



The

ABC Toolkits

**Strength &
Conditioning
45 Minute Plans**



Strength & Conditioning 45 Minute Plan

This plan has been created as part of the Introduction to Physical Activity Workshop to educate and inspire you to become more active. Please do not complete any of the exercises if you have not attended the course or been shown how to complete the exercises correctly. Do not embark on a new exercise routine without consulting with your G.P. or Rehabilitation Consultant.



1. Warm-up (0-5 minute):

Why: Warming up allows your body to prepare for exercise and minimizes the risk of injury.

A. Seated warm-up (2 minutes)

Aim: Gently warm up the upper body and increase heart rate.

Starting position: Sit at the front of a chair, shoulders back, head up, feet/ foot flat on the floor. Be aware of how the muscles control the movement. Keep torso still and weight evenly on both buttocks.

Movements: Complete 30 seconds of each of the following;

- Pump arms up and down
- Raise arms over the head and lower to sides – as if flapping wings
- Arms at side and shoulder height and bend elbow in and out.
- Touch the floor to the side of the heel with your hands
- Tap heel as far in front as possible.

(Development: Do this standing or with the eyes closed).

All these movements can be performed by wheelchair users, upper and lower limb amputees.

B. Moving warm-up (3 minutes)

Aim: Gently warm up the lower body and increase heart rate.

Starting position: Maintaining a good standing posture, try not to look down and don't bump into anything.

Movement: (those unable to stand may complete this in a wheelchair)

- Hookie Pookie dance –
 - Bring your left foot forward and back (use arms if unable to extend leg)
 - Take 4 strides forward into the room (or move forward using chair)
 - Turn around

- Return back to beginning position
- Speeding Move and Touch
 - Move around for 30 seconds touching as many objects as possible.
 - Repeat and try and beat your score by 5 things.
- Repeat Hookie Pookie with right leg/arm.
- Repeat speed move, trying each time to beat score by 5.

2. Flexibility (10 minutes):

Why: Stretching the muscles prior to a circuit is an effective way to ensure that some flexibility work is included in an exercise regime. It is useful to have a pattern to flexibility work and this programme recommends starting at the head and finishing with the feet. This is performed after warm up to ensure it is more effective and assists in preventing injury.

– Those who cannot stand: All stretches can be done seated as necessary.

Starting position: Begin standing in a strong posture, weight distributed evenly across both feet which are shoulder width apart, head up, relaxed shoulders. Hold each stretch for a count of 15-30 seconds.

A. Neck

Movement: Keeping the chest facing forward, without tilting the head forwards or backwards, (a) drop the right ear to the right shoulder, come back to centre and then drop the left ear to the left shoulder (b) look side-to-side over the shoulders. Look over the left shoulder, hold for 15 seconds; look over the right shoulder. Repeat.

B. Shoulders

Movement: Cross the left arm across your chest and hold it in place with the right arm. Shrugging your shoulders in the position moves the stretch into different fibres. Repeat on the right side.

C. Abdominals

Movement: Reach up with hands overhead, breathe very deeply into lungs.

D. Lateral bend ▲

Movement: Keeping the pelvis still, reach up and over with the right arm to the edge between the ceiling and the wall. Breathe deeply into the lung. Repeat on the left side.

E. Chest

Movement: Grasp hands behind bottom. Keeping the shoulder and pelvis still, with straight elbows, lift up the hands.

F. Upper Back

Movement: Bring arms up to shoulder height and reach forward, curve the spine as though hugging it around a huge ball, making the back into a c-shape.

G. Whole Back

Movement: Slowly roll down starting at the neck, rolling down through the back to try to touch toes. Focus stretch on back and not hamstrings.

H. Bottom

Movement: sitting on the floor (wheelchair users should be able to do this as part of transfer skills, however this can be performed in the chair if necessary), legs straight out in front, sit as tall as possible. Bring the prosthetic side foot across the intact side and bring the knee close to the chest – give the leg a hug, with the heel

coming close to the opposite hip. Leaning back will move the stretch into different fibres. Swap legs and repeat.



I. Hamstring (1) ▲

Movement: sitting on the floor, legs straight out in front, sit as tall as possible. With a straight back, lean forwards (lifting your chest up) try and get stomach to touch thigh (do not worry about touching toes as this is a back stretch).



J. Hamstring (2) ▲

Movement: Move legs apart lean forwards (lifting your chest up) and as above, bring stomach towards thigh on the prosthetic side, return back to the centre and reach for the toes on the intact side.

K. Quadriceps ▼

Movement: lie on the prosthetic side ensuring your legs are stacked and in line with your torso. Reach down and hold the ankle on the intact side and pull it towards the buttock. Repeat this movement on the prosthetic side. If it is not possible to hold



the ankle, pull the leg as far back as possible (possibly using a scarf or Theraband to help you reach).

3. Strength and Conditioning Circuit (25 minute):

Why: The exercises in this circuit will strengthen the abdominal and back muscles and the leg and arm muscles. Focus on strength endurance.

Hints and Tips

- The exercises are set up as a circuit, you can start at any exercise
- Each exercise is recommended to be repeated a certain number of times initially to learn control of the movement, however once the movement memory has been formed, aim to do as many repetitions as possible in 30 seconds, but be very careful to complete the exercise correctly.
- An exercise done correctly and slowly is far better than one completed incorrectly but quickly.
- Allow 30 seconds of rest between each exercise.
- At home do 6 exercises 3 times in each circuit, next time do a different 6.

A. Lateral Bends ►

Aim: Working the oblique muscles.

Starting position: Hands should be on thighs, with weight evenly distributed between both feet/buttocks. To make sure that the movement comes from

the trunk, the pelvis should not move – no twisting or moving up and down.

Movement: Reach down the left leg so that the hand slides towards the knee and you are bending sideways at the waist. Come back to standing straight and reach down to the other side. Control the lowering and rising of the trunk.

Repetitions: 3 sets of 10 repetitions (30 total)

(Development: Try this holding a weight in each hand, such as tin of beans.)

– Those challenged by this:

Use a support to rest the arm on to allow bending at the elbow.

– Those unable to stand: This can be performed in a chair, try to maintain a good back posture.

B. Bridge ► (Overleaf)

Aim: To work the hamstrings, important muscles for lower limb amputees.

Starting position: Lie on your back with your knee bent and your sound foot flat on the ground, take weight through the heel of the prosthesis.

Movement: Lift your hips to form a straight line from your shoulders to your knee,



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hold for 3 seconds and then lower yourself again onto the floor. – Keep the thigh portion of your residual limb parallel to your intact thigh and keep your pelvis in a neutral position (don't allow it to dip towards the floor). Imagine your spine is a bead necklace, as you lift your pelvis; lift each vertebra as though it is a bead on the necklace.

Repetitions: 3 sets of 10 repetitions (30 total)

(Development: Try extending one leg at a time once at the top of the bridge, don't let your hips drop.)

- Those challenged by this: Clench buttocks and try to raise yourself off ground if possible.
- Those unable to stand: Place arms with elbow bent on arm rests and pull up using your bottom muscle, try and just use arms only as support.



C. Press-up ▲

Aim: To develop strength in the upper body.

Starting position: From the all -fours position move your knees back a little

further than your hips, keep the back straight and the bottom in the line between the shoulders and knees. Use a cushion to support the residual limb so that your hips are level.

Movement: Now push up and down by bending at the elbows, until your chest is just a few centimeters above the floor (the only part of your body which should be making any movement is your elbows as they bend.)

Repetitions: 3 sets of 10 repetitions (30 total)

(Development: Gradually move the knees further back, as you get stronger.)

- Those challenged by this: Start with knees very close to arms to allow more support in exercise.
- Those unable to stand: Wheelchair users can try on floor or do transfer push-ups, placing hands on arms of chair or seat to raise up body weight.



D. Buttock Clams ▲

Aim: To develop the hip abductors and rotators, very important muscles for amputees.

Starting position: Lie on the left side, knees bent and keep the heels, bottom and shoulder in line and keep the hips 'stacked' on top of each other, don't allow

them to lean forwards or backwards. Remember there should be a natural gap between the floor and your hip.

Movement: Holding the posture, lift and lower the knee, keeping the heels together. Imagine that the legs are like a clam opening and closing. Turn over and repeat on the other side.

Repetitions: 3 sets of 10 repetitions (30 total)

(Development: Lying on your side, keep your leg straight, turn toes in so they are pointing towards the ground, raise and lower in this position.)

- Those challenged by this: May be performed in seated position (see below)
- Those unable to stand: Wheelchair users can do knee spreads with self-resistance from hand or theraband.

E. Triceps dip

Aim: To strengthen the muscles on the back of the arm.

Starting position: Using a chair or a bench, start sitting at the edge of the seat with legs somewhat extended but feet placed on floor.

Movement: Move forward and down to bring the buttocks close to the floor. Hold for a count of 10 seconds. Rise up again. Bend through the shoulders and elbows (not through the hips) to maintain a rigid L shape. Ensure the elbows become fully straight at the top of the movement but do not lock out the elbows nor hang into the shoulders at the bottom of the movement. Repetitions: 3 sets of 10 repetitions (30 total)

(Development: Lift one foot off the ground for half the repetitions, then swap legs if possible.)

- Those challenged by this:

Bring feet closer towards bottom, if necessary use cushion to rest

upper limb.

- Those unable to stand: Place hands on back of chair, only if there is no risk of tipping. Or repeat exercise above.

F. Pre-Crunches

Aim: To strengthen the stomach muscles

Starting position: Lay on your back, with your legs bent, keep your intact foot flat on the floor and take weight through the prosthetic heel. Place middle fingers on top of hipbone and thumbs on bottom rib. There should be a small space left between the floor and the back just above the hips.

Movement: Bring the hip bones an inch towards the ribs by flattening the back into the ground and tensing the stomach muscles.

Repetitions: 3 sets of 10 repetitions (30 total).

(Developments: If you are capable, and have been taught how to do it correctly you can complete a ¼ crunch, lifting your shoulders off the ground, keeping your head in neutral.)

- Those challenged by this:
 - Fingers can be placed on one hip and rib only
- Those unable to stand:
 - It is advisable to attempt floor exercises to practice transfers. However, this movement can be performed in seating, bringing the hips and ribs together by tilting the pelvis, ensure you are using your abdominal muscles.

G. Plank ▽

Aim: Develop trunk maximum strength

Starting position: Start on all fours.



Support your upper body on the elbows, with forearms on ground, palms facing down. Ensure the shoulders are directly above the elbows.

Movement: extend your legs straight back so that only your hands and toes touch the ground. Hold the position for the count of 20 seconds. Ensure your knees, hips and shoulders are all in on straight line and back and stomach muscles are active.

Repetitions: 3 sets of 5 repetitions (15 total)
(Developments: Try with arms fully extended but do not lock out the elbow.)

- Those challenged by this:
 - Support upper body on elbows, or one shoulder on a chair. This may also be performed on the knees instead of feet.
- Those unable to stand: Using the movement from the ‘triceps dip’ try and maintain the lifted position for 20-30 seconds

H. Step-up and over

Aim: To develop overall leg strength, as well as balance and coordination. This is also a great challenge of proprioception (the sense of where your limbs are in space).

Starting position: if you don't have steps at home you can try this on a low stool with support or by stepping over a large obstacle (pile of books).

Movement: On the intact side, push up with

the ankle, on the prosthetic side, lift with the hip, to avoid too much trunk movement. Lead with alternate legs, Try not to look down to where the feet are.

Repetitions: 2 sets of 10 repetitions on each leg

(Development: If the prosthetic and your balance are sufficient to allow this safely you can interchange a step up, with a step down backwards. This is very difficult so ensure you have balance support.)

- Those challenged by this:
 - Try sitting and standing from a chair with one foot further forward than the other, then swap over and repeat on opposite side.
- Those unable to stand: best done on the floor, place a pile of cushions underneath you and try and find your balance (this can be done on an exercise ball if you have one and it is safe to do so.)



I: Sitting side crunches ▲

Aim: To strengthen the muscles which twist the trunk.

Starting position: Sit on the floor with relatively straight legs out in front. Keep the weight even on the bottom and sit up with an upright posture. Twist at the trunk, not the pelvis.

Movement: Touch both hands on the floor



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- at the same time beside the left hip. Now touch them on the floor beside the right hip. Repetitions: 3 sets of 10 repetitions (30 total)

(Developments: Leaning back makes the exercise harder.)

- Those challenged by this:
 - Bending the knees makes this easier
- Those unable to stand:
 - Should attempt to this on the floor, or sit forward in the chair rest legs/ residual limb on stool or chair and perform exercise in this raised position.

J: Stop sign

Aim: Strengthening the extensor muscles of the back.

Starting position: Lying on the floor face down, make the shape of the top half of a stop sign with your arms (place the back of the hands against the forehead or slightly above.)

Movement: Lift the head and shoulders off the floor, no more than 5cm up from the floor, don't arch the back; keep the pelvis and feet still. Hold for the count of 3 seconds and lower.

Repetitions: 3 sets of 10 repetitions (30 total)

(Development: squeeze thighs together and lift these off the ground)

- Those challenged by this:
 - Lie on the stomach, draw shoulders down and together, tensing the lower back.
- Those unable to stand: Should attempt to perform this on the floor, in chair shoulders can be pulled back and down towards hips, curving back towards back of chair.

K. Sit to Stand

Aim: To strengthen the legs and co-ordination of movements.

Starting position: Sat to the front of a chair ensures the feet are aligned. Keep weight even on both feet.

Movement: Without using the hands, use the hips and knees to drive the body out of the chair rather than the trunk to pull up. Control the lowering; don't fall back into the chair.

Repetitions: 3 sets of 10 repetitions (30 total)

(Development: Try this with one leg and then the other)

- Those challenged by this:
 - May use one hand
- Those unable to stand partial stand or transfer to another chair and back into wheelchair.

L. Arabesque ▶▶

Aim: Training balance and strength (especially hip flexors and extensors) when the body weight is not held in the centre.

Starting position: The supporting leg must be turned out (toes out) to ensure that the emphasis is not on the calf muscles.

Movement: Balance on the intact side and lean forward sticking the prosthetic side out behind. Keep your head up, chest forward and pelvis level.

Repetitions: 2 sets of 15 seconds on each leg.

(Development: Try this on the prosthetic side.)

- Those challenged by this:
 - May use a chair for support.
- Those unable to stand: Reach forward and reach back, challenging your balance.





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The information in this resource has been developed from research which was conducted at the University of Roehampton. The resource is under constant review by the Sport and Exercise Science Research Centre to ensure its safety and efficacy.

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