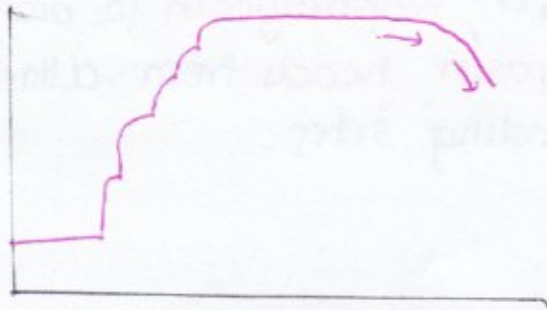


- ③ With repeated large stimuli, a powerful and sustained contraction is witnessed
= "Tetanus"



This can eventually lead to muscle fatigue, which reduces strength of contraction

Dangerous:

- * especially with cardiac muscle = Heart attack
- * difficulty breathing, digestion, rib muscles contract etc.

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The sliding filament theory

① Myosin head groups attach to the surrounding filament [ACTIN], which forms a cross-bridge

② The head group then bends forwards, causing the thin filament to be pulled along to overlap more with the thick filament

This is the power stroke

③ The cross-bridge is broken as new ATP attaches to the myosin head

④ The head group moves backwards as the ATP is hydrolysed to ADP and inorganic phosphate ions. It can then form a cross bridge with the thin filament further along (stage 1) and bend (2) again.

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NOTE:

- The myosin heads are like many small hands.
- They don't all bind at the same time.
- As a result, actin filaments move closer together.
- Thus in a contracting muscle a few million cross bridges are continually made & broken.
 - ∴ thin filaments slide past thick
 - ∴ The sarcomere shortens and muscle fibre shortens.