

Epidemiology

Motion Sensor Reactivity in Physically Active Young Adults (pp. 1-8)

Timothy K. Behrens and Mary K. Dinger

The purpose of this study was to examine whether young adults changed their physical activity (PA) behavior when wearing motion sensors. PA patterns of 119 young adults (M age = 20.82 years, SD = 1.50, M body mass index = 23.93 kg/m², SD = 4.05) were assessed during 2 consecutive weeks. In Week 1, participants wore an accelerometer. During Week 2, participants wore an accelerometer and a pedometer. Counts/day from the accelerometer were examined over the entire study period. Steps/day from the pedometer were examined during Week 2. Descriptive statistics and two-factor repeated-measures analysis of variance were calculated. There were significant differences in counts/day by study day during both weeks of the study (Week 1, $p < .0001$; Week 2, $p < .0001$), and steps/day during Week 2 ($p < .0001$). However, reactivity was not evident. Subsequent investigation by day of the week revealed these differences were due to changes in participants' PA behavior by weekdays and weekends. With respect to gender, men were more active than women during both weeks of monitoring, but daily PA behavior between the genders followed a similar pattern. In conclusion, reactivity to accelerometers and pedometers was not evident in this sample.

The Association of Objectively Determined Physical Activity Behavior Among Adolescent Female Friends (pp. 9-15)

Louise Schofield, W. Kerry Mummery, Grant Schofield, and Will Hopkins

The purpose of this study was to examine the extent to which physical activity among adolescent female friends is interdependent. The participants were 318 adolescent girls with a mean age of 16.0 years (range: 15-18 years). Pedometry was used to assess physical activity over 4 days. The relationship between an individual girl and her first-nominated reciprocal friend's physical activity level was moderate ($r = 0.45$, 90% confidence interval = 0.31, 0.56), when the friendship was nonreciprocal it was trivial ($r = -.06$, 90% confidence interval = -.36, .25). Friends' physical activity levels explained between 27% and 32% of an individual's pedometer-determined physical activity level. Reciprocity of friendship is an important variable to consider when understanding the relationship between adolescent female friends' physical activity. When friendships are reciprocal, there is a stronger relationship between friends' physical activity.

Growth and Motor Development

Gross Motor Skills and Sports Participation of Children With Visual Impairments (pp. 16-23)

Suzanne Houwen, Chris Visscher, Esther Hartman, and Koen A. P. M. Lemmink

Gross motor skill performance of children with visual impairments and its association with the degree of visual impairment and sports participation was examined. Twenty children with visual impairments (M age = 9.2 years, SD = 1.5) and 100 sighted children

(M age = 9.1 years, SD = 1.5) from mainstream schools participated. The results showed that children with visual impairments had significantly lower object control but not locomotor skill scores than the sighted children. No significant differences were found between children with a moderate and severe visual impairment. Children with visual impairments who participated in sports had significantly higher object control skill scores than those who did not. No significant associations between motor skills and sports participation were found in the sighted children.

Measurement and Evaluation

Construct Validity Evidence for Single-Response Items to Estimate Physical Activity Levels in Large Sample Studies (pp. 24–31)

Allen W. Jackson, James R. Morrow, Jr., Heather R. Bowles, Shannon J. FitzGerald, and Steven N. Blair

Valid measurement of physical activity is important for studying the risks for morbidity and mortality. The purpose of this study was to examine evidence of construct validity of two similar single-response items assessing physical activity via self-report. Both items are based on the stages of change model. The sample was 687 participants (men = 504, women = 183) who completed an 8-response (PA8) or 5-response (PA5) single-response item about current level of physical activity. Responses were categorized as meeting or not meeting guidelines for sufficient physical activity to achieve a health benefit. Maximal cardiorespiratory fitness (CRF) and health markers were obtained during a clinical examination. Partial correlation, multivariate analysis of covariance, and logistic regression were used to identify the relations between self-reported physical activity, CRF, and health markers when controlling for gender and age. Single-response items were compared to a detailed measure of physical activity. Single-response items correlated significantly with CRF determined with a maximal exercise test on a treadmill (PA8 = .53; PA5 = .57). Differences in percentage of body fat and cholesterol were in the desired direction, with those self-reporting sufficient physical activity for a health benefit having the lower values. The single-response items demonstrated evidence of construct validity and may provide feasible, cost-effective, and efficient methods to assess physical activity in large-scale studies.

Variability in Measurement of Swimming Forces: A Meta-Analysis of Passive and Active Drag (pp. 32–39)

Rod Havriluk

An analysis was conducted to identify sources of true and error variance in measuring swimming drag force to draw valid conclusions about performance factor effects. Passive drag studies were grouped according to methodological differences: tow line in pool, tow line in flume, and carriage in tow tank. Active drag studies were grouped according to the theoretical basis: added and/or subtracted drag (AAS), added drag with equal power assumption (AAE), and no added drag (ANA). Data from 36 studies were examined using frequency distributions and meta-analytic procedures. It was concluded that two active methods (AAE and ANA) had sources of systematic error and that one active

method (AAS) measured an effect that was different from that measured by passive methods. Consistency in drag coefficient (C_d) values across all three passive methods made it possible to determine the effects of performance factors.

Motor Control and Learning

Feedback After Good Trials Enhances Learning (pp. 40–47)

Suzete Chiviacowsky and Gabriele Wulf

Recent studies (Chiviacowsky & Wulf, 2002, 2005) have shown that learners prefer to receive feedback after they believe they had a “good” rather than “poor” trial. The present study followed up on this finding and examined whether learning would benefit if individuals received feedback after good relative to poor trials. Participants practiced a task that required them to throw beanbags at a target with their nondominant arm. Vision was prevented during and after the throws. All participants received knowledge of results (KR) on three trials in each 6-trial block. While one group (KR good) received KR for the three most effective trials in each block, another (KR poor) received feedback for the three least effective trials in each block. There were no group differences in practice. However, the KR good group showed learning advantages on a delayed retention test (without KR). These results demonstrated that learning is facilitated if feedback is provided after good rather than poor trials. The findings are interpreted as evidence for a motivational function of feedback.

Pedagogy

Youth Leaders' Perceptions of Commitment to a Responsibility- Based Physical Activity Program (pp. 48–60)

Tammy Schilling, Tom Martinek, and Sarah Carson

This study extended Schilling's (2001) study by investigating program commitment among a larger ($N = 12$), older ($M = 16.7$ years), and more experienced ($M = 5.96$ years) sample of participants in the Project Effort Youth Leader Corps. Individual interviews elicited a greater number and specificity of themes. Program-related barriers included logistics, structure, and relationships, and personal-related barriers included perceived alternatives, personal characteristics, and “real-life” responsibilities. Similar to Schilling's (2001) earlier study, antecedents grouped under program environment, program structure, relationships, and personal characteristics. Participants also described outcomes in terms of behavior and emotional involvement but reported more themes related to leadership. Results are discussed in terms of consistencies and changes over time and implications for program development, expansion, and evaluation.

Psychology

Self-Efficacy for Coping With Barriers Helps Students Stay Physically Active During Transition to Their First-Year at a University (pp. 61–70)

Steven R. Bray

The present study examined undergraduate students' physical activity during transition from high school to first-year university. Students' ($N = 127$) self-efficacy for coping with

barriers to physical activity was investigated both as a predictor of physical activity and mediator of the relationship between pretransition and first-year physical activity. Physical activity was found to track moderately from pretransition to first year ($r_s = .58$). Self-efficacy for coping with barriers predicted physical activity ($R^2_{\text{adjusted}} = .18, p < .05$) and partially mediated the relationship between pretransition and first-year physical activity. Results support an interpretation that future intervention efforts could target first-year students' self-efficacy for coping with barriers to help curb the decline in physical activity that occurs during the transition to university life.

In Search of the Loci for Sex Differences in Throwing: The Effects of Physical Size and Differential Recruitment Rates on High Levels of Dart Performance (pp. 71–78)

Linda J. Duffy, K. Anders Ericsson, and Bahman Baluch

Contemporary accounts of sex differences in perceptual-motor performance differ in their emphasis on nature and nurture. Study 1 examined the effect of extensive training on one of the largest sex differences, namely accuracy in dart throwing, and found that physical differences in height and reach could not explain sex differences in regional/national level dart players. Study 2 rejected accounts of sex differences based on participation rates by showing that male players recruited from a relatively small pool of club players were superior to the best female players selected from a much larger pool at the international level. Alternative accounts of the source of sex differences in darts, based on male and female players' differential development and practice histories, are discussed.

Antecedents of Emotions in Elite Athletes: A Cognitive Motivational Relational Theory Perspective (pp. 79–89)

Mark A. Uphill and Marc V. Jones

Cognitive motivational relational theory suggests that cognitive appraisals or core relational themes (a composite summary of appraisal components) represent the proximal determinants of athletes' emotions. Semistructured interviews with 12 current international athletes (1 woman and 11 men) ages 19 to 37 years (M age = 27 years, $SD = 6.03$), representing a range of sports (badminton, golf, rugby union, athletics, archery, sailing, and snooker) explored the association between athletes' appraisals and emotions. Concurrent inductive and deductive content analyses suggested that primary and secondary appraisal components (goal relevance, goal congruence, ego-involvement, blame/credit, coping potential, future expectations) were associated with a range of emotions: anger, anxiety, guilt, happiness, pride, relief, sadness, and shame. A hierarchical content analysis provided some support for Lazarus' (1991) core relational themes. Limitations and applications of this study are discussed.

Sport Commitment Among Competitive Female Gymnasts: A Developmental Perspective (pp. 90–102)

Windee M. Weiss and Maureen R. Weiss

The purpose of this study was to examine age and competitive level differences in the relationship between determinants and level of sport commitment. Gymnasts ($N = 304$) comprised three age groups (8–11, 11–14.5, and 14.5–18 years) and two competitive levels (Levels 5–6 and 8–10). Multiple regression analyses revealed: (a) perceived costs and social constraints from parents and best friends were the strongest predictors of commitment for the youngest gymnasts, (b) perceived costs, personal investments, and parent social constraints predicted commitment for 11–14.5-year-old gymnasts, and (c) perceived competence and costs predicted commitment for the oldest gymnasts. Competitive level differences also emerged; for Level 5–6 gymnasts, personal investments, perceived costs, coach social support, and social constraints by coach, best friend, and teammates were predictors of commitment. Personal investments and teammate social constraints were significant predictors for Level 8–10 gymnasts. Developmental factors and additional determinants are important to consider in further studies of the sport commitment model.

Where, When, and Why Young Athletes Use Imagery: An Examination of Developmental Differences (pp. 103–116)

Krista J. Munroe-Chandler, Craig R. Hall, Graham J. Fishburne, and Leisha Strachan

The purpose of this study was to investigate young athletes' imagery use from a developmental perspective. The participants were 110 male and female athletes competing in both team and individual sports. They represented four different age cohorts (i.e., 7–8, 9–10, 11–12, and 13–14 years). Sixteen focus groups, two for each age category and gender, were used as the method of data collection. The findings indicated "where," "when," and "why" young athletes use imagery and how imagery use changes as children move from early childhood through to early adolescence. Overall, results revealed that all age cohorts reported using imagery in both training and competition and for both cognitive and motivational purposes. The present research also found support for studying imagery use by young athletes from a developmental perspective.

Tales of the Unexpected: Coping Among Female Collegiate Volleyball Players (pp. 117–132)

Nicholas L. Holt, Kylie-Joy Berg, and Katherine A. Tamminen

The purpose of this study was to examine patterns of appraisal, coping, and coping effectiveness in sport. Ten players from a collegiate female volleyball team were interviewed on two occasions, first in the week before a provincial final playoff tournament and in the week following the tournament. Data were transcribed verbatim and subjected to content and idiographic analyses. Athletes generally did not predict or anticipate the stressors they actually experienced during the tournament. Subjective appraisals of effective coping were associated with consistency between proactive and actual coping attempts. Reported effective coping was associated with the attainment of personal performance goals and use of cognitive, behavioral, and emotional coping strategies in the absence of behavioral avoidance. Reported ineffective and partially effective coping was associated with not attaining personal performance goals, and the use of cognitive coping strategies with behavioral avoidance. Finally, older, more

experienced athletes reported they coped better than younger, less experienced athletes during the tournament.

Research Note

Energy Expenditure of Selected Household Activities During Pregnancy (pp. 133–137)

Lisa Chasan-Taber, Patty S. Freedson, Dawn E. Roberts, Michael D. Schmidt, and Maren S. Fragala