

# Core stability

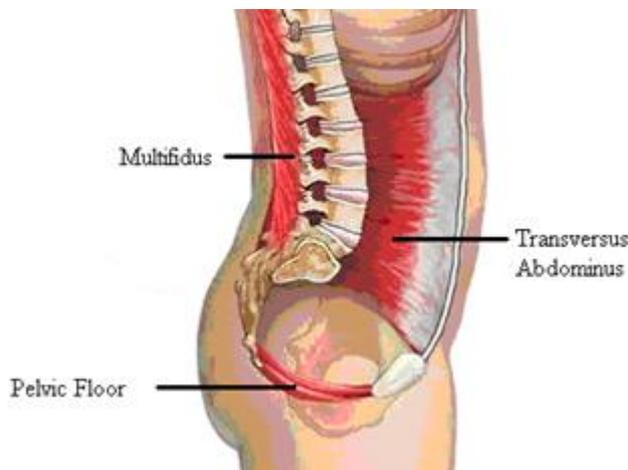
## An advice leaflet for Amputees

### What is core stability?

Core stability describes the ability to control the position and movement of the trunk. Training targets the muscles deep within the abdomen which connect to the spine, pelvis and shoulders. This improves walking, balance and lower back pain. These are all common problems for people who have had an amputation.

The core is made up of:

- Transversus Abdominus -which is the deepest abdominal muscle
- Multifidus - which runs down either side of your spine
- Pelvic floor muscles



Together these muscles

- Form an internal corset that assists in the maintenance of good posture
- Provides the foundation for all arm and leg movements and through stabilising the joints of the spine, pelvis and shoulders
- Are postural muscles and therefore designed to work at low levels throughout the day

## Hamstring Stretch

- Sit up with your legs out wide apart in front of you
- Try to keep your knees straight
- Place your hands on rehab ball or any ball
- Roll ball forwards and stretch forwards with your trunk
- When you feel a stretch at the back of your legs, hold the stretch for 15-20secs
- Vary the angle as you come forwards to vary the stretch



## Hip Twist – Using Prosthesis

- Keeping one leg still, allow the opposite knee to drift out to the side
- Do not let your pelvis rotate
- Control your knee back to the middle
- Throughout the movement keep the opposite knee still
- Alternate sides



## Superman

- Lie on your front with your arms straight out on front of you and your head looking down
- Raise your opposite leg and arm together - left arm with right leg and right arm with left leg
- If this exercise is too difficult then move just one limb at a time



## Hip Twist

- Rest both legs on exercise ball
- Place your arms out to the side
- Rotate the ball from side to side using your legs and your trunk to control the movement
- Look to the opposite direction to your legs to increase the stretch
- Can also be done with prosthesis on – 3<sup>rd</sup> photo



## Benefits of core stability exercises:

Core stability exercises are designed to improve the strength and endurance of your core muscles by gently contracting them.

It is widely accepted that mobilising with a prosthesis (artificial limb) places an increased demand on your core. It follows therefore that core stability exercises should:

- improve your ability to maintain good posture and produce well controlled limb movements while mobilising with your prosthesis.
- improve the stability of your spine, pelvis and shoulders and therefore decrease the risk of injuring these joints.

This leaflet includes useful exercises for people who have had above or below knee amputations as well as those who have had bilateral amputations or indeed non-amputees.

If you have any questions about the information in this booklet please speak to your physiotherapy team at the limb centre.

## Correct Positioning

You need to position your back, shoulders and neck in its neutral position as it is easier to specifically activate the core muscles in this position.

A good way of finding your spine's neutral position is:

- Place your thumbs and forefingers together into a diamond shape.
- Place the thumbs on your belly button and point your fingers towards your pelvic bone.
- Tilt the diamond away from you, feeling your lower back arch off the mat or imagine that your pelvis is a bucket of water. Tip it forwards and 'spill some water out the front of the bucket'
- Now tilt the diamond towards you, feeling your lower back flatten against the mat. Tip the bucket back to 'spill some water out the back of the bucket'.
- Repeat these movements and settle in a position between the two extremes.
- Now try and maintain this position – a good idea is to imagine a tray of drinks lying on your stomach that you don't want to spill.

To position your shoulder blades correctly, gently pull your shoulder blades downwards and inwards in the shape of a small V. You should feel your collarbones widen across the front of your chest. As you do this make sure that you are not flaring your ribcage up – your upper back should stay flat against the mat.

Now gently lengthen your neck, feeling the bony part of your head gently pulling away from the base of your neck. This should be a subtle, gentle feeling. Feel the muscles at the front of your neck and check that they are soft and relaxed (not straining).

## Bridging

- Tighten core and buttocks muscles and tilt your pelvis back, flattening your lower back against the mat. Carry on this motion, rolling your bottom and then spine off the mat until your trunk is in line with thighs
- Try to use the Pilates technique of peeling each back bone off the mat one segment at a time
- Hold this position for 5 seconds and then gently peel your trunk back down to the mat, again one back bone at a time.



## Hip abduction

- Lie on your side
- Try to keep your hips and top leg in line with your body - do not let your top leg come forwards
- Raise leg up towards the ceiling and then control back down again
- Try to make sure your pelvis doesn't rock backwards as your leg moves up



## Clam Shells

- Lie on your side with head supported on a small pillow or rolled up towel.
- Keep the bottom arm straight reaching above your head and rest your top hand on the floor in front of you. Bend your hips to about 45 degrees and knees to about 90 degrees.
- Shoulders and hips should be stacked on top of each other – don't let your shoulders or hips roll back and keep them both facing forwards.
- Draw the top hip downwards as if trying to push it towards your feet – this will create a small space between your waist and the mat. Imagine a space small enough for a mouse!
- Exhale and slowly lift the top knee upwards keeping your feet together, imagine a shell opening. Keep the upper body still and don't roll backwards from the hips.
- Inhale and lower the top knee back to the start position.
- This can be progressed by using a band around the knees. Your Therapist will progress this as appropriate.



## Activating your core muscles:

There are several ways of doing this. Try the following and then choose the one you feel works best for you. To check if you are activating the correct muscles, place your fingertips on your pelvic bones and then come in 2cm and down 2cm to a natural hollow ( your therapist will show you this). You should feel a gentle tightening under your fingers. If it bulges you are working too hard.

1. Imagine you have a low belt positioned below your belly button with 10 notches in it. Breathe in and out again, and then imagine that you are tightening the belt by just 3 of the notches.
2. Imagine that you are desperate for the toilet and are trying to save yourself from an embarrassment.
3. Men can imagine that they are pulling up the crown jewels!

Once you have chosen the best way for you, set your core and then stay in this position for around a minute. Don't forget to keep breathing!

**Find your neutral spine, ribcage, shoulder blade and neck position.**

- **Gently activate your core muscles, remember to breathe!**

## Core stability exercises

### Mat exercises

Place a wedge or low stool under your thighs - or to make the exercise harder, a core ball. Whatever you use, make sure that your thighs are level with each other.

### Arm openings

- Lie on your side with your knees bent and your feet in line with your hips and shoulders.
- Arms reaching in front of the body and resting one on top of the other
- Slowly reach the uppermost arm towards the ceiling
- Continue to reach this arm out to the side, allowing the upper torso to rotate and front of the chest to open towards the ceiling.
- Allow your head to follow the movement of your arm
- Control the movement back round again
- See if you can achieve a greater stretch with each movement.



## One leg stretch

- Raise your leg up to table-top position - 90 degrees at your hip and 90 degrees at your knee
- Straighten your leg as if you are pushing a peddle
- Bring your leg back to table-top position
- Control your leg back down to the wedge
- Alternate sides
- Try to keep your pelvis still throughout the exercise.



## Mini sit-ups

- Place your hands on your thighs
- Slide your hands up your thighs gently raising your shoulders off the mat
- Then control your shoulders back to the mat, sliding your hands back down your thigh.
- To position your neck correctly imagine you are holding a tennis ball between your chin and your chest.



If you have any questions please contact us at;

**Disablement Services Centre, Rehabilitation Department  
Lower Ground Floor, Cumberland Infirmary  
Carlisle, CA2 7HY Tel: 01228 814783 Mon – Friday: 08:30 – 16:30**

## **Transport**

**Transport is available, if you meet the eligibility criteria Otherwise you will need to make your own way to the DSC. Please phone 0800 032 3240 to book your own transport**

## **Confidentiality**

**‘The Trust’s vision is to keep your information safe in our hands.’**

We promise to use your information fairly and legally, and in-line with local and national policies. You have a right to understand how your information is used and you can request a copy of the information we hold about you at any time.

For further information contact the [Subject Access Coordinators](mailto:Subject Access Coordinators)  
[SACCIC@ncuh.nhs.uk](mailto:SACCIC@ncuh.nhs.uk) or [SACWCH@ncuh.nhs.uk](mailto:SACWCH@ncuh.nhs.uk)

## **Feedback**

We appreciate and encourage feedback, which helps us to improve our services. If you have any comments, compliments or complaints to make about your care, please contact the PALS team (Patient Advice and Liaison Service) on 01228 814008 between 10.30 and 4.30 Monday to Friday or email [PALSCIC@ncuh.nhs.uk](mailto:PALSCIC@ncuh.nhs.uk).

If you would like this factsheet in another language or format, for example Braille, large print or audio the PALS team will be able to assist you (contact details above)

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