

ACTIVE P.T. SOLUTIONS  
...BECAUSE LIFE  
SHOULD BE ACTIVE

# APTS Monthly



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## Office Hours:

Monday - 8:00am - 5:30pm

Tuesday - 8:00am - 7:00pm

Wednesday - 8:00am - 6:00pm

Thursday - 8:00am - 7:00pm

Friday - 8:00am - 5:00pm

Saturday - 8:00am - 1:00pm

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## Why Stress Fractures Happen

Stress fractures are among the most common overuse injuries sustained by long-distance runners, and they affect everyone from recreational runners to world-class athletes, male and female. People with stress fractures typically complain of pain in a specific area or region of the body. Symptoms gradually worsen and most commonly occur from the pelvis to the lower extremity. Patients provide a history of pain that is aggravated by physical activity (such as training for endurance events) and relieved by rest. Patients usually recall a history of a recent and dramatic increase in exercise volume, the initiation of a new activity, or some other change in their routine.

Overuse injuries strike endurance athletes like marathon runners because of the demands of the sport and the makeup of the athletes. Distance running requires athletes to perform the same movements repeatedly, subjecting the same muscles to overuse and subjecting the same joints and bones to sustained impact. To make matters worse, runners often condition their minds to ignore pain, driving them to push muscles, joints, and bones to the brink of injury. When a runner's muscles fatigue, he or she compensates by bouncing higher in the air during their stride, which, in turn, forces the legs and pelvis to absorb more impact. A runner might also compensate during their stride for imbalances in posture or leg length, again forcing the legs and pelvis to absorb greater impact.

One of the top training errors that can lead to stress-related fractures is a rapid increase in training intensity, which can occur in two forms: a large increase in mileage and/or an increase in training speed (i.e. running faster more often). For years, the 10 percent rule has been used to govern changes in weekly mileage. Unfortunately, the fault in the 10 percent rule is that it is weekly, and it does not account for increases



in training pace or the addition of speed work. Many people do not accommodate on a weekly basis and actually take 2-3 weeks for their body to accommodate. This is why many runners that use the 10 percent rule still get hurt or experience stress fractures.

Running on hard surfaces such as roads and sidewalks (especially cambered road surfaces that slant to the side to allow water drainage) puts a long distance or marathon runner at greater risk for a lower extremity or pelvic stress fracture. While the rigors of training already strain a runner's pelvis and lower extremities, the strain can become even more significant when a runner suffers from a dietary deficiency and/or an eating disorder. Depleting the body of necessary nutrients and specific muscular weaknesses in the hips prevents adequate recovery from strenuous training routines.

If you are a distance or marathon runner, the simple rule of thumb regarding stress fractures of the pelvis and lower extremity is as follows: stress fractures below the knee (leg, ankle, and foot) are generally considered training-related injuries from impact stress. These injuries occur from a combination of rapid increases in training volume and intensity, worn footwear, hard surfaces, etc. Stress fractures occurring above the knee are first and foremost "dietary stress fractures". This

does not mean that training errors may have contributed to the fracture; it means that the diet is grossly deficient in calcium and total usable calories.

Many runners often confuse the beginning stages of a stress fracture with a simple muscle pull. But, unlike the pain of a muscle pull, the pain of a stress fracture will not subside during a run, nor will it loosen up with stretching. When a runner sustains a stress fracture, he or she might initially feel a deep, aching pain that remains localized in the region in question. As the injury remains untreated, the pain can spread to other areas of the body as the brain compensates for the injury.

Stress fractures are usually diagnosed by using an MRI or CT scan. It has been reported in medical journals that stress fractures are missed on plain x-ray 85% of the time. If a lower leg, ankle, or foot stress fracture is diagnosed, the treatment is to rest, find alternative non-weight-bearing activities, correct running shoes, begin a structured rehabilitation program, and review training logs for signs of training error. If a stress fracture above the knee (pelvis, sacrum, or femur) is diagnosed, running activities must be discontinued and the diet scrutinized for total available calories and calcium intake. If the diet is not checked, the patient may suffer a repeat stress fracture within a few months when the patient begins training again.

Stress fractures in high level and recreational distance runners are a very common injury. These injuries are treated by training and dietary correction. If your condition does not resolve in 14 days, it most likely needs medical assessment and care.

Article by Dale Buchberger, DC, PT, CSCS



Side walks with resistance band, start position (l), exercise position (r)

# Exercise of the Month: Side Walks

Side walks are a great exercise for strengthening and stabilizing the muscles in the low back, hips, knees, and ankles. Making side walks a part of your everyday exercise routine will help to improve balance and prevent injury to the back and lower extremities. To perform this exercise, the only thing you will need is floor space.

To start, stand with your feet together and toes pointing straight forward. (It might feel like you are pigeon-toed.) Take a step sideways, no greater than the width of your hips, keeping your knees straight and toes pointing straight.

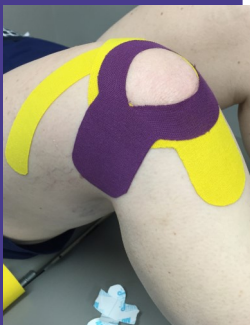
It is helpful to think about leading with your heel and not your toes. Be sure not to lean to the side when stepping, keeping your shoulders as level as possible. Bring feet together and continue this pattern for a distance of 25 feet. When you reach 25 feet, return the other direction, leading with the other foot, facing the same direction as when you started so that you work both hips equally. Continue this for a total of 100 feet, progressing to 150-250 feet per day. Once you are able to complete 250 feet, add a low resistance exercise band and drop

back down to a total distance of 100 feet. The exercise band should be positioned just below the knees to start. As this gets easier, move the band down your legs, the hardest resistance being all the way down around your ankles (as shown). We sell these resistance bands here at APTS in 3 different strengths if you need one!

As always, if you have any questions about this exercise, or you experience increased pain during or after performing this exercise, please contact one of the providers at our office.

Stress fractures below the knee are generally considered training-related injuries from impact stress. Stress fractures occurring above the knee are first and foremost 'dietary stress fractures'.

Muscle Aid Tape applied to the R knee to unload the kneecap



*Did you know that each staff member of APTS has many secrets and/or talents? See if you can guess who is who!*

(1) Had her own farm stand when she was 10, growing the fruits and vegetables herself.

(2) Has impressive jump-roping skills.

## Guess Who?

(3) Has a Diet Pepsi drinking problem.

(4) Knows every word to every Ed Sheeran song.

(5) Never missed a day of high school.

(6) Makes her own greeting cards.

(7) Went to high school with Jon Bon Jovi.

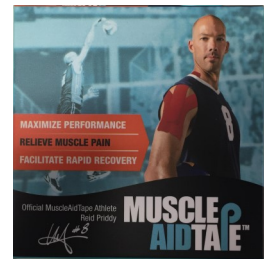
(1) Maggie (2) Tom (3) Sue (4) Claire (5) Carolyn (6) Linda (7) Dale

## Did You Know That...?

...kinesiotaping is a technique used to gently lift the layer of skin and attached tissue covering a muscle so that blood and other bodily fluids can move freely in and around that muscle? It was first developed by a Japanese chiropractor in 1979 to support muscles, improve blood and lymphatic circulation, de-

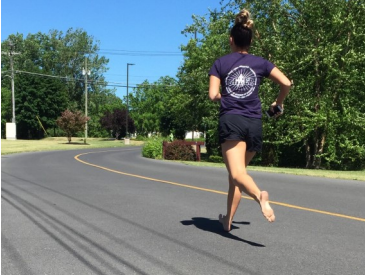
crease pain, and improve joint range of motion. Kinesiotape is made of a porous cotton fabric about 2 inches wide that lets the skin breathe, and it has an elasticity comparable to skin and muscles. The adhesive that is used is water-repellant and can stay put for 3-4 days even through sweating and showering.

There are many different kinds of kinesiotape. Here at APTS, we use the brand Muscle Aid Tape on a variety of injuries with very good results! ...now you know!



Article by Carolyn Collier, PTA

## The Good & Bad of Barefoot Running & Minimalist Footwear



The topic of barefoot running is one that will draw mixed opinions, not only from health care professionals but also track and field coaches. This is not the first time the concept of barefoot running has been brought to our attention; it seems to happen nearly once a decade. When Abebe Bikila won the 1960 Olympic marathon in bare feet, the concept was prominent. In the '70s "earth shoes" came out. In the '80s it was South African barefoot runner Zola Budd. Recently you may have seen some people wearing odd-looking footwear with "toes" instead of the closed toe box of conventional footwear. These are Vibram Five Fingers shoes also known as "minimalist" shoes. This has given the barefoot craze some momentum. For starters they are more comfortable and appealing than their hideous looking predecessors, the "earth shoes". So the question remains: is barefoot running good or bad?

The idea of barefoot running has been studied for many years, but much of the mainstream popularity was created by the bestseller *Born to Run* by Christopher McDougall. After living with and observing a tribe of well-trained humans in Mexico, McDougall proposed that everyone should be running barefoot because this improves your gait cycle and promotes a more efficient gait. When looking at McDougall's

ideas, they are not so much about shoes as they are about learning to run efficiently. It just so happened that running barefoot was a shortcut to learning how to run efficiently. So the next question is: why does barefoot running create efficiency?

Barefoot running forces the individual to land on their mid- and forefoot rather than on his or her heel and rear foot (as most traditional running shoes now promote). Running with a "heel strike" increases forces through the lower extremities and into the spine. Landing on the forefoot, or "barefoot strike", reduces the forces through the lower extremity and spine at impact. This creates a smoother transition to the next cycle as the other leg comes through and prepares to hit the ground. So instead of pounding the ground and springing forward, the individual glides over the terrain.

The beginning of the "running craze" of the '70s that began with the "rock star" approach of Steve Prefontaine, the gold medal performance of Frank Shorter, and publishing of *Running* by Jim Fix also began with "minimalist shoes" (only we didn't call them "minimalist shoes" because they were all we had!). Nike's original models such as the Oregon Waffle and the Waffle Trainer did what they were supposed to do: keep you from cutting your foot on man made surfaces and provide a shield from the elements. Once shoes became "corrective devices", all heck broke loose creating a magnification of running injuries and the idea that running was "bad for you". In reality, running is not bad but rather running bad is bad. Our old "minimalist shoes" forced us to run correctly or not run at all. The new breed of athletic shoes has allowed an entire generation of inefficient runners to hit the streets and literally "pound the pavement".

The most popular minimalist shoes are the Vibram Five Fingers, New Balance Minimalist, and the Nike Free Run. The idea goes back to Nike's original designs: provide protection to the foot but allow you to run with barefoot mechanics. They are lightweight, flexible, have a wide toe box (front of the shoe), and what is known as a "zero-drop sole". This means the heel of the shoe is the same thickness of the rest of the sole. This is contrary to conventional running shoes that are built with a dramatic heel lift. It is actually the heel lift of modern day shoes that creates a good portion of running related injuries by creating imbalances of strength, weakness, and stiffness in the lower extremities.

If you want to try minimalist shoes, there are a few simple rules to follow. First, be realistic with your expectations. Minimalist shoes will not fix your injuries and you will most likely go through a period of soreness in the legs and back. Do not expect to train at your normal volume or intensity for several weeks to months. Make sure that you are injury free. Start by wearing your new shoes for daily activities and progress to running. Make sure you are regularly stretching your calves and plantar fascia (bottom of the foot). Like it or not, age is a large determining factor in being able to wear minimalist shoes. The older you are, the longer it takes to adapt to the minimalist approach. You may have also developed certain maladies that will prevent the use of these shoes. As always, if you experience any increased pain, discontinue use of the shoes and seek the help of a health care professional.

Article by Dale Buchberger, DC, PT, CSCS

*Running is not bad; rather running bad is bad. Our old "minimalist shoes" forced us to run correctly or not at all. The new breed of athletic shoes has allowed an entire generation of inefficient runners to hit the streets and literally "pound the pavement".*

## APTS Recipe Box: Paleo 4th of July Lemon Fruit Tart

**Ingredients for the crust:** 1 cup almond butter, 1 cup unsweetened shredded coconut, 2/3 cup walnuts, 1 heaping tablespoon Coconut Cream Concentrate or homemade coconut butter, 1 heaping tablespoon raw honey, pinch of salt

**Ingredients for the topping:** 5 eggs, whisked; 1/2 cup honey; 1/3 cup Coconut Oil; juice of 4 lemons; 1 cup blueberries; 1/2 cup raspberries

**Instructions:** Place all crust ingredients in food processor and mix until completely broken down. Add to an 8x8 glass baking dish and press down to form an even crust. Put in fridge for about 20 minutes and make lemon topping in the meantime. Place a small saucepan over medium heat. Add your eggs, honey, coconut oil, and lemon juice to the saucepan and whisk together. Continue stirring together until

mixture begins to thicken. Once thickened, remove from heat and place bowl to cool in the fridge for about 20 minutes. When the lemon topping has cooled, spread it over your crust and place your raspberries and blueberries however you'd like—flag, star, stripes, etc.

Source: <http://paleoing.com/4th-july-lemon-fruit-tart/>



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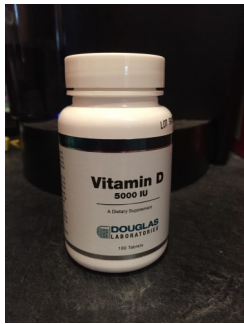
Get Well...Get Active...Be Active

Newsletter Edited by Carolyn B. Collier, PTA

**At Active Physical Therapy Solutions,  
we utilize the most cutting edge  
treatment and management  
techniques available. Our goal is to  
deliver the best possible healthcare in  
a friendly, caring, and well-organized  
environment. Our staff is here to  
provide active solutions to achieving  
your personal goals!**

**...BECAUSE LIFE SHOULD BE**

**ACTIVE!**



## Nutrition 101: How Much Vitamin D Do You Need?

Vitamin D plays an important role in protecting your bones and your body needs it to absorb calcium. It is essential to building strong, dense bones in chil-

dren and keeping them strong and healthy as you age. If you don't get enough vitamin D, you may suffer bone loss, low bone density,

Women and men under the age of 50 require 400-800 international units (IU) daily, and those over age 50 need 800-1000 IU daily. Some people need more vitamin D. The safe upper limit of vitamin D is 4000 IU per day for most adults. There are 3 ways to get vitamin D: from sunlight, from food, and from supplements.

Your skin makes vitamin D from ultraviolet (UVB) rays in sunlight. Your body is able to store the vitamin and use it later. The amount of vitamin D your skin makes depends on the time of day, season, latitude, skin pigmentation, et al. Depending on where you live, vitamin D production may decrease or be completely absent during the winter. (This is us here in central NY!)

Many people tend to stay out of the sun because of concerns about skin cancer, and therefore cover up with clothing and use sunscreen or sunblock to protect their skin. The use of sunscreen or sunblock is probably the most important factor that limits the ability of the skin to make vitamin D. Even

an SPF (sun protection factor) of 8 reduces the production of vitamin D by 95%! Because of the cancer risk from the sun, most people need to get vitamin D from other sources, including eating foods rich in vitamin D and taking vitamin D supplements.

Vitamin D is naturally available in only a few foods, including fatty fish like wild-caught mackerel, salmon, and tuna. Vitamin D is also added to milk and to some brands of other dairy products, orange juice, soy milk, and cereals. Check the food label to see if vitamin D has been added to a particular product, and how much. One eight ounce serving of milk usually has 25% of the daily value (DV) of vitamin D. The DV is based on a total daily intake of 400 IU of vitamin D. So a serving of milk with 25% of the DV of vitamin D contains 100 IU of the vitamin.

It is very difficult to get all the vitamin D you need from food alone. Most people need to take supplements to get enough of the nutrient needed for bone health. Before adding a vitamin D supplement, check to see if any other supplements, multivitamins, or medications you're taking contain vitamin D. Many calcium supplements also contain vitamin D.

There are two types of vitamin D supplements: vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol). Both are good for bone health.

Vitamin D supplements can be taken with or without food. While your body needs vitamin D to absorb calcium, you do not need to take vitamin D at the same time as a calcium supplement.

To figure out how much vitamin D you need from a supplement, subtract the total amount of vitamin D you get each day from the recommended total daily amount for your age. For example, a 55 year old woman who gets 400 IU of vitamin D from her calcium supplement should take between 400-600 additional IU of vitamin D to meet the 800-1000 IU recommended for her age.

Vitamin D deficiency occurs when you are not getting the recommended level of vitamin D over time. Certain people are at higher risk for vitamin D deficiency, including:

- People who spend little time in the sun or those who regularly cover up when outdoors
- People living in nursing homes, institutions, or are homebound
- People with Celiac disease and inflammatory bowel disease
- People taking medicines that affect vitamin D levels such as certain anti-seizure medicines
- People with very dark skin
- Obese or very overweight people
- Older adults with certain risk factors

Talk to your healthcare provider if you have any of these risk factors or think you might be at risk of vitamin D deficiency.

Article by Carolyn Collier, PTA