

Neck Pain and Swimming

Your neck is very mobile and is comprised of many small joints held together by ligaments and supporting muscles. It has to allow movement but also withstand the weight of your head, which is surprisingly heavy (4.5-5kg).

In the pool, the weight of your head is significantly reduced by the support of the water, however you still need to breathe which requires your neck to move. In addition, many of the muscles around your neck work together with the shoulder muscles during the swimming stroke, and can therefore become tired or strained resulting in pain. Incorrect swimming technique can lead to strain and injury of your neck.

WHAT HAPPENS IN YOUR NECK?

Your cervical vertebrae (neck bones) stack on top of each other and are held together by ligaments, and separated by spongy discs which act as small shock absorbers. The top vertebrae make a joint with the base of your skull. The bones essentially pivot on each other like links in a chain. If one link (cervical joint) becomes stuck it not only creates pain, and limits movement but can strain the joints above and below it. Repeated turning to one side or excessive extension (lifting the head) can strain the joints, and the ligaments can become inflamed, as well as pinch the nerves leaving the neck.

In addition, muscles around the neck need to be balanced in strength and tension (muscle spasm) to support the joints and allow smooth easy movement. If one muscle is too strong (overworked) or another weak, fluid motion will be compromised, and strain of the neck joints can result. Muscles that are in spasm (which is often because they are weak) can cause pain and develop trigger points.

WHAT DO YOU FEEL?

- Constant dull ache across the neck or on one side of the neck
- Sharp piercing or poking pain with specific movement
- Restricted movement with pain, unable to look over your shoulder for example
- Headaches
- Neck problems frequently refer pain to the shoulder, even down to the hands. It can include numbness, pins and needles, a sense of weakness in the arm or hand
- Likewise a shoulder injury can refer pain up to the neck.

An experienced physical therapist should always check your neck if you have shoulder pain, as the source of the problem may be coming from the cervical spine. And vice-versa if you have neck pain, consider that it could be originating from the shoulder complex too.

THE CAUSES AND HOW TO SOLVE THEM

1. Posture

What are you doing when you're not training? Are you sitting in front of a computer with poor, round-shouldered posture and your chin jutting forward, or spending time on mobile/digital devices? Most of us have some element of poor posture due to our lifestyles. The curved forward upper back, round shoulders and chin poke, not only add to shoulder problems in swimmers but neck pain too. Poor posture is the biggest culprit of short tight trapezius and pectoral muscles and weak anterior (front) neck and upper back muscles. These muscles can be painful and develop trigger points which are hyperactive spots in the muscle, commonly referring pain and causing headaches. Tight muscles may also limit your neck movements. Good posture ensures good alignment of the joints and ligaments which allows for optimal contraction of your muscles, and off-loads underlying structures.

A physical therapist can prescribe exercises to correct your posture. Strengthening the deep neck flexors in the front of your neck as well as encouraging thoracic extension and retraction (pulling back) of your scapular (shoulder blades).

2. Stress, Anxiety, Tension

Neck pain is commonly associated with stress, anxiety and tension, and it may not be the swimming that's causing it. In fact, swimming may be one of the best things you can do to reduce stress and cope with anxiety. Stress can manifest itself in muscle spasm commonly in the upper neck and trapezius muscles. These can affect your neck joints from moving fluidly or they can create pain themselves. So, it's worth considering what other sources of tension may exist in your life and see if those can be addressed too.

Physical therapy, dry needling and/or regular massage to stretch and release the spasm in these muscles, will be beneficial in managing your neck pain.

3. Swimming Technique

- **Good body roll.** You should only have to rotate your head a small amount to clear your mouth from the water when

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you breathe during freestyle. Insufficient body roll forces you to over-rotate your neck, which stresses the ligaments, joints and muscles. This can cause neck pain, headache and referred nerve pain in your arm. The problem is compounded by unilateral breathing (only breathing to one side), which can lead to muscle imbalances in your neck.

You can prevent these problems by perfecting your body roll and learning to breathe bilaterally (on both sides alternately or try breathing on every third stroke). When breathing to the side, keep your head flat on the water, don't lift it when you rotate. Essentially keep your bottom ear on your outstretched arm. In so doing you'll reduce the strain of pinching structures on the side to which you are turning.

- When swimming freestyle, you should keep your head in line with the spine and your eyes should be looking straight down. Looking too far forward places your neck into extension and impinges the structures on the back of your neck.
- While swimming breaststroke or butterfly, keep your head aligned with the spine at all times. When you breathe in, look slightly down and forward so that the head stays in a neutral position. Having to avoid extending the neck backwards to breathe during butterfly, requires a combination of a strong pull through and a powerful kick to lift you high enough out the water to breath without over-extending your neck.
- Backstroke can place a lot of strain on the front of your neck. Anterior neck muscles have to work hard to hold your head up and these traditionally are the weak muscles we ignore with our forward poking chin posture. Increase backstroke training gradually so that the anterior neck muscles have time to adapt. Specific exercises can be done to strengthen the deep neck flexors. The stronger they are, the less likely they are to cause pain.

4. Swimming Equipment and Training

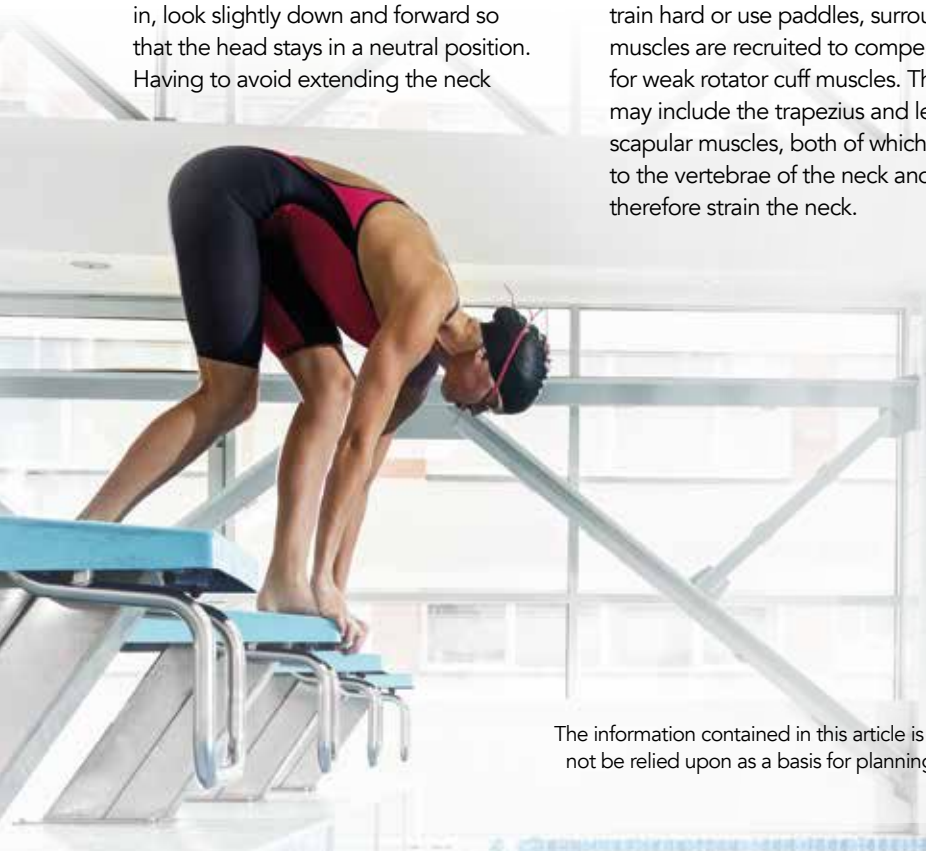
- Training excessively with a kickboard may also cause neck pain, because it encourages you to hyperextend your neck (looking up). If you find your neck becomes stiff or painful after kicking, reduce the use of a kickboard and train your legs by kicking with your arms by your side.
- Hand paddles don't traditionally strain your neck. However, if your shoulders are weak or painful and you continue to train hard or use paddles, surrounding muscles are recruited to compensate for weak rotator cuff muscles. This may include the trapezius and levator scapular muscles, both of which attach to the vertebrae of the neck and can therefore strain the neck.
- Fitness levels and shoulder muscle strength may affect your neck. If your rotator cuff and scapular stabilising muscles are weak, or fatigue quickly, they will recruit surrounding neck muscles to help the swim stroke. Likewise, as you start to tire during the training session, technique generally becomes sloppy. Once this happens you risk straining your neck and causing pain. Stop before this happens. Plan your sessions and build up your training level and fitness gradually.

TREATMENT OF NECK PAIN

As discussed above watching your stroke, technique and training load can help reduce risk of injury and pain. In addition, performing stretching and strengthening exercises for your neck and upper back will aid in better posture correction and reduce your risk of injury.

Neck pain can be relieved through massage as well as specific physical therapy techniques like joint mobilisations or manipulations. Soft tissue myofascial release, trigger point therapy, dry needling and heat or ice therapy can also help. Strapping can aid in off-loading muscles in spasm and facilitate posture correction.

Be aware your neck pain may not be originating from swimming itself, but swimming could be aggravating it. Look at the bigger picture, you may need to change your workspace set up like your computer screen height for example. Or if you are a triathlete maybe the neck pain is coming from too much time leaning on your T-bars or using drop bars, forcing neck hyperextension and strain. A professional can give you advice about these lifestyle changes as well as treatment and exercises you can perform regularly to manage and prevent neck pain while swimming.



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