

Biomechanics

Effects of Balance Training on Postural Sway, Leg Extensor Strength, and Jumping Height in Adolescents (pp. 245–251)

Urs Granacher, Albert Gollhofer, Susi Kriemler

Deficits in strength of the lower extremities and postural control have been associated with a high risk of sustaining sport-related injuries. Such injuries often occur during physical education (PE) classes and mostly affect the lower extremities. Thus, the objectives of this study were to investigate the effects of balance training on postural sway, leg extensor strength, and jumping height in adolescents. Twenty high school students participated in this study and were assigned to either an intervention ($n = 10$) or control group ($n = 10$). The intervention group participated in a 4-week balance-training program integrated in their physical education lessons. Pre- and posttests included the measurements of postural sway on a balance platform, jumping height on a force platform, and maximal isometric leg extension force on a leg-press. Balance training resulted in significantly improved postural control, increased jumping height, and enhanced rate of force development of the leg extensors. Physiological adaptations rather than learning effects seem to be responsible for the observed findings. These results could have an impact on improving the performance level in various sports and on reducing the injury prevalence of the lower extremities.

Epidemiology

Effect of a Storyboarding Technique on Selected Measures of Fitness Among University Employees (pp. 252–263)

Mark H. Anshel and Toto Sutarso

The purpose of this study was to determine the effectiveness of storyboarding (i.e., participants' written narrative) on improving fitness among university employees over 10 weeks. Groups consisted of storytelling during the program orientation, storytelling plus two coaching sessions, or the normal program only (control). Using difference (pretest from posttest) scores, a one-way multivariate analysis of variance indicated significant differences between groups ($p < .01$). For percent body fat, only the coached group was statistically superior to the control group ($p < .03$), while the two experimental groups were statistically similar. For submax VO_2 , both storyboarding groups were superior to the control group ($p < .04$). It was concluded that storyboarding may be an effective means for changing selected health behaviors.

Dog Ownership, Dog Walking, and Children's and Parents' Physical Activity (pp. 264–271)

Jo Salmon, Anna Timperio, Binh Chu, and Jenny Veitch

This study aimed to determine cross-sectional associations of dog ownership, dog walking, and physical activity (PA) among children and their parents. Objective measures of PA were obtained for children ages 5–6 and 10–12 years from 19 primary schools across Melbourne, Australia. Parents self-reported their PA, dog ownership, and frequency of dog walking: 53% of families owned a dog, 41% of children who owned a dog did not walk their dog at all, and 32% reported never or rarely walking their dog as a family. Dog ownership was associated with an additional 29 min/day in PA among younger girls, and 70 and 59 min/week more in PA among mothers of younger boys and older girls, respectively. Among mothers of older girls, dog owners were 1.6 times as likely to meet PA guidelines. Mothers with older boys and girls, and fathers with younger boys, who reported walking the dog regularly as a family, spent more time in PA (105, 90, and 158 more min/week, respectively). Promoting dog ownership and dog walking among children and as a family are potential strategies for increasing PA participation in some families.

Measurement and Evaluation

The Relationship Between Selected Body Composition Variables and Muscular Endurance in Women (pp. 272–277)

Michael R. Esco, Michele S. Olson, and Henry N. Williford

The primary purpose of this study was to determine if muscular endurance is affected by referenced waist circumference groupings, independent of body mass and subcutaneous abdominal fat, in women. This study also explored whether selected body composition measures were associated with muscular endurance. Eighty-four women were measured for height, weight, body mass index (BMI), waist circumference (WC), and abdominal skinfold thickness (SFAB) and performed 60-s sit-ups (SU) and maximal push-ups (PU) tests. Mean differences in SU and PU scores were tested across three groups based on WC as follows: WCG1 < 70 cm; WCG2 between 70 and 89 cm; WCG3 \geq 90 cm. There were no significant differences in SU and PU scores between WCG1 and WCG2. WCG3 had significantly lower SU and PU scores compared to the other groups. After adjusting for the influence of SFAB, BMI, and weight, the differences disappeared. The regression analysis revealed a two-variable (BMI and SFAB) model that accounted for the variation in SU performance. For PU, only BMI loaded into the regression model. The results of this study suggest that women with a WC \geq 90 cm have decreased muscular endurance compared to their lower WC counterparts. This difference is related to higher body masses.

Physical Activity Motivation in Late Adolescence: Refinement of a Recent Multidimensional Model (pp. 278–289)

Andrew J. Martin

Recent research (Martin et al., 2006) presented a new, multidimensional approach to physical activity motivation (using the Physical Activity Motivation Scale [PAMS]) operationalized through four factors: adaptive cognition, adaptive behavior, impeding/maladaptive cognition, and maladaptive behavior. The present study extends this early research by recruiting a larger sample of 705 young people, in late adolescence, using a shortened form of PAMS (PAMS-Revised), and including physical and nonphysical correlates as a means of better understanding its validity. Findings confirmed a sound four-factor framework comprising reliable factors. Findings also demonstrated hypothesized relations between physical activity motivation and physical correlates and, to a lesser extent, between physical activity motivation and more general life correlates.

Motor Behavior

The Relationship Among Motor Proficiency, Physical Fitness, and Body Composition in Children With and Without Visual Impairments (pp. 290–299)

Suzanne Houwen, Esther Hartman, and Chris Visscher

This study compares the motor skills and physical fitness of school-age children (6–12 years) with visual impairments (VI; n = 60) and sighted children (n = 60). The relationships between the performance parameters and the children's body composition are investigated as well as the role of the severity of the impairment. The degree of VI did not differentially affect the outcomes. Compared to their sighted peers, the children with VI scored lower on the locomotor and object control skills as assessed with the Test of Gross Motor Development-2, and the physical fitness (Eurofit) parameters of plate tapping, the standing broad jump, the modified 5 x 10-m shuttle run, and 20-m multistage shuttle run (20-MST). Their body mass and body fat indexes were inversely correlated with the standing broad jump and the 20-MST, but positively correlated with handgrip strength. Moreover, significant inverse correlations were found between their locomotor and object control skills on the one hand and plate tapping and the 5 x 10-m shuttle run on the other hand. Given the relatively high proportion (25%) of overweight/obese children within the VI sample, educators are recommended to promote health-related activities and help enhance motor skills in this population.

Detecting and Correcting Errors in Rapid Aiming Movements: Effects of Movement Time, Distance, and Velocity (pp. 300–309)

David E. Sherwood

According to closed-loop accounts of motor control, movement errors are detected by comparing sensory feedback to an acquired reference state. Differences between the reference state and the movement-produced feedback results in an error signal that serves as a basis for a correction. The main question addressed in the current study was how distance, movement time, and velocity influence both spatial or temporal error detection. Forty college-aged participants (30 women and 10 men) performed rapid aiming movements over 30° or 50° in either 210 ms or 350 ms without vision. The participants verbally estimated the distance moved and the movement time during acquisition before knowledge of results was given and during an immediate retention test without knowledge of results. Spatial and temporal objective-subjective correlations were greater in the 210-ms condition compared to the 350-ms condition, but were not related to movement velocity.

Pedagogy

Motivational Responses to Fitness Testing by Award Status and Gender (pp. 310–318)

Elizabeth Domangue and Melinda Solmon

Fitness testing is a prominent element in many physical education programs, but there has been limited investigation concerning motivation constructs associated with the testing. This study investigated the relationships among physical education students' award status and gender to achievement goals, intrinsic motivation, and intentions. After they had completed a battery of fitness tests, 123 fifth-grade physical education students were classified into two groups: those who received awards and those who did not. They completed a series of questionnaires assessing motivational constructs. Analyses of variance revealed that students who received a fitness award reported higher levels of task-involvement, perceived competence, effort, enjoyment, and future intention than those who did not. Boys reported higher levels of ego-involvement than girls, but no other gender differences were evident. The findings from this study can be used to inform practitioners, test designers, and researchers about the ways fitness testing programs can be structured so that all students receive the potential benefits from participating in such assessments.

Physiology

A Triple Iron Triathlon Leads to a Decrease in Total Body Mass But Not to Dehydration (pp. 319–327)

Beat Knechtle, Patrizia Knechtle, Thomas Rosemann, and Senn Oliver

A loss in total body mass during an ultraendurance performance is usually attributed to dehydration. We identified the changes in total body mass, fat mass, skeletal muscle mass, and selected markers of hydration status in 31 male nonprofessional ultratriathletes participating in a Triple Iron triathlon involving 11.4 km swimming, 540 km cycling and 126.6 km running. Measurements were taken prior to starting the race and after arrival at the finish line. Total body mass decreased by 1.66 kg ($SD = 1.92$; -5.3 kg to +1.2 kg; $p < .001$), skeletal muscle mass by 1.00 kg ($SD = 0.90$; -2.54 kg to +2.07 kg; $p < .001$), and fat mass by 0.58 kg ($SD = 0.78$; -1.74 kg to +0.87 kg; $p < .001$). The decrease in total body mass was associated with the decrease in skeletal muscle mass ($r = .44$; $p < .05$) and fat mass ($r = .51$; $p < .05$). Total body water and urinary specific gravity did not significantly change. Plasma urea increased significantly ($p < .001$); the decrease in skeletal muscle mass and the increase in plasma urea were associated ($r = .39$; $p < .05$). We conclude that completing a Triple Iron triathlon leads to decreased total body mass due to reduced fat mass and skeletal muscle mass but not to dehydration. The association of decrease in skeletal muscle mass and increased plasma urea suggests a loss in skeletal muscle mass.

Psychology

Potential Mediating Pathways Through Which Sports Participation Relates to Reduced Risk of Suicidal Ideation (pp. 328–339)

Lindsay A. Taliaferro, Barbara A. Rienzo, M. David Miller, R. Morgan Pigg, and Virginia J. Dodd

Suicide ranks as the third leading cause of death for American youth. Researchers examining sport participation and suicidal behavior have regularly found inverse relationships. This study represents the first effort to test a model depicting potential mechanisms through which sport participation relates to reduced risk of suicidal ideation. The participants were 450 undergraduate students. Measures assessed participants' involvement in university-run sports and other activities; frequency of physical activity; and perceived social support, self-esteem, depression, hopelessness, loneliness, and suicidal ideation. Regression analyses confirmed a path model and tested for mediation effects. Vigorous activity mediated relationships between sport participation and self-esteem and depression; and self-esteem and depression mediated the relationship between vigorous activity and suicidal ideation. Social support mediated relationships between sport participation and depression, hopelessness, and loneliness; and each of these risk factors partially mediated the relationship between social support and suicidal ideation. However, no variable fully mediated the relationship between sport participation and suicidal ideation. This study provides a foundation for research designed to examine pathways through which sport participation relates to reduced risk of suicidal behavior.

Aggressor-Victim Dissent in Perceived Legitimacy of Aggression in Soccer: The Moderating Role of Situational Background (pp. 340–348)

Olivier Rasclé, Alan Tractlet, Nicolas Souchon, Geneviève Coulomb-Cabagno, and Carrie Petrucci

The purpose of this study was to investigate the aggressor-victim difference in perceived legitimacy of aggression in soccer as a function of score information (tied, favorable, unfavorable), sporting penalization (no risk, yellow card, red card), and type of aggression (instrumental, hostile). French male soccer players (N = 133) read written scenarios and rated the legitimacy of the described aggressive act depending on a specific perspective (aggressor or victim) and situational information. A significant aggressor-victim difference in perception of instrumental aggression was found in situations where the score was tied or where there was no risk to be caught. In addition, aggressors were affected by such information, whereas victims were not. The discussion focuses on explanations and implications of such divergences in aggressive sport situations.

The Influence of Exercise Intensity on Frontal Electroencephalographic Asymmetry and Self-Reported Affect (pp. 349–359)

Minjung Woo, Sungwoon Kim, Jingu Kim, Steven J. Petruzzello, and Bradley D. Hatfield

The “feel better” effect of exercise has been well established, but the optimal intensity needed to elicit a positive affective response is controversial. In addition, the mechanisms underlying such a response are unclear. To clarify these issues, female undergraduate students were monitored for electroencephalographic (EEG) and self-reported affective responses during the recovery period following rest, low, moderate, and high intensities of treadmill running, each lasting 30 min. Frontal EEG asymmetry and self-reported vigor scores following exercise at all three intensities were significantly elevated compared to those observed following rest. The results suggest that steady-state aerobic exercise bouts executed at varying intensities induce a similar affective response during the recovery period when assessed at both the behavioral and psychophysiological levels.

Sociocultural Foundations

Bargaining With Patriarchy: Former Female Coaches' Experiences and Their Decision to Leave Collegiate Coaching (pp. 360–372)

Cindra S. Kamphoff

The purpose of this study was to better understand the experiences of former female coaches and their decision to terminate their careers. A feminist perspective and mixed-methods (surveys and interviews) were used to allow for a richer understanding of their experiences. The survey findings, which included 121 former female coaches, suggest that time and family commitments were the main reasons they left coaching. Also, a small number (18%) left coaching for reasons such as opportunity for promotion. Six women from the survey sample were individually interviewed. Through a descriptive analytic strategy and indexing process (Creswell, 1998), three general themes emerged: (a) gender disparities in women's work, (b) technical demands of coaching, and (c) college coaching and normalized sexualities. Overall, the interview findings confirmed the open-ended responses on the survey and described gender discrimination, the centrality of male coaches, and rampant homophobia in U.S. collegiate coaching. In addition, some female coaches discussed perceptions of conflict between working as a coach and motherhood, or women with children as being "distracted" by motherhood. Collectively, the survey and interview results revealed that women have multiple, complex, and overlapping reasons for leaving collegiate coaching.

Research Notes

Expert Baseball Batters Have Greater Sensitivity in Making Swing Decisions (pp. 373–378)

Rob Gray

Short-Term Effects of Midseason Coach Turnover on Team Performance in Soccer (pp. 379–383)

Anne-Line Balduck, Marc Buelens, and Renaat Philippaerts