

Warm-up & Stretching Guidelines

Always warm-up before stretching or doing any intense physical activity.

A dynamic warm-up is preferred to one incorporating static stretching

A dynamic warm up involves gradually increasing intensity and range of motion exercises to get muscles to optimum warmth, speed and power. The pre-competition warm up should reflect the motions and movements being done. There should be no static stretching done pre competition as this has been proven to reduce power output which is the opposite of what we are trying to achieve. Exceptions to this rule are when the range of motion is more important than the force or power you need from your muscles, such as aesthetics in ballet or dance.

Stretching & injury prevention :

A review of the clinical evidence strongly suggests that pre-exercise stretching does not prevent injury, and that the evidence on stretching at other times suggests that it may be beneficial but is too limited to make definitive recommendations at this time.

...These results are contrary to many people's beliefs...

What is the purpose of stretching : if you asked most coaches it would be for injury prevention and to make athletes more flexible. The first aim is contradicted by the available research and the second doesn't seem to be correlated to athlete performance.

Does stretching improve performance :

In summary, the evidence suggests that stretching immediately prior to exercise decreases the results on performance tests that require isolated force or power. The effect on running speed remains to be determined. On the other hand, regular stretching will improve the results for all activities.

Stretching immediately prior to exercise does not reduce the risk of injury, but regular stretching may reduce the risk of injury. Therefore, if one stretches, one should stretch after exercise, or at a time not related to exercise .

I would summarise the research (from these and other papers/reviews) :

- *Static stretching only after exercise unless range of motion is more important than speed/power (ie : ballet, dance)
- *Dynamic warmups currently appear to be the best method of preparing for competition
 - between 5-30 minutes depending on the sport/activity
 - best to simulate the skills & movements athletes are about to attempt
 - progressively increase the speed, complexity and power of movement through the course of the warmup
 - ie : walk, jog, run, sprint (for AFL - incorporate skills into the warmup)
- *Allow 3-5 minutes rest/recovery to recover CP energy system prior to intense maximal exertion (if possible)
- *Stretching prior to competition can reduce max power output for periods up to 24-36hrs
- *Stretches should be held for 30-120 seconds
 - less than 30s has minimal measurable effect, longer than 120s and no extra benefit is gained
- *Warm up before stretching (approx 5 minute easy jog or cycle)
- *Ballistic stretching is not recommended except in specific circumstances (ie : martial arts)
- *C-R / PNF stretching is more effective than static stretching but requires specific training prior to implementation
- *Stretching improves performance, flexibility/range of motion but only if regularly practiced
- *Stretching before exercise appears to have no effect on injury prevention according to current research
- *Stretching after exercise might have an effect on injury prevention but research is inconclusive

Taking into consideration the latest research and science is essential to get the best out of the athletes under our charge. Disregard the science at your peril ...