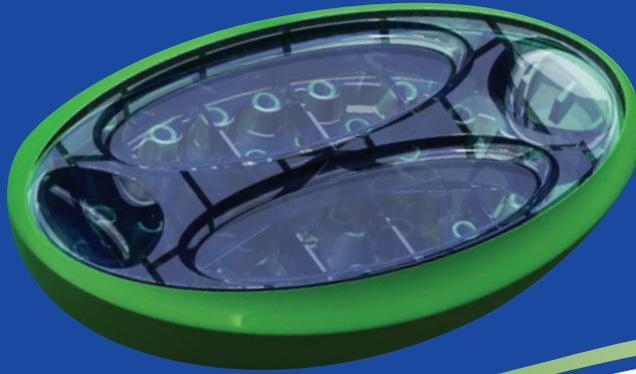


Backpod[®]

Lie back and treat yourself



For Health Practitioners

 Bodystance[®]



Designed and manufactured in New Zealand
Bodystance Ltd, Dunedin, Studio 9, 31 Dowling Street,
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Backpod® combined with manipulation and manual therapy from doctors, physiotherapists, osteopaths and chiropractors

The Backpod is an ideal adjunct to manual or manipulative therapy. Manipulation is excellent for unlocking jammed joints, but they usually won't stay free unless the surrounding tightened capsules and ligaments are also stretched out. The Backpod is ideal for this, so you get a long-term solution, not just a temporary fix.

High velocity short amplitude thrust manipulation is a quick and effective way of banging free a locked spinal apophyseal (facet) or costovertebral (CV, posterior rib) joint. Obviously the usual precautions and contraindications taught to trained manipulators need to be observed.

However, if the joint has been jammed for some time, the surrounding collagenous capsule and ligaments will have tightened around the immobile hinge. Manipulation can free the hinge movement, but the surrounding tight collagen close around it tends to freeze it up again. Collagen is tough and can take up to six months to remodel. This is the main reason for the problem coming back again weeks or only days after an effective manipulation treatment session.

Lying back on the Backpod for several minutes daily

will give a strong sustained stretch to shortened ligaments and capsules around the joints and quietly reduce an excessive thoracic kyphosis. The pressure can be graded for the thoracic facets by positioning the Backpod longitudinally under the spine (a gentler curve) or transversely (a sharper curve, hence more stretch pressure); and by using pillows under the patient's head and even layers of fluffy towel over the Backpod itself. The CV joints are localised by positioning the Backpod longitudinally on the curve of the ribs between the scapula and the spine itself. See pages 3–5: 'Instructions: How to use the Backpod'.

The Backpod works particularly well after manipulation, when the joints have been definitively unlocked so they will move to allow the stretch pressure to directly reach the surrounding collagen. It is also effective before manipulation, to produce some loosening of the hypomobile segments first and make the manipulation easier, both for the therapist and the patient.

The Backpod's programme of posture, massage, strengthening and stretching covers the other aspects of the usual flexed thoracic/chin poked neck problem. For instance, manipulation can effectively and immediately unlock atlanto-occipital (CO/1) joints

jammed in extension and causing headaches – a common problem. But the wider drivers (over-flexed thoracic spine, weak neck flexor muscles, strained scarred upper trapezius muscles, poked chin posture, etc.) that force the C0/1 joints into extension until they freeze also need to be countered, or the problem will rapidly return. The Backpod programme covers each of these necessary components in turn. It is also available as free videos on our website www.backpod.co.nz.

Backpod in conjunction with manual physiotherapy, the McKenzie approach, Mulligan and Maitland techniques, etc.

The Backpod fills a gap in physiotherapy techniques for the common excessively kyphotic thoracic spine. The patient can use it for a stretch lasting several minutes, which is much more effective on chronically shortened collagen than a few seconds of, say, Maitland PAs. It can stretch tightened costovertebral joint capsules in the same sustained way.

Hands-on manual techniques and manipulation can apply greater force to unlock a chronically jammed joint, but a sustained stretch is needed to stop the surrounding tightened collagen just freezing it up again. The Backpod can provide this, with sufficient leverage, and in the patient's own home. A rolled-up towel or tennis ball usually can't.

In my experience the McKenzie treat-your-own-back approach is brilliantly effective for treating bulging

lumbar discs. However, the thoracic spine is reinforced and splinted to a fair extent by the rib cage and chest muscles. So repeated active movements by the patient alone cannot bring as much force to bear on a specific vertebra here as they can in the low back. The Backpod enables the patient to bring the necessary much greater leverage to a section of thoracic spine, and they can do it at home in their own time. The McKenzie approach does include appropriate therapist hands-on mobilisation, of course. The Backpod is a valuable addition to these techniques for the thoracic spine.

Sub-group of straight or concave thoracic spines.

The common manipulation techniques (vertical downward thrust on the thoracic spine or ribs with the patient lying prone, 'knee-in-the-back' or variants, 'dog technique' body drop onto the supine patient with the therapist's fist underneath) are all appropriate for an excessively flexed hypomobile thoracic spine. They jolt the joints in an extension direction to reduce that excessive flexion.

However, there is a small subgroup of patients with thoracic segments locked in extension, indicated clinically by a straight or even concave section of the thoracic spine. These manipulations don't help these segments much, as they tend to shift the joints further into the range they're already locked in. There is a logical and simple solution – see page 17: 'Backpod for straight or concave thoracic spines'.

Backpod® for straight or concave thoracic spines

The common problem with middle/upper thoracic spines is excessive kyphosis from too much bent-forward activity. This leads on to most neck problems as the cervical spine is cranked into excessive extension and joint loading simply to hold the head up, and the upper trapezius muscles which do most of the work strain, scar and shorten.

However, a minority of patients (perhaps 4%) have straight or even concave sections of the thoracic spine where the segments are locked in extension. This is usually the result of a fall on the back or other impact, or an excessively rigid upright posture. These type of thoracic spines are readily identified simply by looking at the patient from behind.

In my experience, the standard physiotherapy mobilisation technique of oscillating downward pressure on the spinous processes with the patient lying prone (Maitland PAs) will tend to make this sub-group worse, as it increases the extension glide of facets already excessively extended (i.e., it increases the concavity). On the same principle, repeated manipulation similarly tends not to clear the problem.

The Backpod answer to this subgroup is simple and logical. Lay the patient prone with the Backpod

longitudinally under their sternum – you may need to cover it with a folded towel for extra padding. This creates a flexion stretch at the extended thoracic joints. Then glide the spinous processes longitudinally apart using thumbs, fingers and/or hypothenar eminences. This direction of mobilisation glides the facets in a flexion direction, taking them out of their locked end-range extension.

Oscillatory pressure is best initially to get the facets moving, followed by sustained pressure to stretch the shortened capsules and ligaments. It is a technique that can generally be taught to the spouses, partners, friends, etc. of patients for follow-up at home.

Note that these patients with straight or concave thoracic spines can still have tight or frozen costovertebral joints where the ribs hinge onto the backbone. These patients can use the Backpod in the normal way to stretch these posterior rib joints, with the Backpod positioned slightly to either side of the backbone but not over the spine itself. The positioning is over the curve of the ribs, about 40-50mm (2 inches) out from the midline, i.e. between the midline of the spine and the inside edge of the scapula.

Backpod® for scoliosis

The Backpod is a logical and appropriate counter to milder scoliosis in the thoracic spine. Scoliosis is a complex three-dimensional deformity of the spine, ranging from a barely noticeable twist to appallingly severe spinal distortion requiring surgical stabilization. The Backpod can't significantly unwind the extreme cases, but it is a logical and practical approach to opposing the twist in milder examples – fortunately the vast majority.

Milder scoliosis is readily identified in two ways. Seen from behind, as the patient bends forward from standing, one side of their rib cage will show as higher than the other. Similarly, with the patient lying flat on their front with their head not turned to either side (ideally, prone on a plinth with their nose in the nose hole), the posterior curve of the ribs on one side will be raised relative to the other side. This indicates a twist of the thoracic vertebrae towards the raised side.

Keeping it simple and treating it as a pure rotation problem (which it isn't), downward manual pressure on the posterior curve of the raised ribs will use them as levers through the costovertebral joints to 'unwind' the thoracic rotation.

The patient can produce this same pressure at home by lying back on the Backpod with it positioned under the curve of the raised ribs, i.e. about 50mm (2 inches) out from the midline of the spine.

The amount of actual unwinding of the scoliotic twist depends on its severity and chronicity, what is driving it, patient compliance with the Backpod and any exercise programme, etc. However, nearly all scoliotic problems start out mildly, commonly manifesting first in adolescence. As they frequently progress over the years, using the Backpod to oppose, limit and even unwind the torsion where possible is strongly indicated.

Later mild scoliosis often exists in association with an excessive thoracic kyphosis. The Backpod is ideally suited for treating both components of the spinal torsion, being positioned in midline to treat the kyphosis and slightly to the raised side to oppose the scoliosis.

Use of the Backpod should be combined with thorough musculoskeletal assessment, looking for underlying drivers of the scoliosis. These include leg length difference, muscle imbalance, and pelvic torsion associated with sacroiliac joint dysfunction among others. Each identified factor needs to be addressed specifically, for instance using shoe inserts to compensate for a leg length difference, Schroth method or similar gym approach to muscular asymmetries, etc. The common statement that 65% of scoliosis is idiopathic is highly suspect, and probably set so high because in very many cases the underlying drivers have not been understood.

Backpod® for costochondritis, Tietze's Syndrome, 'slipping ribs' and costovertebral (posterior rib) joints

The Backpod's small peaked shape is designed to give a strong, specific stretch to tight posterior rib (costovertebral and costotransverse) joints. Foam rollers and Swiss balls cannot do this. It is positioned longitudinally 40-50mm (about 2 inches) out to the side of the spine, over the curve of the ribs, i.e. between the midline of the spine and the medial (inside) border of the scapula (shoulder blade) - see pages 3 & 4. This ability to stretch tight and frozen posterior rib joints makes the Backpod ideal for treating several conditions:

Costochondritis is a scary and confusing (but not life-threatening) condition with pain where your ribs join onto your breastbone. **Tietze's Syndrome** is just costochondritis with enough inflammation to cause obvious swelling at the rib joints on your breastbone; it's not a whole different entity. The swelling is **not** a systemic or auto-immune inflammation but simply part of the normal inflammatory response to mechanical injury, like the swelling of a sprained ankle, or of a foot blister.

Important - any acute chest pain should always be seen first (and urgently) by a doctor or Emergency Department in case it's your heart. Cheeringly, up to half of presentations of acute chest pain aren't the heart or anything else dire.

Almost all the standard medical statements about costochondritis have almost no evidential basis. It is NOT a mystery, or difficult to fix. Ribs work like bucket handles, hinging at the front onto the sternum (breastbone) at the costosternal joints, and at the back onto the spine (at the costovertebral joints). The ribs lift up and down with each breath, and the rib joints also move with any torso movement.

Now, if the posterior rib joints are tight or immobile, then the more delicate anterior joints where the ribs hinge onto your breastbone HAVE to work excessively, just to let allow breathing. So they strain, get irritated, then get inflamed - and there's the costochondritis. Unlike other strained joints, they can never get a rest, as long as breathing continues. If they get inflamed enough to see obvious swelling then it's called Tietze's Syndrome.

This understanding from New Zealand manual physiotherapy is the only, repeat only, one which explains such specific pain just at the rib joints on the breastbone and nowhere else in the body. All other suggestions and treatments, including the medical ones, miss the point in that they seek to suppress an irritation/inflammation without treating or even recognising the simple mechanical problem driving it.

Anti-inflammatory medications, steroid shots, Vitamin D, omega-3, turmeric, etc. may indeed help the body to better suppress the pain, but do not treat or fix the cause.

Treatment uses the Backpod to free up the tight posterior rib movement. The sustained stretch on the Backpod is able to effectively stretch out the tough shortened collagen surrounding immobile posterior rib joints, enabling a lasting freeing up of the hinge movement. Hands-on treatment (including manipulation) cannot do this, though it may be a necessary addition if the posterior rib joints are very frozen.

Sports massage for the muscles between and overlying the ribs at the back and sides may also be needed; also specific stretching of the intercostal muscles between the ribs. For a detailed explanation and treatment programme, see the COSTOCHONDRITIS page on our website www.backpod.co.nz and also our YouTube video 'How to Fix (most) Costochondritis and Tietze's Syndrome, Part (2): Exercises and Treatment Details.'

'Slipping rib' syndrome has the same cause as costochondritis - the immobile posterior rib movement driving compensatory excessive movement elsewhere,

just to allow breathing and torso movement. In this case, the hypermobility happens to the side of the rib cage at the costochondral junction where the bone of the ribs changes to cartilage. Treatment is essentially the same as for costochondritis, for the same reasons.

Costovertebral (posterior rib) joints can lock acutely in flexion, causing very sharp unilateral local pain slightly to the side of the spine. Passively rotating the seated patient towards the painful side is very much more painful and restricted than rotation away from it; also the pain is reproduced on full inspiration. This is because both these actions require the CV joints to extend, and they have become locked in flexion. Treatment is the same as for costochondritis, though easier because the rib joints on the breastbone have not also become strained.

For other conditions using the Backpod to free up tight rib cage movement, see chronic asthma (page 21) and rib pain in pregnancy (page 22).

View our information, treatment and research videos online at www.backpod.co.nz/costochondritis

Backpod® for chronic asthma, bronchitis and some other respiratory conditions; also rib pain in pregnancy

The Backpod can be surprisingly useful in a number of respiratory conditions, especially chronic asthma and bronchitis. Regardless of the state of the lungs, they cannot fully inflate unless the ribcage can expand fully to allow this. This in turn requires full range of movement at the costovertebral joints where the ribs hinge onto the spine.

This movement has often become quite restricted in patients with **chronic asthma or bronchitis**, especially where the onset has been in childhood, with the patient developing while bent forward trying to suck in enough air. These patients usually exhibit the common excessively hunched thoracic spine, with rounded shoulders sitting more towards the front of the chest. This posture will have become 'set' by the tightening of the collagen of ligaments, capsules, etc. around the restricted rib and spinal joints.

Chronically tightened collagen is extremely tough and responds best to long sustained stretching. The Backpod provides this, with enough leverage to be effective. It is used in the usual way, positioned for about a minute at a time – up and down the middle and upper back to stretch the thoracic hunch, and about 50mm (2 inches) out to the sides of the spine on the curve of the ribs to loosen the rib hinges. The strengthening exercise on page 10: 'Two simple

strengthening exercises' (for the middle back muscles) will probably be needed also to build up the support strength for the area.

As a bonus, the Backpod use position is also ideal for practising deep diaphragmatic (also called 'abdominal') breathing at the same time. While lying on the Backpod, the patient inhales slowly through the nose to a count of ten, then slowly and completely exhales to a similar count. One hand may be placed just below the rib cage to feel the stomach rise as the air is drawn in to the deepest parts of the lungs.

A suitable timing would be three of these slow deep breaths, then move the Backpod 50mm (2 inches) to another position under the spine or ribs. As well as filling the lungs fully, diaphragmatic breathing is also held to reduce anxiety and stress and boost energy and stamina.

A variety of **other lung conditions** can leave behind them a secondary effect of restricted CV joint movement even after the condition has resolved. For instance, the pain of pleurisy can mean that the patient avoids expanding the ribcage fully, and over time the limited rib hinge range becomes 'set' by shortened collagen around the joints. The same process can happen with pneumonia, pulmonary

and radiation fibrosis, other restrictive lung diseases, and neurological conditions such as Guillain-Barré syndrome. The Backpod is ideal for treating the rib cage restriction – an aspect often overlooked by doctors concentrating perfectly correctly on the underlying lung problem.

Rib pain in pregnancy is quite common partway through term as the baby bulge grows bigger. The rib cage needs to expand to accommodate it, and pain results if the joints and muscles are too tight to allow it. The pain can be sharp and severe, and certainly detracts from the experience of bearing a child.

It does not always clear as the pregnancy continues, even though Relaxin hormone release will be facilitating joint hypermobility throughout the body. The suggested mechanism is that Relaxin will soften ligaments but not adhesive fibrosis, so any old scarring restrictions will actually become tighter relative to the other joints as the pregnancy continues - this further explains the onset of pain partway through term. The problem may be becoming much more common, as so many young mothers now start into pregnancy carrying a hunched thoracic spine and rib cage tightness from much use of laptops, tablets and smartphones. (See the Wikipedia entry on the iHunch.)

It doesn't respond well to general stretching, as the already well-moving parts of the rib cage machinery simply stretch more, and the tight bits stay tight.

The restriction is usually at the posterior rib articulations (costovertebral joints) where the ribs join onto the spine, but can include tight, scarred intercostal muscles between the ribs. As well, immobile rib joint movement at the back can cause compensatory overuse straining at the other ends of the rib where they join onto the sternum (breastbone). This is then diagnosed as costochondritis, or Tietze's Syndrome if there is sufficient observable swelling at the rib joints on the sternum as well.

The problem usually responds very well and quickly to the Backpod used slightly to the sides of the spine to stretch free tight posterior rib joints, as for costochondritis and other costovertebral joint problems (see page 19). Tightness and scarring in the intercostal muscles between the ribs responds well to specific stretching of those muscles, by a partner or therapist. The technique is described about ten minutes into the YouTube video 'How to Fix (most) Costochondritis and Tietze's Syndrome, Part (2): Exercises and Treatment Details.' All these conditions affect the middle back.

Backpod® for ankylosing spondylitis, Scheuermann's Osteochondritis, DISH (Forestier's disease) and Parkinson's Disease

Ankylosing spondylitis is a rheumatoid condition that can cause extreme thoracic flexion and eventual fusion of the vertebrae – a severe progression of the hunched-forward/poked-chin pattern of most neck problems. It affects 0.1–0.2% of the population, mostly males. Initially the thoracic spine is painful and inflamed; only in later decades does it become fixed, flexed and fused.

The Backpod and its programme should be used once the condition is diagnosed to slow and possibly even halt the progression into flexion. The Backpod in particular is ideally designed to gently oppose the ongoing flexion contraction. As well, the Backpod used for sacroiliac joint stretches (see pages 25 & 26) will oppose the ongoing tightening at these joints which is part of ankylosing spondylitis.

Scheuermann's Osteochondritis (also known as Scheuermann's disease) is an inflammation affecting the thoracic spine, usually in adolescents. The acute inflammation generally burns itself out after a few years, commonly leaving adhesive fibrosis and locked thoracic segments in its wake. These should respond to the Backpod and its programme in the usual way. However, even the acute inflammatory stage is worth treating cautiously in the same fashion, as why the

spine gets inflamed has not been explained. Excessive flexion stress on the slouching adolescent spine is a reasonable bet, and the Backpod and programme will address that.

Diffuse Idiopathic Skeletal Hyperostosis (DISH or Forestier's disease) is a thoracic spinal tightening that can be treated the same as **ankylosing spondylitis**.

Parkinson's disease is a degenerative disorder of the central nervous system, with motor symptoms resulting from the death of dopamine-generating cells in the mid-brain. The Backpod and its programme cannot help the degenerative progression of the disease, of course. However, they can help with the musculoskeletal consequences, namely the characteristic thoracic hunching, muscular rigidity, neck pain and headache.

The Backpod is ideal to oppose the increasing thoracic kyphosis. This will of itself drive neck pain and headache as the posterior neck muscles strain to simply hold the head up, with Parkinsonian muscular rigidity compounding the problem. The two massage techniques shown on pages 13 & 14 are simple and easy for home carers to use, and a considerable help in alleviating the musculoskeletal pain and headache, on a daily or less frequent basis.

Backpod® for persisting pain after neck or thoracic surgery

Cervical laminectomy or foraminotomy operations are performed to trim back any bony impingement on the nerves as they exit between the vertebrae, usually at the C5/6 or C6/7 level. These patients are typically older, with hunched thoracic spines. Excessive thoracic kyphosis hunching requires the patient to extend their neck just to look ahead, which has a closing down effect on the nerve exit canals, exacerbating any impingement. The Backpod used in the usual way reduces an excessive thoracic kyphosis, thereby reducing the closing down of the cervical nerve exit foramina, and allowing full benefit from the operation.

Further, these hunched patients hold their heads up by overusing the upper trapezius and other neck extensor muscles. These muscles become fatigued, strained and scarred – from adhesive fibrotic repair of the repeated micro-trauma of overuse. The fibrotic scarring and shortening pulls the cervical spine into excessive extension – which closes down the nerve exit canals. This is increased by surgical scarring after a posterior entry operation. These shortened cervical extensors are usually found in conjunction with very weak longus colli and deep neck flexors, giving rise to a poked-chin posture. The Backpod user guide stretches, massage, posture and strengthening exercises will specifically

counter this pattern, so the patient then gets the full and lasting benefits of the operation performed.

Persisting pain after thoracic surgery is an appallingly common problem. This is unsurprising as the stretch on the intercostal (IC) muscles and costovertebral (CV) and sternocostal (SC) joint capsules required for most procedures is massive. Normal adhesive fibrotic repair after such surgery frequently leaves frozen CV joints, plus wound and strain scarring of the IC and other muscles, plus or minus tethering of the IC nerve(s). Ongoing pain is particularly distressing for the patient as every time it hurts they think the original problem is coming back.

Generally, they respond readily to the Backpod used to free up the contracted CV capsules (as outlined on pages 19 & 20); massage in side lying for IC, lat. dorsi, middle and lower trapezius tethering; specific gentle hands-on IC muscle stretching; and therapeutic ultrasound (1.4W/ cm² continuous) for IC nerve tethering at the operation site. Low dose tricyclics such as amitriptyline help with the wound-up nervous pathways in a chronic problem. Usually it is not a full-blown pain syndrome, though often diagnosed as such, especially if T4 syndrome autonomic symptoms are present (see page 27).

Backpod® for sacroiliac joint mobilisations, and coccydynia (tailbone pain)

The Backpod can also be used to mobilise a hypomobile sacroiliac (SI) joint problem such as can commonly occur after a fall onto the low back or coccyx. The impact can often leave the sacrum ‘ridden up’ along the SI joints and jammed in flexion (i.e., nutated). This leaves the tailbone more exposed to impact/pressure when sitting down and creates a chronic coccydynia from the repeated banging on the tip of the coccyx. This type of tailbone pain doesn’t respond to purely local treatment of the tailbone but clears when the SI movement is restored to normal. The extremely tough mix of capsule, ligaments and fascia around hypomobile SI joints means that good results from mobilisation and manipulation techniques are often quite temporary, before the surrounding shortened collagen tightens them up again.

The Backpod is ideal for a sustained stretch of this very tough surrounding collagen and a shearing mobilisation of the joint surfaces. The most basic manual physiotherapy mobilisation technique for the SI joints is a Maitland PA, a vertical oscillation of the sacrum by the therapist while the patient lies prone. The Backpod essentially produces a sustained version of this, using the patient’s own lower body weight to provide the force. The patient lies on their back on the floor, thighs vertical, shins horizontal,

ankles crossed and heel supported on the edge of a table or chair. The Backpod is positioned under the sacrum longitudinally and the patient relaxes onto it for at least several minutes, once or twice daily. It can still take weeks before the SI joint movement is free enough to stay free.

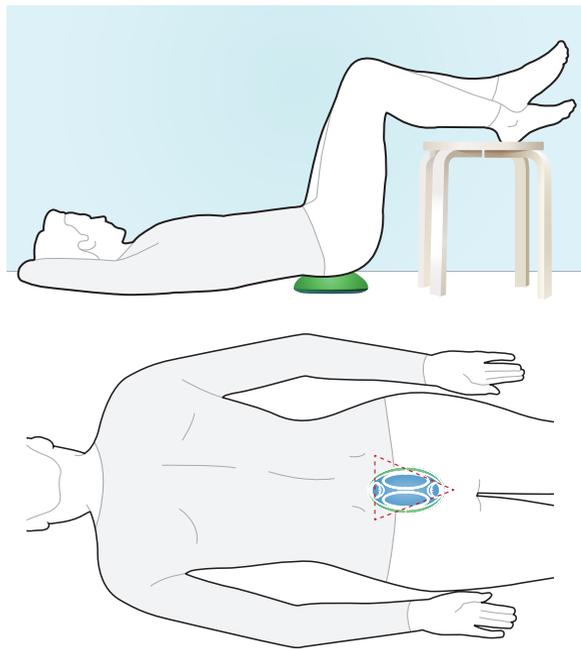
The Backpod leverage on hypomobile SI joints can be enough to free them up on its own, but frequently they are tight enough to need the greater force of a manipulation or specific therapist mobilisation techniques. The Backpod is then the ideal follow-up, to stretch things further and retain the benefits of the treatments.

Clinical Caution: The Backpod should be used to mobilise only restricted *hypomobile* sacroiliac joints. Stretching already excessively moving *hypermobile* SI joint problems will make them worse. The best way to clinically distinguish between the two is Andry Vleeming’s test for SI hypermobility. Briefly, the patient lies on their back and actively lifts one straight leg as high as they can. This is then repeated with the therapist manually pushing both sides of the patient’s pelvis together (i.e., artificially compressing and stabilising the SI joints). If the leg raise is then clearly higher and without pain, it indicates an unstable, hypermobile sacroiliac joint. This should not be

manipulated or mobilised, with the Backpod or any other technique. These problems are best treated by support muscle strengthening and stabilisation belts.

Sacroiliac pain during and after pregnancy is common. Usually it is explained as arising from excessively moving (i.e. hypermobile) and strained SI joints, due to the loosening and softening effect on the ligaments of hormones released during pregnancy to allow the sacrum to hinge open fully to let the baby come through the pelvic basin. This surely happens, however it doesn't explain unilateral SI pain, since all the ligaments are presumably loosening equally. Unpublished New Zealand research and extensive clinical experience suggests that unilateral SI pain appearing partway through pregnancy is more usually from a hypomobile SI. These patients generally have a history of a fall or impact on the low back, pelvis or tailbone, presumably leaving the legacy of an adhered and hypomobile SI joint. The interpretation is that as the pregnancy continues, and the surrounding ligaments get looser, the adhered SI joint becomes relatively more hypomobile and then painful.

These problems generally respond well and quickly to mobilising the hypomobile sacrum with manual physiotherapy techniques, or on the Backpod as shown. This rather validates the model, as the patient is no longer sore - even though the pregnancy is



continuing and the baby is getting bigger - so the pain can't just be coming from the "stresses and strains of pregnancy." If SI or tailbone pain persists months after the baby is born it is then usually coming from SI hypomobility after the ligaments have tightened up again after the birth. The Backpod is equally effective in this situation to gently mobilise the tight SI hinges.

Backpod® for T4 Syndrome and Thoracic Outlet Syndrome

T4 syndrome is essentially an add-on to the common musculoskeletal problems that involve the mid-thoracic vertebrae and ribs. It takes its special character from the proximity of the sympathetic neural chain which travels down the necks of the ribs. This can produce distal sympathetic symptoms including whole hand and/or forearm paraesthesia, swelling, blotchiness and feelings of hot or cold in the hands.

The postulated mechanism is that sustained or extreme thoracic postures can lead to relative ischemia within multiple tissues, triggering the sympathetic signs and symptoms. These may not be derived solely from the fourth thoracic vertebra, hence 'T4 syndrome' may also be referred to as 'upper thoracic syndrome'.

In practical terms, treatment is the same as for the vast majority of local thoracic and/or costovertebral problems, so the Backpod is ideal here. It can be used by the patient to stretch out the common excessive thoracic hunch and/or any hypomobile CV joints, or by the therapist to mobilise the small sub-group of straight or concave thoracic spines as detailed on page 17. The Backpod programme of support strengthening, home massage and posture understanding also applies. Once the thoracic spine and ribs have been restored to full range supported movement, the distal sympathetic symptoms will clear.

Health practitioner additions may include manipulation to unlock any specifically jammed facet or CV hinges, work station adjustment to limit excessive hunching, brachial plexus stretching exercises, and non-steroidal anti-inflammatory medications which are very helpful in the acute phase. Deep sports massage is very useful to tease out built-up adhesive fibrotic scarring fibres in the surrounding muscles, especially around the T4 area and including the rhomboids and middle trapezius, but also the pecs, the lats and the shoulder girdle, and down the affected arm(s).

Thoracic Outlet Syndrome is essentially compression of the nerves and/or blood vessels running through the upper back / clavicle / first rib area. This can cause parasthesia, pain, numbness and/or claudication down the arm(s), neck and/or upper back. Certainly the entrapment can be structural, e.g. a cervical rib or impinging tight ligaments, often requiring surgical excision or release in a very small minority of cases.

However the wider view is that the common iHunch (see pages 1 & 2) tends to bunch and constrict the muscle and joint movement in this area anyway. So use of the Backpod and its full home program are strongly indicated, especially if specific intervention surgery hasn't worked well. Massage and stretching for pectoralis and scalene muscle scarring and shortening are also indicated, plus nerve stretches and mobilisations.

Backpod® for prescribing doctors, pharmacists, and acupuncturists

The Backpod and its programme are intended to be the most practical and effective home treatment and ongoing care package that can be handed out or recommended to almost all patients with upper back and neck problems. Non-steroidal anti-inflammatory (NSAID) and analgesic medications are excellent at reducing the pain and effect of inflamed and strained joints and muscles. However, they are aimed solely at the inflammation and pain, and can have side-effects such as damage to the lining of the gut.

It is simply good clinical sense to also treat the mechanical pattern of structural tightness and weakness which underlies and drives these acute inflamed episodes – especially as, contrary to a popular view, a large proportion do not just settle down after an acute flare-up. The videos on our website www.backpod.co.nz which teach ongoing home care of the upper spine are free for any patient to access.

Regarding **Costochondritis** and **Tietze's Syndrome**, there is an overview of the existing research in our YouTube video 'Costochondritis and Tietze's Syndrome: The published medical research on how to fix them.'

The common medical understanding of costochondritis as a “mysterious inflammation” is NOT supported by the available research. Our New Zealand manual physiotherapy view is.

Acupuncture: The same comments apply to acupuncture. Flooding the area with endorphins is most useful in the acute phase, but is not likely to rapidly change chronic underlying structural problems. Consider a broken leg: you can acupuncture it but you still have a mechanical problem – the fractured bone. The Backpod and its programme are a practical home package designed to sort out the common pattern of tightness and weakness driving the large majority of upper back and neck pain. This mechanical approach to the underlying drivers of the problem combines extremely well with acupuncture which can contribute to pain relief and healing, especially in the acute phase.

Detailed information and videos on the Backpod's use with a variety of musculoskeletal conditions is available online at www.backpod.co.nz.

View our instruction videos online
at www.backpod.co.nz/ihunch

Backpod® combined with massage therapy

Most neck problems arise from the common hunched forward/poked chin posture. What holds the chin up in this pattern are the upper trapezius and neck extensor muscles. These overwork, fatigue, and strain, and subsequently adhesive fibrotic scarring is laid down as part of the repair process. Massage is the most effective way of stretching out these tight fibrotic fibres. It can apply more force to a specific area than can a general stretch of the whole muscle.

The techniques shown in pages 13 & 14: 'Massage – two simple techniques' are the most relevant ones for the majority of neck problems. A more comprehensive general massage will obviously do a more thorough job. The usual way of doing massage has the patient lying prone with the head flat, preferably on a massage plinth with a nose hole. I find a more effective way to loosen scarred and shortened fibres in the upper trapezius and posterior neck muscles is to put them on stretch first, so that all the slack is taken up, and then massage them longitudinally. This position is shown on page 13.

The other very common area of muscle overwork, straining and scarring is the upper trapezius muscle between the neck and the shoulder. These fibres overstrain and scar because they come to provide

the major portion of support to the shoulder girdle so the arms and hands can operate, while the middle and lower trapezius fibres become stretched out and weaker. This imbalance tends to get worse unless corrected. One side-lying position to massage these upper trapezius fibres is shown on page 14.

These two massage positions cover the release areas most commonly needed. Good comprehensive massage will pick up other areas of tightness. There are other muscle groups likely to be tight and scarred from repeated work in a hunched position. They include the pectoral muscles as these are in a shortened position when using the hands at, say, a computer keyboard; muscles round the side of the neck, especially sternocleidomastoid; and serratus anterior, which pulls the scapulae forward around the rib cage.

Massage is an essential part of any treatment programme. On its own it will loosen off tight, scarred muscles. However, it will not unlock jammed spinal joints if these are tight enough, and it also won't provide support strength. The other components in the Backpod programme (muscle strengthening, stretching, mobilising, posture and the Backpod itself) will almost certainly also be needed.

Backpod® combined with yoga, the Feldenkrais Method, the Alexander Technique, and ergonomics

Yoga: Reasonable flexibility is good, and yoga is good at producing muscle flexibility. However, if the specific joints in the thoracic spine are too thoroughly jammed, self-stretching does not have the leverage to free them. We can only move our spines by ourselves as a unit, so the parts that are moving well will reduce the force we can bring onto any parts that aren't moving.

The Backpod can bring much more leverage to bear on a specific vertebra, and is a highly effective addition to a yoga session. The same principle applies to scarring inside a muscle. You can stretch the whole muscle with yoga, but often specific massage with its higher leverage is necessary to break down the patch of scarring in it.

The Feldenkrais Method and the Alexander Technique both aim to teach correct, perfectly balanced movement. This is a worthy goal, but again if the spinal joints are sufficiently locked before you start, in my experience they won't free themselves just by moving correctly. The Backpod and its programme provide the specific higher leverage loosening needed to obtain the full benefit from both of these approaches.

Ergonomics: There is a whole area of ergonomics concerned with the appropriate positioning of computer screens and their keyboards for their operators. The advent of laptops, tablets, smartphones and similar devices has made ideal positioning virtually impossible, as their screens cannot be detached from their keyboards. Granted, extra screens or keyboards can be attached, but almost no-one ever does, because of the loss of convenience and portability.

So even more hunching forward is required to use the new devices, hence the surge in neck and upper back problems. Given that people aren't going to stop using the technology, the Backpod and its programme are logical ways to unwind its effects on the spine, ongoing.

For a more detailed analysis of the musculoskeletal consequences of hunching, see the iHUNCH page on the Backpod's website www.backpod.co.nz See also the Wikipedia entry on the iHunch.

Backpod® for gymnasiums, Pilates and personal trainers

The Backpod user guide contains two simple muscle strengthening exercises. These are highly useful, but cannot be as effective as a comprehensive supervised strengthening programme. The usual hunched forward/poked chin neck pattern arising from bent-forward activity leads to a standard imbalance in the muscles involved. The hands are being used, so the pectoral muscles of the chest become strong and tight. However, the retractors of the scapulae (especially the **middle and lower trapezius fibres and rhomboids**) become stretched out and weak.

An indicator of this is a wide gap between the inner edge of the shoulder blades and the spine. This shows the scapulae have migrated around the rib cage, pulled by the tighter, stronger anterior chest muscles. These are not restrained by the weaker stretched-out middle back muscles, giving rise to a stooped-forward upper back and hunched-forward shoulders. So these are the ones that need concentrating on in a strengthening programme to correct a neck or upper back problem.

There are many techniques, but obvious ones to include are the one-arm bent-over dumbbell row (a bit like the action of pull-starting a motor lawnmower), the seated row, lateral pulldown, and the two-arm bent-over barbell row. A high bench, where the client can lie

face-down and pull a barbell up to the underside of the bench, is particularly accurate for this whole group of muscles. Correct form on all these exercises includes the chin held in and the shoulder blades squeezed hard together. The lateral pulldown bar should always come down in front of the face and never behind the head. For gym warm-ups and cardiovascular workouts, use rowing machines and cross-trainers as these work the middle back muscles unlike, say, exercycles.

The other muscles essential to counter the chin-poked-forward posture are the **longus colli and other deep neck flexors**. These hold the chin in, and are usually missed by personal trainers and gym programmes. However, the neck cannot maintain correct posture, with the chin easily held in, unless these muscles are strong enough to do it. They can be surprisingly weak and should always be tested. Frequently, a client with immense strength in the upper trapezius and neck extensors can hardly lift their head off the ground with the chin held in (which requires strength in the deep neck flexors). This is at least partly why they have a neck problem. See page 11 for the strengthening exercise.

About us

The Backpod® is a product from Bodystance Ltd, a New Zealand company bringing practical innovations and solutions to very-large-number musculoskeletal problems worldwide. The Backpod® and its programme were developed and tested in New Zealand, and are immediately applicable to most neck and upper back problems anywhere in the developed world - they are the same spines with the same forces acting upon them.

Bodystance Ltd is registered with Medsafe, the New Zealand Medicines and Medical Devices Safety Authority (www.medsafe.govt.nz) and the Backpod® has been notified to the Medsafe data base for medical devices.

USA: The Backpod® has been approved by the FDA as a classification 1, FDA-exempt medical device.

Import and Distribution: Germany

Bodystance GmbH
Berliner Platz 10
97080 Würzburg
e: info@backpod.de
t: +49 931 359 390
f: +49 931 359 3920
www.bodystance.eu



Contact us

Manufacturer:



Bodystance Ltd
Studio 9
31 Dowling Street
Dunedin 9016
New Zealand

email: bodystance@gmail.com
cellphone: +64 274 463 356
www.backpod.co.nz

Product Information: UK

Delphic HSE Solutions Ltd.
5th Floor Abbey House,
282 Farnborough Rd.,
Farnborough, GU14 7NA, UK.
t: +44 (0)1252 856 700
www.delphichse.com