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HEALTH, PHYSICAL EDUCATION, RECREATION, AND EXERCISE AND SPORT SCIENCES

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BULLETIN 15, 1
This publication is the first issue of Bulletin 15. The bulletin represents microfiche published in April 2002. In the past, bulletins were published every 5 years, except for Bulletin 7, which covers two and a half years. Beginning with Bulletin 8, there are two issues (nos 1 and 2) per annual bulletin. Each issue includes a section of theses and dissertation titles and abstracts, as well as a section of keywords. Bulletin 15, 2 will be published in October 2002.

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**Key to the price chart on the right**

- **HE** Health Education
- **PE** Physical Education
- **PH** Physiology and Exercise Epidemiology
- **PSY** Psychology
- **RC** Recreation and Leisure
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Unifacmanu Trading Co. Ltd., Taipei
Contents

Part I: Titles and Abstracts ....................................................................................................................... 1–37

Physical Education and Athletics ........................................................................................................... 1
  Administration ................................................................................................................................. 1
  Coaching and Training ...................................................................................................................... 4
  Growth and Development ................................................................................................................ 6
  History and Philosophy ................................................................................................................... 7
  Measurement and Evaluation .......................................................................................................... 9
  Pedagogy and Curriculum .............................................................................................................. 10
  Sociology and Cultural Anthropology ............................................................................................ 11
Dance .................................................................................................................................................... 14
Biomechanics ......................................................................................................................................... 14
Sports Medicine .................................................................................................................................... 17
Physiology and Exercise Epidemiology ............................................................................................... 21
Health and Health Education ............................................................................................................ 25
Recreation and Leisure ....................................................................................................................... 31
Psychology .......................................................................................................................................... 31
Motor Learning and Control ............................................................................................................. 35
Social Psychology ............................................................................................................................. 37

Part II: .................................................................................................................................................... 39
Methods and Statistics ....................................................................................................................... 40
Keywords .............................................................................................................................................. 41
Author Index ........................................................................................................................................ 53
School Index ......................................................................................................................................... 54
Additional Items Available from Microform Publications .................................................................. 56
Order Form .......................................................................................................................................... 58
PART I: TITLES AND ABSTRACTS

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

PHYSICAL EDUCATION AND ATHLETICS

ADMINISTRATION

Adkison, John M. A feasibility study for Embry-Riddle Aeronautical University regarding moving its athletic association membership from the NAIA to NCAA Division I or II, 2001. M.A., University of North Carolina, Chapel Hill (John Billing). (89pp 1f $6.00) PE 4285

This study involves the feasibility of moving from the NAIA to NCAA Division I or II. Seven schools, five Division I institutions, two Division II schools, were evaluated to access various membership variables. In addition, a comparison was done looking at basic membership differences between the NAIA and the NCAA. The data collected will help Embry-Riddle University in its decision-making process and future planning efforts should it decide to leave the NAIA for NCAA Division I or II.

Bechtel, Pamela A. Understanding the teacher change process for urban secondary physical education teachers, 2001. Ph.D., Ohio State University (Mary O'Sullivan). (267pp 3f $18.00) PE 4277

The release of A Nation at Risk and What Matters Most: Teaching for America’s Future called for reforms in teaching and teacher education. Teachers at every educational level and subject area have been called upon to make changes to their instructional practices and curriculum as a result of these reports. Physical educators have also been called upon to implement changes in their programs, yet there is limited research examining teacher change, especially in urban secondary physical education programs. This study explored factors that had an impact on four urban secondary physical educators to make changes in their curriculum and/or instruction. This qualitative study used the interpretivist (interpretative) view to gain a better understanding of the physical educators’ experiences during their change process. Data were collected from participant information sheets, interviews, discussion groups, document analysis, and observations of the four teachers’ classes. Data were analyzed from the case studies using inductive analysis to examine the emerging themes for the participants. A cross-case analysis was conducted to determine common enhancers and inhibitors of the change process. It was concluded that: teacher beliefs do influence the change process, the level of principals’ support does have an impact on teachers in the change process, collegial support facilitates change, student support helps sustain change, and the low status of physical education can slow the teacher change process.

Benton, Sheila I. A descriptive study of four black women in collegiate athletic leadership roles, 1999. Ph.D., Florida State University (Thomas A. Ratliff). (123pp 2f $12.00) PE 4278

The dual factors of race and gender have been a disadvantage for black women, especially in the labor force. As they are members of both minority groups, black women have a history of being treated as inferior. Black women share with all women the employment discrimination patterns prevalent in our society. The purpose of this study was to investigate and describe the experiences of four black female intercollegiate athletic administrators, and to identify the factors that have enhanced and hindered their professional growth and development. Qualitative methods were utilized as this study sought to understand the experiences of the participants, as well as to give voice to their experiences. The flexibility of qualitative methods provided the opportunity for the researcher to establish rapport with the participants. A questionnaire, a series of interviews, and vitae were the sources used to collect data. A cross-case analysis determined similarities among the subjects’ data. The interview process provided an empowering experience for the women who participated in this study. It gave them the opportunity to give voice to their experience and to describe their career progression experiences. A case study design was selected to reflect the experiences and interpretations of the world of black women athletic administrators at the collegiate level. One subject had been in her current role for over 20 years. They all competed in intercollegiate athletics. They were identified through a membership organization, the Black Coaches Association (BCA). Participants were purposefully selected from the black female athletic administrators who were members, based upon their positions as administrators in collegiate athletics during the 1997-98 academic year. The participants were either in an upper-level
management athletic position within a Division I institution, or at an athletic conference of a Division I institution. Isolation, marginalization, and nurturing/networking were three common themes developed from the interview data. Respondents discussed the obstacles they had to overcome during their career development. These obstacles included gender and racial discrimination and a lack of institutional support. Other factors, which enabled these women to continue in their career, were also discussed. The respondents provided suggestions for black women seeking to enter the profession of athletics administration.


The purpose of this research was to report on the demographics of Washington state high school athletic trainers and their treatment log statistics for the 1998-1999 school year and to make comparisons in cost of providing injury treatments at the high school level, versus local sports medicine clinics. Methods included mailing surveys to 75 high school athletic trainers across the state of Washington. Based on the survey, individual and job related demographics, salaries, and yearly budgets, along with injury and treatment log statistics for the 1998-1999 school year, were identified and reported. Of the 75 surveys sent out, 37 were returned. Of the 37 surveys returned, seven had attached treatment or injury log statistics. Most participation came from those individuals at the AAAA and AAA size classification, with one survey each from the AA & A schools. Gaps in salaries and coverage at the different classification levels, areas where injury and treatment tracking data might be improved, and ideas for future research are identified. Based on the lack of sufficient return of treatment logs from the participating high schools, the comparison on cost could not be done.

Frost, Ryan E. *Grade point averages of male and female student-athletes at public and private Division III institutions during traditional and nontraditional seasons*, 2001. M.S., Springfield College (Barbara E. Jensen). (114pp 2f $12.00) PE 4300

Participants in this study consisted of 808 students from public and private colleges in New England and New York. Grade point averages (GPA) for traditional and nontraditional seasons were obtained and grouped according to institution, gender, and season. A 2x2x2 independent groups factorial analysis of variance (ANOVA) was used to analyze the difference in the mean GPA between gender, institution, and season. Only the institution x season interaction effect was found to be significant (p<.05). Using simple effect tests, the mean GPA for student athletes at private institutions was significantly (p<.05) higher than at public institutions during the non-traditional season; however, no significant (p>.05) difference was found during the traditional season. All other interaction effects were not significant (p>.05). For main effects, the mean GPA for female student-athletes was significantly (p<.05) higher than for males, and the mean GPA of student-athletes during the traditional season was significantly (p<.05) higher than the mean GPA of student-athletes during the non-traditional season.

Garrity, Kevin S. *A determination of the importance of the operative objectives of NCAA Division I-AAA intercollegiate athletics*, 2000. Ed.D., University of Northern Colorado (David Stotlar). (112pp 2f $12.00) PE 4274

The purpose of this study was to determine, by means of the Scale of Athletic Priorities, the importance of operative objectives of athletic administrators in National Collegiate Athletic Association (NCAA) Division I-AAA. Organizations pursue two types of objectives, official and operative. Official objectives are the general purposes of organizations publicly conveyed in a charter, annual report, or statement, by key executives of the organization. NCAA Division I-AAA institutions official goals are published in the 1997-98 NCAA Division I Manual. Operative objectives indicate the ends sought by the organization through operating policies and daily decisions made by executives. These objectives show what the organization is doing, regardless of what official goals articulate, and may be difficult to decipher. Scholars in sport management developed a tool, the Scale of Athletic Priorities, to determine operative objectives of intercollegiate athletics. The instrument was used in this study to determine the importance of nine operative objectives among four key groups of athletic administrators. Administrators, an independent variable, consisted of university presidents, athletic directors, faculty athletic representatives, and senior women athletic administrators. Operative objectives, a dependent variable, were public relations, prestige, entertainment, welfare of the student-athlete, financial, career opportunities, achieved excellence, transmission of culture, and national sport development. Administrators unanimously selected public relations most important and national sport development the least important objectives of intercollegiate athletics. Except for faculty athletic representatives, who rated athletes’ personal growth second most important, all administrators rated prestige the second most important objective. Entertainment was the third most important objective for administrators, except for athletic directors, who rated financial third, and faculty athletic representatives, who rated prestige third. The importance of the remaining objectives in order were financial, athletes’ personal growth, career opportunities, achieved excellence, and transmission of culture. The study concluded NCAA Division I-AAA athletic administrators consider public relations the most important and national sport development the least important operative objectives.
The purpose of this study was to determine if the model of strategy formation proposed by Leavy and Wilson (1994) appropriately reflected the strategy formation processes that occurred in the Canadian Wheelchair Sports Association over a thirty-year period (1967-1997). This question addressed a number of benefits, including direct returns for the practicing sport manager, and the academic in sport management and adapted physical activity. The methodology included twenty interviews with presidents and executive directors who served CWSA from 1967 until 1997, archival analysis of meeting minutes, and other pertinent documents. The underlying theoretical foundations for this study included Leavy and Wilson’s (1994) model of strategy formation, Mintzberg’s (1983) model of organizational strategy, Pettigrew’s (1987) approach to examining the situational context, and Kouzes and Posner’s (1994) definition of leadership. Data analysis involved an open and axial coding process. Major findings included the recognition that CWSA’s organizational strategy formation was influenced directly by leadership and the situational context, and indirectly by the organizational history. The five contextual factors that influenced CWSA’s strategy formation process were: the federal government, able-bodied sport, disability sport, the economy, and societal attitudes towards persons with a disability. It was further recognized that leadership and context influenced each other both directly and indirectly, and that organizational history directly affected the situational context and leadership, which was revealed by point-in-time outcomes and organizational career. Finally, the results from this study led to the development of an adapted model of strategy formation. As a result of the major findings and creation of this adapted model of strategy formation, it was concluded that the model proposed by Leavy and Wilson (1994) did appropriately represent the strategy formation processes that occurred in the Canadian Wheelchair Sports Association over a thirty-year period (1967-1997).


The study was conducted on 131 NCAA Division II female basketball players to determine selected factors influencing their decision to attend a PSAC university. The criteria that were used in selecting the subjects for the study were that the respondents be members of a PSAC women’s basketball team during the 2000-2001 season, and in their freshman, sophomore, junior, or senior year of playing eligibility. The data were collected and the results of the study were analyzed using descriptive statistics, and presented in tables. Respondents indicated that academic reputation of the university, athletic scholarship, and coaching staff, were the most influential factors in selecting an institution of higher education. Other factors identified as influential in college selection, but not listed on the questionnaire, were off-campus atmosphere and relatives attending the institution.

Owiesny, Cheryl L. Gender balance in intercollegiate athletics at California community colleges, 1999. M.A., San Jose State University (Emily H. Wugalter). (115pp 2f $12.00) PE 4332

The purpose of this study was to describe the distributions of men and women in intercollegiate athletic positions in California community colleges, by surveying the history of program expansion, and by quantifying gender balance in athletic opportunities, head coaching, assistant coaching, and administrative positions. Acosta and Carpenter’s (1998) 21-year study of women in intercollegiate sport was used as a model. The Intercollegiate Athletics Profile was adapted from Acosta and Carpenter’s (1998) questionnaire. The Intercollegiate Athletics Profile was returned by 73% of the physical education deans and athletic directors. The average number of sports teams offered per school was 6.73 for women and 6.97 for men. Women held 42% of the head coaching positions in women’s intercollegiate athletics. The descriptive analysis revealed a total of 519 intercollegiate athletic teams for men and 473 for women. Of all of those coaching in California community colleges, 75% were men and 23% were women.


The purpose of this study was to compare the opinions of athletic directors and athletic academic support directors from selected conferences as to whether or not freshman student-athletes should be eligible to compete at the varsity level. A survey was sent to 98 individuals from 49 institutions. The individuals surveyed included the athletic director and the athletic academic support director from 9 members of the Big East Conference, 10 members of the Big Ten Conference, 8 members of the Ivy League Conference, 11 members of the Mid-Eastern Athletic Conference, and 11 members of the Southeastern Conference. The survey
directly addressed the issue of freshman ineligibility, and also gathered data on several issues closely related to freshman ineligibility. Fifty-six surveys, out of the 98 sent, were completed and returned, representing a 57% return rate. The data collected indicated that 57% of all respondents were against the concept of freshman ineligibility, 32% favored freshman ineligibility, and 11% were undecided. A higher percentage of athletic academic support directors favored freshman ineligibility (39%) than athletic directors (25%). Administrators from public schools were also more likely than those at private schools to favor freshman ineligibility, at 43% and 19%, respectively.

Schaeperkoetter, Amy J. The development of a compliance manual for the University of North Carolina Department of Athletics, 2001. M.A., University of North Carolina, Chapel Hill (Barbara Osborne). (240pp 3f $18.00) PE 4289

The purpose of this study was to develop a compliance manual for the University of North Carolina Department of Athletics. The University of North Carolina, as a member of the National Collegiate Athletic Association and the Atlantic Coast Conference, is required to monitor compliance with regulations set forth by these two organizations. Therefore, the Department of Athletics must have policies, procedures, and forms in place to confirm that the sports programs are complying with these regulations. The compliance manual developed through this study includes all forms that coaches are required to complete and submit to the Compliance Office, as well as other policies and procedures of which the coaches should be aware. The compliance manual serves to organize these materials into one structured document. The distribution and implementation of this manual will help to decrease the likelihood of sport programs in the Department of Athletics violating national and conference regulations.

**COACHING AND TRAINING**


The study was designed to identify any changes in balance and core muscle strength from functional training exercises on the physioball versus conventional exercises done on the floor as part of a training program. Female subjects (N=30) engaged in two training programs for 5 weeks. The control group performed curl-ups and back extensions on the floor, while the experimental group performed curl-ups and back extensions on the physioball. Abdominal and erector spinae muscle strength was measured using EMG and the Cybex Norm System. Two balance tests were used to determine balance among female subjects. Independent t-tests were used to compare mean change values of the measurements taken for experimental and control groups. The group doing physioball exercises was found to have significantly (p<.05) higher mean change values in EMG trunk flexion and extension and balance in both balance tests than the group doing exercises on the floor. No significant (p>.05) differences in mean change values were seen in Cybex trunk and knee flexion and extension, and heart rate. More goal specific training programs need to be developed to better understand factors other than balance and trunk strength that may relate to specific improvements through the use of a functional training program.

Dyriw, George M. A comparison of performance attributes in an NCAA Division I baseball team, 2001. M.A., University of North Carolina, Chapel Hill (Bonita L. Marks). (125pp 2f $12.00) PE 4287

The purpose of this descriptive study was to profile the performance attributes of various positions and playing status at the collegiate Division I level of baseball, which included: height, weight, percent body fat, fat free mass, vertical jump, upper and lower body strength, speed, agility, anaerobic endurance, and lower body flexibility. Players from the UNC varsity baseball team (N=26, Age=19.19±.98) completed an informed consent, medical history form, and also a medical release form. Collegiate pitchers were found to be significantly taller than the collegiate infield (p=.036) and outfield groups (p=.048). The collegiate pitchers were significantly wealthier in their upper body when compared to the infield (p=.016) and outfield groups (p=.036). The collegiate pitchers were significantly slower than the collegiate infielders (p=.049) and outfielders (p=.014) in the 60 yard dash and the 30 yard sprint (p=.029, p=.025), respectively. Overall, the professional players were found to be significantly taller (p=.05) and faster in the 60 yard dash (p=.026) and the 30 yard sprint (p=.002). The collegiate players were overall significantly more flexible (p<.001) and exhibited significantly less percent body fat (p=.002) than the professionals. The professional pitchers exhibited significantly more percent body fat (p=.002) than the collegiate Division I pitchers. In conclusion, these results suggest that, for each player position, specific training programs should be developed which incorporate the various performance attributes into the players’ everyday routine to enhance performance and prevent injuries.

Fleming, Tyler L. Racial stereotypes used by intercollegiate track and field coaches in hypothetical event assignment, 2001. M.S., Springfield College (Craig Poisson). (143pp 2f $12.00) PE 4298

The study was designed to determine if intercollegiate track and field coaches use racial stereotypes when assigning athletes to events. Track and Field coaches (N=80), divided evenly among NCAA Divisions I and III,
and the West, Midwest, South, and New England regions of the country, were asked to assign athletes to events based on fictional information included in a hypothetical event profile. The race of the athlete was included in the profile. A one-way chi-square test was computed to determine the differences in the frequency of biased and non-biased responses. Significantly more ($p<.05$) biased responses were found overall; however, $2x2$ (bias/non-bias and Division I/Division III) and $2x4$ (bias/non-bias and four geographic regions) chi-square analyses were computed, with no significant ($p>.05$) differences found across division or region. Finally, significantly more ($p<.05$) biased responses were found at Division I institutions in the South and Division III institutions in the Midwest, as well as in regards to the long jump and high jump events. Racial stereotypes held by coaches appear to be a reason for the racial segregation in the sport of track and field.

Reed, William P. Effect of two teaching methodologies and high and low contextual interference on the acquisition of a basketball team offense, 2001. M.S., Springfield College (Steveda F. Chepko). (114pp 2f $12.00$) PE 4304

The investigation was designed to examine the effect of two teaching methodologies (whole, and progressive-part) and high and low contextual interference (CI) on the acquisition of a basketball team offense. Basketball players ($N=32$) were randomly assigned to one of four experimental groups (whole/low CI, whole/high CI, progressive-part/low CI, progressive-part/high CI) and participated in 13 one-hour sessions. Participants practiced the Flex Offense for 30 min according to the guidelines of the experimental group to which they belonged. Testing started on the third day and occurred on every other day for a total of 5 testing days. During testing, each experimental group performed 10 possessions of the Flex Offense against a player to player defense. Each possession was scored using the Flex Efficiency Chart. A significant ($p<.05$) main effect was found for CI. An examination of the mean scores of the Flex Efficiency Chart revealed that the groups which utilized low levels of CI scored significantly higher than the groups that used high levels of CI. No other significant main effects or interactions were found.

Rubley, Mack D. Motor unit recruitment and muscular adaptations in response to traditional isotonic, aggressive isokinetic, and isokinetic strength training of the triceps, 2002. Ph.D., Brigham Young University (Kenneth L. Knight). (53pp 1f $6.00$) PE 4334

Our purpose was to compare two types of isotonic and isokinetic strength training. Two studies were conducted. A $2x4$ factorial with repeated measures on one factor guided the first study. Independent variables were test-time (pre- and post-training) and training mode (control, isokinetic, isotonic-traditional, and isotonic-daily adjustable progressive resistive [DAPRE]). A $3x3$ factorial design with repeated measures on one factor guided the second study. Independent variables were resistance mode and training day (1, 5, and 10). Triceps strength was pre- and post-tested with $1RM$, maximal voluntary isometric contraction (MVIC), and 3 repetition isokinetic (60°/sec) elbow extension tests. Peak torque (Nm), triceps electromyography (EMG: RMS mV, sampled for 200ms after peak torque), and median frequency (Hz) were measured during pre- and post-tests and days 1, 5, and 10 of training. Subjects were 34 untrained males (age 25.6±6.3 yrs, wt. 79.6±12.6 kg, ht. 177.9±18.7 cm). Isotonic weight lifted (kg) and peak torque (Nm) during the $1RM$ increased (25% and 22%) from pre- to post-test, but was not different between training groups. Peak torque during the MVIC & isokinetic tests increased (8% & 10%) from pre- to post-test, but was not different between groups. Medial triceps EMG was greater with isotonic DAPRE than isotonic-traditional during the $1RM$ (55%), MVIC (40%), and isokinetic (45%) tests. Lateral triceps EMG and EMG median frequency were not different between groups or tests. Peak torque during the last three repetitions of the last set of day 10 was greater than day 1 (30%) and day 5 (10%), and was highest in the isotonic-DAPRE group. Triceps EMG and median frequency were not different between days. The median frequency was greater (24%) for isokinetic than isotonic DAPRE and isokinetic-traditional. The average EMG area was greater (44% and 60%) with isotonic-DAPRE than isotonic-traditional and isokinetic. To conclude, strength increased without an increase in EMG amplitude 200ms after the point of peak torque. Strength increases (1 RM) were almost twice as great in the two isotonic groups as in the isokinetic group, but statistically insignificant. The lack of statistical significance may be due to low statistical power.


The study was designed to determine the effect of two teaching methods on the stroke efficiency of freestyle and backstroke for beginner swimmers. The swimmers ($N=53$) were matched for age and ability before being randomly assigned to either the American Red Cross (ARC 1992b) or the Boomer (1999) teaching method. The stroke efficiency of the swimmers, including stroke rate (SR), velocity (V), and stroke length (SL), was measured prior to, during, and at the completion of the 7-week teaching program. The beginner swimmers were instructed twice a week for 60 min each session. The ARC group had a significantly ($p<.05$) lower SR at the pre-test in freestyle; they took fewer strokes to swim 25 yds compared to the Boomer group at the mid- and post-tests. The SR means for backstroke were not significantly ($p>.05$) different for the pre-test, yet the ARC group took fewer strokes to swim the 25 yds by the
mid- and post-tests. The SL for both teaching groups increased from the pre-test to the mid-test for freestyle and backstroke, but no change was noted from the mid- to the post-tests. V did not vary across the three testing periods. More practice days are needed to allow meaningful differences between the teaching methods to emerge.

**GROWTH AND DEVELOPMENT**


There are four purposes to this study. The first is to introduce Latent Growth Models (LGM) to Human Kinetics researchers. The second is to examine the merits and practical problems of LGM in the analysis of longitudinal physical performance data. The third is to examine the developmental patterns of children’s physical performances. The fourth is to compare the capacity of the two most widely used longitudinal factor models, LGM, and a quasi-simplex model, to accurately estimate reliability for longitudinal data under various conditions. In study 1, the first, second, and third purposes of the study were accomplished, and, in study 2, the fourth purpose was accomplished. In study 1, two longitudinal data sets were obtained; however, only one set was deemed appropriate for subsequent analyses. The data included seven physical performance variables, measured at five time points, from 210 children aged eight to twelve years, and five predictor variables of physical performances. The univariate LGM analyses revealed that the children’s individual development over a 5-year period was adequately explained by either a Linear (jump-and-reach and sit-and-reach), Quadratic (flexed-arm hang), Cubic (standing long jump), or Unspecified Curve model (agility shuttle run, endurance shuttle run, and 30-yard dash). The children improved in their physical performances between ages 8 and 12, except for flexibility, in which children’s performance declined over time. Children showed considerable variations in the developmental rate and patterns of physical performances. Among the predictor variables, the test (the number of previous testing sessions) and age in months showed positive effects on the children’s performance at the initial time point. A negative test effect on the development in physical performance was also found. The effect of other predictor variables varied for different performance variables. The multivariate analyses showed that the factor structure of three hypothesized factors, “Run”, “Power,” and “Motor Ability,” holds at all five time points. However, only the change in the “Run” factor was adequately explained by the Unspecified Curve model.

There were significant test practice, age, measured season, and measured year effects on the performance at the initial time of testing, and significant test practice and measured year effects on the curve factor. The cross-validation procedure generally supported these findings. It was concluded that a LGM has several merits over traditional methods in the analysis of change, in that a LGM provides an individual level of analysis, and thus allows one to test various research questions regarding the predictors of change, measurement error, and multivariate change. Additionally, it requires less strict statistical assumptions than traditional methods. Because of the merits of the LGM analysis used here, this study provided some interesting findings regarding children’s development of physical performances—findings that were not detectable in previous studies because of the use of traditional statistical analyses. The difficulty in comparing non-nested models, and the unknown relationship between the change in indicator variables and the change in the factor in the analysis of multivariate “curve-of-factors” model were discussed as practical problems in the application of LGM. In study 2, several longitudinal developmental data sets with known parameters under various conditions were generated by computer. The conditions were varied by the magnitude of correlations between initial status and change, the magnitude of reliability, and the magnitude of correlated errors between time points. The data were analyzed using two models, a LGM and a simplex model, and the estimated reliability coefficients were compared. The simplex model overestimated the reliability in all conditions, while the LGM provided relatively accurate reliability estimates in almost all conditions. Neither the magnitude of correlation between the initial status and change nor the magnitude of reliability affected the reliability estimation, while the correlated errors led to an overestimation of reliability for both models. On the other hand, the magnitude of reliability showed a negative effect on the goodness-of-fit of the simplex model. It was concluded that a LGM, rather than the often used simplex model, be used for reliability analyses of longitudinal data.

Schmitt, MaryJo. A comparison of the physical activity levels of males and females in co-educational and gender segregated sixth grade physical education classes, 2001. M.S., State University of New York, Brockport (Susan Petersen). (92pp 1f $6.00) PE 4312

This study compared the physical activity levels of males and females in co-educational and gender segregated physical education classes. The subjects were 48 sixth-grade students from an urban elementary school. Using a mixed model factorial ANOVA, the subjects were studied in a controlled (co-ed) and an experimental (gender segregated) setting. The subjects wore Polar heart rate monitors for six days of game play in an Ultimate Frisbee unit. Three days were in co-ed classes and three days were in gender segregated classes. In every class, the subjects recorded starting, middle, and ending heart rates. The heart rate data was compared for the two settings in order
to determine which setting solicited the greatest amounts of physical activity. Results of the study indicated that heart rates for males were higher at the beginning, middle, and end of the class both in co-educational and in segregated settings. Females spent approximately 5.8 minutes in the target heart rate zone in the segregated setting and 6.2 minutes in the co-educational setting; males spent 8.3 minutes in the target heart rate zone on the segregated setting and 7.9 minutes in the co-educational setting. This indicates that although the co-educational setting may provide higher levels of physical activity for females, the segregated setting seems to provide more physical activity for males. Although males and females were working in their target heart rate zones during the segregated and co-educational settings, they were doing so for a relatively short duration (5-8 minutes). The study concluded that the use of heart rate monitors is an effective way of determining levels of physical activity in children, but further investigation is needed to study whether segregated or co-educational classes are physically more beneficial for males or females.

Wilson, Alissa M. R. Physical activity, diet, and bone in 4-8 year old girls. 2000. Ph.D., University of Georgia (Richard D. Lewis). (237pp 3f $18.00) PE 4318

Limited research has been conducted on factors influencing skeletal development in very young children. A one-year prospective study was conducted on young females, 4-8 years of age, to examine the impact of participation in recreational gymnastics on diet and bone mineralization. Baseline data were utilized to examine the agreement of the Block Food Frequency Questionnaire (FFQ) and three-day diet records for assessing energy and macronutrient intakes (Chapter 3), and to examine determinants of bone in young girls (Chapter 4). In Chapter 5, changes over one year in bone, growth, and diet were assessed in 12 beginner level gymnasts (GYM) and 12 age-, height-, weight-, and race-matched non-gymnast controls (CON). The FFQ did not agree with the 3-day diet records, as the FFQ overestimated intake values for energy, protein, carbohydrate, and fat in girls 4-9 years of age. These findings suggest that additional work is needed to develop a FFQ that reflects young children’s energy and macronutrient intakes. Fat-free soft tissue (FFST) was the strongest predictor of bone mineral density (BMD) at the total body (TB), lumbar spine (LS), and total proximal femur (TPF), explaining 75%, 53%, and 45% of the variance, respectively. FFST was also the largest predictor of bone mineral content (BMC) at the TB and LS, explaining 90% and 78% of the variance, respectively. Baseline BMD values were not different between the two groups; however, after one year of intervention, GYM had greater increases than CON in total bone area, BMC, and BMD at the LS. Changes in growth parameters and dietary intakes were not different between the groups. These findings suggest that only one hour of recreational entry-level gymnastics activity per week promotes significant gains in BMD in young girls. These studies provide valuable information with regards to diet, bone, and exercise in 4- to 8-year-old girls.

HISTORY AND PHILOSOPHY


The study’s objective was to provide understanding of the role of context in the moral choice process of athletes. Study participants included twelve (12) Division I intercollegiate varsity athletes, six male and six female lacrosse and soccer participants. Each respondent provided two narratives, one daily life and one sport-centered, describing an experience where they were forced to make a moral choice. The structure of the narratives, depicted by the presence, predominance, and alignment (Brown et al., 1989) of the three dimensions of lived moral experience (Tappan, 1990, 1997), the cognitive, affective, and conative, were compared across contextual lines through the use of the McNemar chi-square test to uncover the statistical significance of the relationship between the correlated dichotomous variables of context and structure. A statistically significant divergence in the structure of moral narratives did not exist between the sport and daily life context, or, the variables of context and structure were independent, thus affirming the null hypothesis. Therefore, the dilemma context did not determine how an individual made a moral choice, thus disputing previously published findings that used an alternate methodology (Bredemeier and Shields, 1984; Bredemeier, 1995). Three dilemma types emerged—rules-centered, personal choice-centered, and honesty-centered—and the relationship to narrative structure was examined to explore the moral choice process. Rules-centered narratives pointed to bracketed morality (Bredemeier and Shields, 1984; Bredemeier, 1995; Shields and Bredemeier, 1995), suggesting an “action without consequence” environment. Bracketed morality narratives did not fall along contextual lines, but did trigger a decision-making process infused with self-centeredness, indifference, a sense of invincibility, and a disregard for authority and rules. Findings were discussed in terms of bracketed morality (Bredemeier and Shields, 1984; Bredemeier, 1995; Shields and Bredemeier, 1995) and social cognitive learning theory of moral development (Bandura, 1991), the role of authorship (Tappan and Brown, 1989) in determining moral action, the collection of real-life moral narratives (Gilligan and Attanucci, 1988) versus hypothetical moral dilemmas (Bredemeier and Shields, 1984; Bredemeier, 1995), and the role of an initiation into the sport ethos (Arnold, 1994).
The thesis of this research project is to demonstrate the existence of an incipient philosophy for the playing rules of Gaelic games, as examples of invasive body-contact games generally. This philosophy may assist those who make the rules of such games to formulate enhanced sets of playing rules. Improved sets of playing rules may enable the game to be more readily understood, played, and controlled by match officials. In turn, this will be of direct benefit to the cultivation and preservation of the games, and will assist compliance with this basic aim of the Gaelic Athletic Association (GAA). Chapter one states the needs for and the limitations of the scope of this research. The history of the philosophy of sport is traced to show its novelty. The existence of a philosophy for legislation in games is asserted by examining the areas of knowledge or components of which it is comprised. Chapter two examines games from a philosophical perspective, and then sets out the three sections into which all such sets of rules can be divided, before examining a modus operandi for rule formulation. Chapter three illustrates the principles of play common to such games, then lists and examines the function of rules. The characteristics of rules are listed and examined in detail. It was shown that these characteristics, that have much in common with Fuller’s “principles of legality,” facilitate formulation of user friendly rules. Chapter four makes the case that a simple format of presentation enhances ease of learning. It traces the steps taken to develop a universal format, and evaluates this simple method of presentation. Chapter five discusses the importance, impact, and interaction between the law and the content and formulation of the playing rules of these games. This chapter pays particular attention to the tort of negligence with respect to games, and examines important parts of the network of the duty of care inherent in games and their rules. Chapter six examines the past and present process of rule making in the GAA. Chapter seven argues that a philosophy of legislation can produce enhanced playing rules. After consideration of the foregoing, the playing rules for both games were re-drafted by reference to three objective criteria: the rules must be (i) easy to read, (ii) easy to remember, and (iii) easy to apply. Appendix 1 is a collection of all available sets of playing rules for Gaelic football and hurling. Appendix 2 contains a comparative analysis of the rules of play from 1884 to 1999. This analysis identifies and assesses the philosophical contents of these rules. This Appendix also comprises the early rules of other similar invasive body-contact games for comparative purposes.
exception, throughout the 1930s the IOC’s and the IFs’ interactions became less confrontational. This phase ended with the start of the Second World War. Finally, the third phase occurred after the end of the Second World War. During the two decades following this war, developments in international politics as well as in the technology of television began to have an impact on relations between the IOC and the IFs. In addition, internally, the IFs became increasingly disenchanted with their treatment by the IOC on recurring themes of athlete eligibility, the programmer of the games, the proliferation of “Regional” games, selection of Olympic host cities, finances, and representation for the IFs on the IOC. By the late 1960s, the IFs believed the structures in place were outmoded and took action to change them by forming a General Association of International Federations (GAIF). Although loath to do so, the IOC was forced to acknowledge the International Federations’ initiatives. In forming the GAIF, the IFs gained greater input into decisions surrounding the Olympic Games. Hence, the result of the IFs’ actions was a change in the way the regime for Olympic sport functioned.

Martin, Caryl L. “Dutiful daughters” and rowdy women: an historical examination of athletics at Southern women’s colleges in the United States, 2000, Ph.D., Georgia State University (Philo Hutcheson). (308pp 4f $24.00) PE 4311

This study examines athletics at Southern women’s colleges and the factors that contributed to their entry into competitive programs. Rapidly changing economic trends, political and social climates, and the successes and failures of feminism, along with the country’s involvement in war, all contributed to the growth or retrenchment of women’s athletics. However, this research specifically investigates the late entry of Southern women’s colleges into competitive athletics. This research is an investigation and analysis of published and unpublished archival materials at these colleges. The materials include physical education and athletic files, faculty and trustee minutes, memoranda, and communications between various athletic governing bodies and the colleges. Student handbooks, students athletic files, school newspapers, college catalogues, annuals, photographs, trophies, and local newspapers are also used. This primary source material is placed in historical perspective using the pertinent secondary literature. The women’s colleges in this study, with the exception of Sweet Briar College, entered into competition only recently. Factors such as a dominant patriarchy, strongly emphasized traditional behaviors for women, and even the resistance of physical educators, played a significant role in the entry of women’s colleges into highly competitive athletics. Sweet Briar existed as the only anomaly within this study. Though located in the South, it resembled east coast women’s colleges in its acceptance of non-traditional activities. The typical Southern women’s college delayed entry into athletics until well after most other colleges. Southern women’s colleges have long claimed to provide a classical education, along with leadership opportunities for their students. These opportunities rarely came in the form of non-traditional experiences, especially in athletic endeavors. When neighboring co-educational colleges have fully engaged in athletic programs for women, most of the Southern women’s colleges have failed to make any true commitment to athletic programs. As many of these colleges have finally begun to hire female presidents, who often are alumni of their respective colleges, future analysis is necessary to determine if these new leaders will again revert to traditional expectations, or attempt to truly provide Southern women with opportunities afforded other college women.

Su, Mila C. Y. Collegiate women’s sports and a guide to collecting and identifying archival materials, 2002. M.S., Pennsylvania State University (Ronald A. Smith). (267pp 3f $18.00) PE 4327

The methods used to conduct sport research take on different challenges when it comes to researching the history of women’s intercollegiate athletics. It is to the benefit of the researcher and archivists to understand the basic history of women’s college athletic development and what types of materials might be found in an archives. The format of this thesis is to introduce researchers and archivists to basic research issues in this subject area. The information in the thesis will provide an overview of the history and development of women’s intercollegiate activities and sport from the turn of the 19th century through the end of the 20th century. It will also offer an outline of archival structure and organization and how archives can provide clues and even disprove myths and misconceptions that have been held in the past. Lastly, a discussion regarding some of the issues in the research methodologies used in history, sport history, and women’s studies will be included. This thesis serves both as a literature review of the subject of the history of women’s intercollegiate athletics and as an inquiry into further research that could be conducted in the area.

MEASUREMENT AND EVALUATION


The study was designed to examine selected statistics for the two-prong intercollegiate baseball bat used in 1999 and the three-prong bat used in 2000. Batting average, slugging average, and home runs per at-bat of 76 Division I and 106 Division III players were studied. Statistics from the 1999 two-prong bat and the 2000 three-prong bat were com-
pared to determine the effect of bat specification standards on offensive production in Division I and Division III college baseball. Both the batting average and slugging average of players using the 1999 two-prong bat were significantly higher ($p < .05$) than the batting average and slugging average of the same players using the 2000 three-prong bat, regardless of division. Bat specification standards had no effect on the number of home runs per at-bat of Division I and Division III players using the 1999 two-prong and 2000 three-prong bat. In conclusion, the additional bat specification standards imposed by NCAA administrators for the 2000 season may have affected the batting average and slugging average, but not the home runs per at-bat of Division I and Division III baseball players.

Hooker, Thalia L. Rating of sports teams via least squares and mean absolute deviation techniques: an empirical study of three NCAA sports, 2000. Ph.D., University of Tennessee (Kenneth C. Gilbert). (383pp 4f $24.00) PE 4299

This is a decade-long study of rating sports teams using Least Squares and Mean Absolute Deviation methods. Three NCAA sports are studied: College Football, Men’s Basketball, and Women’s Basketball. Least Squares outperformed Mean Absolute Deviation in all three sports in terms of accuracy (number of correct games predicted). The accuracy of the best Least Squares model is: 72.74% for Football, 74.61% for Men’s Basketball, and 78.90% for Women’s Basketball. This is the first study to consider Women’s Basketball and the first to use a more than one year data set for the Mean Absolute Deviation model. Four types of enhancements are applied to the basic models: Home Edge, Scaling of Differences, Start-of-Season Ratings, and Time Discounting. In three of these four, new ways of modeling these enhancements are introduced: Adjusted Average Home Edge (Home Edge), quasi-Bayesian (Start-of-Season Ratings), and the Time Discounting enhancements. The Adjusted Average Home Edge is the most effective Home Edge term. Start-of-Season ratings are used in all most accurate models. Five out of these six also have their start-of-season ratings regressed to the mean.

Wood, Richard J. Establishing reliability and validity of an original field test of transverse abdominis endurance, 2001. M.S., Springfield College (Margaret Jones). (176pp 2f $12.00) PE 4307

The study was designed to establish reliability and validity of an original field test of transverse abdominis (TA) endurance, the BOSU balance Test (BBT). A panel ($n=3$) of experts reviewed procedures for the BBT for face validity. Subjects ($n=57$) were Division III student athletes. Measurement instruments were the Borg CR10 Pain Scale (BPS), the BBT, the Draw in to Failure Test (DFT), and the Bench Trunk Curl (BTC). Raters were 5 trained strength coaches. Test-retest reliability (TRR), intra-rater reliability (INA), inter-rater reliability (INE), and convergent validity (CV) were assessed using a Pearson product moment correlation coefficient. Divergent groups validity (DGV) was assessed using an independent groups T-test. Outliers were subjects with $\geq 200$ s difference between trial 1 and trial 2 on the BBT, and were removed. A significant ($p < .05$) relationship existed for TRR. A significant ($p < .05$) relationship existed for INA. Reliability coefficients for INE ranged from .494 to .999. In determining CV, the relationship between BBT and DFT scores was not significant ($p > .05$); however, BBT and BTC scores were ($p < .05$). DV was not significant ($p > .05$). The BBT is a reliable but not valid testing measure.

PEDAGOGY AND CURRICULUM

Angstrom, Anne L. Literacy profiles of African American male student-athletes, 2001. Ph.D., Auburn University (Barbara Hoetker Ash). (287pp 3f $18.00) PE 4308

The main purpose of this study was to illuminate four African American male student-athletes’ perceptions of literacy experiences—experiences with reading, writing, or performing—prior to their entering the university, and while enrolled in a required university course, English Composition I. Data were gathered using two types of interviews. In the first, a life history interview, the four African American male student-athletes recalled their early experiences with reading, writing, and performing in the home and family, school, and athletics. In the second, third, and fourth interviews, topical interviews, the four student-athletes described their experiences with assigned reading, writing, and performing in English Composition I. More specifically, the student-athletes described their perceptions of three assigned essays—a personal essay, an essay of observation, and a textual analysis. Data analysis revealed that all four participants experienced successful, as well as challenging, problematic, or confusing, moments while engaged in reading, writing, or performing prior to their entrance into the university, and while enrolled in English Composition I. All four participants described early experiences with literacy in the home, including having family members who assisted with homework, read, or recited stories to them. All four participants also had access to religious texts and culture-specific and sports magazines. All four participants reported challenges, problems, or confusion as a result of literacy experiences in school, including failing assignments, tests, or courses; making errors in situations which demanded knowledge of academic discourse conventions; experiencing or fearing ridicule from peers or teachers; feeling apprehensive about reading aloud; and lacking personal connections with teachers and assigned texts. The following challenges, problems, or confusion resulted from experiences with
literacy in English Composition I: understanding teacher-designed writing prompts or written responses to essays; beginning first drafts and achieving a required length; composing or typing a draft at the computer; and balancing an academic identity with an athletic identity. The interviews revealed the impact that past literacy experiences might have on future literacy experiences. The challenges, problems, or confusion the participants experienced while involved in acts of literacy also serve to inform teachers of the importance of understanding students’ perceptions of school-related literacy events. Such perceptions might, in turn, inform teachers’ pedagogical decisions.


The study was designed to determine if supervisory conferences in physical education pre-service teacher training affected teaching behaviors. Pre-service teachers (N=54) were randomly assigned and remained in one of four supervisory teaching styles: directive, non-directive, collaborative, or non-directive/collaborative. The pre-service teachers taught 4- and 5-year-olds three weekly lessons in groups sizes of 8 to 12 youngsters. A 4x3 mixed factorial ANOVA with one independent groups factor (supervisory style) and one repeated measures factor (time) was computed to determine the effect of supervisory style teaching behaviors. No significant (p>.05) difference was found in the performance of pre-service teachers participating under four different supervisory styles (non-directive, collaborative, directive, and non-directive/collaborative). No significant (p>.05) difference existed in the performance of pre-service teachers over 3 weeks. No significant (p>.05) interaction was found between type of supervisory conference and time of assessment. However, on an exploratory basis, many trends existed which might serve as a catalyst for further research.

Shumway, Jana. *Creative dance in elementary education: types of lesson plans classroom teachers are willing to teach*, 2001. M.A., Brigham Young University (Marilyn W. Berrett). (104pp 2f $12.00) PE 4325

The purpose of this study was to encourage elementary school teachers, trained or not trained in dance, to learn how to successfully incorporate an integrated dance program into their curriculum. The method used to achieve this goal was to select and model-teach fourteen creative dance lesson plans to six separate groups of first-grade students, as their classroom teachers observed and evaluated each plan. The evaluations indicated whether or not the teachers would feel comfortable teaching the creative dance lesson plans and what types of lesson plans they would be most willing to teach. The study consisted of four phases. Phase I, the research development phase, included the selection of the lesson plans. Phase II, the preassessment phase, assessed the teachers’ attitudes and backgrounds in dance. In phase III, the model teaching, observation, and evaluation phase, teachers filled out an evaluation form for each lesson they observed. In phase IV, the final assessment phase, the teachers shared their attitudes about each lesson plan and about dance in education. At the conclusion of the study, the final results showed that ninety-two percent of the responses regarding the use of specific creative dance lesson plans were answered in the affirmative. One hundred percent of the evaluation sheets indicated positive comments about how much their students loved dance and needed the opportunity to move. All of the teachers concurred that they felt more confident in teaching dance after observing each plan being taught to their students and that they had gained a desire to incorporate dance into their future curriculum.

**SOCIOLGY AND CULTURAL ANTHROPOLOGY**


Most women’s collegiate sports reflect an under-representation of African American student-athletes. The purpose of this study was to examine how silencing, through a lack of research and lack of attention on the part of the media, the exposure to gender and racial stereotypes, and the socialization process, influence African American women to participate in sports in general, and to participate in certain sports specifically. Following this examination, strategies for change were discussed, based on the opinions of experts in the field, the participants, and the researcher. Many studies have examined women in sport or African Americans in sport, but few have focused on the intersection of race, gender, and sport. This study was intended to give exposure to an area of sport research that is lacking attention. The findings of the study are also significant to educators, coaches, parents, and role models, when encouraging African American to speak up, fight the stereotypical views of their athletic talent in only certain sports, and follow those socialization agents who are directing them toward sport participation. In focusing on silencing, stereotypes, and socialization, the stories told by African American collegiate athletes in focus group and individual interview settings were analyzed. The focus groups were composed of Division I African American female student-athletes form a large Midwestern university. The women participated in basketball, volleyball,
track and field, fencing, and crew. Data analysis indicated:
(1) Media limit the opportunities for exposure for African
American female athletes. (2) Administrators, coaches, and
male student-athletes play roles in the silencing and the
giving of voice to African American female student-
athletes. (3) African American female student-athletes are
most often exposed to biological, gender, intellectual, and
athletic stereotypes. (4) Family members and teachers/coaches are the most significant socialization influences on
African American female athletes. (5) The most effective
strategies for change in the participation of African
American females in sport include positive role modeling
and increasing exposure and access to sport of all types.

Jamieson, Katherine M. A qualitative analysis of Latinas in
collegiate softball, 1999. Ph.D., Michigan State University
(Yevonne R. Smith and Maxine Baca Zinn). (276pp 3f
$18.00) PE 4275

Relying on a framework of multiracial feminism (Baca
Zinn & Dill, 1994) and Gerson’s (1985) developmental
analysis, this research explores how a select group of
Latinas made decisions about sport involvement. More
specifically, the collegiate athletic paths of a select group of
Latinas are analyzed as a product of their experiences
within larger social conditions. The application of these
frameworks is especially relevant for studying the experi-
ences of women in Latina/o families who face varied
constraining and enabling conditions along what are often
unconventional paths toward collegiate softball. Among
the findings in the present research were: a) women in
Latina/o families do receive familial support for sport
involvement; b) women in Latina/o families face varied
forms of structural disadvantage that influence decisions
about involvement in sport; c) school personnel may hold
beliefs about Latina educational and career advancement
that influence the guidance Latinas receive for
transitioning from high school to college; d) race and
ethnicity are consistently significant in interactions
between student athletes and coaches; e) social construc-
tions of sexualities have contradictory influences in the
experiences of female collegiate athletes; and f) collegiate
softball is a social structure organized around multiple
inequalities that situate participants in different locations
from which they gain disparate consequences of member-
ship.

Moruosi, Moses S. A cross-cultural investigation of participa-
tion motivation of high school student-athletes, 2001. M.S.,
Springfield College (Daryl Arroyo). (133pp 2f $12.00) PE
4303

The study was designed to investigate the participation
motivation of high school student-athletes from Botswana
and from the United States. The Participation Motivation
Questionnaire (PMQ; Gill, Gross, & Huddleston, 1983) as
modified by White and Duda (1994) was administered to
high school student-athletes (N=180) in Botswana (n=90)
and the United States (n=90). A 2 X 2 ANOVA with two
independent group factors of country and gender was
computed with the data. Males of Botswana had significa-
cantly (p<.05) higher mean “Team Membership” scores
than females and United States males. The mean “Energy
Release” scores of Botswana males were significantly
(p<.05) higher than those of Botswana females; however,
females of United States had significantly (p<.05) higher
mean “Energy Release” scores than United States males
and Botswana females. Females of United States had
significantly (p<.05) higher “Affiliation” scores than United
States males. Botswana student-athletes had significantly
(p<.05) higher mean “Recognition” and “Skill Develop-
ment” scores. No significant (p<.05) interaction or main
effects were found in the mean “Fitness” and “Competition”
scores. Athletes ranked improving skills and fitness
high.

Shingles, René R. Women in athletic training: their career and
educational experiences, 2001. Ph.D., Michigan State Univer-
sity (Yevonne R. Smith). (321pp 4f $24.00) PE 4313

The purpose of this study was to describe and critically
analyze the experiences of diverse women certified athletic
trainers (ATCs) regarding the following issues: a) differ-
ences and similarities of educational and career experi-
ences in athletic training, b) opportunities provided by
changing social structures caused by Title IX in women’s
sport, c) social processes and structures of discrimination
and oppression in athletic training, d) women’s experi-
ences of empowerment in athletic training, e) intersections
of race/ethnicity, sexuality, and gender in the perceptions
of women athletic trainers, and f) giving voice to women
athletic trainers. Quantitative and qualitative research
methods were used to complete the study. Multiracial
feminism (Baca Zinn & Dill, 1994) was used to examine
critically the perceived meanings and social realities of
diverse women ATCs’ career and educational experiences.
A random sample of 419 diverse women ATCs (American
Indian/Alaskan Native; Asian/Pacific Island; Black, non-
Hispanic; Hispanic; White, non-Hispanic) were sent
surveys to investigate their perceptions of their athletic
training experiences. Twenty-five participants (five from
each racial/ethnic group) were randomly selected and
interviewed. These data were analyzed a) quantitatively
using the one-way Analysis of Variance and Multivariate
Analysis of Variance tests, b) qualitatively, and c) by
triangulation of the data with the literature. Significant
differences were observed between diverse women ATCs
with regard to their perceptions of a) sexuality and use of
the lesbian label in athletic training, b) interactions with
colleagues and general educational experiences, and c)
issues of structural power. The following themes emerged
from the qualitative data. Most women ATCs formed a
“tight knit” group relationship with classmates and instructors. Culturally diverse settings created primarily “good or professional” relationships with coaches, except when the coaches disregarded or disrespected the ATCs’ decision-making. African American/Black and some Hispanic women formed cultural connections with athletes of their own racial/ethnic group. Women athletic trainers experienced sexual harassment but only perceived as harassing incidents that involved physical abuse, or that created a threatening environment. Sexuality and the lesbian label had an impact on women ATCs. Regardless of sexual orientation, their sexuality was questioned or they were assumed to be lesbian. Some women perceived that being a woman ATC was no longer unique. Others expressed pride in being a woman ATC. However, more recently certified women perceived themselves as athletic trainers, not as women certified athletic trainers. This study demonstrated that women ATCs were simultaneously privileged and oppressed by race/ethnicity, gender, and sexuality, depending upon their social location. Recommendations for athletic training educators, the National Athletic Trainers’ Association, and future research were outlined.

Stack, Roberta J. *The impact of homophobia on self-identified lesbians in sport*, 2001. M.S., Slippery Rock University (Catriona Higgs). (116pp 2f $12.00) PE 4326

Previous studies have analyzed the presence of homophobia in sport and many of these studies have focused on the impact of homophobia on women’s sport. This study addressed the impact homophobia has on self-identified lesbians who participate in team-sports. Subjects were between the ages of 18 and 28, and were participating in, or had participated in, an intercollegiate sport for at least one season. Subjects were attained through the Internet, through lesbian establishments, and via e-mail. Data were collected through the use of a specially designed questionnaire and ethnographic interviews. An analysis of the data revealed that lesbian athletes experienced a moderate amount of homophobia in team sports. However, the incidence of homophobia experienced by the athletes was less in sport than in other areas of society. Further, the respondents’ perceptions that homophobic incidents were prevalent in sport were much greater than the actual incidence of homophobia experienced and reported by the respondents.


African Americans in St. Petersburg, Florida, as in other communities, have lost their homes and businesses to the paths of interstate highways, and more recently, to make way for stadiums, arenas, and convention centers whose presence promises greater economic development and better quality of life. This study considers the effect the 1998 arrival of a major league baseball team, the American League Tampa Bay Devil Rays, has had on the African American community of St. Petersburg, Florida, part of which was moved to make way for the stadium that would eventually house the baseball team. Interviews were conducted with three groups of adult men and women: African Americans who have lived and worked in the Black inner city, business people, representatives from local government who were involved in bringing the baseball team to this community, and representatives of baseball. This is a qualitative study using ethnography as the culture of inquiry. Ethnography was chosen as a way to hear and portray the stories of the interviewees. Observation was also used to collect data, and a variety of secondary sources were also reviewed to portray the experience of the arrival of baseball in this community. The arrival of this team followed a long and arduous journey, with many near misses for the community to attract an active major league team. There were many expectations about jobs and an improved quality of life, particularly for the African Americans who gave up their homes and businesses. The results of this study show that those expectations have been poorly fulfilled for that community, as it has gained very little new business and only part-time seasonal jobs without benefits. The arrival of the team, however, has had a positive effect on the current economic boom now occurring in downtown St. Petersburg.

Wah, Cheryl M. *A comparison of the levels of satisfaction with collegiate experience between NCAA Division I and Division III softball players*, 2001. M.A., University of North Carolina, Chapel Hill (Barbara Osborne). (111pp 2f $12.00) PE 4291

In this study, Division I and Division III softball players were compared based upon their satisfaction with their collegiate experiences, evaluated through a survey that included three main component areas: Athletics, Academic, and Social/Personal Development. Variables other than satisfaction that were evaluated were: hours per week softball players in each division spent on various activities, and importance softball players from each division placed upon certain criteria in making their college decisions. Other variables that were studied include the differences between starters, key reserves, and reserves in satisfaction levels with their collegiate experiences, differences between recruited and non-recruited student-athletes in satisfaction levels with their collegiate experiences, and differences between student-athletes receiving various amounts of athletically-related financial aid. The only major significant finding within these research questions was that starters were significantly more satisfied with their collegiate experiences than reserve players.
DANCE


This thesis was to collaborate original choreography with cinematic techniques to be presented to an audience in a unique perspective. The work was a three-movement suite filmed in three unique and contrasting settings. The title of this choreographic thesis was *Textures and Temperaments*, a phrase reflective of the filming location settings and the different emotions evoked through each section. The cast and crew consisted of students from the Department of Dance and the Department of Theatre and Media Arts at Brigham Young University. The work consisted of three phases: pre-production, production and post-production. The pre-production phase included the following: 1) selection of dancers, 2) selection of music, 3) choreographing and rehearsing the dances, 4) location scouting, 5) costume selection, 6) organization of film crew, 7) construction of film shots through storyboards, 8) dress rehearsal with cinematographer, and 8) film selection and purchase. The production phase involved the process of filming the dances over a three-day period. The post-production phases consisted of: 1) film to tape transfer and 2) editing the footage. The final cut of this thesis was presented in conjunction with the “Senior Showcase” on June 14 and 15, 2001. The end product of this thesis was successful in presenting a choreographic work to an audience in a unique perspective through cinematic techniques.

BIOMECHANICS

Bowman, Jonathon A. *Effect of two volleyball arm swings on post-impact ball velocity*, 2001. M.S., State University of New York, Brockport (Christopher Williams). (48pp 1f $6.00) PE 4309

The purpose of this study was to determine if differences exist between post-impact ball velocities generated by the bow-and-arrow arm swing (BAS) and circular arm swing (CS) in volleyball spiking. Ten female collegiate volleyball players were videotaped using two-dimensional cinematography. Markers were placed at the hip, shoulder, elbow wrist, end of the fingers, and the ball. Three videotaped trials of the BAS and the CS techniques for each subject were analyzed with Peak 5 Performance Analysis System. The mean post-impact ball velocity for the BAS was 12.72 m/s (SD=1.30, SE=0.41). The mean post-impact ball velocity for the CS was 13.26 m/s (SD =1.49, SE=0.47). A dependent t-test (t_{0.05}=3.131) revealed significant differences (p=0.012) between the CS and BAS post-impact ball velocity. No significant difference between CS and BAS pre-impact hand speed was found, which suggests that other factors (the time of contact between the hand and the ball, and the transfer of angular momentum) affect ball velocity.


The purpose of this study was to examine the electromyography (EMG)/force relationship of the medial hamstring (MH) and lateral hamstring (LH) muscles during isometric knee flexion at 30°. Subjects consisted of twenty recreationally active college students with no history of injury to the lower extremity, ages 19-27. For 5 sec, subjects performed isometric contractions equivalent to 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, and 90% of the average of three maximal voluntary contractions (MVC), in random order. Full-wave rectified and integrated EMG signals over the middle 3 sec of each contraction were expressed as a percentage of the activity recorded during the three averaged MVCs. One sample t-tests and 95% confidence intervals were calculated at each relative torque level. A two-factor analysis of variance (muscle by intensity) with repeated measures was performed to evaluate parallel activation across the intensity levels. Activation linearity was assessed via regression analysis for both the MH and LH. Activation for both the MH and LH was shown to be significantly higher than expected at all intensity levels. The results from the two-factor ANOVA (muscle by intensity) demonstrated a significant main effect for intensity. These findings illustrate that activation of the MH and LH paralleled each other through all intensities. No significant muscle by intensity interactions was found. Regression analysis revealed that the EMG-force relationship for the MH and LH was shown to significantly fit only a linear trend. The Y intercept as calculated from the regression equation for the MH is 12.235, and for the LH the Y intercept equals 11.674.


The shapes of resistive torque patterns provided by Nautilus, Cybex, and Icarian leg extension machines were analyzed for similarities to the shape of the strength curve of human knee extensors. Machine resistive force data were collected at 10 angular positions between 90° and 180° of the leg extension machine range of motion. Subjects (10 males females) aged 18 to 28 years performed a single maximal repetition at an angular velocity of 60°/s. Subject data were combined and mathematically reduced to derive
a single representative human strength curve. Raw data from the human strength curve and from each machine resistive torque curve were converted to a percent scale for comparisons. Each machine curve was fitted to the human strength curve using regression techniques. Curve estimation revealed that a quadratic function provided the best fit for the Nautilus machine force pattern to the human pattern, \( R^2 = .77, F(1,7) = 5.09, p = .04 \). A linear function provided the best fit for the Cybex machine force pattern to the human strength pattern, \( R^2 = .82, F(1,8) = 17.26, p = .00 \). There was no function which provided a best fit between the Icarian machine pattern and the human pattern. Force provided by each of the machines did not match human force capability.

Hepburn, Douglas J. *Electromyographic analysis of the VMO [vastus medialis oblique] compared to the VL [vastus lateralis] during three elastic tubing exercises*, 2001. M.S., Brigham Young University (Shane S. Schulthies). (87pp If $6.00) PE 4330

Patellofemoral Pain Syndrome (PFPS) is one of the most common injuries that occurs in athletic and non-athletic populations, and it may be caused by a strength imbalance between the vastus medialis oblique (VMO) and vastus lateralis (VL) muscles. Theoretically, to treat this imbalance one must preferentially activate the VMO compared to the VL. This study used electromyographic analysis to determine if there is preferential activation of the VMO compared to the VL, during 3 closed kinetic chain elastic tubing exercises in subjects that presented PFPS. The sample population consisted of 4 male and 9 female volunteers, ages 17-32 (Mean Age 23.30yrs±4.58; Mean Weight 155.69±27.79). All subjects had at least 2 of the 4 symptoms for PFPS. Surface electrodes were attached over the VMO, VL, and proximal third of the tibia. EMG was normalized by the maximal voluntary isometric contraction (MVIC) that produced the highest peak torque from 3 repetitions. Subjects performed 1 set of 11 repetitions of a front pull, anterior cross over, and posterior crossover exercise. A 2x3 repeated measures analysis of variance was used to analyze the data, with both factors within treatment factors. Results from the analysis revealed no significant difference between activation of the VMO and the VL (F=.535, DF=1, P=.478), no significant difference between exercises (F=.048, DF=2, P=.953), and no significant interaction between exercises and muscles (F=.398, DF=4, P=.675). These exercises may allow the clinician to sufficiently activate the leg muscles to allow strengthening to occur and may also be used to rehabilitate in a safe and functional range of motion. Even though preferential activation of the VMO compared to the VL was not found, clinically these exercises may be effective for rehabilitation of the knee joint but not directly for the patellofemoral joint.


The study was designed to distinguish between subjects who used different strategies in the performance of the countermovement vertical jump (CMJ). Eighteen subjects were assigned to two groups, knee (n=12) and non-knee (n=6) jumpers, according to the relative work performed by the knee joint to the total performance of the CMJ. No significant differences (p>.05) were found between the maximal vertical displacements, take-off velocity, net pre-projection vertical impulse, peak concentric vertical force, peak eccentric vertical force, joint angles, and trunk slope at the lowest eccentric position, duration of phases of the CMJ, and segmental coordination between knee and non-knee jumpers. A significant difference (p<.05) was found between the relative joint work of the knee and hip joints between knee and non-knee jumpers. Knee jumpers had a higher (p<.05) percentage of fast twitch fibers in the quadriceps than did non-knee jumpers. Programs to improve the CMJ should be based on specific characteristics of the individual. More research is needed to validate the distinction between knee and non-knee jumpers.

Melton, Alex J. *Power and velocity production for different relative intensities for the hang power clean exercise*, 2002. M.S., University of Memphis (Andrew C. Fry). (41pp If $6.00) PE 4331

The purpose of this study was to identify the load at which the highest mean power and velocity occurs during the hang power clean exercise. The subjects were 15 college-aged male volunteers. Subjects participated in one familiarization session and two testing sessions. The first testing session involved obtaining the 1 repetition maximum (RM) values of each subject for the hang power clean exercise. During the second testing, subjects completed 12 single-effort hang cleans, with loads ranging from 40%-95% 1 RM at 5% increments in a counterbalanced fashion. A 4-5 minute rest was taken between attempts. For each test, a portable FITROdyne dynamometer was attached to the bar by way of a tether. Mean power and mean velocity production were measured and recorded for each load. Both power and velocity were different (p<.05) over the load spectrum. Fisher’s Least Significant Difference (LSD) post-hoc analysis revealed a significant difference in mean power production between loads ranging from 40%-70% 1 RM and loads ranging from 75%-95% 1 RM. The heavier loads were shown to allow for greater power production. Mean velocities for loads ranging 40%-70% 1 RM were shown to be significantly higher than loads at 75%-95% 1 RM.
Cycling in the recumbent position has recently become popular. However, very little is known about this position, specifically in regards to the effects of body position and orientation on maximal power output and the energetics of the lower extremity. Three separate experimental investigations were completed in order to gain a better understanding of this mode of cycling. In the first investigation, the effects of altering body configuration angle (included angle between mid torso, hip joint, and crank-arm spindle) on maximal-power output were examined while recumbent cycling (hip joint 15° below crank-arm spindle). Power output declined significantly as body configuration angle was reduced from that selected by subjects in the standard, upright cycling position. However, power output in the recumbent cycling position was not reduced compared to the standard cycling position when body configuration angle was matched. In the second investigation, body configuration angle was held constant while the effects of hip orientation angle (hip joint to crank-arm spindle relative to horizontal) on maximal-power output in three different recumbent positions were examined. Hip orientation angle had no effect on power output. Body configuration angle was matched to that selected by the subjects in the standard cycling position. No difference in power output was found between the recumbent and standard cycling positions. In the third investigation, lower-extremity energetics were examined through inverse dynamics modeling. In order to perform the inverse dynamics, clipless pedals were modified to measure reaction forces as well as pedal and crank-arm angles.

While cycling steady state at 90 rpm and 250 W in a recumbent and standard cycling position, with matched body configuration angle, simultaneous force-pedal system and lower extremity joint kinematics were collected. While the kinematics and kinetics were extremely similar, several significant differences were found. Energy transferred across the hip joint from the upper body/pelvis was significantly reduced in the recumbent position. Additionally, work at the knee was redistributed in the recumbent position, with more work done during knee flexion and less during knee extension compared to the standard cycling position. These differences may have implications on performance between the two modes of cycling.

Shivitz, Nicole L. *Adaptation of vertical ground reaction force due to changes in breast support in running*, 2001. M.S., Oregon State University (Gerald A. Smith). (87pp 1f $6.00) PE 4314

Sports bras offer different levels of breast support and allow for a wide range of vertical breast motion. Excessive breast motion during exercise causes discomfort and may discourage participation in regular exercise. Inadequate breast support may lead to adaptations in a woman’s running mechanics. This study aimed to determine the relationship of breast support to breast motion, ground reaction force, vertical stiffness, and stride frequency. Seventeen subjects, of breast sizes 34C-38D, ran on an instrumented treadmill while wearing low-, medium-, and high-support sports bras. Force and motion data were collected from which mechanical characteristics for each support condition were calculated. Repeated measures analysis of variance (ANOVA) was used for group analysis, but individual subject analysis using single factor randomized ANOVA formed the core of the study, which focused on the unique, individual subject responses to the three levels of breast support. In the group analysis, breast motion decreased while active peak vertical force increased with support; other kinetic and kinematic variables were unchanged for the group. Each subject had the least vertical breast motion in the high support condition. Twelve of the 17 subjects had an increase in active peak VGRF with an increase in support, while fewer (43%) increased impact peak VGRF (not including four subjects with a midfoot strike pattern for whom no impact peak was evident). Vertical stiffness decreased for most subjects as breast support increased with 59% having the greatest stiffness values at the lowest level of support. Finally, while there were significant changes in stride frequency for many subjects, the magnitude of the changes was relatively small compared to force and stiffness changes. In conclusion, women in this study had decreased breast motion as breast support increased. In addition, many subjects had mechanical adaptations to increased support, which included increased vertical ground reaction force but decreased vertical stiffness.


The purpose of this study was to determine which muscles, biceps femoris, vastus lateralis, or vastus medialis oblique, have a higher peak EMG as tested in three different step-down exercises. Thirty-five normal, physically active subjects participated in the study. The subjects learned three different step-down exercises on the first day. The second day was utilized for collection of electromyography (EMG) data. A within subjects 3x3 ANOVA revealed a statistically significant difference in peak EMG of the three different muscles F(1,36)=111.986 p<.0005. There was no significant difference found in step-down exercises F(1,90)=.006 p=.963, and no significant interaction found between the three step-downs and the three different
muscles \((p=.115)\). The results of this study indicated that the vastus medialis oblique had a greater peak EMG than the vastus lateralis and biceps femoris; however, there is no significant difference between the peak EMG of the three different step-down exercises.

Walsh, Brian F. *Biomechanical and physiological differences between forward and backward running*, 2001. M.S., Springfield College (H. Joseph Scheunenzuber). (112pp 2f $12.00) PE 4305

The investigation was designed to determine if differences in treadmill velocity, rate of perceived exertion (RPE), heart rate (HR), vertical ground reaction force (GRF), and peak joint moments of the knee and ankle exist between forward running (FR) and backward running (BR) when running at 50\% of peak oxygen consumption. The subjects in this study consisted of 10 trained male runners between the ages of 18 and 23. Mean vertical GRF and treadmill velocity were significantly \((p<.05)\) greater for FR than for BR. The peak ankle moments were significantly \((p<.05)\) greater for FR than for BR. The peak ankle moments were found to be significantly \((p<.05)\) greater for FR than for BR. No significant \((p<.05)\) interaction was found between running direction and trial test times for RPE and HR. A significant \((p<.05)\) difference was found for RPE and HR for both repeated factors: the running direction and the trials effect. Mean RPE and mean HR were both greater for BR than FR over the 6 trials. Based on these results, BR may help to reduce the vertical GRF and the peak joint moment of the knee, which may be beneficial to injured athletes.

**SPORTS MEDICINE**


This study examined the effects of intermittent exposure to hyperbaric oxygen therapy (HBO) for the treatment of delayed onset muscle soreness (DOMS). It is apparent in the literature that a great deal of controversy exists in using this form of therapy to treat tissue injuries. It was hypothesized that subjects exposed to hyperbaric oxygen would recover from DOMS faster than subjects exposed to normoxic air. Sixteen sedentary, female university students participated in the study and were randomly assigned to either an experimental or control group. All subjects performed 300 maximal voluntary eccentric contractions (30 sets of 10 repetitions/minute) of their non-dominant leg (110°-35° of knee flexion) at a slow speed (30° per second) on the KinCom Dynamometer, to elicit muscle damage and injury. HBO treatments consisted of 100\% oxygen for 60 minutes at 2.0 ATA while the control group received 21\% oxygen at 1.2 ATA for the same amount of time. Both groups received treatment immediately after the induction of DOMS and each day after for a period of 4 days [day 2 post-exercise through day 5 post-exercise]. Dependent variables (perceived muscle soreness, isokinetic strength, quadriceps circumference, creatine kinase (CK), interleukin-6 (IL-6), and malondialdehyde (MDA) were assessed baseline (pre exercise, day 1), 4 hours post-exercise (day 2), 24 hours post-exercise (day 3), 48 hours post-exercise (day 4), and 72 hours post-exercise (day 5). MRI \([T2 relaxation time/STIR]\) was assessed baseline (day 1), 24 hours post-exercise (day 3) and 72 hours post-exercise (day 5). Isokinetic strength \((p<0.05)\) and perceived soreness \((p<0.05)\) indicated significance for injury to the quadricep muscle for both groups but no difference was seen between groups \((p=0.102, p=0.571\) respectively). Quadricep circumference was measured at the 10 and 20 cm reference point above the superior portion of the patella. The 10cm girth measurement indicated significance \((p<0.05)\) for muscle injury but there was no difference between groups \((p=0.815)\); 20cm measurement showed no significance \((p>0.05)\) for both within and between groups \((p=0.677)\). No significance was evident for serum CK \((p<0.05)\), both within and between groups \((p=0.647)\). MDA analysis revealed no significance \((p>0.05)\) both within and between groups \((p=0.580)\). Analysis of IL-6 demonstrated no significance \((p<0.05)\) for both within and between groups \((p=0.111)\). Finally, MRI analysis for T2 weighted imaging of the rectus femoris, vastus medius, and vastus lateralis showed no statistical significance \((p>0.05)\) between groups for treatment effects \((p=0.800, p=0.361, p=0.806\) respectively). Similarly, analysis of the STIR images indicated no statistical significance \((p<0.05)\) for the same three muscles \((p=0.796, p=0.580, p=0.265\) respectively). The findings of this study suggest that hyperbaric oxygen therapy was not effective in the treatment of exercise-induced muscle injury, as indicated by the markers evaluated.


The investigation was designed to determine whether therapeutic techniques when coupled with dynamic stretching, had an impact on hamstring flexibility. Participants \((N=18)\) were male student volunteers assigned to participate in all three of the treatment conditions. The treatment conditions included: (a) 20-min hot pack application followed by a dynamic exercise, (b) 20-min of no treatment, lying on a table followed by a dynamic exercise, and (c) 9 to 12-min massage application followed by a dynamic exercise. The dynamic exercise consisted of 15 leg swings through full hip flexion and extension. All
measurements were taken in degrees by a goniometer using the participants’ non-dominant kicking leg. A 3x2 repeated measures ANOVA with two repeated measures revealed significant (p=.00) gains from pre-test to post-test. No significant (p=.79) differences were found among the treatment conditions, and the interaction between treatment conditions and testing times was also non-significant (p=.53).


The current study was designed to investigate the effect of cryotherapy and thermotherapy on shoulder proprioception. Healthy subjects (N=20), male and female graduate and undergraduate college students with no history of shoulder injuries, completed the active angle reproduction (AAR) test. The effects of therapeutic modalities on shoulder proprioception were determined by the absolute angular error obtained from the AAR test. A 2x2 repeated measures ANOVA was computed to compare ice pack and hot pack treatments. No significant (p=.85) difference in mean shoulder proprioception was found between ice pack and hot pack treatments. No significant (p=.61) difference in mean shoulder proprioception was found pre-treatment and post-treatment. No significant (p=.43) interaction between treatment and time was found. To conclude, both ice pack and hot pack treatments had no influence on shoulder proprioception.

Christopher, Gary A. *Shoulder biomechanics in volleyball spiking: implications for injuries*, 2001. M.S., Brigham Young University (Mark D. Ricard). (165pp 2f $12.00) PE 4320

Shoulder kinematics and kinetics for 11 collegiate volleyball players (6 female, 5 male) were calculated using 120 Hz video analysis. Subjects were separated into groups by gender. Maximum ball velocity compared favorably to previous research among similarly skilled athletes. Critical instants identified were (a) maximum internal rotation torque (male=48.7±4.5 Nm at 30±4.0 ms before impact start; female=28.3±4.1 Nm at 44.4±3.6 ms before impact start), (b) maximum shoulder joint compressive force (male=89.5±4.8 % BW at 23.3±2.7 ms after impact start; female=50.6±4.4 % BW at 28.4 ms after impact start), and (c) maximum shoulder adduction torque (male=114.7±15.4 Nm at 34.2±7.1 ms after impact start; female=63.1±14.0 Nm at 45.1±6.5 ms after impact start). Strong positive correlations were found between maximum ball velocity and maximum shoulder compressive force (r=0.872, p<0.001). Moderate positive correlations were found between maximum ball velocity and (a) maximum anterior shear force (r=0.624, p<0.01), (b) maximum superior shear force (r=0.647, p<0.01), (c) maximum elbow extension velocity (r=0.682, p<0.001), and (d) maximum shoulder adduction velocity (r=0.687, p<0.001). A relationship between shoulder biomechanics and the potential for injury was investigated. The potential for overuse injuries is linked to impact magnitude, impact frequency, rate of loading, and number of years of competition, as well as to the biomechanics of the individual athlete.


With the growing popularity of sports and their inclusion in more public school programs, it becomes increasingly apparent that additional consideration must be given to the injury problem associated with sports. The North Carolina High School Athletic Injury Study (NCHSAIS) was undertaken to identify patterns of injury among male and female athletes in North Carolina in comparable sports. The Injury Rate Ratio (IRR) was calculated for each sport, and indicated that females had a higher rate of injuries in softball/baseball (IRR=1.1), soccer (IRR=1.5), and track and field (IRR=1.4). Males had a higher injury rate in basketball (.74). In the sport of softball/baseball the most significant findings were that males had 15% more fractured body parts and were unable to play for greater than 3 weeks 22% more than females, which indicates more severe injuries. In soccer, females injured their toe 17% more than males and sustained 19% more fractures. This could be due to the fact that females were injured while kicking the ball 18% more than males. The most notable findings in basketball were that females sustained 20% more knee injuries and were out for greater than 3 weeks due to injury by 15%, implying more severe injuries. Track and Field showed females to have 18% more injuries to the lower leg, while males had 10% more injuries to the pelvis, hip, and groin area.

Comeau, Matthew J. *The effects of cold water immersion on lactate, markers of muscle damage, and delayed onset muscle soreness*, 2000. Ph.D., University of Kansas (Jeffrey A. Potteiger). (208pp 3f $18.00) PE 4279

The effects of cold water immersion (CWI) on lactate (La-), creatine kinase (CK), delayed onset muscle soreness (DOMS), knee range of motion (ROM), one-legged vertical jump (VJ), sit and reach (SR), lower extremity leg volume (Lv), heart rate (HR), and mean arterial pressure (MAP) were examined in fourteen active males. Subjects were randomized into an exercise only (Exer) or an exercise and immersion (Exim) group, with the study lasting 6 consecutive days. Baseline data were collected for all variables. On the second day, an exercise bout consisting of 5 sets of 30 eccentric muscle actions with the quadriceps and hamstrings was completed. The Exim group underwent 5 days of CWI, which consisted of 20 min in 15°C water. Each
subject had seven blood samples collected for La- analysis on the second day. HR and MAP were measured in conjunction with the blood samples. A blood sample was collected at the beginning of each day for CK analysis. DOMS, ROM, VJ, SR, and Lv were measured at 24 h intervals. There was a significant group x time interaction in blood La- concentration, MAP, and IM during the CWI between groups. HR had only a significant main effect. In conclusion, CWI does not decrease blood La- concentration, decrease the presence of muscle damage markers, increase an athlete’s ability to perform, or offer any relief from symptoms associated with unaccustomed eccentric exercise.

Fiala, Kelly A. A survey of team physicians on participation status of hemophiliacs in NCAA Division I athletics, 2000. M.S., Bemidji State University (Muriel B. Gilman). (109pp 2f $12.00) PE 4280

In 1990, guidelines for hemophilic athletic participation were published in The Physician and Sportsmedicine. Since then, medical advances have been made in the area of hemophilic treatment. The purpose of this study was to determine whether team physicians do permit or would permit hemophilic athletes to participate in Division I athletics, based on severity of the disorder, sport type (collision, contact, and non-contact), and effectiveness of DDAVP. The data were collected with a mail survey designed by the researcher. The questions in the survey were considered important in understanding the history of team physicians with hemophilic athletes, the self-established standard that team physicians would follow in the future with regards to hemophilic athletic participation, and the team physicians’ reasoning behind the use of their standards. With the use of the 1999-2000 NDOCA directory, surveys were mailed to all schools with Division I football. A non-response postcard was mailed to those team physicians who did not return the survey to determine the reason for non-response. Of the 231 surveys sent, 66 were returned and analyzed. Sixteen hemophiliacs were reported to have participated in Division I athletics. Several team physicians allowed for hemophilic participation under many circumstances. As severity of hemophilia A and risk of injury due to sport type increased, the number of team physicians to allow participation decreased. The greatest influence considered by team physicians when making decisions was the introduction of DDAVP. Another notable result was the fact that some team physicians were not prepared to make these decisions. In conclusion, hemophilic athletes are currently participating in Division I athletics. Many team physicians, having not been faced with the decision before, are willing to let hemophiliacs participate. Therefore, guidelines with regards to hemophilic athletic participation should be revised, including prevention and treatment strategies to assure proper care of the hemophilic athlete.

Hornyik, Maria L. The effects of 3-months of foot orthotic wear on measures of postural stability in persons with chronic injury and normal lower limb function, 2001. Ph.D., Oregon State University (Rod A. Harter). (157pp 2f $12.00) PE 4316

Under-researched somatosensory contributions to postural stability, in addition to high incidences of foot injury in the physically active population, led to two investigative studies. An initial research study compared variables of two postural stability assessment devices to determine reliability of outcome measures and commonality of outcome measures to dynamic postural control. A second study assessed which measures of postural stability were effective in differentiating between injured persons using foot orthotics and non-injured persons, and also compared effects of 3-month foot orthotic usage on measures of postural stability among three groups. In the first study, 23 healthy subjects tested on two separate occasions one-week apart, counterbalancing the testing order. Intraclass correlation coefficients (ICC) and Pearson product moment correlations were calculated and analyzed. In the second study, 15 patients diagnosed with plantar fasciitis or medial arch sprain were given custom orthotics and matched with 15 non-injured subjects given custom orthotics, and 15 healthy control subjects on gender, age, height, and body mass index. All 45 subjects were assessed on five postural stability tests (12 dependent variables) on seven occasions over a four-month period. Repeated measures MANOVA was employed to evaluate group, time, and interaction effects for the outcome variables (α =0.05). Test-retest reliability, in the first study, ranged from moderate to high (ICC2,1 = 0.71 to 0.92) for all outcome measures. Pearson correlations revealed four statistically significant relationships (p<.05) between outcome measures. Pearson correlations revealed four statistically significant relationships (p<.05) between outcome measures. Post hoc univariate analyses demonstrated six variables with group main effects and three variables with time main effects. Interaction effects in post hoc analysis were non-significant. The moderate to high test-retest reliability observed for outcome measures in the first study is encouraging. Correlations between device outcome measures, while statistically significant, were low enough to suggest that each device provided unique information regarding postural stability. Results from the second study provide strong evidence that foot orthotic wear affects postural stability over time. The nature of test protocols suggests that functional postural stability testing aids in assessing effectiveness of foot orthotics.

Rogers, Jason W. Increased ice massage application pressure results in increased calf skin numbing, 2001. M.S., Brigham Young University (Kenneth L. Knight). (78pp 1f $6.00) PE 4333
The purpose of this study was to determine if there is a difference in sensation of pressure resulting from increased ice massage application pressure. A search of the literature indicated that there is no scientific data concerning the effects of ice massage application pressure. We used a 4x4 repeated measures design, with time and treatment condition as independent variables. Sixteen volunteer college students participated in this study. The treatment area was a 10x10 cm square, directly over the calf muscle belly. Sensation of pressure was measured with Semmes-Weinstein monofilaments before and 1, 7, and 15 minutes after each treatment (control, ice massage with no additional application pressure, ice massage with 5 lbs of application pressure, and ice massage with 10 lbs of application pressure). Skin temperature measurements were taken with an Isothermex (Columbus Instruments, Columbus, OH) at 10-second intervals. Sensation decreased during treatment and gradually returned toward baseline following treatment. There was no difference in baseline sensation between treatment conditions, or during the control treatment. Sensation of pressure between treatments following ice massage was inversely related to pressure of application, was most pronounced at 1 minute, and less so at 15 minutes. Possible explanations for the inverse relationship between ice massage application pressure and decreased calf skin sensation are: increased application force during ice massage may decrease the mechanoreceptors stimulation, resulting in preferential inhibition of light touch sensation; increased application pressure may increase compression on nerves, causing a decrease in nerve conduction velocity and sensation; or deep tissues may be cooled more completely with increased application pressure.


To examine the effects of scapular muscle strength on static stability and dynamic function of the upper extremity, thirty-one wrestlers and gymnasts were tested for scapular strength, dynamic function, and static stability. Lower and middle trapezius strength significantly correlated with dynamic function ($r = -.411$ and $r = -.522$, respectively). A multiple regression analysis revealed that middle trapezius strength significantly predicted dynamic function ($F(1, 28) = 10.879)$. No strength values were significantly correlated with static stability, yet there was a significant correlation between static stability and dynamic function ($r = .529$). Results suggest that the lower and middle trapezius play a role in shoulder function. Therefore, the clinician should consider strengthening exercises for these muscles during shoulder rehabilitation. Results also suggest that static stability is related to dynamic shoulder function. Clinically, benefits from static rehabilitation exercises may transfer to shoulder dynamic function.

Webster, Jason M. Skinfold measurement: assessment of the reliability of health/fitness instructors, 2001. M.S., Eastern Washington University (Wendy Repovich). (82pp 1f $6.00) PE 4317

The purpose of this study was to assess fitness instructors on their ability to produce reliable measures of skinfold thickness. All subjects (N=24) were approached by the researcher and asked to participate in this study and were required to sign an informed consent prior to testing. All subjects were required to be authorized by their respective employers to evaluate skinfold thickness of their clients. Each subject was asked to use the Lange skinfold caliper to assess the skinfold thickness of the two subjects provided, one male and one female. It was emphasized to the subjects that they only measure those skinfold sites that they measure on a regular basis or that they felt they could measure with confidence. This is due to the fact that past research has shown that experience is a key factor in the reliability of skinfold measurement (Brodie, 1988; Oppliger, Tipton, & Looney, 1987; Scherf et al., 1986; Wagner & Heyward, 1999). In order to determine reliability of measurements, each subject completed the test a second time within a week of the first test. Results for intraobserver reliability were poor, showing that there was a significant difference between measurements taken at all of the skinfold sites. The statistical analysis failed, however, since some of the sites, upon closer examination, had low values for both standard deviation and typical error (SEE). The values for intraobserver reliability revealed no significant differences for within-subject measurements, supporting the data as being reliable. In this analysis, the data again failed to show true conclusions, since data on some of the sites supported poor intraobserver reliability. This study concluded that even though the subjects were reliable within themselves (intraobserver reliability), there was a significant difference between the measures of the subjects as a group (interobserver reliability). This can be used as evidence to promote the standardization of the skinfold sites and the measurement procedure. In addition, it is recommended that periodic practice sessions be promoted in order to keep fitness professionals knowledgeable in the locations of the skinfold sites and in the procedures of measurement.
PHYSIOLOGY AND EXERCISE EPIDEMIOLOGY

Blegen, Mark. The immunological responses to exercise of varying intensities in normoxic and hypoxic environments, 2001. Ph.D., Kent State University (Ellen L. Glickman). (245pp 3f $18.00) PH 1743

The purpose of this study was to investigate the effects of hypoxia on immunological, metabolic, hormonal, and thermoregulatory responses during and after prolonged, moderate, and high intensity exercise. Nine (n=9) male subjects participated in the study. Participants underwent two maximal aerobic capacity tests (VO2max) prior to the initiation of the experimental trials, one VO2max test under normoxic conditions, the other VO2max under mildly hypoxic conditions (Inspired oxygen concentration=14.65%). Participants exercised for 60 minutes under four different experimental conditions (order randomly assigned and trials separated by at least seven days): 1) 40% normoxic VO2max in a normoxic environment, 2) 40% hypoxic VO2max in a hypoxic environment, 3) 60% normoxic VO2max in a normoxic environment, and 4) 60% hypoxic VO2max in a hypoxic environment. There were no significant differences between normoxic and hypoxic environments or intensities for TNF or IL-1. Also, no significant differences were observed in glucose, glycerol, cortisol, and epinephrine. However, significant differences were observed for free fatty acids (p<0.05) and norepinephrine (p<0.05). It is concluded that exercise of moderate and high intensities in both normoxic and mildly hypoxic environments elicits similar responses in the immune system.


The study was designed to investigate the effects of whole body precooling on subsequent running performance. Whole body precooling was hypothesized to reduce thermoregulatory strain on subjects performing maximal subsequent exercise, thereby enhancing running time. Ten male subjects completed two maximal 1-mile run trials separated by 45-min of thermoneutral and precooling recovery on two different occasions. Thermoneutral post-test 1-mile run times were significantly (p<.05) slower than precooling post-test 1-mile run times. Mean RPE values for the 1-mile run trials in thermoneutral conditions were significantly (p<.05) higher than mean RPE values for the precooling 1-mile run trial. Mean RPE values for laps (1, 2, 3, and 4) across the two treatment groups were found to be significantly (p<.05) different. Blood lactate values, measured post thermoneutral recovery, were not statistically significant (p>.05) when compared to blood lactate values following pre-cooling recovery. In conclusion, whole body precooling may be a beneficial method for increasing running performance in subsequent trials, with less thermoregulatory stress.


Several studies have documented the associations between lower extremity muscle co-contraction and walking energy expenditure, lower extremity muscle strength and walking energy expenditure, and lower extremity muscle co-contraction and lower extremity muscle strength. However, no single study has observed all three variables in relation to each other at the same time. The purpose of this study was to quantify interrelationships among thigh muscle co-contraction, quadriceps muscle strength, and the aerobic demand of walking in thirteen children with spastic, hemiplegic cerebral palsy (CP). Each subject was asked to report to the laboratory on three separate occasions. During Session 1, subjects were familiarized with testing procedures, given 5 minutes of treadmill walking practice, and completed the quadriceps muscle strength test. In Session 2, subjects completed three 5-min walking bouts on the treadmill at 0.67 m•s⁻¹ in order to further accommodate to treadmill ambulation. During the final session (Session 3), subjects walked at 0.67, 0.89, and 1.12 m•s⁻¹ for 5 minutes while energy expenditure and thigh muscle co-contraction were measured. Results of the study show that no significant relationship is present between net VO₂ or EEIHR and measures of thigh muscle co-contraction or quadriceps muscle strength. In addition, thigh muscle co-contraction was not shown to be associated with quadriceps muscle strength. Furthermore, thigh muscle co-contraction and quadriceps muscle strength only explained 13.5%, 6.2%, and 2.2% of the variance in VO₂ at 0.67, 0.89, and 1.12 m•s⁻¹, respectively. Viewed in concert, these results suggest that the walking energy expenditure of children with hemiplegic CP is not influenced by the level of thigh muscle co-contraction or quadriceps muscle strength.

Kerksick, Chad M. Effects of protein & amino acid supplementation on training adaptations, 2002. M.S., University of Memphis (Richard Kreider). (91pp 1f $6.00) PH 1747

This study examined whether whey protein supplementation (w/casein or BCAA and glutamine) affects performance and body composition adaptations during resistance-training. Methods: 44 resistance-trained subjects (36M, 8F: 31±8 yrs, 81±16kg) participated in a standardized 10-week resistance training program. In a double blind and randomized manner, subjects supplemented their diet with
either 48g/d of a carbohydrate placebo (CHO); 40g/d of whey protein + 8g/d of casein (W), or 40g/d of whey protein +3 g/d BCAA + 5 g/d L-glutamine (WBG). At 0, 5, and 10 weeks of supplementation, subjects performed 1RM tests on bench press (BP), leg press (LP), maximal repetition tests at 80% of 1RM on BP and LP, 30-sec anaerobic capacity sprint, had body mass measured, and had body composition determined via DEXA. Dietary records were recorded every two weeks and training volume was calculated from training logs. Data were analyzed by repeated measures ANOVA. No significant differences were observed among groups in energy intake, training volume, and anaerobic power. Training significantly increased 1RM strength and muscular endurance. Although trends were seen, W and WBG supplementation did not promote any further adaptations in BP or LP 1RM compared to CHO. Significant interactions (p<0.05) were observed among groups in total scanned mass, lean mass, and fat free mass with no differences in fat mass or body fat %. Post-hoc analysis revealed that group W experienced greater gains in body mass, lean mass, and fat free mass during training. No further training adaptations were seen in group WBG compared to group CHO and W. In conclusion, W and WBG supplementation may affect resistance-training adaptations and W supplementation promoted greater gains in body mass, lean mass, and fat-free mass.

LaBreche, Jane M. *Metabolic specificity in outrigger canoe paddlers*, 2001. M.S., University of British Columbia (D. C. McKenzie). (42pp 1f $6.00) PH 1736

Leg drive is encouraged in paddling to increase power per stroke. When involving additional muscle mass during exercise, it can be expected that the metabolic demand would also increase. Treadmill (TM) and paddling ergometer (PEL), with leg drive (PEL) and with no leg drive (PENL), incremental testing to fatigue was recorded in 22 healthy male subjects. Eleven experienced outrigger paddlers, with leg drive (PEL), and with no leg drive (PENL), maximal repetition tests at 80% of 1RM on BP and LP, 30-sec anaerobic capacity sprint, had body mass measured, and had body composition determined via DEXA. Dietary records were recorded every two weeks and training volume was calculated from training logs. Data were analyzed by repeated measures ANOVA. No significant differences were observed among groups in energy intake, training volume, and anaerobic power. Training significantly increased 1RM strength and muscular endurance. Although trends were seen, W and WBG supplementation did not promote any further adaptations in BP or LP 1RM compared to CHO. Significant interactions (p<0.05) were observed among groups in total scanned mass, lean mass, and fat free mass with no differences in fat mass or body fat %. Post-hoc analysis revealed that group W experienced greater gains in body mass, lean mass, and fat free mass during training. No further training adaptations were seen in group WBG compared to group CHO and W. In conclusion, W and WBG supplementation may affect resistance-training adaptations and W supplementation promoted greater gains in body mass, lean mass, and fat-free mass.

The study was designed to investigate the effects of phosphate loading on 2,3-β-diphosphoglycerate (2,3-DPG) and oxygen delivery. The ingestion of the calcium phosphates for 3 days was hypothesized to decrease time required for a 3-mile run. Eight male subjects completed the 3-mile run on two occasions. Prior to one occasion, the subjects ingested the placebo, and, on the other, calcium phosphate was ingested (1 g, 4 times a day for 3 days). Blood was drawn to measure levels of 2,3-DPG and a pulse oximeter was used to measure oxygen saturation. In the phosphate condition, the subjects ran the 3 miles in less time than in the placebo condition ($p=.01$; $M_{	ext{phosphate}}=22.02$ min, $M_{	ext{placebo}}=20.56$ min). The concentration of 2,3-DPG was significantly ($p=.00$) higher in the phosphate condition than in the placebo condition. The concentration of 2,3-DPG was significantly ($p=.00$) higher post-exercise than pre-exercise. Oxygen saturation was significantly ($p=.00$) lower post-exercise than pre-exercise, but no significant ($p=.69$) differences were seen between the phosphate condition and the placebo condition. In conclusion, calcium phosphate supplementation is advantageous to run performance when used under the same conditions as the present study.


The insulin response to exercise has been assessed during walking, cycling, and running; however, the data about swimming are inconclusive. The purpose of this project was to study the response of insulin and blood glucose to a 30-minute swim at 65% of maximal oxygen uptake, divided into three 10-minute segments, with a ~1-minute rest in between. Ten healthy active (27±5 years old) volunteers conducted a protocol to estimate the velocity for their 30-minute swim. During the swim, blood samples were taken 10 minutes before the exercise and after each 10-minute segment. Blood glucose concentration remained unchanged from resting values throughout the swim. Insulin concentrations were significantly lower at 20 and 30 minutes of swimming compared to rest concentration. It was concluded that a minimum of 20 minutes of continuous moderate intensity swimming was needed to cause an acute decrease in insulin concentration.


Oxygen free radical molecules are abundant in aerobic tissues, threatening the structural and functional integrity of nearly every cellular macromolecule, often by stealing unpaired electrons from non-radicals. Free radical mediated damage is associated with a wide range of human conditions, including heart disease, arthritis, aging, and cancer. Many of these highly reactive chemical species are created secondarily to normal aerobic respiration, through electron transport chain leakage, and show increased levels during intense physical exercise. The most common oxygen free radicals associated with voluntary exercise include superoxide (O$_2^-$), hydrogen peroxide (H$_2$O$_2$), and hydroxyl radicals (OH$^-$). The association between elevated oxygen consumption and radical production has raised questions regarding the role of chronic submaximal exercise (i.e., endurance training) as a potential risk factor for numerous free radical associated ailments. While aerobic cells are endowed with a broad chemical defense system to counteract the effects of free radicals, exogenous and endogenous antioxidant capabilities are challenged by increased radical production. Prominent antioxidants include the enzymes glutathione peroxidase, superoxide dismutase, and catalase, and the non-enzymes glutathione and vitamins E and C, among several others. During exercise, skeletal muscle tissue accounts for the majority of total oxygen uptake and may thus experience the most direct free radical assaults. Recent research has found that endurance training up-regulates several antioxidants in skeletal muscle cells, providing the potential for enhanced protection from oxygen free radicals. This adaptation is suspected to be stimulated either directly by intermittent increased radical concentrations or indirectly by the presence of various indicators of radical-induced damage. Skeletal muscle antioxidant up-regulation depends upon the overall magnitude of the training load and appears to be highly fiber specific, increasing only in the most oxidative fiber types. Furthermore, evidence suggests that increased antioxidant capacity associated with endurance training does indeed help to minimize the deleterious effects of oxygen free radicals. Although continued research is warranted, endurance training induced skeletal muscle antioxidant adaptation may significantly affect the manifestations of such conditions as aging and cancer. The deleterious effects of aging, associated with the accumulation of free radical mediated damage over time, may be minimized through the antioxidant adaptation to training. Also, the incidence of cancer, which is often triggered by free radical damage to DNA, may be reduced through a sound endurance exercise training program.


Serotonin levels in the brain increase in response to prolonged exercise. Cortisol and adrenocorticotropic hormone (ACTH) contribute to the regulation of metabolism during exercise. With prolonged exercise, variable cortisol responses have been documented, including
elevated and suppressed levels. The purpose of this study was to determine a) if a serotonergic mediation of the HPA axis response to fatiguing exercise exists, and b) how this response affects endurance performance. Ten male subjects ran to volitional fatigue at a speed corresponding to their ventilatory threshold. Blood samples were taken at rest, fatigue, and 30- and 60-min into recovery. Cortisol, ACTH, and serotonin increased from rest to fatigue for all ten subjects; however, only cortisol levels were significantly related to performance time. Serotonin was not significantly correlated with either hormone at fatigue. No relationship was found between serotonin and the HPA axis during exercise that would affect endurance performance.

Shoeppe, Todd C. Contractile function of single muscle fibers from chronically resistance trained humans, 2001. M.S., Oregon State University (Jeffrey J. Widrick). (85pp If $6.00) PH 1741

Resistance training is widely prescribed for rehabilitation of injuries and as a method to improve athletic performance. It is accepted that resistance training increases the maximal force production of whole muscle and it has been suggested that the velocity of shortening can increase as well. However, little is known about the effects of resistance training at the cellular level. Therefore, we investigated morphology, force production, velocity, and force-velocity-power relationships of single chemically skinned muscle fibers from chronically resistance trained humans, including cross sectional area (CSA), peak Ca$^{2+}$-activated force production (Po), specific tension (Po/CSA), unloaded shortening velocity (Vo), and isotonic contractions. The untrained group (NT) consisted of sedentary males (n=6, age=27±2 yrs) while the chronically trained (CHRT) group consisted of males with 7.7±0.4 yrs resistance training experience (n=6, 22±1 yrs). Maximum voluntary isometric and isokinetic knee extensor strength were measured along with 6 repetition maximum (6RM) free weight bench press and leg press. Muscle biopsies were obtained from the vastus lateralis. Chemically skinned single muscle fibers were mounted between a force transducer and servo-controlled motor and subjected to slack tests to determine peak Ca$^{2+}$-activated force (Po) and unloaded shortening velocity (Vo). Isotonic load clamps were used to determine the force-velocity-power relationship. All fiber experiments were performed at 15°C Celsius. Fiber myosin heavy chain (MHC) content was determined by gel electrophoresis. The CHRT group was 119% and 81% stronger for 6RM leg press and bench press, respectively. Peak isometric torque was 28% greater for the CHRT subjects and was significantly higher at all isokinetic speeds tested. No differences were seen in strength or isokinetic power between groups after normalization for lean body mass. CHRT fibers (n=213) expressing type I, IIa, and IIa/IIX MHC were significantly greater in CSA (+41%, +51%, and +33%, respectively) and produced significantly greater Po (+37%, +48%, and +34%, respectively) than NT fibers (n=236). However, Po/CSA was not different between CHRT and NT groups. Fibers expressing type IIa/IIX characteristics produced greater Po/CSA than IIa which produced greater Po/CSA than type I. The Po/CSA relationship between fibers within groups was type IIa/IIX>IIa>1 and was significant for both groups. Fiber Vo was not different between groups. Absolute power was significantly greater in the CHRT for all fiber types, whereas power normalized for fiber volume was not different between groups. This resulted in a significantly greater force at peak power for all but type IIa/IIX fibers, and trends for greater velocity at peak power. Single-cell contractile function in terms of Vo and Po/CSA, measured under standardized conditions, appears to be unaltered as a result of long-term CHRT in young adult males. Group differences in absolute Po can be attributed solely to the greater CSA of the CHRT fibers. Long-term CHRT is not associated with a difference in fiber Vo. Therefore, the greater power was due entirely to the greater force. These data suggest that differences in whole muscle strength and power between NT and CHRT groups are primarily due to differences in fiber CSA rather than to differences in cross-bridge mechanisms of contraction. (Supported by National Institute of Health grant R3AR46392A.)

Smith, Jason M. Cordyceps sinensis (Cordyceps sinensis does not improve endurance performance in male competitive cyclists, 2001. M.S., Brigham Young University (Shane S. Schulthies). (146pp 2f $12.00) PH 1746

The objective of this study was to test the endurance effects of an herb, Cordyceps sinensis (Cordyceps sinensis) does not improve endurance performance in male competitive cyclists, during a five-week period. This study followed a randomized, double-blind pre-test-post-test design. The independent variable was a capsule supplement (placebo or Cordyceps sinensis). Maximum oxygen uptake (VO$_{2peak}$), time to complete endurance time trials, and ventilatory threshold (VT) were measured as dependent variables. Thirty male endurance trained cyclists, ranging in age from 18 to 35 years, participated in the study. Twenty-two subjects completed the study. Each subject performed 5 exercise trials: a pre- and post-VO$_{2peak}$ test, a familiarization trial, and a pre- and post-endurance timed trial test. All testing was performed at a similar time of day for each subject, with at least 3 days between exercise trials. Subjects’ cycling hours per week were controlled. We pre-tested, supplemented for 37 days while subjects maintained their training, and post-tested. We measured VO$_{2peak}$ time (endurance timed trials) and VT before and after a supplement period, and compared measurements. Subjects’ cycling training was assessed during the first week of supplementation and then maintained through weekly training logs for the remainder of the study. To insur
consistent training, we met weekly with each subject to check cycling training logs. Results showed no significant differences between pre- and post-test VO2peak endurance timed trials, and/or V̇E measurements between the placebo (PLA) and Cordymax Cs-4 (CS) groups. Overall, CS did not provide any endurance performance improvements in male competitive cyclists after a supplementation period.


The purpose of this investigation was to determine the effect of a single bout of strenuous resistance exercise on resting metabolic rate (RMR) in resistance-trained (RT) and untrained (UT) subjects. Ten RT and ten UT healthy male subjects (mean±SE; age=27.4±1.2 yr; height=175.8±1.9 cm; body weight =80.6±1.9 kg; fat free weight =65.5±1.1 kg; body fat =18.5±1.3 %) were measured for RMR and ratings of perceived muscle soreness (RPMs), and five subjects in each group were measured for creatine kinase (CK) activity on four consecutive mornings. On the first testing day following baseline RMR measurement, each subject performed a bout of resistance exercise comprised of 3 sets of 12 repetitions at 70% of one repetition maximum (1-RM) for 8 different lifts. RMR was significantly elevated for UT subjects when measured at 12h post-exercise. CK for UT subjects were significantly elevated for up to 6h and remained elevated for up to 60h post exercise. RPMs for UT subjects were significantly elevated for up to 60h post exercise. RT subjects did not show significant elevations in these variables following the exercise bout. Results indicate that the resistance-exercise bout induced prolonged elevation in post-exercise RMR for up to 12h in UT subjects. Muscle damage caused from the bout of resistance exercises may partially contribute to elevations in post-exercise RMR.

**HEALTH AND HEALTH EDUCATION**

Allen, Sandra H. *The relationship between dietary folate intake and baseline folate and homocysteine levels in mildly to moderately obese individuals*, 2001. M.A., University of North Carolina, Chapel Hill (Bonita L. Marks). (60pp 1f $6.00) HE 712

This study examined the baseline values of serum folate, tHcy, and RBC folate in subjects compared to normative health values, and examined relationships between serum folate, tHcy, RBC folate with dietary intake, BMI or percent body fat, and serum folate or RBC folate with tHcy levels. One-sample t-tests revealed no difference in tHcy levels compared to normative health values (9.06±2.09; p=0.103); however, serum folate and RBC folate differed significantly from health-normative values (18.2±8.28; p<0.001; 553.26±124.66; p<0.001, respectively). Pearson Product Moment Correlations did not reveal any significant relationships between serum folate, RBC folate, or tHcy with dietary folate, body fat, or BMI (r<0.37). No significant relationship was observed between serum folate or RBC folate with tHcy (r=-0.545; -0.2548, respectively). In conclusion, mildly to moderately obese healthy individuals do not appear to be at increased risk for CAD due to deficiency of dietary folate intake, serum folate, or RBC folate related to tHcy levels, a marker for CAD risk.

Angermeier-Howard, Lisa K. *Parental perceptions of the health education needs of their adolescent children with disabilities*, 2000. Ph.D., Indiana University (Kathleen R. Gilbert). (217pp 3f $18.00) HE 708

This research project focused on health education needs of students with disabilities, as perceived by their parents. Data were collected through in-depth interviews with parents of adolescent children with disabilities, using a multidimensional definition of health. The data were analyzed using an emergent coding system. Analysis began upon completion of transcripts from the first interview. In the analysis of the physical dimension of health, several different categories were discussed, such as safety needs, medical needs, and sexuality needs. In the social dimension, several categories emerged, such as relationships at school, obstacles to those relationships and how to address the obstacles, and relationships outside of school and in the community. Emotional and mental dimensions were combined into an all-encompassing psychological dimension. The spiritual dimension and parental coping also emerged as important components of health education needs. These components were combined to form a new metaphor for conceptualizing health education for adolescents with disabilities that is more descriptive and accurate to their experiences. It is hoped that this metaphor will be refined through further research to improve health educators’ understanding of the importance of health education for adolescents with disabilities.

Bailey, Bruce W. *Change in physical activity intensity predicts change in percent body fat*, 2001. M.S., Brigham Young University (Larry A. Tucker). (71pp 1f $6.00) HE 719

The purpose of this study was to determine the extent to which objectively measured physical activity (PA) and intensity of physical activity (INT) predict changes in percent body fat (BF%) over 20 months in middle-aged women. All subjects were age 35-45 at baseline (mean=40.0 yrs), pre-menopausal, non-smokers, and had BMI’s of <30. There were two assessments, one at baseline and another approximately 20 months later. Each assessment consisted
of 7 consecutive days of monitoring. Computer Science and Applications (CSA) accelerometers were worn to provide an objective measure of PA and INT. BF% was assessed using the Bod Pod. To examine the association between PA and changes in body fat, subjects were divided into three groups based on changes in body fat (increased, maintained, and decreased), then differences in CSA activity counts were compared across groups. To examine INT, subjects were divided into intensity categories in which they accumulated at least seven 10-minute epochs during the test week (70+ minutes duration) at a given intensity range. Change was calculated by subtracting follow-up values from baseline values. Over the 20-month period, mean PA decreased 5.2%, BF% increased 1.1 percentage points, weight increased 0.78 kg, and energy intake decreased 94.5 kcal/day. Those who increased their PA over the 20 months tended to decrease in BF% (F=5.20, P<0.01). Those who increased INT (F=4.48, P=0.02) or maintained INT (F=2.68, P=0.05) experienced attenuated increases in BF% compared to those who decreased INT. Clearly, physical activity and intensity of physical activity play major roles in the management of body fat in middle-aged women.

Bonica, Jaime L. *The effects of proximity and prompts on stair use*, 2001. M.S., Springfield College (Tina M. Manos). (142pp 2f $12.00) HE 714

The current study was designed to determine the effects of proximity and prompts on stair use. Individuals (N=16,690) were observed in a public shopping mall using stairs and escalator under four different conditions that varied with regard to proximity and health promotion sign exposure. The researcher found StairsNEAR/No Sign and StairsNEAR/Sign were significantly (p<.05) greater than StairsFAR/No Sign and StairsFAR/Sign. StairsNEAR/No Sign was not significantly (p>.05) different from StairsNEAR/Sign, and StairsFAR/No Sign was not significantly (p>.05) different from StairsFAR/Sign. A significant (p<.05) difference was found between the overall mean percentage of males and females who used the stairs, with a greater percentage of females using the stairs than males. A significant (p<.05) difference was also found between the overall percentage of individuals who used the stairs vs. escalator, with a greater percentage of individuals using the escalator than the stairs. Based upon the results of this study, proximity increased stair use, while the health promotion sign did not. Furthermore, a greater percentage of individuals chose to use the escalator and a greater percentage of females chose to use the stairs.

Campbell, Kristin L. *Body changes in women undergoing chemotherapy for breast cancer*, 2001. M.S., University of British Columbia (Don McKenzie). (67pp 1f $6.00) HE 720

Contrary to general assumptions about the effects of cancer treatment, women undergoing adjuvant chemotherapy treatment for breast cancer tend to gain weight rather than to lose it. This weight gain has implications for other health outcomes, disease-free survival, and psychosocial sequelae. Changes in body composition, resting metabolic rate, physical activity, dietary intake, and menopausal status have all been associated with this weight gain. The purpose of this study was to better understand the mechanism of the weight gain by looking at the impact of possible body composition changes and changes in resting metabolic rate that occur with adjuvant chemotherapy treatment. Weight, resting metabolic rate, and menopausal status were measured prior to treatment, and with each cycle of chemotherapy in a group of five women (mean age 49.2±5.4 years; mean weight 75.2±17.8 kg) undergoing adjuvant chemotherapy for stage I-IIIA breast cancer. Body composition was measured prior to the start of chemotherapy and after the last cycle, using dual-energy x-ray absorptiometry. One-way repeated measures ANOVA did not show any significant difference in weight or resting metabolic rate throughout treatment; however, plots of the mean effect showed an increase in weight over time and a decrease in resting metabolic rate during treatment, which returned to pre-treatment levels post treatment. However, the combined slopes of individual regression lines did not differ from zero. Average weight gain was 1.9 kg (range 2.71 to 6.81). No significant changes in body composition were found; however, a 2.5% increase in total percent body fat, and 3.5% increase in trunk percent body fat approached significance, along with a loss of left arm lean mass and gain in left leg lean mass. All participants became amenorrheic during treatment, except one, who was post-menopausal prior to treatment. In conclusion, participants tended to gain weight with treatment. The most striking association was the development of chemotherapy induced amenorrhea, which has been linked to changes associated with natural menopause, namely weight gain, a loss of lean mass, gain of fat mass, and change in fat distribution.


This study determined if estrogen (E) use (in the form of hormone replacement therapy [HRT]) has a protective effect on muscle damage in post-menopausal women. Nine post-menopausal women performed two exercise bouts at 70% of their maximal heart rate on HRT (EHIGH) and without HRT (28 day washout; ELow). Creatine kinase (CK), delayed onset muscle soreness (DOMS), and muscular strength (FORCEMAX) were taken pre-exercise, 24, 48, and 72 hours post exercise. EHIGH and ELow trials produced a rise in CK (p<0.001); but CK after EHIGH was greater than in ELow (p>0.006) at 24 hours (p<0.001) and at 48 hours.
Ellis, Marjorie K. Factors that influence the physical fitness of deaf children, 2001. Ph.D., Michigan State University (Gail M. Dummer). (139pp 2f $12.00) HE 716

Maintaining appropriate fitness levels and participating in regular physical activities are associated with many positive health benefits, including improved stamina, ability to complete daily physical tasks, and reduction of risk factors related to various diseases and disabilities (Rowland, 1999). These particular healthy lifestyle behaviors are important to deaf children, given the general consensus that this group has demonstrated lower physical fitness levels than their hearing peers (Goodman & Hopper, 1992). However, the reasons deaf children, as a group, have performed lower on physical fitness tests have not been researched or identified. The purpose of this study was to investigate factors that influence the physical fitness of deaf children. A group of 51 deaf children in grades first through fourth from regular and special schools participated in this study. Participants had a minimum hearing loss of 55 dB in the better ear and did not possess any multiple disabilities. A modified version of the Fitnessgram test was used to measure physical fitness. Parents/guardians and school personnel completed surveys related to the child’s school placement, participation in physical activity, and physical education participation, as well as to hearing loss/status information for both the parent and the child. Analysis of variance (ANOVA) and multiple regression procedures were used to identify relationships between independent and physical fitness variables, and to determine which factors most strongly predicted the physical fitness performance of deaf children. Results indicated that participation in regular physical activities and parents’ hearing status influenced the overall physical fitness of deaf children. Children who participated in at least three regular physical activities per week performed significantly better on all physical fitness measures with the exception of the trunk lift, than did children who participated in fewer activities per week. Parents’ hearing status was determined to be an influential factor in that 80% of the children with two deaf parents participated in three or more regular activities per week, compared to 37% of those with at least one hearing parent. The primary implication of this study is that parents of deaf children should be educated about their influence as role models for healthy lifestyle behaviors. Education should be aimed at those parents who are sedentary and those who may have apprehensions about the child’s participation in physical activities, with the focus being on getting the deaf children involved in regular physical activity participation.

Fong, Sunny Y. Effects of Qigong on blood pressure and hemodynamics in patients with hypertension, 2001. M.S., Springfield College (Tina M. Manos). (158pp 2f $12.00) HE 715

The purpose of this investigation was to determine the effect of Qigong on blood pressure and hemodynamics in patients with hypertension. Nine females and 2 males aged 51 to 77 years who were taking antihypertensive medications participated in the study. The current study consisted of two phases, each of which was divided into a treatment and a control condition. In the first phase of the study, participants in the treatment condition received Qigong training and those assigned in the control condition received no intervening treatment. However, during the second phase of the study, those who were previously assigned to the control condition received Qigong training and those previously assigned to the treatment condition discontinued Qigong practice. A 1-week washout period occurred between the first and second phases of the study. Condition x time (2x2) repeated measures ANOVAs revealed no significant interactions between condition and time (p>.05). However, significant main effects for time were found in cardiac output (p<.05) and systemic vascular resistance (p<.05); all other main effects were not significant. The researcher concluded that the duration for Qigong training was insufficient to produce a significant effect on blood pressure and hemodynamics in patients with hypertension.

Galatas, Mary. The effect of steroid dose regimen on the relationship between lower extremity muscle function and cardiac function in post heart transplant patients, 2001. M.S., University of North Texas (David W. Hill). (81pp 1f $6.00) HE 709

Differences in cardiovascular/aerobic function in heart transplant patients might be attributed to the rate of corticosteroid withdrawal and/or to skeletal muscle function. This hypothesis was tested among nine male, cardiac transplant recipients. Prednisone dosage was monitored, and isokinetic strength testing was performed at 2-3 weeks post-surgery, 8-9 or 14-15 weeks post-surgery, 26 weeks post-surgery, and 52 weeks post-surgery. Cardiovascular/aerobic function measurements (stress tests) were obtained at 52 weeks post-surgery. Pre-surgery characteristics were obtained from the patient’s medical record. There was no significant relationship between Pearson product moment correlations of prednisone dosage and cardiovascular performance, or between...
prednisone dosage and muscle function. However, there were significant correlations between muscle function and cardiovascular function, and between pre-surgery characteristics and cardiovascular performance. Thus, the results of this study provide no evidence to support the hypothesis that rapid reduction of prednisone dosage enhances cardiovascular function by benefiting skeletal muscle function.

Henderson, Shonteh L. Effects of Coleus Forskohlii supplementation on body composition and markers of health in sedentary moderately overweight females, 2002. M.S., University of Memphis (Richard Kreider). (70pp 1f $6.00) HE 721

This study investigated the effects of Coleus Forskohlii on body composition, and determined the safety and efficacy of supplementation. In a double blind and randomized manner, 23 females supplemented their diet with ForsLean™ (250 mg of 10% Coleus Forskohlii [CF] extract, (n=7) or a placebo [P]) (n=12) two times per day for 12 wks. Body composition, body weight, and psychometric measurements were obtained at 0, 4, 8 and 12 weeks of supplementation. Fasting blood samples and dietary records (4-d) were obtained at 0 and 12 wks. Side effects were recorded on a weekly basis. Data were analyzed by repeated measures ANOVA and are presented as mean changes from baseline for the CF and placebo groups, respectively. Results: CF tended to mitigate gains in body mass (-0.7±1.8, 1.0±2.5 kg, p=0.10) and scanned mass (-0.2±1.3, 1.7±2.9 kg, p=0.08) with no significant differences in fat mass (-0.2±0.7, 1.1±2.3 kg, p=0.16), fat free mass (-0.1±1.3, 0.6±1.2 kg, p=0.21), or body fat (-0.2±1.0, 0.4±1.4 %, p=0.40). Subjects in the CF group tended to report less fatigue (p=0.07), hunger (p=0.02), and fullness (p=0.04). No clinically significant interactions were seen in metabolic markers, hemodynamic markers, body lipids, muscle and liver enzymes, electrolytes, thyroid hormones, insulin, or weekly reports of side effects. Results suggest that CF may help mitigate weight gain in overweight females with apparently no clinically significant side effects.


The purpose of this study was to examine the relationship of employees’ perceptions of the motivational climate to the components of intrinsic motivation as well as their perceptions of the employer’s concern for their health behaviors in a corporate wellness environment. One hundred and forty-three members of 3 corporate wellness centers (64% M, 35% F; 38±9 yrs.) completed a 54-item questionnaire concerning their perceptions of the motivational climate at the center and their levels of intrinsic motivation. The Perceived Motivational Climate in Sport Questionnaire-2 and Intrinsic Motivation Inventory were adapted to pertain to a corporate wellness environment. Five items termed “Valued by Employer” were also added to the questionnaire. Positive significant correlations were observed between a task involving climate and effort/importance (EFF/IMC), interest/enjoyment (INT/ENJ), perceived competence (PERCOM), and Valued by Employer (VAL/EMP) (p=.01). Employees’ perceptions of an ego-involving climate were significantly and negatively correlated with EFF/IMC, INT/ENJ, and PERCOM, while significantly and positively correlated with tension/pressure (p=.01). Regression analyses indicated that perceived motivational climate explained 15.8% (INT/ENJ), 13.1% (EFF/IMC), 10.1% (PERCOM), and 17.9% (VAL/EMP) of the variance in intrinsic motivation, respectively. How members perceive the motivational climate in their corporate wellness center to some degree explains their levels of intrinsic motivation (INT/ENJ, EFF/IMC, and PERCOM) and sense of value by their employer (VAL/EMP).

Hinton, Samantha J. Cross-validation of a high-fat diet behavior questionnaire, 2001. M.S., Brigham Young University (Steven G. Aldana). (52pp 1f $6.00) HE 723

To determine if a high-fat diet behavior questionnaire (FHQ) is a valid predictor of percent dietary fat intake, a cross-validation was done using a 7-day weighed food log as the criterion standard for percent fat intake. Subjects included 110 healthy females between 35 and 45 years of age, selected from those already participating in a large lifestyle research project. Individual data were randomly assigned to a modeling cohort (n=80) or an out-of-sample test cohort (n=30). Nutrition values calculated from the food logs included total fat, total calories, saturated fat, monounsaturated fat, polyunsaturated fat, trans-fatty acids, carbohydrate, fiber, insoluble fiber, soluble fiber, cholesterol, and protein. Correlations between each subject’s FHQ score and their diet results were conducted. Significant correlations were found for several nutrition variables. A regression model developed on the modeling cohort was applied to the out-of-sample test cohort. The FHQ was a valid predictor of percent dietary fat intake (r²=.18, SEE = 6.06%) and highly sensitive at finding actual fat intake >30%.


Self-determination theory suggests that social contexts that promote a sense of autonomy, competence, and relatedness will increase internalization of behavioral regulation and lead to more self-determined forms of motivation, the prototype of which is intrinsic motivation. A positive relationship between internalization of exercise behavior
regulation and actual levels of exercise has been supported in the exercise domain; however, the manipulation of social contexts to elicit greater internalization of exercise behavior regulation has received little attention. The purpose of this study was to examine the effect of a mail-mediated intervention, designed to promote perceptions of autonomy, competence, and relatedness, on exercise behavior in adults. Additionally, this study examined the effect of a booster postcard that emphasized the main points of the initial intervention on the continuance of exercise behavior. Participants were 185 adults initially classified in the preparation stage of exercise behavior. Participants were randomly divided into intervention only (INT), intervention plus booster (INTB), and control (CONT) groups. Both intervention groups received a four-page intervention packet of printed materials, while the control group received an American Heart Association physical activity and health facts packet of similar length. After 1 month, the INTB group received a booster postcard that emphasized the focal points of the initial intervention packet. All participants completed self-report measures of perceptions of autonomy, perceptions of competence, perceptions of relatedness, exercise behavior regulation, and exercise behavior at baseline, 1 month, and 2 months. One hundred twenty-six participants completed questionnaires at all three time periods. A 3 (INT/INTB/CONT) X 2 (male/female) X 3 (baseline/1 month/2 months) repeated measures analysis of variance revealed that all three groups significantly increased exercise behavior over the 2-month period; however, no significant interactions were detected. A 3 (INT/INTB/CONT) X 2 (male/female) X 3 (baseline/1 month/2 months) repeated measures multivariate analysis of variance conducted for perceptions of autonomy, competence, and relatedness, revealed no significant interactions. Structural equation modeling techniques used to examine the pattern of theoretical relationships among variables did not support the pattern of relationships suggested by self-determination theory, but rather suggested that perceptions of competence mediated the relationship between self-determined exercise motivation and exercise behavior.

Manns, Patricia J. Physical activity, hormone replacement therapy, and insulin resistant coronary artery disease risk factors in postmenopausal women, 2001. Ph.D., Oregon State University (Daniel P. Williams). (110pp 2f $12.00) HE 718

Low physical activity levels and high serum C-reactive protein (CRP) levels are risk factors for coronary artery disease (CAD) in men and in women. However, postmenopausal women who take hormone replacement therapy (HRT) may have increased risk of CAD because of HRT-related increases in serum CRP. There are two manuscripts in this dissertation. The purpose of the first manuscript was to determine whether higher physical activity energy expenditure was associated with lower serum CRP, independent of oral HRT status and body fatness, in 133 postmenopausal women. Higher physical activity energy expenditures were significantly associated with lower serum CRP levels (r=-0.21, p=0.019), independent of oral HRT use, age, smoking behavior, alcohol consumption, aspirin use, and statin use. However, in the complete multivariate model, which included body fat, the association between higher physical activity and lower serum CRP levels was abolished. The purpose of the second study was to quantify the biological variability of insulin resistant CAD risk factors in a sample of 8 postmenopausal women. Risk factor outcomes, including serum total cholesterol, serum triglycerides (TG), serum high-density lipoprotein cholesterol (HDL-C), serum glucose, plasma insulin, serum CRP, waist and hip circumferences, abdominal sagittal diameter, body fat, systolic (SBP) and diastolic blood pressure, and self-reported physical activity energy expenditure, were measured on two occasions, 7-12 days apart. High absolute biological variability values (by standard error of measurement) were observed for serum TG (32.0 mg/dl), serum CRP (5.6 mg/l), SBP (4.0 mmHg), and physical activity (9.4 kcal/kg/week). High relative biological variability (by within-subjects coefficient of variation ≥27.3%) was also observed for serum TG, serum CRP, and physical activity. Bland-Altman plots identified individual outliers for serum TG, serum CRP, plasma insulin, and SBP. Together, the results suggest that the correlations between lower levels of serum CRP and higher levels of physical activity, though significant, may have been attenuated by the high biological variability of serum CRP and physical activity. Thus, the importance of higher levels of physical activity, in decreasing serum CRP and the concomitant risk of heart disease, may be underestimated in the absence of serial measurement of serum CRP and physical activity.

Parker, Lorenzo. Effectiveness of a progressive resistance training program on work productivity and muscular strength among adult males with mental retardation, 2001. Ph.D., Michigan State University (Gail M. Dummer). (201pp 3f $18.00) HE 710

This study was designed to investigate the effects of a 9-week progressive resistance-training program on work productivity and muscular strength among adult males with mental retardation (MR). Data were collected on: (a) work productivity using the simulated work tasks of hand-truck push and box stacking; (b) work productivity using “on-site” work tasks (assembly work, dishwashing, mail sorting, and custodian) in jobs that were held by the participants; and (c) muscular strength as determined by one repetition maximum lifts using Nautilus, Universal, and Icarian weight machines. The research design used for this study was a single-subject ABA applied behavior analysis that was replicated for each of four adult males with MR age 25 to 29 years. The participants’ performance
levels were assessed once every week during the 5-week baseline, the 9-week treatment, and the 6-week retention periods. During the treatment period, participants were involved in a twice-a-week progressive resistance training program using leg extension, leg curl, chest press, biceps curl, triceps extension, and abdominal curl weight-lifting exercises. Front-lying chest lifts using the participants’ body resistance were used for strengthening back muscles. The 9-week intervention period was divided into 3 phases. The first phase lasted for a period of 2 weeks (4 sessions) and included 2 sets of 12 repetitions of each of the 6 strength-training exercises with low resistance of 30% to 40% of participants’ 1-RM lifts. The second phase of the intervention lasted for a total of 3 weeks (6 sessions) and involved lifting 3 sets of 8 repetitions of each exercise with a moderate increase in the amount of resistance set at 50% to 60% of participants’ 1-RM lift. The third and final phase of the lifting program was 4 weeks (8 sessions) and included 4 sets of 6 repetitions of lifting with an increased resistance of 70% to 80% of each participant’s 1-RM lifts. Data were collected and visually analyzed using the split middle technique. Visual analyses involved comparison of the participants’ celeration and trend lines of the strength and work productivity data. Results indicated that participants showed improvements in both muscular strength and the simulated work tasks of box stacking and hand truck push. It was concluded that participation in a 9-week resistance-training program improved participants’ muscular strength on the simulated work tasks. The results did not reveal significant improvements in productivity for the on-site work tasks as a result of increased strength. This may have been due to inadequate instrumentation for assessing productivity at participants’ actual jobs. Recommendations for future studies are also provided.

Penrod, Christy A. Measuring the relevance of evaluation criteria for health information on the Internet, 2000. M.S., Brigham Young University (Michael D. Barnes). (97pp 1f $6.00) HE 711

This study identified criteria valued among Internet users when rating and accessing health information on the Internet. Twelve hundred and ninety employees working for Idaho National Engineering and Environmental Laboratories were contacted via e-mail and invited to participate in a Web-based survey. Five hundred and seventy-eight participants successfully completed the survey by ranking the value of 12 criteria for evaluating health information on the Internet, rating the quality of three pre-selected health-related Web sites, and indicating their preference for one of the three sites. Participants ranked attribution, documentation, and authority of source as the most important criteria. Design and aesthetics were the least important. Other less important criteria included: contact addresses, intended audience, and content. Using binary logistic regression, six criteria including content, design and aesthetics, currency of information, intended audience, contact addresses, and user support were found to be significant predictors for selecting high-quality health information on the Internet. The authors found that Internet users’ habits in selecting high-quality health information on the Internet don’t necessarily reflect the evaluation criteria they value most. This study identified the implications and utilization of evaluation criteria for Internet users, health education professionals, and future Web-site developers.

Perego, Ugo A. M. Age, lifestyle, health risk indicators, and prostate-specific antigen scores in men participating in the World Senior Games, 2001. M.S., Brigham Young University (Ray M. Merrill). (53pp 1f $6.00) HE 724

The purpose of this study was to assess the relationship between demographics, behaviors (tobacco, alcohol, and physical activity), and screening (cholesterol, blood pressure, blood sugar, and percent body fat) with prostate-specific antigen (PSA) scores. Analysis was based on 536 men aged 50 years and older completing a questionnaire and receiving free screening, including PSA, at the 1999 Huntsman World Senior Games in St. George, Utah. A positive relationship between age and PSA is consistent with other studies in this area ($p<0.0001$). Race, marital status, education, history of chronic disease, cigarette smoking, alcohol use, and physical activity were not related to PSA scores. Further, none of the personal risk factors measures (i.e., cholesterol, blood pressure, blood sugar, and percent body fat) were related with PSA after adjusting for age.

Rezmovitz, Jeremy J. The effects of a lower body resistance-training protocol on static balance and well-being in older adult women, 2002. M.S., University of British Columbia (Ted Rhodes). (75pp 1f $6.00) HE 725

Studies in the area of balance have shown that the hip girdle musculature is involved in one of the main strategies employed in regaining balance. It has also been shown that 12-week strength training programmes undertaken at any age can show modest improvements in strength and profound effects in functional independence. The purpose was to examine the relationship between lower body function in the muscles associated with the hip girdle, static balance, and well-being in a 12-week training programme. A quasi-experimental design was used. Forty-four women aged 70 and older volunteered for the control ($n=22$, mean age =76.10±3.54 [SD]) or training group ($n=22$, mean age =76.16±4.24). Subjects were tested on 2 functional lower body tests, a timed two-legged squat (TLS), and a timed chair stand (TCS). Static balance was assessed using timed platform stability under 3 different conditions, with eyes open and closed, and well-being was assessed using a self-report questionnaire. Subjects in the
training group were allotted to supervised training workouts consisting of 1-hour stretching and strengthening programmes 3x/wk for 12 weeks. Subjects in the control group were asked to maintain their daily routines and not participate in additional activities. Thirty-eight women completed the study (n=20, nT =18) and a 2x2 ANOVA with repeated measures on one factor demonstrated a statistically significant effect in the TLS (p<0.001) and TCS (p<0.001). As well, of the six conditions tested for balance, only one condition (Eyes closed, psi=4.0) demonstrated a significant difference (p=0.026) between groups. Other statistically significant results were demonstrated only within the training group from weeks 0-6 (p=0.044) in condition B (Eyes open, psi=2.5), and from weeks 6-12 (p=0.019) in condition F (Eyes closed, psi=4.0). Results of the questionnaire from the training group were all positive and suggest that undertaking a strength-training programme can improve one’s well-being.

**RECREATION AND LEISURE**


The study presented here challenges traditional recreation research perspectives and appeals to the dynamic, emergent, and complex nature of recreation experiences through an exploration of visitor stories. From this exploration we have learned that unique opportunities to observe wildlife and view natural scenery are at the heart of the winter experience in Yellowstone National Park (YNP), regardless of the mode of experience (snowmobiling, cross-country skiing, or snowcoach touring). The study reveals that mode of experience plays an important role in shaping the ways in which visitors experience wildlife and natural scenery within the Park. This examination also shows that few visitors feel crowded in YNP. Issues such as behavior of other visitors, and the presence of motorized use, had more of an impact on social conditions than did the sheer number of visitors in the Park. Finally, data illustrate that, in order for managers to gain support for management change in YNP, they must demonstrate good science as a basis for that change and clearly articulate how management actions will improve conditions within the Park. The challenges YNP management faces in providing for quality experiences, and past research findings, pose several questions that served as the impetus for this study. First, what factors of YNP’s winter setting are important to the experience and why? Second, what is the nature of recreation experiences within that setting? Finally, how do visitors perceive management change? Past research tells us that recreation experiences are highly complex, subjective, and are inherently dynamic. These characteristics and the aforementioned guiding questions demand an in-depth and holistic exploration of the nature of the visitor experience in YNP’s winter setting. To accomplish this, a qualitative research approach was taken in this study. Ninety-three visitor stories were collected on ten days at four sites in YNP. The interview followed a “directed conversation” format in which three themes—the nature of the experience, perceptions of conditions, and support for management actions—were addressed. The analysis included data organization, data interpretation, and theory building. The results are broken into four broad themes embedded in the data: 1) YNP’s unique winter setting, 2) the nature of recreation experiences in YNP’s winter setting, 3) perceptions of social conditions, and 4) participant support for management actions.

**PSYCHOLOGY**

Beam, Joel W. Preferred leadership of NCAA Division I and II intercollegiate student-athletes, 2001. Ed.D., University of North Florida (Thomas Serwatka). (177pp 2f $12.00) PSY 2218

The purpose of this study was to examine the differences of student-athletes’ preferred leadership behavior for their coaches based on their own gender, competition level, task dependence, and task variability. Four hundred and eight male and female student athletes from four NCAA Division I and six Division II universities expressed their preferences using the Revised Leadership Scale for Sport (RLSS) (Zhang, Jensen, & Mann, 1997). The preference version of the RLSS included six behavior dimensions, autocratic, democratic, positive feedback, situational consideration, social support, and training and instruction behaviors. A split-plot ANOVA was performed on the individual preference scores grouped by gender, competition level, task dependence, and task variability for the six dimensions of coaching behavior. The ANOVA also computed interactions. Fisher’s LSDs were performed on all significant interactions. Among genders, the ANOVA demonstrated a significant gender by level interaction for democratic behavior. Fisher’s LSD failed to detect any significant interactions. Among competition levels, the ANOVA demonstrated a significant task dependence by level interaction for autocratic behavior. Division I independent sport student-athletes had significantly higher preferences than those in Division II. A significant task variability by level interaction revealed Division I open sport student-athletes had significantly greater preferences for autocratic behavior than did those in Division II. Results also demonstrated a significant task dependence by level interaction for democratic behavior. Division I independent sport student-athletes showed significantly
greater preferences for democratic behavior than Division I interdependent sport student-athletes, and Division II independent sport student-athletes showed significantly greater preferences than did Division II interdependent sport student-athletes. Independent sport student-athletes, regardless of gender or competition level, showed significantly greater preferences for democratic, positive feedback, situational consideration, and social support behaviors. Results also indicated a significant task variability by level interaction for autocratic behavior. Division I open sport student-athletes had significantly greater preferences for these coaching behaviors than did Division I closed sport student-athletes. Open sport student-athletes, regardless of gender or competition level, had significantly greater preferences for democratic, positive feedback, and social support behaviors. Results demonstrate support for a portion of the multidimensional model of leadership (Chelladurai, 1979; 1990), with differences in behavior preferences based on student-athlete characteristics of competition level, task dependence, and task variability. Results may aid in the evaluation of coaching behavior and method, and in defining training preparation programs that would enhance the congruence between student-athlete behavior preferences and actual coaching behaviors. Results suggest the use of the multidimensional model of leadership and related instruments for future investigations of sport leadership behavior.

Brown, Dee A. Competitiveness and commitment to running as predictors of collegiate cross-country performance, 2001. M.S., Springfield College (Lynn Couturier). (118pp 2f $12.00) PSY 2214

The intent of the researcher was to determine if competitiveness and running commitment were valid predictors of cross-country running performance. The participants (N=121) were male collegiate cross-country athletes from the eleven member schools of a Midwestern collegiate athletic conference. The participants completed the Sport Orientation Questionnaire (SOQ; Gill & Deeter, 1988), the Commitment to Running (CR; Carmack & Martens, 1979) Scale, and a demographic questionnaire, 1-5 days prior to the Conference 8 km Cross-country Championship Meet. Competitiveness, commitment, body mass index, and years of experience all correlated significantly with race finish time. The regression equation predicting race finish time was statistically significant, F(4, 58)=6.93, p<.01, R²=.32. Body mass index was a significant positive predictor and years of experience was a significant negative predictor of race finish time. Varsity athletes with more experience and a lower BMI ran faster cross-country times. Suggestions for future research were also discussed.

Cowie, Lora S. Relationship between male cyclists’ sport clothing involvement, sport clothing interests, and commitment to cycling, 2001. M.S., Ohio State University (Marsha Dickson and Sharon Lennon). (250pp 3f $18.00) PSY 2226

The purpose of this study was to examine the relationship between male cyclists’ sport clothing involvement, sport clothing interests, behavioral commitment, and psychological commitment. This study also sought to understand how male cyclists utilize their sport clothing to enact their role as cyclists and to clarify the relationship between brand name and sport clothing interests. Role theory was the theoretical framework guiding this study. Survey research methods were used with a sample of 84 licensed road racing male cyclists. Quantitative data collected from questionnaires were used to study the relationships between sport clothing involvement, sport clothing interests, and sport commitment. Qualitative data collected from 20 in-depth interviews were utilized to understand how male cyclists use clothing for role enactment and the relationship between brand name and sport clothing interests. The quantitative data indicated that male cyclists who are more involved with cycling clothing tend to be more interested in the status and brand aspects of cycling clothing. Also, male cyclists who are more behaviorally committed to cycling tend to be more interested in brand name cycling clothing and clothing that exhibits their status as a cyclist. Male cyclists who spent more time riding and participating in races were found to be more psychologically addicted to cycling. The qualitative data indicated that clothing that enhances performance is the most important clothing interest of male cyclists, while brand name is a secondary clothing interest. Cyclists associate brand name with quality. Male cyclists realize that brand name cycling clothing provides the necessary performance enhancing elements plus the benefit of quality. Product symbolism is equally important to male cyclists at levels of high and low behavioral commitment, but is used differently by the two groups. Less experienced male cyclists utilize cycling clothing to symbolically display their role, fit into the cycling community, and enhance their status as cyclists. Highly experienced male cyclists use cycling clothing to communicate skill level and team prestige, and to elevate the status of the sport in attempts to symbolically justify their achieved role as successful athletes and to receive social recognition.

Fetteroll, Carl. Cohesion and performance relationships in intercollegiate coaching teams, 2001. M.S., Springfield College (Lynn Couturier). (96pp 1f $6.00) PSY 2215

The relationship between team cohesion and performance outcome, and performance outcome and subsequent perceived cohesion levels, was analyzed among intercollegiate men’s gymnastics teams. The intent of the researcher was to study the cohesion-performance relationship in co-
acting teams. The teams (N=5) completed the Group Environment Questionnaire (GEQ; Widmeyer, Brawley, and Carron, 1985) before and after a major sectional championship. The teams were then ranked for each of the four subscales of the GEQ (Widmeyer et al., 1985) before and after the championship. These rankings were compared to the final rankings of the teams in the championship. Eight Spearman Rank Order correlation coefficients were calculated and no significant relationship was found. Implications for future research include the degree of task type, from co-acting to interacting. There are teams that fall inside the spectrum (baseball, softball) that exhibit co-acting and interacting tendencies. Gender differences warrant further investigation (Matheson, Mathes, and Murray, 1997).

Keeler, Linda A. The differences in sport aggression, life aggression, and life assertion among adult male and female collision, contact, and non-contact sport athletes, 2000. M.A., University of Maryland (Donald H. Steel). (116pp 2f $12.00) PSY 2213

This study was intended to investigate differences in aggression and assertion across varying degrees of contact sports for women and men. Positive linear relationships have previously been found between amount of sport contact and athletic aggression scores in male athletes. This study was designed to compensate for previous research inadequacies by comparing both female and male collision, contact, and non contact sport athletes across sport hostile aggression, sport instrumental aggression, life aggression, and life assertion. The Bredemeier Athletic Aggression Inventory - Short Form (BAAGI-S), the Rathus Assertiveness Schedule (RAS), and three aggression subscales of the Buss-Durkee Hostility Inventory (BDHI) were administered to female and male rugby, soccer, and volleyball players. It was hypothesized that men’s sport hostile and life aggression would increase as a function of sport contact level. Similarly, women’s life assertion was predicted to increase with degree of sport contact. Men were expected to have higher levels of life and sport hostile aggression than women. Results indicated that sport hostile aggression, sport instrumental aggression, life assertion and total life aggression did not vary among different contact sport types. There were no gender differences found between sport hostile, sport instrumental, and total life aggressions. Men scored significantly higher than women on the life assertion scale and the assault aggression subscale. Women scored significantly higher than men on the indirect aggression subscale. For both men and women, life aggression was positively related to sport hostile aggression and negatively related to sport instrumental aggression. Women’s life assertion was positively related to their life aggression.

Kimball, Grayson T. Self-efficacy and locus of control in high school athletes, 2001. D.P.E., Springfield College (Mimi Murray). (185pp 2f $12.00) PSY 2221

Investigating the psychological constructs of self-efficacy and locus of control in high school athletes may lend evidence to possible determinants of successful athletic performance. The participants for this investigation included high school male and female, varsity and junior varsity athletes (N=377), who responded to the Physical Self-Efficacy Scale (PSES; Ryckman, Robbins, Thornton, & Cantrell, 1982) and the Sport Multidimensional Locus of Control Scale (SMLOC; Persson, 1987). From the results of the confirmatory factor analysis, a number of goodness of fit statistics were used and provided evidence of an acceptable model fit for a revised 2-factor version of the SMLOC. A significant (p< .05) positive relationship existed between the global PSES scores (Ryckman et al., 1982) and the “Internal” (INT) subscale of the revised SMLOC. A significant (p<.05) negative relationship existed between the global PSES scores (Ryckman et al., 1982) and the “External” (EXT) subscale of the revised SMLOC. A significant (p<.05) main effect was found for gender for high school athletes. Males appeared to have higher scores on the Physical Self-Presentation Confidence subscale of the PSES (Rychman et al., 1982) and the EXT subscale of the revised SMLOC. Locus of control may be better understood through two dimensions (INT/EXT) in the sport setting.

MacDougall, Stephanie A. Intrinsic motivation and participation in sport as perceived leisure, 2000. M.S., Western Illinois University (Katharine Pawelko). (60pp 1f $6.00) PSY 2227

The purpose of this study was to explore the degree to which intercollegiate athletes were intrinsically motivated to participate in their sport. Assessing the nature and quality of intrinsic motivation, with respect to participation in athletics may help in understanding the athlete’s perception of sport participation as leisure. Athletes (N=146) from two Midwestern colleges completed the Sport Motivation Scale, which assessed three subscales of intrinsic motivation: 1) intrinsic motivation to know (IMTK a=.86); 2) intrinsic motivation toward accomplishments (IMTA a=.80); and 3) intrinsic motivation to experience stimulation (IMTES a=.77). ANOVA and Tukey’s post hoc analyses revealed that (a) Division I athletes had statistically higher levels of IMTK and IMTA than Division III athletes, (b) Division I non-funded athletes had statistically higher levels of IMTK and IMTA than Division III non-funded athletes, and (c) no gender differences exist.

Rose, Elaine A. Motivational and affective responses to exercise: issues for adherence and the role of causality orientations, 2001. Ph.D., University of Wales, Bangor (Gaynor Parfitt). (250pp 3f $18.00) PSY 2225
This series of studies set out to investigate the effect of self-determination and the individual differences that are present in motivational orientation on exercise behaviour and the affective and motivational responses to exercise. Deci and Ryan’s (1985) self determination theory (SDT) and its sub-theories, cognitive evaluation theory (CET) and causality orientations theory (COT), were used as the theoretical basis. The purpose of the research was to provide an indication of the exercise environment that would encourage the most positive responses and would promote the adoption and maintenance of regular exercise in individuals with different motivational orientations. The first study examined the effect of increased self-determination on affective and motivational responses to acute exercise. Results showed that increased self-determination made no difference to the affective response or to intrinsic motivation following exercise, although individuals chose to exercise at a higher intensity when given freedom of choice. Additional analyses showed that pre-exercise levels of affect influenced the response to exercise, as did individual differences with respect to motivational orientation. These individual differences were explained in terms of causality orientations and became the focus of the remainder of the thesis. Study two addressed the measurement of causality orientations specific to exercise. A measurement tool to assess causality orientations specific for exercise (the ECOS) was developed and was shown to be factorially valid and reliable; support was found for its concurrent validity. The third study was an intervention using the ECOS to investigate the interaction between causality orientations and the exercise environment on exercise behaviour. Psychological responses to regular exercise were measured at the situational and contextual level. Comparisons were made between individuals whose exercise environment was either supportive or not supportive of their predominant causality orientation and a control group. It was concluded that providing a matched exercise environment did not influence exercise behaviour. All individuals achieved and maintained the same levels of exercise. However, differences did emerge in psychological responses. Situational, being autonomy oriented, or in an autonomy supportive environment, provided the most positive affective and motivational responses. Contextually, levels of autonomy, self-determined regulation, and intrinsic motivation increased irrespective of causality orientation or exercise environment. Limitations of the research were discussed. Conclusions and future research based on an integration of the results of all three studies are presented with reference to SDT and COT, along with the applied implications of the research with respect to exercise promotion.

Tower, Kimberly E. Sport achievement orientation and goal setting of college student-athletes, 2001. M.S., Springfield College (Mimi Murray). (138pp 2f $12.00) PSY 2216

The study was designed to explore the relationships among sport achievement orientation and goal setting of Division III cross-country and soccer student-athletes (N=520). Lower “Win Orientation” and higher “Goal Orientation” were hypothesized to be associated with higher goal setting frequency and effectiveness. Acceptable alpha reliability coefficients would support the internal consistency of the Collegiate Goal Setting in Sport Questionnaire (CGSSQ; Weinberg et al., 1993), which was used to assess goal setting. In addition, the Sport Orientation Questionnaire (SOQ; Gill & Deeter, 1988) was administered to assess sport achievement orientations. Significant (p<.05) relationships existed among “Win Orientation” and process and product-related goal setting frequency and effectiveness. Relationships among “Goal Orientation” and goal setting frequency and effectiveness were significant (p<.05). Alpha reliability coefficients supported the unidimensionality of each subscale for the CGSSQ (Weinberg et al., 1993). Further research is needed to confirm the validity and reliability of the CGSSQ (Weinberg et al., 1993) and to explore individual goal setting preferences.

Tracey, Jill. The emotional response to the injury and rehabilitation process, 2001. D.P.E., Springfield College (Lynn Couturier). (207pp 3f $18.00) PSY 2217

The investigation was designed to examine the emotional response of the injury and rehabilitation process. The participants were ten college-level athletes from Division III institutions who had sustained a moderate to severe injury. The participants were interviewed three times (at onset of injury, 1 week post injury, and 3 weeks post injury) and they responded to a series of writing stems on each occasion. The focus of the investigation centered on the cognitions and affect expressed, and the personal and situational factors that may influence the emotional response to an injury. The themes that emerged from the responses revolved around the fluctuations in emotions characterized by feelings of loss, decreased self-esteem, frustration, and anger. Thoughts and affect changed over time to view the injury as a challenge, which participants approached with a positive attitude. The experience of the participants was acknowledged as a process in which they learned about themselves and the many emotions involved with being injured. An understanding was gained about the complexity of the experience, which can help researchers and practitioners in assisting injured athletes and facilitating a more effective recovery.
MOTOR LEARNING AND CONTROL

Garry, Michael I. The control of spatially constrained unilateral and bilateral movements: hemispheric and callosal contributions, 2001. Ph.D., University of British Columbia (Ian Franks). (158pp 2f $12.00) PSY 2209

When a person performs an arm movement that requires concurrent activity of the contralateral arm, it is common to observe a decrement in performance relative to when the same task is performed in isolation (Ohtsuki, 1994). Thus, if a task requires a rapid movement of one arm, that movement will, in general, be executed more quickly compared with a condition where the opposite arm is moved simultaneously (Fowler et al., 1991; Marteniuk & MacKenzie, 1980). Reaction time is similarly affected when simultaneous bilateral actions are performed, with bilateral movements requiring more time for movement initiation (Anson & Bird, 1993; Ohtsuki, 1994). Recently, it has been suggested that the increase in reaction time accompanying bilateral movements might reflect an inhibitory interaction between the motor cortices of the left and right hemispheres through the corpus callosum, resulting in an increase in the time required for muscle activation (Ohtsuki, 1994). Recent studies have provided support for this interpretation (Meyer & Voss, 2000; Taniguchi et al., 2001). Despite empirical support, however, a number of studies have yielded results inconsistent with this proposal in that bilateral movements did not lead to increases in reaction time (Anson & Bird, 1993; Swinnen et al., 1995). We (Garry & Franks, 2000) also reported a failure for reaction time to increase with bilateral movements, but only when the task demanded spatial precision of the right arm. When left arm precision was required, reaction time increases were observed. Because our task involved proximal muscles, which can be controlled through ipsilateral pathways (Berlucchi et al., 1994; Brinkman & Kuypers, 1973), we interpreted this result as evidence that under certain conditions (right arm precision), bilateral movements can be initiated via a single hemisphere eliminating the inhibitory interhemispheric interactions that accompany bilateral movements. Although experiments 1 and 2 were consistent with the predictions of this model, experiment 3 failed to provide support. An alternative model involving premotor cortex mechanisms was proposed.

Ibbotson, Jennifer A. The influence of action requirements on action-centered selective attention, 2001. M.S., University of British Columbia (Romeo Chua). (164pp 2f $12.00) PSY 2210

We have a number of internal mechanisms that are used to effectively handle incoming information in order for proper functioning to occur. Selective attention is defined as “those mechanisms that enable complex perceptual information to be constrained to control specific actions” (Tipper, Lortie and Baylis, 1992). A means of studying this selectivity is to have a person select and act on a target object in the presence of distractor objects—a situation often encountered in our daily interaction with the immediate environment. Tipper et al. (1992) have employed such methods to develop an action-centered model of selective attention, attempting to explain the interaction between objects in the environment and goal-directed action. In previous research examining predictions from an action-centered model of selective attention, the primary focus has been on how reaching movements to selected target objects are affected by the presence and spatial location of distractor objects. The purpose of the present experiments was to investigate the manner in which object and response selection are influenced by the nature of the required action and interaction with objects within a person’s perceptual-motor workspace. Experiment One revealed that selective response preparation and execution were unaffected by manipulation of the engagement properties of the target and distractor objects. Experiment Two investigated how the end goal of the actions afforded by target and distractor objects might emphasize the action requirements and therefore influence the action. Despite a robust distractor effect, the engagement properties of target and distractor objects did not interact to influence action. Taken together, the present results suggest that a distractor object’s action requirement is not a crucial determinant of its potential influence on attention and action.

Lorson, Kevin M. The influence of critical cues and task feedback on qualitative and quantitative measures of the overarm throw, 2001. M.A., Ohio State University (Jackie Goodway). (140pp 2f $12.00) PSY 2222

The purpose of this study was to examine the effectiveness of five critical cues on qualitative and quantitative aspects of throwing for second- and third-grade students. Eighty-one participants were randomly selected from three second-grade and three third-grade classrooms. Participants were randomly assigned to one of four groups based on an even distribution of their body component levels from the initial pre-test. The four groups received different levels of instruction. The STFb group (n=20) received critical cues and feedback regarding the velocity of the throw. The TFB group (n=20) received feedback regarding the velocity of the throw. The task group (n=20) threw the ball hard. The control group (n=21) received no cues or feedback. Throwing data were collected for each participant for four sessions of throwing that consisted of 15 throwing trials. Data were analyzed for each participant qualitatively using the component approach to throwing (Roberton & Halverson, 1984) and quantitatively using maximum ball velocity. The percentage of body component levels was graphed and profile mapping was used to initially determine changes in qualitative performance. A
Chi-Square analysis found significance between group differences for the step components at session 1 (p<.05) and session 4 (p<.01). There were also significant differences found at Session 4 for the trunk (p<.01) and for arm (p<.05) components. A Chi-Square analysis found significance within group differences for the step from pre-test to session 1 (p<.05) and pre-test to session 4 (p<.05). Significant differences were found in the trunk from session 1 to session 4 (p<.05). The step and trunk components were most influenced by the use of critical cues. A 4 X 2 ANOVA with follow-up Tukey HSD found significant effects between the control and STFb (p<.01) group, and the control and the TFb (p<.001) group with respect to maximum velocity scores. These findings can be used to determine the influence of critical cues on throwing performance.

Ong, Cheeri D. *Intracoder and intercoder reliability of the key element scores from the Smart Start locomotor skill key element checklists*. 2001. M.S.Ed., Northern Illinois University (Laurie Zittel). (86pp 1f $6.00) PSY 2224

This study was designed to evaluate the scores of individuals coding the Smart Start locomotor skill key element checklists of 24 pre-school children with varying abilities. Seven locomotor skills were assessed for this study: walk, run, gallop, crawl/creep, hop, jump down, and jump over. The purposes of this study were to establish intracoder and intercoder reliability coefficients for each of the coders using the checklist of key elements. Four practicing teachers and two pre-service teachers attended a training session on the Smart Start locomotor skill key element checklists, and thereafter assessed the videotaped performances of the pre-school children. Proportion of agreement as well as coefficient kappa reported with maximum kappa were computed for each skill and each key element to determine intracoder reliability. Intercoder reliability with the researcher was reported using proportion of agreement and phi coefficients for each skill and each key element. Locomotor skill scores in the walk, crawl/creep, and hop had phi coefficients ranging from .83-1.00, indicating a high degree of intercoder reliability. Phi coefficients for the run, gallop, jump down, and jump over ranged from .52-1.00, suggesting low to almost perfect levels of intercoder reliability. For intracoder reliability, kappa/maximum kappa coefficients for the walk, crawl/creep, and hop ranged from .83/.97-1.00/1.00, suggesting substantial to almost perfect levels of intracoder reliability across days. Kappa/maximum kappa coefficients for the run, gallop, jump down, and jump over ranged from .68/.69-1.00/1.00, suggesting moderately fair to almost perfect intracoder reliability. In order to ensure that educators are trained according to the assessing guidelines of the Smart Start curriculum, training sessions should be scheduled, and training leaders should have established reliability with the Smart Start locomotor checklists. Training workshops should allocate more time in teaching the run, gallop, jump down, and jump over skills and key elements. This would encourage more understanding of the skills that present assessment challenges, and thus enhance reliability of the coders. Having educators who have established good intercoder and intracoder reliability in training ensures that they can accurately and consistently assess the locomotor performances of pre-school children.


Most whiplash injuries are sustained in isolated rear-end collisions which occur without warning. Most studies of whiplash injury, however, have used multiple tests of subjects aware of the imminent perturbation. This thesis examined how multiple exposures and subject awareness of the presence, timing, and amplitude of a whiplash-like perturbation affected the activation and amplitude of the neck muscle response and the peak kinematic response of the head and torso. In experiment 1, the malleability of neck muscle reflexes was examined in 20 subjects (9F, 11M) who performed ballistic flexion and rotation head movements in a warned, simple reaction-time protocol. When a loud startling sound (124 dB) replaced the “go” tone (76 dB), a hypermetric version of the reaction time movement was evoked at the startle reflex onset latency. This result indicated that a reflex neck muscle response could be altered by mental preparation of a movement. In experiment 2, 66-seated subjects (35F, 31M) underwent multiple perturbations with a peak forward acceleration of 1.5g. To their first perturbation, subjects who were deceived and unexpectedly perturbed responded differently from subjects given either exact or inexact information regarding perturbation timing. Advance warning of the perturbation appeared to produce anticipatory facilitation of the sensorimotor system mediating the reflex response. Subjects exposed to ten more perturbations exhibited a rapid habituation of their muscle response and complex changes in their kinematic response. Thirty-six of the 66 subjects (20F, 16M) then underwent 72 more perturbations interspersed with high (2.2g) or low (0.8g) acceleration perturbations. Response differences were not observed between warned and un warns presentation of these different perturbations, which suggested that advance knowledge of acceleration amplitude did not affect subject responses. The remaining 30 subjects (15F, 15M) were exposed to seven different perturbations that showed that neck muscle and kinematic responses were graded to both perturbation acceleration and velocity. These experiments demonstrated that subject awareness of an imminent perturbation and habituation of the muscle response to multiple perturbations produced complex changes in the kinematic response, and suggested that neck muscle and
kinematic responses of unprepared occupants in real whiplash collisions were different from human subject responses observed in most whiplash injury studies.

**SOCIAL PSYCHOLOGY**

Dowhower, Andrea L. *The experiences of female athletes at a women's college and a coed college*, 2000. Ph.D., Ohio State University (Mary Ann Danowitz Sagaria). (368pp 4f $24.00) PSY 2219

Since the passage of Title IX, women's sport has experienced significant changes, including increased opportunities for athletes, change in governance, and reduction in the number of women coaches. Although researchers have examined these changes, few studies examine how the changes have influenced the experience of female athletes. This qualitative case study seeks to explicate the experiences of female athletes at a Division III coeducational college and at a Division III women's college, by looking at institutional culture, athletic program characteristics, institutional attentiveness, approaches to difference, and the nature of the interaction among student athletes and their coaches. The most striking finding of this study is that the two schools are more different than similar in the aspects denoted above. Overall, both colleges provide positive experiences for their female athletes, and each has aspects that enhance and that diminish the experiences of female student athletes. The colleges differ in the following ways: Little has been done at the coed college to accommodate the needs of women, whereas the women's college takes women seriously. The coed college embraces a competitive sport model; the women's college follows an educative sport model. Title IX has directly influenced the coed college and has indirectly affected the women's college. The coed college has difficulty retaining its women's team coaches, negatively influencing the female athletic experience. The coaches at the women's college remain at the institution for extended lengths of time. At the coed school, athletics is valued and formally endorsed; at the women's college, sport is a peripheral activity. At the coed college, difference is minimized; at the women's college, difference is embraced. Female athletes tend to have deeper, more meaningful relationships with their coaches at the women's college than at the coed college. Despite these differences, female athletes at both schools speak strongly about the importance of team affiliation and about the importance of coach-athlete relationships. Evidence suggests that the gender of the coach influences the interpersonal relationship an athlete develops with her coach, including the likelihood of her identifying her coach as a role model.

The literature suggests that lesbian and gay people continue to face discrimination in the United States. This discrimination has a negative effect on the wages of out gay and lesbian people. Although “coming out” is associated with personal benefits, such as less anxiety, greater social support, and increased self-esteem of the lesbian or gay person, the lesbian or gay person must consider the economic risks of “coming out” in the workplace. This type of decision is referred to as a cost-benefit decision, where the lesbian or gay person must weigh the benefits associated with coming out along with the economic (and other) risks. Sport is considered the workplace for professional athletes in this study. For this study, the out professional lesbian athlete is defined as a lesbian professional athlete who is out to all audiences, including the media. To the researcher's knowledge, currently, there are only six out lesbian professional athletes. Six out athletes were approached to participate in this study, and two participated. This study is a multi-case study which explored the coming out process of out lesbian professional athletes and their perceptions of the effects it had, specifically regarding their endorsement opportunities. Badgett's (1996) Economic Model of Workplace Disclosure was used to formulate four research questions: (a) Why did each athlete decide to come out? (b) When deciding whether or not to publicly come out, what was the decision-making process of each athlete? (c) What were the economic and other risks of coming out? (d) What were the benefits of coming out? Athlete interviews were used as the primary source of data for this study, while other sources of data, including documents, were used for triangulation. In analyzing the data, the researcher found differences in each athlete's progression through the stages of the Cass (1979) model, the context of each athlete's coming out situation, and the workplace situation of each athlete. Emerging themes included: homophobia, heterosex image, labels, the protectors, gotta be me, and the bridge builders.

Mickle, Anne R. *An analysis of the psychosocial development of college student-athletes*, 2001. Ed.D., University of Massachusetts, Amherst (Gary D. Malaney). (168pp 2f $12.00) PSY 2223

The purpose of this study was to analyze the psychosocial development of college student athletes and to determine if there are differences within the student-athlete population. Attempts were made to survey the entire student-athlete population at the University of Massachusetts, Amherst (UMass). Of the approximately 700 student athletes at UMass, 335 were surveyed. 280 of these surveys were deemed usable for the purposes of this study, yielding a response rate of 40.0%. Seniors were left out of the final
discussion due to a low response rate of 16%. The response rate for first-year students was 65%, making these results the most valid. The Student Development Task and Lifestyle Inventory (SDTLI) was used to examine psychosocial development on three tasks: establishing and clarifying purpose (PUR), developing mature interpersonal relationships (MIR), and academic autonomy (AA). A number of independent variables were used in examining these tasks, including sex, type of sport, likelihood of a future in the sport, and grade point average (GPA). GPA and future in sport were found to have the most significant relationships with AA and PUR, while sex was the only variable to have a significant relationship with MIR. Four hypotheses were examined in this study. The first found that women had not achieved a higher level of psychosocial development than men. The second found that those in sports without an anticipated future had developed to a higher degree on the PUR task than those in sports with a possible future. This difference is even greater for men than for women. The third hypothesis found that those in team sports were not developed to a higher level on the MIR task than those in individual sports. Finally, the fourth hypothesis supported the idea that those with higher GPAs and those in sports without an anticipated future have developed to a higher level than their student-athlete peers. Greater emphasis needs to be placed on helping student-athletes to succeed in the classroom, therefore allowing them more options outside of athletics.

Olachnovitch, Vonya. *The transtheoretical model of behavior change and social physique anxiety among middle school physical education students*, 2001. M.S., Ball State University (Valerie Wayda). (89pp 1f $6.00) PSY 2211

There is a need to look at the determinants of exercise behavior in adolescents, as there is a large deficit of research concerning this population. The purpose of this study was to examine Social Physique Anxiety (SPA) and the body shape of adolescents participating in a semester of physical education class. A secondary purpose was to create general profiles by combining the SPA information and the Transtheoretical Model (TM) of behavior change. Middle school students (N=374) participated by completing a regularly scheduled physical education class and completing the Exercise Behavior Change Survey (which assessed Body Shape, SPA, and TM) pre- and post-semester. The study revealed participation in class had no effect on SPA levels or Body Shape scores; nor did the study reveal any gender differences with these two concepts. Concerning the TM, SPA may not be a factor for progressing through the stages of change, although it may affect which processes were utilized and how one identifies the pros and cons of exercising. The Social Physique Anxiety Scale only reached an alpha of .50, possibly contributing to the lack of relationship between SPA and TM.
This index includes keywords for titles published in microfiche format by Microform Publications in Volume 15, No. 1 (April 2002).

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

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

**BIOMECHANICS**

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

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

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

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

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## STATISTICS

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40
KEYWORDS

1900H
- Lennon, J. F.
- MacDorman, G. H.

ABDOMEN
- Wood, R. J.

ABDOMINAL WALL
- Wood, R. J.

ACADEMIC ACHIEVEMENT
- Angstrom, A. L.
- Frost, R. E.
- Roedl, E.

ACCIDENT
- Rezmovitz, J. J.

ACHIEVEMENT
- Tower, K. E.

ADAPTATION
- Rubley, M. D.
- Schofer, D.

ADMINISTRATION
- Adkison, J. M.
- Beam, J. W.
- Benton, S. I.
- Davenport, M. A.
- MacDonald, G. H.
- Owiesny, C. L.
- Schaeperkoetter, A. J.

ADOLESCENT
- Angermeier-Howard, L. K.

ADULT
- Parker, L.

ADVERTISING
- Levy, S. S.

AEROBIC CAPACITY
- Keeler, D. J.

AEROBIC TRAINING
- Walker, N.

AGED
- Perego, U. A. M.
- Rezmovitz, J. J.

AGGRESSION
- Keeler, L. A.

AIR
- Blegen, M.

AMINO ACID
- Allen, S. H.
- Kerksick, C. M.

ANECDOTE
- Davenport, M. A.

ANOXEMIA
- Blegen, M.

ANTHROPOMETRY
- Bailey, B. W.
- Dyriw, G. M.
- Webster, J. M.
- Wilson, A. M. R.

ANTIGEN
- Perego, U. A. M.

ANTIOXIDANT
- Schofer, D.

ANXIETY
- Olachnovitch, V.

ARCHIVES
- Su, M. C. Y.

ARM
- Bowman, J. A.
- Lorson, K. M.
- Rubley, M. D.

ART
- Dixon, K.

ASSERTIVENESS
- Keeler, L. A.

ATHLETE
- Angstrom, A. L.
- Cole, A. L.
- Dowhower, A. L.
- Dyriw, G. M.
- Fleming, T. L.
- Hart, K. L.
- Keeler, L. A.
- Kimball, G. T.
- MacDougall, S. A.
- Roedl, E.
- Wah, C. M.

ATHLETIC DIRECTOR
- Benton, S. I.

ATHLETIC TRAINER
- Fisher, J. M.
- Shingles, R. R.

ATTENDANCE
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ATTENTION
- Ibbotson, J. A.

ATTITUDE
- Tower, K. E.

BACKACHE
- Wood, R. J.

BACKWARDS
- Walsh, B. F.

BALL
- Bowman, J. A.

BALL GAME
- Lennon, J. F.

BASEBALL
- Cole, A. L.
- Dyriw, G. M.
- Egbert, P.
- Steele, C. S.

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- Reed, W. P.

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<td>Cowie, L. S. [D, Q, I-DE, FA, RE, AV, %] PSY 2226</td>
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<tr>
<td>DANCE</td>
<td>Dixon, K. [D, CH-DE] PE 4329</td>
</tr>
<tr>
<td>Shumway, J. [D, Q-DE] PE 4325</td>
<td></td>
</tr>
<tr>
<td>DEAFNESS</td>
<td>Ellis, M. K. [D, Q-DE, SCH, MR, G] HE 716</td>
</tr>
<tr>
<td>DECISION-MAKING</td>
<td>Hartung, E. M. [D, I, Q-DE] PE 4310</td>
</tr>
<tr>
<td>DEVELOPMENT MODEL</td>
<td>Steele, C. S. [D, H, I, DA-DE] PE 4315</td>
</tr>
<tr>
<td>DIET</td>
<td>Allen, S. H. [D, Q, L, A-DE, %, T, RPM] HE 712</td>
</tr>
<tr>
<td>Hinton, S. J. [D, Q-DE, %, RE] HE 723</td>
<td></td>
</tr>
<tr>
<td>Wilson, A. M. R. [D, M, Q, A, L-DE, %, G] PE 4318</td>
<td></td>
</tr>
<tr>
<td>Kerkisch, C. M. [D, E, L-DE, RM, AV, AC, G] PH 1747</td>
<td></td>
</tr>
<tr>
<td>Lupia, P. A. [D, Q, DE, AV, T, G] PH 1742</td>
<td></td>
</tr>
</tbody>
</table>


| DISCRIMINATION | Benton, S. I. [D, Q, I, DA-DE, TA] PE 4278 |
| Bruening, J. E. [D, DA, Q, I-H-DE] PE 4319 |
| Shingle, R. R. [D, Q, I-DE, AV, MAV] PE 4313 |
| Stack, R. J. [D, Q, I-DE, %] PE 4326 |

| DIVISION I | Adkison, J. M. [D, M, I-DE, %] PE 4285 |
| Dyriv, G. M. [D, A-DE, AV, TU] PE 4287 |
| Fiala, K. A. [D, Q, %, MAV, RC, TET] PE 4280 |
| Wah, C. M. [D, Q-DE, AV, T, LSD] PE 4291 |

| DIVISION II | Adkison, J. M. [D, M, I-DE, %] PE 4285 |

| DIVISION III | Wah, C. M. [D, Q-DE, AV, T, LSD] PE 4291 |

| Steele, C. S. [D, H, I, DA-DE] PE 4315 |

| EDUCATION | Angstrom, A. L. [D, I-DE] PE 4308 |
| Shingle, R. R. [D, Q-DE, MAV] PE 4313 |
| Shumway, J. [D, Q-DE] PE 4325 |
| Wah, C. M. [D, Q-DE, AV, T, LSD] PE 4291 |

| EFFICIENCY | Wilkins, S. [D, AR-DE, FA, AV, RM, GG, G] PE 4306 |

| ELASTICITY | Hepburn, D. J. [D, AR-DE, RM, AV, %] PE 4330 |

| Hepburn, D. J. [D, Q, AR-DE, RM, AV, %] PE 4330 |
| Walker, N. [D, Q, AR-DE, %, RM, AV, GG, BON, TU, G] PE 4292 |

| Libby, J. L. [D, Q-DE, FA, AV, RM, %] PE 4301 |
| Olachnovitch, V. [D, A, Q, M-DE, RC, AV, G] PSY 2211 |
| Shumway, J. [D, Q-DE] PE 4325 |

| ELIGIBILITY | Roedl, E. [D, Q, DE, %] PE 4288 |

| EMOTION | Tracey, J. [D, I, Q-DE] PSY 2217 |

| EMPLOYEE | Henry, H. R. [D, Q-DE, RC, RPM, MAV, RE, %] HE 722 |

| EMPLOYMENT | Benton, S. I. [D, Q, I, DA-DE, TA] PE 4278 |
| Owiesny, C. L. [D, M, S-DE, %, G] PE 4332 |


| Schofer, D. [D, DEG] PH 1737 |

| ENERGY METABOLISM | Kerkisch, C. M. [D, E, L, A-DE, RM, AV, AC, G] PH 1747 |
LaBreche, J. M.  [D, A, L-DE, %, FA, AV, RM, SCH, RPM, G] PH 1736
Lancaster, S. D.
Smith, J. M.
Yoon, S.

EQUALITY
Benton, S. I.  [D, Q, I, DA-DE, TA] PE 4278
Owiesny, C. L.  [D, M, S-DE, %, G] PE 4332

EQUILIBRIUM

EQUIPMENT
Egbert, P.  [D, DA, Q-DE, FA, AV, RM] PE 4297

ESTROGEN
Dobridge, J. D.  [D, A, Q, L-DE, %, AV, TU, WI, BON, G] HE 713

ETHICS
Hartung, E. M.  [D, I, Q-DE] PE 4310

EVALUATION
Beam, J. W.  [D, A-DE, RE, AV, %] HE 719
Blegen, M.
Bonica, J. L.
Campy, R. M.
Ciccarelli, C.
Cosio-Lima, L. M.
Dobridge, J. D.
Ellis, M. K.
Hepburn, D. J.
Kerscik, C. M.
Levy, S. S.
Melton, A. J.
Rezmovitz, J. J.
Rose, E. A.
Rubin, D. A.
Rubley, M. D.
Seegers, C. A.
Shoeppe, T. C.
Walker, N.
Yoon, S.

EXPERIENCE
Dowhower, A. L.

EXERCISE
Bailey, B. W.
Blegen, M.
Bonica, J. L.
Campy, R. M.
Ciccarelli, C.
Cosio-Lima, L. M.
Dobridge, J. D.
Ellis, M. K.
Hepburn, D. J.
Kerscik, C. M.
Levy, S. S.
Melton, A. J.
Rezmovitz, J. J.
Rose, E. A.
Rubin, D. A.
Rubley, M. D.
Seegers, C. A.
Shoeppe, T. C.
Walker, N.
Yoon, S.

EXPERIENCE
Dowhower, A. L.

FALLING
Rezmovitz, J. J.

FATIGUE

FEEDBACK

FIBRE
Shoeppe, T. C.

FIELD TEST
Wood, R. J.

FILM
Dixon, K.

FILM MAKING
Dixon, K.

FLEXIBILITY
Cavalieri, J. C.

FLEXION
Campy, R. M.

FLORIDA
Steele, C. S.

FOOT
Hornyik, M. L.

FORCE
Campy, R. M.

FORECASTING
Brown, D. A.
Hooker, T. L.

FORWARD
Walsh, B. F.

FRANCHISE
Steele, C. S.

FREE RADICAL
Schofer, D.

FUNCTIONALISM
Galatas, M.

GAELIC ATHLETIC ASSOCIATION
Lennon, J. F.

GAELIC FOOTBALL
Lennon, J. F.

GAELIC GAMES
Lennon, J. F.

GEORGIA
Martin, C. L.

GIRL
Wilson, A. M. R.

GLUCOSE
Lancaster, S. D.

GOAL SETTING
Tower, K. E.

GRAPHICS
Ciccarelli, C.

GROUND REACTION FORCE
Shivitz, N. L.

GROUP COHESION
Fetteroll, C.
Kerksick, C. M. [D, E, L, A-DE, RM, AV, AC, G] PH 1747
Rubley, M. D. [D, AR-DE, FA, RM, %] PE 4354

**ISOMETRIC**
Melton, A. J. [D-DE, %, AV, LSD, G] PE 4331

**ISOMETRIC TRAINING**
Parker, L. [D, JA-DE, TA, G] HE 710
Shoepe, T. C. [D, A, L-DE, %, AV, T, G] PH 1741

**ISOTONIC**
Rubley, M. D. [D, AR-DE, FA, RM, %] PE 4334

**JOBS ANALYSIS**
Beam, J. W. [D, S-DE, AV, FET, LSD, %] PSY 2218
Shingles, R. R. [D, Q, I-DE, AV, MAV] PE 4313

**JUMPING**
Meital, N. [D, Q, A, AR-DE, %, T, CS] PE 4302

**KINETICS**
Trombetta, A. L. [D, A-DE, RPM, %] PE 4290

**KNEE**
Cavalieri, J. C. [D, AR-DE, RM, AV] PE 4293
Ciccarelli, C. [D, AR-DE, %, G] PE 4295
Hepburn, D. J. [D, AR-DE, RM, AV, %] PE 4330
Meital, N. [D, Q, A, AR-DE, %, T, CS] PE 4302

**KNEE JOINT**

**LACTATE**

**LAND USE**
Steele, C. S. [D, H, I, DA-DE] PE 4315

**LATERAL DOMINANCE**

**LATERALITY**

**LAW**
Schaeperkoetter, A. J. [D, DA, JA-DE] PE 4289

**LEADERSHIP**
Beam, J. W. [D, S-DE, AV, FET, LSD, %] PSY 2218

**LEARNING**
Ibbotson, J. A. [D, TC-DE, %, G] PSY 2210

**LEG**
Galatas, M. [D, AR, L, A-DE, RPM, T] HE 709
Meital, N. [D, Q, A, AR-DE, %, T, CS] PE 4302

**LEGISLATION**
Lennon, J. F. [D, COM, DA, P-DE] PE 4283

**LEISURE**
MacDougall, S. A. [D, Q, S-DE, AV, TU] PSY 2227

**LESBIANISM**
Stack, R. J. [D, Q, I-DE, %] PE 4326

**LIBRARY**

**LIFE SATISFACTION**
Hartung, E. M. [D, I, Q-DE] PE 4310

**LIFESTYLE**
Hartung, E. M. [D, I, Q-DE] PE 4310
Keeler, L. A. [D, Q-DE, LSD, RPM] PSY 2213
Mickle, A. R. [D, S, Q-DE, RC, %] PSY 2223

**LIPID**
Hinton, S. J. [D, Q-DE, %, RE] HE 723

**LOADING**
Lupa, P. A. [D, L, Q-DE, RM, AV, T, G] PH 1742

**LOCOMOTION**
Walsh, B. F. [D, AR, M-DE, %, RM, AV, FA, G] PE 4305

**LONGITUDINAL STUDY**
Park, I. H. [D, DA-DE, RPM, G] PE 4324
Shoepe, T. C. [D, A, L-DE, %, AV, T, G] PH 1741

**MAN**
Angstrom, A. L. [D, I-DE] PE 4308
Cole, A. L. [D, Q-DE, %, CS] PE 4286
Keeler, L. A. [D, Q-DE, LSD, RPM] PSY 2213
Parker, L. [D, JA-DE, TA, G] HE 710

**MANUAL**
Schaeperkoetter, A. J. [D, DA, JA-DE] PE 4289

**MARKETING**
Cowie, L. S. [D, Q, I-DE, FA, RE, AV, %] PSY 2226
Steele, C. S. [D, H, I, DA-DE] PE 4315

**MASSAGE**
Cavalieri, J. C. [D, AR-DE, RM, AV] PE 4293
Rogers, J. W. [D, A-DE, FA, MAV, AV, DU] PE 4333

**MEASUREMENT**
Ciccarelli, C. [D, AR-DE, %, G] PE 4295
Webster, J. M. [D, A, AR-DE, RPM, T, G] PE 4307

**MECHANICAL PROPERTY**

**MEDICINE**
Fong, S. Y. [D, E-DE, RM, AV, T] HE 715

**MEMBERSHIP**
Adkison, J. M. [D, M, I-DE, %] PE 4285

**MENOPAUSE**
Dobridge, J. D. [D, A, Q, L-DE, %, AV, TU, WI, BON, G] HE 713

**MENTAL RETARDATION**
Parker, L. [D, JA-DE, TA, G] HE 710

**METABOLISM**
Bailey, B. W. [D, A-DE, RE, AV, %] HE 719
Lupa, P. A. [D, L, Q-DE, RM, AV, T, G] PH 1742

**METHOD**
Libby, J. L. [D, Q-DE, FA, AV, RM, %] PE 4301
<table>
<thead>
<tr>
<th>Topic</th>
<th>Author(s)</th>
<th>Department/College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle Age</td>
<td>Bailey, B. W.</td>
<td>HE 719</td>
</tr>
<tr>
<td>Moral Development</td>
<td>Hartung, E. M.</td>
<td>PE 4310</td>
</tr>
<tr>
<td>Motivation</td>
<td>Henry, H. R.</td>
<td>HE 722</td>
</tr>
<tr>
<td>Motor Control</td>
<td>Garry, M. I.</td>
<td>PSY 2209</td>
</tr>
<tr>
<td>Movement</td>
<td>Lorson, K. M.</td>
<td>PSY 2222</td>
</tr>
<tr>
<td>Muscle</td>
<td>Babul, S.</td>
<td>HE 719</td>
</tr>
<tr>
<td>Muscle Contraction</td>
<td>Keefer, D. J.</td>
<td>HE 714</td>
</tr>
<tr>
<td>Muscle Metabolism</td>
<td>Schofer, D.</td>
<td>PH 1737</td>
</tr>
<tr>
<td>National Association of Intercollegiate Athletics</td>
<td>Adkison, J. M.</td>
<td>HE 708</td>
</tr>
<tr>
<td>National Collegiate Athletic Association</td>
<td>Adkison, J. M.</td>
<td>HE 716</td>
</tr>
<tr>
<td>National Park</td>
<td>Davenport, M. A.</td>
<td>RC 553</td>
</tr>
<tr>
<td>Neck</td>
<td>Siegmund, G. P.</td>
<td>RC 553</td>
</tr>
<tr>
<td>Neuroplasm</td>
<td>Campbell, K. L.</td>
<td>HE 720</td>
</tr>
<tr>
<td>Normoxia</td>
<td>Blegen, M.</td>
<td>HE 1743</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Cole, A. L.</td>
<td>TA PE 4286</td>
</tr>
<tr>
<td>Obesity</td>
<td>Allen, S. H.</td>
<td>PH 1712</td>
</tr>
<tr>
<td>Offence</td>
<td>Reed, W. P.</td>
<td>PE 4304</td>
</tr>
<tr>
<td>Orthotic Device</td>
<td>Hornyk, M. L.</td>
<td>PH 1736</td>
</tr>
<tr>
<td>Outdoor Recreation</td>
<td>Davenport, M. A.</td>
<td>RC 553</td>
</tr>
<tr>
<td>Overhand Throw</td>
<td>Lorson, K. M.</td>
<td>PH 1745</td>
</tr>
<tr>
<td>Oxygen Consumption</td>
<td>Blegen, M.</td>
<td>PH 1743</td>
</tr>
<tr>
<td>Oxycyemoglobin</td>
<td>Lupia, P. A.</td>
<td>PH 1742</td>
</tr>
<tr>
<td>Paddling</td>
<td>LaBreche, J. M.</td>
<td>PH 1736</td>
</tr>
<tr>
<td>Paralysis</td>
<td>Keefer, D. J.</td>
<td>PH 1745</td>
</tr>
<tr>
<td>Parent</td>
<td>Angermeier-Howard, L. K.</td>
<td>HE 708</td>
</tr>
<tr>
<td>Participation</td>
<td>Fiala, K. A.</td>
<td>PE 4280</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>Osborne, C.</td>
<td>PE 4232</td>
</tr>
<tr>
<td>Perception</td>
<td>Davenport, M. A.</td>
<td>RC 553</td>
</tr>
<tr>
<td>Perceptual Localization</td>
<td>Blegen, M.</td>
<td>HE 719</td>
</tr>
<tr>
<td>Participation</td>
<td>Fiala, K. A.</td>
<td>PE 4280</td>
</tr>
<tr>
<td>Percentage</td>
<td>Bailey, B. W.</td>
<td>TA PE 4327</td>
</tr>
<tr>
<td>Perceptual Localization</td>
<td>Ibbotson, J. A.</td>
<td>PSY 2210</td>
</tr>
</tbody>
</table>
PHILOSOPHY
Lennon, J. F. [D, COM, DA, P-DE] PE 4283

PHOSPHORUS
Lupia, P. A. [D, L, Q-DE, RM, AV, T, G] PH 1742

PHYSICAL EDUCATION
Bechtel, P. A. [D, I, DA-DE, %] PE 4277
Libby, J. L. [D, Q-DE, FA, AV, RM, %] PE 4301
Olachnovitch, V. [D, A, Q, M-DE, RC, AV, G] PSY 2211

PHYSICAL FITNESS
Ellis, M. K. [D, Q-DE, SCH, MR, G] HE 716
Olachnovitch, V. [D, A, Q, M-DE, RC, AV, G] PSY 2211

PHYSICIAN
Fiola, K. A. [D, Q-DE, %, CS, FET] PE 4280

PHYSIOLOGY
Bailey, B. W. [D, A-DE, RE, AV, %] HE 719
Blegen, M. [D, L-DE, AV, RM, BON, TU, G] PH 1743
Cavaliere, J. C. [D, AR-DE, RM, AV] PE 4293
Ciccarelli, C. [D, AR-DE, %, G] PE 4295
Comeau, M. J. [D, A, L-DE, %, AV, TU, W1, BON, G] PH 713
Dyriw, G. M. [D, A, L-DE, AV, TU] PE 4287
Ellis, M. K. [D, Q-DE, SCH, MR, G] HE 716
Gauvin, M. J. [D, Q, L-DE, %, AV, RM, TU, T, G] PH 1740
Kerkisick, C. M. [D, E, L-DE, RM, AV, AC, G] PH 1747
LaBreche, J. M. [D, A, L-DE, %, FA, AV, RM, SCH, RPM, G] PH 1725
Meital, N. [D, Q, A, AR-DE, %, T, CS] PE 4302
Melton, A. J. [D-DE, %, AV, LSD, G] PE 4331
Rubley, M. D. [D, AR-DE, FA, RM, %] PE 4334
Schofer, D. [D, DE, G] PH 1737
Shingles, R. R. [D, Q, I-DE, AV, MAV] PE 4313
Shivitz, N. L. [D, A, AR, M-DE, AV, TU, RM, %] PE 4314
Trombeta, A. L. [D, A-DE, RPM, %] PE 4290
Walker, N. [D, Q, AR-DE, %, RM, AV, GG, BON, TU, G] PE 4292
Wilson, A. M. R. [D, M, Q, A, L-DE, %, G] PE 4318

POLITICS
MacDonald, G. H. [D, DA, H-DE, TA] PE 4284

POSTAL SERVICE
Levy, S. S. [D, Q-DE, RM, AV, %, G] HE 717

POSTURE

POWER CLEAN
Melton, A. J. [D, DE, %, AV, LSD, G] PE 4331

PRESSURE
Rogers, J. W. [D, A-DE, FA, MAV, AV, DU] PE 4333

PREVENTION
Allen, S. H. [D, Q, L, A-DE, %, T, RPM] PE 4350

PRODUCTIVITY
Parker, L. [D, JA-DE, TA, G] HE 710

PROFESSIONAL

PROPRIOCEPTION

PROTECTIVE DEVICE
Shivitz, N. L. [D, A, AR, M-DE, AV, TU, RM, G, %] PE 4314

PROTEIN
Kerkisick, C. M. [D, E, L-DE, RM, AV, AC, G] PH 1747

PSYCHOLOGY
Bonica, J. L. [D-DE, %, AV, TU, T, G] HE 714
Brown, D. A. [D, Q, DE, MR, FA, T] PSY 2214
Cowie, L. S. [D, Q-DE, FA, RE, AV, %] PSY 2226
Fetteroll, C. [D, S-DE, FA, AV, %, G] PSY 2215
Hartung, E. M. [D, I, Q-DE] PE 4310
Henry, H. R. [D, Q-DE, RC, RPM, MAV, %, RE] HE 722
Keefer, L. A. [D, Q, DE, LSD, RPM] PSY 2213
Kimball, G. T. [D, Q-DE, MAV, RC, RPM, DisA] PSY 2221
Levy, S. S. [D, Q-DE, RM, AV, %, G] HE 717
MacDougall, S. A. [D, Q-DE, AV, TU] PSY 2227
Moruquisi, M. S. [D, S, Q-DE, RC, %] PSY 2223
Olachnovitch, V. [D, A, Q, M-DE, RC, AV, G] PSY 2211
Stack, R. J. [D, Q-DE, %] PSY 4326
Tower, K. E. [D, S-DE, RPM, RC, G] PSY 2216
Tracey, J. [D, I, Q-DE] PSY 2217

PYCHOPSYCHOSOCIAL

PUBLIC HEALTH
Bonica, J. L. [D, Q-DE, RM, AV, %, G] HE 714

QIGONG
Fong, S. Y. [D, E-DE, RM, AV, T] HE 715

QUADRICEPS
Keefer, D. J. [D, Q, A, AR-DE, AV, RE, G] PH 1745

QUALITY OF LIFE
Wah, C. M.

QUESTIONNAIRE
Hinton, S. J.

RACE
Fleming, T. L.

RACIAL RELATIONS
Fleming, T. L.

RACISM
Fleming, T. L.

RANGE OF MOTION
Meital, N.

RANKING
Hooker, T. L.

REACTION TIME
Garry, M. I.

READING
Angstrom, A. L.

REHABILITATION
Campbell, K. L.

REFLEX
Siegmund, G. P.

RELIABILITY
Webster, J. M.

RISK
Manns, P. J.

RULE
Lennon, J. F.

RUNNING
Gauvin, M. J.

SATISFACTION
Wah, C. M.

SCAPULA
Trombetta, A. L.

SECONDARY SCHOOL
Bechtel, P. A.

SEX DISCRIMINATION
Owiesny, C. L.

SEX FACTOR
Owiesny, C. L.

SFINX
Lennon, J. F.

SHOULDER
Chang, J.

SHOULDER JOINT
Trombetta, A. L.

SIGN
Bonica, J. L.

SKILL
Ong, C. D.

SKIN
Rogers, J. W.

SKINFOLD THICKNESS
Webster, J. M.

SOCIAL ADJUSTMENT
Mickle, A. R.

SOCIAL BEHAVIOUR
Bruening, J. E.

SOCIAL ENVIRONMENT
Shingles, R. R.

SOFTBALL
Cole, A. L.

STACKER
Meital, N.

[49]
SORENESS

SOUTH CAROLINA
Martin, C. L. [D, DA, H-DE, TA] PE 4311

SOUTHEASTERN CONFERENCE
Martin, C. L. [D, DA, H-DE, TA] PE 4311

SPATIAL ORIENTATION

SPEED

SPIKING
Bowman, J. A.
Christopher, G. A.

SPORT
Beam, J. W. [D, S-DE, AV, FET, LSD, %] PSY 2218
Cowie, L. S. [D, Q, I-DE, FA, RE, AV, %] PSY 2226
Fetteroll, C. [D, S, I-DE, FA, RD, %] PSY 2215
Fleming, T. L. [D, Q-DE, CS, G] PE 4298
Hartung, E. M. [D, I, Q-DE] PE 4310
Hooker, T. L. [D, M, DA-DE, %] PE 4299
MacDonald, G. H. [D, DA, H-DE, TA] PE 4284
MacDougall, S. A. [D, Q, S-DE, AV, TU] PSY 2227
Mickle, A. R. [D, S, Q-DE, RC, %] PSY 2223
Moruisi, M. S. [D, S, COM, Q-DE, %, RPM, AV, G] PE 4303
Owiesny, C. L. [D, M, S-DE, %, G] PE 4332
Schaeperkoetter, A. J. [D, DA, JA-DE] PE 4289
Stack, R. J. [D, Q, I-DE, %] PE 4326
Tower, K. E. [D, S-DE, RPM, RC, G] PSY 2216

SPORTS MEDICINE
Cole, A. L. [D, Q-DE, %, CS] PE 4286
Fiala, K. A. [D, Q-DE, %, CS, FET] PE 4280

STABILITY

STAIRCLIMBING
Bonica, J. L. [D-DE, %, AV, TU, T, G] HE 714

STATISTICS
Cole, A. L. [D, Q-DE, %, CS] PE 4286
Egbert, P. [D, DA, Q-DE, FA, AV, RM] PE 4297
Fisher, J. M. [D, Q-DE, %] PE 4321
Frost, R. E. [D, DA-DE, FA, AV] PE 4300
Hooker, T. L. [D, M, DA-DE, %, G] PE 4299

STEP
Walker, N. [D, Q, AR-DE, %, RM, AV, GG, BON, TU, G] PE 4292

STEP TEST
Walker, N. [D, Q, AR-DE, %, RM, AV, GG, BON, TU, G] PE 4292

STEREOTYPE
Benton, S. I. [D, Q, I-DE, DA-DE, TA] PE 4278
Bruening, J. E. [D, DA, Q, I, H-DE] PE 4319
Fleming, T. L. [D, Q, I-DE, CS, G] PE 4298
Stack, R. J. [D, Q, I-DE, %] PE 4236

STEROID
Galatas, M. [D, AR, L, A-DE, RPM, T] HE 709

STOMACH
Wood, R. J. [D, AR, DE, RPM, T] PE 4307

STORY
Hartung, E. M. [D, I, Q-DE] PE 4310

STRATEGY
Meital, N. [D, Q, A, AR-DE, %, T, CS] PE 4302

STRENGTH
Ciccarelli, C.
Keefer, D. J.
Kerksick, C. M.
Melton, A. J.
Parker, L.
Rubley, M. D.
Trombetta, A. L.
Wood, R. J.

STRETCHING
Cavalieri, J. C.

STROKE
Wilkins, S.

STUDENT
Angstrom, A. L.
MacDougall, S. A.
Olchansovitch, V.
Roedl, E.
Shumway, J.

STUDENT-ATHLETE
Beam, J. W.
Bruening, J. E.
Dowhower, A. L.
Fisher, J. M.
Frost, R. E.
Martin, C. L.
Mickle, A. R.
Osborne, C.
Tower, K. E.

STYLE
Hartung, E. M.

SURGERY
Galatas, M.

SURVEY
Cole, A. L.
Fiala, K. A.
Hinton, S. J.

SWIMMING
Rubin, D. A.
Wilkins, S.

SWING
Bowman, J. A.

TEACHER
Bechtel, P. A.
Libby, J. L.

TEACHER TRAINING
Shumway, J.

TEACHING
Libby, J. L.
Reed, W. P.
Shumway, J.
Wilkins, S.

TEAM
Dyriw, G. M.
Fetteroll, C.
Fiala, K. A.
Hooker, T. L.
Reed, W. P.
TECHNIQUE


Hooker, T. L. [D, A-DE, MAV, AV, DU] PE 4333


Webster, J. M. [D, A-DE, RM, AV, %] PE 4317

TECHNOLOGY

Egbert, P. [D, DA, Q-DE, FA, AV, RM] PE 4297

TENDON

Cavalieri, J. C. [D, AR-DE, RM, AV] PE 4293

TESTING

Ciccarelli, C. [D, AR-DE, %, G] PE 4295

Ibbotson, J. A. [D, TC-DE, %, G] PSY 2210

Melton, A. J. [D-DE, %, AV, LSD, G] PE 4331

Ong, C. D. [D-DE, PC] PSY 2224


Walker, N. [D, Q, AR-DE, %, RM, AV, GG, BON, TU, G] PE 4292


THERAPY


Dobridge, J. D. [D, A, Q-DE, %, AV, TU, WI, BON, G] HE 713

Ellis, M. K. [D, Q-DE, SCH, MR, G] HE 716

Fong, S. Y. [D, E-DE, RM, AV, %] HE 715

Gauvin, M. J. [D, Q, L-DE, %, AV, RM, TU, T, G] PH 1740

Hebbum, D. J. [D, A, L-DE, RM, AV, %] PE 4330

Manns, P. J. [D, A-DE, CS, AC, G] HE 718

Rogers, J. W. [D, A-DE, FA, MAV, AV, DU] PE 4333


THERMAL

Gauvin, M. J. [D, Q, L-DE, %, AV, RM, TU, T, G] PH 1740

Thermotherapy

Chang, J. [D, I-DE, RM, AV] PE 4294

Thigh

Cavalieri, J. C. [D, AR-DE, RM, AV] PE 4293

Throwing

Lorson, K. M.

Tissue

Babul, S.

Title IX

Su, M. C. Y.

Torque

Ciccarelli, C.

Track and Field

Cole, A. L.

Fleming, T. L.

Training

Kerksick, C. M.

Libby, J. L.

Reed, W. P.

Rubley, M. D.

Schofer, D.

Wilkins, S.

Transplantation

Galatas, M.

Treatment

Babul, S.

Campbell, K. L.

Cavalieri, J. C.

Fisher, J. M.

Fong, S. Y.

Galatas, M.

Hepbum, D. J.

Hornyik, M. L.

Manns, P. J.

Tracey, J.

Triceps

Rubley, M. D.

Undergraduate

Roedl, E.

United States

Adikison, J. M.

Benton, S. I.

Davenport, M. A.

Egbert, P.

Martin, C. L.

Mickle, A. R.

Moruisi, M. S.

Roedl, E.

Su, M. C. Y.

University

Adikison, J. M.

Angstrom, A. L.

Benton, S. I.

Brown, D. A.

Bruening, J. E.

Dowhower, A. L.

Dyrriw, G. M.

Egbert, P.

Fetteroll, C.

Fleming, T. L.

Hartung, E. M.

Jamieson, K. M.

MacDougall, S. A.

Martin, C. L.

Mickle, A. R.

Osborne, C.

Roedl, E.

Schaepkerkoetter, A. J.

Su, M. C. Y.

Tower, K. E.

Wah, C. M.

University of North Carolina at Chapel Hill

Schaepkerkoetter, A. J.

Urban

Bechtel, P. A.

Steele, C. S.

Vastus Lateralis

Hepbum, D. J.

Vertical Jump

Meital, N.

Virginia

Martin, C. L.

Volleyball

Bowman, J. A.

Christopher, G. A.

Walking

Keefer, D. J.

Washington State

Fisher, J. M.

Water

Comeau, M. J.

Gauvin, M. J.
WEIGHT TRAINING
Kerksick, C. M. [D, E, L, A-DE, RM, AV, AC, G] PH 1747
Melton, A. J. [D-DE, %, AV, LSD, G] PE 4331

WHEELCHAIR SPORT

WHIPLASH

WINNING
Hooker, T. L. [D, M, DA-DE, %, G] PE 4299

WINTER
Davenport, M. A. [D, DA, I-DE] RC 553

WOMAN
Benton, S. I. [D, Q, I, DA-DE, TA] PE 4278
Bruening, J. E. [D, DA, Q, I, H-DE] PE 4319
Cole, A. L. [D, Q-DE, %, CS] PE 4286
Dobridge, J. D. [D, A, Q, I-DE, %, AV, TU, WI, BON, G] HE 713
Jamieson, K. M. [D, I-DE, TA] PE 4275
Keeler, L. A. [D, Q-DE, LSD, RPM] PSY 2213
Martin, C. L. [D, DA, H-DE, TA] PE 4311
Osborne, C. [D, Q-DE, %] PE 4323
Shingles, R. R. [D, Q, I-DE, AV, MAV] PE 4313
Shivitz, N. L. [D, A, AR, M-DE, AV, TU, RM, G, %] PE 4314

WORK
Parker, L. [D, JA-DE, TA, G] HE 710

WOUND
Hepburn, D. J. [D, AR-DE, RM, AV, %] PE 4330

WRITING
Angstrom, A. L. [D, I-DE] PE 4308

YELLOWSTONE NATIONAL PARK
Davenport, M. A. [D, DA, I-DE] RC 553
# AUTHOR INDEX

<table>
<thead>
<tr>
<th>Author Name</th>
<th>Institution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adkison, J. M.</td>
<td>PE</td>
<td>4285</td>
</tr>
<tr>
<td>Allen, S. H.</td>
<td>HE</td>
<td>712</td>
</tr>
<tr>
<td>Angermeier-Howard, L. K.</td>
<td>HE</td>
<td>708</td>
</tr>
<tr>
<td>Angstrom, A. L.</td>
<td>PE</td>
<td>4308</td>
</tr>
<tr>
<td>Babul, S.</td>
<td>PE</td>
<td>4273</td>
</tr>
<tr>
<td>Bailey, B. W.</td>
<td>HE</td>
<td>719</td>
</tr>
<tr>
<td>Beam, J. W.</td>
<td>PSY</td>
<td>2218</td>
</tr>
<tr>
<td>Bechtel, P. A.</td>
<td>PE</td>
<td>4277</td>
</tr>
<tr>
<td>Benton, S. I.</td>
<td>PE</td>
<td>4278</td>
</tr>
<tr>
<td>Blegen, M.</td>
<td>PH</td>
<td>1743</td>
</tr>
<tr>
<td>Bonica, J. L.</td>
<td>HE</td>
<td>714</td>
</tr>
<tr>
<td>Bowman, J. A.</td>
<td>PE</td>
<td>4309</td>
</tr>
<tr>
<td>Brown, D. A.</td>
<td>PSY</td>
<td>2214</td>
</tr>
<tr>
<td>Bruening, J. E.</td>
<td>PE</td>
<td>4319</td>
</tr>
<tr>
<td>Campbell, K. L.</td>
<td>HE</td>
<td>720</td>
</tr>
<tr>
<td>Campy, R. M.</td>
<td>PE</td>
<td>4328</td>
</tr>
<tr>
<td>Cavalieri, J. C.</td>
<td>PE</td>
<td>4293</td>
</tr>
<tr>
<td>Chang, J.</td>
<td>PE</td>
<td>4294</td>
</tr>
<tr>
<td>Christopher, G. A.</td>
<td>PE</td>
<td>4320</td>
</tr>
<tr>
<td>Ciccarelli, C.</td>
<td>PE</td>
<td>4295</td>
</tr>
<tr>
<td>Cole, A. L.</td>
<td>PE</td>
<td>4286</td>
</tr>
<tr>
<td>Comeau, M. J.</td>
<td>PE</td>
<td>4279</td>
</tr>
<tr>
<td>Cosio-Lima, L. M.</td>
<td>PE</td>
<td>4296</td>
</tr>
<tr>
<td>Cowie, L. S.</td>
<td>PSY</td>
<td>2226</td>
</tr>
<tr>
<td>Davenport, M. A.</td>
<td>RC</td>
<td>553</td>
</tr>
<tr>
<td>Dixon, K.</td>
<td>PE</td>
<td>4329</td>
</tr>
<tr>
<td>Dobridge, J. D.</td>
<td>HE</td>
<td>713</td>
</tr>
<tr>
<td>Dowhower, A. L.</td>
<td>PSY</td>
<td>2219</td>
</tr>
<tr>
<td>Dyriw, G. M.</td>
<td>PE</td>
<td>4287</td>
</tr>
<tr>
<td>Egbert, P.</td>
<td>PE</td>
<td>4297</td>
</tr>
<tr>
<td>Ellis, M. K.</td>
<td>HE</td>
<td>716</td>
</tr>
<tr>
<td>Fetteroll, C.</td>
<td>PSY</td>
<td>2215</td>
</tr>
<tr>
<td>Fiala, K. A.</td>
<td>PE</td>
<td>4280</td>
</tr>
<tr>
<td>Fisher, J. M.</td>
<td>PE</td>
<td>4321</td>
</tr>
<tr>
<td>Fleming, T. L.</td>
<td>PE</td>
<td>4298</td>
</tr>
<tr>
<td>Fong, S. Y.</td>
<td>HE</td>
<td>715</td>
</tr>
<tr>
<td>Frost, R. E.</td>
<td>PE</td>
<td>4300</td>
</tr>
<tr>
<td>Galatas, M.</td>
<td>HE</td>
<td>709</td>
</tr>
<tr>
<td>Garrity, K. S.</td>
<td>PE</td>
<td>4274</td>
</tr>
<tr>
<td>Garry, M. I.</td>
<td>PSY</td>
<td>2209</td>
</tr>
<tr>
<td>Gauvin, M. J.</td>
<td>PH</td>
<td>1740</td>
</tr>
<tr>
<td>Hart, K. L.</td>
<td>PSY</td>
<td>2220</td>
</tr>
<tr>
<td>Hartung, E. M.</td>
<td>PE</td>
<td>4310</td>
</tr>
<tr>
<td>Henderson, S. L.</td>
<td>HE</td>
<td>721</td>
</tr>
<tr>
<td>Henry, H. R.</td>
<td>HE</td>
<td>722</td>
</tr>
<tr>
<td>Hepburn, D. J.</td>
<td>PE</td>
<td>4330</td>
</tr>
<tr>
<td>Hinton, S. J.</td>
<td>HE</td>
<td>723</td>
</tr>
<tr>
<td>Hooker, T. L.</td>
<td>PE</td>
<td>4299</td>
</tr>
<tr>
<td>Hornyik, M. L.</td>
<td>PSY</td>
<td>4316</td>
</tr>
<tr>
<td>Ibbotson, J. A.</td>
<td>PSY</td>
<td>2210</td>
</tr>
<tr>
<td>Jamieson, K. M.</td>
<td>PE</td>
<td>4275</td>
</tr>
<tr>
<td>Keefer, D. J.</td>
<td>PH</td>
<td>1745</td>
</tr>
<tr>
<td>Keeler, L. A.</td>
<td>PSY</td>
<td>2213</td>
</tr>
<tr>
<td>Kerkovich, A.</td>
<td>PE</td>
<td>4281</td>
</tr>
<tr>
<td>Legg, D. F. H.</td>
<td>PE</td>
<td>4322</td>
</tr>
<tr>
<td>Lennon, J. F.</td>
<td>PE</td>
<td>4283</td>
</tr>
<tr>
<td>Lennon, J. F.</td>
<td>PE</td>
<td>4282</td>
</tr>
<tr>
<td>Lennon, J. F.</td>
<td>PE</td>
<td>4281</td>
</tr>
<tr>
<td>Levy, S. S.</td>
<td>HE</td>
<td>717</td>
</tr>
<tr>
<td>Libby, J. L.</td>
<td>PE</td>
<td>4301</td>
</tr>
<tr>
<td>Lorson, K. M.</td>
<td>PSY</td>
<td>2222</td>
</tr>
<tr>
<td>Lupia, P. A.</td>
<td>PH</td>
<td>1742</td>
</tr>
<tr>
<td>MacDonald, G. H.</td>
<td>PE</td>
<td>4284</td>
</tr>
<tr>
<td>MacDougall, S. A.</td>
<td>PSY</td>
<td>2227</td>
</tr>
<tr>
<td>Manns, P. J.</td>
<td>HE</td>
<td>718</td>
</tr>
<tr>
<td>Martin, C. L.</td>
<td>PE</td>
<td>4311</td>
</tr>
<tr>
<td>Meital, N.</td>
<td>PE</td>
<td>4302</td>
</tr>
<tr>
<td>Melton, A. J.</td>
<td>PE</td>
<td>4331</td>
</tr>
<tr>
<td>Mickle, A. R.</td>
<td>PSY</td>
<td>2223</td>
</tr>
<tr>
<td>Moruishi, M. S.</td>
<td>PE</td>
<td>4303</td>
</tr>
<tr>
<td>Olgachnovich, V.</td>
<td>PSY</td>
<td>2211</td>
</tr>
<tr>
<td>Ong, C. D.</td>
<td>PSY</td>
<td>2224</td>
</tr>
<tr>
<td>Osborne, C.</td>
<td>PE</td>
<td>4323</td>
</tr>
<tr>
<td>Owiesny, C. L.</td>
<td>PE</td>
<td>4332</td>
</tr>
<tr>
<td>Park, I. H.</td>
<td>PE</td>
<td>4324</td>
</tr>
<tr>
<td>Parker, L.</td>
<td>HE</td>
<td>710</td>
</tr>
<tr>
<td>Penrod, C. A.</td>
<td>HE</td>
<td>711</td>
</tr>
<tr>
<td>Perry, U. A. M.</td>
<td>HE</td>
<td>724</td>
</tr>
<tr>
<td>Reed, W. P.</td>
<td>PE</td>
<td>4304</td>
</tr>
<tr>
<td>Reiser, R. F.</td>
<td>PE</td>
<td>4276</td>
</tr>
<tr>
<td>Rezmovitz, J. J.</td>
<td>HE</td>
<td>725</td>
</tr>
<tr>
<td>Roedl, E.</td>
<td>PE</td>
<td>4288</td>
</tr>
<tr>
<td>Rogers, J. W.</td>
<td>PE</td>
<td>4333</td>
</tr>
<tr>
<td>Rose, E. A.</td>
<td>PSY</td>
<td>2225</td>
</tr>
<tr>
<td>Rubin, D. A.</td>
<td>PH</td>
<td>1738</td>
</tr>
<tr>
<td>Rubley, M. D.</td>
<td>PE</td>
<td>4334</td>
</tr>
<tr>
<td>Schaeperkoetter, A.</td>
<td>PE</td>
<td>4289</td>
</tr>
<tr>
<td>Schmitt, M.</td>
<td>PE</td>
<td>4312</td>
</tr>
<tr>
<td>Schofer, D.</td>
<td>PH</td>
<td>1737</td>
</tr>
<tr>
<td>Seegers, C. A.</td>
<td>PH</td>
<td>1739</td>
</tr>
<tr>
<td>Shingles, R. R.</td>
<td>PE</td>
<td>4313</td>
</tr>
<tr>
<td>Shivitz, N. L.</td>
<td>PE</td>
<td>4314</td>
</tr>
<tr>
<td>Shoepoe, T. C.</td>
<td>PH</td>
<td>1741</td>
</tr>
<tr>
<td>Shumway, J.</td>
<td>PE</td>
<td>4325</td>
</tr>
<tr>
<td>Siegmund, G. P.</td>
<td>PSY</td>
<td>2212</td>
</tr>
<tr>
<td>Smith, J. M.</td>
<td>PH</td>
<td>1746</td>
</tr>
<tr>
<td>Stack, R. J.</td>
<td>PE</td>
<td>4326</td>
</tr>
<tr>
<td>Steele, C. S.</td>
<td>PE</td>
<td>4315</td>
</tr>
<tr>
<td>Su, M. C. Y.</td>
<td>PE</td>
<td>4327</td>
</tr>
<tr>
<td>Tower, K. E.</td>
<td>PSY</td>
<td>2216</td>
</tr>
<tr>
<td>Tracey, J.</td>
<td>PSY</td>
<td>2217</td>
</tr>
<tr>
<td>Trombeta, A. L.</td>
<td>PE</td>
<td>4290</td>
</tr>
<tr>
<td>Wah, C. M.</td>
<td>PE</td>
<td>4291</td>
</tr>
<tr>
<td>Walker, N.</td>
<td>PE</td>
<td>4292</td>
</tr>
<tr>
<td>Walsh, B. F.</td>
<td>PE</td>
<td>4305</td>
</tr>
<tr>
<td>Webster, J. M.</td>
<td>PE</td>
<td>4317</td>
</tr>
<tr>
<td>Wilkins, S.</td>
<td>PE</td>
<td>4306</td>
</tr>
<tr>
<td>Wilson, A. M. R.</td>
<td>PE</td>
<td>4318</td>
</tr>
<tr>
<td>Wood, R. J.</td>
<td>PE</td>
<td>4307</td>
</tr>
<tr>
<td>Yoon, S.</td>
<td>PH</td>
<td>1744</td>
</tr>
</tbody>
</table>
### SCHOOL INDEX

<table>
<thead>
<tr>
<th>University</th>
<th>Name, Initials</th>
<th>Course Code</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auburn University</td>
<td>Angstrom, A. L.</td>
<td>PE 4308</td>
<td>10</td>
</tr>
<tr>
<td>Ball State University</td>
<td>Olachnovitch, V.</td>
<td>PSY 2211</td>
<td>37</td>
</tr>
<tr>
<td>Bemidji State University</td>
<td>Fiala, K. A.</td>
<td>PE 4280</td>
<td>19</td>
</tr>
<tr>
<td>Boston University</td>
<td>Hartung, E. M.</td>
<td>PE 4310</td>
<td>7</td>
</tr>
<tr>
<td>Brigham Young University</td>
<td>Bailey, B. W.</td>
<td>HE 719</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Christopher, G. A.</td>
<td>PE 4320</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Dixon, K.</td>
<td>PE 4329</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Hepburn, D. J.</td>
<td>PE 4330</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Hinton, S. J.</td>
<td>HE 723</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Penrod, C. A.</td>
<td>HE 711</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Perego, U. A. M.</td>
<td>HE 724</td>
<td>30</td>
</tr>
<tr>
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<td>Rogers, J. W.</td>
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