

Mechanics of the Running Stroke

- Running is an extension of walking. Use the same tall body mechanics.
- Encourage keeping the chin up and the shoulders squared such that the bones of the spine, hips, and leg line up linearly. It is important to keep the hips directly over the force producing foot.

Preparation Phase

- The working (swinging) leg knee drives forward raising the thigh to be parallel to the ground (90 degrees at the hip and 90 degrees at the knee).
- Bring the thigh as close to parallel with the ground as fitness allows.
- The foot is dorsi-flexed.
- The standing leg is on the 'toe-box', the ball of the foot. The hips remain tall and all the joints line up to create a straight linear body lever. This will be the most difficult part. The body will want to lean backwards.
- The arms are in a 'cheek-to-cheek' position with the elbows positioned at a 90 degree angle – arm movement comes from the shoulder joint – opposite arm/leg action

Force Producing Phase

- Extend the hip and knee joints of the working (swinging) leg in a cycling motion. The powerful contraction of the hamstrings and gluteus muscles will extend/hyper-extend the hip, forcefully swinging the leg back to the center line of the body.
- The quads extend the leg at the knee joint.
- Push the hips forward and stay tall (fully extend at the hip joint) to keep the center of gravity over the standing legs 'toe-box' base.
- The working leg performs a 'cycling motion' with the heel leading the pull-back of the leg until the dorsi-flexed foot reaches the critical instant (contact with the ground).

Critical Instant

- The toe-box (entire ball of the foot) of the dorsi-flexed foot pulls back (claws) and plantar flexes at the ground with as much force as can physically be generated.
- The leg must be fully extended and tightly contracted to maximize the amount of force applied to the ground. Keep the hips directly over the foot's contact point.
- The spinal vertebrae must be straight and aligned, and the core musculature tightly contracted. Striking at the ground with a 'mushed-out' body is equivalent to striking a ball with a broken racquet.
- Watch for the tendency to 'turkey strut' (bend at the hips as the foot pulls back) as the foot contacts the ground at the critical instant.

Recovery Phase

- Once maximum ground force has been produced, the force producing legs knee immediately flexes to bring the heel to tuck under the gluteus muscles (the bum).
- The thigh and leg, which are still pressed tight to each other, swing forward back to the preparation phase.
- Maintaining the leg as a shortened lever will allow a quick recovery in preparation for the next running stroke.
- The entire sole of the shoe will be clearly visible from a back view if the leg stroke is too slow, and is hanging in the air on the backside too long.