

Special Topic

Movement Variability in the Golf Swing: Theoretical, Methodological, and Practical Issues (pp. 157–161)
Paul Glazier

Epidemiology

BMI-Referenced Cut-Points for Recommended Daily Pedometer-Determined Steps in Australian Children and Adolescents (pp. 162–167)
Gavin R. McCormack, Jack Rutherford, Billie Giles-Corti, Catrine Tudor-Locke, and Fiona Bull

The purpose of this study was to establish sex-specific criterion-referenced standards for pedometer-determined physical activity related to body mass index (BMI)-defined weight status among youth. We analyzed data from 7–16-year-old boys ($n = 338$) and girls ($n = 337$) and used pedometer-assessed physical activity and anthropometric data to derive average steps/day and BMI. Sex-specific criterion-referenced standards for steps/day relating to healthy weight and overweight/obese were determined using the contrasting groups method. Healthy weight children took more steps/day than overweight or obese (boys: 14,413 vs. 12,088, and girls: 12,562 vs. 10,114, respectively; $p < .001$). The optimal BMI-referenced cut-point emerging from our sample was 16,000 steps/day for both boys and girls. Our results and those reported elsewhere suggest that youth take insufficient pedometer-determined steps/day to avoid becoming overweight.

Motor Behavior

Developmental and Contextual Risks of Social Physique Anxiety Among Female Athletes (pp. 168–177)
Jennifer L. Gay, Eva V. Monsma, and Toni M. Torres-McGehee

In the present study, we examined developmental and contextual factors that may increase the odds of reporting higher social physique anxiety (SPA) among 404 adolescent athletes 11 to 16 years old. Findings showed older, later maturing athletes past peak height velocity and with greater body mass index (BMI) reported higher SPA. Individual aesthetic sport athletes were older at menarche, had lower BMI, and reported higher SPA. The odds of reporting higher SPA were 4.5 times higher (odds ratio = 4.61) for individual aesthetic sport athletes than for nonaesthetic sport athletes. Team aesthetic sport contexts were not implicated in SPA risk. Results are discussed in terms of self-selection away from individual aesthetic sports and the relevance of physical size and puberty in the SPA construct.

Learning From the Experts: Gaining Insights Into Best Practice During the Acquisition of Three Novel Motor Skills (pp. 178–188)
Nicola J. Hodges, Christopher Edwards, Shaun Luttin, and Alison Bowcock

The amount and quality of practice predicts expertise, yet optimal conditions of practice have primarily been explored with novice learners. Ten expert musicians and ten novices practiced disc-throwing skills under self-regulated conditions. A third novice group practiced with the same schedule as the music experts (yoked). The groups did not differ in terms of the amount of contextual interference, only in terms of when in-practice interference was introduced. The music experts progressed from a more blocked to random schedule which was opposite to the novices. This resulted in more accurate performance in retention for the experts in comparison to both novice groups (self-scheduled and yoked). The music expert and yoked groups showed higher form scores than the novice self-scheduled group, which might be related to the greater frequency of augmented information for these groups. There was no evidence that non-task-domain experts choose a more random practice schedule than novices, but in accord with good practice principles, they gradually introduced high amounts of interference into their practice. This strategy was associated with less error in retention for the experts. Because the yoked group showed more error than the music experts, the advantage of this schedule was also performance dependent.

Acquisition of a Complex Basketball-Dribbling Task in School Children as a Function of Bilateral Practice Order (pp. 188–197)

Tino Stöckel, Matthias Weigelt, and Jürgen Krug

The purpose of this study was to investigate order-of-practice effects for the acquisition of a complex basketball skill in a bilateral transfer paradigm. The task required participants to dribble as fast as possible in slalom-like movements across six javelins and return to the initial position. Fifty-two right-handed school children (M age = 11.7 years) practiced this skill in eight sessions over 4 weeks under one of two training schedules: (a) with the dominant hand, before changing to their nondominant hand (D-ND group), or (b) with the nondominant hand, before changing to the dominant hand (ND-D group). All tests were conducted with the right hand or the left hand only, and a transfer test was given with both hands alternating. The results of a retention test yielded significantly larger learning gains for the ND-D group as compared to the D-ND group. It is interesting that this performance advantage was independent of the respective hand tested. The same pattern of result was found in the transfer test, with significantly shorter movement times for the ND-D group with both hands alternating. Such order-of-practice effects for the acquisition of complex skills can be explained with hemispheric brain asymmetries for the processing of specific task requirements.

Effects of Strategy Use on Children's Motor Performance in a Continuous Timing Task (pp. 198–209)

Ting Liu and Jody L. Jensen

The purposes of this study were to associate age-related performance deficits in children with the use of recall strategies and to determine whether children who performed poorly in cycling would benefit from learning a recall strategy. In Experiment 1, 18 younger children (ages 5–7 years) and 18 older children (ages 8–10 years) were asked to recall selected pedaling cadences. The majority of the older children used strategies and performed with less error than the younger children. In Experiment 2, children with a high number of errors in Experiment 1 were assigned to an experimental or a control group. The children in the experimental group were taught to use a specific recall strategy. The results showed that children who received the instruction in strategy use improved their performance.

New Walkers With Down Syndrome Use Cautious But Effective Strategies for Crossing Obstacles (pp. 210–219)

Genna M. Mulvey, Masayoshi Kubo, Chia-Lin Chang, and Beverly D. Ulrich

Perception of affordances research in children with developmental disabilities has only examined well practiced skills. Ten toddlers with Down syndrome and 10 with typical development walked across a GAITRite mat, with and without an obstacle. We coded the toddlers' behaviors after 1 and 3 months of walking experience when they encountered the obstacle (avoid, crawl, error, and walk successfully) and calculated gait parameters (step length, width, and velocity). Both groups actively explored their affordances. Despite similar decreases in step length and velocity when approaching the obstacle, toddlers with Down syndrome were more likely to select successful but conservative crawling strategies that minimized balance requirements and reduced risk of falling. Group differences were due to risk management rather than difficulty perceiving affordances.

The Overarm-Throwing Pattern Among U-14 ASA Female Softball Players: A Comparative Study of Gender, Culture, and Experience (pp. 220–228)

Laura Jones Petranek and Gina V. Barton

A developmental description of overarm-throwing characteristics of U-14 female ASA softball players is presented here. Comparisons were made between these athletes and teens of similar age in the United States (Runion, Robertson, & Langendorfer, 2003) and in Germany (Ehl, Robertson, & Langendorfer, 2005). A majority of the softball players demonstrated the most advanced developmental levels for the backswing, foot, humerus, and forearm components. Seventy percent ($n = 26$) demonstrated a Level 2 trunk, while 30% ($n = 11$) demonstrated a differentiated trunk, Level 3. The average throwing velocity was 62.58 ft/s (19.07 m/s). Comparisons were made to girls with less throwing experience in the United States (Runion et al.) and Germany (Ehl et al.); the softball players threw with greater velocity (9.12 ft/s [2.77 m/s] and 15.89 ft/s [4.84 m/s], respectively) and demonstrated superior trunk, humerus, and forearm actions. The boys from both countries threw the ball faster than the softball players. Significant chi-square analyses found the softball players had superior

humeral actions (Level 3) compared to the German boys and superior forearm actions (Level 3) compared to both groups of boys. Experience seems to have an impact when comparisons among girls are made; yet, explanations for differences seen between boys and girls still remain unclear and warrant further research.

Pedagogy

Excellence in Coaching: The Art and Skill of Elite Practitioners (pp. 229–238)

Christine S. Nash, John Sproule, and Peter Horton

During this study, 10 expert coaches were interviewed to examine their views on aspects of their individual coaching practice. Four themes emerged from the interviews: (a) the long-term approach, (b) the authentic coaching environment, (c) creating a learning environment, and (d) the quality and quantity of training sessions. These coaches were consistent in their attempts to facilitate learning experiences for the athletes, while setting high standards in both training and competition. The study's findings show that expert coaches have to orchestrate a large number of variables when planning and executing a training session, and their success depends on their coaching knowledge and their skill at contextualizing the necessary components for specific situations.

Physical Education Teachers' Beliefs and Intentions Toward Teaching Students With Disabilities (pp. 239–246)

Mihye Jeong and Martin E. Block

The Theory of Planned Behavior (TpB) measures the effect that individuals' behavioral belief, normative belief, and control beliefs have on their intentions to perform a specific behavior. The purpose of this study was to examine: (a) whether the TpB could predict physical educators' intentions and (b) whether physical educators' intentions and control beliefs could predict their self-reported teaching behavior. A sample of 220 physical educators completed the questionnaire. Stepwise multiple regression analysis revealed that the TpB significantly predicted physical educators' intentions, $F(3, 216) = 57.21, p < .01$. However, only intention was a significant predictor of physical educators' self-reported behavior in teaching students with disabilities, $F(2, 123) = 34.04, p < .01$.

Using Social Cognitive Theory to Predict Physical Activity and Fitness in Underserved Middle School Children (pp. 247–255)

Jeffrey J. Martin, Nate McCaughtry, Sara Flory, Anne Murphy, and Kimberlydawn Wisdom

Few researchers have used social cognitive theory and environment-based constructs to predict physical activity (PA) and fitness in underserved middle-school children. Hence, we evaluated social cognitive variables and perceptions of the school environment to predict PA and fitness in middle school children ($N = 506$, ages 10–14 years). Using multiple regression analyses we accounted for 12% of the variance in PA and 13–21% of the variance in fitness. The best predictors of PA were barrier self-efficacy, classmate social support, and gender; whereas, only gender predicted fitness. The results affirmed the importance of barrier self-efficacy and gender differences. Our findings regarding classmate social support are some of the first to illuminate the importance of school-specific peers in promoting PA.

Physiology

Heart Rates of Elementary Physical Education Students During the Dancing Classrooms Program (pp. 256–263)

Larry Nelson, Melissa Evans, Wendy Guess, Mary Morris, Terry Olson, and John Buckwalter

We examined how different types of dance activities, along with their duration, influenced heart rate responses among fifth-grade physical education students ($N = 96$) who participated in the Dancing Classrooms program. Results indicated that the overall Dancing Classrooms program elicits a moderate cardiovascular heart rate response ($M = 124.4$ bpm), in which 47% of class time was spent above a 60% maximal heart rate threshold. The swing dance in particular ($M = 143.4$ bpm) stimulated a much higher heart rate level than all other dances in the program, with a mean heart rate change of 52.6 bpm. Girls (127.3 bpm) achieved marginally higher heart rates ($p = .059$) than boys (121.1 bpm).

VO₂ Prediction and Cardiorespiratory Responses During Underwater Treadmill Exercise (pp. 264–273)

Nicholas P. Greene, Elizabeth S. Greene, Aaron F. Carbuhn, John S. Green, and Stephen F. Crouse

We compared cardiorespiratory responses to exercise on an underwater treadmill (UTM) and land treadmill (LTM) and derived an equation to estimate oxygen consumption (VO₂) during UTM exercise. Fifty-five men and women completed one LTM and five UTM exercise sessions on separate days. The UTM sessions consisted of chest-deep immersion, with 0, 25, 50, 75, and 100% water-jet resistance. All session treadmill velocities increased every 3 min from 53.6 to 187.8 m·min⁻¹. Cardiorespiratory responses were similar between LTM and UTM when jet resistance for UTM was ≥ 50%. Using multiple regression analysis, weight-relative VO₂ could be estimated as: $VO_2 (\text{mLO}_2 \cdot \text{kg}^{-1} \cdot \text{min}^{-1}) = 0.19248 \cdot \text{height (cm)} + 0.17422 \cdot \text{jet resistance (\% max)} + 0.14092 \cdot \text{velocity (m} \cdot \text{min}^{-1}) - 0.12794 \cdot \text{weight (kg)} - 27.82849$, $R^2 = .82$. Our data indicate that similar LTM and UTM cardiorespiratory responses are achievable, and we provide a reasonable estimate of UTM VO₂.

Psychology

Revisiting the Relationship Between Exercise Heart Rate and Music Tempo Preference (pp. 274–284)

Costas I. Karageorghis, Leighton Jones, David-Lee Priest, Rose I. Akers, Adam Clarke, Jennifer M. Perry, Benjamin T. Reddick, Daniel T. Bishop, and Harry B. T. Lim

In the present study, we investigated a hypothesized quartic relationship (meaning three inflection points) between exercise heart rate (HR) and preferred music tempo. Initial theoretical predictions suggested a positive linear relationship (Iwanaga, 1995a, 1995b); however, recent experimental work has shown that as exercise HR increases, step changes and plateaus that punctuate the profile of music tempo preference may occur (Karageorghis, Jones, & Stuart, 2008). Tempi bands consisted of slow (95–100 bpm), medium (115–120 bpm), fast (135–140 bpm), and very fast (155–160 bpm) music. Twenty-eight active undergraduate students cycled at exercise intensities representing 40, 50, 60, 70, 80, and 90% of their maximal HR reserve while their music preference was assessed using a 10-point scale. The Exercise Intensity x Music Tempo interaction was significant, $F(6.16, 160.05) = 7.08$, $p < .001$, $\eta_p^2 = .21$, as was the test for both cubic and quartic trajectories in the exercise HR–preferred-music-tempo relationship ($p < .001$). Whereas slow tempo music was not preferred at any exercise intensity, preference for fast tempo increased, relative to medium and very fast tempo music, as exercise intensity increased. The implications for the prescription of music in exercise and physical activity contexts are discussed.

There Is an “I” in TEAM: Narcissism and Social Loafing (pp. 285–290)

Tim Woodman, Ross Roberts, Lew Hardy, Nichola Callow, and Catherine H. Rogers

We investigated narcissism as a moderator of social loafing on a physical performance task. High and low narcissistic individuals twice performed a cycling task in same-sex teams of three: once when identifiability was low; and once when identifiability was high. A significant interaction between narcissism and identifiability was revealed, $F(1, 40) = 4.09$, $p < .05$, $\eta^2 = .09$ for performance. Follow-up tests indicated that high narcissists' performance significantly increased with greater identifiability, whereas low narcissists displayed no such performance differences. Results suggested that this effect was due to an increase in narcissists' on-task effort (ratings of perceived exertion and heart rate) when they knew that their performance was to be identified.

Effects of a 12-Week Resistance Exercise Program on Physical Self-Perceptions in College Students (pp. 291–301)

Justin B. Moore, Nathanael G. Mitchell, Wendy S. Bibeau, and John B. Bartholomew

There is an increase in literature suggesting exercise can promote positive changes in physical self-perceptions that can manifest as an increase in global self-esteem. In the present study, we assessed self-esteem using the hierarchical framework of the Exercise and Self-Esteem Model (EXSEM) along with cognitive facets at the subdomain level (e.g., competence, certainty, importance, and ideal self-discrepancy). This allowed for an analysis of cognitive facets as possible contributors to changes in physical self-perceptions. We addressed these aims with a sample of 120 college-age adults who completed a 12-week resistance exercise program. Results indicated significant improvements in self-perception constructs at all levels of the EXSEM. The hierarchical structure of the EXSEM was partially supported, as we observed successively smaller improvements at each level of the model (e.g., self-esteem showed lesser improvements than physical self-worth). In addition, a path model

developed to explain the impact of strength changes on self-esteem proved a good fit for the data. Results are discussed in terms of contemporary models of self-perception, potential mediators of exercise on self-esteem, and the need to consider cognitive facets of self-perception.

Attentional Bias for Exercise-Related Images (pp. 302–309)

Tanya R. Berry, John C. Spence, and Sean M. Stolp

This research examined attentional bias toward exercise-related images using a visual probe task. It was hypothesized that more-active participants would display attentional bias toward the exercise-related images. The results showed that men displayed attentional bias for the exercise images. There was a significant interaction of activity level by gender, and simple slopes analysis showed that active women displayed attentional bias toward the exercise-related images and inactive women displayed attentional bias toward the control images. A similar analysis with explicit attention to the pictures as the outcome variable was not significant. These findings confirm that attention for exercise-related images can be captured automatically regardless of whether people report they are attending to them.

Sociocultural Foundations

Muscle Dysmorphia, Gender Role Stress, and Sociocultural Influences: An Exploratory Study (pp. 310–319)

Tucker Readdy, Patti Lou Watkins, and Bradley J. Cardinal

Our study explored the contribution of gender role stress (GRS) and sociocultural appearance demands to symptoms of muscle dysmorphia (MD) in a college sample of 219 women and 154 men. For women, five GRS subscales, sociocultural appearance demands, age, and frequency of aerobic exercise predicted MD symptoms (model $R^2 = .33$; $F(8,210) = 12.81$, $p < .001$); for men, only one GRS subscale, age, and sociocultural appearance demands predicted MD symptoms (model $R^2 = .40$; $F(3,150) = 9.52$, $p < .001$). Post hoc analyses revealed that a small number of items explained a substantial portion of the variation, suggesting that MD may be more related to specific perceptions of pressure to attain an attractive body than to global gender role stress.

Striving to Be in the Profession and of It: The African American Experience in Physical Education and Kinesiology (pp. 320–333)

David K. Wiggins and Brenda P. Wiggins

This study analyzes the experiences of African Americans in the physical education and kinesiology profession since the late 1850s. Using a variety of primary and secondary source material, we place special emphasis on the experiences of African American physical educators in higher education and in the American Alliance for Health, Physical Education, Recreation and Dance and its southern, regional, and state chapters. Apparent from this examination is that African Americans have experienced various forms of racially discriminatory practices in physical education and kinesiology and have found it extraordinarily difficult to assume leadership positions in the profession and be acknowledged for their scholarly and academic accomplishments.

Positive Functions of Emotions in Achievement Sports (pp. 334–344)

Núria Puig and Anna Vilanova

This article presents the results of two research projects on the emotions of men engaged in achievement outdoor sports. The conditions were analyzed under which emotions carry out positive functions. The question strikes us as a fundamental one, because it is of crucial importance when it comes to increasing sportspeople's success. The theoretical framework applied was that of microfunctionalism. The method, of a qualitative nature, was based on in-depth interviews, each lasting between 1.5 and 2 hr, with a total of 14 sportspersons. The results show that in order for emotions to fulfill positive functions, three conditions must be met: (a) existence of passion, which, with its dialectical character of pleasure and suffering, underlies all the other emotions and acts as a motor that pushes the sportsperson forward, despite all the contretemps he might meet on the way; (b) intense emotion work, which may be conducted only if accompanied by knowledge and experience of the natural environment acquired over the years; and (c) conciliation between emotion work and the feeling rules characteristic of each sport subculture. For those individuals who pursue achievement in outdoor sports, these results will provide more concrete indications regarding how to carry out the emotional preparation required for these sports.

Research Notes

Body Mass Index and Skinfold Thickness Measurements as Body Composition Screening Tools in Caucasian and African American Youth (pp. 345–349)

Charity Leigh Bryan, Melinda A. Solmon, Michael T. Zanovec, and Georgianna Tuuri

The Effect of Climbing Wall Use on the Grip Strength of Fourth-Grade Students (pp. 350–354)

Cathy D. Lirgg, Ro Dibrezzo, Michelle Gray, and Travis Esslinger

Effect of a Mastery Climate Motor Program on Object Control Skills and Perceived Physical Competence in Preschoolers (pp. 355–359)

Leah E. Robinson

Feedback After Good Versus Poor Trials Affects Intrinsic Motivation (pp. 360–364)

Rokhsareh Badami, Mohammad VaezMousavi, Gabriele Wulf, and Mahdi Namazizadeh

How Much Walking Is Needed To Improve Cardiorespiratory Fitness? An Examination of the 2008 Physical Activity Guidelines for Americans (pp. 365–370)

Stephen D. Anton, Glenn E. Duncan, Marian C. Limacher, Anthony D. Martin, and Michael G. Perri

Commentary

Errata (pp. 371–372)