BACKACHE IN OARSMEN

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ABSTRACT

There has been an increase in complaints of backache amongst oarsmen recently. It is suggested that backache related to the training programme and the modern style of rowing and that the rotational forces of rowing are responsible for the symptoms. An approach to the management of the problem is suggested.

Key words

Backache. Oarsmen. Rotation. Physiotherapy.

Until recently rowing injuries were rare except for the treatment of blisters, medical involvement was social rather than professional. In common with all other sports the increasing pressure to win has produced a crop of over-use injuries. Wrist teno-synovitis and anterior knee pain have already been described in oarsmen (Williams, 1977 and Chen et al, 1976). However, backache is suffered by almost all those in serious rowing training nowadays and the experience described has been gained from studying and treating the British National Squad oarsmen and women over the last five years.

It is generally agreed by oarsmen of former generations that backache was not a problem which disrupted their training (Gleave, 1979). The present epidemic may be due to two new factors which have developed in the last ten years: firstly the introduction of high pressure training techniques and schedules, and secondly, the evolution of the modern style of rowing which puts more strain on the back. These two factors however, have made Britain very successful in International competition.

Williams and Sperryn (1976) state that backache is not common in oarsmen but that spondylolysis occurs.

Spondylolysis is thought to be caused by hyperextension and this is induced by weight training as opposed to rowing which produces a flexion injury (Gregorsen and Lucas, 1967; Jackson et al, 1976). The two radiographically proven cases of spondylolysis in the National Squad have occurred during weight training periods in the winter months but neither has been prevented from racing competitively during the summer.

The modern style of rowing has accentuated the flexion and rotation of the lumbar spine at the beginning of the stroke compared with the straight backed swing that was previously taught. At the beginning of the stroke the lumbar spine is in flexion, with the oarsman's knees near his axillae and the shoulders rotated to remain parallel to the oar handle. If the boat now rolls at all, lateral bending is added to the flexed rotated spine and the oarsman is expected to throw his full weight onto the oar in this position. When standing upright it is possible to turn the shoulders almost 90° to the pelvis but when the spine is flexed this rotation is reduced by over half (Gregorsen and Lucas, 1967). Therefore as the blade enters the water the lumbar spine is at the limit of its movement with the annulus fibrosus and spinal ligaments fully stretched and the facets of the apophy-

Leander Club eight winning the Grand Challenge Cup at Henley 1934. The short 20" seat traverse and low foot position make the oarsmen swing forward from the hips keeping the back straight.

Great Britain coxless four winning the Bronze medal at the World Championships 1978. The rounded back and reaching outside shoulder of the modern method is well shown.

seal joints in tight apposition. Any upset in the balance at this time will strain the lumbar spine causing ligament and joint capsule injury.

Over the last five years I have seen twenty-nine oarsmen and women complaining of low back pain. Two had spondylolysis, three had recurrent lumbar strain and twenty-two men and two women had acute lumbar strain.

Great Britain coxless pair silver medallists at World Championships 1977 and 1978.

The oarsmen and women typically complain of a pain in the low lumbar region sometimes radiating into the buttocks or posterior thighs. The pain is felt usually on the side away from the oar — the outside. If it is felt on the inside, one often finds that the oarsmen has previously spent a long period rowing on the other side. The pain usually increases gradually rather than coming on acutely and often only prevents him rowing at full pressure. The pain is not usually relieved by rest and is,

The lumbar spine is in full flexion with the seat drawn up under the shoulders. The slide traverse here is 32" and the feet are held high in the boat.

in fact, sometimes helped by exercise.

On examination an almost full range of lumbar movement is obtained: however forced rotation mimicking the rowing action and opposite quadrant extension reproduce the pain. Sometimes, particularly if the patient has continued to row with the pain, the whole lumbar movement may be limited by muscle spasm. Neither root signs nor neurological pathology are demonstrable. Tenderness to palpation is usually limited to the area lateral to the midline of the lowest mobile level of the side concerned. The erector spinae is usually hypertrophied in oarsmen, but may be comparatively wasted at the lowest level in a patient with recurrent pain.

Radiographs of the lumbar spine are normal or demonstrate the usual range of minor congenital defects such as spina bifida, sacralised L₅ or lumbarised S₁ vertebrae, but none of these variants appeared to delay recovery to full movement.

The treatment is performed in the Physiotherapy Department and consists of reduction of local spasm, rotational mobilisation of the joint and strengthening of the supporting muscles — and this is usually rapidly successful.

Firstly the oarsman should be advised not to row, although if the condition is not severe he may take other exercise — such as running — within the pain threshold. He is seen daily in the Physiotherapy Department and ultra sound therapy and rotation mobilisation of the affected joint is performed. When the pain subsides the physiotherapist teaches a course of exercises to strengthen the lumbar spine. When the oarsman has regained his rotational range he may be allowed to scull — an exercise that does not use rotation — and if this is

The shoulders have rotated to remain parallel to the oar handle.

successful he may return to rowing. In three patients the rotation has not returned quickly and a manipulation under anaesthesia, which stresses rotation, has relieved the pain and regained the movement.

It has not been possible to ascertain the pathology of the lesion. Lumbar examination is notoriously erroneous as to the origin of the tenderness and spasm that is found, since this may be local or reflexial from adjacent segments. Due to the tripodal structure of the vertebral mechanism, it is not possible to define which joint is involved, since rotation of a vertebra will move all three joints simultaneously. However, it is tempting to suggest that the apophyseal joint at the site of the tenderness is the source of the pain. The pain usually settles rapidly with treatment directed to the painful level and the speed of response suggests that the primary lesion is being treated. Usually, when the annulus is torn, rotation is limited and painful in both directions. Therefore, I postulate the lesion is an acute strain of the lowest apophyseal joint. When the injury is recurrent the signs are similar to those of rotational lumbar instability (Farfan et al, 1970). However usually the pain settles too quickly to suggest that a stress fracture is the cause.

If rotational movement during rowing is the cause of "rower's back" then exercises throughout training to strengthen the rotational element would seem logical. The usual exercises performed in circuit or weight training only strengthen flexion and extension elements of lumbar movement. By doing "sit-ups" with the knees bent and touching the elbow to the contralateral knee, the muscles involved in trunk rotation, especially the abdominal muscles, are strengthened. Another useful exercise for lumbar stability is to lie down on a bench with the ilia supported by the pubic bone and legs

over the edge. By lifting the legs considerable isometric exercise is given to all the extensor muscles stabilising the lumbar vertebrae.

By means of physiotherapy and exercise we have been able to keep all the members of the squad in training despite their backache. One oarsman who was a recurrent attender for treatment prior to rowing in the Montreal Games now sculls at International level. Released from the rotational element by the use of two blades, his back has remained acceptable without treat-

ment for the past three years.

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