CHRIS BRAMMER

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As a former athlete and coach who is currently completing a Ph.D. degree in exercise physiology, my recent work has focused on analyses of competition data in the sport of swimming to inform stakeholders on issues related to fairness. I aim to continue to utilize statistical knowledge, computer science skills, and expertise in human performance to facilitate organizational policy and programmatic decisions in the health, physical fitness, and sport domains.

EDUCATION

Indiana University   Bloomington, IN
Doctor of Philosophy, Human Performance (Exercise Physiology)   *Expected grad: Summer 2017*
Master of Science, Kinesiology (Exercise Physiology)   *Summer 2010*

Truman State University   Kirksville, MO
Bachelor of Science, Exercise Science   *Spring 2006*

WORK EXPERIENCE

Counsilman Center for the Science of Swimming   Bloomington, IN
Data Science Consultant   *Fall 2016– current*

- Developed EMG and force data processing applications to facilitate feature extraction using R and Shiny
- Helped students assess research objectives, determine appropriate statistical models, "clean" data, and evaluate statistical results.
- Presently updating a redacted respiratory flow-volume data processing application for current operating system compatibility (using R and Shiny). Adding a pressure-volume component for work of breathing calculations.

Swimming Laboratory Coordinator   *Fall 2012–Spring 2017*

- Constructed a suitable valve and tubing system for metabolic measurement whilst swimming
- Established swimming maximal oxygen consumption ($\dot{V}O_2$max) protocols
- Responsible for maintenance (water sanitization and filtration) of "swimming treadmill" (Endless Pool)

Davidson College   Davidson, NC
Assistant Men's and Women's Swimming Coach   *Fall 2009–Spring 2012*

- Directed team's strength and conditioning program
- Determined strategies for improving technique by implementing innovative performance measurement tools
- Developed and implemented season training plan for the sprint-event focused athletes
- Recorded, analyzed, and evaluated weekly performance test data

Dhahran Youth Swim League (DYSL)   Dhahran, Saudi Arabia
Head Swimming Coach   *March–June 2010*

- Directed practice and training sessions as DYSL's first-ever professional coach (120 athletes, ages 5-16 years)
- Developed a team grouping and management strategy to maximize skill acquisition and performance progress
- Helped to define the role of a parent in a child's swimming experience through individual conversation and team email messaging

Counsilman Center Indiana Swim Team   Bloomington, IN
Co-head Coach   *Fall 2008–Spring 2009*

- Responsible for administering coaching staff, practice and competition scheduling, and club-wide communications

TEACHING EXPERIENCE

Indiana University, School of Public Health   Bloomington, IN
Associate Instructor   *Fall 2012–Spring 2016*

- Lab coordinator for undergraduate exercise physiology lab (6 semesters)
- Instructor for undergraduate exercise physiology lab (2 semesters)
- Undergraduate biomechanics lecture assistant (2 semesters)
- Undergraduate biomechanics lab instructor (7 semesters)
- Instructor for undergraduate exercise physiology lab (4 semesters).   *Fall 2006–Spring 2009*
- Instructed personal fitness, fitness and jogging, weight training, and beginning and intermediate swimming courses.

SKILLS

Computer Programming
- Highly competent in data processing and analysis using R, with experience creating data displays using ggplot2, Plotly, and Shiny
- Working knowledge of Python, particularly for use in crafting solutions to problems related to data mining and processing
- Skilled at managing and querying large databases using MySQL
- Experience in developing and deploying static web sites using HTML/CSS and Jekyll
- Familiarity with using LaTeX to prepare scientific documents and presentations

Statistics
- Expert in the use of inferential statistics to estimate population parameters and test experimental hypotheses
- Highly skilled in the use of statistical computing, particularly exploratory data analysis techniques (data displays, re-expression, evaluating distributions, standardization, robust regression)
- Proficient with many time series analysis techniques (smoothing techniques, spectral analysis, autoregressive (AR) and moving average (MA) models)
- Competent with various methods of multivariate analysis (MANOVA, cluster analysis, factor analysis, multiple regression, linear mixed effect models)

Data Collection
- Successfully managed a team of researchers in the data collection process for both small and large-scale projects (Ventilatory strategies in swimming, Choc milk as a recovery aid)
- Extensive background in obtaining various physiological measurements related to the cardiovascular, respiratory, and nervous systems
- Highly committed to ensuring measurement on human subjects is valid and reliable, especially as it relates to instrumentation and experimental protocol

RESEARCH PUBLICATIONS

Brammer, C., Cornett, A., & Stager, J. (2017). Lane Bias in Elite-level Swimming Competition. *Journal of Sports Sciences, 35*(3), 283-289.

Cornett, A., **Brammer, C**., & Stager, J. (2015). Current Controversy: Analysis of the 2013 FINA World Swimming Championships. *Medicine and science in sports and exercise, 47*(3), 649-654.

Brammer, C. L., Cornett, A. C., & Stager, J. M. (2014). Lane bias at the 2013 World Swimming Championships. In B. Mason (Ed.), *Biomechanics and medicine in swimming XII* (pp. 558–565). Canberra: Australian Institute of Sport. (conference proceedings)

Kojima, K., **Brammer, C.L.,** Sossong, T.D., Abe, T., & Stager, J.M. (2014). In-water resisted sprint swim training for age-group swimmers. In B. Mason (Ed.), *Biomechanics and medicine in swimming XII* (pp. 431–437). Canberra: Australian Institute of Sport. (conference proceedings)

Brammer, C.L., Stager, J.M, Tanner, D.A. (2012). Beyond the "high-tech" suits: Predicting 2012 Olympic swim performances. *Measurement in Physical Education and Exercise, 16*, 183-193.

Stager, J.M., **Brammer, C.L.**, Tanner, D.A. (2010). Identification of a bias in the natural progression of swim performance. In P. Kjendlie, R. Stallman, & J. Cabri (Eds.), *Biomechanics and Medicine Swimming XI* (pp. 294-296). Champaign: Human Kinetics. (conference proceedings)

Brammer, C.L. (2010). Cutaneous Input and Motorneuron Excitability. Retrieved from Indiana University Library. (Masters thesis)

RESEARCH PRESENTATIONS

Wright, B.V., **Brammer, C.L.**, Stager, J.M. (2015). Estimating swimming energy expenditure using accelerometer-based activity monitors. *Medicine and Science in Sports and Exercise, 47,* S125. (presented as a poster)

Stager, J. M., **Brammer, C.** L., Sossong, T., Kojima, K., Spanbauer, D., Grand, K., & Wright, B. V. (2014). Supplemental recovery nutrition affects swim performance following glycogen depleting exercise. *Medicine and Science in Sports and Exercise, 46*(5), 156-156. (presented as a poster)

Brammer, C., & Stager, J. (2013). Swimsuit constraints favor women at the 2012 Olympic swim competition. *Medicine and Science in Sports and Exercise, 45*(5), 406-406. (oral presentation)

Brammer, C.L., Koceja, D.M., & Stager, J.M. (2010). Shaving and perceptual sensory threshold. In P. Kjendlie, R.Stallman, & J. Cabri (Eds.), *Biomechanics and Medicine Swimming XI* (p. 77). Champaign: Human Kinetics. (oral presentation)

Brammer, C.L., Tanner, D.A., Stager, J.M. (2009). Identification of bias in the natural progression of swim performance. *Medicine and Science in Sports and Exercise, 41,* S306. (presented as a poster)

Kojima, K., **Brammer, C.L.**, Stager, J.M. (2009). Age Classification in USA swimming: Are current competitive age groups appropriate? *Medicine and Science in Sports and Exercise, 41,* S306. (presented as a poster)

Wright, B.V., **Brammer, C.L.**, Stager, J.M. (2009). Five week assessment of in-water power output in competitive swimmers. *Medicine and Science in Sports and Exercise, 41,* S302. (presented as a poster)

RESEARCH GRANTS

Counsilman-Hunsaker pool design company. **Brammer, C.,** Cornett, A., Stager, J. (July 2014). Lane assignment and distance freestyle split variability in elite-level swimming competition. Awarded $5,000.

Fédération Internationale de Natation (FINA). Stager, J., **Brammer, C.,** Schlader, Z., Cornett. A., Rodeo, S., Abe, T., Wright, B. (June 2014). Identification of a minimum safe water temperature for open-water swimming competition. This proposal was not funded.

National Fluid Milk Processor Promotion Board. Stager, J., Klaunig, J., Lindeman, A., Grand, K., Stickford, J., Sossong, T., **Brammer, C**., Spanbauer, D. (October 2012). Swimmers, got chocolate milk? Awarded $100,000.

USA Swimming. **Brammer, C.,** Cornett, A., Stager, J. (December 2008). Shaving, Perceptual Sensory Threshold, and Motorneuron Excitability. Awarded $3,000.

INVITED LECTURES

Beijing Sport University & Shanghai Sport University. (May 2016). Data Science in Sport.

Midwestern Swimming Coaching Clinic. (Aug 2013). Application of research to age-group swimming.

Total Performance Swim Camp. (June 2007). Swimming power.