

Information about stitch

What have 70% of regular runners suffered from within the past year? Blisters... no, shin splints... no. Well I'll put you out of your misery - stitches. Stitches are a pain in the... well you know what I mean, and they are not confined to the running fraternity; in fact, just about anyone taking part in a sporting activity, be it swimming, team sports, aerobics or even just running for an occasional bus will have experienced a stitch at some point. There are many theories and quite a few old wives' tales about stitches, but now a couple of exercise physiologists based in New South Wales, Australia, have put together a list of the top 10 facts and fallacies.

- 1) Stitch occurs in both fit and unfit people, and research suggests it is are unrelated to training frequency, training volume or performance level.
- 2) Stitch is most prevalent among younger athletes, but older athletes can still suffer from the problem.
- 3) Yes you can get a stitch in the shoulder! It appears that when the diaphragm and neighbouring tissues become irritated they can refer pain to the tip of the shoulder.
- 4) Studies have shown that you are more likely to suffer from stitch if you eat before a run. Drinking before a run can also be a contributing factor, but less so than eating a meal. Obviously you need to eat and drink before exercise to ensure an adequate energy supply, but research and anecdotal evidence suggests you should avoid the following: carbonated drinks and those with a high concentration of sugar and salt; fatty foods; apples, bananas and chocolate.
- 5) The risk of stitch may be increased by exercising at high intensity, failing to warm up and working out in cold conditions. Best not go for a really hard run on a cold day without warming up then!
- 6) The theory that stitch is caused by lack of blood flow to the diaphragm doesn't hold up for three main reasons: it does not account for why pain occurs low in the abdomen; it does not explain why stitches occur during activities that do not seem to require high levels of respiratory activity (eg horse riding); it is not consistent with the evidence that neither lung function nor breathing is affected by a stitch.
- 7) One of the most widely-accepted theories that stitches are caused by stress on the ligaments that attach the abdominal organs to the diaphragm during jolting activities like running may also be false. If it were true, why would swimmers - whose sport is relatively free from jolting movements - experience stitches?
- 8) The tissue that may be responsible for the pain is the parietal peritoneum, which envelops the abdominal cavity, separating the abdominal organs from the stomach muscles. This piece of tissue is sensitive to movement when irritated, which would explain why rest quickly relieves the pain. Additionally, part of the parietal peritoneum extends up and under the diaphragm, giving rise to the referred shoulder pain when irritated. What could cause this tissue to become irritated? One obvious answer is that if you fill your stomach with food and drink it's going to get bigger, causing it to push against - and so irritate - the parietal peritoneum.

- 9) Some breathing techniques may help to alleviate the problem. These include: taking deep breaths; grunting as you exhale; holding your breath; breathing by bloating your abdomen in and out (belly breathing).
- 10) Most sufferers experience stitch in the same place each time, and the pain is commonly described as sharp or stabbing when severe, and cramping, aching or pulling when less severe.

Stitch Stopper:

- While running, contract your stomach muscles, lean a little forward, and push your hand against the site of the pain. Also, as you breathe out, don't release all the air from your lungs and resist the expiration of air with pursed lips.

To decrease the risk of getting a "stitch":

- Exercise on a relatively empty stomach. That means waiting two or three hours before exercising after a meal.
- Avoid consuming a lot of fluids at one time. To stay hydrated drink, take small amounts of fluid, preferably a sports drink or water, at intervals before and during the run.
- Strengthen your stomach muscles.
- Finally, follow a progressive training schedule that incrementally increases the exercise intensity and duration. Start easy and build slowly.

What to do about it

Fortunately, there are sensible steps to take both to prevent stitches from happening and to get rid of them once they occur. If a stitch grips you during activity, one quick remedy is simply to change your breathing pattern. In athletes whose sports involve running, breathing and stitches are linked together because breathing and stepping patterns are coordinated. Specifically, most athletes breathe out - over and over again - on the same leg. An individual athlete might always exhale only when his/her right foot is on the ground.

Let's look at a specific example of this. In endurance runners, one of the most popular striding-cycle (a breathing cycle consists of an inhalation and an exhalation). To calculate strides, you count only when the left or right foot hits the ground, not both. So, a 2:1 striding-breathing linkage would mean that a runner might exhale when his right foot hits the ground and inhale the next time the right foot strikes terra firma (that's two strides and one breathing cycle). This pattern will be repeated over and over again, so the runner will exhale only when the right foot strikes the ground.

That can lead to problems, because the diaphragm springs upward when we breathe out, increasing the tension on those flimsy ligaments we mentioned earlier, the ones holding the liver, stomach, and spleen like fishes on lines.

If we always breathe out when our right foot hits the ground, that means the jolting action of the foot will quickly lift the liver upward, but the massive organ will then fall back suddenly while the diaphragm is in its up position. That creates an immense pressure on the diaphragm, which can then go into the kind of painful spasm which makes you wonder why the athlete next to you has slipped a carving knife into your side.

Fortunately, this breathing-striding-stitching linkage permits the formulation of a solid rule of exercise, a dictate which can rescue a race or workout from imminent disaster. Here's the rule: When a stitch strikes, change your breathing pattern so that the leg on the opposite side of the body from the stitch is the one that hits the ground whenever you breathe out.

Implementation of this simple rule can frequently relieve the intense pain of stitching almost immediately. Strangely enough, loud grunting as you breathe out can also be helpful, possibly because the strenuous protestations force the diaphragm to move out of its hyper-tight position.

Four ways to prevent stitching

To keep stitches from striking in the first place, use the following four techniques:

(1) Unkink and strengthen your diaphragm. As you make your diaphragm stronger and more flexible, you'll reduce your risk of stitching, since the diaphragm will be better able to both support and move with the liver's violent tuggings. To learn how to belly breathe, lie on your back on the floor and place a set of heavy books on your stomach. Breathe so that the books rise significantly as you breathe in and move downward as you breathe out. Repeat this belly-out, belly-in action when you are standing (without the heavy books, of course). Concentrate on repeating a similar abdominal action whenever you run during your sporting activity.

(2) Strengthen your abdominal muscles. It's not exactly clear why this helps, but athletes with strong abdominal muscles seem to have a much lower risk of stitching. Perhaps increased abdominal-muscle tone helps to support internal organs and keeps them from jostling up and down quite as much. To strengthen your stomach muscles, lie down on your back with your hips and knees flexed and the soles of your feet on the floor, and then simply raise your head and upper chest repeatedly by about 30 degrees or more. Don't just flop back down after each raise; lower yourself gradually so that you will get nice, controlled, eccentric contractions of your abdominal muscles.

(3) If you are stitch-prone, don't take in any food or water for a couple of hours before you exercise. Eating or drinking shortly before exercising does increase the chances of stitch, possibly because the increased weight of a full stomach creates a stronger downward tug on the diaphragm as the stomach is jolted with each footstrike (cyclists usually don't have to worry about this rule - unless they are riding on a bumpy road; uneven roads often give their internal organs enough jostling to increase the chances of stitching). Note, though, that if you are going to be exercising continuously for more than an hour, you will want to take in some sports drink 10 minutes before the beginning of your exertion (to begin moving carbohydrate toward your muscles). In this case, you'll have to rely on tips 1, 2, and 4 to keep you out of stitch trouble.

(4) Relax! Stitches occur much more frequently in tense athletes. Before a competition or strenuous workout, spend some time taking deep breaths, and make sure your stomach is moving out expansively as you breathe in. Continue to breathe deeply until your diaphragm feels loose and free. Visualise yourself exercising with non-tightened abdominal muscles and relaxed but forceful breathing. As your competition begins, monitor your abdominal area for tightness and concentrate on maintaining good belly breathing.

Other things to consider

There are many other factors which increase the risk of stitching. Fast running is more likely to start a stitch than slow, because fast running features higher ground-reaction forces and more dramatic and quicker movements of the diaphragm. Running on rough, hard ground also raises the risk of stitch, compared with pacing along on even, softer surfaces.

Being out of condition can dramatically hike your risk of stitching, as can starting out too fast in a competition. For some reason, stitches occur more frequently on cool days than during warm weather. Stitches are also very likely to show up when you are running downhill; downhill running increases the jolting forces inside the abdominal cavity and also pushes your internal organs forward, forcing the caecum into contact with the abdominal wall. For these reasons, it's important to exhale only when your left foot hits the ground whenever you run downhill.

Stitches can be prevented by following the simple rules outlined above. If a stitch does happen to strike you suddenly, change your exhalation foot immediately. If this doesn't help, lie down on your back with your hips and legs elevated. Since stitches generally strike on the right side of the abdomen, learning to become a left-footed exhaler can go a long way toward eliminating the problem (if, however, you have a history of left-sided stitches, try to work on breathing out during right footstrikes). Avoidance of chest-only breathing and an overly tight diaphragm is also extremely important; your diaphragm should feel like a large flap of rubber, and your stomach should move outward like a balloon when you inhale. If you strengthen and relax your diaphragm, breathe properly, fortify your abdominal muscles, warm up thoroughly prior to workouts and competitions, and refrain from dining and drinking more than you can handle before you exercise, it's very unlikely that stitches will limit your training or performances.