



# Participant Handbook



#### 8. WHAT CAN I DO TO STRENGTHEN MY QUADRICEPS?

Start with a moderately difficult exercise and progress according to the guidelines set out in the handbook (see section 8 "How hard should I exercise?").

#### Progress quadricep muscles exercises by:

- 1. Use one leg instead of two
- 2. Add a weight or increase the weight
- 3. Increase the depth of exercise

- 4. Increase the speed of the exercise
- 5. Increase number of repetitions

#### Home or gym exercises

Option 1 – Double leg squats
With even weight on both legs,
bend your knees evenly and squat
down to a chair height. Make sure
your knees don't move in or out
and keep your trunk upright.
Return to upright standing. If this
is too hard, just squat down as far
as you can.







Option 2 – Bulgarian split squat Put your back leg up on a stable elevated object and so that your front knee is at 90°. Try and keep most of your weight on your front leg. Keep your knees over your toes and don't let your hips drop.







#### Gym exercises

## <u>Option 3 – Knee extension</u> machine

In the seated knee extension machine, straighten your knee against resistance. Start at 90° knee bend and straighten to full knee extension.





#### Option 4 - Leg press

Using the leg press machine, press against the resistance while keeping your knees in good alignment (knees over toes). Don't fully lock your knees out. Start with a leg press set at 45° knee bend.







#### 9. WHAT CAN I DO TO STRENGTHEN MY HAMSTRINGS?

Start with a moderately difficult exercise and progress according to the guidelines set out in the handbook (see section 8 "How hard should I exercise?").

#### Progress hamstring muscle exercises by:

1. Add a weight or increase the weight

#### 2. Increase number of repetitions

#### Home or gym exercises

Option 1 – Elevated bridge Lying on your back with both legs elevated on a stable object use your hamstrings to lift your hips off the ground so that your back and legs are in a straight line. Use your hands for stability as needed.





To progress this exercise:

- Straighten your knee more
- Increase box/bench height

#### <u>Option 2 – Single leg elevated</u> <u>bridge</u>

Lying on your back with one leg elevated and slightly bent, on a stable object use your hamstrings to lift your hips off the ground so that your back and legs are in a straight line. Use your hands for stability as needed.





#### Gym exercises

#### Option 3- Deadlifts

With straight legs or a very slight knee bend, bend from your hips as far as comfortable (aim for the weight to be below your knees), then use your hamstring muscles to pull yourself back up to standing. Make sure you don't bend from your spine, but instead keep it straight.







## Option 4 – Hamstring curl machine

In the gym, use the hamstring curl machine to work against the resistance to bring your heel to your hips. Start with your legs close to fully straight and bend to about 90°. Make sure you feel your hamstring muscle work.







#### WHAT CAN I DO TO IMPROVE MY PLYOMETRIC POWER? 10.

Start with a moderately difficult exercise and progress according to the guidelines set out in the handbook (see section 8 "How hard should I exercise?").

PLYOMETRIC POWER - Your ability to jump and land with both control and speed.

#### Progress jumping exercises by:

1. Increase the speed of jumping

#### 2. Increase the number of jumps

#### Home or gym exercises

Option 1 – Double leg forward jump

Jump as high as possible landing softly bending at the hips and knees. Progress to jumping forwards as far as possible.





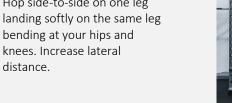


#### Option 2 – Single leg forward hop

Hop forward on one leg landing softly bending at your hips and knees. Keep good alignment. Increase distance/speed.



#### Option 3 – Single leg side hop Hop side-to-side on one leg landing softly on the same leg bending at your hips and knees. Increase lateral







#### Option 4 – Double leg drop jump (off a step/box)

Standing on a box/step, jump down landing softly on both feet and immediately jump up as high as you can. Increase height of box or hold weights to make harder.







The size of the box can range from small (20cm) step to large (40-50cm as pictured). You can also progress to landing on one leg only.



#### 11. WHAT CAN I DO TO STRENGTHEN MY TRUNK/CORE?

Start with a moderately difficult exercise and progress according to the guidelines set out in the handbook (see section 8 "How hard should I exercise?").

#### Progress core exercises by:

1. Increase number of repetitions

2. Increase length of time held in position

#### Home or gym exercises

Option 1 – Front plank
Begin on your feet and
elbows and maintain a
straight line from your head
to your ankle, so that you do
not arch your back. Hold with
good control without your
hips moving higher or lower.



#### Aim to start with:

• 30 secs hold x 3 times

## Option 2 – Front plank with leg lift

Plank position, lift one leg, holding for 2 secs, and alternate between legs for 30-60 secs.





#### Aim to start with:

• 10 reps each leg x 3 sets

#### Option 3 - Side planks

Start on your elbow and side of your feet and maintain a straight line from your shoulders to your ankles. Hold the position with good control without holding your hips too high or low.



#### Aim to start with:

• 30 secs hold x 3 times

## Option 4 – Side plank with leg lift

Side plank position, leading with your heel, lift your top leg. Hold for 2 secs, then slowly return to starting position.





#### Aim to start with:

• 10 reps each leg x 3 sets



BMJ Open

#### 12. WHAT CAN I DO TO STRENGTHEN MY HIPS?

Start with a moderately difficult exercise and progress according to the guidelines set out in the handbook (see section 8 "How hard should I exercise?").

#### Progress hip muscle exercises by:

- 1. Add a weight or increase the weight
- 2. Increase the height or width of exercise
- 3. Increase the speed of the exercise
- 4. Increase number of repetitions

#### Home or gym exercises

Option 1 – Standing hip abduction with resistance band Move your leg straight out to the side tightening resistance band. Slowly return to starting position. Increase difficulty by increasing resistance band strength.





#### Option 2 - Crab walk

In squat position (hip/knee slightly flexed) walk sideways (20 steps each way) keeping your upper body straight and tension in the resistance band. Increase difficulty by moving band to foot.







## Option 3 – Resistance band hip adduction

Standing maintaining good alignment, move your leg toward your body, tightening resistance band, and slowly return to the starting position.





## Option 4 – Groin/adductor plank

Side plank position with upper leg (knee) on chair, slowly lift and lower your bottom leg to the under surface of the chair.







#### 13. WHAT CAN I DO TO STRENGTHEN MY CALVES?

Start with a moderately difficult exercise and progress according to the guidelines set out in the handbook (see section 8 "How hard should I exercise?").

#### Progress calf muscle exercises by:

- 1. Increase the speed of the exercise
- 2. Increase number of repetitions
- 3. Use one leg instead of two
- 4. Add a weight or increase the weight
- 5. Increase the depth of exercise
- 6. Increase the speed of the exercise
- 7. Increase number of repetitions

#### Home or gym exercises

## Option 1 - Calf raise (double leg and single leg)

Standing off a small step/object about 5-10 cm high on two legs, raise your heels off the ground, and lower back down to the ground.

Make sure you do no rotate your ankle or foot and hold at the top for balance. Hold something lightly for balance if needed.



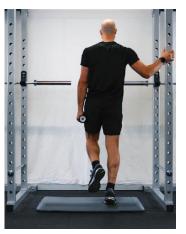






Option 2 – Calf raise with weights Same exercise as option 1 but add a weight in your opposite hand to make the exercise harder.







Date	Exercise	Reps & Sets	Weight	RPE /10
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			<b>-</b>
	5 Hips			
	6 Calves			



Date	Exercise	Reps & Sets	Weight	RPE /10
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings	1		
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves		L	



Date	Exercise	Reps & Sets	Weight	RPE /10
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
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	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
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	2 Hamstrings			
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	4 Trunk/core			
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	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			



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	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips	1		
	6 Calves			
	1 Quadriceps			
	2 Hamstrings	1		
	3 Plyometric power			
	4 Trunk/core			
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	6 Calves			
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	4 Trunk/core			
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	6 Calves		L	



Date	Exercise	Reps & Sets	Weight	RPE /10
	1 Quadriceps			
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	5 Hips			
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	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			<b>-</b>
	3 Plyometric power			
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	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
	6 Calves			
	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips 6 Calves			



Date	Exercise	Reps & Sets	Weight	RPE /10
	1 Quadriceps			
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	3 Plyometric power			
	4 Trunk/core			
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	1 Quadriceps			
	2 Hamstrings			
	3 Plyometric power			
	4 Trunk/core			
	5 Hips			
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	4 Trunk/core			
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