The Complex Musculoskeletal System:

Why Extensive Training Is Necessary

The musculoskeletal system's complex nature is the foundation for how we interact with the world and experience our daily lives, through the ability to walk, run, write, and work pain free.

SHOULDER:

A functioning shoulder relies on the interplay of four different articulating joints and eighteen muscles.

ELBOW:

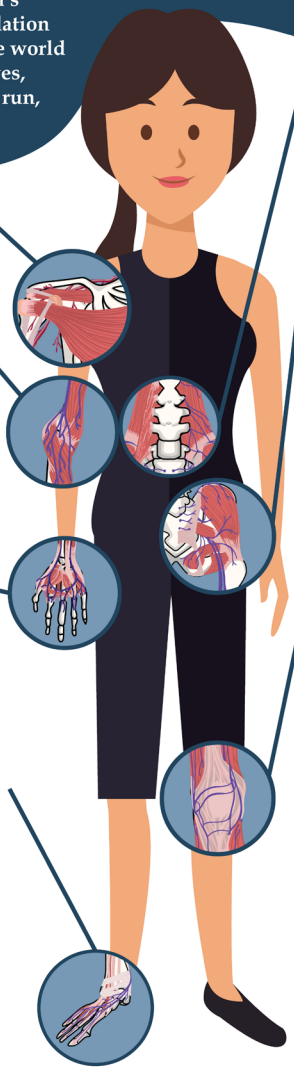
The elbow is comprised of three articulations, two major ligament complexes, and over 15 crossing muscles, which allow us to bend and straighten our arm, and rotate our palm to precisely position our hand in space for functional usage.

HAND/WRIST:

Hands are an important part of how we interact with our environment, and hand and wrist injuries and conditions entail soft tissue injuries, fractures, and damage to the nerves and vessels.

FOOT/ANKLE:

The human foot and ankle is an anatomically unique structure made up of 30 different bones, involving over 36 articulations and over 100 muscle interactions working together to support the full weight of the human body, propel it forward, and adapt to different terrains in order to reduce stress on the hips, knees, and back.



SPINE:

The spine consists of 24 bones, 23 discs, and over 10 muscles that function to not only protect the spinal cord, but also form the foundation from which our head, arms, legs, and pelvis extend.

HIP:

The hip joint is a true ball and socket joint that connects the legs to the pelvic. Although numerous muscles and ligaments are involved with motion of the hip, important structure to the hip include a sensitive and limited blood supply and the shape of the bone. Complex three dimensional understanding of the shape of the hip joint is necessary for treatment of conditions on adults and pediatric including hip dysplasia or hip impingement.

KNEE:

The knee is not only the largest joint in the body, but also one of the most injured.The knee is a hinge joint that is stabilized by 4 major ligaments and more than 25 smaller ligamentous structures. Medial and lateral meniscus act as shock absorbers in the knee that can be injured requiring surgery. Without your meniscus, the knee will develop severe arthritis.The knee works to hing the legs forward by contracting both the large quadriceps muscles (4 of them) and hamstring (6 of them). Knee cap dislocations (or patellar dislocations), ACL tears, and meniscus tears are common injuries that require medical attention by an orthopaedic surgeon.

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Orthopaedics:
Few Specialties Require as Much Training

Orthopaedic surgeons utilize both surgical and non-surgical techniques to treat the complex musculoskeletal system, which controls bones, joints, ligaments, tendons, muscles, and nerves. They treat sports injuries, musculoskeletal trauma, tumors, infections, degenerative diseases, and congenital disorders. An orthopaedic surgeon has been trained to understand the entire human body and how different types of medical conditions may impact musculoskeletal health, and vice versa.

The treatment of musculoskeletal injuries and conditions is one of the most complex acts in medicine. As a result, orthopaedic surgeons, who have extensive training in the proper diagnosis and treatment of injuries and diseases of the musculoskeletal system, must go through an extensive training process before beginning independent practice. In many cases, orthopaedic surgeons have completed up to 14 years of formal education. Sometimes, they have completed more. This includes undergraduate study, medical school, a fiveyear orthopaedic residency, and fellowships and internships.

Furthermore, in order to obtain board certification after completion of training, an orthopaedic surgeon must undergo a peer review process followed by a demonstration of his/her expertise by passing oral and written examinations given by the American Board of Orthopaedic Surgery. They must complete a rigorous re-certification process every 10 years.

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An Orthopaedic Surgeon's Lengthy Path to Independent Practice

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