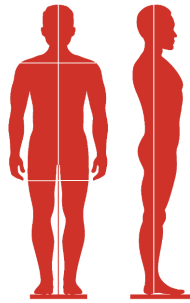




Back in Alignment



**The individual and group
strength and flexibility
training program for
people with personally
-generated joint and
muscle pain.**

- self-paced learning module -



BACK IN ALIGNMENT

IT'S THE SYSTEM

Look after the system, keep it in good alignment, keep it supported by strong muscles and the parts will look after themselves.

If muscles attached to the pelvis tighten up and take the pelvis out of alignment, it's highly likely that bones above and below the pelvis will be taken out of alignment too. it's pretty much potluck in which part of the system you'll feel the pain, the most 'popular' being lower back, hips and knees.

Allied with the Back in Alignment program is the Clinical Diagnostic Assessment – the aim of which is to find out which muscles are tight, which muscles are weak and let you know the exercises on which you need to concentrate in order to get your skeleton back into better alignment and free of joint and muscle pain

As Bill Clinton might have said, *'It's the system stupid.'*

Back in Alignment

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Miller Health Pty Ltd

7 Salvado Place, Stirling ACT 2611

john.miller@millerhealth.com.au

(61) 424 391 749

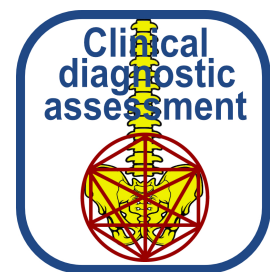
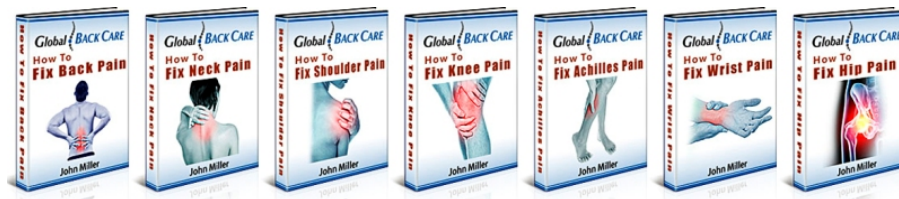


Back in Alignment is a fitness centre based, musculo-skeletal health program designed to relieve **personally-generated joint and muscle pain**, particularly lower back pain. It's one of a stable of musculo-skeletal health programs that includes

- [Global Back Care](#) books and videos
- [Clinical Diagnostic Assessment](#)
- [Back in Alignment](#)



The suite of [Global Back Care](#) ebooks is available online from the global back care website.



The Clinical Diagnostic Assessment of personally-generated joint and muscle pain can be completed online or on Zoom.

In the meantime, stay tuned, highly tuned and remember, it's a big ask expecting to get better by having someone do something to you: sooner or later you have to do something to yourself.

John Miller



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Life is like riding a bicycle. To keep your
balance, you must keep moving.
Albert Einstein



THE BEST THERAPY

Passive manipulative therapy doesn't take the place of what you can do for yourself to get your skeleton back into better alignment. Passive manipulative therapy doesn't make your muscles stronger. It may make them looser, temporarily, but you have to keep going back.

Save your money, loosen and strengthen your muscles yourself.

Even though you may feel better after a rub down or a crunch, the cause of your problem – a lack of strength, flexibility (that's led to skeletal misalignment) isn't being addressed. You have to do that yourself.

The best therapy is a regular strength and flexibility training program: the sooner you start, the more often you do it and the longer you do it, the sooner you'll be on the road to recovery.

Any manipulative therapy may help speed up the rehab process but it won't take the place of that which you, yourself can do to loosen tight muscles, strengthen weak muscles and get your skeleton back into better alignment.

Only on the rarest of occasions is lower back pain caused by a lack of rubbing, crunching, heating, cooling, hanging-upside-down, vibrating, electronic muscle twitching, doping or surgery.

PREFACE

PERSONALLY-GENERATED JOINT AND MUSCLE PAIN

There is an epidemic of personally-generated joint and muscle pain. 30% give themselves 5/10 or less when asked to rate the current condition of their musculo-skeletal system. Most people with joint and muscle pain do not have, and never have had a regular and systematic strength and flexibility training program.

The Clinical Diagnostic Assessment, where strength and the ability to perform a range of diagnostic postures are measured, is a general fitness assessment, not a medical or radiological assessment. The results of the assessment are accompanied by a program of flexibility and strength exercises designed to get the skeleton back into better alignment, better supported by strong muscles – and pain free.

Radiological imaging is a limp and useless tool in determining causation. It tells you 'what is' not what's caused 'what is'.

FOR INSTANCE

Here are two graphic examples of what tight hamstring and buttock muscles can do to take the skeleton out of alignment. At the time the photos were taken, these men were off work and on workers compensation because of their back pain. The treatment involved rest, together with rubbing and the application of heat at the site of the pain.

1. **an example of tight hamstring muscles,**
This fellow was asked to sit up straight against the wall.
He adopted this position.



2. **an example of tight buttock muscles.**
This fellow was asked to sit up straight with legs crossed and hands clasped behind his back – without falling over.



The remedy is obvious. Loosen off tight muscles attached to the pelvis and get the skeleton back into better alignment. Problem solved. Pain gone.

Introduction

Back in Alignment is an individual and class-based strength and flexibility training program, designed to propel fitness centres into the frontline of healthcare for the diagnosis and treatment of personally-generated joint and muscle pain.

Fitness practitioners are trained in providing their clients with strength and flexibility training programs. The Back in Alignment program takes their scope of practice to a slightly higher level to

- provide their clients with a postural diagnostic assessment to determine which muscles are tight, which muscles are weak and which muscles have taken the skeleton out of alignment and
- prescribe exercises to loosen the tight muscles and strengthen the weak
- to conduct individual and group strength and flexibility classes.

The premise is that a high proportion of joint and muscles pain occurs when, over the weeks, months, years and decades, tight muscles gradually pull bones out of alignment and weak muscles fail to support the skeleton as it goes about its daily tasks.

The underlying cause is the lack of a regular and systematic strength and flexibility training program.

The blame is frequently laid on incidents that people in good condition take in their stride – things as trivial as cleaning a desk, picking a leaf up off the ground, putting a bag of groceries into the back of a car – rather than the person.

Passive treatment by manipulative therapists, focused on the site of the pain does not fix the problem, Trauma excepted, most joint and muscle pain is not caused by a lack of rubbing, crunching, heating, cooling, vibrating, electronic muscle twitching, doping or surgery.

For a high proportion of people, common joint and muscle pain is a fitness problem, not a medical problem and fitness problems need fitness solutions, in this case strength and flexibility exercises.

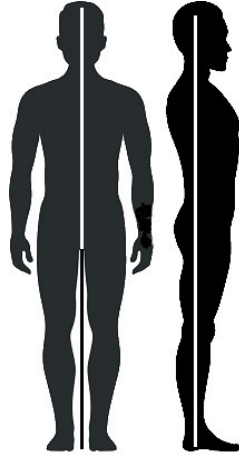
For the fitness practitioner this involves prescribing a suite of exercises and conducting Back in Alignment classes to rectify the problem.

MODUS OPERANDI

1. a musculo-skeletal health seminar to attract people with joint and muscle pain, provide them with general information and enrol them in a strength and flexibility training program.
2. an individual Clinical Diagnostic Assessment,
3. a personal training session to introduce people to the exercises
4. group classes.

For 80% of people there's an 80% chance they can get themselves back to 80% of good musculo-skeletal health in 80 days, if they're diligent.

1. Personally-generated musculo-skeletal dysfunction



Musculo-skeletal dysfunction has reached epidemic proportions in our community. By far and away the greatest proportion of this dysfunction is personally generated by people who have failed to keep their skeleton in good alignment and the muscles that support it strong enough to do everyday tasks without breaking down.

The good news is that if the dysfunction has been personally-generated, there's a better than even chance it can be personally ungenerated – providing the dysfunction can be 'caught' in time.

The epidemic extends to workplaces. In most organisations, when asked, '*How do you rate the current condition of your musculo-skeletal system?*', 50% of people give themselves 5/10 or less. In workplaces, without proper risk management, it is frequently the case that personally-generated joint and muscle pain is erroneously dressed up as a work-related injury. Work health and safety staff are not measuring, managing and monitoring risk. Workers compensation 'insurers' are not measuring risk either. They are not rating their premiums against risk. They are not insurers, they are escrow agents.

The number of people with crook backs, stiff necks, frozen shoulders, bung hips, game legs, dicky knees and limp wrists is legion. The honour roll of people with artificial hips and knees is growing at an exponential rate. Along with the pain that's caused by skeletons that are out of alignment, the private and public cost of poor skeletal alignment and a lack of individual strength and flexibility is horrendous.

The most frequently prescribed treatment is either rest (which means 'do nothing' and hope the pain goes away) an anti-inflammatory tablet and/or a passive therapeutic crunch or rub down.

At worst, the treatment leads on to mutilation when a cartilage or disc is given a shave or a hip or knee joint replaced (without any prior attempt to remediate a problem through strength and flexibility exercise). There is no doubt that the treatment is effective in relieving pain and making a new start, but it is not aimed at restoring the body to its designed state of function.

Passive therapeutic treatment frequently leads to more treatment, not less. It's treatment based on poor diagnosis of the cause of the dysfunction. It's treatment which frequently leads to more dysfunction, not less and to greater rather than reduced dependence on the medical system. For instance, osteoarthritis is, in many instances, inflammation caused by two bones that are out of alignment rubbing against each other. The pain is telling us to fix the alignment problem. Arthritis is not caused by a lack of Celebrex!

If you are suffering from musculo-skeletal pain, the good news is that with the right amount, of the right exercise at the right time, there's a better than even chance that poor function can be restored to good and leave you pain free.

Motion starvation is the underlying cause of personally-generated joint and muscle pain. We don't do enough of the exercises that keep our skeletons in good alignment.

2. Cardinal rules of joint and muscle health



1. (Trauma excepted) muscles move bones out of alignment. That's the bad news. The good news is that if muscles have moved bones out of alignment, there is a fair chance they can move the bones back into alignment. (Egoscue)
2. There is a high likelihood that joint and muscle pain (particularly back, hip and knee pain) is the symptom of a system problem. The skeleton is out of alignment.

For example, if one 'part' (your lower back) of the skeleton is in pain, it's a fair chance that you have a system problem, not just a 'part' problem. Fix the system and the parts will look after themselves. (Feldenkrais)

3. Joint pain is a symptom that the bones on either side of a joint are out of alignment. The joint (in reality a bearing) is becoming worn. Get the bones back into alignment - and there's a fair chance the joint (bearing) will repair itself – providing it is not left too long before the realignment process is started.
4. Pain is a symptom that ligaments, tendons and muscles attached to the bones have been stretched beyond their pain threshold; that intervertebral discs have become herniated and may be impinging on your spinal cord.
5. Treat the cause of the pain and the pain will be relieved. Mask the pain with an analgesic and the structural problem remains – and gets worse. A small problem becomes a big problem.
6. The cause of the pain is rarely at the site of the pain.

Once muscles attached to the pelvis draw the pelvis out of alignment, the bones above and below move out of alignment 'in sympathy.' Doing the exercises that square up the pelvis are essential in getting the skeleton back into better alignment.

7. The reason why vertebrae move out of alignment when the pelvis is out of alignment is to keep the head balanced above the shoulders and the eyes horizontal and looking straight ahead.
8. Form (good skeletal alignment) follows function (the ability to successfully perform a range of postural/flexibility exercises).
9. A high proportion of joint and muscle pain is personally-generated. In a way that's good news because chances are it can be personally ungenerated.
10. If you want to be pain free within the next hour or so, go to the chemist. But if you want to be pain free within the next 6 months (maybe more, maybe less) start doing the exercises that will get your skeleton back into better alignment. NOW!
11. The more often you do the re-aligning exercises and the longer you do them, the quicker your skeleton will get back into better alignment.
12. Most joint and muscle pain is a fitness problem not a medical problem. Which begs the question, 'Why are you going to a medical practitioner when you should be going to a fitness practitioner?'

13. Most medical practitioners don't know how to diagnose the underlying cause of joint and muscle pain. The best they can do is shoot their customers off to the radiologist, the chemist and the manipulator.
14. Generally speaking, the advice you're likely to receive about causation from a radiologist will be unhelpful. All the radiologist does is determine 'what is', not what's caused 'what is'. The radiologist doesn't comment on causation, that's the doctor's job. You're caught in a medical demarcation dispute, not that either the doctor or the radiologist are likely to have a firm opinion as to causation.
15. If the doctor and the radiologist can't determine the cause you can be certain that the prescription to fix the problem will be inadequate in the extreme.
16. The Australian National Health and Medical Council (NH&MRC) opinion on causation is particularly unhelpful:

'The majority (approximately 95% of cases) of acute low back pain is non-specific; serious conditions are rare causes of acute low back pain.'

The term, 'non-specific' is code for 'it doesn't have a cause', or 'we don't know the cause'. And despite the fact that 'serious conditions are rare', serious and expensive medical treatments, like surgery (coupled with the dangerous practice of prescribing opioids) are becoming more and more common.
17. The information on the Arthritis Foundation or America website is vague and useless. All it can come up with is, 'There is no sure way to prevent arthritis.' It has nothing to say about skeletal alignment or which exercises to do to restore poor alignment to good. One is left with the opinion that joint inflammation (arthro – bone, itis – inflammation) comes from 'out of the blue'. Motor mechanics who adopted this approach to wheel alignment would be out of a job in a few days.
18. Hippocrates said, 'The physician speaks with more authority if he's had the disease.' Rarely is joint and muscle pain a disease – it's most frequently a personally-generated dysfunction caused by a body in poor musculo-skeletal condition.

You don't need to be a physician to give people advice on relieving joint and muscle pain. Someone who has relieved their joint and muscle pain is frequently a useful source of advice.

When it comes to the personally-generated body system dysfunctions, YouTube is becoming a better source of advice than most surgeries.
19. The medical approach to relieving joint and muscle pain is commonly described in the literature as 'the usual treatment' – passive therapy that involves rubbing, crunching, strapping, heating, cooling, vibrating, electronic muscle twitching, creaming, doping and surgery – none of which address the underpaying cause of the pain.
20. Passive therapeutic treatments may provide relief, particularly when used in association with long, slow muscle release, flexibility exercise. To be deemed 'successful' the treatment must be able to restore poor function to good.
21. Passive manipulative therapies often do not have the frequency, duration or intensity to restore poor function to good, - quickly and cheaply.
22. Of the passive therapies, long, slow, deep, mechanical massage may be helpful, particularly for sore calves, Achilles tendons and plantar fascia. With the right machinery you can spend hours a day being massaged while you work.
23. Surgery may be necessary in the case of trauma and if particular joints (hips and knees) are beyond personal repair. Research indicates that a high proportion of people who have had back surgery feel little better after the surgery than before. Many feel worse.
24. The missing link in the treatment process is the flexibility (and strength) exercises people have to do themselves. The treatment cannot be outsourced to a passive manipulative therapist or a chemist.

25. For 80% of people there's an 80% chance that they can get themselves back to 80% of 'good nick' in around 80 days - if they're diligent.
26. It's a big ask expecting to stay in good musculo-skeletal health without a good strength and flexibility training program.
27. It's an even bigger ask expecting to get better by having someone do something to you; sooner or later you have to do something to yourself.
28. When it comes to relieving joint and muscle pain, 'Nothing in the world can take the place of persistence.' (Calvin Coolidge).
29. The more often you do the skeletal re-aligning exercises and the longer you do them for, the quicker your skeleton will get back into better alignment and the quicker your pain will be relieved.

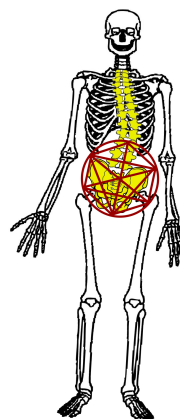
THIS IS WHAT IT'S ALL ABOUT - alignment, alignment, alignment -



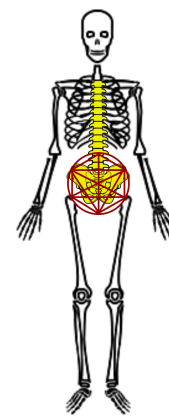
From this ...



... to this



From this ...



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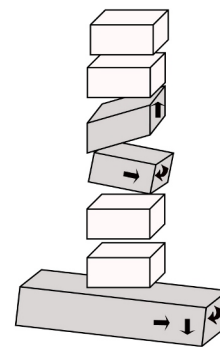
A BODY OUT OF ALIGNMENT

A body in alignment stays in alignment unless acted upon by a force. The force that usually moves bones out of alignment is created by your own tight muscles, particularly those attached to your pelvis. Sitting down for long periods of time would seem to be the main culprit.

The corollary is that a body that's out of alignment stays out of alignment unless the tight muscles that have taken it out of alignment are loosened off.

Joint and muscle pain is the body's way of telling you your skeleton is out of alignment and not well supported by strong muscles.

The good news is that if you loosen up the tight muscles, there's every likelihood you'll get your pelvis and the bones above and below it back into better alignment. The pain that was telling you to get your skeleton back into better alignment goes away..



Muscles attached to the pelvis cause it to tilt and rotate; bones above and below it move out of alignment

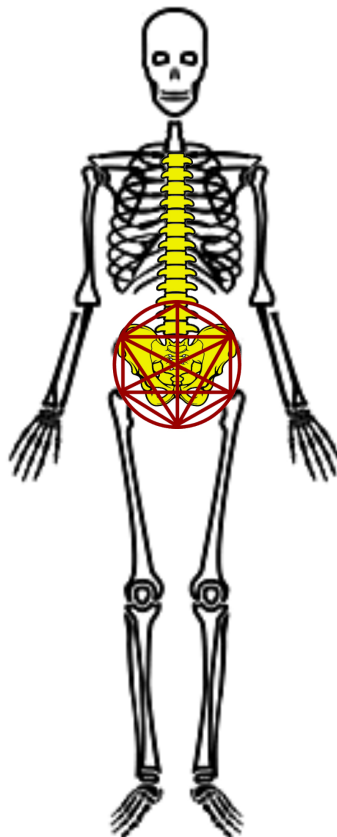
3.



THE SCIENCE

**A body in alignment stays in alignment
unless acted upon by a force.**

- with apologies to Isaac Newton -



**Muscles that do not move are soon
muscles that cannot move.
Pete Egoscue**

4. Tensegrity



Our common practice in western medicine is to reduce the body into parts ... and treat them ... in isolation. This form of reductionism is often simplistic. The tensegrity structural design principle recognizes that stability and ease of movement ... are determined by the way the entire system is configured. Kelly Clancy 'Tensegrity'

The term 'tensegrity' was coined by Buckminster Fuller in the 1960s as a word meaning 'tensional integrity'.

Tensegrity (or in the case of the human body, 'biotensegrity') is a combination of the words 'tension' and 'integrity' that defines a structural principle in architecture. It's a principle that lends itself to illustrating how fascia, ligaments, tendons, muscles and other internal structures work together to make sure the skeleton stays in good alignment.

A weakness or tightness in one part of the body may cause the entire structure to shift and disrupt tensegral balance. Pain appears in one or more joints. The pain is telling you to get your skeleton back into better alignment.

If you have a system problem, the pain is not telling you to rub or manipulate the site of the pain. The pain is telling you to 'fix the system'. Rubbing, crunching, heating and vibrating the spot where it hurts doesn't fix the system.

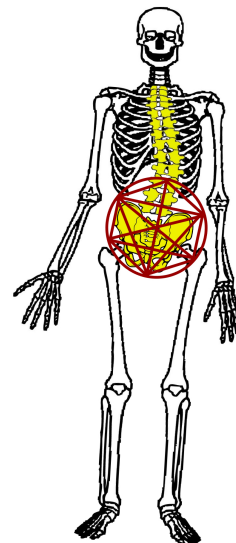
A pelvis in alignment stays in alignment unless acted upon by a force.

The pelvis is the largest bony complex in the human body. It's the 'foundation' of what goes on both above it and below it.

The tensegrity of the pelvis depends on the equilibrium created by the muscles, tendons, ligaments and fascia that are attached to it and hold it in place. As muscles attached to the pelvis tighten up, the pelvis is gradually drawn out of alignment. When that happens the structural integrity of the skeleton is disturbed, which explains why the cause of the pain (above and below the pelvis) is rarely at the site of the pain. See diagram opposite.

Disruption of this tensegrity system is the source of joint misalignment and degeneration, the symptom of which is joint and muscle pain.

The body is designed to take (as a system) the strain that occurs when moving and lifting. With good lifting technique, the body distributes the strain, with the larger muscle groups doing the 'heavy lifting'.



When the skeleton is out of alignment, the continuous lines of tension in the body are disrupted, the risk of more serious joint and muscle pain is increased. You've been 'tipped over the edge'.

The whole structure is compromised. It's 'potluck' which joint will be the first to experience pain. Because of their proximity to the pelvis, the most frequently misaligned joints are lower back, hips and knees.

The best therapist

The aim of any therapy is to get the skeleton back into better alignment and supported by strong muscles. Look after the whole and the parts will look after themselves!

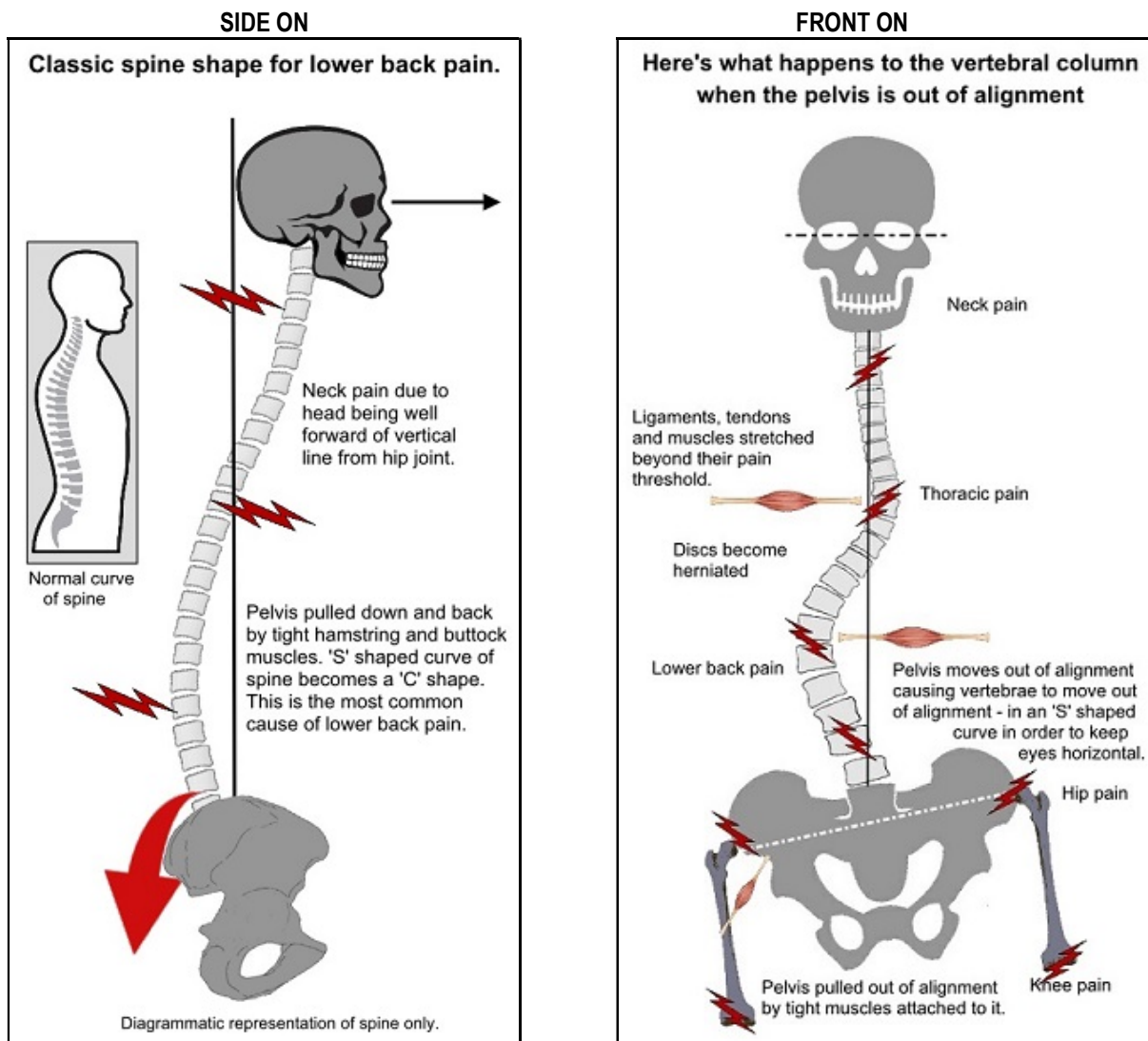
The best therapist is yourself. You can't sub-contract out a strength and flexibility training program.

5. The genesis of joint and muscle pain

Whilst lower back pain is the most frequently reported symptom of joint and muscle pain, neck, shoulder, hip and knee pain aren't far behind. Some of the pain - but only a small proportion - is the result of trauma: people have accidents.

Back pain is often alleged to be the result of lifting, but it's an allegation that doesn't stack up well in court. Think about it. People go to the gym and lift weights to make them stronger. Rarely do they come down with back pain. Go figure!

Most joint and muscle pain allegedly caused by lifting is personally-generated. If the skeleton is already out of alignment, if muscles are weak, then lifting a leaf off a lawn is enough to send some people 'over the edge', herniating a disc. The lifting incident and the site of the pain distract attention away from the most likely cause(s).

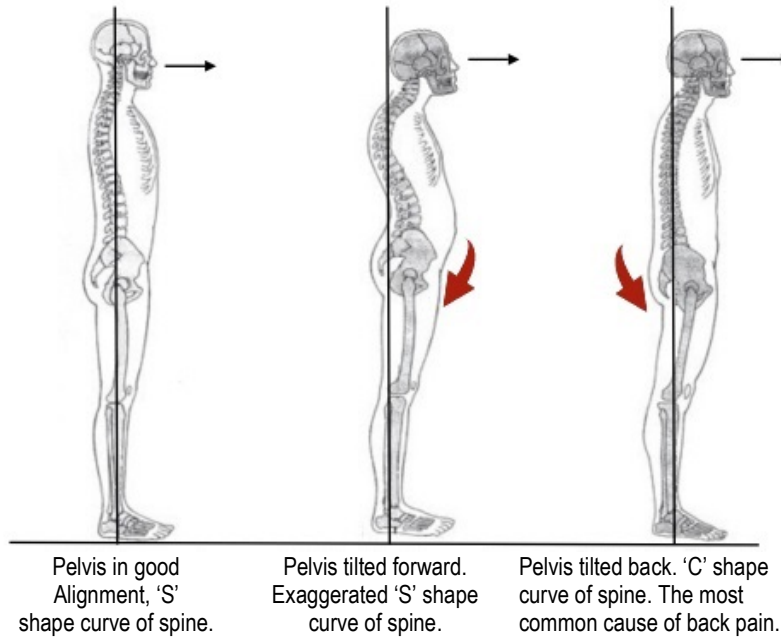


So, who do you blame?

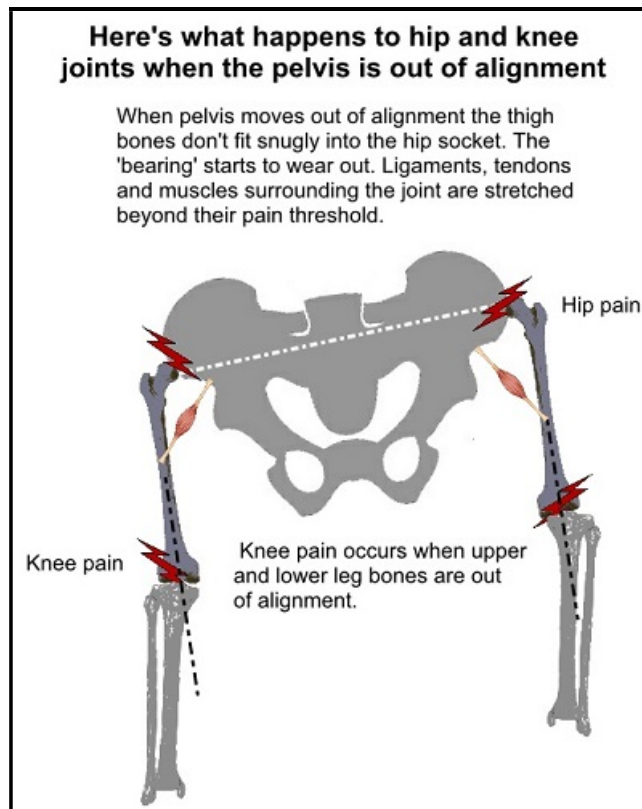
1. Blame tight muscles for taking first the pelvis and then the bones above and below it out of alignment.
2. Blame weak muscles for their inability to support the skeleton while lifting, pushing, pulling etc ...

If pelvis is out of alignment, the spine twists and turns in order that the eyes can look straight ahead and remain parallel to the horizon. In the side-on diagram, the natural 'S' shaped curve of the spine becomes a 'C' shape.

Spinal mis-alignment - side on

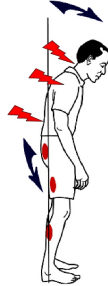


HIP AND KNEE PAIN

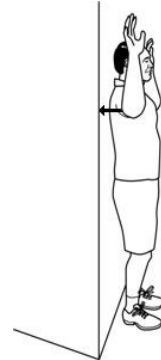


SHOULDER PAIN

The genesis of a lot of shoulder pain is tight hamstring and buttock muscles, the net effect of which is the 'C' shape curve of the spine - and shoulders out of alignment.



Good shoulder function. Wrists and fingers against the wall in the surrender position.



Poor shoulder function. Forearms well away from the wall.

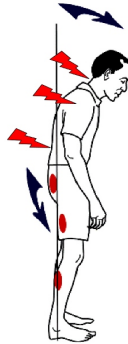
Most people with shoulder pain can't get their arms flat back against a wall in the surrender position. In fact, it's not uncommon to see people who have a gap of at least 20cms between their vertical lower arms and the wall.

The other cause is tight muscles around the shoulder girdle.

This means that if you want to improve your shoulder function you have to do the exercises to relieve lower back pain as well as strength and flexibility exercises at the shoulder level.

NECK PAIN

The genesis of a lot of neck pain is tight hamstring and buttock muscles the net effect of which is the 'C' shape curve of the spine - with shoulders and head out of alignment.



Head in good position



Head in poor position

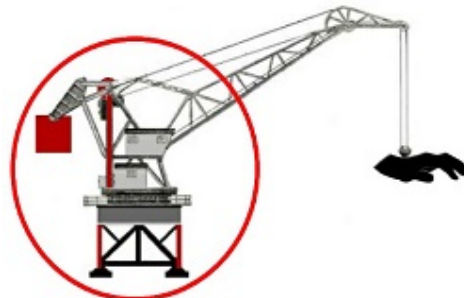
Men with sore necks usually have a head that's too far forward of where it should be. When they put their head back against a wall their eyes will be looking up at the ceiling. Their heads can be anywhere up to 10 cms too far forward when they are looking straight ahead. The weight of the head pulls ligaments, tendons and muscles beyond their pain threshold. Over time bones move out of alignment. Discs between the bones become herniated.

Women with sore necks tend to have weak muscles in the neck region. The muscles designed to support the head on the top of the shoulders aren't up to the job.

WRIST PAIN

Wrist pain comes at the end of a long chain of dysfunction. In particular, it is intimately related to the skeletal alignment and the strength of your trunk and shoulders.

The wrist is at the end of a complex set of levers and unless the foundation is rock solid, and the whole system is strong, in good alignment and working properly, you can finish up with upper back, shoulder and wrist dysfunction all in one go. Getting someone to rub your shoulders doesn't do much to fix what is a system problem.



6. Fundamentals of a flexibility (muscle loosening) training program

Flexibility refers to the ability to maintain a wide range of movement about the joints of the body. When they are not stretched regularly, muscles and tendons become shorter and the range of movement around the joints decreases.

When it's all boiled down, we're really talking about creating the conditions for muscles to loosen off. It normally takes about a minute for a muscle to 'get the message' that it's safe to loosen off; so do your stretches for at least that long. With every breath you breathe out just feel the muscle relaxing off.

Crook backs go well with tight back, buttock, hamstring, hip flexor and calf muscles. Crook necks and shoulders also benefit from stretches that are focused on parts of the body lower down - as per our belief that the site of the pain is probably not the site of the cause of the pain. Loosen and strengthen muscles attached to the pelvis so that you stand in a better posture and you may well find your neck and shoulders start to feel better.

By far the greater proportion of people who complete our musculo-skeletal risk factor profile do not have a regular and systematic flexibility or strength program. Is it any wonder then that 50% of adults have some form of musculo-skeletal dysfunction?

ONE MINUTE FLEXIBILITY TRAINING PROGRAM

We recommend the one-minute flexibility training program for people with crook backs and necks. What this means is that you need to do each exercise for at least a minute to get any benefit from it. If you can stretch for longer, so much the better. Many of the exercises will enhance joint function if you stretch for 2 or three minutes.

I often do my stretches while I'm watching television. That way I can take my time and spend as long as I like doing them. I do a hamstring flexibility exercise in the shower - every time I have shower. I also do 20 half squats in the shower, with my back against the tiles, sliding up and down. It's not a pretty sight!!

I recommend isometric stretching as an effective way of loosening tight muscles and have included some isometric neck stretches in our list.

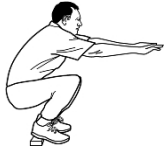
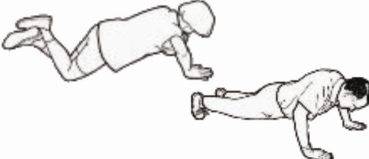
If you regularly do the exercises listed on the next few pages, there is a good chance that your back, neck and shoulders will feel better. A minute spent on each exercise can make a big difference.

Most people and their manipulative therapists treat back pain as a local problem.

On the contrary, it's a system problem; the skeleton is out of alignment.

Fix the system and the back will look after itself.

7. Musculo-skeletal health risk assessment

1. Current condition This is a subjective assessment of how you perceive your current level of musculo-skeletal health. Take into account aches and pains and limited mobility and function compared with when you were 'at your peak'.	
2. Body composition. How close are you to your ideal weight? You can estimate the number of kilograms over your ideal weight. In a clinical situation we'd use percent body fat.	
3. Lower body strength – squats – how many squats can you do until exhaustion. Your bottom must go lower than the crease at the back of your knees. If you've got sore knees either don't proceed or proceed with caution.	
4. front of body strength – sit-ups to exhaustion. Arms crossed and hands clasping shoulders: knees bent. There is evenly divided conjecture about whether it is safe to do situps with feet held. I believe the exercise is safe. Many people cannot do 1 situp without their feet held. Proceed with caution.	 If it hurts, stop doing it
5. Upper body strength – press-ups to exhaustion. If you've got painfully sore shoulders either don't do this exercise or proceed with caution – and/or don't do too many.	
6. Hamstring flexibility – sit and reach. Sitting on the floor, with feet outstretched in front of you, see how far down toward or past toes you can reach with your fingers. Keep your knees straight.	
7. Buttock flexibility - ability to sit up straight with legs crossed and hands clasped behind your back, see if you can sit up straight without falling over backwards.	
8. Shoulder function – wall test Stand with you heels, bottom and shoulders back to the wall. Place your hands in the surrender position. The aim is to get your fingers, wrists and forearms flat against the wall.	
9. Strength training behaviour	
10. Flexibility training behaviour	

Musculo-skeletal health risk assessment scores

1. Current condition.

How would you rate the current condition of your musculo-skeletal system?

Dreadful										Excellent
0	1	2	3	4	5	6	7	8	9	10

2. Body composition: how close are you to your ideal weight?

Current weight Ideal weight Percent body fat

Kg over ideal wt	>25	<25	<20	<15	<10	<7	<4	<2
% fat men	<40	<40	<36	<32	<29	<26	<23	<20
% fat women	<50	<50	<46	<42	<39	<36	<33	<30
	3	4	5	6	7	8	9	10

3. Lower body strength – squats – until exhaustion #.....

Squat so your bottom goes down to at least the crease in the back of your knees and stand up straight with legs fully extended.

>6	6	8	10	12	14	16	18	20	22	24
0	1	2	3	4	5	6	7	8	9	10

4. Front of body strength – situps feet held - until exhaustion #.....

Men on toes, women on front of thighs.

>6	6	8	10	12	14	16	18	20	22	24
0	1	2	3	4	5	6	7	8	9	10

5. Upper body strength – press-ups – until exhaustion #.....

Men on toes, women on front of thighs.

>6	6	8	10	12	14	16	18	20	22	24
0	1	2	3	4	5	6	7	8	9	10

6. Hamstring flexibility – sit and reach. How far down can you reach.

Can't touch	Fingers			Palm			Wrist
0	4	5	6	7	8	9	10

7a. Left buttock flexibility – sit up straight, legs crossed, hands clasped behind back.

Right leg under	Big fail	Nope	Almost	Just	Good	Perfect
	0	1	2	3	4	5

7b. Right buttock flexibility – sit up straight, legs crossed hands clasped behind back.

Left leg under	Big fail	Nope	Almost	Just	Good	Perfect
0	1	2	3	4	5	

Ttl

8. Shoulder function – stand against the wall, arms vertical in the 'surrender' position. The further they are away from the wall (in cms) the lower the score.

>15	15	13	11	9	7	5	3	2	1	Flat
0	1	2	3	4	5	6	7	8	9	10

9. Strength training behaviour

Do you have a regular strength training program. Sessions per week.

0		1			2					3
0	1	2	3	4	5	6	7	8	9	10

10. Flexibility training behaviour

Do you have a regular flexibility training program. Sessions per week.

0		1			2					3
0	1	2	3	4	5	6	7	8	9	10

The 'pass mark' is 70/100.

TOTAL/100

8.



THE CLASS ACT

The **Back in Alignment** class consists of a brief warm up, with participants then:

- taking to the floor to do the flexibility exercises described on the next few pages
- standing to do knee, neck and shoulder exercises
- finishing with floor-based strength exercises.

The session takes an hour and participants are encouraged to wear comfortable clothing, suitable for both cool and warm temperatures.

THE COMPLETE FITNESS WORKOUT

Participants are also encouraged to do a Complete Fitness Workout two or three times a week.

The Complete Fitness Workout includes an aerobic, strength and flexibility routine, using aerobic fitness and strength training equipment.

The cause of the pain is rarely at the site of the pain
Pete Egoscue

9.



THE EXERCISES

That which we persist in doing becomes easier, not that the task itself
has become easier, but that our ability to perform it has improved.
Ralph Waldo Emerson

10. Safety Information

BEFORE YOU START

The Back in Alignment is a fitness program designed by people qualified to provide you with

1. fitness advice and
2. prescribe exercises that are safe for normal, healthy human beings and if done regularly are likely to lead to an improvement in your musculo-skeletal health.

However, because we have no idea of your current physical condition, we need to provide you with some safety advice and request that you look after yourself during the exercise sessions. The exercises and analytical postures included in the assessment are well within the capability of normal fit and healthy people, especially those in good musculo-skeletal health. If initially you are not in good musculo-skeletal health, perform the exercises gradually and keep within your own limits. In short, if you're not in good musculo-skeletal health, proceed with caution.

To signify that you have read the safety information below, place a tick in each of the boxes.

1. There is a slight risk that you could injure yourself during Back in Alignment sessions. Whilst it is unlikely, you may strain a muscle, particularly if you haven't done any strength or flexibility exercises for a long time. This is a risk you need to be aware of and one which we cannot shoulder. Work within your own limits. ☐
2. Initially you may feel stiff the day after an exercise session. This feeling of stiffness is normal for people who haven't been involved in a regular strength and flexibility training program. However, over the weeks and months you'll become accustomed to the exercises and as tight muscles loosen off and the alignment of your skeleton and your strength improves, you'll experience less joint and muscle pain. ☐
3. If there is conjecture about the safety of some of the exercises we recommend, we will point out those safety concerns. ☐
4. If you don't want to do an exercise, don't do it. ☐
5. If it hurts while doing an exercise, stop doing it immediately. ☐
6. If a doctor, manipulative therapist or fitness practitioner has said 'Don't do that exercise', don't do it. We're not going to argue with doctors, therapists and fitness practitioners in their absence. ☐
7. Look after yourself. ☐

Please sign on the dotted line to confirm that you've read this advice and are happy to participate in the exercise part of this program.

Provider You Date/...../.....

I can give you the program but I can't do it for you.
Kenneth Cooper

11. Key flexibility exercises

If you're in acute back pain, do the first three (shaded) exercises for the time suggested. Incorporate hip crossover into your regular maintenance program for a minute each side. For (shaded) hip crossover 20 minutes is good, 30 better and 40 best.

Static back 20 minutes  This is the most comfortable position for anyone with a crook back. Lie in this position for 20 minutes or more to settle down muscles attached to pelvis and spine.	Supine groin stretch – 20 minutes each side  Laying on back, one leg on bolster the other on the floor. Relax in this position for 20 minutes each side.	Hip crossover – at least 20 minutes, 5 minutes a side over and over.  Start with the heel of the right foot up toward the top of the left knee. Push the right knee way from you. Then drop the right foot and left knee onto the floor..
Hip stretch  Tuck the right foot behind left knee. Take right knee over close to the floor on the right side of your body. Repeat on left side.	Super hip and thigh stretch  Start with feet together and extended. Swing the right leg out over the left and grab hold of the right foot with your left hand. Keep your right shoulder on the floor. If you can't grab your foot, grab your sock or the bottom of your trouser. Repeat on other side.	Heels over head  You used to be able to do this when you were a kid. Start doing it again. 30 seconds is enough. With every breath you breathe out, creep back a little further. When you can hold your toes with the back of your hands on the floor, report back!
Sit up straight buttock stretch  Sit with both legs straight out in front of you. Fold the left leg under the right and then the right over the left. Prop yourself on your knuckles; lean forward for 20 deep breaths.	Hamstring stretch  With legs outstretched hold on to lower leg as far down as is comfortable. Bend knees slightly, place hands further down, then straighten legs. Do as many as you like.	Reverse frog - knees out  Knees out, soles of feet together, resting on the floor, chin on chest and front of pelvis on the floor. Gradually let your abdomen sink closer to the floor..
Cobra  Keep pelvis on the floor. Stretch upwards. Breathe out and feel lumbar spine loosening..	Reverse cobra  Place a cushion underneath your knees. Do this exercise for as long as you like.	Buttock stretch  Start on hands and knees. Place right leg over the left, onto the knee and the laces and then slide it back. Prop on elbows..

Sequence for loosening tight quadriceps muscles. – an essential exercise if you have knee pain.

 If quadriceps muscles are extremely tight and painful, use 2 or more cushions between your backside and lower leg.	 Quads a bit looser, use 1 cushion.	 Quads loose, no cushion needed and you'll be able to lean back even further.
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Alternate cat and dog stretch

Hip flexor stretch  On one knee with the other foot well forward, pelvis arched and back straight. Stretch forward to loosen groin muscles.	Cat stretch  With hands close together under the chest, tuck the tummy in, push the pelvis forward and get a high arch in thoracic spine. Breathe out. Alternate with dog stretch.	Dog stretch  With hands close together under your chest, poke your bottom out and get a hollow in your lumbar spine. Breathe in. Alternate with cat stretch.
Quadriceps stretch  Place foot on a kitchen bench. With every breath you breathe out, lean back further. This is a must do for knee pain. Keep knees together.	Calf stretch  Stand for 3 minutes with back to wall on sloping board.	Pillow squeeze  Sit up straight, hollow in lumbar spine and shoulders pinched. Squeeze pillow 15 times.

NECK, SHOULDERS AND ARMS - strength and flexibility exercises

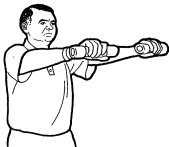
Stretch band and pulley exercises  There are a multitude of strength exercises you can do using stretch bands at home and using pullies in the gym.	Doorway squeeze  Stand with one foot just inside a doorway and push forward to stretch the muscles of the upper back. Do 20 repetitions.	Arm circles  With palms down and thumbs pointing forward, circle arms forward 20 times. Turn palms up, point thumbs back and circle backwards 20 times.
Shoulder blade pinch  Squeeze elbows back to pinch shoulder blades. 20 times.	Elbow squeeze  With knuckles on temples, swing elbows back as far as you can and then to touch at the front. 20 times.	Pull your head in  Pull your head in underneath your armpit and stretch the muscles at the back of your neck. Do this for a minute each side.

Neck isometric strength/stretch  Push the head against the right hand for 7 seconds, relax and let head flop toward the shoulder. Repeat two more times then do the same thing to the left.	Neck isometric strength/stretch  Looking out over your right shoulder, push the head against the hand for 7 seconds, relax and turn head further behind. Repeat twice then do the left side.	Shoulder stretch  With a partner, one person pulls the elbows back to stretch the muscles at the front of the shoulder.
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NECK STRENGTHENERS AND MOBILIZERS

Neckups  Lift head up toward the chest. Don't let head touch the ground until you've done 10 repetitions.	Eye to shoulder  Lift head up a centimetre and then turn toward right shoulder and then left. 5 times each side.	Ear to shoulder  Lift head up a centimetre. Take right ear toward right shoulder and then left ear to the left shoulder. 5 times each side.
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SHOULDER STRENGTH ROUTINE - WITH DUMBELLS - build up to 4 'laps' of the routine. It will take exactly a minute.

Arms to the front  4 repetitions	Arms to the side  4 repetitions	Arms above the head  8 repetitions
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FOREARM AND WRIST STRENGTHENER

With spring grip  Squeeze the spring in and out 20 times each hand.	With dumbbell  Lift the weight 20 times with palm up, to the side and down. As you get stronger increase the weight.
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12. Fundamentals of a strength training program

You're setting yourself up for musculo-skeletal dysfunction if you don't have a regular and systematic strength training program. As muscles become weaker, their ability to hold the skeleton in correct alignment is greatly diminished.

The ability to do everyday tasks – lifting, pushing, pulling, carrying, propelling your own weight ... becomes diminished. You're unable to do the things that strong people can do.

You can imagine, for instance, the cause of your neck problem. The muscles of your neck and shoulders are not strong enough to hold your head on top of your shoulders. The head tilts forward and starts straining the muscles, tendons and ligaments; it hurts. Sooner or later bones are moved out of alignment. Then it really hurts. Then discs start protruding. A quick rub down, an anti-inflammatory and a muscle relaxant do little to fix the problem.

Unless trunk muscles – front, back and sides – are strong you're setting yourself up for back pain.

STRENGTH

Strength is the ability of a muscle to exert a force. Lack of strength is one of the main contributors to musculo-skeletal injury. 40% of people are not strong enough to push a pen or tap a keyboard without getting a crook back, stiff neck, frozen shoulders or RSI.

Muscle strength and tone can be enhanced by working against a resistance in a regular and systematic strength training program.

Include the major muscle groups in your workouts: legs, trunk, arms, neck and shoulders. I recommend a strength training program that includes the following exercises, sets and repetitions.

STRENGTH AND MUSCLE BULK

A strength training program with at least three sets, with an ever-increasing weight and a declining number of repetitions, will provide you with a balanced approach to improving muscle strength (heavier weights, low repetitions) and muscle bulk, (lower weights, high repetitions).

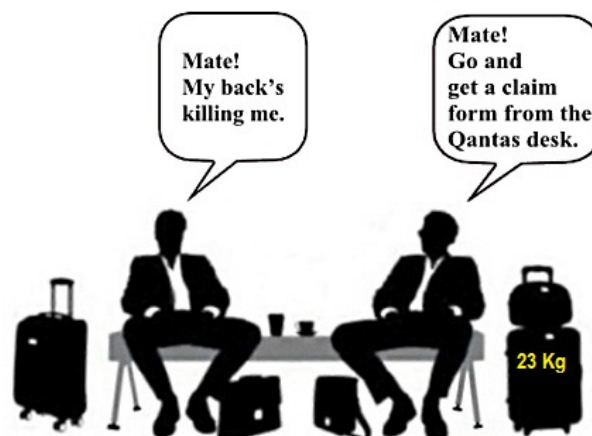
Maintaining muscle bulk is essential if you are to keep your metabolic rate up. If your metabolic rate drops and you keep eating the same amount of food, you'll start putting on fat. Therefore, an essential aspect of a fat loss program is to improve muscle bulk so you burn off more calories, even without exercising.

FREQUENCY

Three times a week is ideal.

CORE STRENGTH

My definition of core strength is the strength of any muscle attached to your pelvis and your spine.



13. Five strength exercises to do without equipment

1. SITUPS

You can do your situps in a variety of ways.

Gradually build up the number you can do on the trot. 20 feet held situps is good 30 is better and 40 is best.



2. PRESSUPS

King and Queen of shoulder and upper back exercises. Considering that pressups are 'plank-in-motion' they're also a good trunk strengthening exercise.

Gradually build up the number you can do on the trot. 15 is good 20 is better and 30 is best. (One day in the gym I watched Valda do 32 'men's' pressups. At the time Valda was 66 year old.)



3. SQUAT

This is a great exercise for building up the thigh muscles. From a standing position, squat down with your backside as close to your heels as it will go and stand up straight. You may use a heel raise (as illustrated if you need to.) Build up to 20 repetitions at a time. If this is too hard an assignment, hang onto a rail or come down only part of the way. You could put an upturned bucket or pot plant underneath your backside to squat down to.



4. SUPERMAN BACK ARCHES

Take the feet and knees off the ground first.

Build up to a minute's worth of gentle ups and downs.



5. ARM HANG – hanging from a bar until exhaustion.

Hang with palms facing away from you.

(Warning) A large proportion of people are unable to support their own weight at all, so be careful and be ready to land safely on your feet if your hands fail to support you.

This is a classic test of hand strength. There's no need of a grip strength gadget, just you knowing how long you can support your own weight with your hands.

When you're hanging you'll probably start swinging ever so gently. If you can last for 30 swings you'll have hung for close to a minute.



You may have to build up the strength exercises gradually by doing a minute's worth of exercise in small doses.

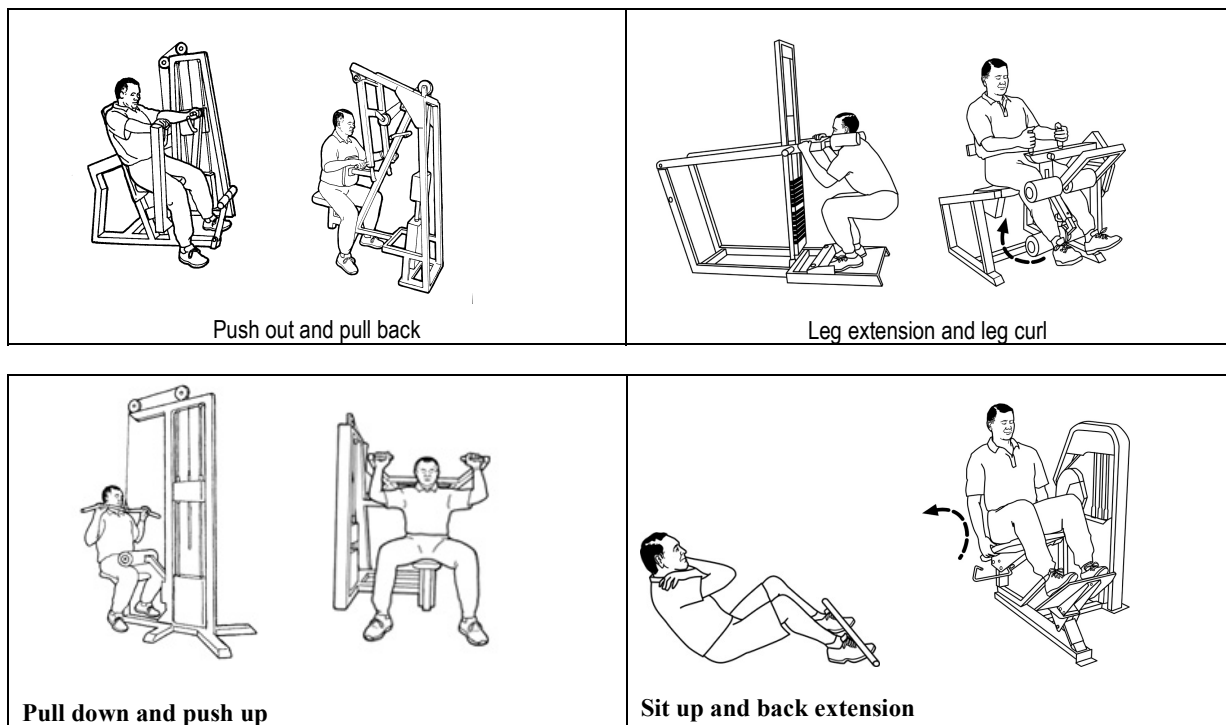
14. Superset strength training program in the gym

Whilst a systematic strength training program using machines is not part of the Back in Alignment program, it is, nevertheless an important aspect of maintaining strength sufficient to give good support to the skeleton.

The program is based on supersets, where you alternate between two exercises that work opposing muscles in the sequence of repetitions, 12, 10, 8, 6 adding weight to each set. Using supersets, you don't have to sit on a machine looking at your phone in between sets. You just keep going from one machine to the other.

It's a good routine to do with a partner.

The routine should take about 40 minutes. As the weeks and months go by you will be able to use heavier weights. Three times a week is ideal. As you become stronger, you'll find your musculo-skeletal system feels better. I recommend you work with a partner alternating between the machines.



Whilst the Back in Alignment class doesn't include a workout on strength training machines we highly recommend that if class participants have joined a fitness centre then they take the time to have a general strength workout several times during the week.

To change one's life:
Start immediately.
William James

15.



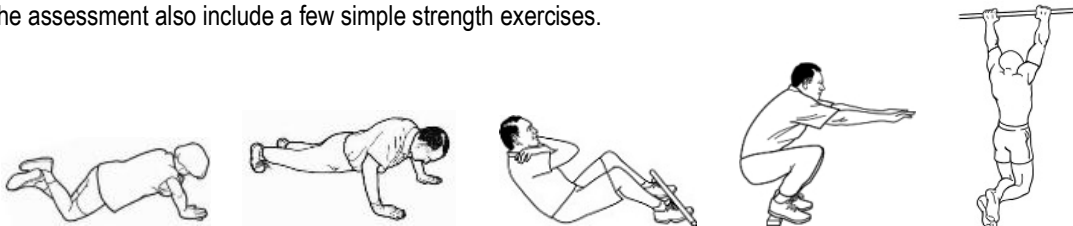
Before joining a class it's a good idea to book in for a one-on-one Clinical Diagnostic Assessment to gain an idea of what your problem(s) are and what's likely to be causing them.

The process is a simple one based on the principle that form (good skeletal alignment) follows function (how well you can adopt a range of flexibility postures).

The postures that provide clues as to which of the muscles attached the pelvis are tight include:

Hip crossover. 	Super hip and thigh stretch 	Heels over head 
Sit up straight buttock flexibility 	Hamstring flexibility 	Reverse frog – knees out, adductor flexibility 
Plus		
Knee function 	Shoulder function 	Neck function 

The assessment also include a few simple strength exercises.



You can read all about the assessment on this link: <https://www.globalbackcare.com/clinical-diagnostic-assessment/>

16. ARE YOU READY FOR A BREAKTHROUGH OR MORE OF THE SAME?

In December 1994, just when I'd started working at the Australian Institute of Sport in Canberra, I got a painfully sore back. It hurt when I rolled over in bed, it hurt when I coughed and every time I sneezed it felt like someone was ramming a red-hot poker into my lower back. I could hardly bend over the basin to clean my teeth it hurt so much. I had to warm it up for 20 minutes in the shower before going to work. I'm not sure what got the blame, probably the rowing machine!

I started doing a few back strengthening and flexibility exercises and on a scale of 1 - 100, (1 being wretched and 100 being absolutely fantastic) it went from about 20 to 50, and there it stayed for about five years. It still hurt to sneeze and cough. I resigned myself to putting up with it forever: I told myself, '*John, you're getting older, put up with it!*'

When I look back on it I realize that the exercises I was doing were necessary but not sufficient, and isn't it usually the case that if you keep doing what you're doing, you'll just end up getting more of the same results?

Then one Saturday morning in April 2000, I volunteered to take an early morning stretching class for the National Speakers Association Conference in Canberra.

As I got out of bed at 5.30am my first thought was '*Why am I doing this?*' My wife, Christine, was more to the point. She said, '*Are you getting paid?*' I said, '*No, it's a love job*' and slipped out the door. At the time I didn't realize the chain of events that this opportunity would lead to. It didn't take long to find out. One of the women in the class showed me an exercise I hadn't seen, the hip crossover and asked if I had a copy of Pete Egoscue's book, '*Pain Free*'. I didn't, but a couple of weeks later I bought a copy and started doing *some* of the exercises he recommended.

My back got a bit better. But I still wasn't happy. It still hurt to sneeze and cough. Maybe I needed a new bed; blame the bed! I'd met a man a few years before who was on workers compensation for back pain and his insurer had bought him a new bed. It sounded like a good lurk. I didn't bother getting a new bed.

In August 2000, Christine and I went to California for my daughter Jo's wedding. While we were there we visited the Egoscue Clinic in San Diego as paying customers. We went through their evaluation and spent a couple of days being supervised in a back care routine designed specifically for each of us. We also attended four early morning conditioning sessions and this is where I found myself wanting.

I was pathetic at doing situps, even with my feet held. I couldn't do a superman back arch, it hurt too much. These are exercises I'd been led to believe were contra-indicated. They said, '*Just do them*'. I couldn't do the air bench leg strengthening exercise (up against a wall) for more than 15 seconds. The calf stretch was painful.

They proved to me my shoulders were lacking in strength. I had lost the ability to successfully do the wheelbarrow exercise, where someone holds your legs while you walk around on your hands. They prescribed more exercises and different exercises to the ones I'd been doing.

I was running a fitness centre and taking classes at the time. I thought I was reasonably strong and flexible. I was wrong. No wonder I still had lower back pain.

We arrived home in Canberra the night before the opening of the Sydney Olympic Games. I spend most of my evenings over the next couple of weeks lounging around watching television and eating chocolate sultanas. My back went from 70/100 back down to about 10/100. It felt worse than it had ever felt. All I got out of the 2000 Olympics was a crook back and a fat guts!

Then I started thinking, '*What's holding me back from having a musculo-skeletal system in great shape. Is it laziness, ignorance, stupidity or attachment?*' Looking back now it was all four. I had to start doing something different.

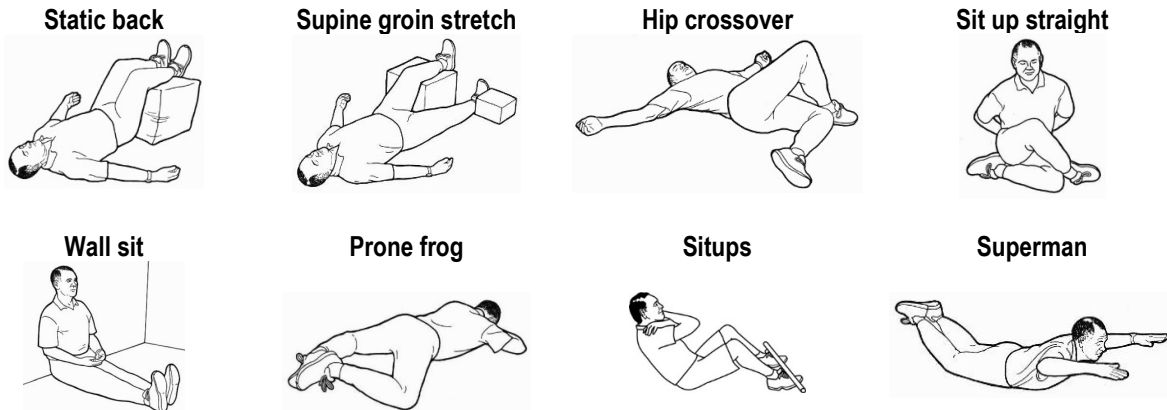
That's when the penny dropped. I became serious about doing more of the exercises I needed to do to get my body back into alignment, in particular loosening off calves, hamstrings, buttocks, quadriceps and hip flexors.

I introduced more flexibility exercises into the concluding 15 minutes of my fitness classes. I spend a couple of hours at home each evening in front of the TV doing four exercises, static back, supine groin, hip crossover and prone frog. I started doing the sit-up-straight exercise with legs crossed. It took me six months to stop falling over backwards, my left buttock was so tight.

Gradually, over the next two months my back started to get better. Then one day I sneezed in bed and it didn't hurt. Magic! After a couple of months I started telling people my back was back up to 90%. I only felt a twinge very occasionally and then not much. A few months later and it was back to 97%. I did most of the exercises in this book seven or eight times a week in my fitness classes.

I'm writing this in September 2024. I'm not 97% fat free but I'm 97% pain free. I'm more conscious of my posture when I'm sitting at the computer - doing my best to maintain the 'S' shape, rather than a 'C' shape in my spine. (The best advice your mother ever gave you was to 'sit up straight'. The best advice I can give you is to sit with your abdomen pressing in against the desk and the back of the chair pressing in up under your shoulder blades.)

I'm not sure which exercises did the most good. (I suspect there was a synergistic effect from doing them all). However if I had to single out a few important ones they would be: -



If you've got serious back pain, after a couple of months doing these exercises for a couple of hours a day (while watching TV) you should feel a whole lot better. You may start to feel an improvement after a few days.

Most people underestimate the time they need to spend doing the exercises. In the initial stage, doing an exercise for a minute isn't sufficient. For instance, I recommend you do the hip crossover for about 40 minutes, five minutes one side, five minutes the other side, over and over again. In the supine groin, static back and hip crossover exercises let gravity do the work of relaxing some of the deeper muscles that are holding your body out of alignment – each for 20 minutes.

Hippocrates said something to the effect that the physician speaks with more authority if he's had the disease. Well, lower back pain is not a disease and I'm not a physician, but I can tell you one thing, I've had a crook back and it got better and I'm pretty certain that if you are diligent and willing to spend time on the floor doing the exercises I recommend, you can fix yours up too.

Along the way I've fixed a sore hip, plantar fasciitis and knees which hurt when I stood up from a chair. The shoulder pain (induced by javelin throwing) gradually left with the help of strengthening exercises using pullies in the gym. These are the sorts of personally-generated musculo-skeletal dysfunctions that huge numbers of people get throughout their lives. Being personally generated means that there's a good chance they can be personally ungenerated.

So who do I have to thank for all of this? Well, it started with the lady at the Speaker's Association Conference showing me an exercise and encouraging me to get Pete Egoscue's book 'Pain Free'. What goes around comes around.

I want to thank my daughter Jo for giving us the reason to go to America and my daughter Lisa for her persistent encouragement. I thank Christine for continuing to inspire and motivate me to practice what I preach, and supports me in this work - and my mother, Doreen for asking, 'Do you know any exercises that would be good for my back?'

Above all I'm indebted to Pete Egoscue who I haven't met, but who's staff set me on the right path to fixing my crook back. I recommend you get a copy of his book, 'Pain Free'. One of the things I got from it was the '*the cause of the pain is rarely at the site of the pain.*' Joint and muscle pain is not caused by a lack of rubbing at the spot where it hurts!

Another light bulb moment occurred in 2022 when I came across the Buckminster Fuller's tensegrity concept.

So, are you ready for a breakthrough, or more of the same?



Fitness Frontline
of health care