INTRODUCTION

The os trigonum is present in 7.7% (Basmajian 1975) of the population and may be unilateral or bilateral. It is a developmental anomaly, an accessory bone behind the talus and above the calcaneum. Generally it is of no significance. It may however cause trouble, in jumping, ballet and fast bowling where impulsive plantar flexion while weight-bearing is involved. It then behaves "like a nut in a nutcracker" and may limit extreme plantar flexion (Williams 1978) (Figure 1).

Figure 1: Diagram of medial aspect of ankle showing site of Os Trigonum and nipping in plantar flexion.

The patient complains of local pain characteristically when the foot is in plantar flexion, when "springing" off the toes or after hard running (La Cava and Strinchi 1974).

Talar spurs present a similar mechanical problem when they are large. These may be broken off by "springing" movements off the toes when the fragment lodges between the third malleolus of the tibia posteriorly and the calcaneum inferiorly, limiting full plantar flexion. Symptoms are similar to those described above (Williams and Sperryn 1976).

Radiologically the abnormalities are readily seen in lateral views of the ankle joint (Figure 2). The mechanical interference they cause may be checked by screening.

MANAGEMENT

Conservative measures may be helpful and success from...
treatment with short-wave diathermy, ultrasonic therapy, oral anti-inflammatory drugs and local injection with hydrocortisone has been achieved.

For conditions resistant to conservative measures, surgery is effective (Subotnick 1975). In this series removal of the os trigonum or talar spur was performed, and the patients then underwent daily programmes of physiotherapy, weight-training, occupational therapy and remedial exercises. A good range of joint movement, minimal pain and acceptable weight-bearing and joint function allowing resumption of normal training were reached after three to six weeks. The patients were then able to return to successful competition (Table 1).

**DISCUSSION**

Os trigonum and talar spur present a mechanical problem amongst certain athletes.

These conditions must be considered in the differential diagnosis of ankle pain as they require definitive therapy. Misdiagnosis will necessarily lead to persistence of symptoms.

The problem is readily treated, if necessary by surgery, and carries an optimistic outlook with regard to full functional recovery — especially amongst competitive sportsmen and women.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age</th>
<th>Sport</th>
<th>Duration of Symptoms</th>
<th>Site of Lesion</th>
<th>Operation</th>
<th>Duration of Rehabilitation</th>
<th>Recovery at end of Rehabilitation</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>M</td>
<td>Cross Country Runner</td>
<td>1 year</td>
<td>Left Ankle</td>
<td>Excision of talar spur</td>
<td>3 weeks</td>
<td>Full R of M Painless</td>
<td>Won National Cross Country Trials 6 weeks later</td>
</tr>
<tr>
<td>3.</td>
<td>F</td>
<td>400m. Runner</td>
<td>5 years</td>
<td>Left Ankle</td>
<td>Os Trigonum removed</td>
<td>4 weeks</td>
<td>Full R and M minimal pain</td>
<td>4 weeks later inter-club competition.</td>
</tr>
<tr>
<td>4.</td>
<td>F</td>
<td>Squash</td>
<td>7 years</td>
<td>Left Ankle</td>
<td>Os Trigonum removed</td>
<td>10 days</td>
<td>Full R of M Painless</td>
<td>Resumed normal competition.</td>
</tr>
<tr>
<td>5.</td>
<td>M</td>
<td>Footballer Squash</td>
<td>3 years</td>
<td>Right Ankle</td>
<td>Os Trigonum and Talar Spur removed. Decompression of Peroneal Tendons</td>
<td>5 weeks</td>
<td>Full R of M Painfree</td>
<td>Resumed football Squash at 3 months.</td>
</tr>
<tr>
<td>7.</td>
<td>M</td>
<td>Bowler (Cricket)</td>
<td>2 months</td>
<td>Left Ankle</td>
<td>Talar spur excised</td>
<td>11 days</td>
<td>Full R of M Painfree</td>
<td>2 weeks post-op. playing cricket.</td>
</tr>
</tbody>
</table>

**REFERENCES**

FOR HEART RATE WHILE ON THE MOVE

In jogging, running, or any sport, it is important to know the heart’s capabilities. In the USA, where the jogging craze began, a leading San Francisco cardiologist recently reported “hundreds of deaths have been caused by the keep-fit mania... jogging can provide the final strain for a diseased heart”. Several heart rate monitors are available, most are bulky with electrode attachments, so precluding measurement while the person is moving about, e.g. running, jogging, swimming, etc. A new miniature digital monitor, LRF-8, is now available. Measuring only 98x56x32mm, light weight at 150gm, it has integrated silver-plated electrodes at both ends and these are simply held between the palms of both hands, to give a fast indication of heart rate beat per minute. LRE-8 is unique, in that unlike other monitors, it does not require a computation of 12/15/20 seconds, during which time the heart rate can be returning to normality. The measurement is flashed out after a period of exactly eight pulse beats. Leaving the monitor switched ON, the pulse rate BPM will automatically repeat every eight beats, showing change, if any. Thus, in jogging, and running, the monitor can be held in one hand and then quickly brought into use to give an “on the spot” reading, showing if a set programme of maximum heart rate is close or being exceeded.

LRE-8 is high quality micro-electronic technology. Measurement is by QRS impulses. Power: 1 standard PP3 type 9v battery, good for about 6 months in normal use. Control finger switch ON/OFF. Display 7 segment LED, to give, large, bright, unmistakable numbers. The monitor is housed in a tough plastic (NOVODUR) case, supplied with carrying pouch. LRE-8 should be well received for general medical use, sports medicine and, in all situations where a fast accurate indication is required of heart rate beat per minute.

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