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McCloy Lecture

At the Crossroads: Contributions of Response Selection Processes to Human Performance (pp. 343–351)
T. Gilmour Reeve

Epidemiology

Physical Activities and Sedentary Pursuits in African American and Caucasian Girls (pp. 352–360)
Marsha Dowda, Russell R. Pate, Gwen M. Felton, Ruth Saunders, Dianne S. Ward,
Rod K. Dishman, and Stewart G. Trost

The purposes of this study were to describe and compare the specific physical activity choices and sedentary pursuits of African American and Caucasian American girls. Participants were 1,124 African American and 1,068 Caucasian American eighth-grade students from 31 middle schools. The 3-Day Physical Activity Recall (3DPAR) was used to measure participation in physical activities and sedentary pursuits. The most frequently reported physical activities were walking, basketball, jogging or running, bicycling, and social dancing. Differences between groups were found in 11 physical activities and 3 sedentary pursuits. Participation rates were higher in African American girls ($p < .001$) for social dancing, basketball, watching television, and church attendance but lower in calisthenics, ballet and other dance, jogging or running, rollerblading, soccer, softball or baseball, using an exercise machine, swimming, and homework. Cultural differences of groups should be considered when planning interventions to promote physical activity.

Growth and Motor Development

Adapting to Changing Task Demands: Variability in Children's Response to Manipulations of Resistance and Cadence During Pedaling (pp. 361–369)
Jody L. Jensen and Thomas Korff

Reduction in performance variability is characteristic of skill acquisition during childhood. Less understood is the role of variability in adaptive skill. The purpose of this study was to determine children's capacity for adapting to changing task requirements. Children ages 4–14 years and adults rode a stationary ergometer at different levels of cadence and resistance. Younger children were less successful in meeting task requirements. When they did succeed, the younger children were more variable. However, no interactions were found. Variability did not change with resistance, and all groups showed increasing variability as cadence increased. It was concluded that in spite of a weaker synergy (more variability), children were adept to changes in task demand within tested limits.

Measurement and Evaluation

Comparison of the Computerized ACTIVITYGRAM Instrument and the Previous Day Physical Activity Recall for Assessing Physical Activity in Children (pp. 370–380)
Gregory J. Welk, David A. Dzewaltowski, and Jennie L. Hill

This study compared the validity of children's physical activity recall through a computerized assessment (ACTIVITYGRAM) and through a popular paper and pencil assessment (Previous Day Physical Activity Recall; PDPAR). A total of 147 sixth-grade children from two schools completed the two recall instruments. Data from both self-report instruments were obtained over the same 3 days, and these data were matched by time with data from a subsample of children who wore an accelerometry-based activity monitor ($n = 28$). To confirm previous validity research with the PDPAR, a larger sample ($n = 128$) with matched data on the PDPAR and the accelerometer were also used. Activity levels recorded from all three instruments were computed for three periods (afternoon: 3–6 pm, evening: 6–11 p.m. and afternoon/evening: 3–11 p.m.). Descriptive and correlational analyses were conducted across days and for the separate time periods to evaluate the two self-report instruments. There were no differences in mean activity bouts reported on the ACTIVITYGRAM and the PDPAR ($p > .05$). Correlations with the activity monitor were above .50 for both the PDPAR and the ACTIVITYGRAM, and the relationships were consistent across days and periods for both measures. The magnitude of the correlations varied widely in the two schools for the ACTIVITYGRAM comparisons ($r = .80$ vs. $r = .20$) but not for the PDPAR, suggesting differential administration or understanding of the ACTIVITYGRAM instrument. Direct correlations between the ACTIVITYGRAM and the PDPAR measures were high ($r = .72$), and classification agreement exceeded 80% for the school that provided adequate assistance and training on the ACTIVITYGRAM. Results were weaker in the school with less staff support. This study provides convergent and criterion evidence to support the validity of the computerized ACTIVITYGRAM assessment and suggests similar

information as the paper and pencil PDPAR assessment in young children. The study also revealed no differences in PDPAR values or associations, when a simpler scoring procedure was used instead of the traditional more complex metabolic equivalent-based approach.

Motor Control and Learning

Sensory Integration in the Learning of Aiming Toward "Self-Defined" Targets (pp. 381–387)
Christelle Robin, Lucette Toussaint, Yannick Blandin, and Annie Vinter

This study aimed at supporting the specificity of learning hypothesis, when aiming was based on internal cues, as directing the hand toward a "self-defined" target location. Participants practiced modest (20 trials) or intensive (720 trials) training with visual and proprioceptive information or proprioceptive information only. Pretests and posttests were performed in sensory conditions that did or did not match the training condition. Results showed that dynamic visual cues played a dominant role at the beginning of the task, and an intensive practice resulted in increased accuracy of kinesthetic information and efferent mechanisms of motor responses. These results have implications with regard to motor learning conceptions and training as a function of the task constraints.

Pedagogy

Analysis of Coaching Science Research Published From 1970–2001 (pp. 388–399)
Wade D. Gilbert and Pierre Trudel

The study followed a four-phase design. In Phase I an exhaustive search was conducted for all English language coaching research published in journals from 1970 to 2001. In Phase II, copies of the research were obtained. An expert panel conducted a manual search and a review in Phase III to address validity. Analysis of the research was completed in Phase IV (Culver, Gilbert, & Trudel, 2003; Silverman & Skonie, 1997). Over 1,100 articles were reviewed, and 610 met the inclusion criteria. Selected findings include: (a) a relatively low mean spread across many journals, (b) a focus on coaching behavior using quantitative methodologies, and (c) a primary emphasis on team sports in school contexts.

Learning to Read Gender Relations in Schooling: Implications of Personal History and Teaching Context on Identifying Disempowerment for Girls (pp. 400–412)
Nate McCaughtry

The purpose of this study was to examine how one secondary physical education teacher understood gender at her school and how that understanding developed. Theoretical perspectives on feminism and the nature of teachers' knowledge guided the inquiry. Data were collected through 20 teacher observations and 60 interviews over 4 months and analyzed using constant comparison with frequent member checks to facilitate accuracy. Three main findings emerged. First, this teacher identified two aspects of the broader school culture, which she believed sent students, particularly girls, gendered and patriarchal messages of social positions. Second, she described a number of practices in the traditional physical education program, which she believed contributed further to girls' disempowerment. Finally, this teachers' stance in the political structure of the school both constrained and enhanced the development of her understanding of gender. Findings are discussed in relation to feminist theoretical stances and feminist teacher knowledge development.

Physiology

A Meta-Analysis of Periodized Versus Nonperiodized Strength and Power Training Programs (pp. 413–422)
Matthew R. Rhea and Brandon L. Alderman

The purpose of this study was to quantitatively combine and examine the results of studies examining the effectiveness of periodized (PER) compared to nonperiodized (Non-PER) training programs for strength and/or power development. Two analyses were conducted to (a) examine the magnitude of treatment effect elicited by PER strength training programs compared to Non-PER programs and (b) compare these effects after controlling for training volume, frequency, and intensity. Studies meeting the inclusion criteria were coded based on characteristics that might moderate the overall effects (i.e., participant characteristics and characteristics related to the training program). Effect sizes (ESs) were calculated for each study, and an overall ES of 0.84 (± 1.41) favoring PER training was found. Further analyses identified the treatment effect specific to training variation to be ES = 0.25. Significant moderating variables included age, training status, and length of training program. As a result of this statistical review of the literature, it is concluded that PER training is more effective than Non-PER training for men and

women, individuals of varying training backgrounds, and for all age groups. In line with the overload principle, additions to volume, intensity, and frequency result in additional training adaptations.

Temporal Aspects of the VO2 Response at the Power Output Associated With VO2peak in Well Trained Cyclists—Implications for Interval Training Prescription (pp. 423–428)
Paul B. Laursen, Cecilia M. Shing, and David G. Jenkins

The power output achieved at peak oxygen consumption (VO2peak) and the time this power can be maintained (i.e., Tmax) have been used in prescribing high-intensity interval training. In this context, the present study examined temporal aspects of the VO2 response to exercise at the cycling power that output well trained cyclists achieve their VO2peak (i.e., Pmax). Following a progressive exercise test to determine VO2peak, 43 well trained male cyclists (M age = 25 years, SD = 6; M mass = 75 kg, SD = 7; M VO2peak = 64.8 ml×kg-1×min-1, SD = 5.2) performed two Tmax tests 1 week apart. Values expressed for each participant are means and standard deviations of these two tests. Participants achieved a mean VO2peak during the Tmax test after 176 s (SD = 40; M = 74% of Tmax, SD = 12) and maintained it for 66 s (SD = 39; M = 26% of Tmax, SD = 12). Additionally, they obtained mean 95% of VO2peak after 147 s (SD = 31; M = 62% of Tmax, SD = 8) and maintained it for 95 s (SD = 38; M = 38 % of Tmax, SD = 8). These results suggest that 60–70% of Tmax is an appropriate exercise duration for a population of well trained cyclists to attain VO2peak during exercise at Pmax. However, due to intraparticipant variability in the temporal aspects of the VO2 response to exercise at Pmax, future research is needed to examine whether individual high-intensity interval training programs for well trained endurance athletes might best be prescribed according to an athlete's individual VO2 response to exercise at Pmax.

Research Notes

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