



Back Pain in Swimmers

Swimming is often used as a way of keeping active when recovering from an injury, because the water takes the strain of supporting your body. However, that's not to say that this low impact sport cannot be the cause of injuries itself.

Lower back pain occurs when the back has been hyper-extended or stretched for long periods of swimming, to maintain a streamlined position. The repetitive nature of the strokes, high head position and the strain caused by the force required for the kicking motion, can result in a number of problems. Poor technique and lack of strength can cause injury, especially with breaststroke and butterfly when the back is over-extended (arched) when coming up for a breath.

WHAT HAPPENS IN YOUR BACK?

Your lower back is made up of large vertebral bones and joints, designed to withstand the forces of gravity and impact when walking or jumping or simply being upright. Strong ligaments and muscles support these joints and allow for movement. Between the vertebrae are discs, spongy shock-absorbers in your back, that can be damaged if incorrectly forced.

Large superficial muscles run along the length of your spine, your gluteus muscles around your buttocks work to extend or straighten your back and you also have smaller deep muscles called stabilising muscles. These wrap around your lower back and work with your deep stomach muscles forming your core. These provide a crucial support system for your back, ensuring good alignment and posture, and thereby reducing strain on joints and nerves.

Your lower back is a key area connecting the power house of your upper

trunk and shoulders in swimming, with the forceful kick from your legs. Your lower back will transmit forces and energy along your body and is therefore critical to swimming success. Any pain or injury will affect this flow and inhibit good technique. Equally poor swimming technique may cause an injury and subsequent pain inhibition.

Injury can include muscle strain, or ligament strain in the lower back or even the sacroiliac joint (where your back and pelvis meet). Studies have shown disc degeneration is common in swimmers, and found it more often in swimmers training with higher loads (greater number of years swimming, or greater number of hours per week). This can place you at increased risk of back injury and chronic pain, which means early treatment or better yet prevention is key.

WHAT MIGHT YOU FEEL?

- Back pain may be a very broad non-specific dull ache across your back
- Or pain can be sharp and localised to a specific vertebral joint or spinal level
- Certain movements may be painful or limited (eg. unable to tie your shoes, pain and difficulty leaning backwards or turning to one side)
- Pain may refer into your buttocks, hip and groin as well as down the leg
- Numbness, pins and needles, sharp shooting pains, even a burning sensation down the back of the legs

A physical therapist will be able to examine you and determine the underlying problem, as well as ensure the pain is not coming from elsewhere – at times hip and groin injuries can refer pain into the buttock or back and disguise itself as back pain.

THE CAUSES AND HOW TO SOLVE THEM

1. Posture

When you are not in the pool, what are you doing the majority of the time? For most of us it involves sitting – at work or school, in front of the TV, on digital devices or public transport. All of this combines to create a poor posture. Most often people have lost their natural curve of the lower back and have a flattened or flexed forward back, with hunched, rounded shoulders.

Correcting your posture with exercises from a physical therapist is key to restoring good alignment in your back and offloading strain on your ligaments and discs.

With prolonged sitting postures, people often develop shortened, tight hip flexors (front of your hip joint) and weak gluteus (buttock) muscles. The power for kicking should originate from your hips, buttocks and core, and not from your thighs by bending and straightening your knees. If your gluteus muscles are weak and unable to maintain extended legs whilst kicking, surrounding back muscles will be recruited, possibly straining these muscles and causing pain.

2. Swimming Technique

- Lower back pain in swimmers is often caused by repetitive stress, particularly if you fail to roll your body as a whole unit while swimming freestyle and backstroke. This failure to roll correctly, creates torsional (twisting) strain at the point where the lower back meets your pelvis. Poor body roll may mean that you arch your back to clear your head from the water, leading to stress on the joints at the back of your spine.
- A strong core is essential to maintain

a streamlined body position during all strokes but especially freestyle and backstroke. A weak core may result in overloading of the joints and strain to the ligaments.

- A high head position while swimming freestyle, causes your hips and legs to sink. You may be kicking hard to keep your legs afloat or overarch your back to 'lift' your legs, causing excessive strain. Keeping a neutral spine, by not looking forward but rather down to the bottom of the pool, will level out your body position and spine in the water.
- A lack of upper body strength and power or drive from the legs during butterfly can result in poor technique. If you are unable to thrust yourself sufficiently over the water in order to take a breath, you will lift (essentially over-extend) your back to raise your head from the water. This can compress joints and ligaments as well as discs, not to mention strain muscles. A good body-undulating action with a strong kick, should provide you with adequate momentum to breathe without injuring your back. The use of fins or flippers may facilitate this initially.
- Breaststroke has potentially the same problem as butterfly. A good fluid rhythm between the kick and pull should allow for breathing without having to actively contract your back muscles to lift you out the water. Extending your back repeatedly will result in injury. Strong upper body pull should elevate you adequately to breathe.
- Poor body position and a weak kick in backstroke will result in an over-arching of your lower back as your legs sink. This can compress and strain discs and joints. A good kick and strong abdominals which maintain body alignment will help prevent injury.

3. Swimming Equipment and Training

As with most sports slow progression is key to preventing injury. If you are unfit and ill-prepared, poor stroke technique and muscle fatigue will result in injury. Your lower back can be susceptible to injury due to strains or loads from your daily activities,

prior to arriving at the pool. Warm-up is critical and mixing your strokes may help prevent overloading of the lower back.

If you have back pain or wish to prevent it, avoid using a kick board for extended periods. Although having a strong kick is crucial to avoid back injury, time spent holding onto a kickboard with your back arched and fixed with no undulation or rotational movement can result in compression and strain to the joints. Try kicking sets without the use of a board, incorporating the natural undulating or rotational movement of your body as you would when swimming the stroke.

Training should include 'dry-land' workouts. That is specific exercises to strengthen your core and abdominal muscles to support your back. As well as exercises like squats and lunges to strengthen your buttocks. Back stretches and stretches for the hip flexors are important in posture correction and pain management.

TREATMENT OF BACK PAIN

Physical therapy is invaluable in managing lower back pain. Not only can your clinician prescribe the specific exercises and stretches mentioned above, they can help correct your posture

and advise on your daily ergonomics. All of these could be contributing, even if they're not the causative factor for your back pain. Swimming may not be the culprit!

Physical therapy will also help in pain management and mobility including techniques like:

- Massage and soft tissue mobilisation
- Myofascial release, trigger point therapy
- Dry needling
- Joint mobilisation and manipulation
- Strapping or taping
- Ice or heat therapy

Doing exercises to facilitate a successful and speedy return to swimming is essential, but even if you don't have an injury, you can do things now, like strengthening, stroke correction and consulting a physical therapist for advice, to save you weeks of potential pain, reduced training and missed races in the future.



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