

High Arch Stiff Feet

Older individuals will remember that before there was an all volunteer U.S. Military Service there was a draft. Those individuals with flat feet were excluded from being drafted into the military service because it was thought that flat feet increased the risk of injury.

In the eighties, after the U.S. Army switched to an all-volunteer service, investigators at Walter Reed Army Institute of Research (1993) took the opportunity to investigate the relationship between an individual foot type and the risk of exercise related injury. Individuals with high arched, normal arched or flat feet were all accepted into the military service. All of the trainees were assessed in a 12 week rigorous basic training program and determined whether they had a flat, normal or high arch foot. The occurrences of injuries requiring a visit to sick bay were recorded. The findings did not support the assertion that flat feet were at greater risk of injury. In fact, the trainees with high arches were 6 times more likely to experience an injury than individuals with a normal arch height.

In 1999 the U.S. Navy conducted a study of trainees going through basic training and determined that those individuals with either extremely flat feet or extremely high arches were both a greater risk of injury compared to individuals with normal arch height. The Army study proved that having high arched feet is a risk factor for getting injury. The Navy study provided data that having either high arched or flat feet increases the risk of developing an injury.

D.S. Williams (2001) looked at arch structure and injury pattern in runners. They found different injury patterns present in individuals with extreme high arches when compared to those with extremely low arches. High arched runners reported a greater incidence of ankle injuries, bony injuries (stress fractures) and lateral injuries (IT band syndrome). Low arched runners exhibited greater incidences of knee injuries, soft tissue injuries and medial injuries (shin splints). Both high arched and low arched runners suffered with plantar fasciitis.

J.D. Michelson (2002) studied 196 college athletes and found flat footedness did not predispose the athlete to injury.

In my experience, treating an injury in an individual with a high arch foot type can be more challenging than treating an individual with flat feet. A high arch foot tends to be a very stiff, unforgiving foot. The ground reaction forces being transmitted to the legs when walking/running are difficult to dissipate and disperse if the foot is stiff. Unfortunately, because we are stuck with the foot structure that God and our parents gave us, we need to seek innovative ways to account for the high arch stiff foot.

Currently, the best interventions available to deal with the issues related to a high arch stiff foot are careful shoe selection and heel lifts. Some models of running shoes are better designed to absorb shock. A softer cushioned shoe with a curved shape should be

better suited for a stiff high arch foot. It is important for a person with a high arch foot type, to replace their shoes early and often. Studies have demonstrated that a running shoe with a mid sole composed of EVA or polyurethane will lose 50% of its ability to absorb shock in as little as 250 to 500 miles of running. Runners with high arched feet need to replace their shoes earlier and more often than a flat foot runner i.e.: at 250 miles of running rather than 500 miles of running. Studies have not been conducted documenting a safe range of miles for shoes used for walking. It is expensive to replace running shoes frequently but this is a better approach than being forced to abstain from running because of a stress fracture.

Individuals with high arched feet often have a bony alignment described as an excessive forefoot drop or forefoot equinus. Yes, equinus meaning related to a horse. Horses walk on their toes and their heels do not touch the ground. Individuals with high arched feet would often do better or have happier feet if they could walk with their heels higher off the ground and supported. High heel sneakers or shoes with higher heels are better for a high arch foot. Classic cowboy boots are well designed for individuals with high arches. Most running shoes tend to have a heel height that is higher than the mid sole under the forefoot and is better suited for high arched feet. Basketball, tennis and soccer shoes tend to have no heel height. A higher heel increases the risk of a sprained ankle.

A small subset of individuals with high arched feet may need assistance in managing their problem by using a shoe insert (orthotic) designed to assist in balancing the alignment of the feet, perhaps involving a heel lift.

Standard interventions for dealing with problems that are related to high arched stiff feet include: choosing shoes with enough cushioning, curved shape, high heel, replacing shoes early and often and selecting softer surfaces.