FAI can both cause pain and stiffness in the joint and there is evidence that having a cam lesion can increase your risk of getting hip OA by seven times.

2. Suggest how FAI causes OA.

Cam lesions are found in adults but not in children. They form next to the growth plate in the bone, which is strong evidence that they form during adolescence.

Your task

But why do some people develop FAI?

You will be finding out by attending a scientific conference.

1. You will be assigned one abstract from a research paper on FAI.

2. Write a conclusion based on the research. Check this with your teacher.

2. Summarise the article as a 'nano-presentation' that lasts less than 2 minutes.

3. Give your presentation to the rest of the class during the conference.

4. Use the information you gathered at the conference to write a short news item for Radio 1 that answers the question. Remember to be aware of your audience and include no technical terms.
Article 1: The Prevalence of Radiographic Hip Abnormalities in Elite Soccer Players

Michael B. Gerhardt, MD, Alex A. Romero, MD, Holly Jacinda Silvers, MPT, David J. Harris, MD, Jane Watanabe and Bert R. Mandelbaum, MD

Background: Hip injuries, both intra- and extra-articular, are becoming a more commonly recognized, diagnosed, and treated injury in athletes of all competitive levels. Our goal is to establish a previously undefined value in this athletic population—the prevalence of radiographic hip abnormalities in elite soccer athletes.

Purpose: To provide a foundation for the future body of literature regarding hip pathologic abnormalities and “at-risk” hips in athletes of all ages and levels of participation.

Study Design: Descriptive epidemiology study.

Methods: We retrospectively reviewed the anteroposterior pelvis and frog-leg lateral radiographs of 95 elite male and female soccer players to determine the prevalence of hip abnormalities. Athletes with a history of hip or groin injuries were included. Multiple radiographic parameters were used to assess the presence of cam and pincer-type femoroacetabular impingement. Measurements were conducted by a blinded, sports medicine fellowship–trained orthopaedic surgeon with experience in treating hip disorders.

Results: In total, 72% (54/75) of male and 50% (10/20) of female players demonstrated some evidence of radiographic hip abnormality. Cam lesions were present in 68% (51/75) of men (76.5% [39/51] bilateral involvement) and 50% (10/20) of women (90% [9/10] bilateral involvement). Pincer lesions were present in 26.7% (20/75) of men and 10% (2/20) of women. The average male alpha angle overall was 65.6°. Cam-positive hips averaged 70.7°. The average female alpha angle overall was 52.9°, with cam-positive hips averaging 60.8°.

Conclusion:
Article 2: Prevalence of Increased Alpha Angles as a Measure of Cam-Type Femoroacetabular Impingement in Youth Ice Hockey Players

Marc J. Philippon, MD, Charles P. Ho, MD, PhD, Karen K. Briggs, MPH, Justin Stull, BA and Robert F. LaPrade, MD, PhD

Background: It has been reported that relative to other sports participants, ice hockey players suffer from cam-type femoroacetabular impingement (FAI) in higher numbers. α angles have been reported to increase with the likelihood of symptomatic FAI. It is unclear how prevalent increased α angles, commonly associated with cam FAI, are in asymptomatic young ice hockey players.

Hypothesis: There would be a higher prevalence of α angles associated with cam FAI in youth ice hockey players than in a non–hockey-playing (skier) youth control group.

Study Design: Cohort study; Level of evidence, 3.

Methods: A total of 61 asymptomatic youth ice hockey players (aged 10-18 years) and 27 youth skiers (controls) (aged 10-18 years) underwent a clinical hip examination consisting of the flexion/abduction/external rotation (FABER) distance test, impingement testing, and measurement of hip internal rotation. The hip α angle was measured by magnetic resonance imaging, and labral tears and articular cartilage lesions were documented. Hockey players were grouped according to their USA Hockey classification as peewees (ages 10-12 years), bantams (ages 13-15 years), and midgets (ages 16-19 years).

Results: Overall, ice hockey players had significantly higher α angles than did the control group, and hockey players had a significant correlation between increased age and increased α angles, while the control group did not. In the ice hockey group, 75% had an α angle of ≥55°, while in the skier group, 42% had an α angle of ≥55° (P < .006). Hockey players were 4.5 times more likely to have an α angle commonly associated with cam impingement than skiers. Midget players had the highest risk of increased α angles.

Conclusion:
Key Stage 5

FYI on FAI

Article 3: Radiographic Prevalence of Femoroacetabular Impingement in Collegiate Football Players

Ashley L. Kapron, BS; Andrew E. Anderson, PhD; Stephen K. Aoki, MD; Lee G. Phillips, MD; David J. Petron, MD; Robert Toth, PA-C; Christopher L. Peters, MD

Background: The prevalence of femoroacetabular impingement (FAI) may be greater in athletes than in the general population because of increased loading of the hip during sports. This study evaluated the radiographs of collegiate football players in order to quantify the prevalence of FAI in asymptomatic athletes.

Methods: Sixty-seven male collegiate football players (age, 21 ± 1.9 years) participated in this prospective study. Both hips (n = 134) were evaluated independently by two orthopaedic surgeons for radiographic signs of FAI. The alpha angle and femoral head-neck offset were measured on frog-leg lateral radiographs. The lateral center-edge angle, acetabular index, crossover sign, and alpha angle were measured on anteroposterior radiographs. Data for continuous variables were averaged between observers prior to assessing prevalence. Cam FAI was considered to be present if the femoral head-neck offset was <8 mm and/or the alpha angle was >50° on either radiograph. Pincer FAI was considered to be present if the lateral center-edge angle was >40°, the acetabular index was <0°, and/or a positive crossover sign was detected by both observers.

Results: Ninety-five percent of the 134 hips had at least one sign of cam or pincer impingement, and 77% had more than one sign. Twenty-one percent had only one sign of cam FAI and 57% had both signs. Fifty-two percent had only one sign of pincer FAI, 10% had two, and 4% had all three signs. Specifically, 72% had an abnormal alpha angle, 64% had a decreased femoral head-neck offset, 61% had a positive crossover sign, 16% had a decreased acetabular index, and 7% had an increased lateral center-edge angle. Fifty percent of all hips had at least one sign of pincer FAI and at least one sign of cam impingement. Interobserver and intraobserver repeatability was moderate or better for each measure (range, 0.59 to 0.85).

Conclusions:
### Key Stage 5

**FYI on FAI**

<table>
<thead>
<tr>
<th>Glossary</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>alpha angle</strong></td>
<td>The angle between a line from the centre of the femoral head through the middle of the femoral neck and a line through a point where the contour of the femoral head-neck junction exceeds the radius of the femoral head</td>
</tr>
<tr>
<td><strong>anteroposterior pelvis radiograph</strong></td>
<td>A radiograph image taken from anterior (front) to posterior (back) of the pelvis</td>
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<tr>
<td><strong>bilateral</strong></td>
<td>Relating to both sides</td>
</tr>
<tr>
<td><strong>extra-articular</strong></td>
<td>Situated or occurring outside of a joint</td>
</tr>
<tr>
<td><strong>FABER distance test</strong></td>
<td>A test carried out to evaluate the pathology of the hip joint</td>
</tr>
<tr>
<td><strong>frog-leg lateral radiograph</strong></td>
<td>A radiograph image of the hip taken with the leg flexed at the knee approximately 30° to 50° (the leg is placed in a position like a frog’s leg)</td>
</tr>
<tr>
<td><strong>Interobserver</strong></td>
<td>Two or more observers of the same phenomenon</td>
</tr>
<tr>
<td><strong>intra-articular</strong></td>
<td>Situated or occurring within a joint</td>
</tr>
<tr>
<td><strong>intraobserver</strong></td>
<td>The same observer observing the same phenomenon more than once</td>
</tr>
<tr>
<td><strong>labral tear</strong></td>
<td>A tear of the ring of cartilage (labrum) that follows the outside rim of the socket of the hip joint</td>
</tr>
<tr>
<td><strong>radiograph</strong></td>
<td>A negative image on photographic film made by exposure to x-rays or gamma rays that have passed through matter or tissue</td>
</tr>
<tr>
<td><strong>symptomatic</strong></td>
<td>Indicative of a particular disease or disorder</td>
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