

## HANDOUT FOR MOVING AND HANDLING OF PEOPLE

(planned for volunteers at spinnaker sailing club)

This is “information” being shared that was originally taken from undertaking a moving and handling of people instructors course.

This is not a formal training but a sharing of information.

Much about moving and handling is common sense, and we carry this out thousands of times a day without even knowing it.

Basically it is “**risk assessing**” every movement to ensure we are achieving a goal in the safest possible way.....to take it to an extreme example—just walking in a straight line. We first stand equally balanced on two legs/feet, we use our eyes to where we are currently and where we want to go, we use our ears to provide us with information of anything that may cut across our pre-planned route that our eyes have already set out.

We then shift our weight onto our left leg entirely enabling us to completely lift our right leg off the floor and move it forward, our balance gently leans forward with this movement and our right foot lands on the floor in front of us to prevent us over-balancing and falling forwards. At an equilibrium point of this we are once again balanced between our two legs, this time in front of each other, instead of side by side.

**Just take a moment to do this is really slow motion, taking note of where your weight is being held and which muscles you are using to achieve this...if you do it slow enough you will feel your legs, toes, and back muscles all involved!**

This demonstrates very simply a brain process simplified and broken down into a risk assessment.

Think about another few...eg,,,picking up a cup of coffee and manoeuvring it to your mouth, sipping it and replacing it.

Dressing

Putting on a life jacket!,

Thankfully our brains work at such speed with co-ordinated impulses that we do many of the day to day actions without a second thought.

Some people process the same action at a slower rate or perhaps in a different way altogether.....and maybe not getting the desired outcome, eg falling, spilling a drink etc.

A simple, slowly calculated mental “risk assessment” or discussion with another helper is all that it takes to carry out a task safely....both to yourselves...and to the person” in the centre of it all”

## WHAT IS MOVING AND HANDLING?

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In a nutshell....M/H to a “carer” or helper **is centred around their backs**....whether pushing, pulling, lifting, lowering and rolling. It involves moving a person-or an object- from A to B in the safest possible way for **both** the person and the carer. Planning is vital and rushing **MUST be avoided at all costs**.

The spine is designed to accommodate various moves in many directions....forward, rear and side flexion (leaning), rotation and twisting....the problem often lies with **the stance we take prior to these movements OR carrying out these movements WITH added weight other than our own body mass**...i.e lifting another body weight/ object.

***Always ask for help if you feel are struggling***. If pain is felt at any time...**stop** before you do more damage...pain is your body’s way of telling you something....you are over-straining, over-reaching, over-stretching and it **will result in damage**.

## ANATOMY

Not many know how the spine is designed and therefore cannot appreciate its abilities or limitations. To protect your back as much as possible, understand its' basic make up.

My views on this are strong- how can you protect something if you don't know its structure or function?

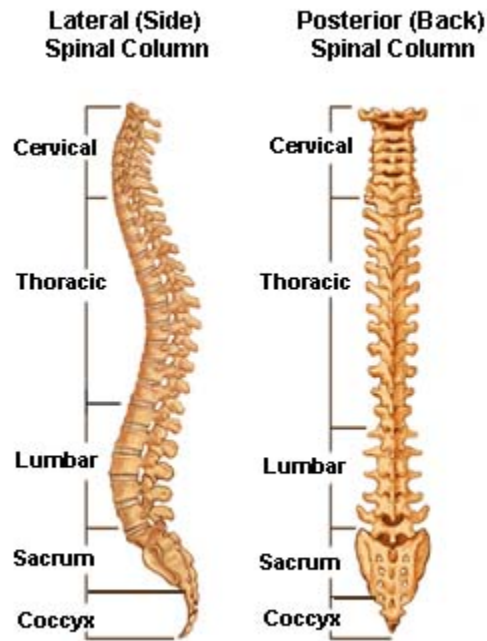
**Q DOES ANYONE KNOW HOW MANY BONES THERE ARE IN THE SPINE?**

The spine itself is made up of **33** vertebrae =**26** of which are **MOVEABLE** bones...

**7** **FIXED** bones at the base that together make up the sacrum and coccyx. These do not fully fuse as one entity until late teens/ early 20's.....damage to this area could leave lifelong injury as not fully developed.(Hence why young people should take more care of the activities they put their bodies through)

Only the top 2 vertebra actually have names..these are in the neck **Atlas = pivotes side to side - (like a globe on a stand)**  
**Axis = up and down**

All the rest are referred to by a letter and a number....(initial of the region they come in) eg Cervical, Thoracic, Lumbar .....(number- of how far down they come.) EG: "L4"=the 4<sup>th</sup> vertebra in the lumber region. (you may have heard dr's etc use these terms)

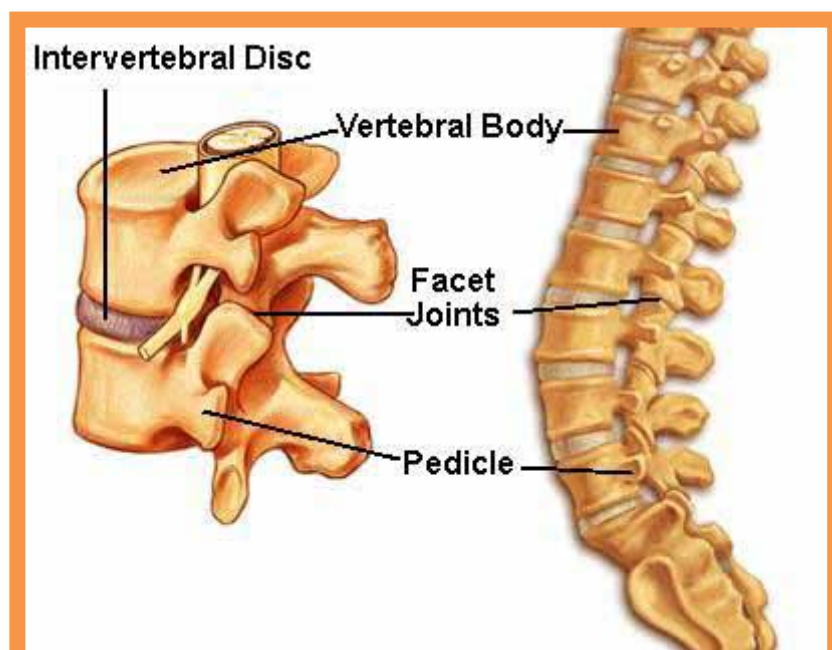


The **7** vertebra in the **cervical region** are fairly small...they support and carry **the weight of your head**...which in comparison to your total body weight is quite small.

The **12** Vertebrae in **thoracic region** are larger carrying weight of **chest area and head**. These also attach at the sides to the rib cage.

The **5** Vertebrae in **lumbar region** are large- carrying all upper weight and where added weights are put onto arms, back etc. Although larger in size, we **over-exert these often and most back injuries are located in this area due to carrying/ poor stance or posture during a task.**

The vertebrae are stacked up in a column and provide us with strength, power and control and balance. They form a hollow channel within the centre which



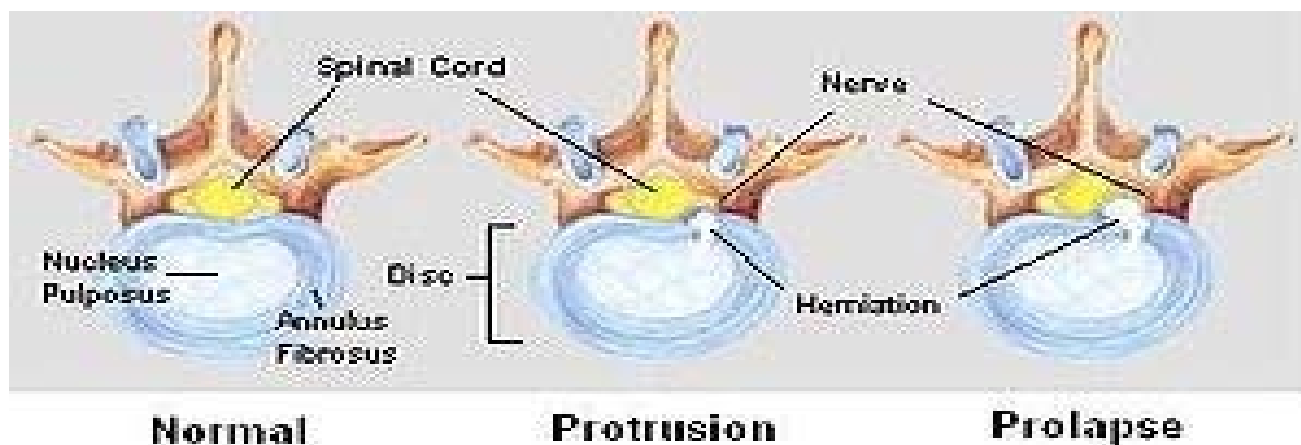
houses the spinal cord...an extension of the complex brain...which must be totally protected at all times to avoid brain

damage. In this location...it is fully surrounded by bone.

The **spine itself is not naturally straight**. It has **4** curves...to add **shock protection to the brain and enhances the span of movement**. Imagine your spine straight as a pencil with your head...brain...at the top. With every step you take, the impact and force travels up your legs and your so-called "STRAIGHT" spine: allowing the brain to receive full impact....this would result in shake and injury. As our bodies are designed to protect the most vital organs ( egheart, lungs etc enclosed within the casing of our rib-cage), so the brain is encased in a bony skull, and the natural curves of our spine also reduce the full force of impact.

In between each of the vertebrae are attached **spinal discs**....discs in shape as their name suggests. They have an outer part (annulus fibrosis and an inner part (nucleus pulposis). They are filled with approximately 80% water and 20%glyco-protein sugar chains.....which results in a jelly-like substance that is squeezable similar to a half- water-filled balloon for example. If one end of the balloon is squeezed, the balloon will bulge at the other....same principle for our discs...as they get squeezed by us leaning forwards for example....bulging outwards behind us...if we lean to the left-they bulge to the right etc. **They act as shock absorbers...and are one of THE most important parts of our backs**. Without these discs, the vertebra would grind bone on bone against each other ,movement would be severely restricted and painful. **They take the full impact of force in each and every move we make** whether walking, jumping, running, , sitting still even, coughing sneezing etc. Otherwise the brain itself would receive the full impact and become damaged immediately...

As like the balloon however, the discs have a limit on how much force they can take. If exerted too far-they **will "HERNIATE"**...meaning the centre or nucleus of the disc will push out of the disc wall and into the spinal cord canal. **This is the sudden pain many of us feel as the spinal cord and nerve endings are forced out of place and alignment.**



The saying “slipped disc” does not actually happen....the disc is still securely attached to the vertebrae above and below it...it is the centre of it that pushes through....the disc itself does not actually “slip” anywhere.

With rest, light gentle movement the centre of the disc gets reabsorbed back into shape after a few days, and pain will subside.(prolonged pain however should be brought to a doctors attention for medical intervention...maybe inflammatories etc)

If back pain is felt suddenly-an **ice pack** applied to the area immediately for 20 mins will help to minimise swelling, after this time though it is ineffective. Many people feel alleviation from warmth (not advised within initial 30 mins however) as **heat encourages the muscles to relax** and release any trapped nerves within their hold. Immobilising yourself for a long period of time does not help either..this makes you stiff and heightens the pain when you do eventually move...instead **alternating rest and gentle frequent movements are advised**- this keeps the muscles working, the blood flowing,and encourages the disc to reabsorb itself back into place.

Discs can **only receive water and nutrients** when they are not subjected to any force....**this is only when we are lying flat**....hence sleep and a good bed are so important. They can absorb their nutrients using an **osmosis** process-similar to plants taking up water...cell by cell until they reach full discus capacity again. This then lasts us the day of ALL movements..as we lean, reach, push pull...walk, sit etc in our day to day lives..the **pressure is exerted** on them and during their **shock-absorber role they expel “waste”** . By the end of the day they are no longer their full size until we provide them with a **pressure-free**

**period of time** to replenish themselves....laying flat. We are usually shorter in height at the end of our day then in the morning.... the pressure on the discs throughout the day and expelling of waste and water contributes to this fact.

People who “burn the candle at both ends”-out late repeatedly at night and up early, **or who do not have adequate lengths of time** to rest and sleep,



often suffer back ache or pain a few days later....this is due to the discs not having enough “absorption” time to replenish themselves. Continuation of this will result in more severe or lengthened discomfort or pain.

Although after damage, they do reabsorb and revert to their normal position...**the older we get the less they fully recover**...like everything else! They tend not to be able to retain their bulbous shape for so long and become weaker so frequency of damage may increase too. (Older people tend to have more back pain, rely on equipment for support and mobility)

The discs themselves **defy gravity**, and have **no nerve endings**.....if this were not the case we would a) **fall** down and b) be in **agony** during every single move as they take the force and impact. The pain we feel is the nerve clusters that the discs have emerged and pushed into out of alignment.

## **Muscles**

As you may already know, **muscles work in pairs**...wherever they are in the body....one half of the pair **tenses to “pull up”** the body part such as your forearm, while the other half **relaxes....to lower** the arm, they reverse roles.

So it is with the various types of muscle located in the back. **There are several muscles in the spine** with very different roles....without going into too much detail...

## **Spinal cord and nerve endings**

To add even more *complexity* to the spines’ structure it wouldn’t be complete without **hundreds of nerves, receptors, neurones and the spinal cord**.....i don’t

wish to spend time on this but if you can be aware...these basically stimulate the muscles to contract or relax pending what command your brain is giving them. They are like a **huge communication network**- like the cables of BT for example. If you had a map of the country which showed where all the power lines to every household are laid, where they join, where they intercept and reach the “core” or “generator” ....our nervous system is similar to that. If you could see every phone message going up and down the power lines....so it is with messages to and from the brain.(hundreds all at once)

To bring into context with your backs....if you carry out a move which results in sudden or gradual discomfort...or damage, the “messages” to or from the brain will initially be ones of **detecting pain** and how to stop it. The brain might instruct total “**reflex**” responses .i.e let go....drop,

In some circumstances the actual messages can get **distorted** if the nerves are moved out of alignment..such as when a disc (that we talked about before) herniates into the spinal canal. Messages can be **lost** altogether, or **sent to the wrong part** of the body.....(other reactions occur unintentionally eg choking, collapse, incontinence, )

**If the muscles have retracted and gone into spasm, the nerve endings themselves may be trapped**- causing excruciating pain, or sometimes total **numbness** until the muscle has relaxed and released the trapped nerve. This is commonly called **sciatica** and is usually felt in the lower back with sometimes pain being localised there or shooting down one or both legs.

**This can cause difficulty walking, even sitting normally, as the pain can be extremely acute. The process of getting up/ sitting down can be almost unbearable. The length of this condition is extremely variable...from a few hours to several weeks.**

Without getting into all the legalities...a few pointers and definite “NO\_NO’S”!!!!!!

**1)PIVOT**- using carers neck....you’ve seen **how small the 2 bones** are in the neck and the 7 cervical vertebrae, and in particular the movements that they allow. **There are no shock-absorbing discs between the atlas and axis**...so allowing someone to hold/ pull themselves up or steady themselves will put



extreme pressure on the discs in the cervical region and force the atlas and axis to grind against each other. Instant pain/ injury or progressive damage is almost guaranteed-sometimes after a single move or repeated moves. **NEVER ALLOW SOMEONE....EVEN A CHILD....TO HOLD THEIR WEIGHT OR PARTIAL WEIGHT AROUND YOUR NECK.**

**2)DRAGLIFT**-easy to fall into this one. Basically it is **pulling someone up or moving them over via under their arm**. This unavoidably forces the shoulder up, their arms become unhelpful both to you and them, and risk of **dislocation of the shoulder joint is extremely high**. It is due to the number of dislocations to client and carer and associated injuries that this was deemed an “unsafe” lift in court back in 1998. However you only have to look at carers and nurses in various environments and you will still see it being used...(even most tv series re hospital/ homes/elderly etc you will see it)...even walking down the road with your mum or nan....you tend to “link” arms....if one stumbles- both will go down and add shoulder injury to the fall. As a carer, to assist someone who needs a little help- **place your near arm around their waist and your far hand holds their wrist/ forearm**. Any stumble= reflex=pull them into you=sturdy base. If necessary, from here, lower them to the ground steadily....no or little injury.

I understand from Spinnaker’s stance, there will always be a minimum of 2 people to assist anyone in or out of a boat.....whether the hoist is required or not.

**“Clients” who cannot self-weight bear, should arrive with their own slings from home already insitu.....unless advised** otherwise by an OT for pressure sore reasons, however there are now padded leg slings to help in the prevention of this.

Clients with their own slings should not be subjected to using any other sling than their own.....they have been assessed and measured specifically and injury and liability could arise if other slings were to be used. Attention should

be taken to edges of all sling....private or club-house slings.....**frayed edges or faulty loops should be removed from use immediately to avoid accidents and full liability.** Repairs are not advised, instead total replacement with new should be sought.

Clients who can support all or part of their own weight should be encouraged to do so where possible. This not only promotes exercise for their limbs, but gives a sense of control and independence of what is about to happen.

**Verbal explanations**, however repetitive it seems, should always be given to each and every client on each occasion....."we as helpers/carers" cannot know the full understanding **or memory** of all clients and should **make no assumptions in this area either.**

### **TO PLACE A SLING**

Where possible, **ask the client to apply their own brakes**.....they have less distance to reach the brakes than you do.....and **the chances are you will STOOP to do this, rather than BEND YOUR KNEES!!!!won't you?!!**

With a "carer" in front of the client, ask them to gently lean forwards, they can have their hands on the arm rests if they choose, and the carer can place their hands gently on their shoulders as a re-assurance measure that they will not fall out. (safety belt will still be done up at this point)

The second carer can then lower the sling down behind the clients back, and gently tuck right down to the base of the spine almost to their buttocks.

Gently lean the client back upright.

It is important to explain every move to the client before you are doing it.....if they are able, they will then automatically..(sub-consciously) try to help.....try this yourselves

### **AN EXERCISE!!!!**

Get into pairs, and first one of seated, the other the "carer"...lift up their right arm.....it will feel very heavy and will be harded on your "back" muscles.....BUT explain before doing this that you are going to take their right

arm and lift it to the head level.....they will automatically try to assist.....reducing the load to you!

**Explain** you need to lean the client to one side, the right for arguments sake, and the carer at the front will gently assist this movement,(they will probably help themselves and they also have the right armrest to lean “over” as a preventative measure from falling....the second carer behind, can then tease the sling around and under the clients’ left thigh as far as possible with very little effort. You can also remove the left arm rest to expose a larger area to achieve this if you find there is too little space between the clients’ bottom and the left arm rest **BUT REPLACE IT STRAIGHT AWAY**. Then gently **explain** you are ready to “upright” them which the carer in front can assist with.

Then all the above is done over the left arm rest etc...but **explain** each part of the process first...you will be amazed how much someone will help when they know what is to come next.

Then the carer standing “infront” should now be able to see and get hold of the two leg straps that the other carer placed under each thigh. If they bend down...**not stoop....with one knee on the floor...this will give the carer stability.....**placing a hand under the clients foot.....this in turn will automatically lift their entire leg slightly...you only need an inch to gently prize a little more sling under their thigh and to ensure there are no creases in the sling that will be uncomfortable or create soreness while being sat on by the client.

Do this both sides, one at a time and don’t forget to **explain** each process...you may well find the client is able to help lift there own leg enough for you to slide you hand underneath to smooth it out.

Once the two legs strap handles are in between the clients legs, you are then ready to position the wheelchair under the drop zone of the hoist.

The 2 leg straps should be looped through each other/ or crossed over...before being looped to the hoist bar....this will prevent the straps “riding or chaffing” up the clients’ thighs and causing severe pain/ discomfort, even damage.....particularly to the men.

Hook up all 4 straps, the normal routine is **long loops on legs, and short loops on shoulders**.....easy to remember..L=long legs....S=short arms..(arms are shorter than legs)

Both carers need to double check all 4 straps are securely hooked on and have not slipped off.....this is easily done and accidents are severe as the client can fall out on any direction.....**verbally count 1,2,3,4 and tug on each one to be sure.**(I have seen this actually happen before, saved it in time purely because it happened to walk in at the time...but it could have been severe)

### **The removal of the sling...**

Brakes on!!!!Uncross the leg straps and taking hold of the right one from the front, fold it **UNDER itself**. Move to the side/slightly behind the client, and by keeping hold of the strap you can slowly and gently pull in a **backward** direction. The sling will "slide under itself.....it must be folded under so it slides between the sling and the wheelchair seat-----not against the clients' legs which will hurt!

Repeat on other side, and the sling can be easily lifted out from behind the client

If you pull the sling leg piece in an upward direction you will hurt yourself and the client.....and you will ultimately be trying to "LIFT" them.....you just want to slide the sling out on itself under them.

Your thigh muscles are extremely large and powerful muscles.....so USE them by bending with your knees rather than strain/ over stretch your back by stooping. If you bend your knees and can't reach something, you will move your entire body nearer to it....if you did this with just stooping...you would not move closer....you would over stretch and cause damage.