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The Art and Science of Optimal Running Form

Despite years of study, volumes of publications, and the practical experience of the best coaches there continues to be controversy regarding an ideal model of running technique. It is frustrating because of the lack of consensus and factual data defining the optimal form of running. Controversy continues regarding the best running form and whether it can be learned or improved. Most of what we know about this topic is based on expert opinion, anecdotal evidence, and basically it is more art than science.

Two recent publications address the issue of desirable running form. Dr Nicholas Romanov expresses his opinion in his book Dr. Nicholas Romanov's Pose Method of Running co-authored by John Robson.

A basic tenant proposed by Romanov is that there is an ideal position (pose) for the movement of running and it is described as: the runner is perfectly balanced on his or her support. A direct line of the body goes from the head, the tip of the shoulder (AC Joint), through the hip (greater trochanter), to the ball of the feet. The heel of the support leg is slightly higher than the ball of the foot, and may even touch the ground, but the weight of the body always rests on the front of the foot and not on the toes. The running pose is a whole body pose that vertically aligns the shoulders, hips, and ankles on the support limb creating an "S" like shape in your body.

Romanov has developed techniques, drills, and exercises designed to enhance one's ability to run using mechanical principals to maximum advantage. It is described in his book and there is a DVD available as well.

Dr. Romanov collaborated with investigators Regan Arendse and Tim Noakes to provide hard data to support his opinions. In an article published in peer reviewed journal of Medicine Science Sport and Exercise they investigated the biomechanical changes during three methods of running, heel toe running, mid-foot running and the Pose method of running. The Pose method of running is different from mid-foot in that foot strike is on the ball of the foot with the heel slightly off the ground, as compared to mid-foot the entire bottom of the foot strikes the ground.

Measures were taken of the 20 individuals running with 3 different forms of running, heel toe, mid-foot strike, and "Pose" method. The investigators found heel toe, and mid-foot running had longer stride and greater vertical oscillations compared to the Pose method of running. Many experts believe that a shorter stride can be a more efficient method of running.

Heel toe running had greater vertical impact forces than mid-foot or Pose running. In other words the Pose method of running was better at absorbing shock.

There was less work done at the knee with the Pose method compared to heel toe and mid-foot running. The Pose method should be gentler on the knee.

There was greater work carried out at the ankle with the Pose method compared to the heel-toe and mid-foot method. The Pose method puts greater stress on the Achilles.

What is refreshing about Regan's investigation is that it provides hard evidence regarding the difference between running heel toe compared to mid-foot and ball of the feet running. It begins to bring more science to the art of optimal running form.