Biomechanical Analysis of Marathon Training Shoes Applied to NESTFIT Technology

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ABSTRACT

The purpose of this study was to analyze foot pressure distribution of marathon training shoes to which NESTFIT Technology was applied. As for marathon, shoes paly a vital role in shortening records. However, they also might become a main factor of injury during long-distance running. This study will examine foot pressure distribution effects of marathon training shoes during long-distance running, which have been developed by measuring Korean shoe lasts. The methods of this study can be explained as below. Firstly, ten healthy males were picked as subjects to participate in this study. 10 healthy male subjects with an average age of 22.9 years (SD=0.3), weight of 71.2 kg (SD=8.9) and height of 175.3 cm (SD=6.6) were recruited for this study. Secondly, the one equipment used for the study consist of a foot pressure device from Pedar-X, Germany and a treadmill from Pulse fitness, UK. Thirdly, the testing procedures involve each subject to test four different shoes by having running trials on a treadmill at a constant speed of 12.0km/hour. The pressure distribution data(contact area, maximum force, maximum peak pressure, maximum mean pressure) was collected by using a pressure device at a sampling rate of 100Hz.
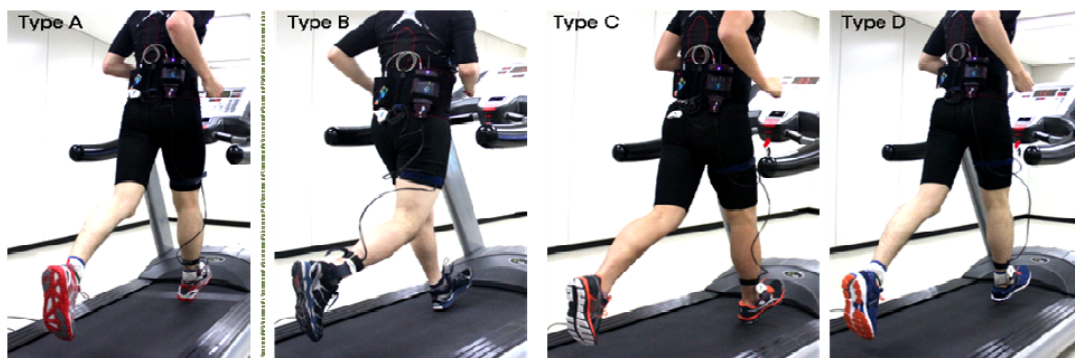
Fig. 1 Marathon Training Shoes(Type A = NESTFIT)

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The statistical analysis was carried out by using the MINITEB R15 package, specifically One-way ANOVA(α=.05). Type A shoe has the lowest peak pressure at total mask. As a result of analysis, it has been found that Type A has the lower Maximum Force than Type B or D. Also, Type A shows superior performance to Type D in all mask during running. In addition, it has been proved that the peak pressure of Type A is 7.79% lower than any other control groups so that it provides pressure distribution effects during long-distance running.

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