

Special Topic

1958–2008: 50 Years of Youth Fitness Tests in the United States (pp. 1–11)

James R. Morrow, Jr., Weimo Zhu, B. Don Franks, Marilu D. Meredith, and Christine Spain

The AAHPER Youth Fitness Test, the first U.S. national fitness test, was published 50 years ago. The seminal work of Krause and Hirschland influenced the fitness world and continues to do so today. Important youth fitness test initiatives in the last half century are summarized. Key elements leading to continued interest in youth fitness testing at the start of the 21st century include (a) concerns about children and youth fitness levels, (b) AAHPER(D)-led youth fitness battery development, (c) differentiation between performance-related and health-related fitness testing, (d) the numerous youth fitness tests developed, (e) collaborative discussions on development and adoption of a unified national youth fitness battery, (f) computerization of youth fitness test results, (g) differentiation between norm-referenced and criterion-referenced evaluation of student results, and (h) concern about youth fitness levels (again, but with a focus on health). We have come full circle on youth fitness interests. This article summarizes the key youth fitness tests in the second half of the 20th century and projects future considerations.

Epidemiology

Health Worry, Physical Activity Participation, and Walking Difficulty Among Older Adults: A Mediation Analysis (pp. 12–21)

Kin-Kit Li, Bradley J. Cardinal, and Samuel Vuchinich

This study examined the effect of health worry (i.e., cognitive aspect of anxiety resulting from concern for health) on walking difficulty in a nationally representative sample ($N = 7,527$) of older adults (M age = 76.83 years). The study further tested whether physical activity mediates the effect of health worry on walking difficulty in a 6-year follow-up design. Results of a mediation analysis using structural equation modeling showed that people with a high degree of health worry engaged in less physical activity ($\beta = -.24, p < .001$), and people who participated in less physical activity were more likely to report walking difficulty at the 6-year follow-up ($\beta = -.22, p < .001$). There was a significant indirect effect from health worry to walking difficulty through physical activity ($\beta = .05, p < .001$), controlling for demographic, psychosocial, and health related factors. Results suggested that inducing threat and worry may not be effective for physical activity promotion in the older population. More promising coping and regulation strategies are discussed.

Decreasing Sports Activity With Increasing Age? Findings From a 20-Year Longitudinal and Cohort Sequence Analysis (pp. 22–31)

Christoph Breuer and Pamela Wicker

According to cross-sectional studies in sport science literature, decreasing sports activity with increasing age is generally assumed. In this paper, the validity of this assumption is checked by applying more effective methods of analysis, such as longitudinal and cohort sequence analyses. With the help of 20 years' worth of data records from the German Socio-Economic Panel, the development of sports activity over a lifespan is analyzed. According to inadequate cross-sectional analyses, sports activity decreases with increasing age. In contrast, longitudinal analyses show that sports activity increases with increasing age. Furthermore, cohort sequence analyses indicate that not only age but also cohort and period effects influence sports activity. Thus, different methods of analysis reveal opposite results.

Motor Control and Learning Conditions of Practice in Perceptual Skill Learning (pp. 32–43)

D. Memmert, N. Hagemann, R. Althoetmar, S. Geppert, and D. Seiler

This study uses three experiments with different kinds of training conditions to investigate the “easy-to-hard” principle, context interference conditions, and feedback effects for learning anticipatory skills in badminton. Experiment 1 (N = 60) showed that a training program that gradually increases the difficulty level has no advantage over the randomized variant. Experiment 2 (N = 60) pointed out that when comparing the blocked (lateral before depth dimension) perceptual training group with the random perceptual training group a significant advantage for the random group was found in the retention test (depth error). Experiment 3 (N = 40) demonstrated that training with reduced feedback (66%) is no more effective than 100% feedback training in a group of novice performers.

Pedagogy

Effects of Teacher Autonomy Support and Students' Autonomous Motivation on Learning in Physical Education (pp. 44–53)

Bo Shen, Nate McCaughtry, Jeffrey Martin, and Mariane Fahlman

This study applied self-determination theory to investigate the effects of students' autonomous motivation and their perceptions of teacher autonomy support on need satisfaction adjustment, learning achievement, and cardiorespiratory fitness over a 4-month personal conditioning unit. Participants were 253 urban adolescents (121 girls and 132 boys, ages = 12–14 years). Based on a series of multiple regression analyses, perceived autonomy support by teachers significantly predicted students' need satisfaction adjustment and led to learning achievement, especially for students who were not autonomously motivated to learn in physical education. In turn, being more autonomous was directly associated with cardiorespiratory fitness enhancement. The findings suggest that shifts in teaching approaches toward providing more support for students' autonomy and active involvement hold promise for enhancing learning.

Physiology

Ice Hockey Players Using a Weighted Implement When Training on the Ice: A Randomized Control Trial (pp. 54–61)

Timothy W. Stark, Bojan Tvoric, Bruce Walker, Dom Noonan, and Janeene Sibla

The purpose of this study was to investigate the potential for improving hockey players' performance using a weighted implement on the ice. Forty-eight players were tested using a grip strength dynamometer. They also were assessed on their abilities to stick-handle. The participants were randomly placed into a control or research group. The conditioning drills were performed for 10–15 min 3 days/week for 6 weeks. Use of the weighted implement resulted in a significantly enhanced grip strength endurance and stick-handling ability ($p < .05$). Using weighted implements prior to a regular ice hockey training session may be of benefit to young hockey players to enhance their grip strength endurance and stick-handling abilities.

No Change of Body Mass, Fat Mass, and Skeletal Muscle Mass in Ultraendurance Swimmers After 12 Hours of Swimming (pp. 62–70)

Beat Knechtle, Patrizia Knechtle, René Kaul, and Götz Kohler

We evaluated whether ultraendurance swimmers suffer a change of body mass, fat mass, skeletal muscle mass, total body water, and specific gravity of urine during a 12-hr swim in 12 male Caucasian ultraswimmers. Proton nuclear magnetic resonance of urine samples before and after the race was performed to detect alanine, lactate, and 3-hydroxybutyrate. The 12 swimmers achieved an average distance of 29.4 km (SD = 5.1). No statistically significant changes in body mass, fat mass, skeletal muscle mass, and total body water could be determined ($p > .05$), but urine gravity decreased significantly ($p < .001$). Two participants showed increased signals of ketone bodies after the race. In these samples, the hydroxybutyrate-creatinine ratio increased more than tenfold.

Comparison of Heart Rate Response to Tennis Activity Between Persons With and Without Spinal Cord Injuries: Implications for a Training Threshold (pp. 71–77)

J. P. Barfield, Laurie A. Malone, and Tristica A. Coleman

The purpose of this study was to evaluate the ability of individuals with spinal cord injury (SCI) to reach a training threshold during on-court sport activity. Monitors collected heart rate (HR) data every 5 s for 11 wheelchair tennis players (WCT) with low paraplegia and 11 able-bodied controls matched on experience and skill level (ABT). Average HR was determined for time spent in practice (e.g., drills) and game (i.e., a competitive set), and the ability to surpass 50% peak HR (HR_{peak}) and 64% HR_{peak} in each condition was evaluated. Average exercise intensity (%HR_{peak}) was not significantly different between the groups during practice (M WCT = 68.18, SD = 7.53%, M ABT = 68.78, SD = 5.44%; $t = .22$, $p = .83$) or game (M WCT = 68.17, SD = .17%, M ABT = 71.55, SD = 4.75%; $t = 1.12$, $p = .28$). All participants averaged an intensity $\geq 50\%$ HR_{peak} during practice and game, and the difference between group participants averaging an intensity $\geq 64\%$ HR_{peak} was not significant during practice ($\eta^2 = .92$, $p = .34$) or game ($\eta^2 = 3.85$, $p = .05$). In terms of reaching a health and fitness training threshold during tennis, individuals with low-level SCI are similar to matched controls.

Psychology

Exploring the Relationship Between Exercise-Induced Arousal and Cognition Using Fractionated Response Time (pp. 78–86)

Yu-Kai Chang, Jennifer L. Etnier, and Lisa A. Barella

Although a generally positive effect of acute exercise on cognitive performance has been demonstrated, the specific nature of the relationship between exercise-induced arousal and cognitive performance remains unclear. This study was designed to identify the relationship between exercise-induced arousal and cognitive performance for the central and peripheral components of a response time task at two different levels of task difficulty. Sixteen male participants performed both simple and choice response time tasks at eight different arousal levels (from 20% to 90% heart rate reserve). Performance on the simple and choice response time tasks was examined after fractionating the response time into its central component, premotor time, and peripheral components, motor, and movement time. A priori trend analysis was used to test both linear and quadratic relationships. Results indicated that exercise-induced arousal has a positive influence on the peripheral components of response time tasks; however, it has a limited impact on the central components of these tasks.

Sociology and Cultural Anthropology

Preadolescent Female Development Through Sport and Physical Activity: A Case Study of an Urban After-School Program (pp. 87–101)

Jennifer E. Bruening, Kydani M. Dover, and Brianna S. Clark

Youth development research has found that children become more engaged and benefit more from being incorporated as decision makers. Thus participation helps promote development and encourages engagement. Based in theories of engagement and free-choice learning, the current research focused on a program combining sport/physical activity, life skills, and mentoring while promoting healthy life choices for preadolescent girls of color. The co-investigators, all women, conducted two 2-hr visits per week for two 12-week periods with a group of 8 girls at a community recreation center in Hartford, Connecticut, including lessons in nutrition and life skills and participation in a sport/physical activity. Five of the girls completed every stage of data collection, including participant journals and four individual interviews with each participant and her parents, over the course of the 24 weeks. The co-investigators also kept journals throughout the program. The results reflected the following themes: self-esteem/self-worth, accountability/responsibility for self, connections to community and a sense of belonging, knowledge and acquisition of health/life skills, application of those skills, and planning and recognizing one's own influence on self and others.

African American Football Athletes' Perspectives on Institutional Integrity in College Sport (pp. 102–116)

John N. Singer

This qualitative case study used tenets of critical race theory and a single focus group and individual interviews with 4 African American football athletes at a predominantly White institution of higher education (PWIHE) in an effort to bring the voices of this marginalized group into the dialogue on issues concerning institutional integrity in college sport. Institutional integrity involves an athletic program's actual commitment to the educational interests of college athletes as expressed through their structures, functions, and activities. Three themes emerged from the data: (a) there is a need for more African American role models in leadership positions within the athletic departments of these PWIHE; (b) there is a need for more financial support for athletes; and (c) African American athletes should be given a platform to voice concerns. These findings have implications for those educational stakeholders and researchers who are genuinely concerned with institutional integrity in college sport.

Research Notes

Factorial Validity and Gender Invariance of the Physical Activity Enjoyment Scale (PACES) in Older Adolescents (pp. 117–121)

Genevieve Fridlund Dunton, James Tscherne, and Daniel Rodriguez

Ability Beliefs, Task Value, and Performance as a Function of Race in a Dart-Throwing Task (pp. 122–130)

Zan Gao, Maria Kosma, and Louis Harrison, Jr.