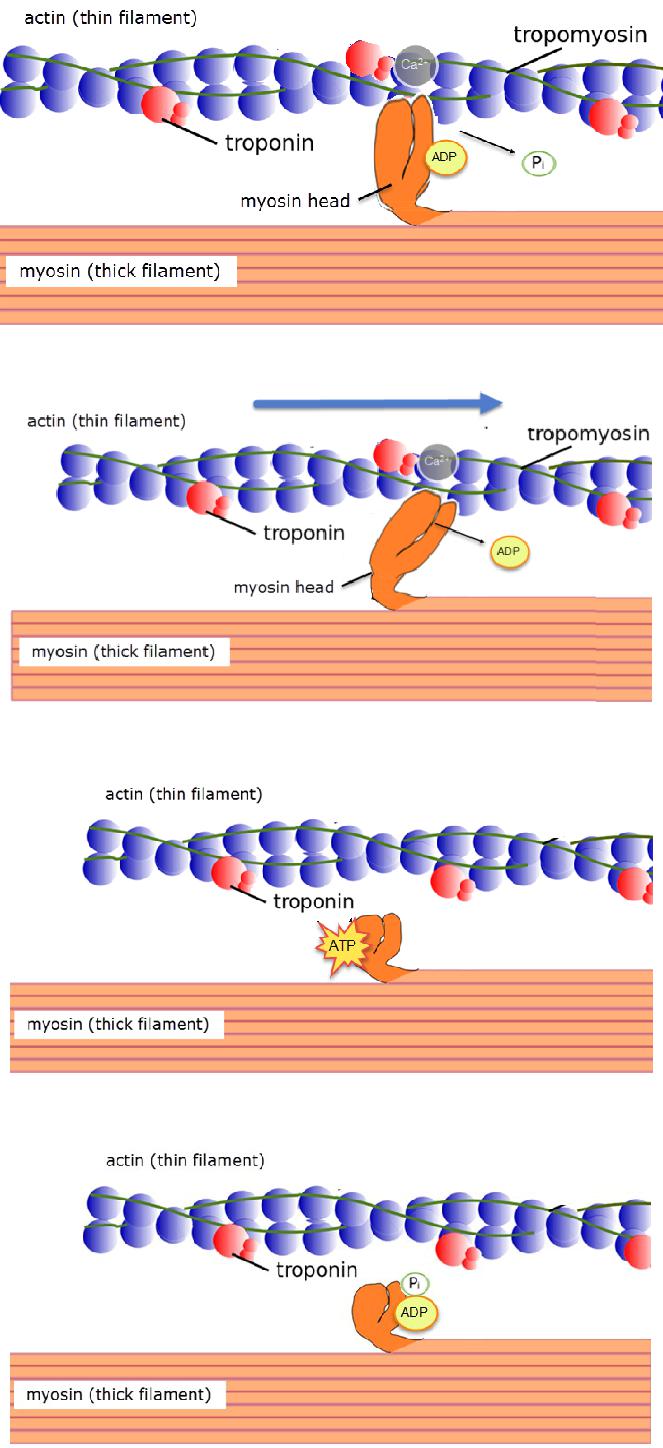
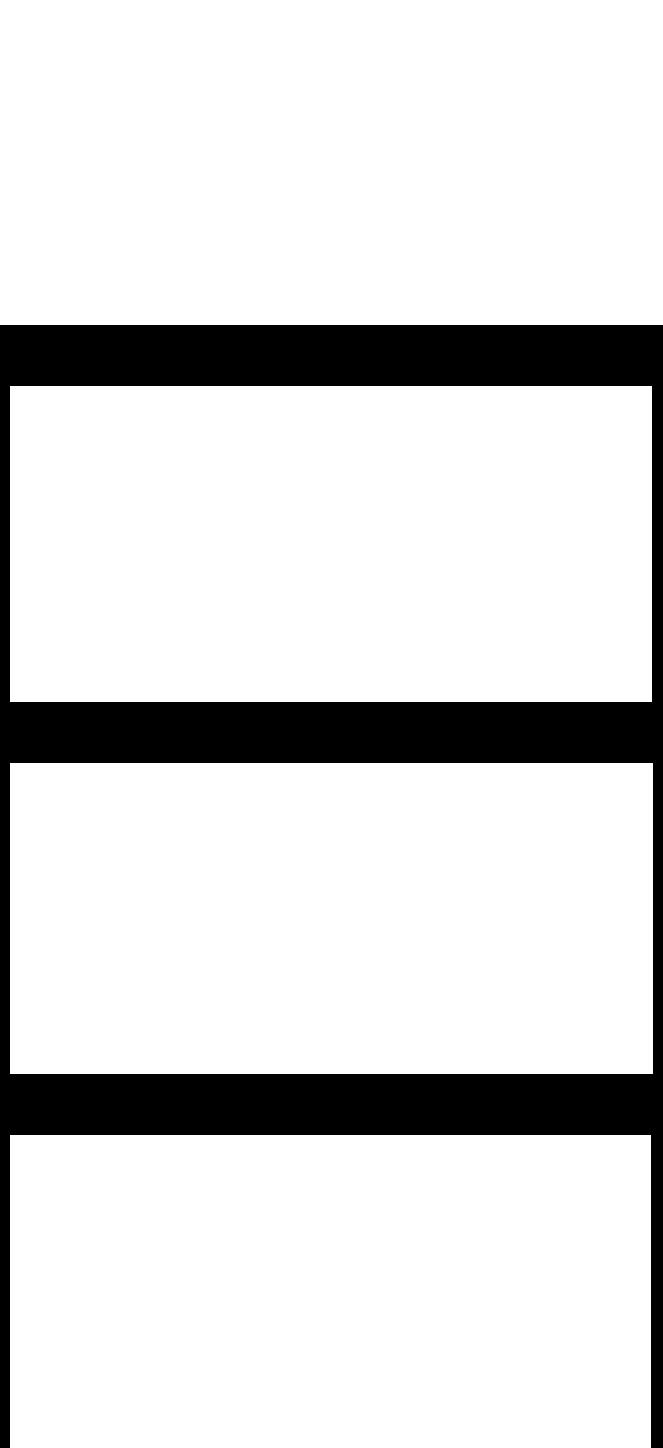
**Muscle Contraction**

***Activity 3 – Sliding filament theory***

1. Write descriptions of what is happening in each of the four steps in the table below. This will produce a summary diagram showing how the muscle contracts by the sliding of the filaments. (Use the statements overleaf

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|  | Images of four steps | | |  | Description of what happens. |  |
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Choose from the phrases below to complete the table above.

1. When a nerve impulse arrives Ca2+ ions are released.
   1. Ca2+ ions bind with troponin, causing it to change shape which exposes the myosin binding site.
   2. A cross-bridge is formed between actin and myosin.
   3. Pi is released and the myosin head is bound to actin.
2. Energy in the head of the myosin myofilament
   1. moves the head, which
   2. slides the actin past.
   3. ADP is released.
3. The myosin heads
   1. disconnect from the actin to
   2. grab more ATP.
4. The ATP is then broken down
   1. into ADP and Pi
   2. The energy released is stored in the myosin head.