

COMPARISON OF SKELETAL & SMOOTH MUSCLE CONTRACTION:

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COMPARISON OF SKELETAL & SMOOTH MUSCLE CONTRACTION:

S.NO	CHARACTERISTICS	SKELETAL MUSCLE	SMOOTH MUSCLE
1.	Location	Attached to the skeleton	Blood vessels, hollow organs, eye
2.	Mechanism of contraction	Sliding filament	Sliding filament
3.	Nerve supply	Motor neurons	Autonomic nervous system
4.	Level of control	Under Voluntary control	Under Involuntary control
5.	Presence of Thick & Thin filaments	Yes	Yes
6.	Presence of Tropomyosin	Yes	Yes
7.	Presence of Troponin	Yes	No
8.	Presence of T-tubules	Yes	No
9.	Level of development of Sarcoplasmic Reticulum	Well Developed	Poorly Developed

S.no	CHARACTERISTICS	SKELETAL MUSCLE	SMOOTH MUSCLE
10.	Source of Calcium	Sarcoplasmic Reticulum (SR)	ECF & SR
11.	Overlap of Actin & Myosin	Overlap of actin & myosin seen only in part of the A-band	Continuous overlap of actin & myosin, b/c of side-polar cross bridges
12.	ATP used directly by contractile apparatus	Yes	Yes
13.	Myosin ATPase activity; speed of contraction	Fast or slow depending on type of fiber	Very slow
14.	Site of Calcium regulation	Troponin in thin filaments	Myosin in thick filaments
15.	Mechanism of Calcium action	Physically repositions troponin-tropomyosin complex to uncover actin cross-bridge binding site	Chemically brings about phosphorylation of myosin cross bridges so they can bind with actin

S.no	CHARACTERISTICS	SKELETAL MUSCLE	SMOOTH MSUCLE
16.	Duration of contraction	100- 200 msec	Upto 5 sec
17.	Presence of Gap junctions	No	Yes
18.	Latch mechanism	No	Yes
19.	NMJ	Yes	No
20.	Neurotransmitter	Ach only	Ach & Norepinephrine

**For Further studies please
consult any Book or
internet sources available
to you
Thank you**