

**TABLE 3-2**

## Design Parameters of the Musculoskeletal System

Parameter	Property Affected
Fiber length	Velocity or excursion
Fiber area	Fiber force
Physiological cross-sectional area	Maximum muscle force and torque
Tendon length	Increased range, damping, and energy storage
Moment arm	Maximum torque
Tendon length–fiber length ratio	Relative stiffness of a muscle–tendon unit
Fiber length–moment arm ratio	Relative muscle–joint influence
Fiber type distribution	Muscle speed and endurance
Motor unit distribution	Relative muscle control