

### **McCloy Lecture**

*"Field of Dreams:" Sport as a Context for Youth Development*  
Maureen R. Weiss (pp. 434–449)

### **Biomechanics**

*The Influence of Matching Populations on Kinematic and Kinetic Variables in Runners With Iliotibial Band Syndrome* (pp. 450–457)  
Stefan Grau, Christian Maiwald, Inga Krauss, Detlef Axmann, and Thomas Horstmann

The purpose of this study was to assess how participant matching influences biomechanical variables when comparing healthy runners and runners with iliotibial band syndrome (ITBS). We examined 52 healthy runners (CO) and 18 with ITBS, using three-dimensional kinematics and pressure distribution. The study population was matched in three ways and compared with the biomechanical findings: ITBS versus CO I (unmatched), ITBS versus CO II (matched to gender) and ITBS versus CO III (matched to gender, height, and weight). The final number of participants in each group was  $n = 18$ . The kinematic variables showed a dependency on the matching process. The largest statistically significant differences (after Bonferroni adjustment) in the frontal and transverse planes were between ITBS and CO III ( $p = .008$ ). Pressure measurements were also dependent on the matching process, with decreasing and nonsignificant differences ( $p = .006$ ) between ITBS and CO after refining the process (ITBS vs. CO III). The results of this study and the necessity of matching seem to be plausible (lever arms, different running styles). Data matching is important for understanding overuse injuries in running.

### **Epidemiology**

*Sedentary Activity and Body Composition of Middle School Girls: The Trial of Activity for Adolescent Girls* (pp. 458–467)  
Charlotte Pratt, Larry S. Webber, Chris D. Baggett, Dianne Ward, Russell R. Pate, David Murray, Timothy Lohman, Leslie Lytle, and John P. Elder

This study describes the relationships between sedentary activity and body composition in 1,458 sixth-grade girls from 36 middle schools across the United States. Multivariate associations between sedentary activity and body composition were examined with regression analyses using general linear mixed models. Mean age, body mass index, and percentage of body fat were  $12.0 \pm 0.51$ ,  $21.1 \text{ kg/m}^2 \pm 4.8$ ,  $28.5 \pm 8.9$ , respectively. Girls averaged  $7.7 \pm 1.2$  sedentary hours per day and about 13 hr (~97% of the day) of both sedentary and light activities. Overweight girls were significantly more (13 min;  $p < .003$ ) sedentary, especially after school ( $> 2 \text{ p.m.}$ ;  $p < .01$ ), and less physically active ( $p < .0001$ ) than normal weight girls. The study documents small but significant associations between sedentary activity and adiposity.

### **Measurement and Evaluation**

*Predicting Performance on a Firefighter's Ability Test From Fitness Parameters* (pp. 468–475)  
Marcos A. Michaelides, Koulla M. Parpa, Jerald Thompson, and Barry Brown

The purpose of this project was to identify the relationships between various fitness parameters such as upper body muscular endurance, upper and lower body strength, flexibility, body composition and performance on an ability test (AT) that included simulated firefighting tasks. A second intent was to create a regression model that would predict firefighter performance on the test. Thirty-eight experienced firefighters performed the AT and underwent assessments for the fitness parameters. Multiple regression analyses indicated that variation in the fitness parameters explained a significant,  $F(6, 36) = 6.31$ ,  $p < .001$ , proportion (55%) of the variation observed in the AT. The results demonstrated that upper muscular strength and endurance as well as low body composition were significantly related ( $p < .01$ ) to better performances on the simulated firefighting tasks. Variables such as low back and hamstring flexibility, upper and lower body strength, and body composition may contribute significantly to the model's predictive power.

## **Motor Control and Learning**

*Auditory Model: Effects on Learning Under Blocked and Random Practice Schedules* (pp. 476–486)

Dong-Wook Han and Charles H. Shea

An experiment was conducted to determine the impact of an auditory model on blocked, random, and mixed practice schedules of three five-segment timing sequences (relative time constant). We were interested in whether or not the auditory model differentially affected the learning of relative and absolute timing under blocked and random practice. Participants (N = 80) were randomly assigned to one of eight practice conditions, which differed in practice schedule (blocked-blocked, blocked-random, random-blocked, random-random) and auditory model (no model, model). The results indicated that the auditory model enhanced relative timing performance on the delayed retention test regardless of the practice schedule, but it did not influence the learning of absolute timing. Blocked-blocked and blocked-random practice conditions resulted in enhanced relative timing retention performance relative to random-blocked and random-random practice schedules. Random-random and blocked-random practice schedules resulted in better absolute timing than blocked-blocked or random-blocked practice, regardless of the presence or absence of an auditory model during acquisition. Thus, considering both relative and absolute timing, the blocked-random practice condition resulted in overall learning superior to the other practice schedules. The results also suggest that an auditory model produces an added effect on learning relative timing regardless of the practice schedule, but it does not influence the learning of absolute timing.

*Gait Transitions of Persons With and Without Intellectual Disability* (pp. 487–494)

Stamatis Agiovlasitis, Joonkoo Yun, Michael J. Pavol, Jeffrey A. McCubbin, and So-Yeun Kim

This study examined whether the walk-to-run transition speed (W-RTS) and the run-to-walk transition speed (R-WTS) were different or more variable between participants with and without intellectual disability (ID). Nine adults with ID and 10 adults without ID completed in a series of walk-to-run and run-to-walk trials on a treadmill. W-RTS and R-WTS were identified using force-sensitive resistors. When transition speeds were expressed as Froude numbers to account for differences in leg length, W-RTS was slower, and intraindividual variability of W-RTS and R-WTS was greater in participants with ID. These findings support the idea that the unique constraints of individuals with ID result in altered attractor dynamics for walking and a weaker coupling between locomotor speed and order parameters governing gait transitions.

## **Pedagogy**

*National Physical Education Standards: A Summary of Student Performance and Its Correlates* (pp. 495–505)

Heather E. Erwin and Darla M. Castelli

This study was one of the first to examine elementary student performance on the first four national standards for physical education (National Association for Sport and Physical Education, 2004). Motor skill competency, strategic knowledge, physical activity, and physical fitness measures were collected from fourth- and fifth-grade students (N = 180) in the midwestern United States. Students demonstrated difficulty in attaining all four standards, particularly physical activity. Both personal demographics and physical attributes influenced performance. In particular, gender was a correlate of motor competency. Although the expectations may not be attainable at given times because of developmental differences, the study results provide some support for the value of guiding students to competency in all standards, as opposed to a single expectation. These findings also suggest continued use of the standards as a framework for physical education. Further research is warranted to explain student performance levels and develop effective methods for competency.

*Classroom Teachers' Perceptions of the Impact of Barriers to Teaching Physical Education on the Quality of Physical Education Programs* (pp. 506–516)

Philip J. Morgan and Vibeke Hansen

A major aim of the current study was to determine what classroom teachers perceived to be the greatest barriers affecting their capacity to deliver successful physical education (PE) programs. An additional aim

was to examine the impact of these barriers on the type and quality of PE programs delivered. This study applied a mixed-mode design involving data source triangulation using semistructured interviews with classroom teachers (n = 31) and teacher-completed questionnaires (n = 189) from a random sample of 38 schools. Results identified the key factors inhibiting PE teachers, which were categorized as teacher-related or institutional. Interestingly, the five greatest barriers were defined as institutional or out of the teacher's control. The major adverse effects of these barriers were evident in reduced time spent teaching PE and delivering PE lessons of questionable quality.

### **Physiology**

*Squat Jump Performance During Growth in Both Sexes: Comparison With Cycling Power* (pp. 517–524)  
Eric Doré, Mario Bedu, and Emmanuel Van Praagh

The purpose of this cross-sectional study was to investigate leg muscle power and compare two activities (jumping and cycling) in 383 girls and 407 boys ages 9–19 years. Results in anthropometric characteristics and jumping performance were comparable until midadolescence, and sex differences were observed. Lean leg volume (LLV) was the reason for most of the variance (76% in girls and 88% in boys) in jumping performance. However, the LLV exponent was higher than expected in boys but not girls. Therefore, unidentified qualitative changes of muscle function during growth in boys must be considered. The squat jump index (SJI) was highly correlated to cycling peak power (CPP; N = 790,  $r = .94$ ,  $p < .001$ ). Although prediction error of CPP from SJI was less than 5% when considering each sex-and-age group, individual errors mounted to 40%. Due to its practicability, SJI is recommended in large-scale developmental prospective studies. However, cycling and jumping protocols are not interchangeable when measuring peak power values.

### **Psychology**

*Active and Passive Commuting to School: Influences on Affect in Primary School Children* (pp. 525–534)  
Angela Hulley, Nick Bentley, Catherine Clough, Adelle Fishlock, Frances Morrell, James O'Brien, and Joseph Radmore

Active commuting among school children is being encouraged for physical and environmental reasons, but little is known about its influence on affect. The aim of this study was to test the hypothesis that children who walk further to school experience increased arousal and affective valence compared with children who walk a short distance. This was assessed with the children's feeling scale (CFS) and children's felt arousal scale (CFAS). Distance walked to school and affective change between home and school were assessed over a 2-week period in 99 children between 5 and 10 years of age. Home to school differences in CFS and CFAS scores were compared in children who walked a short (100–300 m); medium (301–500 m), and long distance (over 500 m). Although differences were not always statistically significant, there was evidence that the children who walked further reported a greater increase in their CFAS scores between home and school (average  $\eta^2 = .08$ , range: .01–.15) and, to a lesser extent, in their CFS scores ( $\eta^2 = .04$ , range: .002–.06). Further research is needed to explore whether there is an optimum walking distance and the contribution of other factors, especially social contacts during commuting, the environment, and the weather.

### **Research Notes**

*The Effect of an Acute After-School Exercise Bout on Percentage of Body Fat Using Leg-to-Leg Bioelectrical Impedance Analysis in Children* (pp. 535–539)

Joseph L. Andreacci, Curt B. Dixon, Krista Rompolski, and Kelly M. VanGorden

*A Comparison of Supply and Demand for PETE Faculty: The Changing Landscape* (pp. 540–545)

B. Ann Boyce and G. Linda Rikard

### **Index**

Reviewer List (pp. 546–547)

Index Volume 79 (pp. 548–556)