

## STUDY GUIDE: Muscles

### KEY TERMS

skeletal (voluntary, or striated) muscle	summation	A band
striations	tetanus	H zone
red(slow) muscle	fatigue	Z line
white(fast) muscle	creatine phosphate	sarcomere
myoglobin	phosphagens	thick filament
smooth muscle	myoglobin	thin filament
cardiac muscle	oxygen debt	cross bridges
simple twitch	actin	sarcoplasmic reticulum
latent period	myosin	T system
contraction period	actomyosin	microfilament
relaxation period	myofibril	microtubule
	I band	

### QUESTIONS

1. Complete the following table.

**Type of Muscle** smooth skeletal (striated) cardiac

shape of the cell

presence of absence of

multiple nuclei in a cell

presence of absence of

striations

source of innervation (the

somatic or the autonomic

nervous system)

2. For each of the following tissues, indicate whether the muscle cells are predominantly striated or smooth.

**Muscle striated or smooth**

iris of the eye

wall of an artery

leg muscle

abdominal muscle

tongue

wall of the small intestine

wall of esophagus

face muscle

4. Using diagrams, identify a sarcomere, a bundle of muscle fibers, a myofibril, a Z line, a I band, and A band, an H zone, a thick filament, and a thin filament.

5. Explain the sliding-filament theory of skeletal muscle contraction. In doing so, indicate the contribution to muscular contraction of each of the following: actin filament, myosin filament, myosin heads, regulatory proteins,  $Ca^{++}$ , ATP, creatine phosphate.