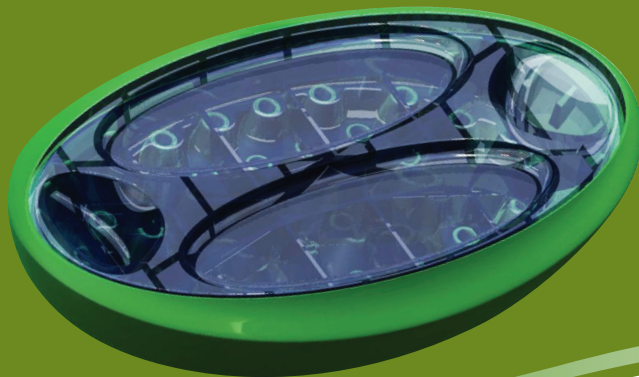


Backpod™

Lie back and treat yourself



USER GUIDE


Bodystance®

Designed and made in New Zealand



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Note from Steve August, B.A., Dip. Physio

Thank you for buying the Backpod™. The views and recommendations contained in this user guide are my own. They are those of a New Zealand physiotherapist with 30 years' experience. This amounts to over 40,000 patient treatments performed personally, plus innumerable courses, conferences, clinical discussions, reading, etc. Views on the strengths and limitations of other treatment and care approaches are fair comment from the viewpoint of a very experienced practitioner.

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Why you have neck or upper back pain

Pain in the neck and upper back is a truly enormous problem. Here's how big: of 400 million people in Europe, statistics show that 300 million will get a neck or upper back problem sometime in their lives, and 60 million will be in acute pain right now, including headaches. Forty-five million people in the USA and 600,000 in New Zealand will have a problem right now. You are not alone! What's going on?

Here's how it happens. We all start out upright: watch four-year olds running around with their heads balanced perfectly above their shoulders. But then we all bend forward to do things – in school and on into adult life. Do enough of this and the upper/middle back tightens into that bent-forward hunch.

Then the muscles along the back of the neck have to work several times harder just to hold the head up – and they strain, scar and tighten. This puts a compressive load on the joints in the neck and they tend to jam up and lock, causing acute pain and headaches. In the worst cases discs and nerves become involved, with pain spreading down the arms. Whiplash and impact injuries also take their toll, but that upper back hunching is the underlying

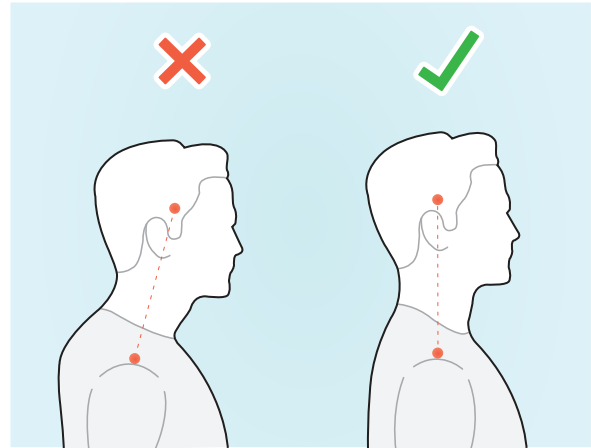


basis of the vast majority of upper back and neck problems in the world today.

And it's getting worse. This forward-bending stoop has accelerated in the last few years with the advent of laptops, iPads, tablets, smartphones and similar. Unlike desktop computers you can't detach the keyboards from the small screens, so users tend to hunch forward even more. What to do? The good news is that because it all happens in a logical pattern, you can treat it logically and

effectively. But you have to treat all the pieces causing the problem. Often health professionals treat only one or two, so you get only very temporary relief. The Backpod™ is a high-tech mobilising tool which uses your own upper body weight to let you stretch out the tightened hunched upper and middle back which drives most neck problems. This user guide also provides the basic stretching and strengthening exercises, home massage and postural techniques that you need to treat and care for your own upper back and neck at home. These aren't time-consuming or complicated. They are also available free as videos on our website www.bodystance.co.nz.

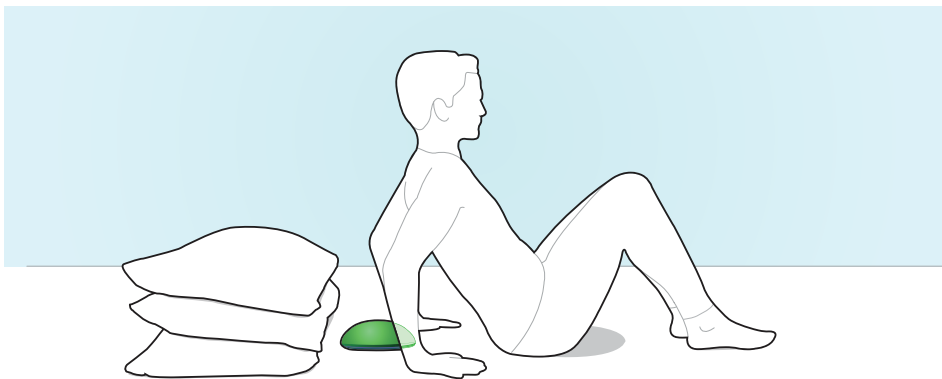
It's fine if you're already under care from a doctor, physiotherapist, osteopath, chiropractor, massage therapist, acupuncturist, Pilates or yoga instructor, gym trainer, pharmacist or other health professional. The Backpod™ and its self-treatment programme fit right in with all the other approaches. They provide stand-alone treatment and maintenance for most middle back and neck problems, but if your specific problem needs extra help, your health practitioner is there to provide it.



We all want you, the patient, to get better, and stay that way.

The second part of this user guide is for doctors, physiotherapists, osteopaths, chiropractors and other health professionals. It contains more detailed information on how the Backpod™ will help their particular treatment approach. The Backpod™ and its programme are highly effective complements to each speciality.

Instructions: How to use the Backpod™

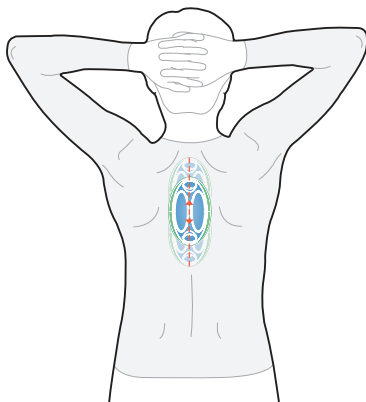


The Backpod™ is designed to stretch out a bent-forward and stiffened upper and middle back. When the joints in the spine have jammed up enough, and the very tough tissue surrounding them has tightened, you can't free them up using your own muscles or body movements. It's no longer enough to just "sit up straight" – you haven't got the leverage to unlock a specific joint or stretch out the stiffened ligaments around it on your own. You can do it with the help of the Backpod™ though. Your own body weight provides the force, and the shape of the Backpod™ localises it to the particular areas that need to free up.

The stretch provided by the Backpod™ needs to be strong, so the first time you use it, start off with three pillows under your head, and if necessary layers of fluffy towel over the Backpod™ itself. This will make the stretch more comfortable. It should definitely not be actually painful. However, the Backpod™ is a real treatment device, not a gimmick, and you could feel some slight discomfort to start off with. It's like stretching a muscle – if you couldn't feel anything, then you wouldn't be doing anything useful.

1 Place the Backpod™ on the floor, flat side down. (Don't use it on a bed or any other soft, springy surface.) Sit on the floor with your knees bent up and your feet on the floor, and gently lower yourself onto the Backpod™ so that it lies lengthwise under your spine between your shoulder-blades – as shown in the picture on the front cover of this user guide.

2 Place your hands behind your head, and let your shoulders and back relax. Hold your chin in slightly. You may feel some slight discomfort but this will usually disappear inside a minute as the spine stretches out a bit. If you think it's still too sore, just add some more padding over the Backpod™.



3 Relax in this position for 30-60 seconds. Let your elbows also relax and drop, which will stretch your chest muscles. Breathe slowly and deeply. Any initial discomfort should ease off.

4 Every 30-60 seconds change your position about 50mm (2 inches). Work the Backpod™ up and down your middle back and about the same distance out to both sides. Don't go up the spine as high as your neck or lower than the bottom of your rib cage. Most tightness occurs around the shoulder blades, so concentrate on that area. Positioning the Backpod™ about 50mm (2 inches) out to one side of the spine between it and the shoulder blades mobilises the rib joints, which can get tight just as the spine does.

Spend several minutes working around the whole middle and upper back area like this. You can do this once a day at home or at work, most days a week. If the spine feels too tender, stretch only every second day.

5 When stretching with the three pillows becomes comfortable, you can make the stretch stronger by using just two pillows. When that feels acceptable drop back to one, and then to no pillow at all. Depending on how tight your back is, it may take weeks to get to this point. Stick with it – it's very tough material you're loosening, and it may have been frozen up for many years.

If you feel you need more leverage turn the Backpod™ sideways across your spine. The tighter curve across the Backpod™ will apply more localised pressure to your back.

When you can do a session on the Backpod™ with no pillows and no discomfort you've reached your goal! What this means is that nothing is jammed and everything has been stretched back to normal flexibility, and no longer hurts to move. To keep everything freed up, just use the Backpod™ once a

week, or only if things feel as if they're getting tight again.

Using the Backpod™ in a sitting position: You can also use the Backpod™ in a chair or car seat. Just slip it down between your upper back and the seat and lean back onto it. This sitting position gives a milder stretch than the lying position. When driving a car or truck you can push back against the steering wheel to give a stronger stretch against the Backpod™, so it's an excellent opportunity for plenty of stretching when commuting or on a long trip.

Further treatment: The Backpod™ can stretch out a tight spine more effectively than anyone can with just their own exercises. But some spines can be so tight that they also need manipulation or mobilisation from a manipulating doctor, physiotherapist, osteopath or chiropractor. These practitioners can unlock joints so that the Backpod™ can then stretch them the rest of the way, and then keep them free.

Care of your Backpod™

The Backpod™ itself consists of a strong polycarbonate core (the transparent blue inner part) with a cushioning hypoallergenic synthetic rubber outer layer (the flexible apple-green part). The inner core is sculpted to stretch your spine when you lie back on the Backpod™ and the cushioning outer layer is there to make this comfortable enough. The Backpod™ is immensely strong – we've driven a BMW over one to test it for Europe and a Jeep Cherokee to test it for the USA. The Backpod™ was fine both times. So we don't think it's going to break when anyone lies on it, and we think it will last for many, many years.

Any dust or fluff on the outer green layer can usually be brushed or wiped off with a dry tea-towel or bath towel.

More resistant dust or fluff may need wiping off with a warm, damp sponge or towel.

Any oils, such as massage oil or perspiration, should be wiped off as the residue may reduce the life of the green synthetic rubber outer layer. Use a warm, damp sponge or towel, and also mild soap if necessary.

Do not wash the Backpod™ under a tap or submerge it in a sink or basin – the internal core may fill up with water.

Do not put the Backpod™ in the microwave, dishwasher, washing machine or oven.

Do not remove the flexible green outer layer of the Backpod™ as bending it backwards may possibly cause internal cracks in the synthetic rubber.

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

Warnings and precautions

When used sensibly, the Backpod™ is safe to use for almost all common musculoskeletal conditions involving the upper back, middle back and neck. It is a passive device and entirely under the user's control. The only force applied comes from the user's own upper body weight which they can lower gently to lie on the Backpod™. They can get off again if there are problems. Bodystance Ltd is not liable for any damage or injury resulting from non-directed or non-sensible use of the Backpod™, its user guide or website videos.

If problems or pain persist when using the Backpod™ or following its programme, see your doctor or other appropriate health practitioner. It is not possible to build a single product perfectly suited to every patient; however, the Backpod™ and its programme should benefit the vast majority of upper back and neck problems. That the Backpod™ and its programme do not fully solve your particular problem is not grounds for the return of the product – you may also need specific health practitioner intervention(s) as well.

Treatment soreness.

Any effective stretch of tight muscles, tendons or ligaments may produce some discomfort, even mild soreness – just like any warm-up muscle stretch. This doesn't do any harm. Patients commonly describe a “good pain, which is doing the right thing.” Use of the Backpod™ should be graded with pillows and even layers of fluffy towel over the Backpod™ itself so it's not too uncomfortable on any one stretch. Stretching only every second day is recommended if the spine is too tender. If pain is clearly extreme, or persists for more than a day or two, see your doctor or other health professional.

Don't use the Backpod™ if there is reason to suspect a bony fracture, e.g., a heavy impact on the spine or ribs.

Don't use the Backpod™ in the presence of recent surgery, wounds, infections, inflammation, shingles or other skin lesions in the area.

Don't use the Backpod™ for children. Their bones are still growing and their joints are usually fully flexible anyway. However, the Backpod™ programme of muscle strengthening, posture education and home massage can be extremely helpful. It is also available as videos on our website www.bodystance.co.nz/backpod.php.

Osteoporosis and osteopenia

These are conditions of reduced bone density, making the bones more at risk of a fracture. The Backpod™ should be used with increased caution, but mild degrees of these conditions are not a total contra-indication. The Backpod™ provides only a passive stretch of the spine, and can be gently graded by using pillows under the head and padding over the Backpod™ itself. If unsure, check with your doctor first.

Scheuermann's Osteochondritis

The Backpod™ may irritate this condition when it is in the inflammatory phase. However, it is highly appropriate for treatment of the common tight flexed middle and upper back that remains once the inflammation has settled. If unsure, check with your doctor first.

Straight or concave middle and upper backs

This is the one fairly common case where the standard use of the Backpod™ won't help. About 5% of middle backs are straight or even slightly hollowed. This is usually because of a fall on the back or other impact, or an excessively rigid upright posture. The Backpod™ used in the usual way will push these spines further in the wrong direction, causing compressive loading on the joints at the back of the bony vertebrae, which can then jam.

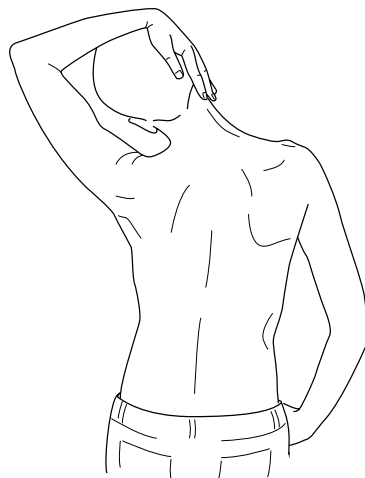
If you think you might have this sort of back, just get someone to look at your spine between the shoulder-blades. If it's straight or hollowed, and the Backpod™ is not helping, see your health professional. There is an effective use of the Backpod™ for this type of spine outlined on page 17 of the Health Practitioner pages: "Backpod™ for straight or concave thoracic spines". The Backpod™ programme will help in any case – especially the massage (see pages 13 & 14: "Massage – two simple techniques").

One simple muscle stretch

Flexibility is good for you. In an ideal world, we'd have time to do an hour's stretching every day. If you haven't got that time, here is the single stretch with the greatest benefit for most neck problems. It is for the upper trapezius muscle which runs from the point of your shoulder across to the spine and up to the base of your skull. When you're wearing a backpack, this is the muscle the straps are resting on, and it's what you use when you shrug. It's usually the first one to tighten up with stress and lots of bent forward work. When you see someone with their shoulders held up around their ears, they need this stretch.

This is a simple side-bending stretch, which can be done sitting or standing. Drop one arm and shoulder down towards the ground and stretch your head sideways away from it, using your other hand to pull your head towards your other shoulder. Keep the dropped shoulder relaxed. You can bend your head forward slightly, and rotate it a little, to pull on different fibres of the muscle. When doing this stretch while sitting, tuck the hand of the dropped arm under your buttock to help keep the shoulder dropped.

If you're doing this at home, hold the stretch for 30 seconds, then do the same for the other side. Do two or three stretches if you have time. In a busy and stressful workplace, even a 10-second stretch from time to time will usually stop the muscle straining and tightening.



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at www.bodystance.co.nz/backpod.php

Two simple strengthening exercises

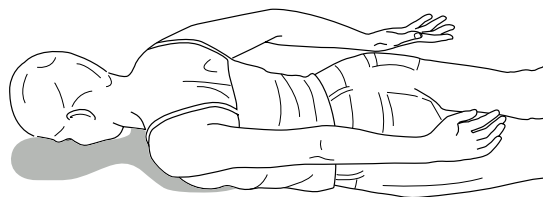
A full gym strengthening programme will do a more thorough job of building up the strength you need to live your busy life. If you haven't got room for that, here are the two strengthening exercises which will give you the maximum benefit for the time and effort involved.

The common hunched-forward upper back/poked-chin posture which is the basis of most neck and upper back problems has two main areas of muscle weakness. One is around the middle back and includes the muscles which anchor and stabilise the shoulder-blades and stop the upper back from drooping forward. (These include the middle and lower trapezius fibres and the rhomboid muscles.) The second group that gets really weak are the deep muscles around the front of the neck. When this happens, the chin pokes out and the joints at the back of the neck bones are compressed, which can result in joints jamming and trapping of the nerves which run out between the bony vertebrae.

1 To strengthen between the shoulder-blades, lie on your front, arms by your sides with palms upwards, chin tucked in. Squeeze your shoulder-blades together, lift your chest slightly up off the

ground, and lift your straight arms up so they are just off the ground. Hold that position for five seconds and then relax. Do it ten times in a row. This is called a 'set'. Rest for a minute, then do another set. Rest for another minute, then do a third set.

Do this exercise at home every day or every second day. When it becomes easy, move your hands inwards so the knuckles are just above each buttock. When that becomes easy, do it holding a half-kilogram (one pound) weight in each hand. Then when that's easy use a one-kilogram (two pound) weight; then finally progress to a two-kilogram (four pound) weight. You can stop there – you're strong enough! If you don't have hand weights, you can use cans of beans for half-kilogram weights, and one-litre plastic bottles filled with water for the one-kilogram weights, and two-litre bottles for the two-kilogram weights.



2 To strengthen the front neck muscles, lie on your back on the floor with your knees bent and your feet on the floor. Roll your head slightly to tuck your chin in, hold it carefully in, and lift the back of your head only a centimetre or two (half an inch) off the floor. Hold that position for ten seconds, then relax and rest. Repeat the exercise until you have done it ten times.

It's most important that this exercise be done accurately – don't let the chin poke out or the head come too far off the floor. To start with, if you can't hold the position for a full ten seconds, just hold it correctly for as long as you can. Also, if you can't do ten lifts in a row, just do as many as you can correctly. Don't be discouraged if it's hard – it may take weeks before you are strong enough to manage ten full ten-second lifts in a row.

The reason for these two exercises is to get the muscles strong enough to use during the day to hold your neck and upper back in a neutral position which won't strain muscles or joints. This is explained on the next page: 'Posture'.



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Posture

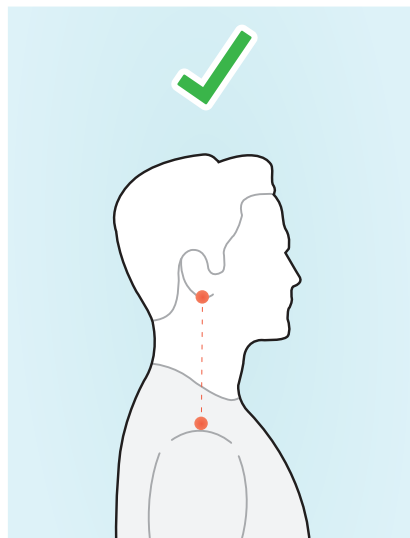
This is easier than you think. The two exercises in the preceding strengthening section will give you the strength you need to hold your neck in a neutral position so that your joints won't jam, even when you are bending forward. Posture is the practical daily application of that strength. It's often explained in a confusing and complicated way and it doesn't need to be. Here's how simple it is:

1 For the neck, hold your chin in a little. Don't let it poke out.

2 For the upper and middle back, hold your shoulders back and down a little. Don't let them hunch.

If you're not sure exactly how far to go, just do both actions as far and as hard as you can, then relax a little from that position. Initially you'll often forget to hold your neck and shoulders like this, but don't give up – it becomes automatic with enough practice, and easy when the muscles get stronger. One indicator that you're getting it right is that your ear lobe sits vertically above the point of your shoulder. (You can notice someone getting it badly

wrong – seen from side on, the back of their head will sit vertically above the front of their chest.)



View our instruction video online
at www.bodystance.co.nz/backpod.php

Massage - two simple techniques

In an ideal world, frequent massage would be part of our lives. Failing that, here are the two massage techniques that are of most use in most neck problems. You need a massage partner. If you haven't got someone on hand, find someone else with a neck problem – which shouldn't be too difficult!

The main muscles that need massage run from the base of the skull down the back of the neck to below the shoulder blades, and also out to the points of the shoulders. (The main ones are called the trapezius, rhomboid and levator scapulae muscles.) When they fatigue and strain, small tears occur which scar up as part of their repair process. A build-up of this scarring (called adhesive fibrosis) shortens the muscles, lifting the shoulders up towards the ears and pulling the head back so the chin pokes out.

The upper trapezius stretch shown in the stretching section on page 9 is a good daily way of keeping that part of these muscles elastic but if they are scarred enough they will also need massage. Massage has much more leverage on tight, tough

muscle scarring than just stretching – like a rolling pin flattening out a chunk of dough into a pancake. Deep tissue massage like this shouldn't be done more than once a week – the tissues need time to recover. You will need some massage wax, massage oil or cooking oil to let your fingers slide easily over the skin.



1 Sitting massage position.

Patient: sit at a desk or table with your forehead on a pillow, rolled towel or something else comfortable.

Clasp your hands behind your neck, then slide them up onto the back of your head, pulling your hair up and out of the way. Tuck your chin in so that the muscles at the back of the neck are gently stretched.

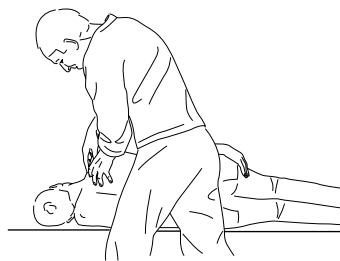
Person massaging: work up and down the neck and back muscles from just below the shoulder blades right up to the base of the skull. Take your time and go gently to start with. Use your fingers, thumbs or knuckles to work the muscle fibres lengthwise. You may feel harder lumpy bits in the muscles – they are the scarred patches so concentrate on them. Spend about 10-15 minutes doing this.



2 Side lying massage position.

Patient: lie on your side, with your head dropped sideways (without a pillow if that's comfortable enough). Your top shoulder should be relaxed and dropped in the direction of your hip, with your hand around your buttock to hold it like that. Your hips and knees should be bent up so you don't roll around. This position stretches the upper trapezius muscle running from the shoulder up the neck to the base of the skull, which is usually the first one to strain and tighten during bent forward work.

Person massaging: massage along the length of this muscle. Concentrate on the hard patch of scar tissue usually found between the shoulder and the neck. Start gently. You can work more deeply into the muscles once they have warmed up. Spend about 5-10 minutes working on each side.



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™ 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 (C0/1) 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.bodystance.co.nz/backpod.php.

Backpod™ in conjunction with manual physiotherapy, 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 to simply 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 5%) 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.

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.

Backpod™ for costovertebral (CV) joint problems

Much bent-forward activity using the hands can lead to an excessively kyphotic thoracic spine with facet joints locked in flexion. The same problem can occur at the costovertebral (posterior rib) joints. These can lock acutely in flexion, causing very sharp unilateral local pain slightly to the side of the spine which can track around the rib(s) to the sternum. 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're locked acutely in flexion.

Treatment is logical: manipulation, mobilisation and/or the Backpod™ to free the locked CV hinges, with NSAIDs and heat for the inflammation and muscle spasm in the acute phase. Active rotations by the seated patient towards the side of the pain will work the CV joints out of their locked flexion positions. As with thoracic facet problems, the Backpod™ is ideal for stretching tightened capsules and ligaments around the CV joints so these can free up fully. The patient lies back on the Backpod™ in the usual position, but with the Backpod™ positioned longitudinally slightly to the side of the spine, under the curve of the painful rib(s) (i.e., between the spine and the scapula). A sustained stretch for several

minutes daily is usually enough.

The other aspects of this common problem include strong, tight pectoral muscles and hunched-forward shoulders resulting from much work using the hands, and weak stretched-out scapula retractor muscles, especially the rhomboids and middle/lower trapezius fibres.

The exercise on page 10: 'Two simple strengthening exercises' is ideal for building up these weaker muscles at home.

Backpod™ for T4 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.

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 ankylosing spondylitis, Scheuermann's Osteochondritis and Parkinson's Disease

All these conditions affect the middle back. **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 flexion contraction.

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.

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™ before and after neck surgery

The Backpod™ is particularly useful for patients undergoing cervical laminectomy or foraminotomy operations. These are performed to trim back any bony impingement on the nerves as they exit between the vertebrae through the intervertebral (IV) foramina, usually at the C5/6 or C6/7 level. These patients are typically older, with hunched upper thoracic spines. An exit canal is not a fixed space – it opens up more with cervical flexion and closes down with extension. Excessive thoracic kyphosis requires the patient to extend their neck just to look ahead, which has a closing down effect on the IV foramina, exacerbating the impingement problem. The Backpod™ can be used in the usual way to reduce an excessive thoracic kyphosis, thereby reducing the closing down of the cervical 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 IV foramina. This is increased by surgical scarring after a posterior entry operation. These shortened cervical extensors are usually found in conjunction with very weak longus

coli and deep neck flexors, giving rise to a poked-chin posture. The Backpod™ user guide contains stretches, massage, posture and strengthening exercises to specifically counter this pattern. This means that the patient should get the full and lasting benefits of the operation performed.

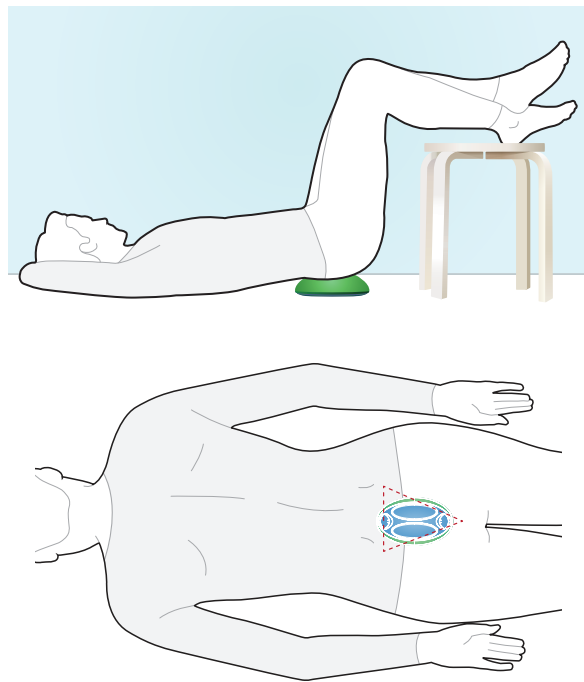
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Backpod™ for sacroiliac joint mobilisations, and coccydynia (tailbone pain)

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 André Freeling'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.

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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 makes good 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 which teach ongoing home care of the upper spine are free for any patient to access.

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.

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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 more cardiovascular work-outs, use rowing machines and cross-trainers as these solidly work the middle back muscles unlike, say, exercycles.

The other muscles essential to counter the chin-poked-forward posture involved in most neck problems are the longus coli 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 (which are essentially what are being used to hold the head up) 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.

The exercise shown on page 11: 'Two simple strengthening exercises' should be part of any gym or exercise programme designed to help a neck problem.

Appropriate muscle strength supports the spine as taut guy-ropes do a flag-pole or boat's mast. However, if some of the spinal joints have become jammed too tightly, with shortened joint capsules and ligaments tightened around the immobile hinges like small clenched fists, muscle strengthening on its own will not be enough to free the movement. The Backpod™ will free up the tight, flexed upper/middle back movement if it is not too tight. Manipulation and mobilisation will need to be added if it is.

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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

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.

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, iPads, smartphones and similar devices has made ideal positioning virtually impossible, as their screens cannot be detached from their keyboards. 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.

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at www.bodystance.co.nz/backpod.php

Backpod™ for chronic asthma, bronchitis and some other respiratory conditions

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.

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.

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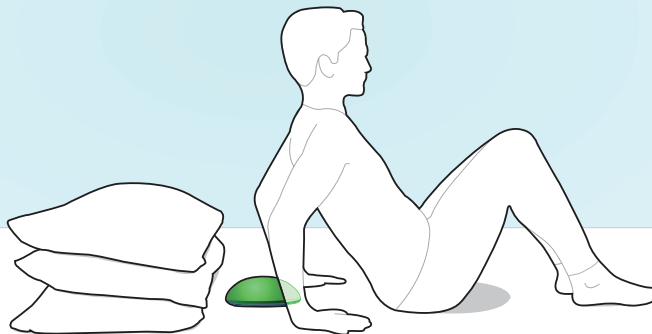
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See pages
3-5 inside
for more
detailed user
instructions



- 1** To start - Lie back on the floor with your knees bent and your head resting on three pillows.
- 2** Position the Backpod™ lengthwise under your spine between your shoulder-blades. Add layers of towel over the Backpod™ for more comfort if desired.
- 3** Place your hands under your head and relax onto the Backpod™ for 30 seconds. Repeat this stretch several times, re-positioning the Backpod™ up and down the middle back and slightly out to the sides of the spine.

This Bodystance® product and its user guide are designed to help the vast majority of upper back, middle back, and neck problems. Your particular problem may also need health practitioner expertise.

See this user guide or our website www.bodystance.co.nz for detailed information and precautions about using the Backpod™. If you are unsure, or should pain persist, check with your health professional.

Bodystance®

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