



# **Technique and Form Keys to Running Well - By Mike Hentrich**

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The grace and beauty of the running motion is unmatched in balance coordination and efficiency.

Just as with any other skill, there are a number of common denominators which form the foundation of efficient movement. Similar to practicing specific mechanics of such things as throwing a baseball or swinging a golf club, improving and developing our awareness of our body's position in space helps to reduce extraneous movement that does not contribute effectively to the act of propelling us forward.

The act of running can be broken into three basic components. The first is the drive phase. Optimal power is derived from pushing from the ball of the foot, not the toes. The goal is to create maximum push-off, as pushing from the ball of the foot employs much larger and stronger musculature.

Next is the recovery phase. This phase sees the leg pulled up and away from the ground and propelled forward during transition in anticipation of the support phase.

During the support phase, the foot re-establishes ground contact. Ideally, this occurs from the heel to the outside edge of the foot and ultimately the ball of the foot as we prepare to repeat the drive and push-off. As speed increases, the initial contact point will move toward the ball of the foot, reducing time for the foot to prepare for push-off. At slower running speeds the contact point will move farther toward the rear of the foot between the arch and heel. It is true that even during a sprint, however, the heel will make brief but definite contact with the ground.

In working to improve running efficiency we can begin with an analysis of lower extremity alignment. From the front view, one should work to maintain the heel directly behind the forefoot during the drive phase as the foot is in contact with the ground. The knee should be aligned over the foot so that if a plumb line were placed in the middle of the knee cap it would align with the space between the first and second toes. This is achieved largely through hip strength and stability, controlling rotation of the thigh while the runner is in single leg stance transitioning from the support to drive phase.

Turning our attention to the upper body, arm action can be critical in developing one's most efficient stride length. The arms work reciprocally with the lower extremities. As one leg comes forward, the opposite arm comes forward. This helps in controlling trunk rotation as well as contributing to a degree of forward lean, keeping the body's center of gravity out in front of the feet.

Shoulder and chest rotation should be maintained at a minimum. Controlling trunk rotation ensures that the hands and forearms do not cross the midline of the body, as arm swing occurs at the shoulders. Strength of the abdomen and spinal musculature are

critical here. Arm swing comes from the shoulders and the runner should reduce or minimize elbow movement. Ideally, the elbow is held at a 90-degree angle and does not deviate greatly from this position as movement occurs exclusively at the shoulder in an arc of approximately 45 degrees forward and 30 degrees backwards.

This swing should be strong and coordinated but relaxed. The hands also should be relaxed as if one were holding a potato chip between the thumb and index fingers.

Speed is a function of stride length and stride frequency, and optimal mechanics will result in improvement in both of these variables. Improved efficiency or economy of movement ensures that wasted muscular energy is held at a minimum, which ultimately improves our performance and enjoyment.

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