Dr. Gannon A. White

Colorado Mesa University

Department of Kinesiology

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## Education

PhD, University of Northern Colorado, May 2011.

Major: Exercise Science - Biomechanics

Supporting Areas of Emphasis: Applied Statistics

Dissertation/Thesis Title: Running Tactics and Segmental Coordination on Various Levels of Incline

MEd, Stephen F. Austin State University, May 2004.

Major: Kinesiology - Biomechanics

Dissertation/Thesis Title: A Kinematic Analysis of Male Collegiate Distance Runners While Leading versus Drafting

Bachelors of General Studies, Lamar University, May 1999.

Major: General Studies

Supporting Areas of Emphasis: Engineering/Computers

Associates of Science, Allen County Community College, May 1997.

Major: Computer Science

## Work History

Assistant Professor of Exercise Science, Colorado Mesa Univ., (August, 2019 - Current)

Adjunct Professor, UA Little Rock, CHPR. (August 1, 2019 – May 2020)

Associate Professor, UA Little Rock, CHPR. (August 1, 2017 - August 1, 2019).

Assistant Professor, UA Little Rock, HSCI/HHPS/CHPR. (August 1, 2012 - July 31, 2017).

Instructor, UA Little Rock, HSCI. (August 1, 2010 - July 31, 2012).

## Professional Memberships

Rocky Mountain ACSM. (2022 - Current)

Arkansas AHPERD. (2018 - 2019).

## Development Activities Attended

Conference Attendance, "2018 Arkansas AHPERD state convention," Conway, AR, United States. (November 8, 2018 - November 9, 2018).

Conference Attendance, "2016 Arkansas AHPERD State Convention," Arkansas AHPERD, Little Rock, AR. (November 3, 2016 - November 4, 2016).

Conference Attendance, "GCMAS Annual Conference," Cincinnati, OH, United States. (May 13, 2013).

# Teaching

## Teaching Experience

KINE 100 Health & Wellness

KINE 301 Health and Fitness Assessment

KINE 370 Biomechanics

KINE 370L Biomechanics Lab

KINE 494 Senior Seminar

KINA 111 Rock Climbing

HHPS 3302, Exercise Physiology

HHPS 3401, Nutrition.

HHPS 3410, Biomechanics.

HHPS 4300, Independent Study - HLED.

HHPS 7301, Research Methods

HHPS 7302, Statistics in HSCI.

HHPS 7321, Advanced Motor Learning.

HHPS 7323, Adv Biomechanics.

HHPS 7324, Advanced Exercise Physiology.

HHPS 7325, Sports & Exercise Nutrition.

HHPS 7326, Lab Tech in Exercise Science.

HHPS 7327, Neuromechanics.

HHPS 7698 Project

HHPS 7699 Thesis

# SCHOLARSHIP

## Published Intellectual Contributions

### Journal Article

Singh, R., Fleury, J.M., Gupta, S., Bachman, N. P., Alumbaugh, B., White, G, (2022) Involuntary Breathing Movement Pettern Recognition and Classification via Force Based Sensors. *BioRxiv*

Abd, A., Singh, R., Iqbal, K., and White, G., (June 2021) Investigation of Power Specific Motor Primitives in an Upper Limb Cyclic Rotational Motion. *Journal of Motor Behavior*.

Abd, A., Singh, R., Iqbal, K., and White, G., (May 2021) A Perspective on Muscle Synergies and Different Theories Related to Their Adaptation. *Journal of Biomechanics*.

Singh, R. E., Iqbal, K., and White, G. (July 2020). Proficiency Based Recruitment of Muscle Synergies in a Highly Perturbed Walking Task (Slackline). *Engineering Reports*

Abd, A., Iqbal, K., White, G., and Singh, R. (April 2020). Muscle Synergies are Robust in Upper Limb Rotational Motion. *ICHMS2020*.

Singh, R. E., White, G. A., Delis, I., Iqbal, K. (March 2020). Alteration of muscle synergy structure while walking under perturbed postural constraints. *Cognitive Computation and Systems*

Abd, A., Iqbal, K., and White, G., (Currently revising) The Perspective Concept of Muscle synergy, its similarity and using the theory of MS in the Central Nervous system Strategy.

Singh, R., Iqbal, K., White, G. A., Hutchinson, T. (2018). A systematic Review on Muscle Synergies: From building blocks of motor behavior to Neurorehabilitation tool. *Applied Bionics and Biomechanics*.

Afzal, T., Iqbal, K., White, G. A., Wright, A. B. (2017). A Method for Locomotion Mode Identification Using Muscle Synergies. *IEEE TRANSACTIONS ON NEURAL SYSTEMS AND REHABILITATION ENGINEERING, 25*(6), 608-617.

Rasool, G., Iqbal, K., Bouaynaya, N., White, G. A. (2016). Real-Time Task Discrimination for Myoelectric Control Employing Task-Specific Muscle Synergies. *IEEE Transactions on Neural Systems and Rehabilitation Engineering, 24*(1), 98-108. http://dx.doi.org/10.1109/tnsre.2015.2410176

Abdulrahman, A., Iqbal, K., White, G. A. (2014). Improving Inverse Dynamics Accuracy in a Planar Walking Model Based on Stable Reference Point. *Journal of Robotics, 2014*, 1-9. http://dx.doi.org/10.1155/2014/245896

Rasool, G., Bouaynaya, N., Iqbal, K., White, G. A. (2014). Surface myoelectric signal classification using the AR-GARCH model. *Biomedical Signal Processing and Control, 13*, 327-336. http://dx.doi.org/10.1016/j.bspc.2014.06.001

Rasool, G., Iqbal, K., White, G. A. (2012). Myoelectric activity detection during a Sit-to-Stand movement using threshold methods. *COMPUTERS & MATHEMATICS WITH APPLICATIONS, 64*(5), 1473-1483.

### Conference Proceeding

Singh, R. E., Iqbal, K., Ullah, S., Alazzawi, A., White, G. A. (2019). Gait phase discrimination during kinematical constrained walking on slackline. *IEEE International Conference on Control and Automation V2019*.

Singh, R. E., Iqbal, K., White, G. A. (2018). *Muscle synergy adaptation during a complex postural stabilization task*. BIOCAS 2018.

Afzal, T., Iqbal, K., White, G. A., Wright, A. B. (2015). Task discrimination for non-weight-bearing movements using muscle synergies. *2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. IEEE. http://dx.doi.org/10.1109/embc.2015.7318403

Afzal, T., White, G. A., Wright, A. B., Iqbal, K. (2014). Locomotion mode identification for lower limbs using neuromuscular and joint kinematic signals. *2014 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*. IEEE. http://dx.doi.org/10.1109/embc.2014.6944518

Rasool, G., Iqbal, K., Bouaynaya, N., White, G. A. (2013). Neural drive estimation using the hypothesis of muscle synergies and the state-constrained Kalman filter. *2013 6th International IEEE/EMBS Conference on Neural Engineering (NER)*. IEEE. http://dx.doi.org/10.1109/ner.2013.6696056

## Conference Presentations

Barnett, T. M., White, G. A., 2017 American Public Health Association Conference, "Impact of Cooking Matters on Arkansas Adults," Atlanta, GA, United States. (November 2017).

Barnett, T. M., White, G. A., Council on Social Work Education, "Secondary analysis of Arkansas' Cooking Matters Data," Dallas, TX, United States. (October 2017).

Singh, R. E., Iqbal, K., White, G. A., Rasool, G., Wingate, S., Hutchinson, H., 2017 American Society of Biomechanics Annual Meeting, "Muscle Synergy Extraction from EMG (Electro Myogram) data: A comparison of algorithms (PCA, NNMF, pICA)," American Society of Biomechanics, Boulder, CO, United States. (August 8, 2017).

Finley, B., Barnett, T. M., White, G. A., 9th Biennial Childhood Obesity Conference, "Food insecurity among Arkansas adults: A Secondary analysis of Cooking Matters data," San Diego, AR, United States. (May 30, 2017).

Singh, R., Iqbal, K., White, G. A., EIT Open House, "Muscle Synergy Extraction and Predicting Muscle Activation Pattern Using Artificial Neural Network," EIT, Little Rock, AR, United States. (May 2, 2017).

Nutt, V. (Student Presenter), Kanekar, A., Snyder, J. L., Prince, B. F., White, G. A., Society for Public Health Education 68th Annual meeting, Scaling New Heights Health For All’, "Adult tooth decay prevention: Do adults practice what they know.," Society for Public Health Education, Denver, Colorado, Denver, CO, United States. (April 1, 2017).

## Books (Chapters)

Singh, R., Iqbal, K., White, G., Holtz, J. (2019) A review of EMG techniques for detection of gait disorders. *Machine Learning in Medicine and Biology (Publisher Intechopen).*

## Research in Progress

Rajat Singh, Frank Hutchinson, Gannon White, Tarun Hutchinson (preparing) Why Do Muscle Synergies Change and When Do They Change

"Electromyography as a gait disorder detection technique & its application in exoskeleton suit for rehabilitation: A systematic review."

Al-Maliki, A., Iqbal, K., White, G., (2021) Estimation of Elbow Joint Movement Using ANN-Based Softmax Classifier. *Journal of Biomechanics.* Corrections/Preparing for resubmission.

# Service

## University Service

CMU Committees

 Faculty Success (Chair) Student Engagement (COVID)

 3 Search Committees for new faculty University Assessment Committee

Previous

School Committees

Graduate Curriculum Committee Annual Review Committee

Faculty Search Committee Assessment Committee

Mid-Tenure Review Committee

College Committees

Graduate Curriculum Committee Assessment Committee

Adhoc Statistical Committee Institutional Effectiveness Committee

University Committees

Institutional Review Board (IRB) Member Campus Bike Committee

Adhoc Statistical Committee

## Professional Service

Graduate Program Coordinator (HED, SM) (2012-2014)

Exercise Science Graduate Program Coordinator, Little Rock, AR. (Fall, 2012 – Fall, 2019).

## Consulting

Statistical Consulting, CMU (Fall 2019 - Present).

Statistical Consulting, Little Rock, AR, United States. (Fall, 2010 - Present).