Manual Screening of Adolescent Hips: Is surgery the only answer?

A Pilot Study

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THE AUTHORS REPORT NO FINANCIAL RELATIONSHIP OR CONFLICT OF INTEREST
• FAI is a known pre-arthritic condition\textsuperscript{(1)}
• Impingement morphology is poorly defined and investigated in young adolescents
• Prevalence of radiographic FAI morphology in asymptomatic hips is very high\textsuperscript{(2,3)}

**RADIOGRAPHS** \textsuperscript{(2)}
- 92.8% (one parameter)
- 52% (>2 parameters)

**MRI** \textsuperscript{(3)}
- 73% (abnormalities)
- 69% (labral tears)
INTRODUCTION

- Radiographic appearance (CT scan) CAM (>10 years old); PINCER (>12 years old)\(^{(4)}\)

- Radiographic appearance of FAI does not correlate with clinical presentation

> “Prevention is Better than Cure”

*Desiderius Erasmus*

> Ultrasound for Hip Dysplasia

*Graf, R.\(^{(5)}\)*

- Dramatic ↓ of surgical intervention (0.35 to 0.13 per 1000 newborns)
“Are we able to prevent future surgery?”

**STUDY AIM:**

- Determine the prevalence of FAI morphology in a generalized young adolescence population
- “Red flag” positive scholars to allow for more careful following of their development
- Increase awareness of hip pathology, educate & modify sporting behavior as in the “hip at risk”
METHOD

- Prospective, pilot study
- N= 4 high schools (JHB, South Africa)
- Consent from parent/guardian/child & school
- 15 manual tests (12 published \(^{6-14}\), 3 anecdotal)
- “Red-flag” cases (≥4 positive answers with pain in sport) undergo conservative management protocol
- “Red-flag” cases followed year on year
**METHOD**

**Breighton (9 point scale)**

- **Standing pivot**
- **C Sign**
- **Limb length discrepancy**
- **Symmetry**
- **Single leg hop**

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**Physical Examination:**
(Mark box □ with an X if positive / pain)

<table>
<thead>
<tr>
<th>BEIGHTON CRITERIA (Standing)</th>
<th>/7</th>
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<tbody>
<tr>
<td>STANDING PIVOT</td>
<td></td>
</tr>
<tr>
<td>□ left</td>
<td>□ right</td>
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<tr>
<td>C SIGN</td>
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<tr>
<td>SINGLE LEG HOP</td>
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<thead>
<tr>
<th>BEIGHTON REPEAT (Supine - Knee Ext)</th>
<th>/2 TOTAL /9</th>
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<tbody>
<tr>
<td>LLD (&gt;5mm) - (inferior border medial malleolus)</td>
<td>□ NO □ YES</td>
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<tr>
<td>LOG ROLL - (symmetry determined at supine rest)</td>
<td>□ left □ right</td>
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<tr>
<td>□ symmetrical □ non-symmetrical</td>
<td></td>
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<tr>
<td>STITCHFIELD (@ 30°)</td>
<td>□ left □ right</td>
</tr>
<tr>
<td>LIGAMENTUM TERES (@ 45°)</td>
<td>□ left □ right</td>
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<tr>
<td>FABER (0°) - (Butts height)</td>
<td>□ left □ right</td>
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<tr>
<td>IR / ER (90°) - (IR: neutral - 90°)</td>
<td>□ □ □ □ left □ □ □ □ right</td>
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<tr>
<td>DEXRIT (Fabrer)</td>
<td>□ left □ right</td>
</tr>
<tr>
<td>DIRIT (Faddir)</td>
<td>□ left □ right</td>
</tr>
<tr>
<td>TELESCOPE</td>
<td>□ left □ right</td>
</tr>
<tr>
<td>Cross Leg Sitting</td>
<td>□ NOT able □ YES able</td>
</tr>
</tbody>
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**Questionnaire**

- Do you have or every experience hip, groin or lower back pain? □ NO □ YES
- What sport do you play?
  - Rugby, Cricket, Hockey, Gymnastics, Soccer, Dancing, Water Sports, Racquet Sports, Martial Arts

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**HIP PREVENTION**

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<tr>
<th>Name</th>
<th>Unique ID</th>
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<tr>
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<table>
<thead>
<tr>
<th>Date of Birth</th>
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<th>Contact Details</th>
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METHOD

Log roll
Stitchfield
Ligamentum Teres
Faber
IR / ER @ 90°
DEXRIT
Telescope
Cross leg sitting
DIRIT
RESULTS (Provisional)

“RED FLAG” cases (n= 124)

- Female: 16.47%
- Male: 17.95%
RESULTS (Provisional)
SUMMARY

- To date 124 clinical examinations have been undertaken in a school setting.
- Prevalence of clinically +ve FAI was found in 17.2% of scholars.
- A further 3 schools are still to be investigated.
- “Red-flag” cases are to be re-tested in a clinical setting.
- Repeat “red-flag” cases will undergo a conservative protocol.
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