

InTouch ARTICLE

Stress Fractures of the Foot in the Female Athlete

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Date: Autumn 2015

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A stress fracture is described as a cortical breach in normal bone caused by repeated submaximal forces, the classic example being a lesser metatarsal fracture in army recruits due to repetitive movements. This can be demonstrated in image 1.

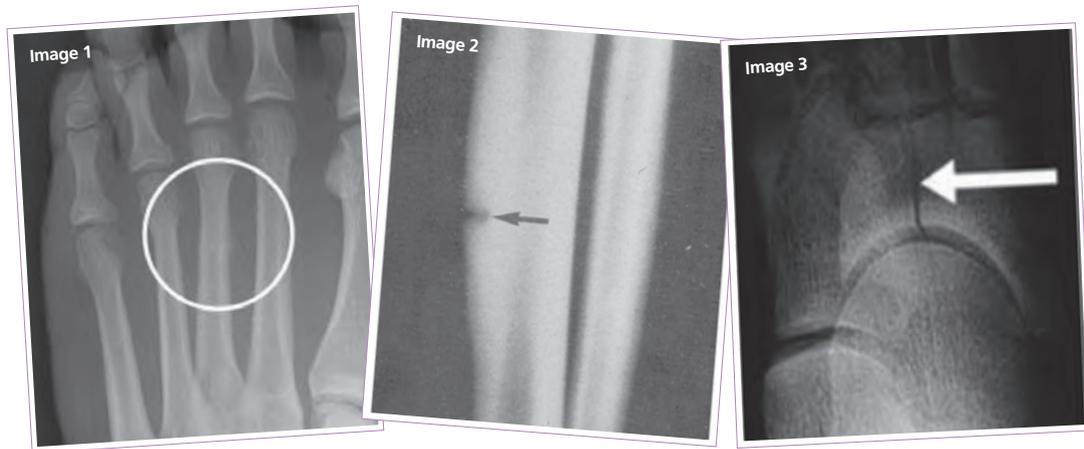
A stress fracture can occur in weakened bones as a result of osteoporosis, osteomalacia, cancer or infection to the bone.

Female athletes can put a lot of stress on their body through restrictive diets, poor footwear choices or training on hard surfaces which can all contribute to a stress fracture. It's important to consider the underlying causes of weakened bones be it menstrual irregularities, nutritional disturbances (this could be an eating disorder) or osteoporosis.

Stress fractures can occur in a number of locations in the foot including the tibia, fibula, calcaneus, navicular and metatarsal.

A stress fracture in the tibia can be identified by a black line on X-ray, as demonstrated in the image 2 above. This type of fracture is more common in men than women, but it is also seen in female ballet dancers and often first presents itself as pain on jumping.

This fracture can be difficult to treat. Treatment options can include using a long Aircast boot to stabilise, rest from activity, ultrasound guided injections for pain or surgery.



Women can also experience a stress fracture in the tibial metatarsal, however this is a rare fracture. It is often seen during late pregnancy as bones weaken due to pregnancy hormones, but it does settle easily following the birth and rest.

Female athletes can also suffer from stress fractures in the fibular which can be as a result of biomechanical abnormalities, valgus heels or rheumatoid arthritis. This stress fracture can be settled using orthotics, but osteotomy can be helpful in more severe cases.

The calcaneal stress fracture is common in female runners and often first presents as heel pain and patient's symptoms are often relieved when wearing high heels. Diagnosis is through the squeeze test and an MRI can be helpful for early diagnosis.

Powerplates at the gym can often aggravate this fracture. Patients will need to rest and stretch often. Aircast boots and orthotics can be useful for shock absorption.

A navicular stress fracture can be career threatening to professional female athletes in particular ballerinas as it causes a stiff foot and is prone to non-union. The fracture occurs at the junction of the middle of 1/3 and lateral 1/3 as shown in image 3 above. The fracture is difficult to manage as it can become sclerotic. Surgery is necessary and depending on the severity of the fracture, it may require a graft or metal ware. In either case, it will require a long period of non-weight bearing activity.

IN SUMMARY

Female athletes can be prone to a number of stress fractures in the foot if they neglect equipment and dietary factors. It is important to treat underlying factors that may cause weakened bones such as osteoporosis or eating disorders as a preventative measure as stress fractures can be severely detrimental to female athletes' careers.

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