



## Female Athlete Triad: Riddled with Irony

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*Heather, 21, presents complaining of right groin pain that has been present for the last eight weeks. Her pain is centred around her right hip and groin area. She is an aerobics instructor who teaches six days per week. She is also a university student and has little time to eat three meals per day. You notice she is limping with an antalgic gait and she is thin at 5'3" and 105 lbs.*

You proceed to take a regular history, relevant to her presenting problem, and complete the physical examination. You send her to physical therapy for a groin pull. She does not recall hurting her groin muscle, but she does a lot of quick maneuvers during her classes, so it is possible she injured the muscle.

After four weeks of rehabilitation, she returns to your office.

*You examine her right leg again and there seems to be no improvement. You ask her to go into a squat and to do the "duck walk." She has great difficulty performing these exercises.*

When taking a further detailed medical history, you find out she has had a previous tibial and metatarsal stress fracture of the foot. You ask about her diet and are suspicious she is undernourished. She has also lost her menses for the last seven months. You recall the possibility of stress fractures that can develop in individuals who do not eat properly and realize this may be something more serious than a simple groin pull.

You are suspicious of a stress fracture and you send her for a bone scan (an X-ray can miss this diagnosis). She is to report back to you one week later. During this time you have asked her to abstain from pounding types of activities, including high-impact aerobics.

*Heather returns one week later and, sure enough, there is increased uptake along the neck of the right femur.*

You order an X-ray and confirm the compression stress fracture of the right femoral neck. You immediately consult the orthopedic surgeon in your hospital for both immediate and long-term treatment. You also want her to see a dietitian to review how her diet can improve.

You receive a report indicating the injury is serious and she may require surgical pinning of her right femoral neck. Initially, she will be non-weight-bearing, with the aid of crutches.

Heather is depressed over this diagnosis and plan of treatment. You hear her concerns, but try to reassure her everything will be okay.

*Heather returns to your office four weeks later to update that her right hip is feeling better, but is still far from 100%. The specialist has informed her she will need to be off her feet and non-weight-bearing for approximately 12 weeks. The patient is teary-eyed and asks if she can take diet pills while she is not exercising to maintain her low weight.*

You deny this technique of diet pills with a detailed explanation of the safety issues.

As you spend more time counselling her, you realize she has all of the features of female athlete triad (FAT). FAT has nothing to do with body fat; that is the irony of the acronym. Women who suffer from this condition have dysfunctional eating, amenorrhea and premature osteoporosis. This osteoporosis may lead to a stress fracture and, as in Heather's case, multiple stress fractures over the years. Fixing her hip, however, will not fix the problem.

These women have a tendency to relapse over time if all of the issues are not dealt with. Most female athletes who are affected by this condition are involved in sports where weight is an issue, such as dance, gymnastics, figure skating and ballet. The athlete pursues significant weight loss through diet modification and various purging methods, losing a critical amount of fat, which interferes with the conversion of estradiol in the blood. As a result, the individual loses her menses and calcium is removed from the bones, leading to bone-weakening. Therefore, with the continued physical abuse of the body, bone stress fractures develop.

As the family physician, make sure you have access to a good dietitian, sports psychologist/psychiatrist, physical therapist and orthopedist.

Remember, the individual does not have to appear anorexic to have FAT. When a patient presents with the symptoms of a stress fracture, think FAT, even though the patient may not be!

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