pre/posttesting. Respective mean pre/post max VO₂ values were 37.89±4.1 and 41.03±5.1 ml/kg/min for experimentals, and 38.96±4.5 and 39.32±5.3 ml/kg/min for controls.
Goodwin, Nolan W. *Winterton remembered: the restaging of four dances by Dee Winterton*, 1994. M.A, Brigham Young University (Pat Debenham). (95pp 1f $4.00) PE 3592

This thesis restaged four dances choreographed by Dee Winterton. In the reconstruction process the author was involved in three distinct phases that lead to a final performance at 7:30 p.m. on June 3, 1994 in the Dance Studio Theatre 166 RB. The three phases of reconstruction were: 1. Research. This included research into the choreography and philosophy of Dee Winterton. 2. Production preparation. This included the necessary steps that were taken to bring the production Winterton Remembered to fruition. 3. Performance and informal evaluation. The performance was scheduled on June 3, 1994 and video taped as part of this thesis. The author and his Committee conducted an informal evaluation by answering questions posed by the author.

Honka, Rita J. M. *Body therapy repatterning and the neuromotor system*, 1992. M.S., University of Oregon (Steven J. Chatfield). (130pp 2f $8.00) PE 3599

The repatterning hypothesis employed by body therapists in dance training was analyzed with respect to Developmental Reflex Therapy and the Systems Model of motor control. The analysis resulted in four hypothetical neural modifications that could occur due to repatterning techniques. These hypotheses are discussed using pertinent literature from the fields of motor control, motor learning, psychology, neurophysiology, and dance. The hypotheses that body therapies may affect muscle activity within or between synergies were chosen for further investigation. An experimental design was proposed as a possible means to investigate the repatterning hypothesis.


The purpose of this thesis was to introduce one aspect of Japanese culture to American people through choreography, performance and program notes of a modern dance piece based on a Japanese folk tale. This thesis was evaluated through questionnaires distributed to selected people. The analysis and transcript of the questionnaire are included. The result of this thesis confirmed the author’s belief that honesty, sincerity, and integrity are keys to reaching audiences’ hearts. A videotape of the performance portion of the thesis is available in the Dance Department and Harold B. Lee Library at BYU.

Krasnow, Donna H. *Integration of imagery into conditioning practices for dancers*, 1994. M.S., University of Oregon (Steven J. Chatfield). (202pp 3f $12.00) PE 3605

The purpose of this study was to evaluate the influence of conditioning-with-imaging on dance performance and alignment. The subjects, 19 university dance students, were divided into controls and three training groups: imagery, conditioning, and conditioning-with-imaging. Dynamic alignment and dance performance were measured pre- and posttraining. Each training group met 3 times per week, for 1 hour, for 8 weeks. For alignment assessment, subjects completed grand plies in two conditions: from quiet stance, and with off-center torso movement preceding the plié. For all subjects pooled, there were significant differences between conditions, suggesting that alignment studies need to examine dancers during active dance movement. In assessing dance performance, for all subjects pooled, there were significant improvements over time. The dance performance measure demonstrated acceptable validity and reliability, suggesting its value in assessing dance performance.

Monasterio, Rita A. *Postural adjustment for voluntary leg movement in dancers*, 1994. M.S., University of Oregon (Steven J. Chatfield). (194pp 1f $4.00) PE 3613

The purpose of this study was to determine whether dancers demonstrate differences in postural control responses when compared to nondancers. Specifically, did differences of posture - voluntary onset lag (PVOL) exist in electromyographic (EMG) responses and angular hip displacement (AHD) between dancers (N=4) and nondancers (N=7). Kinematic and EMG data were collected on a discrete dance movement requiring maintenance of a one legged stance. PVOL mean differences, as well as AHD changes, were calculated as indicators of performance differences between dancers and nondancers. A significant difference was found between dancers and nondancers for PVOL with the dancers exhibiting postural muscle onset prior to voluntary movement and the nondancers exhibiting postural muscle onset after voluntary movement. Measurement of AHD was inconclusive.

**BIOMECHANICS**

Corvalan-Grössling, Veronica. *The physiological and perceived effects of drafting on a group of highly trained distance runners*, 1995. M.S., University of British Columbia (Jack E. Taunton). (113pp 2f $8.00) PE 3587

This investigation examined and compared submaximal oxygen consumption, carbon dioxide production, minute ventilation, and heart rate responses during indoor track running in three running configurations in a group of highly trained distance runners. Maximal oxygen consumption performance testing was conducted to determine at what percentage of their maximal aerobic capacity the subjects were performing at during the test trials. Oxygen
consumption, carbon dioxide production, minute ventilation, and heart rate values were measured every 20 seconds during all test trials using a portable calorimeter. Following each trial, runners were asked to rate their perceived exertion using the Borg scale. Subjects were randomly assigned configurations and order of testing. A recovery period of 15 minutes was required between all trials. Nine subjects were tested at 4.47 m/s in three positions, L, D1 and D2. During the 4.47 m/s trials, drafting (D1 + D2) significantly reduced oxygen consumption (4.02±0.18 l/min leading versus 3.81±0.13 l/min drafting), and carbon dioxide production (3.74±0.23 l/min leading versus 3.32±0.13 l/min drafting) (p<0.05). There was no significant difference in the reduction of oxygen consumption or carbon dioxide production between running directly behind a single runner, position D1, and running behind on the inside of a triangle, position D2. Minute ventilation and heart rate were not significantly reduced during the drafting (D1+D2) trials. There was a significant reduction in the rating of perceived exertion for running behind on the inside of a triangle, position D2. A sub-group of five subjects was also tested at 5.36 m/s in two positions, L and D1. During the 5.36 m/s trials, drafting in position D1 had the same effect as it did at the 4.47 m/s with the exception that the reductions were slightly larger than those observed for the slower pace. Drafting in position D1 substantially reduced oxygen consumption (4.76±0.20 l/min leading versus 4.35±0.20 l/min D1), and carbon dioxide production (4.44±0.28 l/min leading versus 4.16±0.26 l/min D1). Minute ventilation, heart rate, and rating of perceived exertion were not reduced during the drafting (D1) trials. These results demonstrate that running within the aerodynamic shadow of another runner is very advantageous for distance runners. Both drafting positions tested were found to be equally effective in conserving energy. Drafting on the inside of a triangle was the position of choice. Coaches should expose athletes to drafting situations in training so that athletes can successfully employ this energy-saving strategy. One must also be aware that athletes who consistently run within a pack or drafting are not obtaining the full benefits of their training regimen.

Denny, Karen L. A biomechanical analysis of the effects of hand weights on the arm-swing while walking and running, 1995. M.S., University of Wisconsin-La Crosse (Marilyn K. Miller). (73pp 1f $4.00) PE 3588

Ten female track runners (X age=21.5) volunteered as subjects to determine if 4 lb hand weights would alter shoulder and elbow displacements and angular velocities under various locomotion speeds. Subjects were videotaped walking at 3.0 mph and running at 6.0 mph at a 0% grade, with and without hand weights. The ARIEL (APAS) system was used to create a 2-dimensional image of each subject while performing. A 2-way ANOVA with repeated measures (p<.05) was used to test the hypothesis. The F values for elbow and shoulder angular velocity with and without hand weights were 2.07 and 1.49, respectively. The values for shoulder and elbow angular velocity while walking and running were 1.87 and 3.96, respectively. The speed and condition interaction for the shoulder and elbow angular velocity during walking and running and with and without hand weights were 1.55 and .99, respectively. The F values for elbow and shoulder angular displacements with and without hand weights were 2.06 and .56, respectively. The F values for walking and running were 4.03 and 1.72, which failed to meet the critical F of 18.5. The speed and condition interaction for angular displacements at the elbow and shoulder while walking and running were .96 and 1.06, respectively. All values for the elbow and shoulder angular velocities and displacements were not significant. Further investigations with a different subject population and protocol are recommended. To determine the effects of hand weights on the body, a 3-dimensional analysis is a recommended future area of study.

Dexter-Fogarty, Tracey. The effectiveness of the hinged golf club as a training aid to develop consistency in novice golfers. 1995. M.S., Springfield College (H. Joseph Scheuchenzuber). (114pp 2f $8.00) PE 3589

The study was designed to demonstrate the effectiveness of a training aid for 14 college-age male, novice golfers. Pre- and post-test video sessions were used to examine differences among the experimental and control groups. Differences were examined by studying the area of the hub path, club head angular velocity prior to impact, and the percentage of center of mass shift. A total of three 2x2x3 mixed factorial analysis of variance were computed. For all dependent variables, no significant (p>.05) second order interactions were found. For club head angular velocity, a significant (p<.05) first order interaction was found among the treatment groups and pre- and post-tests. The control group had a significantly (p<.05) higher mean club head angular velocity score before practice; however after practice, scores were similar for both groups. All other variables had no significant (p>.05) first order interactions. No significant differences (p>.05) were found when analyzing the main effects for the area of the hub path and percentage of center of mass shift. For all variables, golfers did not improve or become more consistent after practice with the hinged club.

Levanon, Jacob. Three-dimensional kinematic and kinetic analysis of two common kicking techniques in soccer, 1995. Ph.D., Indiana University (Jesus Dapena, Wynn F. Updyke). (105pp 2f $8.00) PE 3607

Three-dimensional cinematography and inverse dynamics were employed to analyze the full-instep kick (FK) and the pass kick (PK) executed by 6 college varsity soccer players. In FK, the rotations of the leg segments occurred primarily within the thigh-shank plane (TSP). In PK leg motions
occurred both within TSP and in the medial direction, normal to TSP. Flexion/extension rotation at the knee accounted for most of the speed of the foot at impact in both kicks. The speeds of the foot immediately before impact and of the ball following impact were larger in FK. A clear positive relationship was found between the speed of the foot before impact and of the ball following impact. The flexion/extension torques at the hip and knee joints exhibited a similar pattern in both kicks, with maximum hip flexion and knee extension values in the middle part of the motion. A varus torque exerted by the thigh on the shank at the knee was found in both kicks, but in PK it was quite large. Repetitive use of PK could lead to injury.


The purpose of this study was to determine if differences exist between the Vertec and the BIOTRAN in measuring vertical jump height. Twenty five men and twenty five women from the University of North Carolina at Chapel Hill volunteered to perform five sets of three types of jumping techniques. Each jump was measured by two devices simultaneously, the Vertec and the BIOTAN, for comparison. The Vertec was used as the standard measure. A Pearson Product Moment Correlation Coefficient indicated that a very strong correlation ($r=.9709$, $r=.7831$) was found to exist between the original and the test-retest data for the standing jump, for both the Vertec and the BIOTAN indicating that a very high percentage of the data was predictable. Independent T-tests for the standing, one-step, and two-step jumping techniques showed that no statistically significant differences were found to exist between the BIOTAN and the Vertec measurements. Although a statistically significant difference may not exist, a consistent 3-4 inch deficit in the BIOTAN data indicates that there are practical differences that do exist. It is suggested that these differences may be due to an inconsistency between the operational definitions of vertical jump height for each device. It is suggested that raising up from the flat footed position to the tip-toe position may account for the differences between the measurements made by the BIOTAN and the Vertec. It is further recommended that this study be repeated, adopting the tip-toe position to determine the standing reach needed to calculate jump height on the Vertec.

**SPORTS MEDICINE**

Cook, Ben T. *An investigation of North Carolina high school football coaches: their knowledge of conditioning and strengthening the athlete*, 1995. M.A, University of North Carolina at Chapel Hill (Edgar W. Shields, Jr.). (45pp 1f $4.00) PE 3586

A questionnaire was administered to 110 North Carolina high school football coaches attending the annual football coaches clinic conducted at the University of North Carolina at Chapel Hill during the summer of 1994. The questionnaire was designed to test the coaches’ current level of knowledge of appropriate techniques used to condition and strengthen athletes. The questionnaire consisted of both a practical and scientific section. Questions in each section evaluated several sub-topic areas including; energy systems, muscular strength and power, workout safety, muscle science, energy system science and nutrition science. The mean percentage correct (PC) score on the overall questionnaire was 49.14%. The mean PC score on the practical area of the questionnaire was 50.19%. The mean PC score on the scientific area of the questionnaire was 46.67%. The coaches performed best on the questions concerning nutrition and safety, but performed less effectively on science based questions concerning the energy systems and muscular systems. An overall analysis of the results revealed that 95.44 % of the coaches questioned answered 70% or less of the questions correctly. It was concluded that football coaches in the state of North Carolina may not be up to acceptable standards in regard to the amount of knowledge they have concerning strengthening and conditioning of their athletes.

Gardner, Gregory A. *Clinical instruction in athletic training*, 1995. Ed.D, University of Southern Mississippi (Sandy Gangstead). (107pp 2f $8.00) PE 3590

The purpose of this study was to document interactional behaviors and instructional behaviors displayed during clinical instruction in athletic training. The development and modification of appropriate instrumentation for data collection was also conducted. Specifically, the study was designed to identify interactions between clinical instructors, student trainers, and athletes in the athletic training room and compare the findings to the existing body of knowledge related to clinical instruction in allied health professions. The data yielded an I/D Ratio of .2 which indicates clinical instruction in athletic training is more direct than indirect. Total Teacher Contribution (TTC) occupied 55.67% of instructional time. Total Student Contribution occupied 11.38% of instructional time and the Total Athlete Contribution (TAC) equaled 2.57%. Of the interaction behaviors displayed by the clinical instructor 21.52% were involved questioning and 26.48% involved praise and acceptance. From this study the conclusions can be made that clinical instruction in athletic training is more direct than indirect. Praise and acceptance behaviors were more prevalent in this study than similar studies examining physical education instructors. Allied health literature indicates modeling is a critical teaching behavior. The low TAC documented in this study may indicate clinical instructors need to actively solicit the athlete’s involvement in order to model proper patient/athlete care delivery behavior.
The purpose of this study was to determine the relative importance of proprioception, ligament laxity and strength, in the performance of a functional skill, in the conservatively and surgically managed subject following anterior cruciate ligament (ACL) injury. A second purpose of the study was to demonstrate differences in knee proprioception, anterior tibial displacement, quadriceps and hamstring muscle strength, and two functional performance tests among the following three groups: 1) conservatively managed following ACL rupture, 2) surgically managed following ACL rupture, and 3) uninjured controls. The experimental groups consisted of twenty subjects greater than 8 months post ACL injury (conservative group) and twenty subjects greater than 1 year post ACL surgery (surgical group). These groups were compared to twenty control subjects with no history of significant knee joint injury. Joint position sense values were obtained using the protocol of Barrett et al. (1991). Ligament laxity was tested by two anterior tibial displacement measurements using the KT1000 knee ligament arthometer. Quadriceps and hamstring concentric and eccentric peak torque was measured using a KinCom isokinetic dynamometer. Functional performance was measured with the single leg hop for maximum distance (SLHD) and timed six meter single leg hop tests (SLHT). The conservative group scored significantly worse than either of the other groups in proprioceptive inaccuracy, both anterior displacement tests (134N and maximum manual test) and both functional hop tests (SLHD and SLHT). The surgical group was not significantly different from the normal control group in either proprioceptive function or functional hop testing. The surgical group had an excellent post surgical outcome in anterior displacement tests (2.1mm), while the conservative group had a poor result (5.5mm) with the maximum manual test. There were no significant differences among groups in any of the strength measurements. Regressional analyses revealed that concentric quadriceps peak torque had a significant effect on single leg hop for maximum distance performance for all three groups. Proprioceptive acuity and anterior tibial displacement had no significant effect on SLHD in any of the three groups.

Hodde, Jason P. Remodeling characteristics of the rabbit Achilles tendon complex following repair with small intestinal submucosa, 1994. M.S., Purdue University (Donald Corrigan, Stephen F. Badylak). (147pp 2f $8.00) PE 3598

Small Intestinal Submucosa (SIS) is a biomaterial suitable for a variety of orthopedic applications. In this study, the use of SIS as an Achilles tendon graft was explored. The response of SIS to different degrees of post surgical range of motion was evaluated. By utilizing a total of 38 New Zealand White rabbits to replace native Achilles tendon with an SIS xenograft and to allow for an adequate non-replaced control, the process of healing was explored. After two weeks of complete immobilization in a short leg cast, rabbits were allowed full motion, partial motion, or no motion in a specially designed ankle brace for four weeks. Animals were sacrificed and the neotendons were harvested. Tendons were evaluated mechanically and histologically and comparisons between groups were made. Results showed that stress was not only beneficial to tendon complex remodeling: It was necessary to prevent SIS tissue degradation. Immobilized tendon grafts showed less amount of cellular infiltration and growth after six weeks than did fully mobilized neotendons. Immobilized, native tendons were weaker than controls, failed at significantly lower stresses, and were inferior to controls as determined by histologic analysis. Furthermore, it was determined that xenogeneic SIS may be effectively used as an Achilles tendon replacement in this rabbit model of complete Achilles tendon rupture, especially if prolonged immobilization is eliminated.

Howat, Kenneth J. The effect of half-time warm-up procedures upon injuries to high school varsity football players, 1995. M.A, University of North Carolina at Chapel Hill (Frederick O. Mueller). (46pp 1f $4.00) PE 3600

The purpose of this study was to investigate whether the performance of an organized half-time warm-up by high school varsity football players prior to the start of the 3rd Quarter was effective in reducing the number of strain and sprain injuries sustained. A total of 20 high school certified athletic trainers participated in a survey of injuries that occurred to their athletes during the football season. The schools were divided into those that did not perform an organized half-time warm-up (NWU group) and those that did (WU group). The focus of attention was upon strain and sprain injuries as these type of injuries have been determined to be the most common in football and are most affected by a warm up procedure. A chi-square analysis of the data revealed no statistical significance between groups in the number of combined strain and sprain injuries (c2=3.967, p=0.27), despite a lower total for the WU group. However, sprain injuries alone demonstrated significantly less 3rd Quarter injuries in the WU group (c2=8.308, p=0.04, post-hoc cell contribution =2.73). The recommendation based on the results of this study is for high school football programs to at least allow a minimum of 3 minutes before the start of the 3rd Quarter for an appropriate organized team warm-up.

The purpose of this study was to determine the effects of the application of superficial heat and cold on ankle proprioception as determined by functional performance measures on the Fastex (CYBEX Division of Lumex, Inc, Ronkonkoma, NY). Following a training session, each subject was required to step three times from a designated height onto a platform and stabilize their foot. Each subject was then placed in a warm or cold whirlpool for 15 minutes. Each subject then performed three more steps. Each subject returned within 24 hours to repeat this procedure while receiving the second treatment. The Fastex was used to measure foot oscillations which determined stabilization time. Results indicated that two dependent t-test found no significant difference between pre-treatment and post-treatment times on the Stabilization Step Test for both the cold whirlpool and warm whirlpool conditions at the p=0.05 level. Stabilization times, however, increased following both cold and warm whirlpool treatments, suggesting a decrease in proprioceptive functioning. A Pearson Product Moment Correlation (PPMC) for reliability revealed a moderate relationship (r=0.767) once motor learning had leveled off. Future studies involving the Fastex need to address several issues. It is important to determine what specifically the Stabilization Step Test on the Fastex is measuring: joint stability, foot oscillations, or lower body neuromuscular control. The validity and reliability of the Stabilization Step Test also needs to be investigated further. A standard protocol for the training session needs to be developed to assure that motor learning has plateaued prior to initiating testing.

Lee, Siu Y. Allometric scaling of grip strength by body mass and lean body mass in college-age men and women, 1995. M.S., Springfield College (Paul M. Vanderburgh). (124pp 2f $8.00) PE 3606

Ratio scaling (RS) is commonly used to adjust physiological performance in order to partition out the effect of body size. Recently, the issue of penalty caused by using RS has been raised in that RS may not be a better method than no adjustment at all. Instead, allometric scaling (AS) has been recommended to properly partial out size variables based on its true relationship with the outcome variable. In this study, AS was utilized to scale grip strength (GS_{max}) by body weight (BW), lean body mass (LBM), and lean forearm volume (LFV) in 50 males and 50 females (aged 18-30). GS_{max} was evaluated by a dynamometer and the higher score of the average of three trials for each hand was taken. LBM and LFV were predicted by series of anthropometric measurements. Results in this study were that for valid comparisons of GS_{max}, GS_{max} should be scaled by BW raised to the .50 power for men and .25 power for women. Moreover, GS_{max} for both genders could also be scaled by LBM and LFV raised to the .58 and .13 powers, respectively.

Mak, Rana L. The efficacy of topical ibuprofen in an inflammatory model; delayed onset muscle soreness, 1995. M.H.K, University of British Columbia (Doug B. Clement). (96pp 1f $4.00) PE 3609

The purpose of this study was two fold: 1) to determine the effectiveness of topical ibuprofen versus oral ibuprofen and a placebo in the treatment of an inflammatory condition, delayed onset muscle soreness and 2) to determine the ibuprofen plasma concentrations following topical administration as compared to orally. Thirty female subjects were randomly assigned to either an oral ibuprofen treatment group, a topical ibuprofen treatment group, or a placebo group. The subjects then underwent an eccentric exercise protocol used to induce delayed onset muscle soreness. Muscle soreness and eccentric torque were quantified before exercise, immediately post exercise, at 24 hours, 48 hours, 72 hours, and 144 hours after the exercise. All groups displayed peak soreness at 48 hours, the placebo group marked the highest average (60.95mm), the oral group had an average of 54.55mm while the topical group had the lowest average at 50.35mm. There was a marked drop in eccentric torque following the exercise which then returned to baseline values at 72 hours. No significant difference was found between groups for either measure. This data indicates that neither oral nor topical ibuprofen were effective in relieving pain or in restoring strength in this model of inflammation, DOMS. However, a significant difference in plasma ibuprofen concentrations between type of drug administration was found (p=0.033). To determine plasma concentrations a five subject cross-over design was used. Subjects participated in the eccentric exercise bout with either their right or left arm. Seven days of treatment with either oral or topical ibuprofen was then initiated. A seven day washout period followed. The exercise protocol was repeated using the other arm and subsequent treatment with the alternative ibuprofen. During both treatment periods four blood samples were taken: prior to the onset of treatment, on day 3, day 5, and day 7 of treatment. The fact that minimal amounts of ibuprofen enter the systemic system after topical administration leads researchers to believe associated side effects would be decreased drastically. Research should continue into the efficacy of topical ibuprofen in various other models of inflammation.

MacLean, Christopher L. Eccentric kinetic chain exercise as a conservative means of functionally rehabilitating chronic isolated posterior cruciate ligament insufficiency, 1995. M.S., University of British Columbia (Jack E. Taunton). (114pp 2f $8.00) PE 3608

Chronic, isolated posterior cruciate ligament (PCL) insufficiency can present several complications including patellofemoral pain, difficulty with stair descent and sudden changes in direction. The purpose of the present study was to develop a home, eccentric kinetic chain
exercise program that improves strength, function and symptomatology. Thirteen, isolated posterior cruciate ligament (PCL) injured subjects and thirteen, healthy sedentary individuals were included in the study. The PCL group underwent 12 weeks of prescribed eccentric squat exercise. The healthy, sedentary group did not undergo exercise intervention. Both groups executed the Tegner Hop Test, Lysholm Knee Scale Score and Kinetic Communicator isokinetic testing. All tests were administered at 0, 6, and 12 weeks of the investigation. Four relationships were explored to analyze the effectiveness of the eccentric rehabilitation program and to define significant differences (p<0.05) between healthy and PCL-injured subjects. Subject X Treatment data analysis clearly indicated that there were significant increases in eccentric quadriceps and hamstring torque over the twelve week period. Tegner Hop Test and Lysholm Knee Scale scores also increased significantly following the eccentric squat program. Quadriceps, eccentric/concentric ratios (@60 & 120 degrees per second) increased significantly after twelve weeks of rehabilitation.

Significant strength differences did not exist between either extremity in the PCL group at any time throughout the course of this study. Prior to rehabilitation, there were no significant differences between eccentric and concentric torque values in the quadriceps, or hamstrings, of the PCL-injured group. Following the eccentric squat program, the injured extremity, quadriceps did exhibit a significantly greater eccentric torque than concentric torque. The PCL group was significantly weaker than the control group in quadriceps, eccentric torque (@60 & 120 degrees per second), at week 0. The 12-week program resulted in there being no significant differences between PCL and control groups in eccentric, quadriceps torque. The results of this investigation strongly support the eccentric squat program as a viable means of functionally rehabilitating chronic PCL-insufficiency with eccentric kinetic chain exercise.

Madlena, Troy A. Relationship between perceived exertion and repetitions performed to exhaustion at selected percentages of one-repetition maximum in apparently healthy adults, 1995. M.S., University of Wisconsin-La Crosse (John P. Porcari). (54pp 1f $4.00) PE 3610

The purpose of this study was to determine the average number of repetitions that could be performed at 40, 50, 60, and 70% of 1-repetition maximum (1 RM), and to assess rating of perceived exertion (RPE) values associated with each percentage. Ten men (x age=48) and 10 women (x age=49) volunteered for the study. Absolute strength was assessed for each exercise via 1 RM testing, while relative muscular endurance testing consisted of performing maximum repetitions at each percentage of 1 RM. In addition, RPE values were assessed after the 10th repetition on each exercise, at each percentage. Results indicated there was a significant difference (p≤2.05) in the number of repetitions performed on different exercises at similar percentages of 1 RM. RPE values were also significantly different (p≤2.05) at similar percentages across all lifts. Men and women responded very similar to all lifting conditions. Men performed significantly (p≤2.05) more repetitions on the pulldown compared to all other exercises at 40 and 50%, while women performed more repetitions on the pulldown at all percentages. Both genders performed more repetitions on the chest press than on the arm curl and leg extension, while no differences were noted between the average number of repetitions performed on the arm curl and leg extension at any percentage. RPE values were significantly different across all percentages for each lift.

Values were lowest for the pulldown exercise at all percentages, and were highest for the arm curl and leg extension exercises. These findings suggest that the average number of repetitions and RPE values vary for each exercise at any given percentage of 1 RM. Therefore, exercise performance should not be assumed to be equal among different lifts, suggesting resistance exercise prescription be individually tailored.

Mussulman, Laura M. Prediction of fat free mass in African American women, 1995. M.A, University of North Carolina at Chapel Hill (Barbara E. Ainsworth). (164pp 2f $8.00) PE 3614

The purpose of this study was to develop a prediction equation for estimating fat free mass from bioelectrical impedance, anthropometric, and physical activity measures in 96 African American women ages 18-40 years. Fat free mass was estimated from body density measured from underwater weighing (FFMuww) with correction for residual lung volume. A series of multiple regression analyses were performed to identify the best set of independent variables to be included in the model. Measures contributing to the “best” model were weight in kg (Wtkg), the resistance index (Htcm²/R), and a 3 item 100 point physical activity score. The final model in kg was: FFM=8.591082 + (0.237698xWeight in kg) + (0.439735xHtcm²/R) + (0.032870x3 item 100 point PA score) (R²=0.882, SEE=0.774 kg). These findings suggest African American women as compared to using equations developed in Caucasian women.

Papez, David M. Services offered by athletic trainers at private sports medicine clinics in the United States, 1993. M.S., Iowa State University (Gary R. Gray). (112pp 2f $8.00) PE 3615

The data for this study were collected from directors of private sports clinics located in the United States. A random sample (N=250) were picked from the Physician and Sportsmedicine 13th annual sports medicine clinic directory (1992). Surveys were returned by 149 respondents, representing 59.6% of the sample. The 39-item questionnaire was designed to obtain information on the roles and responsibilities of the athletic trainer in the clinical setting. Topics included demographic information on both the clinic and the director as well as specific
The purpose of this study was to determine the clinical efficacy of Dexamethasone-Lidocaine pulsed phonophoresis on perceived pain associated with symptomatic tendinitis. Twenty-four subjects were randomly assigned to a treatment group receiving dexamethasone-lidocaine or a control group receiving placebo phonophoresis treatment. All subjects received strengthening, stretching, and ice treatment. Five, double-blind treatment sessions were administered over a five to ten day period, with approximately 24 to 48 hours between each session. Perceived pain was quantified using a visual perceived pain scale (VPPS) and a punctate tenderness gauge (PTG). Data were collected before the strengthening, stretching and phonophoresis or placebo phonophoresis treatments, one minute after the phonophoresis or placebo phonophoresis treatment, and after a 10-minute post-ice tissue recovery period. Two 2 x 5 x 3 analyses of variance (ANOVA) with repeated measures were used to analyze VPPS and PTG raw data. No significant differences were found for perceived pain via VPPS and PTG between treatment groups regardless of sessions or tests. Significant differences were found among treatment sessions, regardless of treatment group or test, and among tests, regardless of treatment group or session. Tukey post hoc tests for VPPS and PTG data indicated significant decreases in perceived pain between treatment sessions one and five and between tests one and three. VPPS and PTG F values indicated no interactions between treatment groups, among treatment sessions, and among tests. It was concluded that strengthening, stretching, and ice treatment over a five to ten day period significantly decreased the levels of perceived pain associated with symptomatic tendinitis regardless of whether or not subjects received phonophoresis treatment.
The controversy over functional knee bracing still lingers. Although there is sample literature available on both the possible positive and negative concerns of utilizing a functional knee brace, there is very little information available on functional knee bracing in a dynamic setting. The purposes of this study were to evaluate the effect of functional knee bracing on athletic performance during dynamic testing in a non-injured knee joint and to measure the effects of functional knee bracing (under dynamic testing) on an Anterior Cruciate Ligament (ACL)—deficient knee. A total of 60, 30 non-injured and 30 injured, subjects were tested with and without a functional knee brace. Each subject performed five functional tests—10 meter dash, figure-of-eight run, slalom run, hop test, and running down the stairs test. Each subject performed each test 8 times—two submaximal effort trials, followed by 6 trials (3 trials with and 3 trials without a brace) at maximal effort. A 2X3, repeated measures on both factors, ANOVA was conducted to determine the results during the accommodation phase. A single factor ANOVA analysis was performed on the best performance measures after accommodation had occurred to the functional knee brace. Furthermore, a correlation analysis was conducted between knee joint laxity of injured subjects and their performance levels. During the accommodation phase, the non-injured, braced group had statistically significant inferior performances (when compared to the non injured, non-braced group) in the 10 meter dash, figure-of-eight, and the slalom tests and statistically superior performance in the hop test. In the running down the stairs test no statistically significant difference was noted between the two groups. However, once the subjects had accommodated to the brace (best performance) no statistically significant difference was noted between the non-injured, braced and the non-injured, non-braced groups for any test. As expected, during the accommodation phase, the injured, braced group performed statistically significantly better than the injured, non-braced group. However, after accommodating to the functional knee brace, an analysis of best performance data found no statistically significant difference between the two groups. A strong correlation was not evident between the injured athlete’s knee joint laxity and performance levels. This study provides evidence that performance levels of non-injured, braced individuals is either only marginally hindered or is enhanced during the accommodation period when compared with non-injured, non-braced individuals. Once non-injured, braced individuals have accommodated to a functional knee brace they either perform at the same level or they outperform non-injured, non-braced subjects. These findings are an important consideration when considering a functional knee brace for prophylactic purposes. For injured individuals, performance levels are enhanced when a functional knee brace is utilized.

**PHYSIOLOGY AND EXERCISE EPIDEMIOLOGY**

Aiello, Kimberly A. Differences in physiological and mechanical properties of stair climbing on three different apparatus, 1995. M.S., Springfield College (Vincent J. Paolone). (146pp 2f $8.00) PH 1450

The purpose was to determine if differences in physiological and mechanical work exist between stair climbing as performed on the StairMaster 4000 PT (SP), Gauntlet (SG), and Lifestyler club stepper (LC). Ten female subjects were analyzed during 10 minute exercise sessions at a rate of 60 steps per minute. Percent VO_{max} values were lower on the SP than the SG, which were lower than on the LC. Maximal (max) hip and knee flexion values were lowest on the LC, but no differences existed between max hip and knee flexion values on the SP and SG. Minimal (min) hip flexion angles were highest on the SP, but did not differ between the SG and LC. Hip angular acceleration values were highest on the LC and did not differ between the SP and SG. Max and min dorsiflexion values were lowest on
the SG, and did not differ between the SP or LC. Angular acceleration about the ankle was higher on the LC than the SG, but did not differ between the SP and SG or between the SP and LC. Downward force was greatest on the pedals of the SP as opposed to the SG. No differences in downward force were noted between the SP and LC or between the LC and SG. No differences were noted between the three machines with regard to heart rate, minimal knee flexion angles, angular acceleration about the knee, or step height.

Angeli, Marc A. *Aerobic responses to 12 weeks of training on various modes of home exercise equipment in sedentary adults*, 1995. M.S., University of Wisconsin-La Crosse (Jeffrey Paul Steffen). (73pp 1f $4.00) PH 1451

This study compared aerobic responses consequent to 12 weeks of training on 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). Subjects completed VO₂max tests before and after the training program. Experimental groups trained 30-45 min per day, 3 days per week, at 65-90% max HR. A significant (p<.01) increase in maximal minute ventilation (V̇Eₘₐₓ) occurred from pre- to posttest among males in the B, XC, T, and S groups. Among females, V̇Eₘₐₓ was not significantly (p>.05) altered in any group. Males significantly (p<.01) increased VO₂max (ml·kg⁻¹·min⁻¹) by 12.0% (36.6 to 41.6) in the XC group, 9.9% (38.9 to 44.7) in the S group, 9.0% (41.4 to 45.5) in the T group, and 8.9% (36.9 to 40.5) in the B group. Females significantly (p<.01) increased VO₂max (ml·kg⁻¹·min⁻¹) by 14.1% (32.2 to 37.5) in the XC group, 13.9% (24.7 to 28.7) in the B group, 8.5% (30.0 to 32.8) in the S group, and 6.2% (33.6 to 35.8) in the T group. For both males and females, no significant (p>.05) difference in VO₂max was detected between experimental groups, yet all were significantly (p<.05) different from the control group. There were no significant (p>.05) differences in max RER, HR, or RPE within or among any of the groups. The generally similar physiological benefits associated with B, XC, T, and S training suggest training effects are independent of mode when frequency, duration, and intensity are held constant.

Baruch, Amy R. *Effects of caffeine on central on peripheral hemodynamics at rest and during exercise*, 1994. M.S., Springfield College (Vincent J. Paolone). (165pp 2f $8.00) PH 1452

Five females and 5 males were studied to investigate the effects of caffeine on central and peripheral hemodynamics at rest and during exercise. Subjects were tested in two identical sessions in which they were given caffeine and placebo in a double-blind randomized fashion. The caffeine dose consisted of 5mg per kilogram of lean body weight. Experimental sessions were divided into 1 hour of rest and 50 min of submaximal treadmill walking (65% VO₂max). Variables measured were: a) heart rate (HR), b) stroke volume (SV), c) cardiac output (Q), d) systolic blood pressure (SBP), e) diastolic blood pressure (DBP), and f) forearm blood flow (FBF). The alpha level was set at .05. Following caffeine ingestion, SBP at rest and FBF at 20 min into exercise were both elevated in males. Caffeine had no effect on any of the other hemodynamic variables in males and no effect on any hemodynamic variables in females, suggesting a possible gender difference in the effects of caffeine. A moderate dose of caffeine was found to have little effect on central.


Thirty-six subjects, eighteen females and eighteen males, were randomly assigned to one of two Proprioceptive Neuromuscular Facilitation (PNF) flexibility training groups, one manual (3S), one machine (Flex-Sys) and one control group. Training consisted of daily stretching exercises five days per week within the respective experimental groups for three weeks. Pre-test and post-test measurements were taken on days one and fifteen, respectively. These tests consisted of nine different flexibility tasks; Sit and Reach-Active & Passive (S/R-A, S/R-P), two active and passive, Modified Sit and Reach techniques (MSR1-A & P, MSR2-A & P), and Flex-Sys measures of Right & Left Hip Flexion and Trunk Flexion. Daily measures of S/R-A were recorded before and after each training session. Statistical analysis consisted of comparisons of group, sex and daily differences, using a two-way analysis of variance with repeated measures. These analyses revealed that both training groups had significant (P<0.05) improvements in all nine measures for pre to post-test changes. These increases were significantly different from the control group. The Flex-Sys group was significantly (P<0.05) better than the 3S group for two measures, trunk flexion and right hip flexion. No other difference between the two training groups occurred on any of the seven remaining measures. Female changes were significantly higher than the males for one measure; trunk flexion. Daily changes did not differ significantly between the two training groups, however, additive increases in both pre- and post-training S/R-A were apparent for each of the two training groups.

The validity of the Tecumseh Self-Administered Occupational Activity Questionnaire (TOQ) was assessed in 48 physically active women between the ages of 20-60 years who were employed outside the home. Data were validated against VO2 peak, body fatness, Caltrac accelerometer scores, and two 7-day occupational physical activity (PA) records. The majority of occupational activity was spent in light intensity activities requiring ≤4 METs. MET-min·wk⁻¹ scores for the total, light, and moderate (4.5-5.5 METs) intensity activities on the TOQ and PA records were significantly related (total, r=.69; light, r=.50; moderate, r=.34, p<.01). Heavy-intensity activities (≥6 METs) were not related (p>.05). Like activities on the TOQ and PA records which were most related were: “Sitting, light work” (r=.80, p<.0001), “Walking at work, not carrying anything heavier than a briefcase” (r=.32, p<.05), and “Standing or walking, carrying objects about 25 lbs” (r=.43, p<.01). None of the other 14 activities listed on the TOQ were related to like activities on the PA record (p>.05). TOQ scores were not related to Caltrac accelerometer scores, body fatness, or VO2 peak (p>.05). Validation of the TOQ in a population with a greater variability of job activity requirements is needed.


Many investigators have proposed the importance of excess postexercise oxygen consumption (EPOC) in weight management. However, few investigations have examined the effect of exercise intensity and duration on EPOC in obese individuals. This study examined the effect of exercise at 50 and 70% VO2 max (50I and 70I) coupled with exercise durations of 35 and 50 min (35D and 50D) on 2-h EPOC in ten moderately active, obese (% body fat=38.3±5.1) adults. Preliminary testing consisted of hydrostatic weighing and measurement of VO2 max. The order of the four exercise trials was randomized. On four different days, resting oxygen consumption was measured for 30 minutes, one of the four exercise protocols was performed, and postexercise oxygen consumption was measured for 2 hours. Results indicated that both intensity and duration of exercise affect EPOC with intensity accounting for 6.5 times more of the EPOC variance than duration. In comparing the EPOC of all four protocols, 70I/50D (6442±2881 ml) was significantly greater (p<.05) than EPOC of both 50I/35D (3515±1687 ml) and 50I/50D (3795±1699 ml). All exercise protocols exhibited a significantly positive relationship (50I/35D r=.65, 50I/50D r=.69, 70I/35D r=.82, 70I/50D r=.88) between magnitude of EPOC and lean body mass (LBM) of the subjects. The results of this study suggest that exercise intensity contributes more to EPOC than duration and the magnitude of EPOC is related to LBM in obese individuals. KEYWORDS: EXCESS POSTEXERCISE OXYGEN CONSUMPTION, OBESITY, METABOLIC RATE, ENERGY EXPENDITURE


The purpose of this study was to investigate improvement in running speed due to completion of a plyometric training program. Previous studies found by the researcher focused on improvement in vertical jumping ability, not running speed. Participants were twelve members of a collegiate male junior varsity basketball team. Subjects were randomly assigned into the experimental or control group. A timed 30-yard sprint was performed before and after the training period. All participants exercised three times a week during a four week period. The control group performed basic running drills, while the experimental group performed plyometric exercises, along with basic running drills. Subjects in the experimental group were found to have greater average improvement (0.07 sec. vs. 0.04 sec.) in running speed. These findings were insufficient to reject the Null Hypothesis (p=.073). Pre/post testing time improvements were found to be significant for all subjects (p<.0001).

De la Cruz Napoli, Jose. Changes in blood resistivity over a sub-maximal exercise bout, 1994. M.S., Indiana University (Joel M. Stager). (58pp 1f $4.00) PH 1457

Impedance Cardiography is an inexpensive, relatively simple, non-invasive technique for the measurement of cardiac output, one aspect of cardiac function. Values for cardiac output can be easily obtained with this technique, but their accuracy has been questioned. In order to utilize this technique, a value for the specific resistance of blood must be used. Many investigators assume the specific resistance of blood to be a constant value, 135 ohm x cm (Traugott, Quail & White 1981), in spite of the evidence that the specific resistance of blood is a function of the percent of red blood cells referred to as hematocrit. An important factor that may affect specific resistance are shifts or transient losses of plasma volume in blood. It is easy to hypothesize that the specific resistance of blood will change during sub-maximal exercise as a function of changes in plasma volume which act to simultaneously alter hematocrit. The accuracy of cardiac output measurement, by impedance cardiography, during sub-maximal exercise may be affected by these shifts and or losses of plasma volume. A pre-exercise specific resistance value used in the later stages of an exercise bout may introduce additional error to the estimation of stroke volume via impedance cardiography. The purpose of the present study was to quantify changes in specific resistance as a function of hematocrit due to changes in plasma volume during sub maximal exercise. Twenty five apparently healthy men were screened for exercise related risks by questionnaire. After completing consent forms, a maximal aerobic capacity test (VO2 max) was performed on a motorized
treadmill. After at least 48 hours, subjects returned to the lab for a second session during which they performed a 70% sub-maximal exercise run lasting 30 minutes. An 8-10ml blood sample was collected via venipuncture before and immediately after the sub-maximal exercise test. Blood was analyzed for hematocrit (Hct) by microcapillary centrifuge, hemoglobin (Hb) by spectrophotometry, plasma osmolality (Osm) by vapor pressure method, and resistivity (Rho) by use of a tetrapolar impedance cell. Pre and post mean values (±std) for Rho, Hct, Hb, and Osm were respectively 177.4±16.6 ohms x cm, 186.7±18.9 ohms x cm; 43±3%, 44±3%; 15.6±1.2 gm / dl, 16.1±gm / dl; and 277.2±6.4mmol / kg and 281.2mmol / kg. Using an individual 2x2 (group by treatment) ANOVA differences were detected between pre and post exercise measures. All variables mentioned showed a significant increase from pre to post. Blood volume and plasma volume declined by 3.1 and 4.9% respectively. Regression analysis resulted in the following relationship: Rho=2.863(Hct)+6.1(Hb) 38.7 (r=.91). Stroke volume calculated from measured Rho & compared to constant Rho was 31% and 38% larger, pre & post response. This information suggests a potential error in the estimation of changes in stroke volume and cardiac output during exercise through impedance cardiology when using a constant value for Rho.


Five females and five males were studied to examine the effects of submaximal exercise in a neutral and in a sauna suit generated hot-humid environment on central and peripheral hemodynamics during extended recovery. Subjects exercised on a cycle ergometer at 50-60 VO$_{2peak}$ for 35 min prior to sitting quietly for a 90 min recovery period. Sessions were identical, with the exception of environment. Variables evaluated were: (a) core temperature; (b) mean skin temperature; (c) mean body temperature; (d) nude body weight; (e) clothing weight; (f) plasma volume; (g) heart rate (HR); (h) stroke index (SI); (i) cardiac index (CI); (j) oxygen consumption (VO$_2$); (k) systemic vascular resistance (SVR); (l) forearm blood flow (FBF); (m) systolic blood pressure (SBP); and (n) diastolic blood pressure (DBP). Body temperatures, sweat rate, and HR were elevated in the hot-humid session. Males lost more body weight than females in both conditions. BP was below baseline at 60 in into recovery during the hot-humid session only. BP and BP were higher in males than females in both conditions. BP was below baseline at 60 in into recovery during the hot-humid session only. BP and BP were higher in males than females for 15 hr post recovery. The remaining hemodynamic variables were unaffected by gender, environment, or time.

Gagnon, Jeff L. Differences in orthostatic tolerance over two simulated weightlessness conditions. 1995. M.S., Springfield College (Vincent J. Paolone). (116pp $8.00) PH 1459

The purpose of this investigation was to determine if a saline/glucose drink would reduce the orthostatic intolerance found after being in a simulated weightlessness condition. Seven clinically normal males participated in this study. Weightlessness was simulated by lying on a -6° tilt board for 8 hr. Prior to, and immediately following the tilt, blood pressure (BP) and heart rate (HR) were measured in a 10 min passive standing position. The subjects underwent the tilting procedure twice. A saline/glucose based drink was consumed at hour six during one of the tilting procedures. The degree of orthostatic tolerance was measured by the cardiovascular index of deconditioning (CID = DHR-DSBP+DDBP) which was computed by utilizing mean pre- and post-tilt HR and BP values. The mean CID value for the solution condition (1.28±8.71) was significantly (p<.05) lower than for the no solution condition (7.56±9.57). The results of the study indicated that a shift in fluid from the lower to upper body occurred during the tilt and that a saline/glucose solution was effective in reducing orthostatic intolerance.

Gow, Andrew J. Effect of sprint training upon sarcoplasmic reticulum Ca$^{2+}$ ATPase and Na$^+$-Ca$^2+$ exchanger mRNA expression in rat myocardium, 1995. Ph.D., Temple University (Zebulon V. Kendrick). (153pp $8.00) PH 1460

The purpose of this study was to examine the effects of an extended high intensity running program on the expression of the two major calcium control proteins of the cardiac myocyte, sarcoplasmic reticulum Ca$^{2+}$-ATPase and sarcolemmal Na$^+$-Ca$^2+$ exchanger. Animals were trained for 5 days per week, for 12 weeks, at a grade of 15%, in 5 bursts of 1 minute at 75 m / min. with 1 minute intervals at 20 m / min. It was the proposal of this study that such training would induce a volume based hemodynamic overload on the heart, and that this overload would result in expression changes in the sarcoplasmic reticulum Ca$^{2+}$-ATPase gene (SERCA) and the sarcolemmal Na$^+$-Ca$^2+$ exchanger (SNCE). Furthermore, that these changes would be opposite to those that have been previously observed in control and SNCE expression is stimulated. Expression of the genes was monitored by Northern blot assay of the quantity of mRNA present within whole tissue samples relative to glyceraldehyde-3-phosphate dehydrogenase mRNA. SERCA mRNA was significantly increased in the left ventricle of trained animals (0.371±0.0158 densitometric units) over that in control animals (0.246±0.0086 densitometric units). Exercise training produced no significant alteration in the expression of SERCA within the right ventricle or of SNCE within either ventricle. SERCA mRNA expression within the left ventricle was found to be correlated to sprint test performance. The increased expression of SERCA and its correlation to sprint test performance imply that exercise training does produce an overload on the heart that is responded to in an inverse manner to pressure overload.

Previous research has reported endurance trained males have significantly lower testosterone levels without concurrent elevations in luteinizing hormone when compared to matched untrained males. The purpose of this study was to determine the reproducibility of this finding in endurance trained and untrained males. Twenty-eight subjects (endurance trained=15; untrained=13) volunteered to participate. Resting blood samples were collected from all subjects on three separate (Visits [V]; V1, V2, V3) occasions (2 week intervals between collections). Serum was analyzed for testosterone and luteinizing hormone (LH) by radioimmunoassay. Results (mean±SD) confirmed previous research as testosterone was significantly (p=0.0089) lower in the trained compared to the untrained males (trained vs untrained; V1=5.71±2.12 vs 7.11±2.11, V2=5.54±0.95 vs 6.73±1.97, V3=6.20±0.90 vs 6.94±1.99 ng/ml). LH was not significantly different between the groups at any time (trained vs untrained, V1=6.55±4.05 vs 5.03±2.99, V2=74±5.53 vs 5.99±3.00, V3=6.38±4.15 vs 5.82±4.27 mIU/ml). Furthermore, for testosterone and LH no significant changes were observed from V1 - V3 for either group. Reliability coefficients were calculated within groups for all measures and found to range from 0.65 to 0.90. The present findings would suggest that the resting reproductive hormonal abnormalities associated with endurance trained males are reproducible.

Harris, Michael B. *Vitamin E supplementation, delayed-onset muscular soreness, muscle tissue damage and lipid peroxidation*, 1995. M.A, University of North Carolina at Chapel Hill (Robert G. McMurray). (110pp 2f $8.00) PH 1462

The purpose of this study was to determine the effects of 48 days of 800 I.U. of vitamin E supplementation on subjective ratings of delayed-onset muscular soreness (DOMS), pressure thresholds (PT), plasma levels of creatine kinase (CK), and plasma levels of thiobarbituric reactive substances (TBARS) following a 20 minute bench stepping exercise. Nine experimental subjects completed two trials, one on placebo and the other on vitamin E. Subjective ratings of DOMS, PT, plasma CK and plasma TBARS were measured pre-exercise, immediate, 6, 24, 48, and 72 hours post-exercise. Results showed a significant reduction in subjective ratings of DOMS following vitamin E supplementation. No significant differences in PT, plasma CK or plasma TBARS were found between the placebo and vitamin E supplemented trials. It was concluded that although vitamin E supplementation had a significant effect on subjective ratings of DOMS, no clear evidence was found that could explain this difference.

Hartman, Greta B. *The accuracy of heart rate as an indicator of metabolic rate while performing step aerobics*, 1995. M.A, University of North Carolina at Chapel Hill (Robert G. McMurray). (64pp 1f $4.00) PH 1463

To examine the heart rate/oxygen uptake relationship during step aerobics, 10 healthy college-aged women completed 20 minutes of step aerobics with their arms below shoulder level (BELOW) and above shoulder level (ABOVE). They also completed a treadmill trial (TR) exercising at the same heart rate as in the BELOW trial. At the same heart rates, the subjects had a significantly lower VO2 performing step aerobics BELOW than ABOVE (22.2±3.5 vs. 26.2±3.2 ml/kg/min). The BELOW trials also had a significantly lower oxygen uptake than the TR trials (22.2±3.5 vs. 28.2±6.0 ml/kg/min). The ABOVE and TR trials showed no significant difference in oxygen uptake. Oxygen pulse was not significant between the two step aerobic trials (9.2±1.9 vs. 10.1±1.8 ml/min); however the TR was significantly higher than the two aerobic dance trials (11.3±1.8 ml/min vs. 9.2±1.9 & 10.1±1.8 ml/min). There was no significant difference in diastolic or systolic blood pressure between the two aerobic dance trials. However, the TR had significantly higher diastolic blood pressures than the step aerobic trials (70±6 vs. 62±8 & 62±7 mmHg) and the systolic pressures of the TR trials were significantly higher than the BELOW trials (128±10 vs. 139±13 mmHg). These results suggest that there is a discrepancy in the heart rate/oxygen uptake relationship during step aerobics compared to similar intensity treadmill exercise.

Hopkins, Ruth A. *Effects of age and ethanol on thermoregulatory responses of men to a cold air stress*, 1995. Ph.D., Temple University (Zebulon V. Kendrick). (164pp 2f $8.00) PH 1464

The purpose of this study was to determine the effects of age and ethanol on thermal balance and peripheral blood flow during cold air exposure. Six young (25.5±3.0 years) and 6 old men (54.0±6.3 years) were exposed to a neutral (25 °C) and cold (5 °C) environment for 60 minutes. Subjects were administered placebo (orange juice) or 40% ethanol (2.0 mL/kg in orange juice) 20 minutes prior to the environmental exposure. All physiological parameters to determine thermoregulatory responses were taken with subjects in a seated position. The data collected for subjects during the testing conditions were mean skin temperature, rectal temperature, oxygen consumption, shivering intensity, forearm blood flow, and heart rate. A repeated measures 2x2x2x5 ANOVA across all factors except age with 2 levels of age (young and old), 2 levels of environment (neutral and cold), 2 levels of drug treatment (placebo and ethanol), and 5 levels of time (Baseline 1, Baseline 2, average over 0 and 30 minutes of exposure, average over 30 and 60 minutes of exposure, and at 15 minutes of recovery) and a 2x2x2x3 ANOVA with time corrected for
Baseline 2 were performed. When significant differences were revealed, a Newman Keuls post-hoc test was used to locate differences. A probability level of .05 was accepted as significant. Mean skin, rectal, and mean body temperatures were significantly lower in old subjects during all four testing conditions when compared to young subjects, with the greatest differences observed during the cold environment, placebo treatment. The cold air stress was sufficient to challenge thermoregulatory mechanisms in both young and old subjects with mean skin, rectal, and mean body temperatures significantly declining during the cold stress. During the 15 minutes of recovery these measurements remained below values observed at Baseline 2. Thermoregulatory responses for the cold air stress were demonstrated by significant increases in oxygen consumption and decreases in forearm blood flow. Shivering intensity increased significantly with ethanol administration and paralleled the increase in oxygen consumption.


The purpose of this study was to investigate if a significant correlation exists between asymmetries of the pelvic girdle and low back pain as indicated by the correlation coefficient between the observed measures of the bilateral pelvic landmarks of posterior superior iliac spines, anterior superior iliac spines, and iliac crests, and subjects’ history of back pain. Fifty subjects were tested. The testing sessions involved measurement of bilateral leg lengths from the greater trochanter of the femur to the floor. Adhesive stars were applied to the subjects’ PSIs, ASIs, and ICs. The subject then stepped behind a translucent posture grid and leg length discrepancies were corrected, when present, by placing a lift of the desired thickness beneath the shorter limb. The adhesive stars denoting the pelvic landmarks were then observed for symmetry or asymmetry and results noted. The subject’s landmarks were then observed seated. The subject was asked to return on the following day when the pelvic landmarks were remarked and observed, in the same fashion. Results of separate chi-square tests applied to seated and standing data indicated no significant relationship between pelvic girdle asymmetries and low back pain at the α=0.05 level. A Phi-coefficient for reliability of the testing technique revealed a very low reliability both seated (φ=0.060) and standing (φ=0.106). These results suggest that a more reliable evaluation tool is needed before further research in this area can be conducted successfully.

Krasnoff, Joanne B. *The influence of physical conditioning on the post-menopausal hot flash*, 1995. M.S., Indiana University (Janet P. Wallace). (95pp 1f $4.00) PH 1466

To examine the influence of physical conditioning on the post-menopausal hot flash, 16 women were randomly assigned to an exercise (Ex; n=8, age 52.3±2.2 yr) or control group (C; n=8, age 54.0±2.9 yr). Body composition, VO₂max, and estrone (E₁) & estradiol (E₂) concentrations were measured pre- and post- the training period (12 wks). The Blatt Menopausal Index (BMI) was administered pre-, mid-, and post- training. The Ex group performed 40-60 min·d⁻¹, 3 d·wk⁻¹ of low intensity (36-57% VO₂max) exercise comprised of walk/jog, stationary cycling, and/or rowing ergometry. All subjects adhered to 370% of their exercise prescription. Two-way ANOVA with Tukey post hoc revealed a significant decrease across time for BMI and the duration of hot flashes in Ex (p<0.05). Pearson product-moment correlation demonstrated a significant negative relationship between the percent adherence and BMI (r=−0.653), but no significant relationship between estrogen profiles, duration of hot flash, and BMI. Thus, it is concluded that physical conditioning decreases BMI and duration of the hot flash independent of E₁ and E₂ concentrations in post menopausal women.

Lamack, Daniel D. *Electromyographic changes during intense isokinetic strength training*, 1993. M.S., Iowa State University (Richard Engelhorn). (97pp 1f $4.00) PH 1467

The purpose of this study was to investigate EMG activity and frequency spectra modifications related to slow or fast isokinetic strength training when college age males and females perform forearm flexion and extension. Seven women and eight men trained 3 days/week for 8 weeks by performing unilateral isokinetic contractions at 60 or 300 degrees/second. Training sessions consisted of 3 sets of 10 repetitions for both groups. Training at 300 degrees/second produced a fast-velocity-specific response in forearm extensor torque (p<0.004). Mean peak torque increased from 153.42N (8.85) to 192.02N (±8.58) for the fast velocity training group. There were no significant changes noted for EMG activity for either group. However, training-induced changes from the slow and fast movement indicated different patterns of EMG activity. Training at the fast velocity reduced biceps and triceps EMG activity at 60 and 300 degrees/second. The EMG patterns did not appear to change after four weeks. Mean frequency increased in the biceps at all three measurement segments for the slow velocity group at 60 and 300 degrees/second. The EMG patterns did not appear to change after four weeks. Mean frequency increased in the biceps at all three measurement segments for the slow velocity group at 60 and 300 degrees/second. Training the triceps at the 300 degrees/second produced a velocity-specific response with significant increases of mean frequency occurring at the second and third measurement segments after 4 and 8 weeks training (p<0.031) and (p<0.006), respectively. Thus, changes in EMG activity and mean frequency patterns observed at both movement velocities reflect modifications in the control of force gradation in relation to isokinetic strength training and learning. Although it is not possible to assess specific
changes in motor unit recruitment order, it appears that motor units were controlled differently after isokinetic strength training.

Lögerstedt, David S. *The validity of the TEEM 100 metabolic analysis system*, 1995. M.A, University of North Carolina at Chapel Hill (Anthony C. Hackney). (119pp 2f $8.00) PH 1468

The purpose of this study was to determine the validity of the TEEM 100 in measuring oxygen uptake and carbon dioxide output at three different steady-state exercise intensities (25%, 50%, and 75% of peak oxygen uptake) and at 100% of peak oxygen uptake. Subjects (n=23) completed an experimental trial evaluating the TEEM 100 connected in-line with a reference metabolic system at 25%, 50%, 75% and 100% of peak oxygen uptake. Measures taken and compared between the two systems were oxygen uptake and carbon dioxide output at 25%, 50%, 75%, and 100% of peak oxygen uptake. Using a 2-way ANOVA with repeated measures, statistically significant interactive effects were found for oxygen uptake and carbon dioxide output. Tukey’s HSD post hoc test revealed statistically significant differences in oxygen uptake and carbon dioxide output at 50%, 75%, and 100% of peak oxygen uptake.

McCarthy, John J. *Phosphorylation kinetics of the sarcoplasmic reticulum Ca\(^{2+}\)-ATPase following exercise*, 1995. Ph.D., University of Oregon (Gary Klug). (130pp 2f $8.00) PH 1469

Prolonged exercise has been shown to depress sarcoplasmic reticulum (SR) function. Previous work in our laboratory with the fluorescent probe fluorescein isothiocyanate (FITC) has suggested this depression may be the result of a disruption in the phosphorylation of the SR Ca\(^{2+}\)-ATPase, which is obligatory for Ca\(^{2+}\) ion transport. The purpose of this study was to determine if the kinetics of ATPase phosphorylation and dephosphorylation are altered by exercise. Sprague-Dawley rats were run ~ 1 hr at 21 m/min (10% grade), the deep red portion of the gastrocnemius excised, and SR vesicles isolated by differential centrifugation. ATPase activity ((moles/min·mg) was measured at 37°C (Control; C=1.45±0.16, Exercise; E=0.51±0.23, p<0.05). Quantitative immunoblotting with SERCA1 and SERCA2 antibodies verified similar concentrations of Ca\(^{2+}\)-ATPase in the initial muscle homogenate and isolated SR from both C and E muscles. Kinetic experiments were conducted using a newly designed mixing device capable of making measurements with millisecond time resolution (McCarthy et al, Anal Biochem 221:250). The rate of phosphorylation was determined by measuring \(^{32}\)P incorporation into SR protein at various time intervals (0.05 - 6 s). Autoradiography confirmed \(^{32}\)P incorporation was specific to the Ca\(^{2+}\)-ATPase. Dephosphorylation measurements followed the same procedure as the phosphorylation experiments except EGTA was added to the reaction vessel 0.4 s after initiation of the reaction. Incorporation (\(^{32}\)P nmoles/mg) began to plateau after ~ 1 s, reached a maximum at 2 s, and remained stable for 6 s (C=1.84±0.09, E=1.26±0.10, p<0.01). The initial rate of phosphorylation (nmoles/mg·s) was depressed in E (C=2.72±0.34, E=2.01±0.25, p<0.05). The rates of dephosphorylation were not different between groups (C=0.14±0.05, E=0.17±0.03). These kinetic data suggest the depression in ATPase activity following exercise may be caused by a reduction in the initial rate of Ca\(^{2+}\)-ATPase phosphorylation.


This study described the responses to the ESQ by mountain climbers during their participation in an expedition to climb Mount McKinley, the highest mountain in North America. The purpose was to determine if “rate of ascent” had a greater effect than “maximum altitude” on the manifestation of mountain illness symptomology as measured by the Environmental Symptoms Questionnaire. Fifty four subjects were given the ESQ at sea level and within 24 hours of achieving their “maximum altitude”. A highly significant (p<0.0001) effect was demonstrated by the two administrations of the ESQ for the development of the following symptom groups: ataxia, dyspnea, nausea, headache and sleep disorders. It was not determined if “rate of ascent” had a greater effect than “maximum altitude” on the manifestation of mountain illness symptomology. Only the symptom group sleep disorders was found to correlate with either “rate of ascent” or “maximum altitude”, correlating with both at p=0.05.


This study was designed to: a) compare strength gains obtained from the Multi Set Percentage Program to the strength gains of the Descending Half Pyramid Program over an eight week training period; b) compare strength levels retained by each subject from both programs after a two week break of no weight training to determine if either program was conducive to the retention of strength gains previously acquired. Women varsity athletes at Duke University volunteered to serve as subjects for the study, (N=13). Both strength training programs brought about significant increases in strength (p<0.05); however, neither program was superior to the other. Subjects in both programs showed no significant loss in strength following the two week period of no weight training. There was an overall decrease in body fat percentage for all subjects; although not significant between programs.

Km is a potassium/mineral supplement produced by Matol Botanical, Inc. It is one of the most widely sold liquid supplements and is comprised of 14 botanicals. This study investigated the effects of 90 days of Km supplementation on aerobic capacity and general well-being. Thirty apparently healthy adults were divided into control and experimental groups. Both groups completed a treadmill VO2max test and General Well-Being Schedule (GWBS) at the beginning and completion of the study. The experimental group was supplemented with Km liquid (30ml, taken 15ml 2x/day) for 90 days. A 3-day diet analysis was also collected. Results of the treadmill tests and the GWBS from pre- to posttest were compared with paired t-tests, and a 3-way ANOVA was used to compare the groups. There were no significant (p>.01) differences in resting hemodynamics or maximal physiological responses from pre- to posttesting. There was also no significant (p>.05) difference between control and experimental groups for the same variables. The experimental group increased their general well-being significantly (p<.01) from pre- to posttesting by approximately 9.1 points. It is concluded that 90 days of Km supplementation does not increase aerobic capacity in healthy adults but may improve an overall sense of well-being.


Hill climbing is an important aspect of cycling, and differences in climbing ability often determine overall performance. The purpose of this study was to determine which modifiable physiological variables are most highly correlated to superior hill climbing among trained cyclists. Twenty-four male cyclists (age=29.9yrs, ht=70.0in, wt=73.0kg, body fat=13.3%) rode a 2-km uphill time trial. They also performed a maximal bicycle test on a Schwinn Wingate bicycle test, from which relative and absolute VO2max and VT (absolute and as a percentage of VO2max) were determined. Anaerobic power was measured via the Wingate bicycle test, determining peak watts, average watts, and fatigue index (% power decline from start to finish). Other variables included average yearly training mileage and the number of years of competitive experience. It was found that the following variables were significantly correlated to 2-km time trial performance: relative VO2max (r=-.71), absolute VO2max (r=-.60), yearly training mileage (r=-.57), fatigue index (r=.43), years of competition (r=.42), absolute VO2 at VT (r=.38), and body weight (r=.24). Stepwise regression analysis yielded the following equation to predict 2-km time trial performance: Time=15.54-.0307(body wt)-.0918(relative VO2max)+.0229(fatigue index)-.000127(yearly mileage). Multiple R=.79, R2=.62, and SEE=.638 min. These results suggest that a cyclist’s performance in a 2-km uphill time trial may be predicted by several factors influenced by the cyclist’s training, and improvements such as lower body weight, higher relative VO2max, increased endurance (as measured during the Wingate bicycle test), and increased training mileage may help the cyclist achieve greater success in hill climbs 2 km in length.

Schneider, Allison K. *Diet compositional changes during mountaineering at high altitude in cold weather*, 1995. M.A., University of North Carolina at Chapel Hill (Anthony C. Hackney). (81pp 1f $4.00) PH 1474

The purpose of this study was to describe the dietary changes in men undergoing a mountaineering expedition involving high altitude and cold exposure. Thirteen military personnel were monitored during an expedition to climb Mt. McKinley (6,194m summit) in Denali, Alaska. Dietary intake was recorded during the 14 days of the expedition and compared to 3 days of pre expedition baseline diets. The results showed a statistically significant increase in daily total kilocalorie, carbohydrate, fat and protein consumption during days 2 and 3 of the expedition when compared to the baseline diet. There was also a statistically significant decrease in daily total kilocalorie, carbohydrate, fat, and protein consumption during days 5 through 14 of the expedition when compared to days 2 and 3. However, the percentage of carbohydrate, fat and protein remained unchanged over the 14 days of the expedition as well as when compared to the baseline diet.

Shaeffer, Kristen L. *The effect of calcium supplementation on blood pressure and hemodynamic variables in hypertensive males*, 1994. M.S., Springfield College (Samuel A. Headley). (123pp 2f $8.00) PH 1475

The effects of 8 weeks of calcium supplementation on blood pressure and hemodynamic variables was studied in a group of non-medicated, hypertensive, Caucasian males. Eleven males were randomly assigned in double blind fashion to either a calcium or placebo group. For 8 weeks, the calcium group received 2 tablets a day of 500 mg calcium carbonate while the placebo groups received 2 tablets a day containing cellulose. Measurements of blood pressure levels and hemodynamic variables (Q, HR, SV, IC, and SVR) via thoracic bioimpedance were done at baseline, 4 weeks, and 8 weeks. A blood sample was drawn at baseline and analyzed for serum ionized calcium levels. No significant (p>.05) differences were found for SBP, DBP, MAP, HR, SV, IC, or SVR for the calcium and placebo groups. No significant (p>.05) differences were found for mean Q readings for groups or for interaction effect, although there was a significant (p=.05) difference for mean Q readings over time for both groups. When the calcium group was further divided on the basis of baseline serum
Pulmonary gas transport has not been typically recognized as a limiting factor to physical exercise. Dempsey et al. (1984; 1986) have suggested that the pulmonary system remains unchanged despite chronic aerobic training. Adaptations to other physiological systems may impose metabolic demands which the respiratory system can not meet. In essence, the lung’s capacity for gas exchange becomes surpassed by other training adaptations. Supporting evidence is seen as decreases in arterial oxygenation at near maximal work rates in highly trained male endurance athletes (Dempsey et al., 1984; Powers et al., 1988; 1989; Hopkins and McKenzie 1989). Decreased arterial oxygenation has been termed exercise-induced arterial hypoxemia (EIH), and has direct consequences on VO2max (Lawler et al., 1988; Powers et al., 1989; Martin and O’Kroy, 1993) and maximal performance capacity (Koskolou and McKenzie, 1994). It is estimated that approximately fifty percent of highly trained male endurance athletes exhibit EIH (Powers et al., 1988; 1993; Martin et al., 1992b). One mechanism that has been advanced to explain this phenomenon is a diffusion limitation. Diffusion capacity of the lung (DL) may be depressed during exercise and not allow for complete gas equilibrium to occur. If a structural alteration were present during exercise, it would continue to depress DL during recovery. To investigate the time course of change in pulmonary diffusion capacity for carbon monoxide (DLCO), ten (N=10) highly trained male cyclists (HT) and ten (N=10) moderately trained (MT) male subjects were selected for this study. Subjects cycled to exhaustion to determine maximal oxygen consumption (VO2max) on an electronically braked cycle ergometer (Mijnhardt KEM-3) (mean ± SD: HT VO2max = 68.0 ± 4.9; MT VO2max = 51.6 ± 4.7 mL·kg⁻¹·min⁻¹). Percent arterial oxygen saturation (%SaO2) was monitored by a pulse oximeter (Ohmeda Biox 3740) to determine if subjects demonstrated exercise-induced arterial hypoxemia (defined as %SaO2 ≤ 92%) (%SaO2 min HT = 91.4 ± 1.6; MT = 94.6 ± 1.1). At a second data collection period, pulmonary function testing was performed. All subjects demonstrated normal pulmonary function. Initial diffusion measurements were made to obtain resting DLCO diffusion capacity of the alveolar membrane (DM), and pulmonary capillary blood volume (Vc). Both spirometry and diffusion measurements were made using the same apparatus (Collins PLUS DS II). DM and Vc were calculated by measuring DLCO at two inspired O₂ concentrations using the technique of Roughton & Forster (1957). Subjects then cycled to fatigue at a workrate that corresponded to the highest workrate attained during the VO2max test.

Expired gases and %SaO₂ data were collected during the time to fatigue cycle test. Five additional measurements of pulmonary diffusion were made at 1, 2, 4, 6 and 24 hours following the cycle test. One hour post-exercise, DLCO was significantly decreased in both groups compared to baseline. The decrease reached a minimum value at 6 hrs and approached normal values 24 hrs after the exercise. Only HT subjects exhibited EIH yet both groups experienced similar changes in DLCO. The correlation between %SaO₂ min and change in DLCO was low (r=-0.3), implying that EIH can not be explained by post exercise decrease in DLCO. The change in DLCO can be explained primarily by a parallel decrease in Vc. Vc decreased below baseline values in both groups, perhaps indicating a compensatory shunting mechanism. A smaller degree of change was observed in DM, and played less of a role in the decreased DLCO. The results of this study are the first to compare diffusion capacity in two separate groups, based on training status, following maximal exercise. Both moderately trained and highly trained subjects exhibited similar decreases in pulmonary diffusing capacity. This supports the theory that the lung may not adapt to aerobic training and behaves in a similar manner regardless of training status.

Shrivers, Timothy C. Effects of exercise intensity on glucose tolerance and insulin sensitivity, 1993. M.S., Iowa State University (Douglas S. King). (63pp 1f $4.00) PH 1477

The purpose of this investigation was to study the effect of exercise intensity on glucose tolerance and insulin sensitivity. Six male and five female untrained young (18-30 y) adults volunteered to serve as subjects. Oral glucose tolerance tests (75g) were administered following five days of cycle exercise at two different intensities and after 6 days of inactivity (IN). Low intensity exercise (LO) consisted of 100 minutes of exercise at a workrate equal to 10% of VO2peak below the lactate threshold (LT; workrate producing a 1 mM rise in the plasma lactate concentration), or 47±3% VO2peak. During high intensity exercise (HI), subjects exercised at a workrate equal to 10% of VO2peak above the LT (68±3% VO2peak) of sufficient duration (60.7±1.4 min) to perform the total work output produced during LO. The incremental area under the plasma glucose curve was not significantly different between LO (180±33 mM·min⁻¹), HI (195±35 mM·min⁻¹) and IN (188±33 mM·min⁻¹). The area under the plasma insulin curve was significantly lower in the LO and HI (4185±389 and 4275±494 uU·ml⁻¹·min⁻¹, respectively; P<0.05) compared with IN (4912±1147 uU·ml⁻¹·min⁻¹). Insulin sensitivity, estimated using the IG index (product of glucose and insulin areas x 10³), was improved by ~15% in LO (825±193) and HI (811±148) compared with IN (944±267; P<0.05). No differences were observed between LO and HI for glucose or insulin areas, or the IG index.

These data suggest that the intensity and duration of exercise per se may not be the primary factors which determine the augmented glucose tolerance and insulin...
sensitivity associated with exercise. The improved insulin action following exercise may be more related to the total amount of work performed.

Song, Qilai. The use of heart rate and perceived exertion to predict aerobic and anaerobic responses during weight lifting in male and female college students, 1995. Ph.D., University of Mississippi (Stanley P. Brown). (78pp 1f $4.00) PH 1478

Oxygen uptake (VO2), peak blood lactate concentration ([BLa]), heart rate (HR) & rating of perceived exertion (RPE) were determined during bouts of weight lifting (WL) at four intensities (40, 50, 60, 70% of one-repetition maximum (1-RM) in 10 males (M-X±SD age=21.8±1.2 yr, HT=180±5.9 cm, BM=90.7±18.5 kg) and 12 females (F-X±SD age=21.2±1.3 yr, HT=167.0±7.3 cm, BM=67.6±17.3 kg) to test the following two generalized hypotheses: 1) that select relationships are significant and 2) that the regression equations generated from these relationships differ by gender. WL bouts lasting approximately 12 minutes and consisting of three circuits of four exercises (bench press, bent-over row, arm curl & parallel squat) each were performed for 10 repetitions over a 30 second period (1:1 work:rest ratio). VO2 and HR in males ranged from 30-67% and 60-99% of treadmill determined VO2max and HRmax, respectively. VO2 and HR in females ranged from 23-60% and 51-87% of treadmill-determined VO2max and HRmax, respectively. The slope of the linear regression equation predicting %VO2max from %HRmax is approximately half that reported for dynamic low-resistance exercise. The following gender specific linear models predict %VO2max (1) and [BLa] (2) from 5Hrmax and RPE:

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<tr>
<th></th>
<th>Slope</th>
<th>Intercept</th>
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<tr>
<td></td>
<td>male</td>
<td>female</td>
</tr>
<tr>
<td>%Hrmax</td>
<td>0.5795(1),0.208(2)</td>
<td>0.6141(1),0.155(2)</td>
</tr>
<tr>
<td>RPE</td>
<td>1.598(1),0.022(2)</td>
<td>1.359(1),0.844(2)</td>
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Male and female regression equations are significantly different (P<.01) in all cases except when predicting %VO2max, and [BLa] from %HRmax. All correlations were significant (P<.001). The current equations predicting %VO2max from %HRmax during WL in either gender are quite similar to the one reported by Collins et al. (MSSE, 23, pp. 636-640, 1991) [Y=.582X-1.791]. However, the current equations have a larger SEE (6.2% vs 3.4%).

Stanish, Heidi I. Prediction of the Physical Ability Requirement Evaluation (PARE) using standard measures of physical fitness, 1994. M.S., Dalhousie University (Phil Campagna). (119pp 2f $8.00) PH 1479

The purpose of this investigation was to identify the best predictors of performance on the Physical Ability Requirement Evaluation (PARE) using field measures of physical fitness thought to be important in law enforcement. The objective was to provide RCMP recruits and officers with information regarding the physical demands of the test for training and preparation purposes. Twenty seven females and twenty one males between 19 and 31 years of age participated in the study. All of the subjects completed 10 field tests of fitness which included measures of muscular strength, muscular endurance, agility, anaerobic power, and body composition. Performance scores (total time) on the PARE were found to be significantly (p<.05) and positively correlated to agility (r=0.73), anaerobic capacity (sprint) (r=0.70), and aerobic capacity (r=0.66), and negatively correlated to upper body muscular endurance (r=-0.71), anaerobic power (jump) (r=0.71), and upper body muscular strength (r=0.63). Backward selection, stepwise, multiple linear regression analysis indicated that 66% of the variance in PARE performance time was accounted for by agility and upper body muscular endurance. Multiple regression analyses were also conducted on the male and female subject groups separately. The analyses demonstrated that 78% of variance in performance time was accounted for by upper body muscular endurance, agility, and anaerobic power for the males, and 49% of variance in performance time was accounted for by aerobic power and upper body muscular endurance in females. Cross-validation was conducted to determine which variables were important in predicting PARE performance. The model was constructed on 19 subjects and validated on the remaining 29 and identified that the best prediction variables for the data included sex, upper body muscular endurance, and agility.

Stavrianeas, Stasinos. The effect of muscle ischemia on sarcoplasmic reticulum Ca2+-ATPase function: an in situ rat model, 1995. M.S., University of Oregon (Gary A. Klug). (86pp 1f $4.00) PH 1480

The effects of low frequency (20 Hz) stimulation on ischemic (IS) and non-ischemic (NIS) muscles were studied using an in-situ rat model. Isometric force (PT) declined rapidly at the IS group. At fatigue, the half relaxation time (HRT) was prolonged, and the activity of the Ca2+-ATPase protein of sarcoplasmic reticulum declined by 41%. The decrease in pump activity was correlated with the decline in PT and the HRT. Maximum positive (MPS) and negative (MNS) slopes also decreased with time. No similar relationship was found in the NIS group. The effects of ischemia alone were studied without stimulation (INS). In the INS group there was no difference in the ATPase activity or the contractile characteristics between occluded and control muscles. These results suggest that, when compared to perfused muscle, stimulation during ischemia produces no differences in Ca2+-ATPase activities, but does cause discrepancies in contractile behavior.

Changes in the systolic Ca^2+ transient are thought to underlie contractile defects of the hypertrophied/failing heart. We studied the signaling mechanisms which determine the expression of the major regulators of cytosolic free Ca^2+, the sarcoplasmic reticulum (SR) Ca^2+ ATPase (SERCA) and the sarcolemmal Na/Ca exchanger. Myocytes isolated from 1 day old neonatal rat hearts were cultured at low plating density for 48 hours. In the absence and presence of phenylephrine, (20 M), an [alpha]-adrenergic agonist which induces a phenotype like that in pressure overload induced hypertrophy, SERCA and Na/Ca exchanger mRNA expression was measured. SERCA and Na/Ca exchanger mRNA levels were measured using Northern blot analysis using riboprobes. Specific bands were measured with densitometry and normalized with GAPDH. SERCA mRNA levels in 72-hour control myocytes was not different from 24-hour control myocytes but was significantly reduced in 72-hour phenylephrine treated myocytes. Na/Ca exchanger mRNA was not different in 24- and 72-hour control myocytes but was significantly increased in 72 hour phenylephrine treated myocytes. It was concluded that hypertrophy induced via (1-alpha-adrenergic produced changes similar to models of pressure overload induced hypertrophy.


The purpose of this study was to investigate the effect of short-term slide board training on subjects’ lower extremity lateral quickness, and to establish measurement reliability for CYBEX FASTEX, a functional evaluation/training device used to measure quantitative agility factors. 40 normal, healthy subjects (20 male, 20 female) between the ages of 18 and 25, all college students from the University of North Carolina at Chapel Hill, participated in the study. Subjects were randomly divided into three treatment groups: Training Group (n=16, 8 male, 8 female), Control Group (n=12, 6 male, 6 female), and Test/Re-Test Reliability Group (n=12, 6 male, 6 female). All 40 subjects were tested twice (pre-test/post-test) on the FASTEX, and “total transit time” and “average transit speed” were recorded as dependent variables. Training Group participated in a four week, three times per week slide board training program between two FASTEX measurements. Control Group did not participate in the training program, with 4 weeks of relative physical inactivity between two FASTEX measurements. Test/Re-Test Group was post-tested one day after the pre test measurement.


Ten elite female soccer players were studied to determine the effects of pre-exercise solid carbohydrate (SCHO) and liquid carbohydrate (LCHO) feedings on high intensity intermittent exercise performance. At 5min pre-exercise subjects consumed either 50g of SCHO+400ml of H2O, 50g of LCHO in a 400ml solution, or 400ml of artificially sweetened H2O (PL). Exercise consisted of two 19min periods of high intensity intermittent running separated by a 10 min break. At 5 min post-exercise, subjects completed a performance trial (PT) in which they ran repeated 10s, 120% VO2max sprints in a 1:1 work to rest ratio until exhaustion. Blood lactate was not different (p>0.05) between feedings. Blood glucose (BG) was greater (p<0.05) for SCHO and LCHO at 10, 20, and 30min during exercise compared to PL. At 40min BG was not significantly different between SCHO and PL and SCHO and LCHO. However, at 40min BG for LCHO was significantly higher than PL. At 2 min post-exercise BG was similar between interventions. Time to exhaustion in PT was greater in both carbohydrate trials compared to PL (X±SE, SCHO=693±135, LCHO=648±113, PL=436±70; p<0.01). Results indicate that the intake of equal amounts of SCHO and LCHO 5 minutes prior to high intensity intermittent exercise improve performance similarly.

**HEALTH EDUCATION**

Bennett, Susan B. *Credentials of cardiac rehabilitation personnel*, 1995. M.S., Springfield College (William Considine). (175pp 2f $8.00) HE 553

The American Association of Cardiovascular and Pulmonary Rehabilitation has recommended educational degree requirements for cardiac rehabilitation (CR) personnel. The study was designed to survey New England hospital-based CR programs to determine the reported level of educational degree attainment among CR staff and to determine if there is a relationship between the reported level of educational degree attainment of the CR program directors (PD) and their staff. A total of 117 CR programs were surveyed with a response rate of 91.5%. The return rate for the various CR program staff, by job title, was 95 to 100%. Chi-square analyses revealed significant differences (p<0.05) among several personnel regarding graduate degree procurement. The percentage of mental health professional/social worker (MHP/SW) with graduate degrees was 86.0% (N=49/57), physical therapist (PT)-27.6% (N=16/58), occupational therapist (OT)-20.8% (N=5/24), and registered nurse (RN)-7.5% (N=5/67). Although not statistically significant (p>0.05), the percentage of
exercise specialist/physiologist (EXSPEC) with graduate degrees was 51.3% (N=20/39), nutritionist/dietitian (NUTRIT)-48.5% (N=47/97), PD-43.5% (N=47/108), pharmacist (PHARM)-40.5% (N=15/37), health educator (HEED)-42.9% (N=3/7), and coordinator (COOR)-30.0% (N=6/20). Chi-square analyses revealed no significant differences between the PDs and their staffs’ reported level of degree attainment. The influence of the PDs and their staffs’ level of degree attainment on the scope of a CR program’s patient care delivery remains to be determined.

Brown, Marc A. Relation of body fatness and blood lipids as risk factors for coronary heart disease in African American women, 1994. M.A, University of North Carolina at Chapel Hill (Barbara E. Ainsworth). (114pp 2f $8.00) HE 554

This study quantified the associations between body fatness and blood lipids as risk factors for coronary heart disease (CHD) in 93 African American (AA) women, ages 18-40 years (M=27.39±6.60 years). Body fatness was measured by densitometry (% fat), body mass index (wt/ht², BMI), and waist-to-hip ratio (umbilicus/gluteal circumferences, WHR). Blood was analyzed for total cholesterol (TC), high-density lipoprotein-cholesterol (HDL-C), and triglycerides (TG). Data were analyzed using age and physical activity adjusted Pearson correlations. Mean % fat (32.33±8.95%) and HDL-C levels (64.32±17.53 mg/dl) were moderately high. The associations between % Fat, WHR, and HDL-C were significant (% fat, r=-.24; WHR, r=-.24, p<.05). Body fatness was unrelated to TC and TG (p>.05). Results suggest that increasing total and abdominal fatness are associated with lower HDL-C levels which may place fatter women at risk for CHD. Increases in physical activity and weight loss may reduce the CVD risk factors and improve HDL-C lipid profiles in AA women.


Upper body obesity, abdominal obesity or android body type is associated with cardiovascular disease (Bjorntorp, 1990). The waist to hip ratio (WHR) is a commonly used measure of fat distribution. A high WHR is indicative of android body type. Currently, there are no set or consistent standards for the WHR. The two primary purposes of this study were: 1) To determine which WHR has the highest correlation with cardiovascular risk factors, and 2) To determine if the WHR correlates higher with cardiovascular risk factors than percent body fat. Forty healthy, premenopausal females were recruited. Subjects completed an informed consent form, health history, and physical activity questionnaire. Measurements included blood pressure, a four minute single-stage treadmill test, seven site skinfolds, weight, height, and circumference measurements. Four different waist sites were measured including: WHR 1: smallest waist, WHR 2: midway between the lowest ribs and anterior superior iliac spine, WHR 3: the umbilicus and WHR 4: 1/3 the distance between the xiphoid process and the umbilicus. One hip measurement was taken: maximum extension of the buttocks. Four different waist to hip ratios were calculated. On a separate day, subjects reported to the Student Health Center for blood drawing after a 12 hour fast. Blood samples were analyzed for triglycerides (TGs) and high density lipoproteins (HDLs) using the Kodak DT-60 analyzer. Pearson product correlation coefficients were used to determine the association between the WHR measurements and percent body fat with HDLs, TGs and diastolic blood pressure (DBP) (p<.05). After adjusting for percent body fat, partial correlation coefficients were performed to determine the independent contributions of the WHR measurements to HDLs, TGs and DBP (p<.05). The average WHRs varied significantly. The means of WHR 1, 2, 3, 4 are 0.77, 0.82, 0.88, and 0.80. WHR 3 correlated best with DBP (r=.451). WHR 2 correlated best with HDLs (r=-.360). Percent body fat correlated best with TGs (r=.429). After adjusting for percent body fat, all of the correlations lost statistical significance. All of the WHR methods overestimated the percent of women one might predict would exhibit risk for cardiovascular disease. The actual percent of subjects with at least one risk factor was 18%. The method which exhibited closest agreement with actual risk and android body type was WHR 1, which placed 35% of the women as being android. The WHR method which best identified women with at least one risk factor was WHR 3. All women (100%) with at least one risk factor were identified as having android body type by WHR 3. Eighty six percent of the women with at least one risk factor were identified as android by WHR 2, while only 71% were identified by WHR 1 and 4. WHR 3 correlated best with the cardiovascular risk factors compared to the other WHR methods. Due to a high percent of false positives, WHR 3 may be too liberal in defining body type, and the site can be inconsistent over time. WHR 2 is recommended as the preferred WHR due to its good correlations with DBP and HDL, ability to correctly identify individuals at risk and lack of change over time. This recommendation is consistent with other research. The WHRs did not correlate better than percent body fat with DBP, TGs and HDLs. This indicates that the overall percent of body fat is equally or more important than the distribution of body fat in relation to these cardiovascular risk factors. However, all of the WHRs were able to identify individuals at risk. This indicates that the WHR may still be an important assessment tool. It is recommended that both skinfold measurements and the WHR should be used as risk assessment tools.
Activity report logs gathered from 8 Wisconsin elementary schools were examined to determine the extent to which an innovative comprehensive health education program was being diffused. Categories were delimited to school culture/climate, staff development, and health education instruction. During years 3 and 4, increases were seen in the number of schools reporting activities in school culture/climate and health education instruction. Activities in staff development decreased; however, 5 of 7 activities within this category were being used by a majority of schools. Emerging trends included leadership teams implementing activities in all categories, ownership of project activities being accepted by other staff, diffusion of activities from one vehicle of distribution to another, increase of integrated health lessons in all subjects areas, and various forms of connections used to develop efficient means of promoting comprehensive health education to students and staff.


Athletic Directors’ Perceived Prevalence of North Carolina High School Athletes’ Drug and Substance Use (Under the direction of Dr. Edgar Shields). The purpose of this study was to examine North Carolina high school athletic directors’ perceptions of student-athletes’ drug and substance use relative to the general student population’s perceived usage. Data collected from this study was also compared to select statewide and nationally generated data collected within a seven-year time period. Athletic directors in North Carolina High School Athletic Association (NCHSAA) member schools received surveys and of the total sample (N=327), 215 (66%) athletic directors returned completed surveys. Of this sample, 206 were male (96%) and 9 were female (4%). Surveys were administered by Que Tucker, an Assistant Executive Director with the NCHSAA, at the 1992 ABLE (Athletics Building Leadership Effectiveness) Seminar in Chapel Hill. Statistics were descriptive in nature. Collected results paralleled results generated from national and statewide studies concerning student-athletes’ perceived drug and substance use. Results indicated that North Carolina high school athletic directors are fairly aware of their athletes’ drug and substance use and have encountered student-athletes under the influence of drugs. Information concerning prevention programs indicated that North Carolina high schools have more programs in place for the general student population than specifically for student-athletes.

However, 86% of North Carolina athletic directors reported that they hold pre-season meetings with their athletes and discuss drug use at these meetings. North Carolina athletic directors also reported that 95% of their schools have written policies which address drug use by their students in general, while 50% indicated that their schools have policies addressing the drug issue specifically for student athletes.

Riddell, Janet M. A qualitative evaluation of childbirth education booklets, 1994. M.A, Dalhousie University (Larry Maloney). (156pp 2f $8.00) HE 558

The Nova Scotia Department of Health requested a process, impact, and product evaluation of the series of seven prenatal booklets entitled “A New Life”. A qualitative evaluation was conducted with 40 mothers, 26 fathers, and 12 nurse educators in individual and focus group interviews between November 1993 and May 1994. The booklets’ relevance and effectiveness were assessed with the target audience. Relevance included (a) the mothers’ ability to understand the content, (b) the booklets’ visual appeal, (c) usage of the booklets by parents and nurse educators, and (d) the extent to which the booklets satisfied the parents’ need for information. Effectiveness was assessed by examining the perceived effects the booklets had on the parents’ knowledge, attitudes and/or behaviour. Participants made recommendations for changes in design, content, and availability. All but one of the booklets were relevant and effective according to the participants. The study indicated the importance of pretesting written materials with the target audience. It provided information on the role of the nurse educator in prenatal and postnatal education. Finally, participation in the study was considered to be an empowering experience by the mothers and fathers in that they believed they were able to influence government decisions regarding revisions to the booklets for subsequent publication.

Turk, Joanne C. Collegiate coaches’ knowledge of eating disorders, 1995. M.A, University of North Carolina at Chapel Hill (William E. Prentice, Jr.). (111pp 2f $8.00) HE 559

The purpose of this project was to act as preliminary exploratory research in the assessment of collegiate coaches’ knowledge of eating disorders. In addition to investigating knowledge, confidence in response correctness was analyzed as well as demographic data. Knowledge of eating disorders was computed overall and within five domains. These domains include: etiology; identifying signs and symptoms; management and treatment; risk factors; and education and prevention of eating disorders. One-hundred thirty-eight NCAA Division I-A coaches from five universities responded to the two-part questionnaire. Demographic data focused on educational programs attended by coaches and teams. The survey page consisted
of 30 true/false questions. Coaches indicated their level of certainty in their response by rating their confidence level on a four item Likert-type scale. Descriptive statistics were used to analyze all data. Results suggested a need for coaches to achieve a greater knowledge of eating disorders in all domains. Data also implied coaches may have been misinformed in the area of education and prevention as this domain showed the lowest mean percent correct but exhibited the highest mean confidence response. Overall, low mean percent correct scores generally were associated with low mean confidence levels. Evidence showed that educational programs about eating disorders were not often sponsored by the athletic department for coaches or athletes. The athletic department, also, poorly communicated to the coaches the educational resources readily available.


Objective evaluation of 7 anatomical postural angles was completed on 34 VDT workers (M age=46.2) as they performed routine tasks. Upon completion of objective evaluation, discomfort was evaluated using the Standardized Nordic Questionnaire for the Analysis of Musculoskeletal Discomfort. Objective evaluation data and subjective questionnaire data were analyzed using the Spearman rank order correlation to determine the relationship between joint discomfort and postural joint angle. No significant relationship was found between the subjective joint discomfort and postural joint angle. No significant relationship was observed between the prevalence of discomfort and postural joint angle in the Ss. Prevalence of ache, pain, and discomfort symptoms in VDT workers was identified in 9 joint areas including neck (58.8%), lower back (55.9%), shoulders (47.1%), wrist/hand (47.1%), and upper back (26.5%). Discomfort questionnaire screening was found to be a valuable method for identifying the prevalence of musculoskeletal discomfort.

RECREATION AND LEISURE

Rogers, Nancy B. The meaning of leisure from the perspective of wife caregivers of older husbands, 1955. Ph.D., Indiana University (Barbara A. Hawkins). (209pp 3f $12.00) RC 494

Purposive sampling was used to develop a sample of 16 participants. Data were collected through in-depth interviews and analyzed according to the constant comparative method. Predominant issues were loss of leisure and leisure entitlement. Themes related to loss of leisure were common to all participants. All participants felt a sense of duty towards their husbands that caused them to give up leisure and social networks. Themes related to leisure entitlement were not common to all participants. Two groups were discovered: integrated caregivers and non-integrated caregivers. Leisure had little meaning for the non-integrated caregivers who were consumed by the caregiving role. The integrated caregivers believed leisure was important and actively sought needed support. This study indicates a new approach to serving caregivers may be in order. The needs of integrated caregivers may be met by providing support services and information. Non-integrated caregivers may need leisure counseling to help them realize the importance of leisure, deal with guilt and access services.

PSYCHOLOGY

ANXIETY


The purpose of this study was to determine the effectiveness of a psychological skills training program in controlling competition anxiety and enhancing performance of selected National Youth Sports Program (NYSP) participants. Female and male campers from the NYSP summer camp between the ages of 13 and 15 years were selected for this study. Prearranged by camp personnel into different sports groups, the three groups: (a) treatment, (b) control, and (c) a subgroup of controls, were chosen out of convenience. The treatment group, karate/softball, received the Visualization, Affirmations, Relaxation, and Goal-Setting (VARG) psychological skills training program during the five-week duration of camp. The control and control subgroup, gymnastics/softball, did not receive the intervention program. During the first week, each subject was administered the Sport Competition Anxiety Test for Children (SCAT-C). The treatment group also was introduced to the VARG program: (a) visualization, (b) affirmations, (c) relaxation, and (d) goal-setting. Also, the Subjective Units of Distress Scale (SUDS) Inventory was administered to the treatment group before and after the psychological skills training. This practice was continued throughout the NYSP program. During the second through fourth weeks, the treatment group continued to practice the VARG program and be measured on the SUDS Inventory, while the controls discussed a variety of educational topics. In the fifth week, the subjects of all groups were again evaluated on the SCAT-C. The treatment group, karate/softball, and the subgroup of controls, gymnastics/basketball, were also assessed, by their coaches, on performance criteria following a camp culminating sports demonstration. T-tests for the SCAT-C showed no statistical differences between pre- and post-testing. Charts and graphs display a trend towards a
ATTITUDES AND VALUES

Gillentine, John A. A comparison of the sportsmanship attitudes and/or moral reasoning of interscholastic coaches, 1995. Ph.D., University of Southern Mississippi (Sandy Gangstead). (82pp 2f $4.00) PSY 1853

This study investigated the sportsmanship attitudes and/or moral reasoning of interscholastic coaches. The specific problems addressed in the study examined the differences, if any, which existed between the levels of sportsmanship attitudes and/or moral reasoning athletic coaches in relationship to the variables of level of competition, years of coaching experience, educational level, type of sport, and sport gender. Subjects for the study (n=150) were employed as interscholastic athletic coaches. Participants were asked to respond to the McMahan Sportsmanship Attitude Scale consisting of 21 different sport specific situations reflecting both positive and negative occurrences. Data was collected from on the campuses of 16 high schools located in the Midwestern region of the United States. A representative of each school served as on-site coordinator for the administration and collection of the instrument. The instrument was completed by each subject and returned to the on-site coordinator within a designated time frame. Subjects were additionally required to complete a demographic questionnaire attached to the instrument. The data collected statistically analyzed the relationship, if any, of the variables and sportsmanship attitudes and/or moral reasoning using the following ANOVA's: 2 (gender) x 2 (level of competition); 2 (gender) x 6 (years of coaching experience); 2 (gender) x 3 (coaches educational level); 2 (gender) x 3 (sport gender). Analyses did not find any significant difference in the scores of interscholastic coaches in relationship to the variables of gender, level of competition, years of coaching experience, educational level, type of sport, sport gender or a combination of all variables (p>.05). It was concluded that since there were no significant differences in the sportsmanship attitudes and/or moral reasoning levels of male and female interscholastic coaches as examined in this study, the groups were relatively homogenous in terms of mean levels in their responses to the items included in the McMahan Instrument. It was further concluded that the variables did not contribute to a difference between the sportsmanship attitudes and moral reasoning of interscholastic coaches.

Riemer, Harold A. Development of the Athlete Satisfaction Questionnaire, 1995. Ph.D., Ohio State University (P. Chelladurai). (509pp 6f $24.00) PSY 1858

The purpose of the study was to develop a scale of athlete satisfaction (defined as a positive affective state resulting from a complex evaluation of the structures, processes, and outcomes associated with the athletic experience). An earlier conceptual model proposed by Chelladurai and Riemer (1994) was modified during the processes of expert advice and item generation. The original 197 items in 29 facets of athlete satisfaction were administered to a sample of former high school athletes (n=197). Item analyses, including corrected item-to-total correlations and Cronbach's alpha, resulted in the reduction of the scale to 121 items to measure 20 facets of satisfaction. This version of the Athlete Satisfaction Questionnaire (ASQ) was then administered to a sample of 614 male and female Canadian university athletes from basketball, volleyball, and hockey teams. Five iterations of item analyses, and a confirmatory factor analysis with different randomly selected subsamples yielded a 15 facet and 58-item questionnaire. Alpha reliability coefficients for the ASQ 15 subscales ranged from .78 to .95 for a mean of .88. The factor structure of the final version was supported in the confirmatory factor analysis (LISREL) carried out with the entire sample. The correlations among the subscales ranged from .16 to .77 for a mean of .36. The ASQ's correlations with a scale of commitment to athletics especially collated for the study ranged from .12 to .47 with a mean of .29. The ASQ's correlation with the Negative Affectivity Scale (Levin &
These results provided initial evidence of the reliability and validity of the Athletes Satisfaction Questionnaire.


This study examines the attitudes of Olympic sport student-athletes and coaches at the University of North Carolina at Chapel Hill (UNC-CH) toward NCAA Bylaw 17.1.5.1, Daily and Weekly Hour Limitations-Playing Season and additional individual practice opportunities. Olympic sport student-athletes with a GPA of 3.0 and above were placed in one academic group and Olympic sport student-athletes with a GPA of 2.9 and below were placed in a second academic group. Additional comparisons were made between all Olympic sport student-athletes and Olympic sport head and assistant coaches and between male and female Olympic sport student-athletes. The highest percentage of Olympic sport student-athletes in the 3.0 and above academic group agreed that the NCAA should keep the current limit of 20 hours per week while Olympic sport student-athletes in the 2.9 and below academic group agreed, along with Olympic sport coaches, that the NCAA should increase the number of hours beyond 20 hours per week. Regarding additional individual practice opportunities both academic groups felt if a student-athlete is in good academic standing (GPA 3.0 and above) that the opportunity for additional individual practice should be available.

**BEHAVIOR ANALYSIS**

Bakker, Debra L. *Religious practices and high-risk behaviors of college student athletes and nonathletes*, 1995. H.S.D, Indiana University (James W. Crowe). (152pp 2f $8.00) PSY 1838

The Lifestyle Assessment Survey was administered to 1539 college student athletes and nonathletes to determine differences in high-risk behaviors. The relationship between religious practices and high-risk behaviors was also examined. 7 Division III colleges in Michigan participated in the study. Data were analyzed using ANOVA, correlational techniques, and discriminant function analysis. A significant correlation (p<.01) was found between religious practices and high-risk behaviors (more religious practices were associated with fewer high-risk behaviors). ANOVA results indicated significant differences in high-risk behaviors between athletes and nonathletes (p<.01), with athletes scoring significantly higher. Significant differences were reported in high risk behaviors by gender (p<.01), with males scoring higher than females. Discriminant function analysis indicated 3 variables which were the best discriminators of sport membership: seatbelt use, smokeless tobacco use, and onset of sexual activity. Discriminating variables were most successful classifying cross country runners and football players. The relationship between religious practices and high-risk behaviors indicated more religious practices are associated with fewer risk behaviors. College athletes participated in more high-risk behaviors than nonathletes. Male college students participated in more high-risk behaviors than female college students.


In an effort to investigate the factors related to fasting behavior among American adults, 220 clients who had fasted under professional supervision were surveyed. Subjects were recruited from two different sites, namely The Center for Conservative Therapy (C.C.T.) in California where 191 (86.8%) participated, and The Recovery Institute in New Jersey where 29 (13.2%) participated. The subjects were predominately Caucasian 199 (91.3%) and female 145 (65.9%), with widely varying ages from 21 through 91 years, and with a median age of 46 years. Over half of the subjects 117 (54.4%) had four or more years of college education; Protestant 80 (37.9%) was the largest religious group. They worked over 30 hours per week 107 (49.1%) to earn an annual median income of $49,235. As a framework for studying the factors that influence people to practice fasting behavior, selected constructs, namely, perceived benefits, perceived barriers, and perceived susceptibility were taken from the Health Belief Model, and observational learning and self-efficacy were taken from the Social Learning Theory (SLT). Selected demographic variables were also examined, as were each subject’s reactions to the fasting experiences. The majority of the subjects fasted mainly to recover from illness, 136 (61.8%). Prior to fasting, 150 (68.2%) of the subjects had known people who had fasted for health. 75.0% of the subjects reported that they had quite a bit, or very much, confidence in their ability to practice fasting, while 204 (93.0%) of the subjects agreed that benefits accrued from fasting. Concerning susceptibility to infections, 142 (65.4%) disagreed or had no opinion, and 182 (83.5%) of the subjects reported that financial costs were a barrier in deciding whether to fast. The length of their most recent fast ranged from two to 30 days, with a mean of 10.6. 45 (20.7%) oft he subjects fasted more than 14 days. 142 (64.5%) of the subjects reported that improved health was the greatest benefit of fasting. Regarding unpleasant aspects, 67 (30.5%) of the subjects reported weakness/dizziness, and 60 (27.3%) reported that boredom was most bothersome. The number of fast days was not related to reported benefits (r=.0072, p=.917). As expected, knowing people who had fasted for health purposes was related to the subjects’ perceived amount of influence on the decision to fast (r=.3937, p<.01).
Coutu, Debra L. *The effect of the presence of the coach on pain perception and pain tolerance of athletes*, 1995. M.S., Springfield College (Charles J. Redmond). (111pp 2f $8.00) PSY 1841

Subjects for this study, 18 male and 18 female high school athletes, were tested with a cold pressor test alone, in the presence of the researcher, and in the presence of their coach. Pain tolerance times, and pain perception scores were recorded at each of three test administrations. Separate 2 x 3 repeated measures ANOVAs were used to analyze the differences in the mean pain tolerance and pain perception scores. Significant (p<.05) differences were found among the mean pain perception scores for the three test conditions. The mean pain perception score in the alone condition was found to be significantly (p<.05) higher than the mean score in the presence of the coach. Significant (p<.05) differences were also found among the mean scores for pain tolerance for the three test conditions. The mean pain tolerance score in the alone condition was significantly (p<.05) lower than the mean score in the presence of the researcher, which was also significantly lower than the mean score in the presence of the coach. No gender differences or interactions were found. Athletes were more willing to tolerate the painful stimulus in the presence of their coach and rated it as being less painful.

Kleppinger, Alison. *Gender differences in sport orientation and goal orientation*, 1995. M.S., Springfield College (Barbara E. Jensen). (114pp 2f $8.00) PSY 1848

This study was designed to discover gender differences in goal orientations and sport orientations. Using both the Sport Orientation Questionnaire (SOQ)(Gill & Deeter, 1988) and the Task and Ego Orientation in Sport Questionnaire (TEOSQ)(Duda, 1989a), four, Division III, collegiate men's and women's basketball teams were assessed for goal orientations. Two one-way MANOVAs were computed and significant (p<.05) differences were found between the mean vector of scores for males and females for both the TEOSQ and SOQ data. From univariate comparisons, males were significantly more ‘win oriented’ than females; however, females were more ‘task oriented’ than males. A discriminant function analysis was computed and individuals scoring higher on the ‘win orientation’ subscale of the SOQ were more likely to be classified as male. Individuals scoring higher on the ‘task orientation’ subscale of the TEOSQ were more likely to be classified as female. When all five subscales were correlated, the highest correlation coefficient was the relationship between ‘win orientation’ and ‘competitiveness’.

Gano-Overway, Lori A. *Goal perspectives and their relationships to beliefs, affective responses and coping strategies among African and Anglo American athletes*, 1995. M.S., Purdue University (Joan L. Duda). (135pp 2f $8.00) PSY 1844

Cross-cultural and ethnic research in sport psychology is important due to the widespread participation of ethnic minority groups in sport and the immense impact culture and ethnicity have on people’s perceptions. Goal perspective theory emphasizes the importance of subjective interpretations of goal accomplishment but has not yet been comprehensively used to investigate the motivational experiences of the ethnic minority athlete. Of particular interest in this study was how this ethnicity was perceived by the individual rather than how it has been ascribed to them by others. Strength of ethnic identity was utilized to assess the athlete’s commitment to their particular ethnic group and the values associated with that ethnic group. The purpose of this investigation was to examine the race, sex and ethnic identity differences in goal orientations (i.e. task, ego, cooperation, work avoidance and expressive individualism), beliefs about success, enjoyment and coping strategies. A second purpose was to examine the relationship of Anglo and African American athletes’ goal orientations to their beliefs about success, satisfaction in sport and coping strategies. It was first hypothesized that African American athletes, with high ethnic identity, would be more task oriented and expressive than high ethnic identity Anglo American athletes. Racial, sex, and ethnic identity differences emerged with ethnic identity explaining the most variance for several adaptive motivational variables. As hypothesized, it was found that the belief that hard work leads to success, enjoyment and problem-solving coping skills were positively associated with a task orientation; whereas, an ego orientation was related to the view that success stems from high ability, work avoidance, and greater boredom in sport.

Lam, Tak C. *A comparison of the leadership behavior of winning and losing high school basketball coaches*, 1995. M.S., Springfield College (Betty L. Mann). (157pp 2f $8.00) PSY 1849

The study was designed to examine whether there were any differences in the leadership behaviors of coaches of winning and losing high school basketball teams. A total of 56 male basketball coaches from 56 high schools in Hong Kong served as subjects. The coach’s self-perception version on the Leadership Scale for Sports (LSS) (Chelladurai & Saleh, 1980) was used to evaluate the leadership behaviors of the coaches. A one-way MANOVA was used to analyze the differences in the mean vector of scores represented by the subscales of the LSS between the winning and losing basketball coaches. No significant differences were found in the coaching behaviors between winning and losing coaches (Wilks’ Lambda=.967, p>.05; Canonical Correlation=.182). The most common coaching behaviors for both winning and losing coaches were, in descending order, ‘Positive Feedback Behavior’, ‘Training and Instruction Behavior’, ‘Social Support Behavior’, ‘Democratic Behavior’, and ‘Autocratic Behavior’.
The purpose of this study was to investigate the effects of goal setting and imagery training program on the free-throw performance of female basketball players. The study employed a multiple-baseline, single-subject design in which participants were randomly assigned to one of three interventions: 1) goal setting (n=4), 2) imagery (n=4), or 3) goal setting and imagery (n=4). Free-throw data were collected during practice sessions and games. Data were examined by way of changes in mean, level, trend, latency, and variability between baseline and intervention, and then between intervention and a second baseline phase. Results revealed that three participants in the goal setting program, and one participant in the goal setting and imagery program increased their mean free-throw performance during practice from baseline to intervention. However, three participants in the imagery program decreased their mean free-throw performance during practice from baseline to intervention. Game competition data were found to be uninterpretable due to confounding variables. Satisfaction and goal discrepancy scores were also investigated. Positive correlations were found between participants’ free-throw performance and performance satisfaction, and between free-throw performance and personal goals. Future research directions were suggested. Key words: Satisfaction, goal discrepancy, Imagery Use Questionnaire, single subject design.

Nelson, Dave Paul. Validity concerns in previous studies examining the frequency of anorexia nervosa in female ballet dancers, 1994. M.S., University of Oregon (Steven Chatfield). (100pp 2f $8.00) PSY 1856

Discrepancies in the literature on the prevalence of anorexia nervosa among ballet dancers provides the impetus for this study. Critically reviewing methodology to arrive at the most credible studies, I conclude that anorexia nervosa appears to occur with greater frequency but has also been overreported for female ballet dancers. The range of frequencies derived from the most credible studies is 3.5%-7.6%, depending on the subpopulation of ballet dancers sampled. Reports of higher frequencies of anorexia nervosa among ballet dancers come from studies relying on one of four types of questionable evidence: (a) subjective impressions, (b) simulated diagnosis, (c) anorexic symptomatology, or (d) simple screening measure scores. The most credible studies utilize a two-stage procedure which includes the administration of a screening measure, collection of information about menstrual history, and a follow-up diagnostic interview for at-risk individuals. Credible methodologies exist which can identify anorexics or at-risk ballet dancers and allow intervention.


The purpose of the research was to examine the effects of the menstrual cycle on competitive swimming performance times and psychological well-being at the time of the competition. Eleven women from the swim team at the University of North Carolina at Chapel Hill and eight women from the North Carolina Aquatic club participated in this study. Competition data from the pre-ovulatory and post-ovulatory phases of the menstrual cycle were recorded at swim meets during the months of January and July 1991. Prior to each swim meet, subjects completed a Profile of Mood State questionnaire. Results were analyzed by a repeated measures t-test. Fifty-six percent of the women increased their swim times post-ovulatory. However, this was not significantly different (p>0.05). In addition, POMS test scores between pre- and post-ovulatory phases of the menstrual cycle were also not significantly different (p>0.05). These results indicated that competitive performance was not affected by phase of the menstrual cycle.

Ross, Carolyn K. Predisposing, reinforcing, and enabling factors identifies by Division I coaches of women’s cross-country teams and the relationship to the perceived onset of eating disorders, 1995. M.S., Purdue University (Marlene K. Tappe). (55pp 1f $4.00) PSY 1861

The purpose of this investigation was to have coaches of women’s Division I cross country teams identify contributing factors to eating disorders and rank preventative measures in terms of their usefulness in decreasing this epidemic in women’s intercollegiate athletics. A 33-question survey was mailed to all Division I coaches of women’s cross-country teams. The survey was divided in three areas based on phase four of Green and Knueter’s (1991) PRECEDE-PROCEED model. The fourth phase, the educational and organizational diagnosis examines predisposing, reinforcing, and enabling factors related to a health related problem. Questions in the survey reflected these three sets of factors. The study posed three research questions. The first hypothesis examined the coaches perception of the contributing factors of eating disorders among female collegiate cross-country runners. Coaches differentially rated the predisposing, reinforcing, and enabling factors. Coaches ranked Family/Home Pressures ahead of reinforcing factors and Personal Relationship Pressures in terms of their degree of contribution to eating disorders. Coaches also identified Education/Counseling...
as a factor which would make the strongest impact on decreasing the prevalence of eating disorders among female Division I cross-country athletes. The second hypothesis compared responses between male and female coaches. Female coaches rated the importance of Family/Home Pressures, Personal Relationship Pressures, Weight Concerns, and preventative measures of Education and Counseling higher than male coaches. No statistical differences were found between men’s and women’s perceptions of eating disorders and athletic policies. The final research question investigated the relationship between the coaches’ years of experience and the number of eating disordered athletes with whom they have worked with. This study found that the longer a coach is involved with female collegiate cross-country runners, the more experience they have with eating disordered female athletes.

Stodel, Emma J. Obligatory exercise and pathogenic weight control in college students, 1995. M.S., Springfield College (Mimi Murray). (154pp 2f $8.00) PSY 1866

College students (N=228) were assessed on their eating and exercise habits. Comparisons were made between males and females; athletes and non-athletes; and gymnasts, distance runners, and soccer players, with regards to the frequency of use of pathogenic weight control methods. Reasons for the use of these methods were also investigated. The degrees to which individuals have perfectionistic tendencies and are generally dissatisfied with their lives were examined in relation to the degree to which they are obligatory athletes and use pathogenic weight control techniques. College athletes, regardless of sport, and non-athletes were found to use these weight control methods to the same degree and females used them more than males. Females reported doing so in order to enhance their appearance, whereas some male athletes gave reasons of fitness and others of appearance. Those college students who used pathogenic weight control techniques more frequently also tended to report more feelings of general dissatisfaction with their lives. Students who had highly perfectionistic tendencies also tended to be more exercise dependent.

Sullivan, John P., Jr. An examination of the validity of the Profile of Mood States (POMS) in the assessment of mental health in athletes, 1995. M.S., Springfield College (Britton W. Brewer). (67pp 1f $4.00) PSY 1867

The purpose of this investigation was to examine the validity of the Profile of Mood States (POMS) as means of assessing mental health in an athletic sample. Subjects included NCAA Division I male and female athletes (N=109) competing in swimming and diving, women’s volleyball, women’s basketball, and men’s soccer. All subjects were administered the Profile of Mood States (POMS), the Objective Measure of Ego Identity Status (OMEIS) foreclosure subscale, the Crowne-Marlowe Social Desirability Scale (M-C SDS), and the Incomplete Sentences Blank (ISB). All psychometric instruments were administered to subjects in one session. Pearson correlations were calculated among scores on the POMS, the foreclosure subscale of the Objective Measure of Ego Identity Status, the Crowne-Marlowe Social Desirability Scale, and the Incomplete Sentences Blank. Correlations calculated revealed many significant (p<.05) relationships between the POMS subscales and both the ISB and the M-C SDS. Scores on the POMS subscales were, in general, not significantly correlated with the OMEIS foreclosure subscale.

Trueman, Andrea L. Socialization and workaholism: a lifestyle perspective, 1995. M.A, Dalhousie University (Renee Lyons). (130pp 2f $8.00) PSY 1869

Workaholism is an excessive commitment to work where work becomes a life priority which consumes time and self identity. Little research has been conducted on the phenomenon of workaholism, its antecedents, and consequences (Killinger, 1991; Machlowitz, 1980). However, the literature on workaholism has revealed two important issues relevant to this study. The first suggests that there is a possible relationship between family socialization and the development of workaholism. The second suggests that leisure plays a peripheral, or nonexistent role in workaholics’ lives. The purpose of this qualitative study was to examine antecedents of workaholism, particularly family socialization, and the workaholic’s leisure lifestyle. The theoretical basis for the study was Adler’s conception of lifestyle, specifically the connection of one’s current lifestyle to family experiences and the clarification of a person’s current lifestyle through their perceptions of family experiences. In-depth qualitative interviews were conducted with eight males and female workaholics. The interview schedule was a modified version of the Lifestyle Interview (Eckstein, Baruth, & Mahrer, 1978), including questions about work and leisure in self and family. Interviews were content analyzed to generate themes. The data revealed that personal identity was the most significant motivator influencing workaholics’ commitment to their work. Respondents’ perceived their family experiences to influence their work behaviour by the strong presence of the work ethic and the influence of their father, yet these influences were perceived as subtle rather than obvious. Respondents’ had little time for leisure, but within that leisure time they participated in diverse leisure patterns. A theoretical model was developed that illustrates how a workaholic’s lifestyle, personal motivations and family socialization, and consequences relate to one another.

Weiss, Steven M. A comparison of maladaptive behaviors of athletes and non-athletes, 104. M.S., Springfield College (Mimi Murray). (104pp 2f $8.00) PSY 1871
A comparison of maladaptive behavior tendencies of athletes and non-athletes of both males and females was undertaken. College subjects (N=200) were divided into four groups; male athletes, male non-athletes, female athletes, and female non-athletes. The subject's maladaptive behavior tendencies were determined from his/her responses on the MacAndrew Alcoholism Scale. The statistical analysis utilized was an independent groups 2 x 2 analysis of variance to determine significant main effects and interaction effects. The mean maladaptive behavior score (MBS) for athletes (M=21.87) was significantly (p<.05) higher than the MBS for non-athletes (M=20.24). The MBS for males (M=21.68) was significantly (p<.05) higher than the MBS for females (M=20.43). No significant (p>.05) interaction between sex and athletic status was found. Male athletes are more likely to have maladaptive behavior tendencies. Research directed towards greater understanding and the development of preventative and coping techniques for this population is needed.


The purpose of this study was to determine whether a relationship exists between precompetitive affect and competitive intercollegiate baseball performance. The Total Mood Disturbance score (TMD) from the Profile of Mood States Inventory (POMS) was utilized to assess the competitor's level of precompetitive affect. Official game statistics of batting average, runs batted in, slugging percentage, and fielding percentage were obtained from The University of North Carolina at Chapel Hill Sports Information Office in order to evaluate performance. Analyses revealed that an individual's overall TMD score was a statistically significant predictor of offensive baseball statistics. Results indicated that for the ten game experimental period, a player's TMD score was a statistically significant predictor of a player's overall batting average (F(1, 10)=30.60, p<.0003 r²=75.37%), and slugging percentage (F(1, 10)=15.72, p=.0027 r²=61.12%). Negative beta weights were found indicating that lower TMD scores predicted enhanced batting averages and slugging percentages.

MOTIVATION

Drennan, Meredith L. Incentive motivation of female basketball players across three age levels, 1994. M.S., Springfield College (Mimi Murray). (109pp 2f $8.00) PSY 1843

Incentive motivation in female basketball players was assessed to determine differences among three developmental levels: junior high, high school, and college/university. The Incentive Motivation Inventory (IMI) designed and revised by Wood (1980) was administered to 120 (40 per level) junior high, high school, and college/university female basketball players from Western Massachusetts and Rhode Island. One-way analysis of variance (ANOVA) was computed for each of the seven subscales of the IMI (Wood, 1980): ‘excellence’, ‘power’, ‘stress’, ‘independence’, ‘success’, ‘aggression’, and ‘affiliation’. After analyses, the researcher concluded that four of the seven subscales had significant differences. High school basketball players had mean scores which were significantly (p<.05) higher on the subscale ‘excellence’ than junior high or college/university basketball players. The ‘power’ subscale, the mean for college/university athletes was significantly (p<.05) higher than the mean scores for junior high or high school athletes. College/university basketball athletes had a mean score that was significantly (p<.05) higher than high school basketball players on the subscale ‘aggression’ and junior high and high school athletes had mean scores on the ‘affiliation’ subscale that were significantly (p<.05) higher than the mean score for college/university female basketball players. On the three subscales ‘stress’, ‘independence’, and ‘success’, there were no significant (p>.05) differences in mean scores for the three levels tested.

Schwartz, Diana L. Gender differences in sport participation and incentive motivation of former college basketball players and swimmers, 1995. M.S., Springfield College (Mimi Murray). (141pp 2f $8.00) PSY 1862

Gender and sport differences in competitive sport participation, frequency of competition, and incentive motivation were tested for former college athletes. A chi square analysis was used to determine differences in competitive sport participation. The number of former college athletes who were not currently competing in the sport they played during college was significantly (p<.05) higher than the number competing. An ANOVA was used to analyze differences in the frequency of competitions. Basketball players were found to be competing in significantly (p<.05) more competitions than swimmers; however, no significant (p>.05) gender main effects or interaction were found. A MANOVA was utilized to examine differences in the seven subscales of the Alberta Incentive Motivation Inventory (IMI) (Wood, 1980) and the ‘health and fitness’ subscale of Kenyon’s Attitude Toward Physical Activity Scale (ATPA) (Kenyon, 1968b). The sport main effect and interaction were nonsignificant (p>.05). The main effect of gender was significant (p<.05). From a discriminant function analysis, males were found to value incentive of ‘stress’ significantly (p<.05) more than females.

Skordilis, Emmanouil K. Comparison of sport achievement orientation between wheelchair basketball athletes and able-bodied basketball athletes, 1995. M.S., Springfield College (Elizabeth E. Evans). (114pp 2f $8.00) PSY 1864
Differences in sport achievement orientations between wheelchair basketball athletes and recreational able body basketball athletes were tested. Athletes from the New England region completed the three subscales of 'competitiveness', 'win orientation', and 'goal orientation' of the Sport Orientation Questionnaire (SOQ) (Gill & Deeter, 1988). The different responses of the two groups were analyzed with a MANOVA. Wheelchair athletes responded higher on the 'competitiveness' and 'goal orientation' subscales with univariate analyses. The Wilks' Lambda value was found to be significant [Wilks' Lambda=.868, p=.041]. The 'competitiveness' scores were the only significant discriminator between the two groups from discriminant function analysis. The canonical correlation was .363, which indicated that 13.17% of the variability in SOQ scores was explained by the group differences. All intercorrelations among the three subscales of the SOQ were significantly higher than zero (p<.05). The correlation between 'competitiveness' and 'goal orientation' was the highest (r= .716). Replication study is considered necessary in the future to confirm and generalize the results.

Webb, Daniel. Factors influencing African-American students at historically Black colleges and universities to enter the adapted physical education profession, 1995. M.S., University of Wisconsin-La Crosse (Patrick DiRocco). (62pp 1f $4.00) PSY 1870

African-American seniors (N=70) majoring in physical education from 21 Historically Black Colleges and Universities (HBCUs) responded to a survey questionnaire. The survey gathered information on the subjects' personal experiences with a disability, preprofessional preparation in adapted physical education (APE), influence or perceived need of an African-American role model, awareness of graduate school/job opportunities in APE, and involvement in professional development and/or organizations. Percentages summarized the data, and chi-square analyses were used to assess differences. Subjects were divided into 4 groups: males who considered APE as a career choice (MAPE); females who considered APE as a career choice (FAPE); males who did not consider APE as a career choice (MNAPE); and females who did not consider APE as a career choice (FNAPE). Of the total number of Ss, 39 (56%) did not consider APE as a career choice and 31 (44%) Ss considered APE as a career choice. One factor appeared to influence Ss to consider APE as a career choice. Seventy-seven percent (APE) and 54% (NAPE) had preprofessional preparation in APE. For the factor of involvement in professional development and/or organizations there was a gender difference within the APE group, MAPE (68%) and FAPE (42%). While these percentage differences were noticeable, chi-square analyses indicated no significant statistical differences. The percentages for all the other factors were very similar.

Williams, Lavon. Situational and contextual influences on goal orientations, 1996. Ph.D., University of North Carolina at Greensboro (Diane L. Gill). (190pp 2f $8.00) PSY 1874

This study used a social cognitive approach to achievement motivation to examine the situational and contextual factors associated with goal perspectives. Two primary questions were asked: (1) do involvement and state anxiety vary as a function of the reward structures associated with athletic games and practices? and (2) do goal orientations change over the course of a competitive season as a function of the perceived team motivational climate and coaching behavior? Middle school softball athletes (N=127) were assessed on early- and late-season goal orientations (TEOSQ), pre-game and pre-practice goal involvement (GISQ) and state anxiety (CSAI-2), and motivational climate (PMCSQ-2). The CBAS was used to assess coaching behaviors. A Team X Reward Structure (game-practice) MANOVA used to examine goal involvement and state anxiety, revealed a main effect for reward structure. Wilks’ L=.44, F(4,96)=30.78, p<.01, ES=.56. Athletes scored lower on task involvement and higher on state anxiety before games than practices. Two hierarchical multiple regression analyses were used to examine the relationship between goal orientations and motivational climate. Results revealed that mastery ((= .47) and performance ((= .21) climates contributed significantly to the explanation of late-season task scores, R=.57, F(3,101)=16.38, p<.05. Neither mastery nor performance climate, however, contributed significantly to the explanation of late-season ego scores, R=.46, F(3,101)=15.47, p<.05. Lastly, correlations and graphs of behavioral frequencies were used to examine the relationship between coaching behaviors and motivational climate. Analysis revealed a positive correlation between mastery climate and the coaching composite score and a negative relationship between performance climate and the coaching composite. Coaches who were more reinforcing, encouraging and instructing, and less punishing and outcome-oriented coached teams who reported higher mastery team climates, whereas coaches who provided less reinforcement, instruction and encouragement, and more punishment and outcome-oriented statements coached teams who reported greater performance team climates.

Investigation of individual coach’s behaviors revealed that the coach who was least reinforcing and most punishing coached the team with the lowest mastery and highest performance scores. Theoretical implications and future research directions are forwarded.

**MOTOR LEARNING AND CONTROL**

Holloway, Ron. Music effects on the acquisition of a motor skill, 1995. M.A, University of North Carolina at Chapel Hill (Frank Pleasants). (117pp 2f $8.00) PSY 1846
The effects of music and the interactions between music, the ability to acquire a motor skill, and the perception of exertion were studied. Forty subjects were used, randomly divided into four groups under two music conditions and four retention intervals. Each subject performed ten acquisition trials and ten retention trials, each involving the attempt to perform the study motor skill (hacky sack). At the conclusion of each trial each subject gave a rating of perceived exertion (RPE) score. A MANOVA analysis found no significant effects or interactions between subjects for the motor skill acquisition scores or RPE scores, except for an increase in scores across time, which likely indicated a learning effect. The RPE scores exhibited an effect by interval group, but not as a result of the main effect of music. Because of the inconsistency of the effect between the various RI groups, the effect was not attributed to the different retention intervals. The study was unable to find support for the research hypotheses.

Nordeen, Lisa M. Belief in mental imagery in free throw performance, 1994. M.S., Springfield College (Stevida Chapek). (87pp 1f $4.00) PSY 1857

The purpose of this study was to compare free throw percentages of subjects who indicated a higher level of belief in mental imagery to subjects who indicated a lower level of belief in mental imagery. Eighty 12-17 year-old female subjects from a week long basketball clinic were randomly divided into treatment and control groups. Subjects were given a questionnaire and further divided into higher and lower level of belief in mental imagery groups. The treatment groups were given a mental imagery routine to practice while the control groups used physical practice only. An independent groups 2 X 2 ANOVA was used to compare the four groups on free throw percentage. There were no significant differences found between the treatment and control groups nor between the levels of belief groups in free throw percentages. Possible reasons for results and suggestions for further research are given.


This study investigated how different levels of visual information provided in a demonstration affected observer’s’ subsequent learning of the skill. Fifteen six-year-old children were provided either, a filmed demonstration of a skilled dribbler performing under normal room lighting (fully lit model) (n=5), a filmed demonstration in which only the movement of the dribblers’ major joints and the ball appeared as illuminated spots (patchlight model) (n=5), or only verbal instructions about the task (no demonstration) (n=5). All children were videotaped over six days while they practiced dribbling. The effects of these different levels of information on performance product (number of consecutive ball bounces per trial), and process (relative timing of hand and ball, as well as trunk, elbow and wrist angles) were assessed. Analysis of the product scores across days indicated that viewing the patch-light display prior to practice was less effective than viewing either the fully lit display or no display, and viewing a-fully lit demonstration was no more effective than no demonstration. Analysis of process, however, revealed that by day of peak performance the action patterns of those who viewed the fully lit model most closely resembled the model’s action patterns.

Sutlive, Vinson H, III. effect of practice schedule variation on the acquisition, retention, and transfer of an applied motor skill by children with and without mild mental retardation, 1995. Ph.D., Indiana University (Paul R. Surburg). (201pp 3f $12.00) PSY 1868

Thirty-six non-disabled (ND) and 36 children with mild mental retardation (MMR) were randomly assigned to blocked (BP), random (RP), or mixed (MP) practice groups. Subjects putted a golf ball from 75cm, 100cm, and 125cm. BP groups performed 12 trials of one distance before attempting the other distances. RP groups performed 12 trials per distance randomly. MP groups practiced sets (4 trials/set) in random order. Following a 10 minute rest, subjects performed 4 trials from each distance in serial order. Next, a transfer test (TR1) of 12 trials from 150cm was given. A second transfer test (TR2), consisted of six holes of miniature golf. Absolute, variable, and total error scores, and number of putts made were analyzed. The dependent measure for TR2 was total game score. Analysis of dependent measures revealed significantly better performance by the MD group. Practice schedule results indicated the BP group performed significantly better than the other two groups during acquisition and retention. No significant schedule differences were obtained for TR1. Results of TR2 found no significant differences among practice schedules within the ND group; however, among subjects with MMR, the MP group had significantly higher game scores than the BP and RP groups, which did not differ significantly.

PERSONALITY

Bowe, William G, Jr. A comparison of six personality factors between professional, college, and high school basketball players, 1994. M.S.Ed, State University of New York College at Brockport (Daniel E. Smith). (70pp 1f $4.00) PSY 1839

This investigation was concerned with comparing six personality factors among professional, college, and high school basketball players. The different factors measured include competitive trait anxiety, trait self-confidence, concentration, mental preparation skills, achievement
motivation levels, and leadership skills. A self-evaluation questionnaire was administered to five basketball teams (two high school, two college, and one professional). Each subject’s questionnaire was scored and a Mental Toughness Profile for each athlete was developed. The purpose of this investigation was to determine if there is a difference in personality factors among basketball players at the professional, collegiate, and high school levels. An Analysis of Variance (ANOVA) was used to determine differences in each of the six personality factors between each of three groups. Also used was a Multiple Comparison Test for the ANOVA. The statistical significance of the results was determined using the .05 level. The results of this investigation indicated that there are personality differences between professional, college, and high school basketball players. A significant difference was demonstrated between all three groups in all the factors except leadership skills. The Multiple Comparison Test revealed that high school and professional basketball players differed significantly in all of the categories except leadership skills. The high school and college players differed significantly only in concentration skills and average scores for the combination of all six subscales. College and professional players differed significantly only in trait self-confidence. One conclusion in this investigation was that the Mental Toughness Profile used was a strong predictor of skill level when comparing professional and high school basketball players.

SELF-CONCEPT

Armenth-Brothers, Francine R. Freshmen athletes’ perceptions of adjustment to intercollegiate athletics, 1995. M.S., Ball State University (Valerie K. Wayda). (141 pp 2f $8.00) PSY 1837

The purposes of this study were to determine the adjustment of freshman athletes to intercollegiate athletics and to determine the validity of the Perceptions of Adjustment to Sports Questionnaire (PASQ), which was created for this research. The results of a pilot study that included 62 freshman intercollegiate athletes indicated that Rule 48 status, time of season, residence, interscholastic athletic experience, team cohesion, and revenue do not influence the adjustment of freshman athletes to intercollegiate sports (p<.05). Twelve panelists also rated the construct validity of the PASQ in a three-round Delphi study. The final version of the PASQ resulted in a 69-item, 8 sub-scale instrument that measures freshman adjustment to intercollegiate athletics; however, additional research needs to be conducted to confirm its validity. Possible uses of the PASQ are to provide a foundation for counseling freshman intercollegiate athletes and to recognize freshman athletes at risk for psychiatric and physical health problems.

Kiefiuk, Deborah S. Investigation of physical self-perceptions, fitness behavior, and program selection among fitness participants in three fitness club environments, 1995. M.Ed, Temple University (Carole A. Oglesby). (160 pp 2f $8.00) PSY 1847

The purpose of this study was to investigate physical self-perceptions, fitness behavior, program selection and specific demographic characteristics of participants in three fitness environments (FE). Two questionnaires, the Physical Self-Perception Profile (PSPP) (which included the Physical Importance Profile (PIP) and the Fitness Environment Questionnaire (FEQ), were administered to volunteer fitness participants at three selected fitness facilities in an east coast city. The PSPP measured six domains of physical self-perceptions (perceptions of physical self-worth, sport competence, physical attractiveness, physical strength, physical condition, and perceived physical importance). The FEQ gathered specific demographic and fitness characteristics of the participants such as the top three reasons for selecting the fitness facility, the top three reasons (goals) for exercise participation, perceived degree of satisfaction with the programs and staff, and perceived supportive environment. Descriptive statistics, parametric and nonparametric statistical tests were used to analyze the data. One-way analysis of variance were conducted for the PSPP using a SPSS multiple analysis of covariance statistical package. Chi-Square tests were conducted to analyze data from the FEQ. An expert in the area of statistics overlooked the statistical treatment of the data. A total of 144 females and 135 males (n=279) completed the questionnaires which were distributed at the FE. A total of 113 participants were from FE1, 112 from FE2, and 51 from FE3. An incidental finding in this study was that women were significantly underrepresented at each FE. According to staff at the FE, 30% of the participants were females at FE1, 40 to 50% were females at FE2 and 10% were females in FE3. The total number of members at each FE were approximately 1,800 at FE1, 1,500 at FE2, and 225 at FE3. A majority of the participants were Caucasians and had completed an undergraduate college degree. Demographic findings were statistically significant between groups for education level, with participants in FE2 having the highest education level. Participants selected the FE primarily because of convenience and affordability. A majority of the participants were “heavy users” (i.e. worked out 4 times or more per week at the FE) whose workouts lasted 1-1/2 hours at a somewhat hard/strong intensity level at the FE. Participants participated mostly in resistance training and aerobic activity (using aerobic equipment) and exercise classes. Both genders engaged in resistance training and aerobic equipment. However, the top preference for males was resistance training (n=85, 64%) and for the females it was aerobic equipment (n=74, 52%). There were statistically significant differences noted for the types of activities/ programs engaged in at the FE. For example, FE3 did not have an exercise class program, which influenced the
results. Statistically significant differences were noted between FE in regard to goals, or reasons for exercise participation, with health, to improve appearance, athletic performance and to lose weight being heavily reported responses. The top two goals for participating in exercise in all three FE were for health followed by “to improve appearance.” A total of 127 (45.5%) of the participants in this study selected health as a goal, whereas 62 (22.2%) did not select health as one of their top three goals. To improve appearance was a top goal for 171 participants, with 42 and 72 participants ranking it their top first and top second goals respectively. To improve athletic performance and to lose weight were also top goals. Goals for health, appearance, performance and weight loss were analyzed via Chi-Square. The only goal which was statistically significant between the three FE was health. The participants were also evaluated on their physical self-perceptions. Overall, in all three FE, physical self-perception scores were above average in all domains for both males and females. Despite differences in each FE (programs, services, staff qualifications) the participants had this psychological characteristic in common with each other. Generally, these participants had high physical self-esteem. Perceived supportive environment ratings were evaluated and findings were statistically significant. Overall, participants rated their environment to be supportive in helping them achieve their goals. However, participants in FE3 rated their environment to be least supportive in comparison to FE1 and FE2. An analysis of variance revealed statistically significant differences between FE for satisfaction with the staff, satisfaction with the types of programs offered and satisfaction with programs the participants would frequently engaged in at the FE. This study investigated only active members who participate in the club FE. A majority whom may be considered very adherent to their exercise program, working out at least four times a week. With less than 30% of the American population exercising on a regular basis research is needed to identify the needs and desires of the potentially inactive population to recruit new members to fitness programs. Certainly, we do not want programs which cater only to the fit.

Li, Gladys S. Self-perceptions of female dancers, athletes, exercisers, and non-exercisers, 1994. D.P.E, Springfield College (Barbara E. Jensen). (211pp 3f $12.00) PSY 1851

Female college dancers, athletes, exercisers, and non-exercisers (N=372) were compared on various self perception variables: self-esteem, physical-self perception, body-image, and movement concept. The predictability of the 13 self-perception variables to self-esteem was tested; four variables were found to be significant (p<.05) predictors of self-esteem: ‘body attractiveness’, ‘sports competence’, ‘appearance orientation’, and ‘health evaluation’. Through ANOVA and MANOVA comparisons, self-esteem of the non-exercisers was significantly (p<.05) higher than the physically active students, while the movement satisfaction of dancers was significantly (p<.05) higher than non-dancers. Discriminant function analysis of the Physical-Self Perception Profile (Fox, 1990) revealed that the physically active subjects had significantly (p<.05) higher scores in ‘body attractiveness’ and lower scores in ‘perceived strength’ than the non-exercisers. In the analysis of Multidimensional Body-Self Relations Questionnaire (Cash, 1990), the ‘fitness orientation’ and ‘health orientation’ of the physically active subjects were significantly (p<.05) higher than non-exercisers.

Mau, Robert E. Differences of co-dependency and self-esteem in college age male and female athletes and nonathletes, 1995. M.S., Springfield College (Mimi Murray). (156pp 2f $8.00) PSY 1852

The investigator examined the relationship between gender and athletic participation and co-dependency and self-esteem in junior college subjects (N=244). Subjects completed the Friel Co-Dependency Assessment inventory and the Rosenberg Self-Esteem Scale. Analyses performed were 2 two-way analyses of variance, and Pearson product-moment correlation. The analyses were interpreted to indicate that athletic participation by men and women is related to lower levels of co-dependency, and that athletic participation may be especially beneficial for women. A negative relationship was found between co-dependency and self-esteem. However, a discrepancy was noted. Female athletes were low in co-dependency and low in self-esteem, whereas female nonathletes were higher in co-dependency, yet similar to female athletes in self esteem. Further interpretation of self-esteem analyses indicated male athletes were higher in self-esteem than female athletes and nonathletes, and were similar to male nonathletes. Suggested further research is needed concerning the relationship of co-dependency and self esteem in regard to athletic participation and gender role orientation of men and women.


This study was the second phase in the development of the Carolina Sport Confidence Inventory (CSCI), which involved a confirmatory factor analysis procedure. The CSCI is composed of two factors (dispositional optimism & perceived sport competence) representing a 13 item questionnaire, designed to measure an athlete’s sport confidence. The sample consisted of 123 varsity athletes from the University of North Carolina. Exploratory factor analysis yielded two interpretable factors, similar to results from phase 1, while representing 97.22% of the total variance. Dispositional optimism accounted for 77% of the variance, and perceived sport competence accounted for 23%. When correlated, the two factors revealed an inter-
factor correlation of .49. Cronbach alpha coefficients ranged from a high of .84 for the entire scale, to a low of .80 for both the dispositional optimism and perceived sport competence factors. Concurrent validity of the CSCI was supported by significant correlations with Vealey’s (1986) TSCI (r = .66, p ≤ .0001), Martens, Burton’s and Vealey’s (1990) CSAI-2 (r = .57, p ≤ .0001), the Personal Perspective in Sports Scale (r = .46, p ≤ .0001), and the Teammate Rating Scale (r = .33, p ≤ .0001). Results of the factor analysis, internal consistency, and correlations, strongly suggest that the CSCI is a valid and reliable instrument in assessing sport-confidence.

Smith, Brian A. Use of rating of perceived exertion for physical conditioning: a three month validation study in the field, 1994. M.S., Indiana University (Janet P. Wallace). (155pp 2f $8.00) PSY 1865

The use of rated perceived exertion (RPE, 15 point scale) to estimate exercise intensity in the laboratory setting has been well documented. Although the use of RPE to regulate exercise intensity in the field has been recommended, validation of this use is limited. Eight men and 10 women volunteers participated in a three month walk/jog program, three days a week, for 30-60 min at 60-70% intensity in order to determine the validity of RPE as a guide to exercise intensity during physical conditioning in middle aged adults. Although target heart rates were determined, intensity was prescribed by RPE alone (RxRPE). Training heart rates (regulated by RxRPE) were recorded for each subject every 5-10 min once each month via radiotelemetry and compared to prescribed target heart rates via T-test (p ≤ .05). During the study the group exercised at their prescribed frequency, intensity, and duration. The group demonstrated a significant (p ≤ .05) increase in VO2max from 29.98±6.90 to 32.52±16.19 ml/kg/min. There was no significant difference in prescribed target heart rates vs. training heart rates for the group, even though the group exercised significantly above their RxRPE when using the RPE method. In conclusion, the use of RPE alone for regulation of physical conditioning is a valid guide of exercise intensity.

Yoo, Seang L. A model to understand sport-confidence and sport competition anxiety of college varsity athletes, 1994. D.P.E, Springfield College (Barbara E. Jensen). (213pp 2f $12.00) PSY 1876

A model representing five trait psychological variables (‘Type A behavior’, locus of control, sport orientation, and sport-confidence) was proposed and five questionnaires were administered to college varsity athletes (N = 257). Lacrosse, baseball, tennis, softball, track and field, soccer, and volleyball athletes participated in this research. The hypothesized model needed modification for the model to adequately fit the data. After respecifying the model, the model adequately represented the relationships among the variables [c2 = 11.65, Root Mean Square Residual (RMSR) = .026]. The higher the ‘Type A behavior’ of the athletes, the more internal locus of control, the higher sport orientation (‘competitiveness’, ‘win orientation’, and ‘goal orientation’), and the lower the sport competition anxiety. Locus of control and sport orientation were significant mediators between ‘Type A behavior’ and the variables of sport competition anxiety and sport confidence. The more internal the locus of control, the lower the sport competition anxiety. The higher the sport orientation, the less sport competition anxiety, and the more sport-confidence.

SOCIAL PSYCHOLOGY


The purpose of this dissertation is to find ways to analyze gender symbols in the Romantic ballet. The thesis is that studying representations of woman and the realities of women’s lives in nineteenth-century France will illuminate new meanings in the Romantic ballet. By representations I mean cultural constructions of woman (both historical and contemporary) in the debate about the moral worth or the nature of the female sex. By realities I mean women’s political, social, and economic status in the 1830s in Paris. Focusing on three ballets—La Sylphide, La Revolte des femmes, and Le Diable boitex—I explore the gender symbolism in relation to le querelle des femmes, salon feminism, women’s activism during the Revolution, Saint-Simonianism, the Tribune des femmes, and Fourierism, as well as in relation to the legal code, medical texts, social mores, and women’s work. This dissertation finds that gender meanings were conveyed by many elements of Romantic ballet production. Stage settings communicated the genderizing of public and private space. Narrative structures reflected women’s options of marriage or marginal existence. Costumes, props, and playbills signified gender ambiguity to stimulate awe (read threat) and erotic feelings. Dances carried meanings of crossing boundaries in a society where women were the symbolic markers of race, class, and sharply defined gender lines. Female characters, whether as extramarital dream lover, harem slave, or courtesan impelled fantasy and flew in the face of convention. They embodied key cultural values of liberty, freedom from bourgeois materialism and oppressive sexual mores, and sensuality, ever-renewing. Nevertheless, these figures, each in its own way, reinforced the construction of autonomous woman as a threat to the social structure. By idealizing woman apart—apart from public intercourse, economic livelihood, sexual tangibility—the ballet reinforced the structures of women’s oppression. However, performing within a collaborative medium, ballerinas could intend their own meanings. I argue that women such as Marie Taglioni and Fanny Elssler used the
This thesis examines the reactions of black and non-black adolescent basketball enthusiasts to portrayals of black athletes in athletic apparel commercials. The research builds on work in media studies by Radway (1991), Morley (1980), and Jhally and Lewis (1992). In particular, Radway’s concept of the “interpretive community” is evaluated, together with Morley’s notion of the “cultural map”, as frameworks for explaining audience reactions. Radway suggests that similarly located groups tend to have similar interpretive strategies with respect to media messages. This tends to result in similar “readings” of media texts by these groups. Morley proposes that these diverse audiences can be plotted on a “cultural map” that describes the culturally based interpretations made by these audiences. Jhally and Lewis posit that there are racially based interpretations of black television portrayals that differentiate audiences. The explanatory power of these assertions was evaluated in this thesis project by examining the relationship between race, social location and interpretive strategies in two groups of research subjects—black and non-black adolescent males. This work also builds on research in social inequality that theorizes about the positive and negative “influences” that black television portrayals have on viewing audience beliefs about blacks (Wonsek, 1992; Lewis and Jhally, 1992). The research schedule had 3 phases. In the first, a content analysis was conducted to document black representation in commercial messages aired during television broadcasts of 1994 NCAA basketball tournament games and 1994 NBA playoff games. A representative sample of 31 broadcasts was selected from a total of 44 broadcasts and the commercial messages were content analyzed for their racial representation. In the second phase, a sub-sample of 6 representative athletic apparel commercials featuring black athletes was drawn from the overall sample of commercials. This sub-sample was viewed by 7 groups of 2-8 subjects who routinely watch televised basketball (3 groups of 15-19 year old black males and 4 groups of 15-19 year non-blacks). Focus group reactions to the commercials and to related interpretive and race related questions were recorded using questionnaires and videotaping. Transcripts were prepared from the videotapes and a thematic content analysis was performed on the questionnaires and transcripts. In the third phase, audience statistics were obtained from the broadcaster and used as a frame of reference for broadening and contextualizing the focus group findings (based on the demographic characteristics of the viewing audience). The study integrated the methods of content analysis and audience research respectively, in order to overcome the limitations of both classical content analysis research (that theorizes about audience interpretations on the basis of contents alone) and of audience research (that ignores the broader spectrum of television content). The content analysis results showed blacks to be comparatively underrepresented in the overall contents of the commercials messages and in most commercial types. However, blacks were vastly over represented in the athletic apparel commercial type. Audience statistics showed adolescent males to be frequent viewers of the NBA playoffs compared to their normal viewing patterns and compared to other demographic categories. The focus group finding relevant to the social inequality literature showed many black respondents to recognize the stereotypical portrayals of blacks in all areas of television programming. The respondents felt that these portrayals lead non-black audiences to see blacks more stereotypically in everyday life. The black respondents also appeared to identify with the black athlete portrayals, but were, for the most part, aware of the “myths” surrounding the mobility of blacks through sport and did not subscribe to these widespread beliefs. Most non-black respondents indicated that the portrayals of blacks and black athletes in the commercials were realistic, or suggested that they were uncertain about how realistic the portrayals were because of their inexperience with “real life” blacks. These findings suggest that black portrayals tend to increase perceived racism for the black respondents while appearing to inform the non-black respondents about “what blacks are like”. The findings relevant to the youth culture literature showed the blacks and non-blacks to have common understandings of and preferences for the athletic apparel commercials and the athletes as they related to basketball, but to have distinctly “raced” perceptions of the black athletes whereby the blacks showed a cultural identification with the athletes that the non-blacks did not. The findings relevant to the interpretive literature showed the blacks and non-blacks to demonstrate a similar “cultural competency” with respect to basketball, however, their differences in cultural experience connected with race appeared to differentiate them as two different “interpretive communities”. More generally, these findings describe the youths’ positionings as television audiences, as consumers of popular culture and as readers of media text. This work has particular relevance theoretically and methodologically for the cultural studies discipline considering the underlying patterns that connected race, culture and interpretation in this audience ethnography.
STRESS

Sergent, Evelyn H. *The effects of exercise on stress and functional abilities in community dwelling elderly*, 1995. M.S., Purdue University (Roseann M. Lyle). (40pp 1f $4.00) PSY 1863

The purpose of this study was to assess the effectiveness of a six month exercise program in improving the health of community dwelling elderly adults by increasing functional abilities and moderating the effects of stress on physical symptoms. The stress buffering effect of exercise has been demonstrated in younger age groups but no studies have explored the relationship of exercise, stress and health in the elderly. This study was quasi-experimental with subjects recruited for an experimental or control group. The intervention consisted of a six month progressive program of stretching, light strength training and moderate aerobics. Stress was measured as an independent variable using assessments of major life events and daily hassles. Physical health was assessed with a symptom checklist. Fitness was measured with a battery of tests of functional abilities for the exercise group only. All measures were taken at baseline, three and six months. Results indicated that the exercise program was effective in increasing flexibility (p=0.04) and muscular endurance (p=0.0001), improving posture (p=0.0001) and decreasing diastolic blood pressure (p=0.03). The data did not support the direct relationship between stress and physical symptoms and no moderating impact of exercise on stress could be demonstrated.
PART II

KEYWORDS INDEX
for
VOLUME 9, NO. 1

This index includes keywords for titles published in microfiche format by Microform Publications in Volume 9, No. 1 (April 1996).

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 Supplement, 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

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<tr>
<th>A</th>
<th>Anthropometry</th>
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<td>Jury</td>
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### STATISTICS

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KEYWORDS

ACADEMIC ACHIEVEMENT

ATHLETE, UNIVERSITY, RETROSPECTIVE STUDY; [D,DA-DE,G]. Gilmore, C.A., PE 3591

ACHIEVEMENT MOTIVATION

BASKETBALL, WHEELCHAIR, HANDICAPPED, NON-HANDICAPPED, ATHLETE, VARIANCE; [D,Q-DE,AV,CAN,DisA,MAV]. Skordilis, E.K., PSY 1864

ACHILLES TENDON

SURGERY, TRANSPLANTATION, POSTOPERATIVE CARE, RABBIT, COMPARATIVE STUDY; [E,L-DE,AC,AV,NK]. Hodde, J.P., PE 3598

ADIPOSE TISSUE

WAIST, HIP, CARDIOVASCULAR DISEASE, RISK, HDL LIPROPROTEIN, TRIGLYCERIDE, BLOOD PRESSURE, WOMAN, CORRELATION; [D,L-DE,RPM]. Hurtubise, C.L., HE 555

ADMINISTRATION

CRISIS MANAGEMENT, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, SURVEY; [D,S-DE,G]. Wingate, A.M., PE 3624

AEROBIC CAPACITY

BICYCLE ERGOMETRY, NORDICTRACK, TREADMILL, STEP ERGOMETRY, NON-ATHLETE, VARIANCE; [E,L-DE,AV,TU]. Angelini, M.A., PH 1451

DIETARY SUPPLEMENTATION, POTASSIUM, ERGOGENIC AID, TREADMILL, VARIANCE; [E,L,R-DE,AV,RM,T]. Pugliese, A., PH 1472

AEROBIC METABOLISM

OXYGEN CONSUMPTION, RESPIRATORY EXCHANGE RATIO, CALORIMETRY, INSTRUMENTATION, TEEM 100, BICYCLE ERGOMETRY, TEST RELIABILITY; [D,L-DE,AV,RM,TU]. Logerstedt, D.S., PH 1468

ANKLE

STABILITY, PROPRIOCEPTION, THERMOTHERAPY, CRYOTHERAPY, CORRELATION; [D,L-DE,RPM,T]. Keenan, K.A., PE 3604

ANTHROPOMETRY

BODY COMPOSITION, BODY WEIGHT, NUCLEAR MAGNETIC RESONANCE, CALORIC INTAKE, MOUNTAINEERING, VARIANCE; [D,A,L-DE,AV,RPM,T]. Tanner, D.A., PE 3622

ANXIETY

PRE-COMPETITION, COPING BEHAVIOUR, VISUALIZATION, RELAXATION, GOAL SETTING, ADOLESCENT, SOCIALLY DISADVANTAGED, COMPARATIVE STUDY; [E,Q-DE,CS,T]. Cox, K.A., PSY 1842

APPLIED BEHAVIOUR ANALYSIS

ADDITION, GAMBLING, ATHLETE, NON-ATHLETE, SEX FACTOR, VARIANCE; [D,Q-DE,AV]. Weiss, S.M., PSY 1871

LEADERSHIP, COACH, BASKETBALL, SECONDARY SCHOOL, SECONDARY SCHOOL, HONG KONG, WINNING, LOSING, MULTIVARIATE ANALYSIS; [D,S-DE,CAN,MAV]. Lam, T.C., PSY 1849

ARTICULAR LIGAMENT

EXERCISE, THERAPY, SQUAT, HAMSTRING, QUADRICEPS, NON-COMPETITOR, NON-ATHLETE, COMPARATIVE STUDY; [D,L-DE,AV,RM,TU]. MacLean, C.L., PE 3608

INJURY, PROPRIOCEPTION, JOINT INSTABILITY, STRENGTH, HOPPING, NON-HANDICAPPED, TREATMENT, SURGERY, COMPARATIVE STUDY; [D,L-DE,AV,RE,RPM,TU]. Govett, J.R., PE 3593

ATHLETE

BASKETBALL, GOAL SETTING, EGO, SEX FACTOR, QUESTIONNAIRE, MULTIVARIATE ANALYSIS; [D,Q-DE,AV,DisA,MAV,RPM]. Kleppinger, A., PSY 1848

SELF-ESTEEM, SPORT COMPETITION ANXIETY TEST, INTERNAL-EXTERNAL CONTROL, MAN, WOMAN, COMPARATIVE STUDY; [D,M,Q-DE,T]. Yoo, S.L., PSY 1876

ATHLETIC TRAINER

PROFESSIONAL PREPARATION, CLINIC, INTERACTION PROCESS ANALYSIS; [D,CA,O,TC-DE]. Gardner, G.A., PE 3590

SPORTS MEDICINE, CAREER, HOSPITAL, SURVEY, COMPARATIVE STUDY; [D,S,TC-DE,T]. Papez, D.M., PE 3615
ATTITUDE INVENTORY

ATHLETE, COACH, UNIVERSITY, TIME MANAGEMENT, ACADEMIC ACHIEVEMENT, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, SEX FACTOR, COMPARATIVE STUDY; [D,Q-DE,G%,]. Whitfield, D., PSY 1873

SATISFACTION, ATHLETE, MEASUREMENT, INSTRUMENTATION, TEST RELIABILITY; [D,IA,J,LR,M,TC-DE,FA,RC,SB]. Riemer, H.A., PSY 1858

SPORTSMANSHIP, ETHICS, VALUES, COACH, SECONDARY SCHOOL, QUESTIONNAIRE, SEX FACTOR, VARIANCE; [D,PH,Q-DE,AV,MR]. Gillentine, J.A., PSY 1845

STUDENT, UNIVERSITY, PHYSICAL EDUCATION, CHILD DEVELOPMENT, TEACHER, EVALUATION, PROFESSIONAL PREPARATION, VARIANCE; [D,J,Q-DE,AV,RM,SB]. Hammel, P.A., PE 3695

BACKACHE

ETIOLOGY, SACROILIAC JOINT, BODY POSITION, POSTURE, CORRELATION; [D,A,Q-DE,CS,PR]. Kelly, K.D., PH 1465

BASKETBALL

FREE THROW, GOAL SETTING, VISUALIZATION, SATISFACTION, WOMAN, UNIVERSITY, CORRELATION, MULTIVARIATE ANALYSIS; [E,Q-DE,RC,RD,TA]. Lerner, B.S., PSY 1850

FREE THROW, MENTAL TRAINING, VISUALIZATION, GIRL, VARIANCE; [E,Q-DE,AV]. Nordeen, L.M., PSY 1857

BIOMECHANICS

ARM, RANGE OF MOTION, HAND WEIGHTS, WALKING, RUNNING, WOMAN, VARIANCE; [D,MA-DE,AV,MR]. Denny, K.L., PE 3588

ELECTROMYOGRAPHY, KINEMATICS, POSTURE, STANDING, EQUILIBRIUM, ATHLETE, NON-ATHLETE, DANCE, BALLET, MODERN DANCE, VARIANCE; [D,L-DE,AV,MR]. Monasterio, R.A., PE 3613

JUMPING, VERTICAL JUMP, VERTEC, BIOTRAN, COMPARATIVE STUDY; [D,MA-DE,RC,RT]. McCallum, J.D., PE 3611

BLACKS

TELEVISION, STEREOTYPE, ETHNOCENTRISM, ADVERTISING, MERCHANDISING, SHOES, TELEVISION VIEWING, ADOLESCENT, BOY, SOCIOCULTURAL FACTOR; [D,CAI,Q-DE]. Wilson, B., PSY 1875

BLOOD GLUCOSE

GLUCOSE TOLERANCE TEST, INSULIN, EXERCISE, TRAINING LOAD, BICYCLE ERGOMETRY, VARIANCE; [D,L-DE,AV,NK]. Shriver, T.C., PH 1477

BLOOD PRESSURE

HEMODYNAMICS, HYPERTENSION, CALCIUM, DIETARY SUPPLEMENTATION, VARIANCE; [E,L-DE,AV,NK,MR]. Shaeffer, K.L., PH 1475

BODY COMPOSITION


BODY TEMPERATURE REGULATION

SHIVERING, COLD, ETHYL ALCOHOL, AGE FACTOR, MAN, VARIANCE; [D,A,L-DE,AV,NK,MR]. Hopkins, R.A., PH 1464

BODY WEIGHT

WEIGHT CONTROL, EXERCISE, ADDICTION, EATING DISORDER, ATHLETE, NON-ATHLETE, DISTANCE RUNNING, GYMNASTICS, SOCCER, SEX FACTOR, VARIANCE; [D,Q-DE,AV,MR]. Stodel, E.J., PSY 1866

BRACE

DEROTATION DEVICE, KNEE, ARTICULAR LIGAMENT, INJURY, PREVENTION, RUNNING, HOPPING, VARIANCE; [D-DE,AV,RC,MR]. Rishiraj, N., PE 3619

CAFFEINE

HEMODYNAMICS, HEART RATE, STROKE, STROKE VOLUME, CARDIAC OUTPUT, BLOOD PRESSURE, BLOOD FLOW, EXERCISE, SEX FACTOR, VARIANCE; [D,A,L,Q-DE,AV,MR]. Baruch, A.R., PH 1452

CARDIAC OUTPUT

STROKE VOLUME, CORONARY CIRCULATION, PLASMA VOLUME, HEMATOCRIT, PHYSICAL FITNESS, TESTING, INSTRUMENTATION, TEST RELIABILITY, VARIANCE; [D,L-DE,AV,MR,RP,RT]. De la Cruz Napoli, J., PH 1457

CHOREOGRAPHY

MODERN DANCE, CULTURE, FOLKLORE, JAPAN; [D,CH-]. Ito, S., PE 3602
MODERN DANCE, WINTERTON, D., MAN, UNITED STATES; [D,CH,I]. Goodwin, N.W., PE 3592

COACH

FOOTBALL, SECONDARY SCHOOL, KNOWLEDGE LEVEL, ATHLETE, TRAINING, EXERCISE, QUESTIONNAIRE; [D,Q-DE,G,%]. Cook, B.T., PE 3586

COPING BEHAVIOUR

SELF-PERCEPTION, ATHLETE, UNIVERSITY, SURVEY, INSTRUMENTATION, TEST RELIABILITY, DELPHI TECHNIQUE; [D,DEL,J,S,TC-DE,AV,T,TU]. Armenth-Brothers, F.R., PSY 1837

CORONARY DISEASE

RISK, BODY COMPOSITION, ADIPOSE TISSUE, HYDROSTATIC WEIGHING, LIPID, EXERCISE, BLACKS, WOMAN, CORRELATION; [D,A,L,Q-DE,RPM]. Brown, M.A., HE 554

CYCLING

HILL CLIMBING, PERFORMANCE PREDICTION, AEROBIC CAPACITY, ANAEROBIC CAPACITY, FATIGUE, BODY WEIGHT, CORRELATION; [D,L-DE,MR,RPM]. Rollings, A.T., PH 1473

DANCE

BALLET, PLIE, PHYSICAL FITNESS, EXERCISE, TRAINING, VISUALIZATION, VARIANCE; [E,MA-DE,AV,RM]. Krasnow, D.H., PE 3605

TEACHING, MOVEMENT, PATTERN, MOTOR SKILL LEARNING, EXERCISE, THERAPY, ELECTROMYOGRAPHY, KINEMATICS, COMPARATIVE STUDY; [E,L,MA-DE]. Honka, R.J.M., PE 3599

DEPENDENCY

SELF-ESTEEM, ATHLETE, NON-ATHLETE, UNIVERSITY, SEX FACTOR, VARIANCE; [D,Q-DE,AV,RPM,T]. Mau, R.E., PSY 1852

DISTANCE RUNNING

LONG DISTANCE RUNNING, DRAFTING, BIOMECHANICS, OXYGEN CONSUMPTION, CARBON DIOXIDE, RESPIRATION, HEART RATE, PERCEIVED EXERTION, ELITE ATHLETE, VARIANCE; [D,L-DE,AV,MAV,RM,T]. Corvalan-Grossling, V., PE 3587

DRUG ABUSE

DOPING, ATHLETE, SECONDARY SCHOOL, NORTH CAROLINA, KNOWLEDGE LEVEL, ATHLETIC DIRECTOR, SURVEY; [D,S-DE]. Moose, K.S., HE 557

EATING DISORDER

COACH, UNIVERSITY, KNOWLEDGE LEVEL, SURVEY; [D,S,TC-DE]. Turk, J.C., HE 559

DANCER, BALLET, WOMAN, SOCIOCULTURAL FACTOR, PROFESSIONAL; [REV,LR-]. Nelson, D.P., PSY 1856

ATHLETE, WOMAN, CROSS-COUNTRY RUNNING, UNIVERSITY, COACH, ATTITUDE INVENTORY, KNOWLEDGE LEVEL, SURVEY; [D,S-DE,FA,RC,RPM,T]. Ross, C.K., PSY 1861

EMOTION

PROFILE OF MOOD STATES, PRE-COMPETITION, ATHLETE, BASEBALL, UNIVERSITY, PERFORMANCE PREDICTION, REGRESSION ANALYSIS; [D,Q-DE,RE]. Whalen, S.C., PSY 1872

PSYCHOMETRICS, PROFILE OF MOOD STATES, ATHLETE, INSTRUMENTATION, TEST RELIABILITY; [D,Q-DE,RPM]. Sullivan, J.P., PSY 1867

ENDURANCE

TRAINING, RUNNING, CYCLING, TESTOSTERONE, LH, ATHLETE, NON-ATHLETE, VARIANCE; [D,L-DE,AV,RM,TU]. Gulledge, T.P., PH 1461

EQUESTRIAN SPORT

HORSEBACK RIDING, COACH, CERTIFICATION, SURVEY; [D,J,S-DE,T]. Harris, J.L., PE 3596

EXERCISE

PHYSICAL FITNESS, ENERGY EXPENDITURE, ADIPOSE TISSUE, WOMAN, WORK ENVIRONMENT, CORRELATION; [D,A-DE,RPM]. Chriscoe, S.B., PH 1454

FASTING

HEALTH PROMOTION, APPLIED BEHAVIOUR ANALYSIS, SURVEY, RETROSPECTIVE STUDY; [D,S-DE,CS,RC,U]. Cho, H.S., PSY 1840

FLEXIBILITY

STRETCHING, RANGE OF MOTION, ISOMETRIC TRAINING, SEX FACTOR, NON-COMPETITOR, NON-ATHLETE, VARIANCE; [E,MA-DE,AV,BON,RM]. Burke, D., PH 1453

FOOTBALL

GOAL SETTING

ACHIEVEMENT MOTIVATION, COACHING BEHAVIOR, ASSESSMENT SYSTEM, SOFTBALL, ELEMENTARY SCHOOL, GIRL, MULTIVARIATE ANALYSIS; [D,Q-DE,G,MAV,MR]. Williams, L., PSY 1874

GOALS

COPING BEHAVIOR, ACHIEVEMENT MOTIVATION, ATHLETE, SOCIOCULTURAL FACTOR, BLACKS, QUESTIONNAIRE, COMPARATIVE STUDY; [D,Q-DE,FA,MAV,MR,RC,RPM]. Gano-Overway, L.A., PSY 1844

GOLF

SUCCESS, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, PERFORMANCE PREDICTION, STATISTICS, MULTIPLE REGRESSION ANALYSIS; [D,DA-DE,MR]. Stock, R.B., PE 3621

SWING, SWING ANALYZER, BIOMECHANICS, NOVICE ATHLETE, VARIANCE; [E,MA-DE,AV,RM]. Dexter-Fogarty, T., PE 3589

HEALTH EDUCATION

ELEMENTARY SCHOOL, TEACHER TRAINING, PROGRAM, WISCONSIN, LONGITUDINAL STUDY; [D,Q-DE]. Knutson-Kaske, J.A., HE 556

PREGNANCY, PRENATAL CARE, PROGRAM, EVALUATION, INTERVIEW, FIELD TEST; [D,1-DE]. Riddell, J.M., HE 558

HEMODYNAMICS

RECOVERY, HEAT, HUMIDITY, POST-EXERCISE, BICYCLE ERGOMETRY, SEX FACTOR, VARIANCE; [D,L,Q-DE,AV,RM,T]. Fisher, M.M., PH 1458

INCENTIVE MOTIVATION

ATHLETE, GIRL, WOMAN, ELEMENTARY SCHOOL, SECONDARY SCHOOL, UNIVERSITY, BASKETBALL, VARIANCE; [D,Q-DE,AV,NK]. Drennan, M.L., PSY 1843

INJURY

STRAIN, SPRAIN, FOOTBALL, SECONDARY SCHOOL, HALF TIME, WARM-UP, COMPARATIVE STUDY; [D-DE,CS]. Howat, K.J., PE 3600

INTERVAL TRAINING

PHYSICAL FITNESS, OXYGEN CONSUMPTION, HEART RATE, DANCE, MODERN DANCE, JAZZ DANCE, ATHLETE, NON-ATHLETE, VARIANCE; [E,L-DE,AV,RM]. Christensen, K.M., PE 3585

ISOKINETIC TRAINING

ARM ERGOMETRY, BICEPS, TRICEPS, ELECTROMYOGRAPHY, LONGITUDINAL STUDY; [D,1-DE,AV,DU]. Lamack, D.D., PH 1467

LEISURE

RECREATION, ATTITUDE INVENTORY, APPLIED BEHAVIOR ANALYSIS, SPOUSE, WOMAN, AGED, INTERVIEW, CASE STUDY; [D,C,I-DE]. Rogers, N.B., RC 494

MEDICINE

HEART DISEASE, REHABILITATION, PERSONNEL, CERTIFICATION, PROFESSIONAL PREPARATION, SURVEY; [D,J,S-DE,CS]. Bennett, S.B., HE 553

MENOPAUSE

BODY TEMPERATURE, ESTROGEN, PHYSICAL FITNESS, AEROBIC TRAINING, VARIANCE; [E,A,1-DE,AV,RPM,TU,T]. Krasnoff, J.B., PH 1466

MENSTRUATION

SWIMMING, COMPETITION, EMOTION, PERFORMANCE PREDICTION, COMPARATIVE STUDY; [D,Q-DE,RM,T]. Rogers, M.J.L., PSY 1859

METABOLISM

MUSCLE PROTEIN, CALCIUM, ADENOSINE TRIPHOSPHATASE, PHOSPHORYLATION, EXERCISE, GASTROCNEMIUS, RAT, CORRELATION; [D,L-DE,T]. McCarthy, J.J., PH 1469

MODERN DANCE

CHOREOGRAPHY, SEX ROLE, GENDER IDENTITY, SOCIAL FACTOR; [D,CH-]. Bloom, M.L., PE 3583

MOTIVATION

CAREER, SELECTION, TEACHER, PHYSICAL EDUCATION, HANDICAPPED, BLACKS, SURVEY, SEX FACTOR, COMPARATIVE STUDY; [D,S-DE,CS,%.] Webb, D., PSY 1870

MOTOR SKILL

EVALUATION, HANDICAPPED, CHILD, PHYSICAL EDUCATION, INSTRUMENTATION, TEACHER, SURVEY; [D,S-DE]. Steinbrunner, P.J., PE 3620

LEARNING, MUSIC, PERCEIVED EXERTION, PERFORMANCE PREDICTION, COMPARATIVE STUDY; [D-DE,BON,DU,MAV,T]. Holloway, R., PSY 1846
LEARNING, OBSERVATIONAL LEARNING, Dribbling, Child, Variance; [E,MA-DE,AV,MAV,RM,TU].
Romack, J.L., PSY 1860


MOUNTAINEERING

ALTITUDE, COLD, DIET, DIETARY CARBOHYDRATE, DIETARY FAT, DIETARY PROTEIN, Variance; [D,DA-DE,AV,MR,TU]. Schneider, A.K., PH 1474

ANOXIA, ATAXIA, DYSPEPSIA, HEADACHE, NAUSEA, SLEEP DEPRIVATION, QUESTIONNAIRE, COMPARATIVE STUDY; [D,Q-DE,AV,RC]. Moe, F.R., PH 1470

MUSCLE

SORENESS, CREATINE KINASE, LIPID, VITAMIN E, STEP ERGOMETRY, Variance; [E,DE,AV,MR,RM,T]. Harris, M.B., PH 1462

STRENGTH, GRIP, FOREARM, MEASUREMENT, DYNAMOMETER, INSTRUMENTATION, BODY COMPOSITION, SEX FACTOR, TEST RELIABILITY; [D,A-DE,KS,MR,RPM]. Lee, S.Y., PE 3606

MUSCULOSKELETAL SYSTEM

POSTURE, OCCUPATIONAL DISEASE, COMPUTER, ERGONOMICS, COMPARATIVE STUDY; [D,Q-DE,RD,U]. Vatland, H.W., HE 560

MYOCARDIUM

HYPERTROPHY, CALCIUM, ADENOSINE TRIPHOSPHATASE, GASTROCNEMIUS, RAT, CORRELATION; [E,DE,AV,MR,RM]. Stavrianeas, S., PH 1480

MYOCARDIAL CONTRACTION

MUSCLE METABOLISM, CALCIUM, ADENOSINE TRIPHOSPHATASE, GASTROCNEMIUS, RAT, CORRELATION; [E,DE,AV,MR,RM]. Stavrianeas, S., PH 1480

OXYGEN CONSUMPTION


PAIN


SORENESS, MUSCLE, BICEPS, ARM ERGOMETRY, IBUPROFEN, PLACEBO, Variance; [E,DE,AV,MR,RM]. Mack, R.L., PE 3609

PERSONALITY INVENTORY

SPORT COMPETITION ANXIETY TEST, ATHLETE, BASKETBALL, SECONDARY SCHOOL, UNIVERSITY, PROFESSIONAL, Variance; [D,Q-DE,AV,G]. Bowe, W.G., PSY 1839

PHYSICAL EDUCATION

PROGRAM, PLANNING, TEACHER, TASK ANALYSIS; [D,IO-DE,AU]. Ballat, P.C., PE 3582

TEACHER, ELEMENTARY SCHOOL, ENTHUSIASM, ACADEMIC LEARNING TIME, COMPARATIVE STUDY; [D,CA,O-DE,T]. Griffin, L.M., PE 3594

TEACHER, ENTHUSIASM, TEACHER TRAINING, STUDENT, ATTITUDE INVENTORY, SEX FACTOR, Variance; [D,Q-DE,AV,G,NK,MR]. Bodette, D.R., PE 3584

TEACHER TRAINING, TEACHING AID, AUDIO-VISUAL AID, COMPUTER, OBSERVATION, BIOMECHANICS, THROWING, INSTRUMENTATION, TEST RELIABILITY; [D,J,M,Q,TC-DE,G]. Williams, E.W., PE 3623

TEACHING, CHILDREN'S ATTITUDE TOWARD PHYSICAL ACTIVITY INVENTORY, CROSS-CULTURAL STUDY, INDONESIA, Variance; [D,Q-DE,AV,NK]. Hughes, K.P., PE 3601

PHYSICAL FITNESS

AEROBIC TRAINING, EXERCISE PRESCRIPTION, PERCEIVED EXERTION, MIDDLE AGE, MAN, WOMAN, FIELD TEST; [D,DE,T]. Smith, B.A., PSY 1865

EMPLOYEE, TESTING, POLICE FORCE, PERFORMANCE PREDICTION, SEX FACTOR, INSTRUMENTATION, TEST RELIABILITY, MULTIPLE REGRESSION ANALYSIS; [D,BON,MR,RE,RM,T]. Stanish, W.H., PH 1479

RESPIRATION

PULMONARY GAS EXCHANGE, PULMONARY DIFFUSING CAPACITY, AEROBIC CAPACITY, BICYCLE ERGOMETRY, ELITE ATHLETE, ATHLETE, Variance; [D,A-DE,AV,MR,RM,SCH,T]. Sheel, A.W., PH 1476
**RISK MANAGEMENT**

COACH, FOOTBALL, NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, SURVEY; [D,S-DE,T]. McKinstrey, J.P., PE 3612

**RISK-TAKING**

HEALTH, APPLIED BEHAVIOUR ANALYSIS, RELIGION, ATHLETE, NON-ATHLETE, SEX FACTOR, STUDENT, UNIVERSITY, SURVEY, DISCRIMINANT ANALYSIS; [D,J,S-DE,AV,DisA,RC,RPM]. Bakker, D.L., PSY 1838

**RUNNING**

TRAINING LOAD, LACTATE, BLOOD GLUCOSE, CARBOHYDRATE LOADING, FOOD, BEVERAGE, ATHLETE, WOMAN, SOCCER, VARIANCE; [D,L-DE,AV,RM,TU]. Walton, P.T., PH 1483

**SELF-EFFICACY**

SELF-CONCEPT, PRE-COMPETITION, ATHLETE, MEASUREMENT, INSTRUMENTATION, TEST RELIABILITY, FACTOR ANALYSIS; [D,Q,TC-DE,FA,RC]. Mink, R.S., PSY 1855

**SELF-PERCEPTION**

SELF-ESTEEM, BODY IMAGE, DANCE, ATHLETE, NON-COMPETITOR, NON-ATHLETE, WOMAN, STUDENT, UNIVERSITY; [D,Q-DE,AV,DisA,MAV,MR]. Li, G.S., PSY 1851

SELF-ESTEEM, MOTIVATION, APPLIED BEHAVIOUR ANALYSIS, HEALTH PROMOTION, PHYSICAL FITNESS, HEALTH CLUB, VARIANCE; [D,Q-DE,AV,CS]. Kiefiuk, D.S., PSY 1847

**SEX ROLE**

WOMAN, SOCIAL HISTORY, FRANCE, 1800H, BALLET, SYMBOLISM; [D,H,LR-]. Meglin, J.A., PSY 1854

**SLIDEBOARD**

MOVEMENT, AGILITY, SPEED, REACTION TIME, VARIANCE; [E,MA-DE,AV,RM,RPM,T,TU]. Utsumi, T., PH 1482

**SOCCER**

KICKING, INSTEP KICK, PASSING, TORQUE, BIOMECHANICS, KINEMATICS, KINETICS, COMPARATIVE STUDY; [D,MA-DE,T]. Levanon, J., PE 3607

**SPORT**

PARTICIPATION, INCENTIVE MOTIVATION, HEALTH PROMOTION, APPLIED BEHAVIOUR ANALYSIS, EX-ATHLETE, BASKETBALL, SWIMMING, SEX FACTOR, VARIANCE; [D,S-DE,AV,CS,DisA,MAV]. Schwartz, D.L., PSY 1862

UNIVERSITY, FUND RAISING, ALUMNI, EX-ATHLETE, MOTIVATION, APPLIED BEHAVIOUR ANALYSIS, SURVEY, VARIANCE; [D,S-DE,AV,CS,RM]. Yablunosky, M.S., PE 3625

**SPRINTING**

PLYOMETRIC TRAINING, VARIANCE; [E-DE,AV,RM]. Curley, J.J., PH 1456

**STAIRCLIMBING**

EQUIPMENT, AEROBIC CAPACITY, BIOMECHANICS, VARIANCE; [D,L,MA-DE,AV,RM,TU]. Aiello, K.A., PH 1450

**STEP TRAINING**

TREADMILL, HEART RATE, AEROBIC METABOLISM, AEROBIC CAPACITY, OXYGEN CONSUMPTION, WOMAN, VARIANCE; [D,L-DE,AV,RM]. Hartman, G.B., PH 1463

**STRENGTH**

TRAINING, ISOKINETIC TRAINING, KNEE, TORQUE, WOMAN, VARIANCE; [D,MA-DE,AV,NK,RM]. Reed, C.A., PE 3618

TRAINING, WEIGHT TRAINING, WOMAN, TRAINING CYCLE, VARIANCE; [D,A-DE,AC,AV,RM]. Pinque, T.E., PH 1471

**STRESS**

STRESS MANAGEMENT, INTERNAL-EXTERNAL CONTROL, EXERCISE, TRAINING, AGED, COMPARATIVE STUDY; [D,Q-DE,AC,AV,DU,RM]. Sergent, E.H., PSY 1863

**SWIMMING**

CHILD, ADOLESCENT, ANXIETY, PRE-COMPETITION, SPORT COMPETITION ANXIETY TEST, SELF-ESTEEM, PERFORMANCE PREDICTION, VARIANCE; [D,Q-DE,AV,RPM]. McNamara, C.M., PSY 1853

**TEACHER TRAINING**

STUDENT TEACHER, PHYSICAL EDUCATION, HONG KONG, RATING SCALE, INSTRUMENTATION, TEST RELIABILITY, FACTOR ANALYSIS; [D,J,TC-DE,FA]. Ho, W.W.Y, PE 3597
TENDINITIS

PAIN, PERCEPTION, DEXAMETHASONE, LIDOCAINE, ULTRASONIC THERAPY, CRYOTHERAPY, STRETCHING, VARIANCE; [E,L-DE,AV,RM,TU]. Penderghest, C.E., PE 3616

TENNIS

COACHING, STRATEGY, WOMAN, COMPARATIVE STUDY; [E-DE,AC]. Allam, P.F.W., PE 3581

TITLE IX

ATHLETE, UNIVERSITY, WOMAN, IOWA, KNOWLEDGE LEVEL, QUESTIONNAIRE; [D,J,Q-DE,AV,KR,T]. Jacob, M.P., PE 3603

WEIGHT RESISTANCE MACHINE

EXERCISE PRESCRIPTION, PERCEIVED EXERTION, MAN, WOMAN, MIDDLE AGE, VARIANCE; [D-DE,AV,TU]. Madlena, T.A., PE 3610

WEIGHTLESSNESS

ORTHOSTATIC TOLERANCE, BEVERAGE, GLUCOSE, SALT, VARIANCE; [D,L-DE,AV,NK,RM,T]. Gagnon, J.L., PH 1459

WEIGHTLIFTING

HEART RATE, PERCEIVED EXERTION, AEROBIC CAPACITY, ANAEROBIC THRESHOLD, LACTATE, PERFORMANCE PREDICTION, SEX FACTOR, REGRESSION ANALYSIS; [D,L-DE,RE]. Song, Q., PH 1478

WORK ETHIC

SOCIALIZATION, PSYCHOSIS, QUALITY OF LIFE, APPLIED BEHAVIOUR ANALYSIS, INTERVIEW, CONTENT ANALYSIS; [D,CA,I-DE]. Trueman, A.L., PSY 1869
## INDEX

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Number</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aiello, K.A.</td>
<td>PH</td>
<td>1450</td>
<td>13</td>
</tr>
<tr>
<td>Allam, P.W.</td>
<td>PH</td>
<td>1482</td>
<td>23</td>
</tr>
<tr>
<td>Angelini, M.B.</td>
<td>PSY</td>
<td>1874</td>
<td>35</td>
</tr>
<tr>
<td>Armenthal-Brothers, F.R.</td>
<td>PH</td>
<td>1467</td>
<td>18</td>
</tr>
<tr>
<td>Bakker, D.L.</td>
<td>PSY</td>
<td>1946</td>
<td>28</td>
</tr>
<tr>
<td>Ballat, P.C.</td>
<td>PE</td>
<td>3607</td>
<td>10</td>
</tr>
<tr>
<td>Baruch, A.R.</td>
<td>PH</td>
<td>1452</td>
<td>14</td>
</tr>
<tr>
<td>Bennett, S.B.</td>
<td>HE</td>
<td>553</td>
<td>23</td>
</tr>
<tr>
<td>Bloom, M.L.</td>
<td>PE</td>
<td>3583</td>
<td>5</td>
</tr>
<tr>
<td>Bodette, D.R.</td>
<td>PE</td>
<td>3606</td>
<td>17</td>
</tr>
<tr>
<td>Bowe, W.G.</td>
<td>PSY</td>
<td>1839</td>
<td>34</td>
</tr>
<tr>
<td>Brown, M.A.</td>
<td>HE</td>
<td>554</td>
<td>24</td>
</tr>
<tr>
<td>Burke, D.</td>
<td>PH</td>
<td>1453</td>
<td>14</td>
</tr>
<tr>
<td>Cho, H.S.</td>
<td>PSY</td>
<td>1840</td>
<td>28</td>
</tr>
<tr>
<td>Christensen, K.M.</td>
<td>PE</td>
<td>3585</td>
<td>5</td>
</tr>
<tr>
<td>Cook, B.T.</td>
<td>PE</td>
<td>3586</td>
<td>8</td>
</tr>
<tr>
<td>Corvalan-Grossing, V.</td>
<td>PE</td>
<td>3587</td>
<td>6</td>
</tr>
<tr>
<td>Couto, D.L.</td>
<td>PSY</td>
<td>1841</td>
<td>29</td>
</tr>
<tr>
<td>Cox, K.A.</td>
<td>PSY</td>
<td>1842</td>
<td>26</td>
</tr>
<tr>
<td>Creel, D.B.</td>
<td>PH</td>
<td>1455</td>
<td>15</td>
</tr>
<tr>
<td>Curley, J.Y.</td>
<td>PH</td>
<td>1456</td>
<td>15</td>
</tr>
<tr>
<td>De la Cruz Napoli, J.</td>
<td>PH</td>
<td>1457</td>
<td>15</td>
</tr>
<tr>
<td>Denny, K.L.</td>
<td>PE</td>
<td>3588</td>
<td>7</td>
</tr>
<tr>
<td>Dexter-Fogarty, T.</td>
<td>PE</td>
<td>3589</td>
<td>7</td>
</tr>
<tr>
<td>Drennan, M.L.</td>
<td>PSY</td>
<td>1843</td>
<td>32</td>
</tr>
<tr>
<td>Fisher, M.M.</td>
<td>PH</td>
<td>1458</td>
<td>15</td>
</tr>
<tr>
<td>Gagnon, J.L.</td>
<td>PH</td>
<td>1459</td>
<td>16</td>
</tr>
<tr>
<td>Gano-Overway, L.A.</td>
<td>PSY</td>
<td>1844</td>
<td>29</td>
</tr>
<tr>
<td>Gardner, G.A.</td>
<td>PE</td>
<td>3590</td>
<td>8</td>
</tr>
<tr>
<td>Gillentine, J.A.</td>
<td>PSY</td>
<td>1845</td>
<td>27</td>
</tr>
<tr>
<td>Gilmore, C.A.</td>
<td>PE</td>
<td>3591</td>
<td>3</td>
</tr>
<tr>
<td>Goodwin, N.W.</td>
<td>PE</td>
<td>3592</td>
<td>6</td>
</tr>
<tr>
<td>Govett, J.R.</td>
<td>PE</td>
<td>3593</td>
<td>9</td>
</tr>
<tr>
<td>Gow, A.J.</td>
<td>PH</td>
<td>1460</td>
<td>16</td>
</tr>
<tr>
<td>Griffin, L.M.</td>
<td>PE</td>
<td>3594</td>
<td>3</td>
</tr>
<tr>
<td>Gullidge, T.P.</td>
<td>PH</td>
<td>1461</td>
<td>17</td>
</tr>
<tr>
<td>Hammel, P.A.</td>
<td>PE</td>
<td>3595</td>
<td>3</td>
</tr>
<tr>
<td>Harris, J.L.</td>
<td>PE</td>
<td>3596</td>
<td>3</td>
</tr>
<tr>
<td>Harris, M.B.</td>
<td>PH</td>
<td>1462</td>
<td>17</td>
</tr>
<tr>
<td>Hartman, G.B.</td>
<td>PH</td>
<td>1463</td>
<td>17</td>
</tr>
<tr>
<td>Ho, W.W.</td>
<td>PE</td>
<td>3597</td>
<td>4</td>
</tr>
<tr>
<td>Hodde, J.P.</td>
<td>PE</td>
<td>3598</td>
<td>9</td>
</tr>
<tr>
<td>Holloway, R.</td>
<td>PSY</td>
<td>1846</td>
<td>33</td>
</tr>
<tr>
<td>Honka, R.J.M.</td>
<td>PE</td>
<td>3599</td>
<td>6</td>
</tr>
<tr>
<td>Hopkins, R.A.</td>
<td>PH</td>
<td>1464</td>
<td>17</td>
</tr>
<tr>
<td>Howat, K.J.</td>
<td>PE</td>
<td>3600</td>
<td>9</td>
</tr>
<tr>
<td>Hughes, K.P.</td>
<td>PE</td>
<td>3601</td>
<td>4</td>
</tr>
<tr>
<td>Hurtubise, C.L.</td>
<td>HE</td>
<td>555</td>
<td>24</td>
</tr>
<tr>
<td>Ito, S.</td>
<td>PE</td>
<td>3602</td>
<td>6</td>
</tr>
<tr>
<td>Jacob, M.P.</td>
<td>PE</td>
<td>3603</td>
<td>1</td>
</tr>
<tr>
<td>Keenan, K.A.</td>
<td>PE</td>
<td>3604</td>
<td>9</td>
</tr>
<tr>
<td>Kelly, K.D.</td>
<td>PH</td>
<td>1465</td>
<td>18</td>
</tr>
<tr>
<td>Kefi, D.S.</td>
<td>PSY</td>
<td>1847</td>
<td>35</td>
</tr>
<tr>
<td>Klepper, A.</td>
<td>PSY</td>
<td>1848</td>
<td>29</td>
</tr>
<tr>
<td>Knutson-Kaske, J.A.</td>
<td>HE</td>
<td>556</td>
<td>25</td>
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<tr>
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