

The foot plays a very important role when standing and walking. It must compensate for every structural abnormality in the skeleton above. The failure of the foot to adequately adapt to structural imperfections in the body can result in a breakdown of foot structure. It is this collapse of the foot - which leads to flat feet, heel spurs, bunions, plantar fasciitis, and many other chronic foot discomforts.

### Did you know...

- The foot enables you to walk over 100,000 miles in your lifetime.
- As shock absorbers, your feet cushion up to one million pounds of pressure during one hour of strenuous exercise.
- Each foot contains 26 bones, 19 muscles and 107 ligaments.
- More than 5.3 million visits are made to physicians' offices each year due to foot and ankle problems.

Plantar fasciitis is a common soft tissue injury of the foot. While supporting the load, stress to the fascia creates tiny microscopic tears in the tissue. This is completely normal. In a healthy foot, the foot is able to repair itself at a greater rate than the damage it absorbs. As long as the amount of damage is lower than the body's ability to recover, the foot will remain healthy. **Plantar fasciitis occurs when the sum total of damage is larger than the amount of healing & recovery the body can perform in a day.** The foot is stressed so much in the course of the day that once the amount of damage exceeds the body's ability to repair itself, the pain will tend to persist.

### Typical Causes of Foot Pain

**Loading weight bearing muscles after periods of inactivity:** Without proper warm-up, micro tearing of the cold and tight fascia can take place. If you have sharp pain in the bottom of your foot when first getting out of bed or your favorite chair, you can cause further damage to soft tissues. Perform warm-up exercises prior to taking that first step!

**Weakness and imbalance:** The muscles on the bottom of our feet are probably the most neglected muscles in our bodies, we tend to take them for granted and most traditional exercises ignore them. In addition, shoes have become so supportive that they eliminate the need for the support muscles of the foot and ankle to do their job. As a result muscles can shrink up and weaken over time if we don't give them proper exercise. The exercises on this handout are designed to help you improve foot strength and biomechanics.

**Overloading your feet:** The weight bearing support system in your feet are the most constantly used soft tissues in the body. Extra body weight translates into extra stress on your feet when you are engaged in activities that require long periods of standing, walking, running, or sudden movements. Stronger more flexible muscles can help handle this, and of course shedding a few pounds can make a significant difference as well if you are overweight.

**Improper footwear:** Shoes that are worn and not replaced often enough, that don't fit properly or are inappropriate for the activity can promote foot discomfort and pain. Make sure that you invest in good shoes for your feet.

**Dehydration:** If your body is dehydrated, your muscles, tendons and ligaments throughout your body and in your feet will be too. How much water do you need every day? Your Body Weight  $\div 2 = \#$  oz. of pure water per day (Example: 160 pounds  $\div 2 = 80$  oz. of water per day) Try to stay away from soft drinks, it's liquid junk and not very good for you.

**Poor Nutrition:** Eating too many "empty" calories that don't contain the nutrients your body needs is a primary cause of injuries and disorders of the movement system. Tobacco contains toxins that increase inflammation. And too much sugar and fat within our diet can also contribute to inflammation.

**Fatigue:** Adequate amounts of rest and sleep are very important ingredients for our health.

**Poor Fitness:** Poor levels of physical fitness increases the risk of disease and injury.

Prevention is a **shared** responsibility! The company is responsible for a safe work environment and procedures, and all workplace athletes are responsible for using their body properly and keeping their body fit for work.

Warm-up and Stretching Exercises: Perform before bearing weight after periods of inactivity.



Place a tennis ball under your foot as pictured. Roll your foot back and forth on the ball while applying gentle downward pressure. Continue for two minutes for a complete warm-up.



Loop a bath towel under your foot and toes as shown. Gently pull upward on the towel to flex the foot and toes toward the leg/shin.. Hold this stretch for 20 seconds, relax and repeat.



Standing with one leg forward as pictured. Place hands on wall, keeping the back leg straight and heel on the floor. Slowly move your hips forward until a gentle stretch is felt in your foot and calf. Hold stretch for 20 seconds, relax and repeat.



Stand with the balls of your feet on a step as pictured, using the banister to maintain your balance. Slowly raise and then lower your heel until a mild stretch is felt in the arches of your feet. Hold stretch for 20 seconds, relax and repeat.

Fitness Exercises: Perform 2-3 times per week



While sitting, place a towel on the floor under your feet. Contract and flex your toes to bunch up the towel under your feet, then relax toes. Perform 2 sets of 12 reps.



Sit on the floor with a good upright posture with a resistance band secured around your foot as shown. Push your foot down against the resistance band, then slowly return to the start position. Pull back with arms to increase resistance as needed. Perform 2 sets of 12 reps.

### Other Prevention Techniques

Workplace athletes can use **ice or cold therapy** to control fatigue and soreness after activity. Ice application should be between 15 to 20 minutes applied directly onto the skin of the affected area. An initial aching will be felt when the ice is on the skin. After 5 minutes, this should go away as the ice takes effect. Ice is a great anti-inflammatory! Never use heat after activity.

**Drinking plenty of water** is one of the most important things you can do for your health! Healthy muscles are comprised of at least 70% water. Dehydration of the muscles and tendons is a primary cause of muscle fatigue, strain, tendonitis, and other disorders of the movement system.

**Vitamin & mineral supplements** are not a substitute for healthy eating, but they can fill in the gaps and help combat fatigue and inflammation. Experts recommend three daily supplements: 1) a quality multivitamin and mineral supplement, 2) a vitamin D supplement with calcium and magnesium, and 3) omega-3 fatty acids

This handout is general injury and illness prevention educational information and is not medical advice. If the employee requires medical attention, a competent health care provider should be consulted. Although every precaution has been taken in the preparation of this information, no liability is assumed for injury, personally or otherwise resulting from the use of information contained herein.