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Motion Control Shoes Increase Risk of Pain and Injury

A study by Michael Ryan (2010) was conducted with scientific rigor of prospectively studying novice females preparing for a ½ marathon race in a randomized manner. The purpose of their study was to evaluate how 3 different types of running shoes are associated with running related pain and injury.

It is rare and refreshing to find a study with a research design with such a high level of scientific rigor in the field of repetitive use injuries.

A total of 105 women were classified as neutral (51), pronated (36), or highly pronated (18) foot types. Each of the 3 groups were sub-divided into 3 groups and randomly given a stability shoe (Nike Structure Triax), a neutral shoe (Nike Pegasus), or a motion control shoe (Nike Nucleus). The randomization resulted in some runners getting the expected shoe that is; highly pronated foot type individual got a motion control type shoe. However the randomization process also resulted in some runners getting the "incorrect shoe" for their foot type.

The results were surprising and interesting.

- Motion Control Shoes resulted in both a greater number of injured runners and missed training days than the other two shoe categories.
- Every runner (100%) in the highly pronated foot type group who wore a motion control shoe reported an injury.
- Runners with a neutral foot type experienced greater pain after runs wearing neutral shoes compared to subjects who were a neutral foot type wearing the stability shoe
- Pronated runners experienced more pain after runs if wearing a stability shoe than subjects wearing a neutral shoe.

The authors concluded the current convention of assigning stability categories for women's running shoes do not appear appropriate based on the risk of experiencing pain when training for a half marathon. The findings of this study suggest that our current approach of prescribing in shoe pronation control systems on the basis of foot type is overly simplistic and potentially harmful.

As with all studies there are some limitations. One limitation to this study was the number of subjects in some sub-groups was very small. However another recent

study with less scientific rigor came to a similar conclusion that selecting or assigning a running shoe based on a foot print test (foot type) did not reduce the risk of injury (Knapuk, J.J. 2009). The experiment did not control cross training, races undertaken, medical illness, or use of performance enhancing drugs.

Bottom line:

- Motion control shoes can increase risk of pain and injury in individuals with highly pronated foot type, pronated foot type, and neutral foot type.
- Choosing running shoe type on basis of foot type is overly simplistic and potentially harmful