

4.2 APPENDIX B: DYNAMIC WARM-UP

A dynamic warm-up is 10+ minutes of activity that prepares athletes physically and mentally for practice or competition. Athletes should do dynamic warm-ups before each practice or competition because they:

- Improve performance
- Reduce the risk of injury

Dynamic warm-ups have several advantages over traditional static stretching. Effective dynamic warm-ups:

- Increase heart rate more effectively
- Increase muscle temperature
- Improve force-generating capacity
- Train neural pathways used in the athlete's sport
- Provide the working muscles with energy from the energy systems used in the athlete's sport
- Improve mental preparation
- Help reduce the risk of injury

An effective dynamic warm-up has three components

- *Active exercise.* Active exercise gradually raises the heart rate, increases muscle temperature, and improve range of motion.
- *Dynamic stretching and body awareness.* The athlete activates muscles through a large range of motion, gains a better sense of balance, and develops body control.
- *Sport-specific drills.* These prepare the athlete mentally and physically for participation in his or her sport.

An effective dynamic warm-up is specific to the sport

- *An effective dynamic warm-up uses the same muscle groups as the sport.* Example: Cycling does not increase muscle temperature in the upper body, so it would not be an appropriate warm-up for a pitcher.
- *An effective dynamic warm-up trains the neural pathways required in the sport.* Example: While running uses the same muscle groups as cycling, the order in which the muscles are recruited is very different, so running would not be the best warm-up option for a cyclist.
- *An effective dynamic warm-up uses the same energy systems as the athlete's sport.* Example: Softball relies primarily on ATP-CP energy system to provide energy to the working muscles, whereas long-distance running requires mainly oxidative sources. The softball player's warm-up should therefore include shorter, more intense bouts of activity interspersed with rest periods to mimic a typical play in softball.