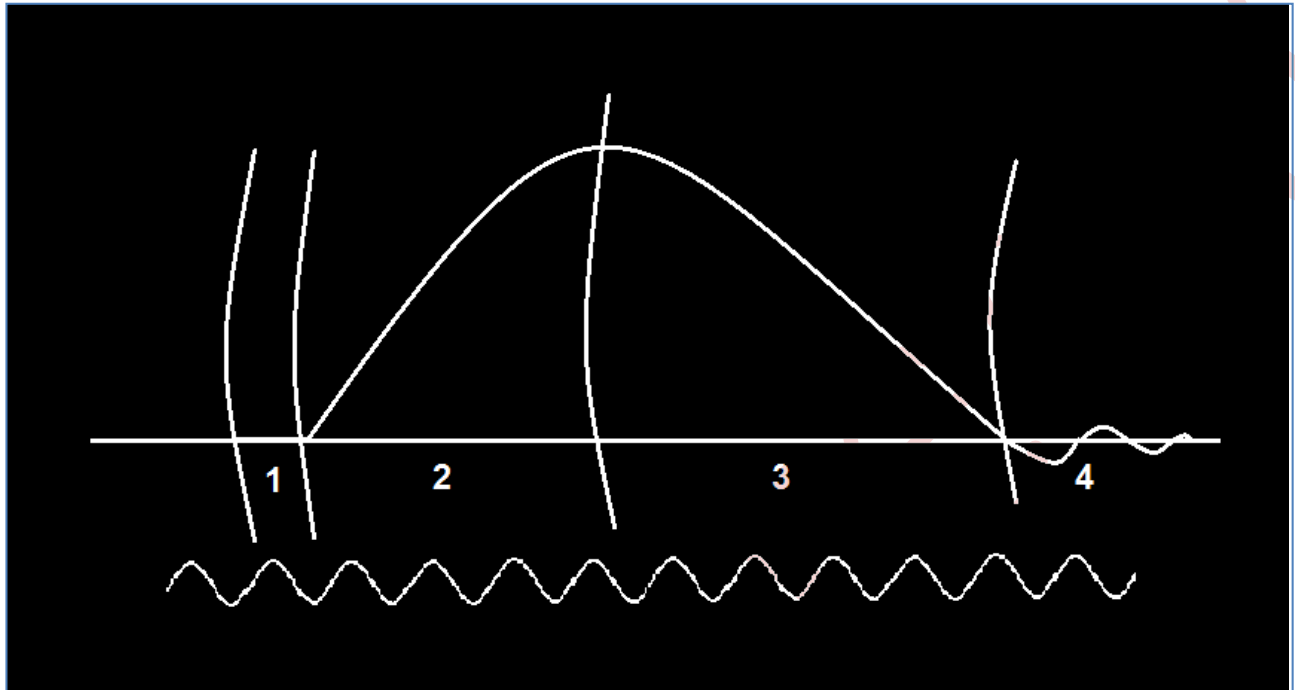


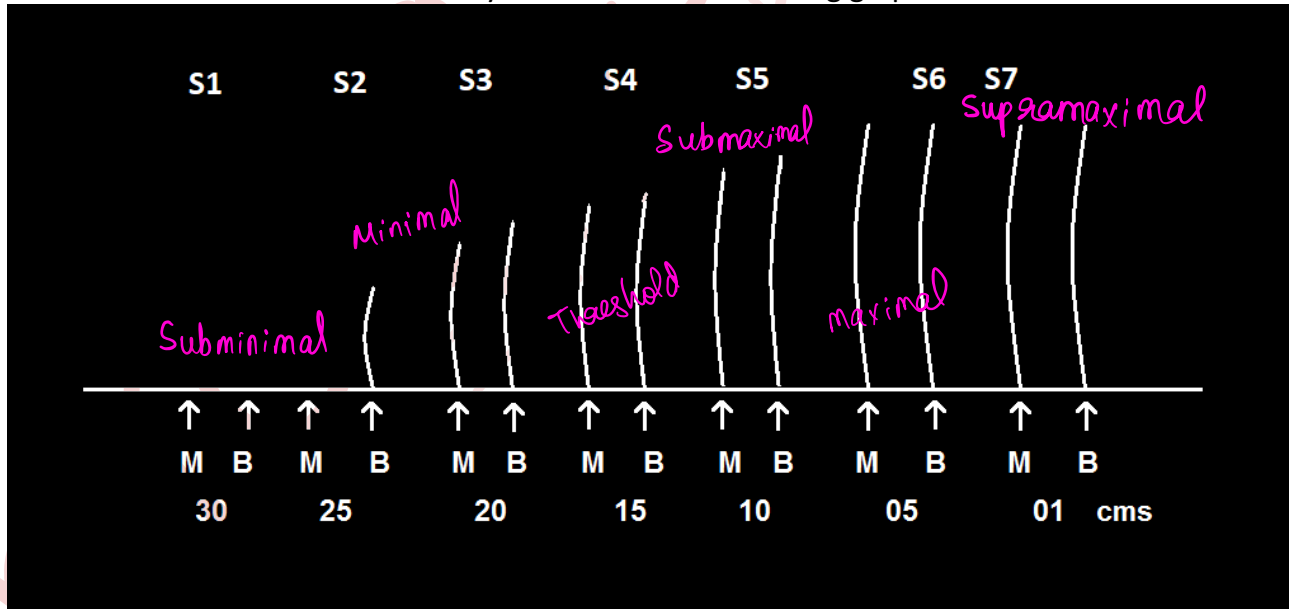
- 1 = latent period
2 = contraction period
3 = relaxation period

1. Identify and discuss the following graph.



SIMPLE MUSCLE TWITCH (application of adequate stimulus)

2. Identify and discuss the following graph.



Effect of increasing stimulus strength

M = make shock

B = break shock

(Break stimulus is stronger than make stimulus)

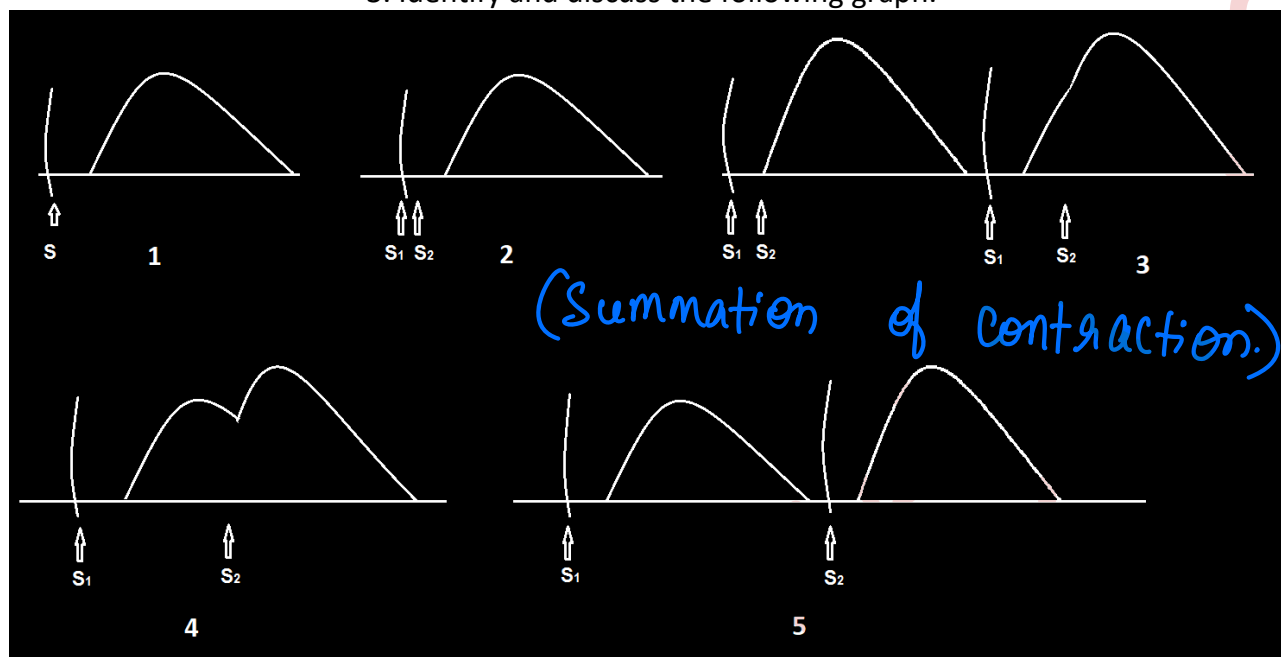
→ Increase in intensity of contraction due to excitation of more motor units.

Causes of latent period:

- neuromuscular transmission
- excitation-contraction coupling
- inertia of lever

Beneficial effect \Rightarrow since Ca^{2+} from first contraction has not been pumped back yet into cisterns.

3. Identify and discuss the following graph.

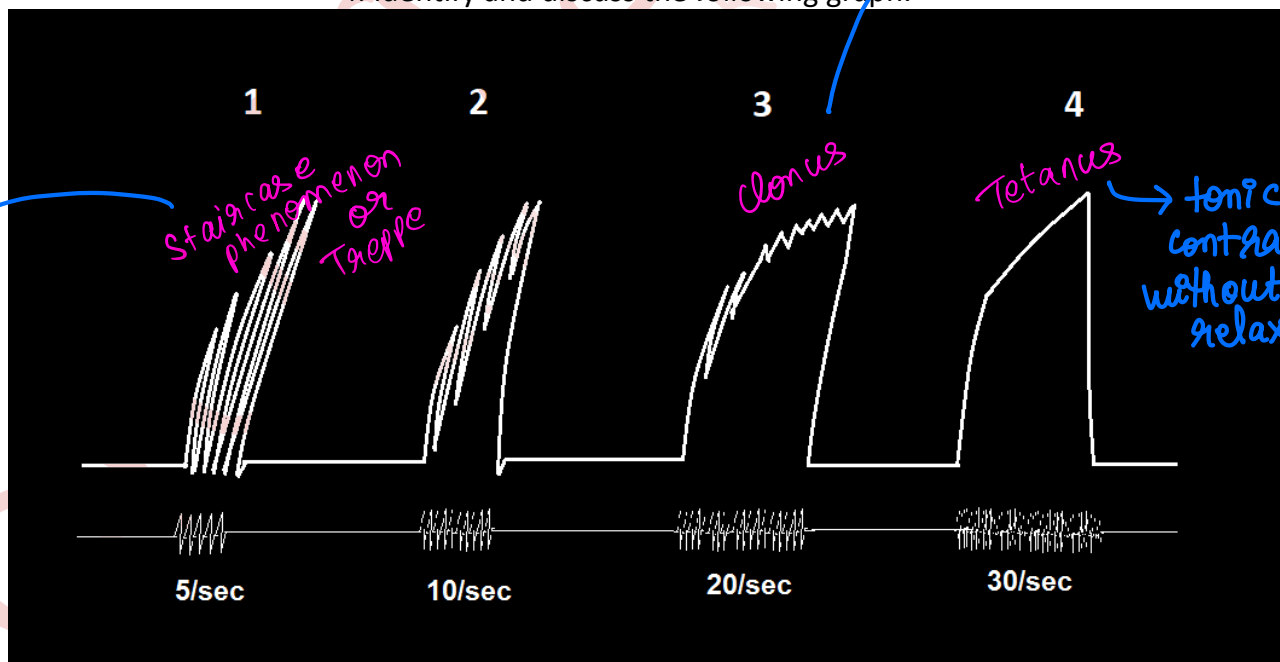


Successive stimuli on skeletal muscle contraction

MTF (minimum tetanisable frequency) $= \frac{1}{\text{contraction period}}$

partial tetanus (incomplete relaxations)

4. Identify and discuss the following graph.

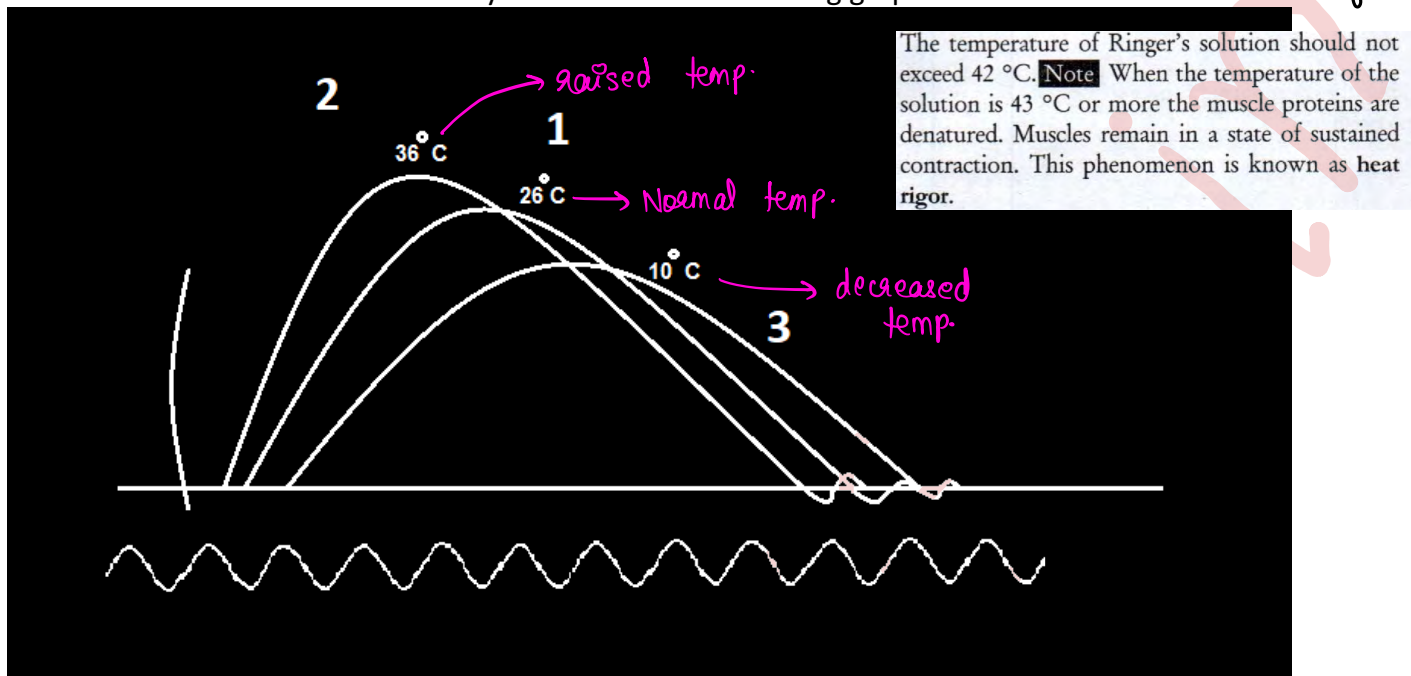


Effect of increasing frequency of stimuli on muscle contraction

Tetanus helps in maintaining posture.

- At raised temp.
- latent period decreases \Rightarrow due to increased neuromuscular transmission
 - contraction period " " \Rightarrow due to decreased muscle viscosity.
 - relaxation " " \Rightarrow due to decreased muscle viscosity.
 - height of contraction increases (due to increased enzyme activity & catalysis)

5. Identify and discuss the following graph.



Effect of Temperature on muscle contraction.

- Fatigue \rightarrow reversible phenomenon
- Site of fatigue = In humans \rightarrow CNS ; in isolated preparation \rightarrow NMJ

6. Identify and discuss the following graph.



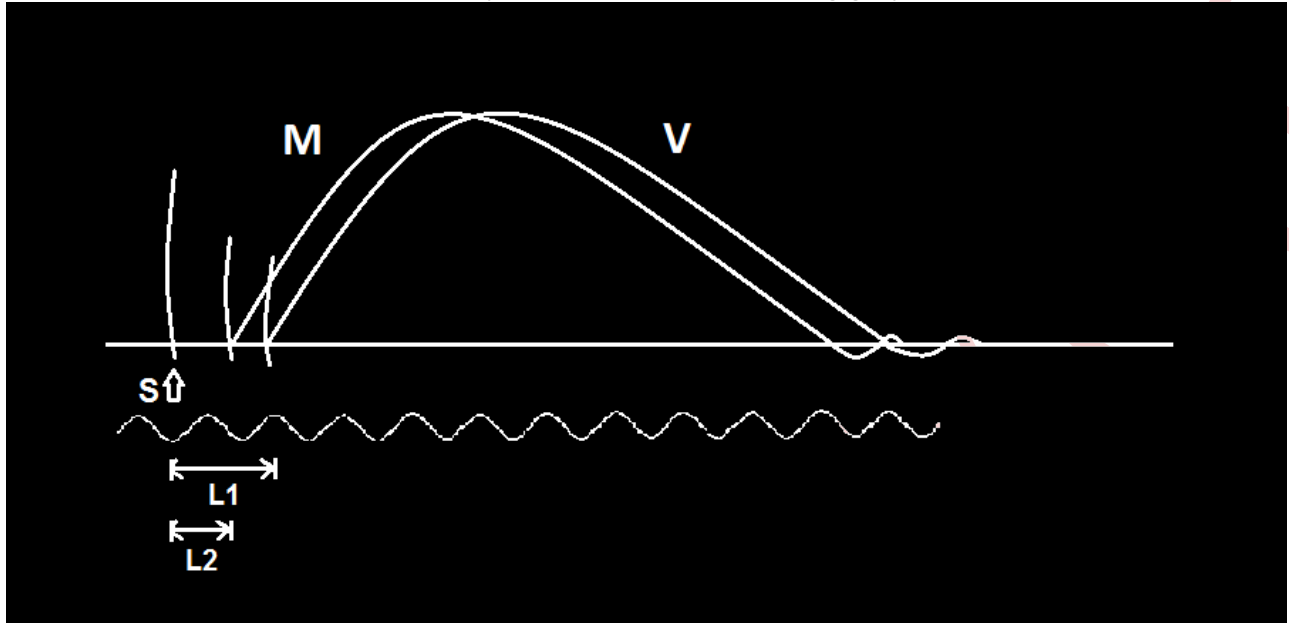
early sign of fatigue \Rightarrow elongation of relaxation period.

CR = contraction remainder due to incomplete relaxation following depletion of ATP.

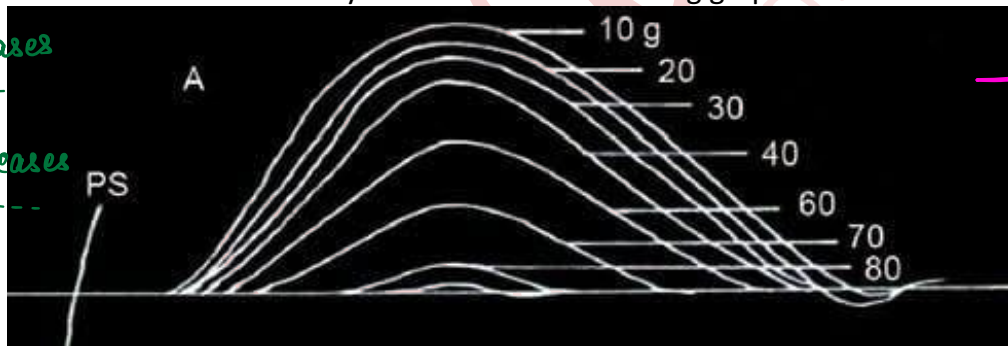
m: Simple muscle twitch following stimulation of nerve close to muscle
v: simple " " " " " " " " close to vertebrae.

normal velocity of conduction of sciatic nerve of frog = 40-60 m/s

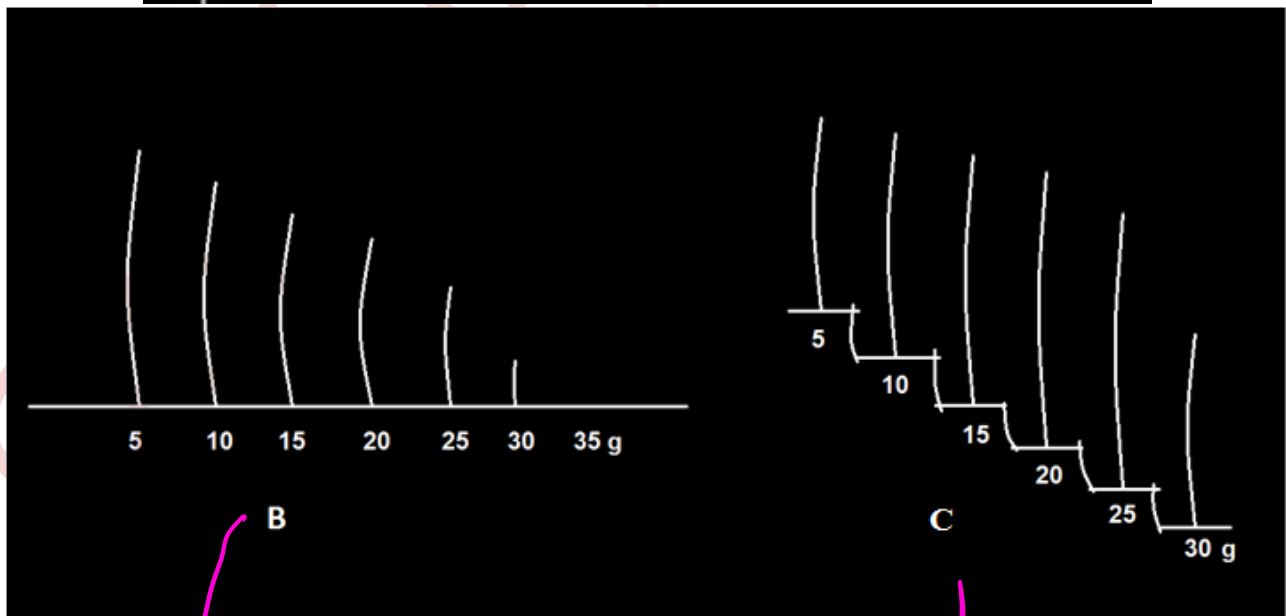
7. Identify and discuss the following graph.



8. Identify and discuss the following graph.



recording effect of afterload on a moving drum



recording effect of afterload on a stationary drum

effect of preload/pre-load.

η of free load is more.

\therefore The load is present before contraction,

\Rightarrow Initial length of $\bar{r}_0 \uparrow$

\Rightarrow as per Starling's law,

force of contrac \uparrow

& η too.