

**Topic: Muscle Contraction**  
**Class: B.Sc Part –III (Hons.)**  
**Paper- VII**  
**Group – B**

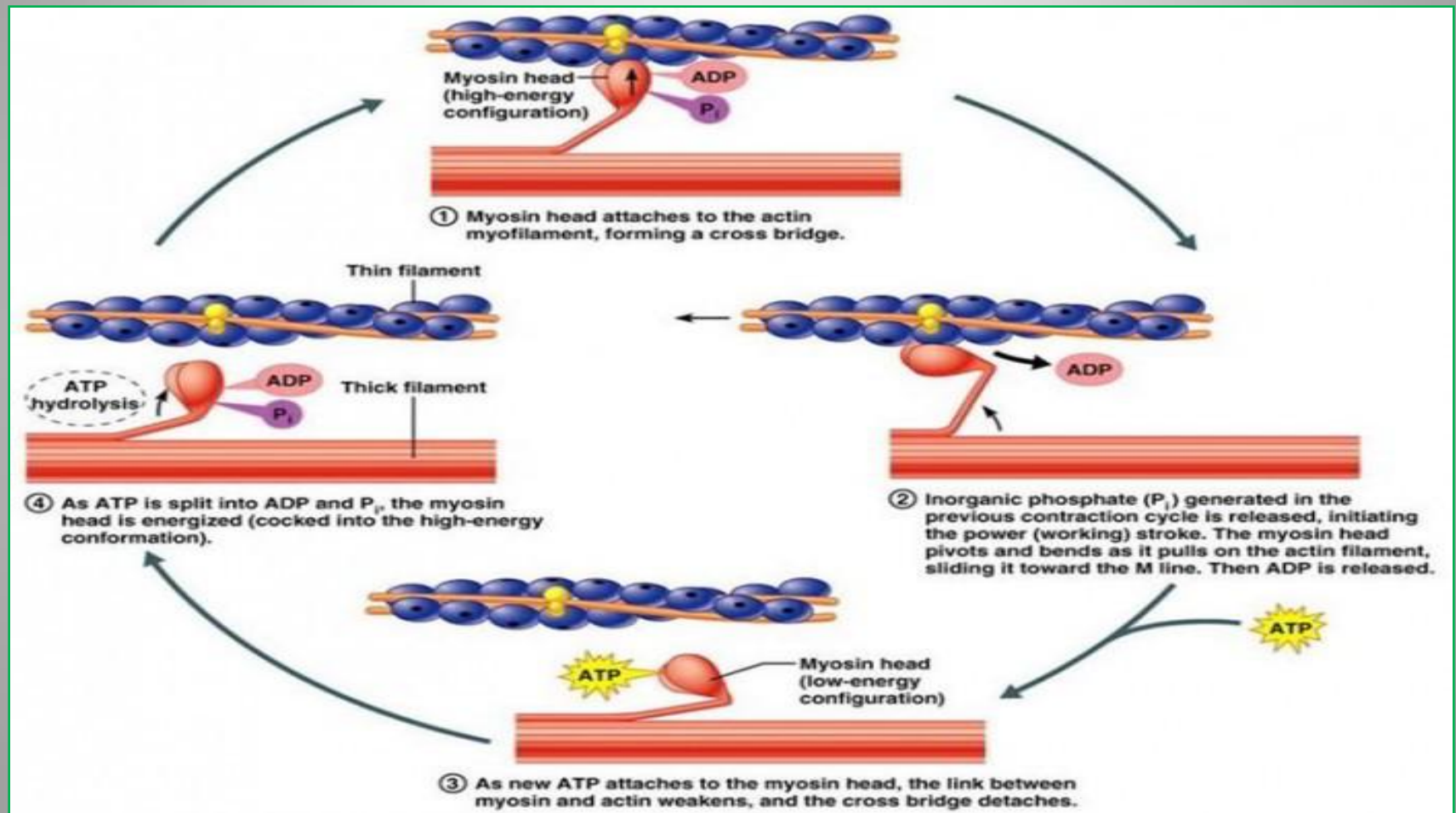
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# Muscle contraction

- **Muscle contraction** is the activation of tension-generating sites within muscle fibers.
- In physiology, muscle contraction does not necessarily mean muscle shortening because muscle tension can be produced without changes in muscle length,
- such as when holding a heavy book or a dumbbell at the same position.

- The termination of muscle contraction is followed by **muscle relaxation**, which is a return of the muscle fibers to their low tension-generating state.
- Muscle contractions can be described based on two variables: length and tension.
- A muscle contraction is described as isometric if the muscle tension changes but the muscle length remains the same

# Physiology of Skeletal Muscle Contraction



- In contrast, a muscle contraction is isotonic if muscle tension remains the same throughout the contraction.
- If the muscle length shortens, the contraction is concentric;
- if the muscle length lengthens, the contraction is eccentric.
- In natural movements that underlie locomotor activity, muscle contractions are multifaceted as they are able to produce changes in length and tension in a time-varying manner.
- Therefore, neither length nor tension is likely to remain the same in muscles that contract during locomotor activity.