

## Massage - does it matter?

Despite lack of robust evidence for its efficacy manual massage has long been advocated as a useful intervention by sportspeople both for pre-event, post-event and as part of a general all-body maintenance programme. Whilst we do not know just how many sports people are using massage, anecdotally it appears to be extremely popular, with both athletes and therapists believing in its effectiveness. In their review of the provision of massage by physiotherapists at 12 major athletic events Galloway and Watt (1) noted that the time spent providing massage was between 24% and 52% of the total number of treatments made. The fact that it is a time consuming form of intervention has been cited as yet another reason for the importance of research into the efficacy of this kind of treatment (2). If such findings are representative, they suggest that massage may form a concrete not just complementary component to an athlete's support system at least in the mind of the athlete! Not only might massage matter to the athlete, but to the therapists having to provide this form of treatment, to the massage training establishments, and not least to whoever is footing the bill for treatment!

### The benefits of massage

In his 1994 review of the physiological and therapeutic effects of massage Goats (3) reported on studies supporting claims that massage dilated superficial blood vessels, increased the rate of blood flow, decreased blood viscosity, increased lymph flow, reduced post-surgical swelling and pain, improved frozen shoulder, reduced pain in overuse injuries of the knee, reduced muscle spasm, reduced muscle soreness, prevented denervated muscle losing bulk and contractile capability, and improved relaxation thus accelerating physical repair. An impressive list indeed. Whilst some researchers attempt to explain the theoretical processes behind these kinds of changes (2), it is generally acknowledged that there is a lack of sufficient scientific evidence to endorse all of these claims. However, as it was so eloquently expressed at a recent physical therapy conference (albeit with reference to the research into nutritional supplementation), "absence of evidence of efficacy is not the same as evidence of absence of efficacy" (4). Once you get your head around it this could partly explain why so many athletes are using sports massage, just because we haven't found the evidence for its efficacy doesn't mean it's not effective.

Lack of clear massage protocols and varying methodologies are just some of the difficulties inherent to carrying out research into this form of therapy and widely acknowledged by researchers in the field. However, slowly by slowly we are piecing together a clearer understanding of the physiological effects of massage. And the research has tended to focus on physiological parameters, perhaps because you don't have to be Einstein to know that unless you are in the hands (quite literally) of a complete sadist, receiving massage is supposed to feel good and therefore likely to increase your sense of wellbeing. What has mattered for some is whether the claims made by those providing massage can be substantiated; whether massage can help improve performance, speed recovery or assist in the athlete in the recovery from specific injuries. Fortunately for the researchers there have been so many claims made for this form of intervention that one hardly knows where to start.

### What does massage do?

Popular beliefs amongst massage therapists are that massage:

- facilitates the removal of lactic acid and other 'toxins' from the blood
- improves blood flow to tissues
- improves the flow of lymph
- decreases swelling/oedema
- helps to stretch tissues and thus helps lengthen muscles
- increases joint mobility
- 'breaks down' scar tissue and 'adhesions' following injury
- may increase muscle tone
- may help decrease muscle tone
- may reduce the effects of delayed onset muscle soreness
- improves psychological wellbeing

If massage makes you feel good but has no real effect on your physically that might not matter. But if it makes you feel good and has a detrimental effect on you physically, that could matter, certainly if you are an athlete. An accumulation of evidence now suggests that massage does not increase the removal of lactic acid (5,6,7), perhaps at last allowing us to put this particular beast to bed, much like the pre-exercise static stretching routine. The ability of massage to clear us of 'toxins' is a myth long since perpetuated by therapists, perhaps because it sounds good theoretically and given the choice of drinking three glasses of water and peeing a lot, or being pummelled gently on a massage couch for an hour, many of us would choose the latter. So, despite the little devil of evidence-based practice sitting on our shoulder asking annoying questions like, "why would massage be more effective at removing a metabolic bi-product than our own bodies?" we have been easily persuaded that massage matters not only for our sense of wellbeing but is inherently important physically too.

However, the effect of massage on delayed onset muscle soreness (DOMS) is not so clear. Massage may be useful in reducing the athletes' perceptions of DOMS (8, 9, 10, 11). Harrah! Those of us who like to lie down following physical exertion may have our post-10k hamstrings squeezed a bit longer and our quadriceps passively stretched in the legitimate belief that we will recover more quickly and be back on the track on Tuesday instead of Wednesday. Although quite how massage improves an athlete's perceptions of DOMS is unknown: the presence of neutrophils, believed to contribute to DOMS, seem unaltered following massage. Does it matter? Anecdotally, the desire to reduce DOMS may be one reason why sports people are choosing massage. We might not care quite how this works physiologically as long as it does, and as we exhale under the soothing strokes of our therapist we remain comforted by the idea that somewhere a researcher is likely to be hard at work on the matter.

What does matter is when it comes to pre-event massage. Evidence is accumulating to support findings that not only might massage have no effect at enhancing performance (5, 10), it may actually be detrimental, certainly when it comes to findings that it reduces muscle power. As with pre-exercise stretching the use of pre-event massage is used cautiously, if at all, and therapists are suddenly wary of administering strokes that may stretch tissues in all but the most superficial way.

A sense of improved wellbeing is one of the outcomes most sports massage practitioners are likely to be aiming for in addition to achieving more specific goals such as decreasing sensations of muscle stiffness or increasing joint range, etc. Unsurprisingly, massage appears to enhance psychological perceptions of recovery in sport (11) and raises the question "What is recovery?" The means by which physiological parameters are psychologically mediated is not clear but this too is gaining interest amongst researchers into the effect of sports massage on athletic performance.

## **The Five Basic Massage Strokes**

One of the challenges to the scientific study of massage and its effects on the athlete, are the wide variety of applications this modality may take. For example, basic manual massage consists of five well-known strokes: effleurage, petrissage, tapotement, frictions and vibrations. However, each of these may be performed in a variety of ways and their effects will vary according to the strength of the therapist, for example. All sports massage therapists learn these basic techniques prior to further training.

Effleurage is a smooth gliding stroke used to apply and spread the massage medium (such as oil or wax), usually used at the start and end of each treatment and prior to and following deeper work. It is performed in the direction of venous and lymph flow, distal to proximal, with the palms flat against the client's skin. Generally considered to be soothing and calming, therapists advocate its benefits as enhancing relaxation, improving bloodflow, decreasing muscle tone and decreasing swelling. Performed quickly it is believed to increase muscle tone and may theoretically be beneficial during preparation for competition (12), although some studies indicate that massage may decrease muscle power so should be used cautiously in a pre-event setting. Interestingly there has been huge concern in recent years that massage therapists are themselves developing overuse injuries of the upper limbs and speculation that the application of constant pressure (albeit light) with the wrist in extension (as in this stroke) is a contributing factor. The technique is therefore often modified by therapists who use their forearms instead of their palms. Although considered to be a light stroke in Swedish massage, it may be used slowly and with more pressure to compress, flatten and stretch tissues in sports massage.

Pétrissage Deeper than effleurage, the therapist uses both hands to grasp muscle, lift, squeeze and wring it in a rhythmic motion. Theoretically, such mechanical compression of tissues helps improve bloodflow, stretches contracted muscles and adherent fibrous tissue and thus helps normalize muscle tone in healthy individuals. Ironically, overuse of the pétrissage technique may also be contributing to injuries amongst therapists themselves, with constant squeezing and gripping motions aggravating muscles of the common flexor and extensor origins and possibly resulting in medial and lateral epicondylitis. Overuse injuries to the thumb are also not uncommon in therapists.

Tap-otement is stimulatory in nature and represents a variety of percussive techniques aimed at inducing vasodilation, vibrating tissues and triggering cutaneous reflexes. The most gentle form uses rapid tapping using the fingers; more vigorous forms include striking the skin lightly with the ulnar side of the hands (hacking), with the hands cupped (clapping), or with fists (beating).

Frictions are short rubbing-type strokes localized to a particular area of soft tissue. Transverse frictions are commonly used in the treatment of tendons (13). The therapist simply rubs the tendon using the pad of their finger, often reinforced by another finger. The aim is to deliberately cause localized mild inflammation. Such techniques are commonly used in the treatment of medial and lateral epicondylitis (14) where they induce mild local analgesia and could theoretically stimulate the healing process.

Vibrations and shaking Therapists use trembling hands firmly against the skin in an attempt to vibrate and relax tissues. Gentle shaking is commonly used in the treatment of the limbs where it is believed to lower muscle tone and facilitate fluid drainage, especially when the limb is slightly elevated.

### **The problem with protocols**

Effleurage and pétrissage are the techniques commonly used in research but the protocols for their use are rarely stipulated. More recent studies (6) are getting better at clearly setting out the massage protocol. In research circles such attention to detail matters but one sympathizes with those to whom the task falls. Ask anyone who has ever tried to write a cookbook what it's like detailing a simple recipe and no doubt they'll raise their eyebrows. Do you whisk the milk and then add the flour? Or add the flour and then whisk? Does it matter if you whisk whilst adding the flour at the same time? For how long do you whisk, a few minutes or until the flour is dispersed? What if the flour is not dispersed after a few minutes? Have you added too much flour, or whisked too little? It is hardly surprising that research findings vary, when one training reference alone (15) gives nine examples of how to apply just one of these five main techniques, frictions.

The use of massage in the treatment of specific sports injuries is intriguing but frustratingly varied. An interesting case of the use of soft tissue mobilizations (often used by sports massage therapists) as part of the treatment for iliotibial band friction syndrome demonstrates that physical therapy techniques, like those of sports massage, are often combined with other treatment modalities (16). Aware that the problem of overuse injuries in therapists exists, some training providers are now incorporating what might be viewed by purists as bastardised massage techniques, encouraging more 'hands-free' treatment than ever before. With researchers needing qualified and experienced therapists to perform their massage protocols, and qualified and experienced therapists wanting to protect their own limbs from overuse, one wonders how research into this manual therapy will progress when it is almost impossible to standardize treatments.

### **Sports massage techniques**

So what are sports people receiving when they go for a sports massage treatment? Sports massage may or may not include the five basic massage strokes combined with more advanced techniques that may be used to address specific problems such as muscle cramp, excessively tight muscles, joint stiffness or excessive scar tissue. There the description ends, for how the techniques are applied is likely to vary, the medium of massage (i.e. oil, wax, balm, cream may vary), the pressure used will vary, and so too will the barrage of other possible techniques commonly included in sports massage treatments.

Sports massage therapists frequently employ specialized techniques such as Soft Tissue Release (STR),

Muscle Energy Technique (MET) or Proprioceptive Neuromuscular Facilitation (PNF) (also called facilitated stretching), various forms of stretching that employ contract-relax type methods (MET and PNF) or which localize a stretch to a specific area of soft tissue (STR). These are specific treatments in themselves used in isolation or combined with other techniques and whole books have been written about them (17).

The use of trigger point therapy is widely used by sports massage practitioners. Its popularity may lie in the fact that it enables the therapist to facilitate a reduction in muscle tone and tension without the need for so much potentially (to the therapist) damaging effleurage and petrissage for therapists have become skilled at applying static pressure to trigger points using their elbows and specially designed massage tools. Massage tools have been around for a long time and are more commonly used by sports massage practitioners than therapists offering Swedish/holistic massage treatments.

## **Sports massage therapists**

It is therefore difficult to specify precisely what sports massage entails. Like cooking, where three chefs may start with the same basic ingredients and create different dishes, sports masseurs learn basic massage techniques and add to these their own special blend of skills. Some are fitness instructors who can assist in overall exercise rehabilitation, others are physiotherapists with a keen interest in sport. Many therapists may be physically active themselves and have a particular interest in a certain type of sport and a good understanding of the injuries associated with this. Deep tissue massage is often thought to be inherent to sports massage and a small population of sports massage practitioners believe in the no-pain-no-gain approach, with 'stripping' of muscle fibres being a particularly popular technique. If you happen to have been on the receiving end of such treatment and found it less than appealing you may be comforted to know that there is growing interest amongst therapists in how to treat fascia, with myofascial 'release' courses offering specialist training in this area where subtle, less invasive movement of tissues is advocated. This may not appeal to those clients who desire their DOMS to feel positively heightened before they'll believe a sports massage has been effective, but is more than welcomed by those of us who like to be allowed to breathe during treatment.

Use of fascial 'rollers' and deep stripping techniques, thought necessarily painful by some athletes and therapists alike, would horrify others. As is the case with physiotherapy, surgery, fitness instruction, and pretty much every other 'profession', you care to mention, we all follow the basic principles of our trade but have preferences based on training, skills, opinions and of course our experiences. In the way that a doctor dealing with children is likely to have a somewhat different bedside manner to a doctor working with the elderly, sports masseurs have equally varied clients and develop their own unique treatment approaches. A therapist known to provide painful, 'deep tissue' massage in a slightly brusque manner is likely to attract clients who prefer painful, deep tissue massage delivered similarly. Sports massage therapists working more intuitively are going to attract clients who themselves prefer a less structural-mechanical, more 'energy' based approach. Like the stereotypical woman who cannot have her hair cut by anyone other than her regular hairdresser and may follow that stylist from salon to salon, ask a sport person used to having regular massage to change their therapist and see what the response is. We like what we know and we know what we like.

Does it matter that there is huge variation in the type of treatment delivered by sports massage therapists? There is currently ongoing speculation within the UK as to whether sports massage as a profession will be self or state regulated. Regulation of any kind is likely to encourage or even demand conformity. There is disagreement as to what the specific role of the sports massage therapist should be. Should a sports massage therapist work independently or alongside other professionals such as physiotherapists? Should they be skilled at applying strapping and taping techniques, for example? What soft tissue techniques should be incorporated into the treatment in addition to the five basic massage strokes? To what extent should a therapist facilitate the recovery from injury with sports massage interventions? There is as yet no standardization in the training of sports massage practitioners and what should and should not be included in the content of sports massage training programmes remains highly controversial. Until the industry is regulated there is likely to remain huge diversity within this population group and it remains difficult to give a clear description of what to expect from a sports massage treatment. All we can say with some degree of confidence is that most therapists are altruistic in nature with the desire to do good for their clients and

would be unlikely to remain in work if they didn't meet the expectations of their clients at least in part.

In a world bent on evidence-based practice it is reasonable to expect the quest for quantitative data will nevertheless continue. Given the variety of techniques employed it seems plausible to suggest that hard facts are likely to be a long time coming. But there is a large body of evidence yet to be tapped into, the beliefs and experiences of all of those sports people currently using massage; the experiences of all of those therapists. What of their evidence? It is perhaps because the therapists themselves are not trained researchers and have unwittingly perpetuated certain myths as to the efficacy of their treatments, that anecdotal claims are sometimes consigned to the realm of pseudo-science. What a shame. Here is a field of qualitative research bursting with opportunities to add to our understanding of the effects of sports massage. Not many seem willing to venture into that particular pasture. Surely that matters?

Jane Johnson MCSP, MSc, BSc, BA (Hons)

