

## The early management of muscle strains in the elite athlete: best practice in a world with a limited evidence basis

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From 12 to 14 December 2007 UK Sport held a think tank on "muscle strains" in London.

This brought together many of UK Sport's top sports medicine clinicians along with three invited international experts. Many issues of muscle strains were discussed over the three days, but the aspect that attracted the most attention was the early management of strains in the elite athlete. A consensus summary of conclusions on this specific topic from the think tank is presented here.

The international experts were chosen by request of the UK clinicians for different reasons. Drs Best (basic science) and Orchard (epidemiology) are recognised internationally by the peer-review system as experts in their fields. Dr Mueller-Wohlfahrt is also recognised internationally as Europe's premier clinician in the early management of muscle strains. This recognition was initially bestowed on him by his patients, most notably from the thousands of professional football players he has managed over the past 30 years from every country in Europe. Increasingly this recognition has been accorded by the "mainstream" clinicians in the United Kingdom, hence his invitation to the think tank.

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With the reserve typical of both the British and the scientific community, a common assessment of Dr Mueller-Wohlfahrt's methods by delegates was "initially I had to be sceptical, but I have seen and heard of so many good results that I am now curious to know why these good outcomes are occurring".

One session of the think tank involved an assessment of our "expert recommendations" for the early management of muscle strains in the elite athlete and a judgement of the evidence base for making the recommendations. The evidence base part was generally easy: almost all of our so-called knowledge has a basis of level 4 or level 5 quality. Our expert opinions are merely opinions, albeit based on many years of clinician experience but not having withstood the rigours of controlled studies. Although there was some debate regarding the recommendations from the various experts, for a panel of 12-15 there was a surprising number of common beliefs, including that:

- ▶ Early return to activity and sport are sensible goals in the elite athlete, with the speed determined by both the muscle affected and the sport (and position within the sport) of the player.<sup>1</sup>
  - ▶ That there is a differentiation in diagnosis and prognosis between a muscle strain without and with actual fibre damage.<sup>2</sup> The former usually occurs early in a match, whereas the latter would typically result in a visible lesion on imaging, occurs later in a game and leads to a slower time to recovery. Dr Mueller-Wohlfahrt was adamant that this differentiation in the acute stage could be made by palpation of muscle fibre damage.
  - ▶ The role of non-steroidal anti-inflammatory drugs (NSAID; both traditional and COX-2) is not well defined.<sup>3</sup> Whereas practices among the experts varied, there was a clear majority opinion against the automatic prescription of NSAID for all muscle strains, with a view that they may possibly predispose to recurrences as a result of pain masking. This trend against the automatic use of NSAID has probably occurred in the past five years and is supported by a number of basic science studies.<sup>4</sup>
- The most exciting part of the management discussion was consideration of the injection protocols of Dr Mueller-Wohlfahrt. His standard regime consists of the injection of local anaesthetic, followed by Actovegin and Traumeel S on days 0, 2 and 4 after a muscle strain: (1) to the site of the strain itself; (2) in a vertical line along the same muscle and (3) infiltration therapy in the corresponding area of the lumbar spine (both central and paravertebral). This treatment regime has not previously received attention in the English sports medicine literature although publications concerning both compounds have appeared in the international literature.<sup>5-8</sup> Actovegin, a physiological amino acid mixture, is reported to show a considerable acceleration of muscle fibre synthesis in damaged muscle and detoning of the hypertonic muscle bundle.<sup>7</sup> Traumeel S, a homeopathic formulation, is alleged to suppress the release of inflammatory mediators and stimulate the release of anti-inflammatory cytokines.<sup>9</sup> The use of these products for treating muscle injuries is currently considered to be standard practice in sports medicine in Germany.<sup>6,7</sup>
- The level of scientific evidence to support the use of Actovegin and
- ▶ Early ice and compression are anywhere from useful to essential.
  - ▶ Early mobilisation and motion (but not to the point of pain or aggressive stretching or overloading the muscle group in question) are also important, perhaps even within the first 24 h.
  - ▶ Early massage of the affected muscle (peripheral to any lesion) and mobilisation of the lumbar spine are also valuable.
  - ▶ Magnetic resonance imaging scans and ultrasound are somewhat helpful (and perhaps inevitable) investigations in the elite athlete but they should carry less weight than the clinical assessment.