

Biomechanics

The Relationship Between Running Economy and Biomechanical Variables in Distance Runners (pp. 367–375)

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In this study, we analyzed the relationship between running economy (RE) and biomechanical parameters in a group running at the same relative intensity and same absolute velocity. Sixteen homogeneous male long-distance runners performed a test to determine RE at 4.4 m.s⁻¹, corresponding to 11.1% below velocity at the ventilatory threshold. We found significant correlations between RE and biomechanical variables (vertical oscillation of the center of mass, stride frequency, stride length, balance time, relative stride length, range of elbow motion, internal knee, ankle angles at foot strike, and electromyographic activity of the semitendinosus and rectus femoris muscles). In conclusion, changes in running technique can influence RE and lead to improved running performance.

Epidemiology

Differences in the Intensity and Duration of Adolescents' Sports and Exercise Across Physical and Social Environments (pp. 376–382)

Genevieve Fridlund Dunton, David Berrigan, Rachel Ballard-Barbash, Frank Perna, Barry I. Graubard, and Audie A. Atienza

We used data from the American Time Use Survey (years 2003–06) to analyze whether the intensity and duration of high school students' (ages 15–18 years) sports and exercise bouts differed across physical and social environments. Boys' sports and exercise bouts were more likely to reach a vigorous intensity when taking place at school and with friends/acquaintances/other people; whereas girls' sports and exercise bouts were more likely to reach a vigorous intensity when outdoors and alone. For boys and girls, bout durations were greater at school and with friends/acquaintances/other people than in other environments. Overall, environmental influences on the intensity but not duration of sports and exercise bouts appear to differ between boys and girls.

Measurement and Evaluation

The Reliability of Classification Decisions for the Furtado-Gallagher Computerized Observational Movement Pattern Assessment System—FG-COMPASS (pp. 383–390)

Ovande Furtado, Jr., and Jere D. Gallagher

Mastery of fundamental movement skills (FMS) is an important factor in preventing weight gain and increasing physical activity. To master FMS, performance evaluation is necessary. In this study, we investigated the reliability of a new observational assessment tool. In Phase I, 110 video clips of children performing five locomotor, and six manipulative FMSs were developed. In Phase II, rating scales were developed, and their efficacy was evaluated by comparing judgments of 30 undergraduate students to a standard. The mean weighted kappa (.71) was considered good (range .51–.85). Of the 11 rating scales, 6 were modified, and 5 remained unchanged. This study sets the foundation for the development of a new observational scale to assess fundamental movement skills.

Influence of Weight Classification on Walking and Jogging Energy Expenditure Prediction in Women (pp. 391–399)

Timothy D. Heden, James D. LeCheminant, and John D. Smith

The purpose of this study was to determine the influence of weight classification on predicting energy expenditure (EE) in women. Twelve overweight (body mass index [BMI] = 25–29.99 kg/m²) and 12 normal-weight (BMI = 18.5–24.99 kg/m²) women walked and jogged 1,609 m at 1.34 m.s⁻¹ and 2.23 m.s⁻¹, respectively, while EE was assessed using indirect calorimetry and compared to several other prediction methods (American College of Sports Medicine [ACSM], 2010; Heyward, 2006; Léger & Mercier, 1984; McArdle, Katch, & Katch, 2006; Pandolf, Givoni, & Goldman, 1978; van der Walt & Wyndham, 1973). More error occurred with overweight EE prediction compared to normal-weight EE prediction. The ACSM and Heyward methods for walking and the McArdle et al. method for jogging most accurately predicted EE for both groups. Weight classification influences EE prediction accuracy and, thus, is important to consider when using these prediction methods.

Does Computer-Based Motor Skill Assessment Training Transfer To Live Assessing? (pp. 400–406)

Luke E. Kelly, Andrea Taliaferro, and Jennifer Krause

Developing competency in motor skill assessment has been identified as a critical need in physical educator preparation. We conducted this study to evaluate (a) the effectiveness of a web-based instructional program—Motor Skill Assessment Program (MSAP)—for developing assessment competency, and specifically (b) whether competency developed by using this method transferred to participants' ability to accurately assess actual students in a gymnasium setting. Participants were 36 (9 men and 27 women) preservice kinesiology majors. Results revealed they performed significantly better on assessing a motor skill after using MSAP training, and this training transferred to significant improvements in accurately assessing students in an actual gymnasium setting.

Motor Behavior

Effect of Ball Mass on Dribble, Pass, and Pass Reception in 9–11-Year-Old Boys' Basketball (pp. 407–412)

José L. Arias, Francisco M. Argudo, and José I. Alonso

The objective of the study was to analyze the effect of ball mass on dribble, pass, and pass reception in real game situations in 9–11-year-old boys' basketball. Participants were 54 boys identified from six federated teams. The independent variable was ball mass, and dependent variables were number of dribbles, passes, and pass receptions. Three situations were established in which the participants played four games with each of the following: (a) regulation ball (485 g, 69–71 cm), (b) ball of smaller mass (440 g, 69–71 cm), and (c) ball of greater mass (540 g, 69–71 cm). Four observers recorded data from observing game videos using a computerized register instrument. Participants executed more dribbles, passes, and pass receptions with the 440-g ball when compared to the regulation ($p < .05$) and 540-g ball ($p < .01$). Reduction of ball mass seems to have enabled the children to go from paying attention to aspects related to ball handling to aspects of game interpretation.

A Model for the Transfer of Perceptual-Motor Skill Learning in Human Behaviors (pp. 413–421)

Simon M. Rosalie and Sean Müller

This paper presents a preliminary model that outlines the mechanisms underlying the transfer of perceptual-motor skill learning in sport and everyday tasks. Perceptual-motor behavior is motivated by performance demands and evolves over time to increase the probability of success through adaptation. Performance demands at the time of an event create a unique transfer domain that specifies a range of potentially successful actions. Transfer comprises anticipatory subconscious and conscious mechanisms. The model also outlines how transfer occurs across a continuum, which depends on the individual's expertise and contextual variables occurring at the incidence of transfer.

Physiology

The Relationship of Actigraph Accelerometer Cut-Points for Estimating Physical Activity With Selected Health Outcomes: Results From NHANES 2003–06 (pp. 422–430)

Paul D. Loprinzi, Hyo Lee, Bradley J. Cardinal, Carlos J. Crespo, Ross E. Andersen, and Ellen Smit

The purpose of this study was to examine the influence of child and adult cut-points on physical activity (PA) intensity, the prevalence of meeting PA guidelines, and association with selected health outcomes. Participants (6,578 adults ≥ 18 years, and 3,174 children and adolescents ≤ 17 years) from the National Health and Nutrition Examination Survey 2003–06 (Centers for Disease Control and Prevention, 2006) wore an accelerometer for 7 days. PA intensity was estimated with 5 child-derived and 12 adult-derived cut-points. For all, the cut-point influenced PA intensity and the prevalence of meeting PA guidelines. Similarly, cut-point selection influenced the relationship between physical activity and various health outcomes. Future research should further enhance meaningful cut-points relevant to populations with diverse health and age profiles.

Psychology

Social Connection and Psychological Outcomes in a Physical Activity-Based Youth Development Setting (pp. 431–441)

Sarah Ullrich-French, Meghan H. McDonough, and Alan L. Smith

It is believed that the social connections formed by participating in physical activity-based positive youth development (PYD) programs contributes to building personal and social assets. In this study, we examined how changes in social connection over a physical activity-based PYD program for low-income youth were associated with changes in psychological outcomes. Participants ($N = 197$) completed pre- and postprogram questionnaires assessing leader support, social competence, physical competence, and psychological outcomes (global self-worth, physical self-worth, attraction to physical activity, and hope). Social competence, physical competence, physical self-worth, and global self-worth

increased significantly over the 4-week program. Changes in social connections predicted changes in psychological outcomes. Effect sizes were modest but suggest that social interventions hold potential to promote positive outcomes in underserved youth.

Selective Influence of Circadian Modulation and Task Characteristics on Motor Imagery Time (pp. 442–450)

Ursula Debarnot, Djafar Sahraoui, Stéphane Champely, Christian Collet, and Aymeric Guillot

In this study, we examined the effect of circadian modulation on motor imagery (MI) time while also considering the effects of task complexity and duration. The ability to imagine in real time was influenced by circadian modulation in a simple walking condition, with longer MI times in the morning and evening sessions. By contrast, there was no effect of circadian rhythm in the complex, short or long walking conditions. We concluded that motor imagery time is modulated during the course of the day, but the effect of task difficulty is stronger than circadian modulation in altering the temporal congruence between physical practice and MI performance. Practical applications in motor learning and rehabilitation are discussed.

Women's Health-Enhancing Physical Activity and Eudaimonic Well Being (pp. 451–463)

Leah J. Ferguson, Kent C. Kowalski, Diane E. Mack, Philip M. Wilson, and Peter R. E. Crocker

In this study, we explored the role of health-enhancing physical activity (HEPA; Miilunpalo, 2001) in women's eudaimonic well being (i.e., psychological flourishing at one's maximal potential; Ryff, 1989). We used a quantitative approach ($N = 349$) to explore the relationship between HEPA and eudaimonic well being. While HEPA was not related to eudaimonic well being, experiencing eudaimonia through HEPA contributed unique variance in eudaimonic well being beyond HEPA and experiencing hedonia through HEPA. As quality of activity was more important than quantity, a qualitative component ($N = 10$) provided further insight on if and how HEPA contributes to women's eudaimonic well being. Participants supported HEPA in fulfilling their potential through goal setting/striving, providing bonding experiences, allowing for self-reflection, and developing a physical/able body.

Training Visual Control in Wheelchair Basketball Shooting (pp. 464–469)

Raoul R. D. Oudejans, Sjoerd Heubers, Jean-René J. A. C. Ruitenbeek, and Thomas W. J. Janssen

We examined the effects of visual control training on expert wheelchair basketball shooting, a skill more difficult than in regular basketball, as players shoot from a seated position to the same rim height. The training consisted of shooting with a visual constraint that forced participants to use target information as late as possible. Participants drove under a large screen that initially blocked the basket. As soon as they saw the basket they shot. When training with the screen, shooting percentages increased. We conclude that visual control training is an effective method to improve wheelchair basketball shooting. The findings support the idea that perceptual-motor learning can be enhanced by manipulating relevant constraints in the training environment, even for expert athletes.

Sociocultural Foundations

Checking In: An Analysis of the (Lack of) Body Checking in Women's Ice Hockey (pp. 470–478)

Charlene Weaving and Samuel Roberts

Despite the growing popularity of women's ice hockey in North America, players continue to face limitations because of the prohibition of body checking. In this paper, we argue from a liberal feminist philosophical perspective that this prohibition reinforces existing traditional stereotypes of female athletes. Because the women's game does not incorporate checking, female ice hockey players are not afforded the same opportunity to flourish as men and experience bodily agency, which results in continued male domination of the game, therefore, indirectly reinforcing a gender hierarchy in hockey and society.

Research Note

Implicit and Explicit Exercise and Sedentary Identity (pp. 479–484)

Tanya R. Berry and Shaelyn M. Strachan

We examined the relationship between implicit and explicit “exerciser” and “sedentary” self-identity when activated by stereotypes. Undergraduate participants ($N = 141$) wrote essays about university students who either liked to exercise or engage in sedentary activities. This was followed by an implicit identity task and an explicit measure of exercise self-identity. Results showed that implicit and explicit exerciser identities were not highly correlated. There were also no significant prime effects, but women showed greater implicit sedentary identity, whereas men showed greater implicit exercise identity. This research suggests that implicit exercise-related identity is a distinct construct from explicit exercise

identity. The results also reflect responses to societal pressures for women to be thin and for men to be strong, when free of self-presentational bias.