

Are we up-to-date with current thinking on warm-ups?

Everyone has a view on warm-ups. Some think they are invaluable; some think they are a waste of time. A quick internet search throws up the following:

In *Men's Health* 2005 we read that "Stretching before workouts may weaken muscles, and impair athletic performance". *Play Magazine* 2008 seems to agree: "They are stretching It's discouraging". Even the University of Nevada maintains that "Athletes generate less force from their leg muscles after static stretching than they did after not stretching at all", while *The New York Times* reports "All athletes have injuries whether they do warm-up or not!" Health and Family reports "Why stretching may not help before exercise – University of Zagreb reviewed 104 studies of people who practised stretching as part of their warm-up; ... on average 5.5% loss in muscle strength. For fit weight-lifters (male) who did stretching in their warm-up, ... lifted 8.3% less weight than those who didn't stretch". The evidence piles up as an Australian Study found that "Stretching during warm-up had no statistically significant effect on the risk of injury either for soft tissue problems or bony disorders." Can we take encouragement from the *Russian Ballet School Magazine*, which reports that ballet dancers "always do warm-ups, yet 80% of professional dancers have serious injuries during their career."

On the other side, the United States Tennis Association found that "The players were the early adopters of a new approach to stretching." *The New York Times* in 2004 reported that "Golfers are notoriously nonchalant about warming up – a study of 304 found two thirds improved their performance if they did dynamic stretching".

What does all this mean for Scottish Dancers?

It would appear there is quite a lot of evidence to suggest that static stretching is not suitable for warm-ups. The most extensive study is one done over 44 years which has been reported in the *Scandinavian Journal of Medicine and Science in Sports*. This states the outcome of warm-ups with static stretching before exercise does nothing to improve the preparation for physical activity. The reasons given are that it weakens the muscle strength, because the muscles become less responsive, and, in their study there was no evidence that stretching prevents injury. It is obvious that any movement involving muscular activity requires a source of energy and when the body is calm and inactive, the pulse rate is low and the circulation of the blood slower than normal. Sudden stretching can then make greater demands which might affect the muscle's action or create other areas of the body becoming deficient in energy. The accumulation of waste products in the muscle area while stretching will take more time to be removed by a slow circulation of the blood and hence leave the stretched muscles tired. Exerting tired muscles can cause injury.

There seems to be a simple solution: start a session of SCD with something to increase the blood circulation so that those parts of the body to be exercised will work most efficiently. In the old days when we never bothered about warm-ups most dancers walked to class and that was the activity needed to increase their blood circulation. Today it can be done by starting with a walking dance. Ideally, start with a slow walking tempo and increase it, so as to make the heart rate increase.

Static stretching is defined as stretching part of the body and holding the muscles stretched for a period of time. This is the dangerous part if the pulse rate is low and is best avoided during warm-up sessions. Movements that involve continuous movement of body parts into different positions is regarded as dynamic stretching and once the body is warmed-up that can help in a number of ways:

- it mimics the movements to be used during physical activity
- it flexes the muscles increasing flexibility, and provides a wider range of motion
- it prepares the body for more strenuous weight bearing and weight transfer
- it prepares the muscles for quicker contractions of the muscles
- it can assist in balance control, breathing and posture

It may also encourage mental alertness and concentration, all of which are important to dancing. Whatever is done in preparation for the class, it should not take an excessive time and detract from the pleasure of the dancing.

So, holding pliés, holding leg stretches, holding movements on the toes, points etc. should be avoided in the warm-up. Careful consideration should also be given to the movements required by different types of joints.

The knee and elbow are hinge joints and should not be used in any circular movement. The neck is a series of complex joints which normally are used for nodding and turning side to side. To combine these movements into circular movements can be very dangerous particularly with older people.

In conclusion, once the body is warmed up, then the exercises should be used to enhance the movements the body will use in the activity to follow. There may well be a place for static stretching during cool down, but then the movements used should be slow, and combined with relaxation and controlled breathing.

Peter Clark
November 2013