



# Preparing for

John Gibbons describes the challenges and excitement of working with the Oxford University rowing team

Five fifteen in the afternoon of 29 March 2008 might not mean much to the average person, but for nine individuals in Oxford, it is everything.

That's the date of the 154th Oxford versus Cambridge boat race and the athletes from Oxford University Boat Club have been training since September. Training comprises two sessions a day, including weekends, for seven months – all for a race that will last around 18 minutes. Not only do these guys have to train extremely hard, they also have to fit in being a student.

As well as being a lecturer in Sports Medicine and Athletic Performance for the University of Oxford, I also specialise in the assessment, treatment and rehabilitation of sports-related injuries for the university's prestigious sports teams. In particular, I enjoy being accredited as the osteopath to the Oxford University Boat Club men's heavyweight rowing team.

I have worked with the boat team for three years now and was originally employed as an osteopath consultant, alongside two physiotherapists. However, soon after I arrived, both physiotherapists left due to other commitments and so I was asked to take over the team's physical training, as well as their injury rehabilitation.

Initially, I worked with the team every Thursday for two hours, showing them a range of exercises that they would do every day, with minimal supervision. Not long after I had started working with them, the captain, Barney Williams, asked: 'When are we doing squatting and lunging exercises?' I replied,



John Gibbons working on rower Robin Ejsmond-Frey

nervously: 'When you are stable enough.'

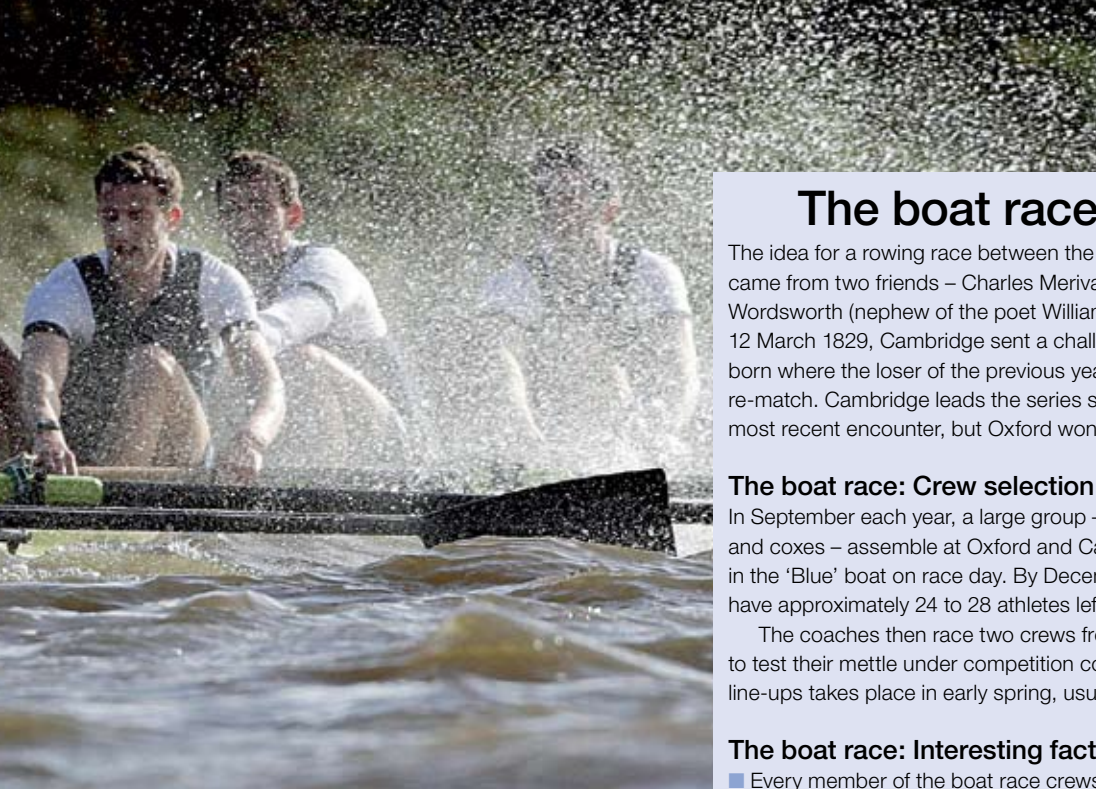
I think this was quite a shock not just to Barney, but also to the rest of the team.

However, it is important to bear in mind that most rowers, at some point, have back issues and this was certainly true for the Oxford team.

Because of this I was particularly keen

to get the guys doing not just strength and fitness-orientated exercises, but also core stability work and sport-specific exercises that would help to keep them free of injury.

I appreciate that most sports therapists will have heard of core stability but I am not sure how many are familiar with the two main systems known as the inner and the outer



## The boat race: A brief history

The idea for a rowing race between the universities of Oxford and Cambridge came from two friends – Charles Merivale, a student at Cambridge, and Charles Wordsworth (nephew of the poet William Wordsworth), who was at Oxford. On 12 March 1829, Cambridge sent a challenge to Oxford and the tradition was born where the loser of the previous year's race challenges the opposition to a re-match. Cambridge leads the series since 1829 by 79-73. Cambridge won the most recent encounter, but Oxford won the previous two races in 2005 and 2006.

### The boat race: Crew selection

In September each year, a large group – often as many as 40 potential oarsmen and coxes – assemble at Oxford and Cambridge Universities hoping to win a seat in the 'Blue' boat on race day. By December, after a series of cuts, both clubs have approximately 24 to 28 athletes left in their squads.

The coaches then race two crews from their squad over the boat race course to test their mettle under competition conditions. A formal announcement of the line-ups takes place in early spring, usually around four weeks before the race.

### The boat race: Interesting facts

- Every member of the boat race crews trains for approximately two hours for every stroke in the race. It takes about 600 strokes to complete the course.
- The heaviest oarsman ever looks set to be Thorsten Engelmann, the stroke man of this year's Cambridge Blue boat. He weighed in during the 2007 Tideway Week at 17st 6lb (110.8kg).
- The course record is 16 minutes 19 seconds set by Cambridge in 1998.
- The smallest winning margin was in 2003, at just one foot.

Source: The Boat Race Company

# glory

core units. The way I explained this to the rowers was – 'imagine you are on the Thames and the water is very choppy. As you sit there in your boat you have to use your inner core muscle unit to keep the boat stable, but when you start to move the boat through the water, this is where the outer core muscle unit comes into play.'

To have a strong outer core unit, it is paramount that the inner core unit is stabilised first, as the most susceptible area in the rower's muscular-skeletal system is the lower lumbar spine – usually a disk injury at the L4/5 (lumbar vertebrae four/five) or L5/S1 (lumbar vertebrae five/sacral vertebrae one).

Most of the rowers knew a bit about core stability and some had done one or two exercises before. I tried to make the inner core training fun as these exercises are not appealing to a bunch of young rowers used to doing squats and lunges.

So, for example, I would get all of the guys to sit on a gym ball in a straight line and face the same way – except the cox at the end, who would face inwards. They would then place their feet on the ball in front.

The idea was to mimic sitting in a boat that's on water. From this position each team member then had to keep the line stable by activating the inner core muscles. Once this was achieved, we would then try to mimic the motion of rowing while on the gym balls. Apart from being fun, this is a great way of activating the inner muscles without even having to think about the process involved.

While the initial training programme I put together was biased towards stabilising the

inner core unit, most of my work with the rowers has focused on the outer core unit.

The outer core unit consists of four muscle systems or slings:

### Anterior oblique sling

- The stance leg adductors
- The ipsilateral internal obliques
- The contralateral external obliques.

### Posterior oblique sling

- The gluteus maximus on one side of the body
- The contralateral latissimus dorsi
- The thoracolumbar fascia.

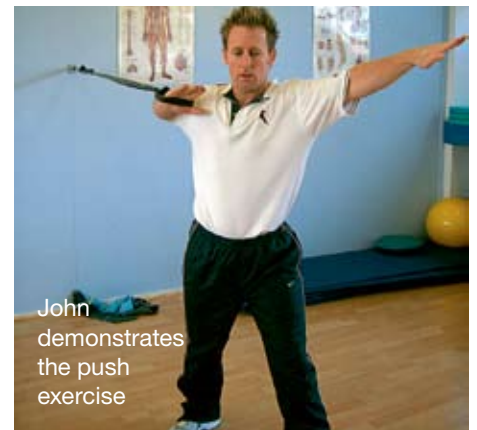
### Posterior longitudinal sling

- Peroneus longus – the first metatarsal to the head of the fibula
- Biceps femoris – the head of the fibula to the ischium
- Sacrotuberous ligament – the ischium to the sacrum
- Contralateral (opposite) erector spinae the sacrum to the ilium, costals, vertebrae and cranium.

### Lateral sling

- Gluteus medius and minimus (abductors of the hip)
- The ipsilateral (same side) adductors of the hip
- The contralateral (opposite side) quadratus lumborum.

To use all four of the slings in the outer core unit, I started by focusing on some simple



John demonstrates the push exercise

push, pull and bend-to-extend exercises:

### Push exercise (anterior oblique sling)

This pushing exercise is used to activate the anterior oblique sling. All movements on a day-to-day basis will work this muscle sling, but a particularly good example would be the action of throwing.

Stand with the left leg forward and grasp the thera-band in the right hand. As you push forward with the right arm pull back on the left arm so that the trunk will rotate to the left with the hips relatively fixed.

### Pull exercise (posterior oblique sling)

This is the opposite of the anterior oblique movement. Again, it is used on a daily basis and is perfect for anybody doing 'rotatory' sports such as rowing, cricket and martial arts. As you pull with your right arm the left arm is being forced forwards as the trunk will be rotating to the right.



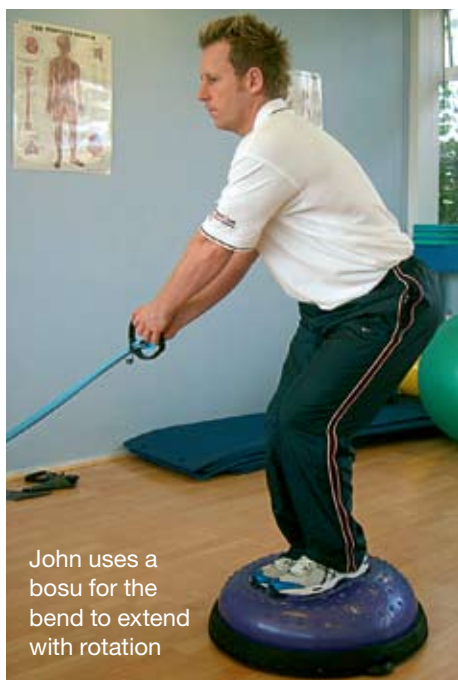
The pull exercise is used on a daily basis

## Bend to extend with rotation (posterior oblique/longitudinal sling)

Anything that involves bending and extending will activate the posterior longitudinal sling. This is similar to the posterior oblique exercise but with two variations. The first is that you are bending while rotating to the right.

Secondly, the band is now placed at ground level as opposed to shoulder level. This exercise looks easy but is very difficult to perform correctly. Its purpose is to incorporate the inner core (unstable base) while activating the outer core (slings). It is the same exercise as the one before it, but standing on a bosu.

These are only a handful of the exercises I used with the team to improve their core stability using a Thera-Band. Once they had mastered the basic techniques we quickly moved on to the pulley machine systems in the gym, which were brought in to specifically train the outer core unit.



John uses a bosu for the bend to extend with rotation

## Common rowing injuries

### Low back pain

I consider this to be the most common complaint in rowing. Loading the back in flexion places large forces on the back's muscles and discs. When rowing, the back is also flexed and rotated slightly during the stroke to achieve more reach in the catch position (the point when the oar makes contact with the water), which may naturally increase the incidence of back pain.

Back injuries from rowing vary from low back muscle or ligamentous sprain, to muscular strains or lumbar disc herniation. Therapists assessing rowers with back pain should always consider disc herniation, the most serious of these problems. Rowers sometimes have disc herniation without the typical radiation of symptoms to the legs, perhaps because these herniations represent primarily central disc disease, which does not press on the spinal nerve roots.

If the athlete has a herniated disc that presses on a nerve root, then treatment would focus on reducing the nerve pressure. This would include manipulative and mobilising techniques, traction massage therapy (such as myofascial release) and core stability exercises. Before treatment I would suggest an MRI scan to rule out any other pathology. If the treatment is unsuccessful the next stage would be to see a neurosurgeon for a prognosis.

Low back pain, especially with extension in a younger rower, is suggestive of a spondylolysis (defect/fracture). The nature of this defect is likely to have loaded part of the vertebra known as the pars interarticularis. If this is suspected then an oblique x-ray or an MRI scan would be required to diagnose this injury. In my experience this condition is more likely to affect cricket players, particular fast bowlers, than rowers.

With my experience of specific rowing injuries, I strongly believe that the additional core stability and sport-specific exercises that were introduced to the training programme three years ago have had a major role to play in the reduction of injuries in the rowers over the past two to three boat races.

### Knee pain

I see a lot of rowers who present with knee pain but it is not always the movement of rowing that is the causative factor. Yes, the rowing stroke puts the knee through its full range of motion, with a significant load exerted to the fully flexed

knee at the start of the stroke. Most of the knee pain I treat is located to the anterior surface of the knee, commonly known as patellafemoral pain. This type of knee pain is generally exacerbated/caused by other activities, such as circuit training and running, rather than the rowing itself.

### Rib stress fracture

This is quite rare in rowers unless they are at an elite level and train up to 15 to 20 sessions per week.

During the rowing stroke, the serratus anterior muscle holds the scapula firmly against the chest wall while the scapula goes through its range of motion, from protraction when the stroke begins, to retraction when the blade exits the water.

Some authors have proposed that overuse of the serratus anterior muscle leads to bending forces at the ribs, which can cause a stress fracture.

I have assessed many rowers who present with rib pain and once a diagnosis of rib stress fracture is made, rest for six weeks is usually required for complete healing. This is basically all that can be done at this stage and there is no obvious benefit of manual therapy.

Specific protraction strengthening exercises for the serratus anterior may strengthen it enough to prevent rib stress fractures.

### Wrist extensor tendonitis

I have lost count of the number of times I have seen this complaint. Maintaining the tight handgrip required to hold the oar for extended periods of time puts the forearms at risk of overuse injuries. Each rowing stroke also involves twisting the oar parallel to the water when feathering it in the recovery phase. This motion is carried out by extension at the wrist, further stressing the forearm.

Rowers with forearm tendonitis typically experience pain, tenderness, and even crepitus of the dorsal wrist in the region of crossover between the first and third dorsal wrist compartments. On physical examination, affected athletes have pain and swelling in this region of the dorsal forearm.

Treatment of extensor tendonitis involves appropriate rest and modification of technique. Ice, ultrasound, and occasionally a local steroid injection into the tendon sheath will help. Tendonitis usually resolves fairly quickly with appropriate management.

Once the training programme is up and running and the race draws nearer, the team then spend less time with me and most of their sessions are with the rowing coaches, unless there are any injuries. However, what time I do spend with the team is genuinely rewarding. These guys are very dedicated to their sport – some are even Olympians and world champions – and it's a real privilege to be able to use my knowledge and enhance the team's performance and well-being.



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