



Racewalking advice Bulletin board

By Mark A Donahoo

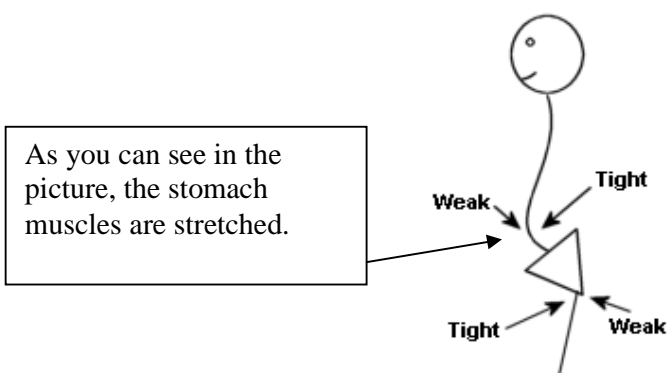
Lower back pain, stomach and diaphragm soreness 3

The previous papers looked at the injury problems of the lower back, hip and stomach caused by the psoas muscle. In this paper, I will look at why we get soreness in the stomach region and the diaphragm area; and what we can do about it.

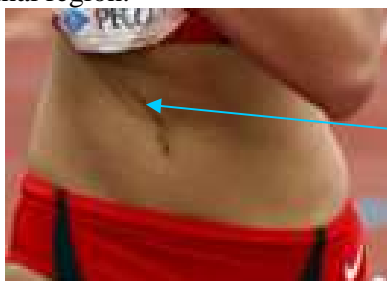
What will cause the soreness in the stomach region?

Poor posture, as stated in the previous papers is a major problem for racewalkers, as it can lead to many problems including stomach soreness. Why is this so?

With poor posture, the back will arch causing a lordosis of the back but it will also stretch the stomach muscles, as shown in the following picture. The lordosis is usually caused by weak stomach muscles and/or a contracted psoas muscle on one or both sides of the body. This was covered in the first paper.



If the stomach muscles are stretched because of the lordosis, then the athlete who is trying to racewalk using the hips correctly, that is twisting them from back to front, will be stretching the stomach muscles even further. The following picture shows the twist in the stomach muscles of a racewalker. This will create pain in the abdominal region.



Twisted
stomach
muscles

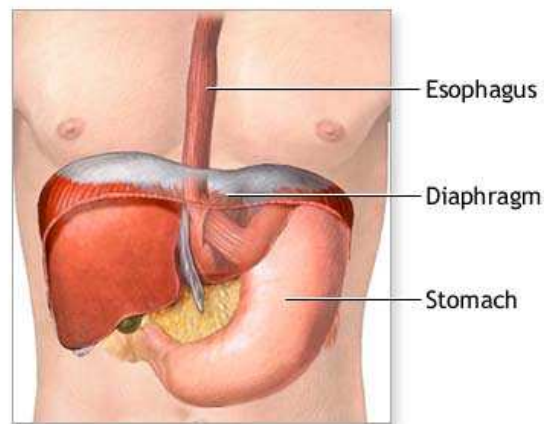
So what can be done for the overstretched stomach muscles?

There are two things that need to be done.

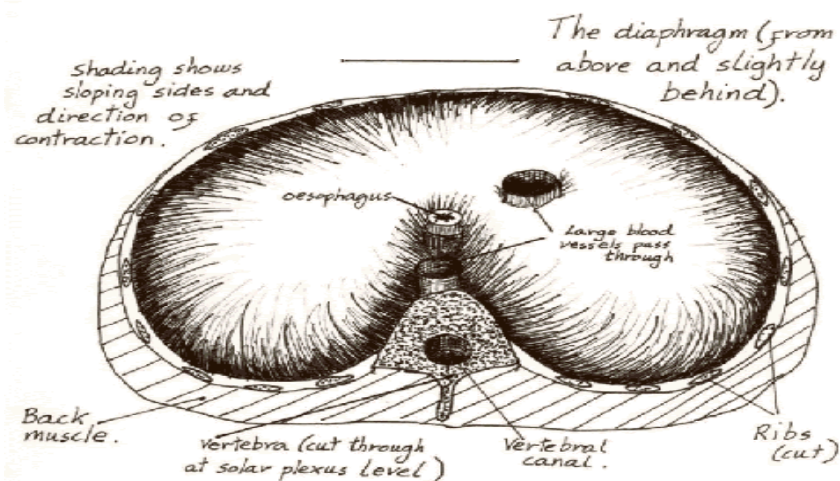
- ❖ The first is to have the psoas muscle released so it stops the lordosis from getting worse. A masseur or osteopath can do this; some physiotherapists are able to do this as well. This was covered in the first paper.
- ❖ The second thing to do is to strengthen the abdominal muscles and the gluteals so the athlete can hold their posture upright, not allowing the muscles to be stretched in the first place. These exercises are described in the second paper.

What about soreness that is within the diaphragm region?

The diaphragm is an important muscle as it is part of the mechanism that allows us to breathe. If the muscle does not work efficiently then we do not get a full breath, which may leave us short of breath or in oxygen debt. So why will the diaphragm get sore?



If we look at the anatomy of the diaphragm, we see that it joins the back at the area of the T12 vertebrae, which is the same place the psoas muscle attaches to the back. The right portion has the liver resting underneath it and the right lung above it. The left side supports the base of the left lung, and covers the great end of the stomach, the spleen and left kidney. The centre portion, which supports the heart, is higher near the sternum.



During inspiration, the chest cavity increases and the diaphragm is drawn downwards. The chest encroaches upon the abdominal region, pushing the organs downwards. During expiration, the diaphragm is passive and relaxes causing it to be drawn up towards the lungs and heart.

There are some openings within the diaphragm; the three large openings are for the aorta artery, oesophagus and the vena cava vein.

What will cause the soreness in the diaphragm?

When the psoas is tight or cramping, it will pull on the diaphragm as they both attach to the T12 vertebrae, this will inhibit the diaphragm's full downward movement during inspiration. This can then lead to the feeling that the athlete can't breathe properly or it may place the athlete into oxygen debt.

However, some athletes feel soreness in the diaphragm region. The soreness will usually form around the weakest parts of the diaphragm, which is where the aorta artery, oesophagus and the vena cava vein pass through. This is due to the pulling of the abdominal muscles on the diaphragm region or the pulling on the diaphragm from the back. As with all muscles, the sorest part is usually at the weakest part of the muscle.

What can be done?

I would suggest attempting some of the following methods or exercises to treatment the above ailments.

- ❖ Have a masseur, osteopath or physiotherapist massage the sore spots in the diaphragm and muscles around the abdominal region. This may be painful but once the diaphragm muscle has been released the soreness should decrease or stop.
- ❖ There is a good chance that the psoas muscle is still contracted, so the psoas muscle will need to be released. When the pulling of the muscles is this severe, it is unlikely the athlete will be able to stretch the psoas muscle himself or herself, instead they should see a masseur, osteopath or physiotherapist.
- ❖ The back muscles may need to be freed up as well. (*The above treatments may need to be done more than once until all the muscles creating the pulling have been released and no longer causing pain.*)
- ❖ Exercises should be done to strengthen the abdominals so the posture can be held straight. See the second paper for some of these.

References:

Gray. H, Gray's Anatomy. Magpie Books, London. 1994

Pictures obtained from:

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