



QINEMATIC

DYNAMIC POSTURE SCANNING

Exercises

Information as of November 2017

hannover **re**[®]

Qinematic

How will this help me?

Optimal health is achieved in part with good postural alignment, adequate range of motion, adequate strength and endurance, and good balance and co-ordination for performing daily activities. These can all be maintained or improved with some gentle stretching and simple active tasks.

The health benefits from exercise are well documented. The World Health Organisation recommends between 150 and 300 minutes of moderate-intensity aerobic physical activity throughout the week, and muscle-strengthening activities involving major muscle groups on 2 or more days per week. Sometimes, the body needs specific exercises to prevent problems or facilitate repair after an injury and exercises should be prescribed by a physical therapist, trainer or rehabilitation specialist.

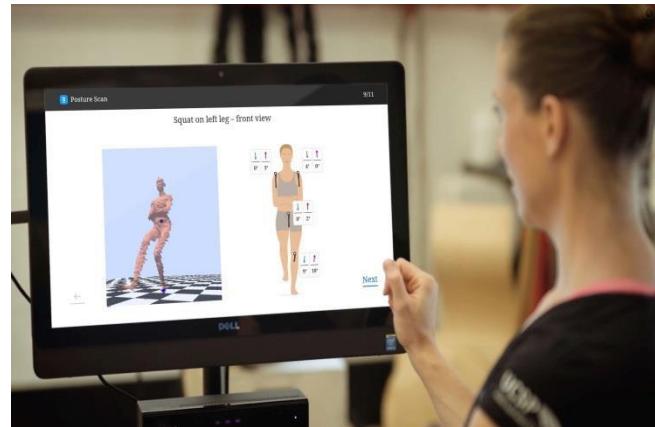
An objective functional assessment helps to identify and communicate strengths as well as deficits in performance. This can be used by health providers to educate people and make recommendations for achieving optimal physical health.

What's involved?

The exercises presented in this document are focused on improving or maintaining the following basic tasks needed for many everyday activities and are fundamental to some more advanced functional tasks found at work or in sport:

1. Posture
2. Side Bending
3. Balance
4. Squat

Some of the exercises involve progressions to illustrate that even very simple tasks, like abdominal bracing or changing the posture of your feet, can have a profound effect on more demanding tasks like balancing on one leg or performing a single leg squat. People perform these simple tasks every day, but rarely consider how complex the movements are until they are injured or start to age.



Good to know

The exercises from different sections in this booklet can be combined. Some exercises might be avoided. Be gentle and be patient with your body. Avoid discomfort at all times. Some people have neglected their bodies for years, or have underlying problems. Show respect for certain limitations, and be realistic with expectations about the rate of improvement. Consult a health professional for individualised recommendations, including the specific exercises to perform or avoid, the amount of exercise, and how to combine the tasks.

Disclaimer:

The following exercises are simple suggestions for maintaining optimal function in activities performed by uninjured and healthy individuals. Qinematic and Hannover Re strongly suggest that you seek individual advice and supervision from a health professional. We do not accept any responsibility for any injury or any loss or damage you sustain arising out of an injury. Undertaking any of the following exercises is at your own risk. We take no responsibility for your subsequent actions or any subsequent recommendations made to you.

1. Posture

Postural alignment involves finding symmetry, positioning body parts optimally for strength and control, and being energy efficient against gravity. Poor posture stresses the body and can make you tired. Many health professionals work with postural integration, poise, breathing and balance – they all involve posture in standing. We never really stand still – we have something called postural sway – moderate amounts can be good for circulation, but too much can be a predisposing factor for a fall. Movement is in fact just a series of postures, one moment after another. Different postures require different combinations of active and passive interventions, and feedback from an expert is often necessary.

○ Exercise 1: Knee bend – side lying



Extend the hip and bend the knee to the buttock.

Reps	Sets	Time	Frequency

○ Exercise 2: Hamstring stretch – on back



Flex the hip to 90 degrees, knee straight, back and opposite leg flat on the floor.

Reps	Sets	Time	Frequency

○ Exercise 3: Cobra – on elbows



With hips and forearms flat on the floor, raise the shoulders off the floor.

Reps	Sets	Time	Frequency

○ Exercise 4: Cobra – on hands



With hips and hands flat on the floor, raise the shoulders off the floor, and look up to the ceiling.

Reps	Sets	Time	Frequency

○ Exercise 5: Cat stretch

On your hand and knees, with hips and shoulders at 90 degrees. Start with a flat back.

Tuck the head under and flex the trunk up to the ceiling.

Then lift the head and arch the back down to the floor.



Reps	Sets	Time	Frequency

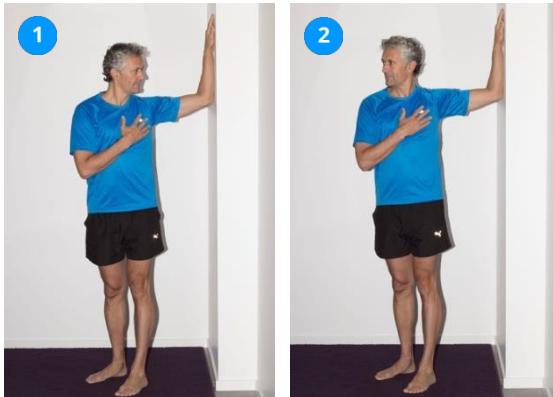
○ Exercise 6: Lunge stretch



Keeping the hips horizontal and facing forwards, trunk upright, extend the hip and feel a stretch across the front of the hip.

Reps	Sets	Time	Frequency

○ Exercise 7: Shoulder stretch

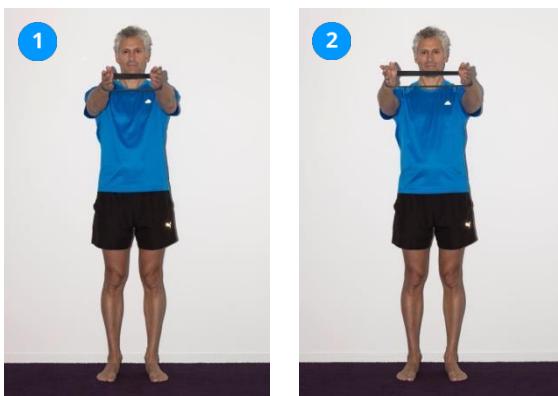


Stand with feet 45 degrees away from the wall. Rest the forearm on the wall and have the upper arm at a comfortable height for the shoulder (image 1).

Gently turn the body and head away from the wall, and feel a gentle stretch in the chest muscles (image 2).

Reps	Sets	Time	Frequency

○ Exercise 8: Shoulder stabilisation

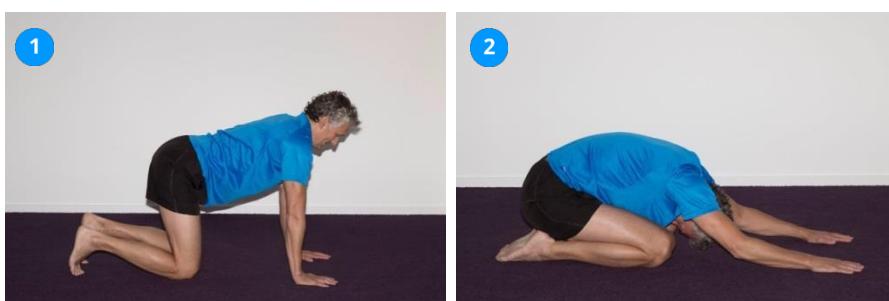


Stand with your heels, buttocks, shoulders and head against the wall. Keep the posture tall and upright. Lift straight arms to shoulder height, with relaxed neck and shoulders (image 1).

Open the arms against the rubber band, and feel the muscles working at the back of the shoulders (image 2).

Reps	Sets	Time	Frequency

○ Exercise 9: Child pose



Starting on your hand and knees, with hips and shoulders at 90 degrees (image 1). Rock backwards gently with the hips and keep the hands on the floor, opening the chest and shoulders (image 2).

Reps	Sets	Time	Frequency

○ Exercise 10: Shoulder retraction



Stand with the heels and buttocks against the wall. Feel the distance between the wall and the shoulders (image 1). Lift the ribcage and draw the shoulder back and down to rest against the wall (image 2).

Reps	Sets	Time	Frequency

○ Exercise 11: Neck retraction



Stand with the heels and hips against the wall. Look straight ahead. Feel the distance between the wall and the back of the head. Lift the ribcage and draw the shoulder back and down to rest against the wall (image 1). Place a finger on the chin, and gently guide the chin in towards the wall, and lengthen the neck upwards (image 2).

Reps	Sets	Time	Frequency

○ Exercise 12: Abdominal wall - face down hollowing



Lie relaxed face down on the floor, legs extended and feet together. Place your hands under the abdomen either side of the navel. Lift the navel towards the spine, and feel the pressure on your hands decrease.

Reps	Sets	Time	Frequency

○ Exercise 13: Bracing



Lie relaxed on your back, hips and knees bent. Place the hands on the abdomen adjacent to the navel. Draw the navel down to the spine without moving the pelvis or the ribs.

Reps	Sets	Time	Frequency

○ Exercise 14: Bracing + hip flexion



Lie relaxed on your back, hips and knees bent. Place the hands on the abdomen adjacent to the navel. Draw the navel down to the spine without moving the pelvis or the ribs, and hold (image 1). Keep the pelvis in the same position, whilst you slowly lift one foot 10cm from the floor (image 2). Lower down slowly and alternate leg.

Reps	Sets	Time	Frequency

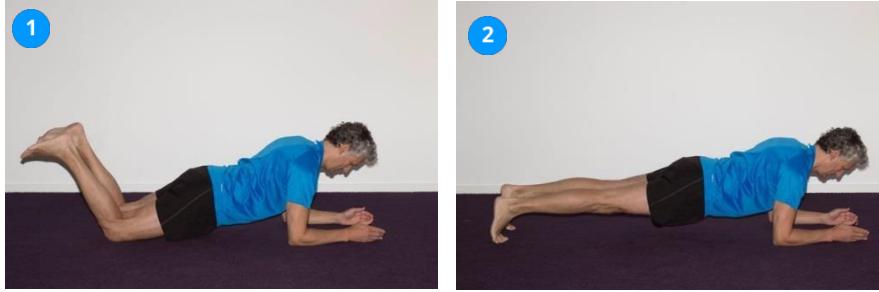
○ Exercise 15: Plank – wall



Stand slightly away from the wall, and lean into the wall, placing your forearms flat on the wall at a comfortable shoulder height. Gently draw in your navel towards your spine and try to maintain a straight line from the ankles, knees, hips, shoulders and ears.

Reps	Sets	Time	Frequency

○ Exercise 16: Plank – floor



Reps	Sets	Time	Frequency

Start with a plank on the knees (image 1) and progress to the toes (image 2) according to ability, always with good technique. Lie on the floor and gently raise your trunk and hips from the floor.

Gently draw in your navel towards your spine and try to maintain a straight line from the ankles, knees, hips, shoulders and ears.

○ Exercise 17: Foot posture



Maintain the contact of the inside and outside pads of the forefoot and the centre of the heel with the ground.



Try to maintain a neutral position.



Avoid a fallen arch or pronating foot.



Avoid a high arch or supinating foot.
Try not to tilt the inside of the foot off the floor.

2. Side bending

Side bending is complex movement that involves range of motion of the spine, control of the chest and the lower back, movement of the hips, and reaching of the arms and shoulder girdle. We use it every day when we lift, retrieve things from the floor, sit down in a chair or carry a bag. It should be a fluid and controlled movement, with optimal range – not too little and not too much – and shared between body parts.

○ Exercise 18: Hip roll

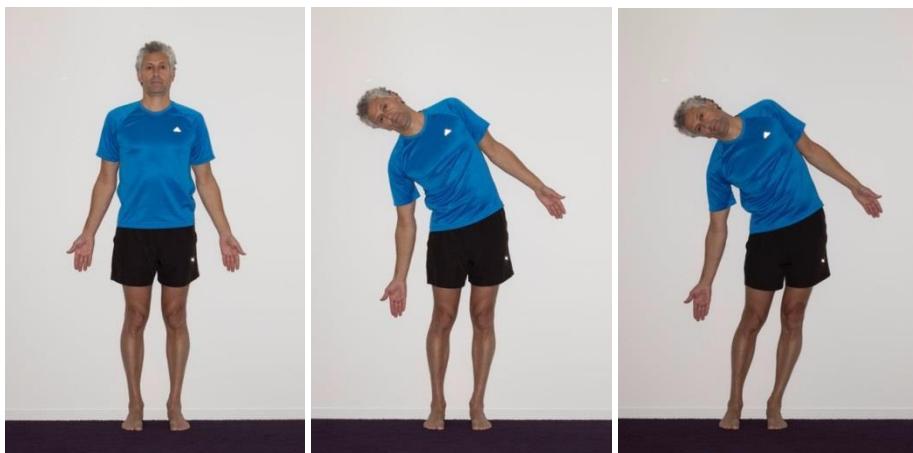


Flex the hip and whilst keeping your trunk flat on the floor, gently roll the leg/s to one side (image 1).

Gently progress from 2 legs to 1 leg roll (image 2).

Reps	Sets	Time	Frequency

○ Exercise 19: Side bend wall



Stand with the arms by the side (image 1).

Reach to the side as far as comfortably possible, keeping the hips still (image 2).

Once at the bottom of the range, gently move the hips to the opposite side to the reaching side (image 3).

Reps	Sets	Time	Frequency

○ Exercise 20: Side bend reach



Stand a short distance from the wall. Reach up with the arm and lengthen the side of the trunk that is away from the wall. Lean into the wall with the hand to extend the trunk and shoulder.

Reps	Sets	Time	Frequency

○ Exercise 21: Side bend list



Stand a short distance from the wall. Reach up with the arm and lengthen the side of the trunk that is near the wall (image 1).

Lean into the wall with the same hip to extend the trunk and shoulder (image 2).

Reps	Sets	Time	Frequency

3. Balance

This is a fundamental function that enables so many other tasks to be performed smoothly, safely and effectively. It involves the muscles, joints and nervous system, but also the vision and the inner ear. When people lose touch with their body awareness and strength from the limbs, they become dependent on their vision, and can easily fall over when they close their eyes.

○ Exercise 22: Toe raises



Stand tall (image 1), shift the body weight forward and stand on the balls of the feet (image 2).

Reps	Sets	Time	Frequency

○ Exercise 23: Heel toe



Alternate from standing on the toes and the heels, controlling the movement throughout.

Reps	Sets	Time	Frequency

○ Exercise 24: Side plank - bent knee



Lie on the side, with a straight trunk and hip (image 1). Bend and press the lower leg into the ground to elevate the hips (image 2). Then lift the upper leg (image 3).

Reps	Sets	Time	Frequency

○ Exercise 25: Side plank – straight knee



Lie on the side, with a straight trunk, hip and knee. Press the lower leg into the ground to elevate the hips (image 1). Then lift the upper leg (image 2).

Reps	Sets	Time	Frequency

○ Exercise 26: Bridging



Lie flat on the floor with hips and knees bent (image 1). Press the feet into the floor and lift the hips off the floor so that there is a straight line through the shoulders, hips and knees (image 2). Progress the bridge from 2 legs to 1 leg (image 3).

Reps	Sets	Time	Frequency

○ Exercise 27: Standing hip hitch



Stand tall with feet 15cm apart and pointing forward (image 1).

Shift the body weight to one side and lift the foot slightly off the floor whilst keeping the pelvis horizontal (image 2).

Then lift the same hip up towards the ribs, so that the foot lifts further away from the floor (image 3).

Reps	Sets	Time	Frequency

○ Exercise 28: Standing knee lift

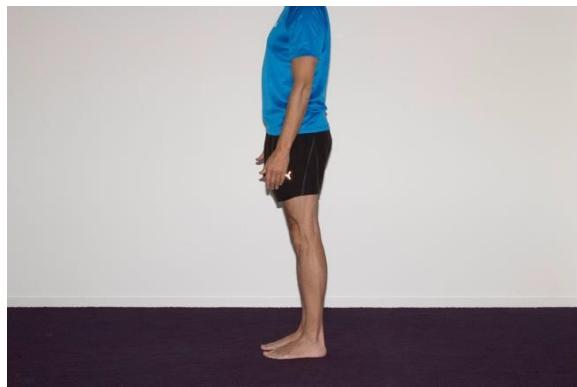


Stand tall with feet 15cm apart and pointing forward (image 1).

Shift the body weight to one side and lift the knee to almost horizontal, ensuring that the hips remain horizontal (image 2).

Reps	Sets	Time	Frequency

○ Exercise 29: Dragon



Stand upright with the arms and knees extended (image 1).

Bend at the hip, reaching forwards with the hands and backwards with the foot (image 2).

Reps	Sets	Time	Frequency

4. Squat

We perform a small squat every time we walk or take the stairs, sit/stand from a chair, or go to the toilet. It is performed during most sports, and involves some of the biggest muscles in the body, often at great speed. The foot, knee and hip are dependent on one another in a chain of events in the lower limb.

○ Exercise 30: Ankle mobilising

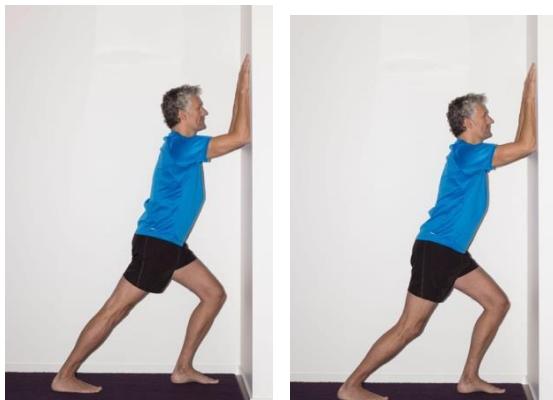


To improve range in ankle dorsiflexion, place your foot at a distance from the wall, where you cannot quite reach the wall with the knee pushed forward (image 1).

Keep the hips square, and rock the knee forward towards the wall (image 2).

Reps	Sets	Time	Frequency

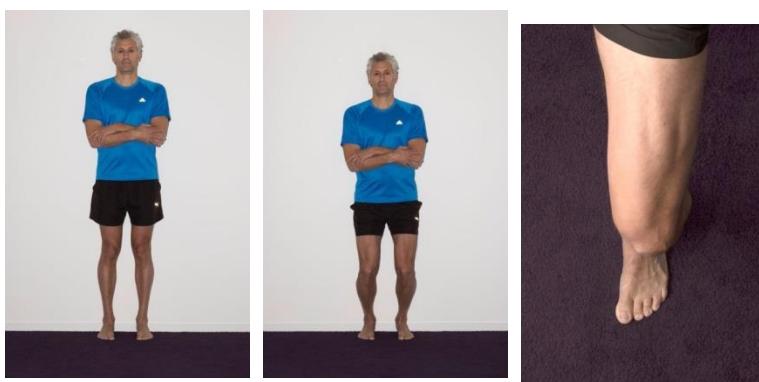
○ Exercise 31: Calf stretch



Keeping the heels on the ground at all times, lean into the wall to stretch the calf muscles. Start with the back knee straight (image 1), and then alternate with a bent knee (image 2).

Reps	Sets	Time	Frequency

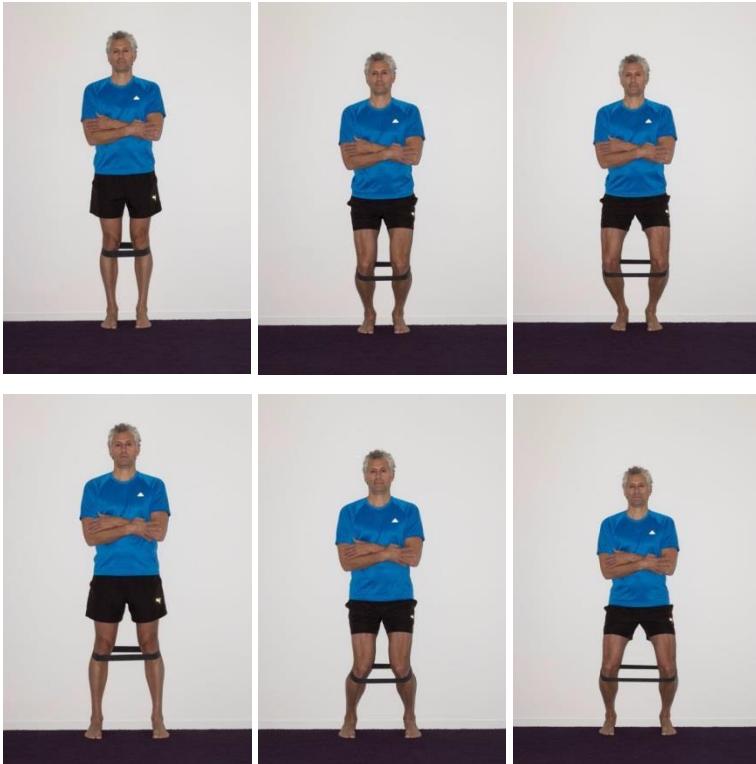
○ Exercise 32: Squat 2 legs



Stand against a wall, and keep the heels on the ground at all times (image 1). Keep a good foot posture and squat (image 2). The knees should be falling over the middle of the feet (image 3).

Reps	Sets	Time	Frequency

○ Exercise 33: Resisted squat 2 legs



Stand against a wall, keeping the heels on the ground at all times (image 1).

Maintain a good foot posture and squat with the knees falling over the middle of the feet, resisting the band which is trying to pull the knees inwards (image 2).

At the bottom of the $\frac{1}{4}$ squat, pause and exaggerate the hip external rotation, then come back to neutral and stand tall again (image 3).

If necessary, widen the legs to increase the resistance and to exaggerate the internal and external rotation (images 4, 5 & 6).

Reps	Sets	Time	Frequency

○ Exercise 34: Crab walk - bent knees resisted



Bend the knees and step to the left and then to the right to strengthen the hip muscles.

Reps	Sets	Time	Frequency

○ Exercise 35: Squat 1 leg



Stand against a wall, keeping the heel on the ground at all times. Lift 1 leg about 10cm off the ground (image 1).

Maintain a good foot posture and squat with the knee falling over the middle of the foot (image 2).

Reps	Sets	Time	Frequency

○ Exercise 36: Squat 1 leg – resisted



Attach the resistance to the inside of one leg so that it tends to pull the knee inwards (image 1).

Work actively to externally rotate the hip against the resistance, maintaining a neutral knee and foot at all times. Perform a $\frac{1}{4}$ squat, keeping the knee over the middle of the foot (image 2).

At the bottom of the squat, you may wish to practice internal and external rotation of the hip (image 3).

Reps	Sets	Time	Frequency

○ Exercise 37: Backward lunge



Attach the resistance to the inside of one leg so that it tends to pull the knee inwards. Make sure the band is in front of the other leg (image 1).

Work actively to externally rotate the hip against the resistance, maintaining a neutral knee and foot at all times. Step backwards with the other leg into a lunge. Perform a $\frac{1}{4}$ squat with the front knee (image 2).

At the bottom of the squat, you may wish to practice internal and external rotation of the hip (image 3).

Reps	Sets	Time	Frequency

Notes

Notes

Notes

2017 © Qinematic AB

All rights reserved

Model: Glenn Bilby

Text: Glenn Bilby

Photos: Christian Crusius