

TABLE 3-1

Fiber Lengths and Moment Arms of Limb Muscles

Muscle	Fiber Length (m)	Fiber Length– Moment Arms Ratio
Leg muscles		
• Adductor longus	0.132	2.80
• Adductor magnus	0.144	2.71
• Rectus femoris	0.082	1.70
• Iliopsoas	0.127	6.54
• Gluteus maximus	0.180	79.5
• Gluteus medius	0.081	5.79
• Gluteus minimus	0.064	13.9
• Pectineus	0.130	5.27
• Tensor fascia latae	0.118	2.80
• Gracilis	0.345	6.26
• Sartorius	0.566	10.8
• Hamstrings	0.107	1.76
• Biceps femoris (short head)	0.173	4.38
• Vasti	0.084	1.78
• Gastrocnemius	0.048	1.47
• Soleus	0.024	0.926
• Other plantarflexors	0.038	5.77
• Dorsiflexors	0.101	3.08
Wrist muscles		
• Extensor carpi radialis longus	0.076	11
• Extensor carpi radialis brevis	0.048	4
• Extensor carpi ulnaris	0.050	8.3
• Flexor carpi radialis	0.051	3.4
• Flexor carpi ulnaris	0.041	2.6

Source: Data compiled from Hoy, M. G., Zajac, F. E., & Gordon, M. E. (1990). A musculoskeletal model of the human lower extremity: The effect of muscle, tendon, and moment arm on the moment–angle relationship of musculotendon actuators at the hip, knee, and ankle. *Journal of Biomechanics*, 23, 157–169; Lieber, R. L., Fazeli, B. M., & Botte, M. J. (1990). Architecture of selected wrist flexor and extensor muscles. *Journal of Hand Surgery*, 15A, 244–250; Horii, K. N., An, W. P., Cooney, W. P., & Linscheid, R. L. (1991). Kinematics and tendon excursion of wrist movers. *Journal of Hand Surgery*, 18A, 83–90; and Loren, G. J., Shoemaker, S. D., Burkholder, T. J., Jacobson, M. D., FridÈn, J., & Lieber, R. L. (1996). Influences of human wrist motor design on joint torque. *Journal of Biomechanics*, 29, 331–342.