

Cam impingement



BY DR PETER GENDALL

Femoro-acetabular impingement (FAI) is a relatively common cause of hip pain in athletes. It typically presents with intermittent groin pain which settles after rest.

An important cause of hip arthritis, most patients with FAI have a combination of cam and pincer impingement. As an introduction to the subject, this article will look at cam impingement. In general, patients with FAI are usually in the 20–40 age group. Cam impingement is more common in young men.

Sports likely to exacerbate FAI are those which push the hip into internal rotation or prolonged flexion, such as all running sports, in particular hockey and football, also cycling, ice skating and skiing, (particularly ski racing as the racer adopts a body position markedly flexed at the hips). Martial arts and dancing are also thought to exacerbate this condition.

Recently there has even been a suggestion that ice hockey may cause the femoral changes that predispose to impingement. A study comparing youth ice hockey players

with youth skiers showed that 72% of hockey players and only 42% of skiers had the predisposing bone changes that can cause cam impingement.

What is Cam impingement?

Cam impingement is a simple mechanical process caused by an aspherical shape of the femoral head. With movement the aspherical portion of the femoral head acts like a cam and is jammed into the hip socket (acetabulum) causing damage to cartilage and to the fibro cartilaginous labrum which surrounds the acetabulum.

The diagrams below illustrate the problem.

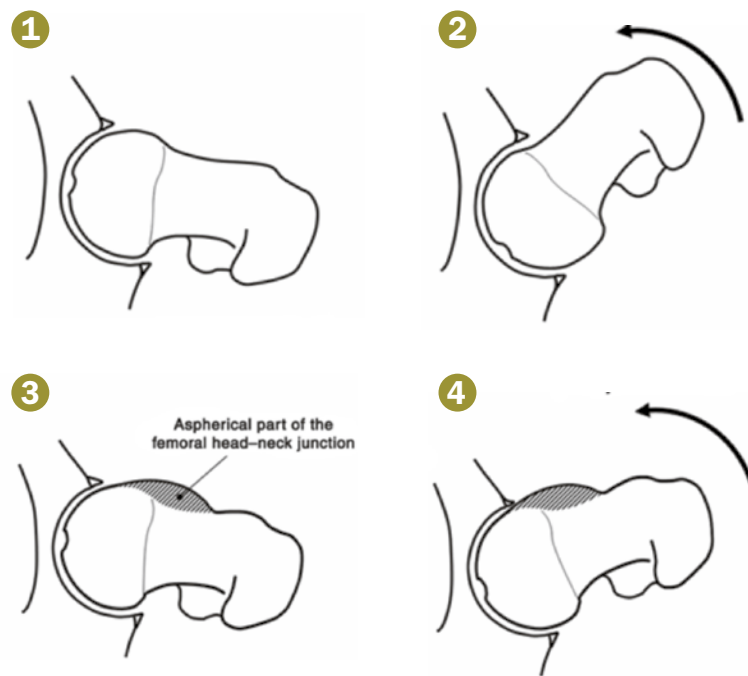
Cam impingement

The upper diagram shows normal hip anatomy, and relative positions of femoral head and acetabulum at rest and during movement.

The lower diagram demonstrates how cam impingement can limit motion and cause acetabular damage.

Treatment

Conservative and operative treatments are available for FAI. Operative treatments involve refashioning the femoral head neck shape, and repairing labral damage. Conservative management is perhaps in its infancy but includes strategies to restore strength and neuromotor of the deep hip stabilisers, restoring core and trunk muscle function, reducing overactivity in the secondary hip



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1. Bone bulge anteriorly on femoral neck likely to cause FAI. Axial MR.
2. Normal MR appearance axial slice hip. Compare with illustration 2
3. Bright lesion on femoral neck caused by active FAI
4. Osteoarthritis Hip secondary to FAI. Arrows clockwise from 12 o'clock: 1. Labral tear. 2. Arthritic cartilage loss in hip joint. 3. Cam type bone bulge at femoral head/neck junction.

stabilisers.

Also important is education regarding avoidance of provocative positions of impingement and strategies to reduce impingement during practice and competition.

We now have the tools to diagnose FAI and impingement prone individuals. As

well as clinical assessment, x-ray and MRI assessment is very useful. MRI is particularly useful for assessing labral and cartilage injuries occurring as a result of continued impingement.

Some MR images are included to further illustrate the problem of FAI.



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