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Running Shoe Contributing to Injury

Running shoe manufactures, running gurus, and individual runners frequently tout the importance of running shoes as they relate to injury. Searching the literature for hard evidence supporting the belief that a particular type of shoe can prevent an injury reveals a few retrospective case studies demonstrating a running injury that was alleviated by switching to a different running shoe.

B.R. Wilk (2000) published a case study demonstrating that a triathlete developed plantar fasciitis as a result of running in a defective running shoe. The shoe construction defect was a heel counter that was glued into the shoe at an inward leaning angle resulting in a greater medial tilt of the heel counter compared to the other shoe.

A. Cunningham (2004) reported successfully treating two runners with lower leg pain by modifying their running style from a heel strike to a mid-foot strike. This was accomplished by training on a treadmill while running barefoot and when running outside, switching footwear from standard running shoe to a running shoe with thinner harder soles.

Michael Gross (2006) published a case study documenting that a running shoe designed with a heel flare contributed to shin pain. Using motion and force plate analysis, he was able to conclude that shoes with a heel flare lead to greater stress to the anterior shin muscles. When the patient switched to a shoe without a heel flare, she was able to alleviate the shin pain.

Case Study:
A triathlete developed pain in the ball of the right foot (metatarsalgia) which prevented her from running. The problem started when she replaced her worn out shoes with a newer pair of shoes from the same manufacture, same model, that she had used the previous 3 years. With the knowledge that this particular shoe model had served her well for a number of years, she purchased two pairs of the same model at a outlet store at significantly reduced price. With in 50 miles of running in the shoes purchased at the outlet store foot pain and swelling occurred. Thinking there may have been a problem with the new shoes, she switched to the next pair that she had purchased at the same outlet store. The foot pain

continued. Comparing the shoes purchased at the outlet store with 50 miles of running against the same model shoe purchased at the local running store with over 300 miles there is visible difference in the shape. The newer shoe purchased at the outlet shoe is in the back with the older shoe purchased from a local sports store is in the front. The shoe purchased at outlet store looks like an elf shoe with the toe turning up. When manually bending the shoe, it was apparent the sole of the outlet shoe is lacked stiffness, it was very flexible. The apex of the curve where sole flexes is different between the shoes purchased at the outlet store versus the local sports store.

During the quality control process shoe manufactures will grade a pair of shoes either A or B. If there are minor defects the shoe is classified as B grade shoe, and often will be sold to discount stores or overseas, so the buyer needs to beware.

The triathlete purchased a new pair of the same model shoe from a local running store, and with in one week 3 runs she was able to run free of foot pain.

What is a runner to do?

Running shoes are rarely the sole cause of an injury and equally rarely are they a panacea. There are occasions when a running shoe can be a significant contributing factor to the development of an injury. When selecting a running shoe, the factors a runner has the most control over are: choosing where to buy the shoe, choosing which sales person to ask for assistance, making sure to get the proper fit and size and avoiding defective shoes.

When shopping, examine the shoes closely looking for differences between the right and left shoe. The shoes should be symmetrical. Place

the shoes on level surface and check orientation and alignment. Lightly tap each shoe to create a rocking motion. The tap should result in a similar rocking motion. If the rocking motion is asymmetrical, it suggests that one shoe is deformed relative to the other. Push and poke the air bladders and mid soles. Look for extra bits of glue or stitching. Tug on the seam between the upper and the sole to see if it separates. Once purchased, this type of examination should be done periodically to determine if the shoes should be retired.

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