



## STRUCTURE & FUNCTION EDUCATION

### BTG Chapter 8: Top Five Considerations for Optimal Function - Home Study

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#### I. Welcome

- a. Video: Welcome Message from Instructor
- b. Video: How to Use this Course
- c. Survey: Before We Begin (goals, experience, roadblocks)

#### II. Module 1: Chapter 8 – An introduction

##### Learning Objectives:

- Describe the top five “must do” considerations for all athletes, despite sport, gender or position – breath, posture, foot health, thoracic mobility and movement through the hips.

- a. Video: Top 5 Introduction (9 minutes)
- b. Reading: *Bridging the Gap from Rehab to Performance*  
Chapter 8: Other considerations for optimal function (12,760 words)  
Readings:
  - c. C. Reading: Dynamic Neuromuscular Stabilization & Sports Rehabilitation (3,103 words)  
[Frank C, Kobesova A, Kolar P. Dynamic neuromuscular stabilization & sports rehabilitation. \*Int J Sports Phys Ther.\* 2013;8\(1\):62.](#)

#### III. Module 2: Posture

##### Learning Objectives:

- Describe the spine in terms of a cogwheel and creation of nociceptive chains.
- Differentiate between “new” and “old” training systems, and describe how that impacts training programs.
- Diagram and describe the four diaphragms.

- a. Video: Posture (12 minutes)
- b. Video: Posture Lab (9 minutes)
- c. Reading: Diaphragm Postural Function Analysis Using Magnetic Resonance Imaging (8,167 words)

[Vostatek P, Novák D, Rychnovský T, Rychnovská S. Diaphragm postural function analysis using magnetic resonance imaging. \*PLoS One\*. 2013;8\(3\):e56724. doi:10.1371/journal.pone.0056724](#)

#### IV. Module 3: Breath

Learning Objectives:

- Differentiate between respiration and breathing.
- Describe different types of breathing strategies.
- Explain how breath relates to core stability.
- Identify and correct a paradoxical breathing pattern
- Describe how breath facilitates movement, and movement facilitates breath.
- Describe how breath facilitates stability.

- a. Video: Breath, Part 1 (11 minutes)
- b. Video: Breath, Part 2 (13 minutes)
- c. Video: Breath Lab (10 minutes)
- d. Video: Stability vs. Mobility (4 minutes)
- e. Video: Breath Lab, part 2 (13 minutes)
- f. Read: Breathing: Motor Control of Diaphragm Muscle (6,500 words)

[Fogarty MJ, Mantilla CB, Sieck GC. Breathing: Motor Control of Diaphragm Muscle. \*Physiology \(Bethesda\)\*. 2018;33\(2\):113–126. doi:10.1152/physiol.00002.2018](#)

#### V. Module 4: Thoracic Spine

Learning Objectives:

- Describe how the thoracic spine and autonomic nervous system relate
- Describe the associated osteokinematics of the thoracic spine with the cervical spine and shoulders.
- Analyze how these concepts relate to your manual therapy and exercise selections.

- a. Video: Thoracic Spine (11 minutes)
- b. Video: Breath/Thoracic Lab Progression (2 minutes)
- c. Video: Thoracic Lab (13 minutes)
- d. Read: Biomechanics of the thorax – research evidence and clinical expertise (5,735 words)

[Lee DG. Biomechanics of the thorax – research evidence and clinical expertise. \*J Man Manip Ther\*. 2015;23\(3\):128-138.](#)

## VI. Module 5: Hip

### Learning Objectives:

- Describe how moving through the hips relates to digestion and overall health.
  - Describe how hip mobility relates to core stability.
  - Relate these concepts of hip mobility to your exercise selection,
- a. Video: Hip (8 minutes)
  - b. Video: Hip Lab (13 minutes)
  - c. Read: Electromyographic Analysis of Gluteus Medius and Gluteus Maximus During Rehabilitation Exercises (5,968 words)  
[Boren K, Conrey C, Coguic JL, Paprocki L, Voight M, Robinson TK. ELECTROMYOGRAPHIC ANALYSIS OF GLUTEUS MEDIUS AND GLUTEUS MAXIMUS DURING REHABILITATION EXERCISES. :18.](#)
  - d. Read: Assessing and Treating Gluteus Maximus Weakness – A Clinical Commentary (5,343 words)  
[Buckthorpe M, Stride M, Villa FD. ASSESSING AND TREATING GLUTEUS MAXIMUS WEAKNESS – A CLINICAL COMMENTARY. \*Int J Sports Phys Ther.\* 2019;14\(4\):655-669. doi:10.26603/ijsp20190655](#)
  - e. Read: Ipsilateral Hip Abductor Weakness After Inversion Ankle Sprain (2,821 words)  
[Friel K, McLean N, Myers C, Caceres M. Ipsilateral hip abductor weakness after inversion ankle sprain. \*J Athl Train.\* 2006;41\(1\):74.](#)

## VII. Module 6: Feet

### Learning Objectives:

- Explain how modern shoes and athletics have altered foot mechanics and mobility.
  - Demonstrate the short foot activity, and explain its importance.
  - Describe how short foot relates to balance, proprioception and hip activation.
  - Describe how the sensation of the bottom of the foot affects local foot and ankle issues, as well as back pain.
- a. Video: Feet (18 minutes)
  - b. Video: Foot Lab (14 minutes)
  - c. Read: The Influence of Plantar Short Foot Muscle Exercises on Foot Posture and Fundamental Movement Patterns in Long-Distance Runners, a Non-Randomized, Non-Blinded Clinical Trial (4,309 words)  
[Sulowska I, Oleksy Ł, Mika A, Bylina D, Sołtan J. The Influence of Plantar Short Foot Muscle Exercises on Foot Posture and Fundamental Movement Patterns in Long-](#)

[Distance Runners, a Non-Randomized, Non-Blinded Clinical Trial. Buchowski M, ed. \*PLOS ONE\*. 2016;11\(6\):e0157917. doi:10.1371/journal.pone.0157917](#)

- d. Read: Intrinsic Foot Muscle Activation During Specific Exercises: A T2 Time Magnetic Resonance Imaging Study (3,775 words)

[Gooding TM, Feger MA, Hart JM, Hertel J. Intrinsic Foot Muscle Activation During Specific Exercises: A T2 Time Magnetic Resonance Imaging Study. \*J Athl Train\*. 2016;51\(8\):644-650. doi:10.4085/1062-6050-51.10.07](#)

## VIII. Conclusions

- a. Watch: Conclusion (2 minutes)
- b. Quiz: Test your Learning (15 questions)
- c. Survey: Course Evaluation

**Total Time:5.5 CEUs**

Video: 162 minutes, 2.7 hours

Reading: 58,481 words or 2.8 hours