

The Brookbush Institute Enhances Physiology Education with an Update to the Course 'Functional Roles of Muscles'

Learn about the functional roles of muscles (kinesiology), including agonists, prime mover, synergists, antagonists, stabilizers, fixators, and neutralizers.

NEW YORK, NY, UNITED STATES, December 3, 2024 /EINPresswire.com/ -- "[Lesson 21: Functional Roles of Muscles](#)" describes the functional role of muscles as it applies to kinesiology and human movement science. This includes definitions for [prime mover](#), [agonist](#), [synergist](#), [antagonist](#), [neutralizer](#), [stabilizer](#), and [fixator](#). Further, the terms are applied to several joint actions for the major joints of the human body (shoulder, scapula, spine, hip, knee, and ankle joints), and examples of altered recruitment and dysfunction are discussed throughout.



Agonists of Hip Extension - <https://brookbushinstitute.com/courses/functional-roles-of-muscles>



There is so much information; I absolutely love being a member of BrookbushInstitute.com. Best Decision I ever made!"
Gabriel Angel Gonzalez

DEFINITIONS

- Agonist: Muscles that perform a joint action, including the prime mover and synergists
- Prime Mover: The muscle contributing the most force to a joint action when resisted by an external load.
- Synergist: Muscles that assist the prime mover in performing a joint action.
- Antagonist: Muscles that oppose the prime mover and synergist(s) for a joint action.

- Neutralizers: Muscles that oppose unwanted joint motions created by the prime mover and/or synergists, and/or muscles that prevent unwanted ancillary motion.
- Stabilizers: Muscles whose primary role is to improve arthrokinematics by maintaining optimal alignment of joint surfaces.

- Fixators: Muscles that act to reduce or prevent movement at proximal joints to improve force transmission.

EXAMPLE:

HIP EXTENSION -

- Prime Mover: gluteus maximus
- Synergists: bicep femoris, semitendinosus, semimembranosus, posterior head of adductor magnus
- Antagonist: psoas, iliacus, tensor fascia latae, rectus femoris, anterior adductors, sartorius
- Neutralizers: gluteus minimus, tensor fascia latae, anterior adductors neutralize the external rotation force generated by the gluteus maximus
- Stabilizers: deep rotators of the hip (gemellus superior, gemellus inferior, obturator internus, obturator externus, and the quadratus femoris)
- Fixators: intrinsic stabilization subsystem, rectus abdominis, obliques, quadratus lumborum, erector spinae

WHY THIS COURSE?

Sports medicine professionals (personal trainers, fitness instructors, physical therapists, massage therapists, chiropractors, occupational therapists, athletic trainers, etc.) must understand the functional roles of muscles for analysis of biomechanics and human kinetics, which is necessary for developing optimal exercise programs and therapeutic (rehabilitation) interventions. Further, this course is essential knowledge for future courses discussing motor neuron function (e.g., agonist activity and reciprocal inhibition of functional antagonists), altered motor function (e.g., synergistic dominance, prime mover inhibition, instability), pain and injury (e.g., muscle fiber dysfunction, trigger point development, acute muscle weakness) and sports performance (e.g., skeletal muscle hypertrophy, maximal recruitment and muscle contraction, and strength and power development).

THIS COURSE INCLUDES

- Video Lecture
- Study Guide
- Text
- Functional Role of Muscles Activity
- Kinesiology by Joint Action
- AI Tutor
- Practice Exam
- Final Exam
- Approved for credits toward continuing education and the Certified Personal Trainer (CPT) Certification.

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