

Warm up

## At the sharp end...

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The 2006 Winter Olympics in Turin will bring us a new sport that offers hope to countries that have typically not been prominent in the winter sports. Shades of Jamaica's bobsledders once again! The new sport is called "Skeleton" and it involves a running start, then leaping onto a metal sled, and then hurtling headfirst down an icy bobsled track at speeds of approximately 120 kph.

Being a new sport, how can the non-winter sports countries match the traditional ones? The answer is talent identification—and the reason should be obvious. A recent statistic reported in *New Scientist* (30 October 2004, page 52) illustrates this point. Australia has 2.7 million 10–19 year olds who will form the next generation of sporting talent, whereas the USA has 42 million, and China has 228 million. Smaller countries have to get smarter at identifying potential athletes rather than just waiting for them to develop. The options are

anthropometric techniques, genetic testing, or both.

Genetic testing for fitness and performance characteristics is relatively straightforward, with more than 200 such genes identified at the present moment.<sup>1</sup> It makes a simple start for countries with a technological bent and the means to analyse a blood test.

The more "traditional" approach is anthropometry. The old days of tape measures and calipers with formulas to transform such measurements into body fat measurements have given way to dual energy x ray absorptiometry (DEXA) scans, magnetic resonance imaging (MRI), and more modern methods. Nevertheless it is somewhat reassuring that there are only a few key measurements that are important in the scheme of things—height, weight, body fat, and arm length.

Taller athletes with long arms are better at basketball, tennis, boxing,

water polo, and rowing whereas shorter athletes do better at sprinting, ballet, gymnastics and the like. By knowing the mean characteristics of a sample of elite athletes in a variety of sports and knowledge of growth and development, it is possible to identify potential elite athletes as young as 10 years old. Whilst not a guarantee of success, it certainly helps young athletes choose the sports in which they are likely to excel.

The combination of early identification by using anthropometrics and then the refinement by using gene testing to predict certain fitness and "trainability" characteristics is the best of both worlds.

As someone who knows absolutely nothing about the new Olympic sport of skeletoning, I can only hope that the smaller countries have some success. Given the mental image of an athlete traveling headfirst down a bobsled course at 120 kph on top of a small metal tray I suspect that we better get the new concussion guidelines out in time.

*Br J Sports Med* 2005;39:1

### REFERENCE

- 1 **Ranikine T**, Perusse L, Rauramaa R, *et al*. The human gene map for performance and health-related fitness phenotypes: The 2001 update. *Medicine and Science in Sports and Exercise* 2002;1219–33.