

Making the boat go faster

Data visualisation is helping Britain's elite rowers as they look towards next year's Olympic Games

ROWING

Britain's Olympic rowers turned in their best ever performance at London 2012, with a medal haul of four golds, two silvers and three bronzes. British women rowers, including Helen Glover and Heather Stanning, stood atop the podium for the first time ever, while the men's four captured their fourth gold in a row.

But now the pressure is on for Rio 2016. At the end of August, at Auguebiette in France, the World Rowing Championships will serve as the qualifying event for next year's Olympics. So every split second saved between now and then could be crucial.

And that's where a huge cloud of data comes in. Rowing has a history of using science to make its boats go faster and today, that's more than ever the case. Out on the water Britain's elite rowers'

sessions are meticulously timed, while their rowing technique is analysed using onboard force-angle sensors, which provide a data-based picture of a stroke's length and power.

Back in the gym, further information is gathered to show how hard the athletes are working and what their physiological parameters are. And it doesn't end there. At Dr Mark Homer, senior sport scientist for the GB Rowing Team, explains: "All the nations will train hard, so a lot of it comes down to how well you recover between training sessions. So we collect heart rate data and other data that shows how they're feeling, how they sleep, things like that. We build up a lot of numbers about the daily life of an athlete, from technique to fitness to health."

The key is not just to make sure the rowers are fit but to spot any signs of illness or injury as soon as possible. "The problem until recently," says Homer, "was being able to get a picture of this mass of data quickly enough to make a difference. "We were all quite good at Excel and



managing our own little areas of data. The problem we found was that it was all quite separate and siloed. We wanted to be able to look at the complete picture of an athlete in seconds and spot trends across the different aspects of their training and performance and health, so that we could make decisions about them quickly."

The potential to solve this problem came last year, when British Rowing partnered with business analytics giant SAS UK & Ireland. "We're now working with the SAS analysts to make our data easily accessible and available," says Homer. "What SAS is really good at is the visual display of data. So what we're trying to do is build reports so a coach can open his iPad or his laptop and it will provide a dashboard that's got live information about a particular rower

or a crew of rowers. Or the performance director can look at the entire team, up to 60 athletes in one go. We'll be able to highlight potential issues automatically so that we're right on top of potential problems – or things that are going really well."

Homer is honest about the challenge that lies ahead. "Everyone talks about Big Data, and one of the things we've found in this process is that it is Big Data we're dealing with, but not in the same way as a bank, for instance," he says. "A bank will have a million data points on a daily basis that are consistent, with no gaps, whereas we're actually dealing with quite a small number of people, and the fact that they're people makes it more difficult because it's biological data and they'll also miss the odd session,

so we'll have gaps in the data. We're getting used to the idea that we're going to need to try and be able to fill those gaps as much as we can."

And that's how Homer and the GB Rowing Team's posse of coaches and scientists will be spending this summer in the months leading up to the World Championships. It's their very own Olympic race. As he says: "In Olympic year you try to do as little tinkering as possible. You want your boat to run very smoothly in that year, so this is our last chance to get these things right, to practise them and to start using them in the build up to the Olympics." ■

Words by Tim Hulme. For more information: britishrowing.org; sas.com

Shock and awe
Heather Stanning
and Helen Glover will
be looking to repeat
their Olympic success
next year in Rio