MAP PRESENTS

THE RUNNER'S WARM-UP GUIDE

NEUROMUSCULAR PREPARATION.

PROGRESSIVE RUNNING INTENSITY.



MANNI ATHLETE PHYSIO

THE SCIENCE OF WARMING UP

A running warm-up is a graded increase in physiological demand. It prepares the cardiovascular system to supply active muscle and progressively exposes the neuromuscular system to the contraction speeds, forces and coordination required by the session.

01 NEUROMUSCULAR PREPARATION

As running speed increases, the nervous system adjusts motor-unit recruitment, firing behaviour and intermuscular coordination to meet the greater force and power demands. Short progressive accelerations rehearse these demands without the fatigue associated with a full-intensity effort. A warm-up does not guarantee greater maximal motor-unit recruitment; its value is in preparing the system for the task ahead.

02 BLOOD FLOW AND OXYGEN DELIVERY

The first minutes of easy running raise heart rate and cardiac output. Local metabolic signals in working muscles promote vasodilation and greater muscle perfusion, supporting oxygen delivery as energy demand rises. Beginning gradually also allows pulmonary oxygen uptake to increase toward the demands of faster running.

03 MUSCLE TEMPERATURE AND CONTRACTILE FUNCTION

Repeated contractions produce heat. Increased muscle temperature can accelerate aspects of excitation–contraction coupling and metabolic enzyme activity, and alter muscle–tendon mechanical behaviour. These changes can help support faster, more forceful movement, provided the warm-up does not cause unnecessary fatigue.

THE PRACTICAL PRINCIPLE

Progress from low to high intensity, then begin the session while you are still warm. The harder and faster the session, the more important the gradual transition. An easy run needs less preparation than intervals or a 5K race.

Scientific context: Bishop (2003), *Sports Medicine*, Parts I–II, reviews physiological mechanisms and performance effects of warm-up. Specific benefits depend on protocol, environment and event.

RUNNER'S WARM-UP GUIDE

MAP / PERFORMANCE IS PERSONAL

THE MAP NEUROMUSCULAR WARM-UP

Progress from low-amplitude contacts to reactive plyometrics, running drills and accelerations. Allow 12-18 minutes before demanding sessions; no separate mobility routine.

01 EASY JOG | 3-5 MIN

Begin with easy running to raise muscle temperature, cardiac output and blood flow. Gradually increase pace.

02 SKIPPING ON THE SPOT | 60-90 SEC

Start with relaxed two-foot skipping or alternating-foot skips in place. Build rhythm and contact frequency while keeping the contacts light.

03 LOW-AMPLITUDE PLYOMETRICS | 2-3 MIN

WATCH VIDEO >

Perform 2 x 10-15 ankle pogos, then 2 x 8-10 alternating low hops or skips. Use short ground contacts, modest height and full control.

PLYOMETRICS ARE KEY! >

04 RUNNING DRILLS | 2-3 MIN

WATCH VIDEO >

Perform 2 x 15-20 m A-march into A-skip, then 2 x 15-20 m quick-feet / dribble runs. Prioritise rhythm and posture over exaggerated movement.

05 PROGRESSIVE STRIDES | 3-4 MIN

Complete 3-4 x 15-20 sec accelerations, building to fast-but-relaxed running. Walk or jog 40-60 sec between repetitions.

SESSION ADJUSTMENTS

Easy runs: a gradual jog is usually sufficient. Tempo: use reduced contacts and 2-3 strides. Intervals / 5K: use the full progression. Marathon: keep the warm-up brief and economical.

Plyometrics should prepare you, not fatigue you. Start with low volumes, and reduce or omit impact drills if they provoke pain or are unfamiliar.

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