

## **A Paradigm Shift in Patient Education Are We Making Cueing Too Complicated?**

Speakers:

Ciara Burgi, PT, DPT, OCS, SCS, FAAOMPT, CSCS, PES  
Marie Charpentier, PT, DPT, OCS, SCS, FAAOMPT, ATC, LAT  
Christina Gomez, PT, DPT, OCS, SCS, FAAOMPT, CSCS  
Adeeb Khalfe, PT, DPT, OCS, FAAOMPT, CSCS

Combined Sections Meeting  
San Antonio, TX  
February 18, 2017

1. Background
  - a. Importance of communication
    - i. How does what we say, and how we say it, affect our patients?
  - b. Motor performance vs. motor learning
    - i. Different stages of learning
  - c. Roles of the PT & roles of the patient
  - d. Components of instruction
    - i. Verbal and visual cueing
    - ii. Observing novice and expert performance
    - iii. Goal
2. Internal vs. external cueing
  - a. Current practice
    - i. Constrained action hypothesis
  - b. Internal cueing
    - i. Movement outcome vs. movement form
    - ii. Feedback type vs. feedback frequency
    - iii. Muscle vs. joint focus
    - iv. Limitations
  - c. External cueing
    - i. Overview
    - ii. Feedback frequency
    - iii. Limitations
3. Athletic performance
  - a. Sport skill acquisition
    - i. Sprinting
    - ii. Object manipulation
    - iii. Accuracy
  - b. Athletic testing
    - i. Power testing
    - ii. Strength testing
    - iii. Agility testing

## **A Paradigm Shift in Patient Education Are We Making Cueing Too Complicated?**

Speakers:

Ciara Burgi, PT, DPT, OCS, SCS, FAAOMPT, CSCS, PES  
Marie Charpentier, PT, DPT, OCS, SCS, FAAOMPT, ATC, LAT  
Christina Gomez, PT, DPT, OCS, SCS, FAAOMPT, CSCS  
Adeeb Khalfe, PT, DPT, OCS, FAAOMPT, CSCS

Combined Sections Meeting  
San Antonio, TX  
February 18, 2017

4. Case scenarios
  - a. Young athlete learning new lifts
    - i. External cue
    - ii. Internal cue
    - iii. Common lifts
      1. Deadlift
      2. Clean and variations
      3. Snatch
  - b. Long distance runner
    - i. Common running movement dysfunctions
    - ii. Is strengthening enough?
      1. Neuroplasticity training

## **A Paradigm Shift in Patient Education Are We Making Cueing Too Complicated?**

### Speakers:

Ciara Burgi, PT, DPT, OCS, SCS, FAAOMPT, CSCS, PES  
Marie Charpentier, PT, DPT, OCS, SCS, FAAOMPT, ATC, LAT  
Christina Gomez, PT, DPT, OCS, SCS, FAAOMPT, CSCS  
Adeeb Khalfe, PT, DPT, OCS, FAAOMPT, CSCS

Combined Sections Meeting  
San Antonio, TX  
February 18, 2017

### **References**

- Bredin S., Dickson D., Warburton D. (2013). Effects of varying attentional focus on health-related physical fitness performance. *Applied Physiology, Nutrition, & Metabolism*, 38, 161-168.
- Chumanov E., Wille C., Michalski M., & Heiderscheit B. (2012). Changes in muscle activation patterns when running step rate is increased. *Gait & Posture*, 36(2), 231-235.
- Di Stasi S., Myer G., & Hewett T. (2013). Neuromuscular training to target deficits associated with second anterior cruciate ligament injury. *Journal of Orthopaedic and Sports Physical Therapy*, 43(11), 777-811.
- Emanuel M, Jarus T, & Bart O. (2008). Effect of focus of attention and age on motor acquisition, retention, and transfer: a randomized trial. *Physical Therapy*, 88(2):251-260.
- Gokeler A., Benjaminse A., Hewett T., Paterno M., Ford K., Otten E., & Myer G. (2013). Feedback techniques to target functional deficits following anterior cruciate ligament reconstruction: implications for motor control and reduction of second injury risk. *Sports Medicine*, 43(11), 1065-1074.
- Heiderscheit B., Chumanov E., Michalski M., Wille C. & Ryan M. (2011). Effects of step rate manipulation on joint mechanics during running. *Medicine & Science in Sports & Exercise*, 43(2), 296-302.
- Hewett T., Di Stasi S., & Myer G. (2013). Current concepts for injury prevention in athletes after anterior cruciate reconstruction. *American Journal of Sports Medicine*, 41(1), 216-224.
- Hutchinson, J, Sherman, T., Martinovic, N, & Tenenbaum, G. (2007). The effect of manipulated self-efficacy on perceived and sustained effort. *Journal of Applied Sport Psychology*, 20(4); 457-472.
- Ille A, Selin I, Do MC, Thon B. Attentional focus effects on sprint start performance as a function of skill level. *J Sports Sci*. 2013;31(15):1705-12.
- Makaruk, Hubert, and Jared Porter. "Focus of Attention for Strength and Conditioning Training." *Strength and Conditioning Journal* 36.1 (2014)
- Marchant D.C., Greig M., Bullough J., & Hitchen D. (2011). Instructions to adopt an external focus enhance muscular endurance. *Research Quarterly Exercise and Sport*, 82(3), 466-473.

This information is the property of Ciara Burgi, Marie Charpentier, Adeeb Khalfe and Christina Gomez. All information should not be distributed or otherwise used without the expressed written permission of the authors.

## **A Paradigm Shift in Patient Education Are We Making Cueing Too Complicated?**

Speakers:

Ciara Burgi, PT, DPT, OCS, SCS, FAAOMPT, CSCS, PES  
Marie Charpentier, PT, DPT, OCS, SCS, FAAOMPT, ATC, LAT  
Christina Gomez, PT, DPT, OCS, SCS, FAAOMPT, CSCS  
Adeeb Khalfe, PT, DPT, OCS, FAAOMPT, CSCS

Combined Sections Meeting  
San Antonio, TX  
February 18, 2017

- Marchant D.C., Greig M., & Scott C. (2009). Attentional focusing instructions influence force production and muscular activity during isokinetic elbow flexion. *Journal of Strength and Conditioning Research*, 23(8):2358- 2366.
- McNevin N., Shea C., & Wulf G. (2003). Increasing the distance of an external focus of attention enhances learning. *Psychological Research*, 67, 22-29.
- Novacheck, T. (1998). Instructional Course Lectures, The American Academy of Orthopedic Surgeons- Running injuries: a biomechanical approach. *J Bone Joint Surg Am*, 80(8), 1220-1233.
- Porter JM, Wu WF, Crossley RM, Knopp SW, Campbell OC. Adopting an external focus of attention improves sprinting performance in low-skilled sprinters. *J Strength Cond Res*. 2015;29(4):947-53.
- Porter J., Ostrowski E., Nolan R., Wu W. (2010). Standing long-jump performance is enhanced when using an external focus of attention. *Journal of Strength and Conditioning Research*, 24(7), 1746-1750.
- Porter JM, Nolan RP, Ostrowski EJ, Wulf G. Directing attention externally enhances agility performance: a qualitative and quantitative analysis of the efficacy of using verbal instructions to focus attention. *Front Psychol*. 2010;1:216.
- Schmitz A., Pohl M., Woods K., Noehren B. (2014). Variables during swing associated with decreased impact peak and loading rate in running. *Journal of Biomechanics*, 47, 32-38.
- Schücker L., Hagemann N., Strauss B., & Völker, K. (2009). The effect of attentional focus on running economy. *Journal of Sports Sciences*, 12, 1241-1248.
- Willy R. & Davis I. (2013). Varied response to mirror gait retraining of gluteus medius control, hip kinematics, pain, and function in 2 female runners with patellofemoral pain. *Journal of Orthopaedic and Sports Physical Therapy*, 43(12), 864-874.
- Willy R., Scholz J., Davis I. (2012). Mirror gait retraining for the treatment of patellofemoral pain in female runners. *Clinical Biomechanics*, 27(10), 1045-1051.
- Wulf G, Dufek JS, Lozano L, Pettigrew C. Increased jump height and reduced EMG activity with an external focus. *Hum Mov Sci*. 2010;29(3):440-8.
- Wulf G, Dufek JS. Increased jump height with an external focus due to enhanced lower extremity joint kinetics. *J Mot Behav*. 2009;41(5):401-9.

This information is the property of Ciara Burgi, Marie Charpentier, Adeeb Khalfe and Christina Gomez. All information should not be distributed or otherwise used without the expressed written permission of the authors.

## **A Paradigm Shift in Patient Education Are We Making Cueing Too Complicated?**

Speakers:

Ciara Burgi, PT, DPT, OCS, SCS, FAAOMPT, CSCS, PES  
Marie Charpentier, PT, DPT, OCS, SCS, FAAOMPT, ATC, LAT  
Christina Gomez, PT, DPT, OCS, SCS, FAAOMPT, CSCS  
Adeeb Khalfe, PT, DPT, OCS, FAAOMPT, CSCS

Combined Sections Meeting  
San Antonio, TX  
February 18, 2017

- Wulf, Gabriele, Markus Höß, and Wolfgang Prinz. "Instructions for Motor Learning: Differential Effects of Internal Versus External Focus of Attention." *Journal of Motor Behavior* 30.2 (1998): 169-79.
- Wulf G., McConnel N., Gartner M., & Schwarz A. (2002). Enhancing the learning of sport skills through external-focus feedback. *Journal of Motor Behavior*, 34(2), 171-182.
- Wulf G., Shea C., & Park J.H. (2001). Attention and motor performance: preferences for and advantages of an external focus. *Research Quarterly Exercise and Sport*, 72(4):335-344.
- Wulf G, Su J. An external focus of attention enhances golf shot accuracy in beginners and experts. *Res Q Exerc Sport*. 2007;78(4):384-9.
- Wulf G., Weigelt M., Poulter D., & McNevin N. (2003). Attentional focus on suprapostural tasks affects balance. *Quarterly Journal of Experimental Psychology*, 56A(7), 1191-1211.
- Zachry T., Wulf G., Mercer J., & Bezodis N. (2005). Increased movement accuracy and reduced EMG activity as the result of adopting an external focus of attention. *Brain Research Bulletin*, 67, 304-309.