

# The Science and Application for Building Relevant Assessments

07-24-2022 9:45AM - 11.35am • SESSION 833 • LECTURE

## Joanne Groves

Joanne Groves is an educator, author, personal and group exercise trainer, and IDEA committee member. She has served as a master trainer for Escape Fitness and presented around the globe on behalf of Faster Health and Fitness. Currently, she is the education director for Motor Skill Application Specialist and Faster Group Specialist. Joanne is also the coauthor of a research and communication course called the “Three C’s of Success” and “Digital Presenting Expert.”



## Session 833

The goal of a science-driven assessment is to provide motivational information for your client, and help you create more impactful programs. In this session, we'll review and evaluate assessments that range from the quick and vital PAR-Q to thorough holistic

assessments. You'll discover how to build unique, science-driven assessments that you can implement with your clients right away, in the gym or online.

## Notes for the session

1. Introduction to Assessments
  - 1.1. Define what the talk will cover
  - 1.2. Define three types of assessments
  - 1.3. Assessment case studies
2. My Journey
  - 2.1. Biomechanics
  - 2.2. Techniques
  - 2.3. Client success
3. How to ask great questions
  - 3.1. Asking for research
  - 3.2. Replacing Gurus
  - 3.3. Pain Science
  - 3.4. Bio/psycho/social
4. Defining Assessments
  - 4.1. Three Types of Assessments
  - 4.2. Define 5 Faster movement skills
  - 4.3. Skill to Performance continuum
  - 4.4. Measure for 10/10
  - 4.5. Repeatable
5. How to find research
  - 5.1. The Faster Process
  - 5.2. Define your question
  - 5.3. Read the papers
  - 5.4. Injury
  - 5.5. Catastrophic Language
6. Case Study -Injury/me/ Plantar fasciitis
  - 6.1. Balance of research
  - 6.2. Traditional thought Biomechanics and range of motion
  - 6.3. Intensity required
  - 6.4. The evidence leans to volume, mood , self-efficacy
  - 6.5. The relevant assessment - rapport / benchmark pain free skill
- 7.1. Case Study - One leg squat
  - 6.1. Balance of research
  - 6.2. Traditional thought Biomechanics and range of motion
  - 6.3. Intensity required
  - 6.4. Measurable
  - 6.5. The relevant assessment

## 8.1. Case Study - Osteoporosis

8.2. Research - manage volume, reduce fear and the experience of pain

8.3. Balance of research

8.4. Traditional thought Biomechanics and range of motion

8.5. Intensity required

8.6. The evidence leans to

- Observe pain free movement
- rapport
- Build self-efficacy, reduce fear of falling, become skillful in more environments

8.7. The relevant assessment - rapport / benchmark pain free skill in required movement

## 9. Case Study - Batting for Cricket

9.1. Research cricket Injuries

9.2. Balance of research

9.3. Traditional thought Biomechanics and range of motion

9.4. Intensity required

9.5. The evidence leans towards overuse injuries, and contact from ball. The relevant assessment

- Rapport
- See benchmark of skills needed in performance
- Batting power
- Bat Run

## 10. Case Study - Polio and multiple sclerosis

10.1. Research self-efficacy with regards to falls, Avoid S&C due to muscle fatigue

10.2. Balance of research

10.3. Traditional thought Biomechanics and range of motion

10.4. Experts techniques

10.5. The evidence leans to no strength training (define) / fear of falling / self-efficacy

9.6. The relevant assessment

- Rapport
- See benchmark of skills needed pain free
- Walk
- Get up from floor

## Bonus Case Studay - Soccer / Knee injury

B.1. Research for knee injury limited -hamstring. Eccentric and work in movements required

B.2. Balance of research

B.3. Traditional thought Biomechanics and range of motion

B.4. Experts techniques

B.5. The evidence leans to Hamstring in movements required / self-efficacy

B.6. The relevant assessment

- Power out / deceleration left/right
- Skill in short and long range

- Pelvis away from ribs hip driven
- 8 point turns for pace
- Build self-efficacy

## Conclusion

- 10.1. Love what you do and be thankful for your clients
- 10.2. Continue to do the best you can for them
- 10.3. Challenge everything you hear and think with research
- 10.4. Look out for red flags, n+1 stories and n=1 case studies
- 10.5. Don't trust me, read your own research. For help with doing this surround yourself by a supportive network and feel free to email me below

Joanne@fasterfunction.com

“ Thank you for taking my talk, I hope it has given you the inspiration to go out and positively influence your clients lives. The tools and oppertunating to question me and challenge the level of evidence that underpins everything you do for your clients. live in the discomfort of being wrong by trying to be right and carry on doing amazing things in the industry!”

## Useful links

<https://www.khanacademy.org/test-prep/sat/sat-reading-writing-practice/new-sat-reading/v/reading-science-passage> How to read research

<https://endpoints.elysiumhealth.com/how-to-read-a-scientific-paper-695188037080> How to read science papers


<https://youtu.be/gwd-wLdIHjs> Why Things Hurt Lorimer Mosley

<https://youtu.be/yPKVykhFOcc> Greg Lehman When Biomechanics doesn't matter

<http://fasterglobal.com/foot-the-lot-of-you-my-relationship-with-the-foot-and-the-industry/>

<https://www.facebook.com/search/top/?q=Joanne+Groves&init=public>

<https://www.instagram.com/joannegr0ves/>

 [How to spot the difference between opinions and facts in the fitness industry](#)

<https://www.fasterfunction.com/course/motor-skill-application-specialist>

[http://www.sci-hub.tw/?fbclid=IwAR1lwSnNiBkq6Khhgk4rfLmXR5dZIRL3cq60T1ukg\\_X\\_VNG4jZjL2cBRDfow](http://www.sci-hub.tw/?fbclid=IwAR1lwSnNiBkq6Khhgk4rfLmXR5dZIRL3cq60T1ukg_X_VNG4jZjL2cBRDfow)

## References

- Arnhild Bakken, PT, MSc\*, Stephen Targett, MBChB, FACSP, Tone Bere, PT, PhD - Muscle Strength Is a Poor Screening Test for Predicting Lower Extremity Injuries in Professional Male Soccer Players: A 2-Year Prospective Cohort Study 2018

<ul style="list-style-type: none"> <li>• <u>Akalan NE1</u>, <u>Kuchimov S2</u>, <u>Apti A3</u>, <u>Temelli Y4</u>, <u>Ören M5</u>, <u>Nene A6</u>. Does clinically measured ankle plantar flexor muscle strength or weakness correlate with walking performance in healthy individuals? 2018</li> </ul>
<ul style="list-style-type: none"> <li>• Baert V1, Gorus E, Mets T, Bautmans I - Motivators and barriers for physical activity in older adults with osteoporosis</li> </ul>
<ul style="list-style-type: none"> <li>• Bahr R - Why screening tests to predict injury do not work-and probably never will...: a critical review. 2016</li> </ul>
<ul style="list-style-type: none"> <li>• Bahr, R. Why screening tests to predict injury do not work-and probably never will...: a critical review. Br J Sports Med. 2016. Epub ahead of print. doi:10.1136/bjsports-2016-096256</li> </ul>
<ul style="list-style-type: none"> <li>• Barengo NC, Meneses-echávez JF, Ramírez-vélez R, Cohen DD, Tovar G, Bautista JE. The impact of the FIFA 11+ training program on injury prevention in football players: a systematic review. Int J Environ Res Public Health. 2014;11(11):11986-2000.</li> </ul>
<ul style="list-style-type: none"> <li>• Bonazza NA, Smuin D, Onks CA, Silvis ML, Dhawan A. Reliability, Validity, and Injury Predictive Value of the Functional Movement Screen: A Systematic Review and Meta analysis. Am J Sports Med. 2016;</li> </ul>
<ul style="list-style-type: none"> <li>• Br j Sports Med. 2016 Jul.50(13):776-80</li> </ul>
<ul style="list-style-type: none"> <li>• <u>Brogårdh C</u>, <u>Flansbjerg UB</u>, <u>Lexell J</u> - Determinants of Falls and Fear of Falling in Ambulatory Persons With Late Effects of Polio.</li> </ul>
<ul style="list-style-type: none"> <li>• Centre for evidence based medicine. Oxford centre for evidence based. Medicine. <a href="http://www.cebm.net/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/">http://www.cebm.net/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/</a> . Published March 2009. Accessed February 2017</li> </ul>

<ul style="list-style-type: none"> <li>• <u>Castelein B1</u>, <u>Cagnie B2</u>, <u>Cools A2</u>. Scapular muscle dysfunction associated with subacromial pain syndrome. 2017</li> </ul>
<ul style="list-style-type: none"> <li>• Chan ZYS, et al. Am J Sports Med. 2018 - Gait Retraining for the Reduction of Injury Occurrence in Novice Distance Runners: 1-Year Follow-up of a Randomized Controlled Trial.</li> </ul>
<ul style="list-style-type: none"> <li>• CHARLES COLE, M.D., CRAIG SETO, M.D., and JOHN GAZEWOOD, M.D., M.S.P.H., 2005 Allegra Barnes PT, B.App.Sc.(Physiotherapy) Hons Justin Sullivan PT, PhD ... Clinical and Functional Characteristics of People With Chronic and Recent-Onset Plantar Heel Pain</li> </ul>
<ul style="list-style-type: none"> <li>• Charron S, et al. Mult Scler Relat Disord - Physical activity and disability outcomes in multiple sclerosis: A systematic review (2011–2016)</li> </ul>
<ul style="list-style-type: none"> <li>• Clay H, Mansell J, Tierney R. ASSOCIATION BETWEEN ROWING INJURIES AND THE FUNCTIONAL MOVEMENT SCREEN™ IN FEMALE COLLEGIATE DIVISION I ROWERS. Int J Sports Phys Ther. 2016;11(3):345-9.</li> </ul>

<ul style="list-style-type: none"> <li>• Cook G, Burton L, Hoogenboom BJ, Voight M. Functional movement screening: the use of fundamental movements as an assessment of function-part 2. <i>Int J Sports Phys Ther.</i> 2014;9(4).</li> </ul>
<ul style="list-style-type: none"> <li>• Cook G, Burton L, Kiesel K, Rose G, Bryant MF. Functional movement systems: Screening, assessment, and corrective strategies. 2010. On Target Publications. Aptos, CA.</li> </ul>
<ul style="list-style-type: none"> <li>• Cook G. What is our baseline for movement? IFOMPT Keynote Address. 2013.</li> </ul>
<ul style="list-style-type: none"> <li>• <u>Dalgas U</u> - Exercise therapy in multiple sclerosis and its effects on function and the brain.</li> </ul>
<ul style="list-style-type: none"> <li>• <u>Dean E</u>, <u>Ross J</u>, <u>MacIntyre D</u>. - A rejoinder to "Exercise Programs for Patients with Post Polio Syndrome: a case report"--a short communication.</li> </ul>
<ul style="list-style-type: none"> <li>• Dorrel BS, Long T, Shaffer S, Myer GD. Evaluation of the Functional Movement Screen as an Injury Prediction Tool Among Active Adult Populations: A Systematic Review and Meta analysis. <i>Sports Health.</i> 2015;7(6):532-7.</li> </ul>
<ul style="list-style-type: none"> <li>• Ebell MH, Siwek J, Weiss BD, Woolf SH, Susman J, Ewigman B, Bowman M. Strength of recommendation taxonomy (SORT): a patient-centered approach to grading evidence in the medical literature. <i>J Am Board Fam Pract.</i> 2004 Jan 1;17(1):59-67.</li> </ul>
<ul style="list-style-type: none"> <li>• <u>Finan PH</u>, <u>Buenaer LE</u>, <u>Bounds SC</u>, <u>Hussain S</u>, <u>Park RJ</u>, <u>Haque UJ</u>, <u>Campbell CM</u>, <u>Haythornthwaite JA</u>, <u>Edwards RR</u>, <u>Smith MT</u>. - Discordance between pain and radiographic severity in knee osteoarthritis: findings from quantitative sensory testing of central sensitization. 2013</li> </ul>
<ul style="list-style-type: none"> <li>• Fischer S, Kapinos KA, Mulcahy A, Pinto L - Estimating the long-term functional burden of osteoporosis-related fractures.</li> </ul>
<ul style="list-style-type: none"> <li>• Gabbett TJ. The training-injury prevention paradox: should athletes be training smarter and harder?. <i>Br J Sports Med.</i> 2016;50(5):273-80.</li> </ul>
<ul style="list-style-type: none"> <li>• Gay RE - The curve of the cervical spine: variations and significance. 1993</li> </ul>
<ul style="list-style-type: none"> <li>• <u>Goubert D</u>, <u>Oosterwijck JV</u>, <u>Meeus M</u>, <u>Danneels L</u>. - Structural Changes of Lumbar Muscles in Non-specific Low Back Pain: A Systematic Review. 2016</li> </ul>
<ul style="list-style-type: none"> <li>• <u>Halabchi E</u>, <u>Alizadeh Z</u>, <u>Sahraian MA</u>, <u>Abolhasani M</u>. - Exercise prescription for patients with multiple sclerosis; potential benefits and practical recommendations.</li> </ul>
<ul style="list-style-type: none"> <li>• <u>Hides J</u>, <u>Fan T</u>, <u>Stanton W</u>, <u>Stanton P</u>, <u>McMahon K</u>, <u>Wilson S</u>. Psoas and quadratus lumborum muscle asymmetry among elite Australian Football League players. 2010</li> </ul>
<ul style="list-style-type: none"> <li>• Hoogenboom BJ, Voight ML, Cook G, Gill L. Using Rolling to Develop Neuromuscular Control and Coordination of the Core and Extremities of Athletes. <i>N Am J Sports Phys Ther.</i> 2009;4(2):70-82.</li> </ul>
<ul style="list-style-type: none"> <li>• J Manipulative Physiol Ther. 1993 Nov-Dec;16(9):591-4. Review.</li> </ul>
<ul style="list-style-type: none"> <li>• JAMES D. GOFF, DO, and ROBERT CRAWFORD, MD, Summa Health System, Akron, Ohio</li> </ul>

Am Fam Physician. 2011. Diagnosis and Treatment of Plantar Fasciitis
<ul style="list-style-type: none"> <li>• Janice M Moreside Stuart MMcguil - Improvements in Hip Flexibility Do Not Transfer to Mobility in Functional Movement Patterns 2013</li> </ul>
<ul style="list-style-type: none"> <li>• Khan KM, Scott A. Mechanotherapy: how physical therapists' prescription of exercise promotes tissue repair. Br J Sports Med. 2009;43(4):247-52.</li> </ul>
<ul style="list-style-type: none"> <li>• <u>Korakakis V1</u>, <u>O'Sullivan K2</u>, <u>O'Sullivan PB3</u>, <u>Evagelinou V4</u>, <u>Sotiralis Y4</u>, <u>Sideris A4</u>, <u>Sakellariou K4</u>, <u>Karanasios S4</u>, <u>Giakas G5</u>. Physiotherapist perceptions of optimal sitting and standing posture. 2019</li> </ul>
<ul style="list-style-type: none"> <li>• linEastell R - Postmenopausal osteoporosis.2016</li> </ul>
<ul style="list-style-type: none"> <li>• Marc Dauty - Prediction of hamstring injury in professional soccer players by isokinetic measurements 2016</li> </ul>
<ul style="list-style-type: none"> <li>• <u>Marc Dauty</u>, <u>Pierre Menu</u>, <u>Alban Fouasson-Chailloux</u>, <u>Sophie Ferréol</u>, and <u>Charles Dubois</u> - Prediction of hamstring injury in professional soccer players by isokinetic measurements 2016</li> </ul>
<ul style="list-style-type: none"> <li>• <u>Marc Dauty</u>, <u>Pierre Menu</u>, <u>Alban Fouasson-Chailloux</u>, <u>Sophie Ferréol</u>, and <u>Charles Dubois</u> - Prediction of hamstring injury in professional soccer players by isokinetic measurements 2016</li> </ul>
<ul style="list-style-type: none"> <li>• <u>McGill SM1</u>, <u>Andersen JT</u>, <u>Horne AD</u>.Predicting performance and injury resilience from movement quality and fitness scores in a basketball team over 2 years.2012</li> </ul>
<ul style="list-style-type: none"> <li>• McKeon PO, Hertel, J. The dynamical-systems approach to studying athletic injury. Athl Ther Today. 2006;11(1):31-33.</li> </ul>
<ul style="list-style-type: none"> <li>• Moran RW, et al. Br J Sports Med. 2017 - Do Functional Movement Screen (FMS) composite scores predict subsequent injury? A systematic review with meta-analysis.</li> </ul>
<ul style="list-style-type: none"> <li>• M.S.AjimshaabD.BinsubS.ChithrabEffectiveness of myofascial release in the management of plantar heel pain: A randomized controlled trial 2014</li> </ul>
<ul style="list-style-type: none"> <li>• Najrana T, Sanchez-esteban J. Mechanotransduction as an Adaptation to Gravity. Front Pediatr. 2016;4:140.</li> </ul>
<ul style="list-style-type: none"> <li>• Paul W. Hodges, ... G. Lorimer Moseley, in Spinal Control, 2013Motor control approach to management of low back and pelvic pain</li> </ul>
<ul style="list-style-type: none"> <li>• P.F.GrundyC.J.Roberts - DOES UNEQUAL LEG LENGTH CAUSE BACK PAIN?: A Case control Study 1984</li> </ul>
<ul style="list-style-type: none"> <li>• Page P, Frank CC, Lardner R. Structural and functional approaches to muscle imbalance. In: Assessment and Treatment of Muscle Imbalance: The Janda Approach. Champaign, IL: Human Kinematics. 2010.</li> </ul>
<ul style="list-style-type: none"> <li>• Portney LG, Watkins MP. Foundations of Cical Research, Applications to Practice. Prentice Hall; 2009.</li> </ul>

• Rhinehart AJ, Schroeder KM, May J, Baker R, Nasypany A, Ambegaonkar JP. Movement assessment: techniques and possible integration into clinical practice. International Journal of Athletic Therapy and Training. 2015 Nov;20(6):5-9.

• Saltychev M, Laimi K, Pentti J, Kivimäki M, Vahtera J. - Short- and long-term changes in perceived work ability after interdisciplinary rehabilitation of chronic musculoskeletal disorders: prospective cohort study among 854 rehabilitants.

• Saltychev M, Laimi K, Pentti J, Kivimäki M, Vahtera J. - Short- and long-term changes in perceived work ability after interdisciplinary rehabilitation of chronic musculoskeletal disorders: prospective cohort study among 854 rehabilitants. 2014

• Saw AE, Main LC, Gastin PB. Monitoring the athlete training response: subjective self reported measures trump commonly used objective measures: a systematic review. Br J Sports Med. 2016;50(5):281-91.

• Swanson RL. Biotensegrity: a unifying theory of biological architecture with applications to osteopathic practice, education, and research—a review and analysis. J Am Osteopath Assoc. 2013;113(1):34-52

• T. Bell-Jenjea, B. Olivier, W. Wooda, S. Rogersa, A. Greenb, W. McKinonb 2015 - The association between loss of ankle dorsiflexion range of movement, and hip adduction and internal rotation during a step down test

• The Past, Present and Future G. Lorimer Moseley, David S. Butler 2015

• Tonosu J, Oka H, Higashikawa A, Okazaki H, Tanaka S, Matsudaira K - The associations between magnetic resonance imaging findings and low back pain: A 10-year longitudinal analysis.2017

• Warren M, et al. J Sport Rehabil. 2015 - Association of the Functional Movement Screen with injuries in division I athletes.

• Wright AA, Stern B, Hegedus EJ, Tarara DT, Taylor JB, Dischiavi SL. Potential limitations of the functional movement screen: a clinical commentary. Br J Sports Med. 2016;50(13):770-1.

• Yabroudi MA, Irrgang JJ - Rehabilitation and return to play after anatomic anterior cruciate ligament reconstruction.