

### Measurement and Evaluation

*Statistical Validity of Using Ratio Variables in Human Kinetics Research* (pp. 226–235)

Yuanlong Liu and Robert W. Schutz

The purposes of this study were to investigate the validity of the simple ratio and three alternative deflation models and examine how the variation of the numerator and denominator variables affects the reliability of a ratio variable. A simple ratio and three alternative deflation models were fitted to four empirical data sets, and common criteria were applied to determine the best model for deflation. Intraclass correlation was used to examine the component effect on the reliability of a ratio variable. The results indicate that the validity of a deflation model depends on the statistical characteristics of the particular component variables used, and an optimal deflation model for all ratio variables may not exist. Therefore, it is recommended that different models be fitted to each empirical data set to determine the best deflation model. It was found that the reliability of a simple ratio is affected by the coefficients of variation and the within- and between-trial correlations between the numerator and denominator variables. It was recommended that researchers should compute the reliability of the derived ratio scores and not assume that strong reliabilities in the numerator and denominator measures automatically lead to high reliability in the ratio measures.

*Validation of a Stages of Exercise Change Questionnaire* (pp. 236–247)

Erin A. Dannecker, Heather A. Hausenblas, Daniel P. Connaughton, and Timm R. Lovins

The purpose of this study was to examine evidence for the validity of a stages of change measure of the Transtheoretical Model for exercise behavior. Participants were 152 university students (53.3% women, 71.6% Caucasian, M age = 19.18 years) who completed processes of change, self-efficacy, decisional balance, stages of change, and exercise behavior questionnaires as well as a maximal treadmill test. Participants in the action and maintenance stages had the highest strenuous (PC/C/P < A/M) and moderate (PC/C < A/M) self-reported exercise behavior. Those in the maintenance stage had the highest estimated aerobic fitness (PC/P < M). The differences between the early stages (PC, C, and P) and the later stages (A and M) as described by the first function were primarily due to the behavioral process of change. The differences between the extreme stages (PC and M) and the middle stages (C, P, and A) were due to the experiential processes of change and the pros of decisional balance. The hypothesized patterns of stage differences were partially supported. Failure to obtain full support may have been due to methodological issues or inherent difficulties in detecting evidence for the validity of stages of change measures.

### Motor Control and Learning

*Perceptual Judgments for Stair Climbing as a Function of Pitch Angle* (pp. 248–256)

Brian K. V. Maraj

Two experiments explored perception and action for stair climbing, with manipulations to the stair dimensions. In Experiment 1, a custom-built apparatus manipulated the stair dimensions, while three groups of participants made perceptual judgments of climbability. The groups differed significantly for absolute leg length ( $p < .0001$ ), but there was no significant difference between the groups when stair dimensions were calculated relative to leg length. The selected tread depths and riser heights reflected constant proportions of participants' leg length. Using the pitch angles formed as a composite metric, the results revealed that all groups selected 60° as the limit for climbability. Experiment 2 scaled pitch angle systematically from 20° to 80°, and participants judged 65° and beyond to be unclimbable. These results provided evidence that pitch angle might be used in perceptual judgments for stair climbability.

*Examining Movement Variability in the Basketball Free-Throw Action at Different Skill Levels* (pp. 257–269)

Chris Button, Morven MacLeod, Ross Sanders, and Simon Coleman

The analysis of variability both within and between performers can reveal important information about how athletes satisfy situational constraints. Transitory changes in the basketball free-throw shot were examined across different stages in skill development. Six female basketball players were selected, representing a range of playing expertise (pretest: 0–90% baskets scored). Each participant was video recorded performing 30 shots. Contrary to predictions, there was not a clear pattern of a reduction in trajectory variability with increasing skill level. However, improvements in skill level were associated with an increasing amount of intertrial movement consistency from the elbow and wrist

joints. It is suggested that the angular motions of the elbow and wrist joints were compensated for each other toward the end of each throw to adapt to subtle changes in release parameters of the ball.

*Warm-up With Baseball Bats of Varying Moments of Inertia: Effect on Bat Velocity and Swing Pattern* (pp. 270–276)  
Dan Southard and Levi Groomer

The purpose of this study was to determine if warm-up with baseball bats of different moments of inertia has an effect on swing pattern and bat velocity. Ten experienced baseball players (ages 20–25 years) voluntarily participated in this study. Each participant was required to complete 10 dry swings (5 warm-up and 5 postwarm-up) at maximum effort within 3 different conditions. Post warm-up was always with a standard bat ( $I = .27 \text{ kgm}^2$ ; 83.8 cm, 9.1 N). Warm-up for Condition 1 was with the standard bat. Condition 2 required participants to warm up with a standard bat plus a 6.1 N lead donut ( $I = .49 \text{ kgm}^2$ , 83.8 cm, 15.6 N). Condition 3 required participants to warm up with a hollow plastic bat ( $I = .08 \text{ kgm}^2$ ; 83.8 cm, 3.34 N). Quantitative and qualitative analyses indicated that following warm-up with the weighted bat (largest moment of inertia), swing pattern was significantly altered, and post warm-up velocity was the lowest of the three conditions.

### Physiology

*The Responses of Fatty Acid-Binding Protein and Creatine Kinase to Acute and Chronic Exercise in Junior Rowers* (pp. 277–283)

Yvonne Yuan, Alex W. K. Kwong, Wilhelmina A. Kaptein, Campion Fong, Mei Tse, Jan F. C. Glatz, Cangel Chan, and Reinhard Renneberg

The responses of fatty acid-binding protein (FABP) and creatine kinase (CK) were compared in a group of junior rowers during 5 weeks of training. Acute exercise induced a larger increase in FABP (70–362 %) than in CK (24–156%). When the chronic effect of exercise was studied, the baseline FABP levels were independent of previous training. However, the baseline CK level was dependent on the training that took place during 1 day before ( $F = 4.362$ ,  $p < .01$ ) and on the combined training on the previous 2 days ( $F = 4.606$ ,  $p < .005$ ). The present results suggest that FABP and CK could be used to monitor acute exercise and chronic exercise, respectively.

### Psychology

*Explaining the Self-Conception of Perceived Conduct Using Indicators of Moral Functioning in Physical Education* (pp. 284–291)

Vicki Ebbeck and Sandra L. Gibbons

The purpose of this study was to determine whether four indicators of moral functioning in physical education (moral judgment, moral reason, moral intention, and prosocial behavior) predicted the self-conception of perceived conduct. Participants were 204 male ( $n = 87$ ) and female ( $n = 117$ ) physical education students in fourth, fifth, and sixth grades. For the male students, the four indicators of moral functioning were found to be highly related, and, so, no subsequent analyses were conducted. For the female students, a standard multiple regression analysis revealed that the indicators of moral functioning accounted for 21%

of the variance in perceived conduct. Discussion of the results highlights the value of considering in combination the moral functioning and self-concept literatures.

*Imagery Use in Elite Youth Sport Participants: Reinforcing the Applied Significance of Achievement Goal Theory* (pp. 292–300)

Chris Harwood, Jennifer Cumming, and Craig Hall

This study examined the motivational profiles of elite youth athletes to determine whether individual differences in goal orientation corresponded with differential levels of imagery use. Two hundred ninety male ( $n = 88$ ) and female ( $n = 202$ ) young athletes ( $M = 16.6$  years,  $SD = 1.48$ ) completed the Perceptions of Success Questionnaire (POSQ; Roberts, Treasure, & Balague, 1998) to assess dispositional goal orientations and the Sport Imagery Questionnaire (Hall, Mack, Paivio, & Hausenblas, 1998) to assess frequency and function of imagery use. A two-stage cluster analysis on the POSQ scores revealed a three-cluster solution with a multivariate analysis of variance indicating significant differences among cluster groups in imagery use. Athletes in Cluster 3 (higher task/higher ego) used significantly more imagery, regardless of the function than athletes in Cluster 1 (lower task/moderate ego) or Cluster 2 (moderate task/lower ego). These findings are discussed with reference to the role of achievement motivation in influencing young athletes' behavioral investments in mental strategies.

## **Sociology and Cultural Anthropology**

*Observations in the National Baseball Hall of Fame and Museum: Doing Gender in Cooperstown* (pp. 301–312)  
Elaine M. Blinde and Sarah G. McCallister

This study explored the extent and type of men and women's relationship to baseball at the end of the 20th century. Unobtrusive observations of the behaviors and comments of visitors to the National Baseball Hall of Fame and Museum in Cooperstown, New York, were undertaken during a 7-day period to explore how men and women related to baseball. The "doing of gender" by visitors was observed in several areas: (a) historical and personal connection to baseball, (b) ability to experience a bond with others through baseball, and (c) approach to touring the Hall of Fame and Museum. Women generally were seen as outsiders and peripheral to baseball and often connected to the sport in a manner different from men.

## **Research Notes**

*College Physical Activity Courses: Why Do Students Enroll, and What Are Their Health Behaviors?* (pp. 313–318)  
Nicole Y. J. M. Leenders, W. Michael Sherman, and Phillip Ward

*Muscle Activation and Movement Responses in Youth With and Without Mental Retardation* (pp. 319–323)  
Michael Horvat, Vincent Ramsey, Ryan Amestoy, and Ron Croce

*Forceful Overarm Throwing: A Comparison of Two Cohorts Measured 20 Years Apart* (pp. 324–330)  
Brenda Pulito Runion, Mary Ann Robertson, and Stephen J. Langendorfer

*The Validity of the Sit-and-Reach Test and the Modified Sit-and-Reach Test in Middle-Aged to Older Men and Women* (pp. 331–336)  
Koen A. P. M. Lemmink, Han C. G. Kemper, Mathieu H. G. de Greef, Piet Rispens, and Martin Stevens

*Effects of Autogenic and Imagery Training on the Shooting Performance in Biathlon* (pp. 337–341)  
A. Gros Lambert, R. Candau, F. Grappe, B. Dugué, and J. D. Rouillon

*Learning From the Experts: Practice Activities of Expert Decision Makers in Sport* (pp. 342–347)  
Joseph Baker, Jean Côté, and Bruce Abernethy

*Ironic Processing and Static Balance Performance in High-Expertise Performers* (pp. 348–352)  
Jeremy R. Dugdale and Robert C. Eklund

*Effect of Exertional Trend During Cycle Ergometry on Postexercise Affect* (pp. 353–359)  
Marcus Kilpatrick, Edward Hebert, John Bartholomew, Daniel Hollander, and Daniel Stromberg

*Physical Self-Concept in Adolescent Girls: Behavioral and Physiological Correlates* (pp. 360–365)  
Genevieve Fridlund Dunton, Margaret Schneider Jamner, and Dan Michael Cooper