

Comparison of Kinematic and Kinetic Variables of Sprinters Running Barefoot and with Shoe Spikes

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Abstract

Aim: To study the difference between barefoot running and running with spikes conditions of sprinters in order to provide information about the potential effects of footwear on competitive runners. **Method:** The twenty six (n= 26) male sprinters of state/ inter-collegiate level participated and their age range 17 to 25 years were purposively selected as subjects from Haryana State, India. The 100m & 200m. sprint test, acceleration ability by 30m run, stride frequency by high knee action for one minutes, explosive leg strength by standing broad jump and force by using formula ($f=ma$) were measured in both bare foot and running with spikes running conditions of sprinters. **Results:** A statistical significant difference was observed for 100m & 200m. sprint test, acceleration ability, stride frequency, explosive leg strength and force in both bare foot and running with spikes running conditions of sprinters. The mean values of 100m sprint, 200m sprint, and acceleration run ability of sprinters run with shoe spikes conditions were found less as compared to sprinters run with barefoot. Hence it clearly indicates that shoe spike sprinters perform better as compared to barefoot running sprinters. **Conclusion:** It was concluded that shoe spike sprinters perform better for sprint of 100m, 200m, 30m, standing broad jump and force as compared to barefoot running sprinters.

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Introduction

Running has also been mentioned in the myth and legends of ancient civilizations, such as Greece and Egypt. Professional messengers ran between cities carrying news of importance. In the year of 490 BC the Persians attacked the Greek city of Marathon. The courier Pheippides ran from Marathon to Sparta (240 km) in call for aid. When the battle was won Pheippides ran to Athens (40 km) with the news of victory, but he died delivering the message according to ancient Greek storyteller Herodotus (Christensen et. al., 2009). In the 1960 Olympic Games, an Ethiopian barefoot runner named Abebe Bikila won the Marathon gold with a time 2:15:16. This set the marathon world record, and is considered a respectable time to this day. This was probably one of the first accounts in modern times of someone winning a major competition while running completely without shoes (Christopher McDougall, 2009). Zola Budd is another barefoot runner that won recognition by setting a world record at 5000 m in 1985, finishing at 15:01:83 (Christopher McDougall, 2009). This is question that many have sought to answer. One recent trend is the interest in barefoot running. There are many voices on the Internet that believe it may be more beneficial to run barefoot than the standard practice of running in cushioned shoes (Barefoot runner, 2012). Manufactures of bare foot sports shoes currently state that wearing their shoes will stimulate