

DIVING WITH AND WITHOUT BACK PAIN

FEATURE **PATRICK VAN HOESERLANDE**

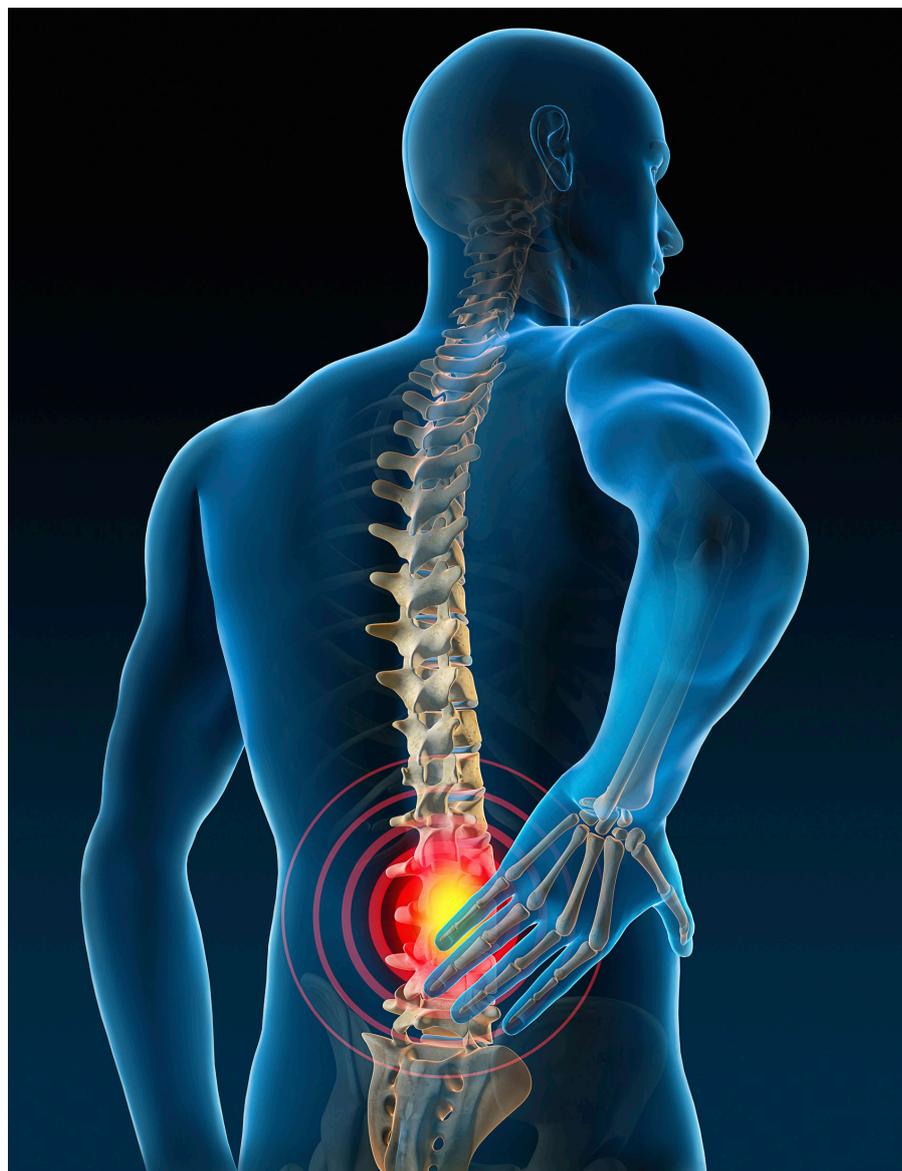
It was an unlucky moment, without really thinking about it, I quickly cleared away some heavy plates. A sharp twinge and there I was, bent over and barely able to straighten my back. A week of doubt between lying flat out, or trying to move around. Both were painful and the transition from one to the other especially hurt. Weeks of physical therapy followed to help gradually return to normality. Step by step, the process was slow, but I eventually got rid of the walking stick, and began to pick up pace on my own two feet, and finally began to properly walk again.

It had taken quite some time before I could even start thinking about getting back into diving. In celebration of my recovery, I took a quick dip in the 'TODI' dive tank. You can imagine, I was looking forward to it. Just before I got myself back into the water, I lifted my tank up in the wrong way and immediately jilted back into lower back pain I had only just managed to dissociate from. I had a choice between cancelling the dive or just going for it. An hour of weightlessness was preferable, but after that, I could barely take my dive suit off. It was a painful drive back home and it was back to weeks of rehabilitation.

After two seasons, everything seemed back to normal. It was thanks to being careful and staying focused when lifting dive boxes and tanks, but it only took that one inattentive moment, and 'crack'. The only thing I could do was shamefully crawl along the floor back to the emergency room only to be sent back home. With no luck, I had to wait a few weeks for a consultation with a doctor specialised in back injuries. The verdict: a major hernia. There was a risk that one of the nerves in my right leg was lost.

After further examination, the abnormal structure of my vertebra prevented this unsettling consequence. Being abnormal sometimes has its advantages. Fortunately, a syringe filled with corticosteroids administered into my back did wonders and specialised back training gave way to diving again.

Diving and back pain is unfortunately a common combination. Luckily, they are not all as extreme as my own experience; although I have discovered after some research that my story is certainly not the worst. As in my case, divers do not necessarily encounter back problems due to diving-related incidents, but



once you are confronted with it, the cause is no longer important. From that moment on you are focused on prevention.

A LUMBAGO OR HERNIA?

It is only when you are personally confronted with a pathology that you develop a deep interest in it. Yes, I have known (and know) people with back problems, but I must admit I didn't know the difference between a lumbago and a hernia. In my mind the result was the same: back pain! I conveniently decided these two terms were of the same phenomenon. Being blocked in a bent position changed that.

To understand the difference and the consequences, I must explain a few things about the anatomy of the spine. Don't panic, I'll keep it short and hopefully easy enough to understand.

The spine consists of a series of vertebrae that hinge over each other. The spinal cord, a bundle of nerves, runs through these vertebrae. At certain places, nerve bundles leave the spinal cord through cavities between the vertebrae to organs and muscles. To prevent the bony vertebrae from rubbing against each other while walking upright, there is a soft cushion between successive vertebrae, called an intervertebral disc. This pad is composed of



Photos by Coolshots.be



viscous fluid filled bags in which a smaller one is enveloped by a slightly larger bag, and this repeats several times. When we walk with a nice straight back, every vertebra rests on a cushion that dampens shocks. The back muscles keep everything nicely together and help to absorb the shocks.

With a back straight, you would have to lift a lot of weight before something goes wrong. Our spine is indeed perfected through evolution for lifting in this position. Unfortunately, we do other movements, which means we deviate from this ideal lifting position.

The most common mistake is lifting with a bent back. Due to the curve, the cushions are compressed at the front and stretched at the back. This way our backbone is under tension even before we have lifted something. When we start with that, the pressure on the cushions increases due to the combination of the weight and the contraction of the back muscles. This can be too much for our muscles, leading to an overload. Result: a lumbago. This is a sudden (acute) lower back pain that is often accompanied by muscle contraction and lower back vertebra irritation. Lumbago therefore does not directly have something to do with the spine because it is a strain of the back muscles. A painful thing, but for the rest, not much else is affected.

A worse case scenario consists of exceeding the critical value of pressure, causing a bag to rupture. This limit pressure decreases with age as the bag edges become less flexible. Imagine an internal pocket of an intervertebral disc tearing. It's a streak of shooting pain. The inner 'syrup' flows into the next bag. This is a mild form of a hernia. The treatment involves waiting for the inflammation to decrease quietly.

It is worse when the outer bag tears. That results in a typical radiating pain – while writing this out, I can feel the pain all over again. Part of the syrupy liquid drips away. The severity of the hernia depends on what is happening next. The pressure allows the next bag to protrude through the tear and to form a small balloon. If it is large, the cavity in the vertebrae will be too small. The balloon will then press on the nerve and the bloodstreams. This can result in a tingling sensation in the extremities, but also in the loss of coordination in the capacity of the muscles or even complete loss of control. The symptoms depend on where the hernia

occurs, and to which side the bulge is directed. It can literally go through the knees.

When a lumbago occurs, you have to sustain the suffering until the pain goes away. You will probably be given anti-inflammatory drugs to prevent or reduce a secondary inflammation. In the case of a hernia, rest, anti-inflammatory drugs and pain killers are prescribed. The possible bulge should disappear as quickly as possible. The degree of intervention depends on the current and possible resulting damage. This can range from a local injection of corticosteroids to reduce the pressure on the nerves, or a surgical removal of the swelling to avoid the nerve from dying. Because the back muscles are severed during such a surgery, the rehabilitation period is very long and painful.

AND NOW?

The best way is of course to avoid a lumbago or a hernia. If you pay attention to how you lift things, you are on the right path. Unfortunately, we don't take enough care of our backs during our youth. We're always in a hurry and quickly pick up heavy containers with bent backs. We throw our scuba gear on and rationally move about with it on to get in the water. Adding a few extra kilos of weight to the belt to make sure we stay under... Sound familiar?

What if prevention comes too late? Well, the answer is surprising. Of course, you must first recover from your accident. You will probably have to follow a few sessions of physical therapy. Ask your physiotherapist how you can properly lift weight. You must not only learn how to lift something heavy with a straight back, but you will also have to train with weights. A set of strong back muscles reduces the risk of a relapse, especially in the case of unexpectedly performing a thoughtless movement. Attending back education sessions is recommended!

HOW DO YOU DIVE AFTER A LUMBAGO OR A HERNIA?

Well, by preventing it from happening again. The best advice I can give you is to analyse what you can do and avoid lifting something heavy, and mostly, lifting it incorrectly.

Throw some weight 'overboard'. Most sport divers carry too much weight. Novice divers start overweight, later they are too lazy to adjust. When was the last time you tested your optimal buoyancy? Are you still diving –

like me – with the same weight on your belt as ten years ago, while your configuration has completely changed? Are you jumping in a lake with the same weight as in the sea? I went through the trouble to test my buoyancy and managed to leave five kilos at home.

In addition to the weight, you must also consider its distribution. A concentration on your lower back is not recommended. Try to spread it out evenly. Lead comes in different shapes and you can get adjusted weights. Make sure that your configuration doesn't get heavier; then you will create a different problem.

Divide a heavy load into smaller, lighter parts. By walking back and forth a few times, you not only avoid having to haul a heavy load, but it is also a lot healthier. Your pedometer will praise you for it. Make sure that your dive equipment is divisible in smaller parts.

I prefer a twin tank setup on my back, because of the improved stability in the water. The metal back plate supports a straight back under and above the water. Ideally, you could adjust your bottle configuration to each dive, but this is not a financially viable option for many. I prefer to dive with a small number of similar configurations to make sure I know my set completely.

When I only have a short distance to walk to the dive site, I buckle my dive equipment on while I am sat on the edge of my car trunk. I never lift it to attach it to my back. The less I lift, the smaller the risk for a wrong movement. If the distance is greater, I carry everything in parts to the place where I can put it on easily and safely. If that is not possible for some reason or it is too far away, I mount the equipment into a small cart and roll the gear over to the dive site. Once there, I then look for a place where I can don my equipment while seated and preferably where I can roll over into the water.

DO YOU HAVE TO GO IN SEARCH OF THE LIGHTEST POSSIBLE MATERIAL?

A carbon composite bottle is indeed much lighter to carry on land, but you will probably have to compensate for it in carrying extra weight. If you do not proceed carefully, you will eliminate the underwater benefits at the surface. A dive torch is better with a neutral buoyancy other than dragging an extra block of weight to compensate for its floating version. And now that we are talking weight, 'saving' on



Photo by Ann Tielen.

body mass helps too. But it is probably easier to reduce the weight of your configuration with a kilo than to lose body mass as a diver.

Lifting equipment is of course not without risk. Keep it light enough. Pick everything up in the correct manner. Your leg muscles are stronger than your back (muscles), use them. Also, ensure an equal load on both sides. Do not carry a scuba tank with one hand – it may look tough, but this way is not spine friendly – carry it with both hands. Also, bend your knees if you want to put it down. Machos will pay the price later with back issues.

Reflect on your dive activities. What can you do to save your back? How do you load your car? Do you lift and turn? Do you store your heaviest dive boxes and your extra weight on the ground? Can you place them at a more comfortable height so that you do not have to lift such heavy loads every time you go diving? Find easily accessible dive sites to get into the water. First, explore the environment and do not necessarily follow the herd. Of course, you do not have to avoid the more technical or adventurous places, but with a little effort, you can make sure your back enjoys the dive for a longer period. Remember that one wrong move could be fatal.

Without having to give up diving, you can also look out for other disciplines within our sport. Apnea diving does away with the need for heavy equipment. You are not only free as a fish in water, but you are also liberated from (almost) all external load. Or try snorkelling. Maybe a 'side mount' configuration is the solution for you? I have thought about it, but I lack the experience to evaluate this configuration regarding back pain. Or 'surface supplied air' diving? And of course, you can ask

for assistance. Four hands working together is less stressful for the back.

TO DIVE!

The chance that you as a diver will have to deal with back problems is high. Research in 2009 (Knaepen K., Cumps E., Zinzen E., Meeusen R., Low-back Problems in Recreational Self-Contained Underwater Breathing Apparatus Divers: Prevalence and Specific Risk Factors. *Ergonomics* 2009;52 (4):461-473) showed that divers especially with a more advanced diving career, suffered from lower back problems. According to the researchers, this is not related to the higher frequency of diving, but rather to the material and responsibility. Experienced divers often carry more equipment, dive in difficult circumstances like strong currents and suffer from more stress because of the responsibility of assisting other divers. It is therefore important that you think about saving your back early on in your diving career.

By applying the above recommendations and the advice listed in the box at the end of this article, I have been diving for months without any problems. Sometimes my back tells me that I am on the edge, a strong signal to free up time to eliminate the cause. Until now, I have not had to cancel a single dive or suffered from any back pain the following day. In the back of my mind I fear the day I may again put too much force on my vertebrae in an unsuspecting movement, but that chance is small.

I do not consider one moment to give up diving. On the contrary, sitting still is moving backwards and that also applies to back problems. Stay active and train your back muscles. Keep your eyes open and reflect frequently on what you do: this is my formula to keep diving free of back troubles.

What can you do to avoid (recurring) back troubles?

A list of possible actions:

- Analyse the preparation and handling of your dives to minimise lifting.
- Accept it when you have a back problem that cannot be cured. Resistance does not make it better.
- Divide effort and relaxation over the day/week.
- Enjoy every dive even when it feels too short. Better a short dive than no dive.
- Make and enjoy dives that match your physical condition. Look at what you can do and not at what you cannot do. Looking at what you cannot do and going beyond your limits is frustrating and does not solve anything.
- Prefer to walk back and forth three times rather than transporting all your equipment at once.
- Take your time for everything. Better slow and pain free, than fast and painful.
- If you want to use painkillers before entering the water, first consult a good diving doctor.
- Search dive sites where you can park your car with your dive equipment near the water and with easy access in.
- Switch often between standing up, walking, sitting and laying down. Being in the same position for too long usually aggravates the symptoms.
- Buy a cart to haul your gear from the car to the water where you can strap your tank on in the water.
- Set your dive configuration up if possible at the height of your car. That way you avoid bending over to pick it up. As a weightlifter, lift with your legs in the correct posture.
- Set up your equipment before you drive to the dive site. That saves extra efforts before you enter the water.
- Discard your weights and fins immediately after the dive and collect them later.
- Ensure good distribution of your weights.
- Make sure the muscles around the weak spots are strong. Choose exercises that you like, so that you are sure that you will continue to train your muscles.
- Find a diving school/diving team/buddy, explain what your limitations are and what help you need to be able to dive. If they respond positively, you know you're in the right place. They will help you to keep diving without ever having you to ask for assistance and feel embarrassed about it.
- If you are a dry suit diver, try diving in a wet suit more often in the summer. That saves on the extra kilos needed.
- For diving activities in a pool, you can use a lighter set of equipment.