STUDY GUIDE: Muscles

KEY TERMS

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

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.