

SQLab back guide

EXERCISES FOR THE SPINE FOR ATHLETES AND CYCLISTS
SELECTED BY **DR. MARKUS KNÖRINGER**



Health from your own strength

Spinal complaints are a common condition and range from a mild impairment of well-being to massive limitations in sports and everyday life. In daily practice, it can be observed after time and again how muscle imbalances cause muscle shortening and result in bad posture as well as back pain, even in healthy spines.

These poor postures and improper loads on our spine are actually a disease of civilization and are caused by excessive sitting at work and in the car. This can be traced back to a lack of activity, and movements which only ever stress one part of the musculoskeletal system.

Sports with an unilateral position also promote these bad postures, unfortunately this also includes cycling, even though we do it so passionately.

A way out of this situation can be exercises that wake up the neglected muscles and stretch shortened structures.

In the following, I have compiled a series of exercises for you to help prevent back pain or improve it in the long term. Please note that the exercises do not have a claim to be complete. The exercises are intended to provide you with inspiration to take a closer look at the topic and to incorporate them into your everyday life and individual training program.

My advice is to skip exercises that seem uncomfortable or even cause discomfort during or after doing them. Focus more on exercises that work well for you.

To make sure you can continue cycling well into old age, I recommend three things: cross-training, switching up sport disciplines, and a bike that is optimally adjusted for you in an ergonomic position. Fortunately, nowadays there is a lot of knowledge on how to adjust the bike correctly and great ergonomic products are available. Especially the company SQlab is a leader and pioneer in this field.



Introduction Dr. Knöringer



Dr. Markus Knöringer is a specialist in neurosurgery and sports medicine. After many years of practice at the hospital "Rechts der Isar" and the Technical University of Munich, he has been working in his own practice since 2008.

He runs a practice with 2 locations (downtown Munich, rural county Miesbach), the surgical procedures are performed in a cooperating clinic in Munich.

Dr. Knöringer specializes in the treatment of spinal complaints and offers the entire spectrum of state-of-the-art spinal therapy according to the latest findings in order to competently and successfully help with acute and chronic spinal problems.

With additional training in orthopedics and sports medicine, as well as his many years of experience in this field, numerous professional athletes and sports-oriented patients trust in his abilities. Dr. Markus Knöringer is a specialist in biomechanical analyses for athletes, strengthened by his many years of experience and work at leading biomechanical institutes in Germany. He is

also scientifically active as an author, editor and reviewer for medical congresses and journals.

In June 2014, Dr. Markus Knöringer was appointed to the board of GOTS (largest German-speaking association for sports orthopedics). He is also a member of the commission for conservative spinal therapy and the commission for guidelines of the DWG (German Spine Society) and the active group of Surfing Medicine International.

Dr. Knöringer has years of experience in the treatment of recreational and top athletes and has, among other things, attended the Swatch Wave Protour, regularly the Snowboard World Championships on a regular basis, Wind/KiteSurf World Championships and European Surf Championships on the City Wave. He has been a surfer since 1986, an Eisbach surfer from the very beginning, Vice European Champion (2013 Masters category) in surfing on the standing wave and was the protagonist in the internationally awarded documentary "KEEP SURFING", which was shown worldwide. He also is an avid ski mountaineer.

As a commuter, he loves cycling in all variations, from the city, to endurance, to the park and alpine terrain, but preferably in the playful terrain on the MTB as an enduro rider or even on the trial bike.

As a fitness freak and exercise specialist, Markus Knöringer is enthusiastic about trying out and developing all forms of training that appear: From classical training theory, weight lifting, core training, Pilates, Yoga, Freeletics to training with your own body weight.

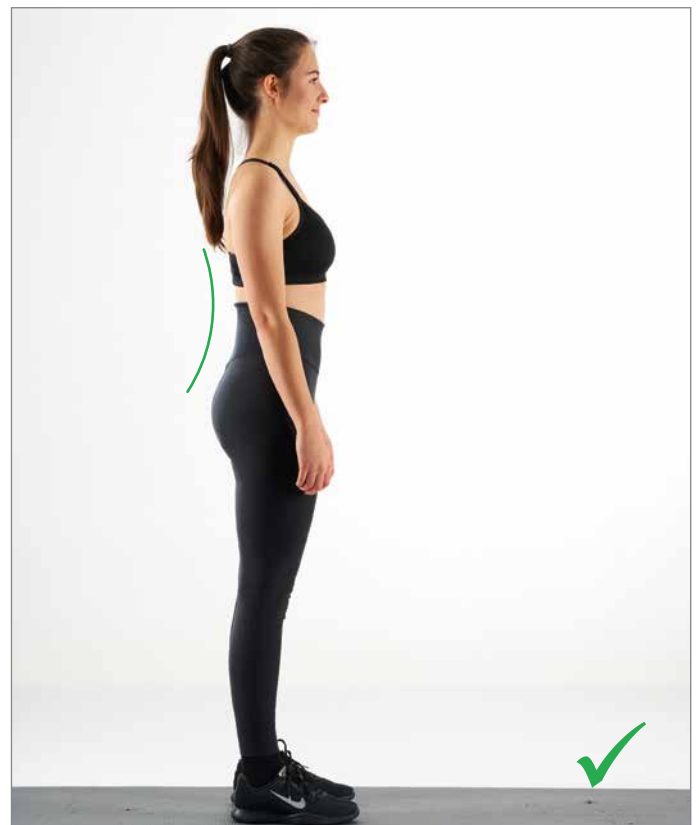
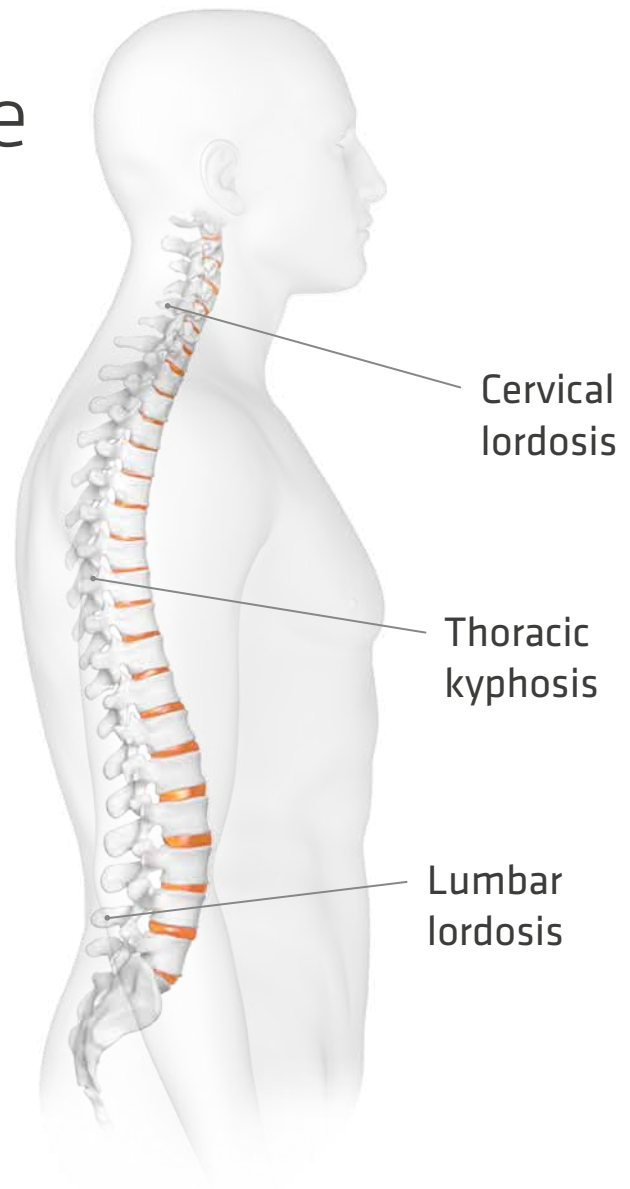


The sagittal balance

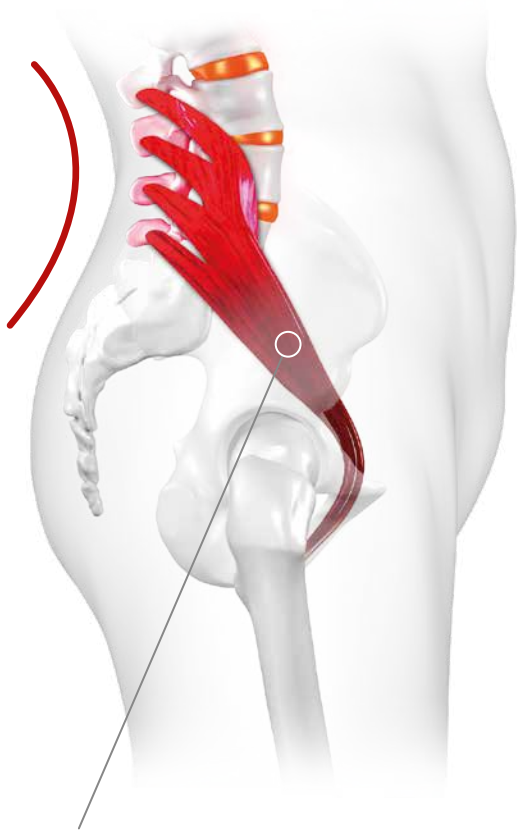
Sagittal balance refers to the posture of the body, which should look like this in a lateral view.

Neglect, wrong habits, age processes, but especially one-sided postures, activities in everyday life and sports lead to:

- Stiffening of the joints and spine
- Shortening of certain muscle groups
- Muscle asymmetries

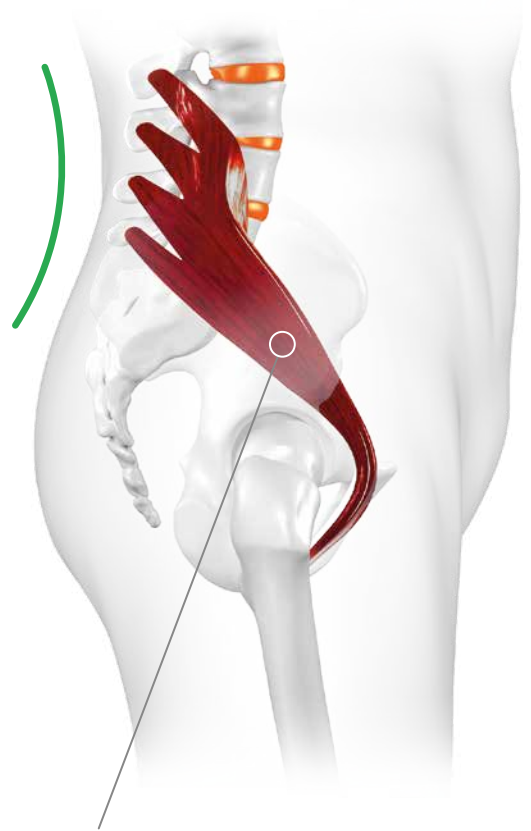


hollow back



shortened psoas muscle

physiological lumbar lordosis



Normal, stretched psoas muscle

This results in unphysiological loads, such as increased compressive pressure on the facet joints in the pelvic region, increased compressive load on the intervertebral discs and vertebral bodies, but often also impingement of the hip joints.

Let's take the lumbar spine as an example: In a simplified way, we could say that our lumbar spine is becoming increasingly unstable (the word slackened describes the situation well) and our hip joints are becoming increasingly stiff. A disease of civilization, to be precise.

The exercises I have selected are intended to counteract this by drawing your attention to the connections and encouraging you to deal more with the topic.

Have fun practicing!

Sincerely, Dr. Markus Knöringer
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Health notice

In general, anyone can slowly approach the proposed exercises.

However, depending on age, training condition, old injuries and individual movement restrictions of the musculoskeletal system, there are different requirements.

Therefore we recommend:

- Carefully and slowly try out the exercises.
- Always start with the simplest version of the exercise.
- Do not go into the end ranges of each position immediately, especially if you are not used to the exercises.
- Be patient and take your time before you increase.
- Take special care with deep knee flexion, these require proper meniscus function. Bend only slightly at the beginning and increase over time.
- If you're new to the exercise: At first, do only few repetitions and only one set.
- In case of discomfort or even pain, you should not continue the exercise.

Part 1 - Daily Exercises

Our muscles are shortening constantly. For one when they are not used over the full range of motion, but also during training.

Therefore, if you have stretched one day, it is normal that the next day the shortenings will be there again. Feel free to do the exercises in between, e.g. during the coffee break, after cycling or in front of the TV. The exercises presented are not new or invented by me. The special feature of the exercise sequences is on the one

hand the special composition and combination of the exercises, and on the other hand the way the exercises are performed. The exercises are sorted as follows::

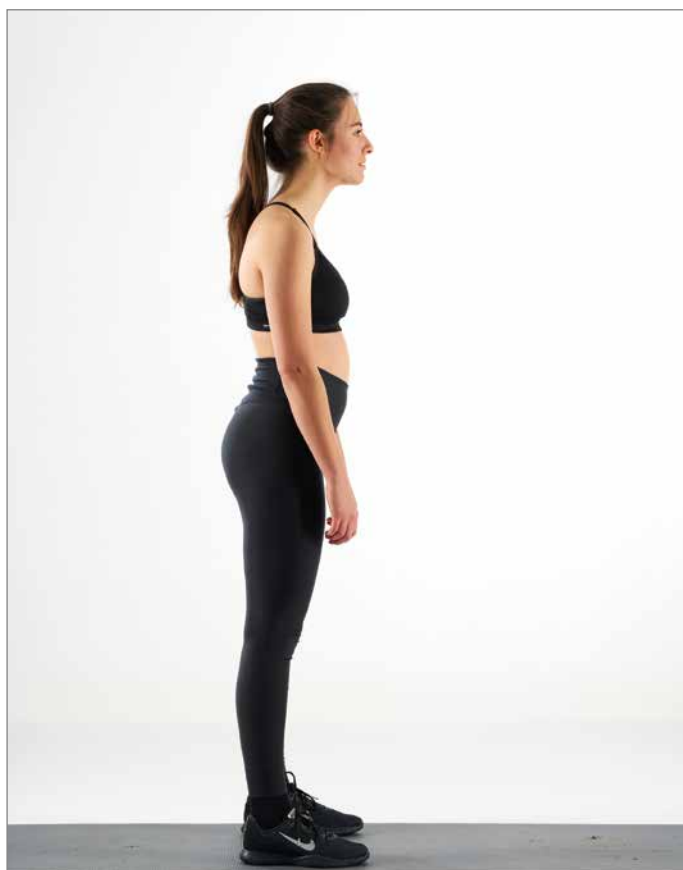
1. exercises daily
2. Exercises several times a week to daily
3. Exercises 1-2 per week

Adopting the correct body posture/ aligning the spine

1 minute / several times a day

You should set the goal of optimizing your posture to relieve the strain on your muscles and spinal discs. This does not happen immediately. It's more of a process that should be fun and ongoing in the future. Initially, you don't have to maintain perfect posture all day, but several times a day you should take the time (1 min) to align yourself correctly. This will help you develop a sense of correct posture (reprogramming posture). Study the subject and observe the people around you and their posture.

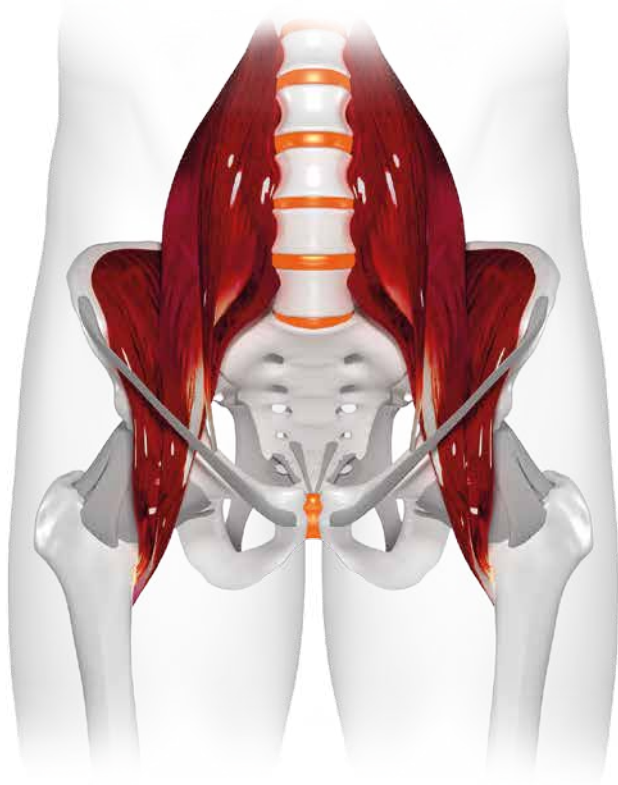
1. Straighten the thoracic spine. Be careful not to lean backwards and not to make a hollow back, but to tense the abdominal muscles and straighten the pelvis.
2. Pull your shoulders back.
3. Then pull the shoulders down slightly (position the shoulder blades inward and downward).
4. Push the head back so that it sits centrally above the body. The gaze is directed horizontally to the front.



Bad posture in everyday life.



Posture after alignment of the spine.



Musculus iliopsoas in English: lumbar iliac muscle consisting of three parts: the large and small lumbar muscle and the iliac muscle. As the illustration shows you, the muscle is connected to the bones of the spine, pelvis and legs, as well as the associated tendons and cartilage. Thus, the psoas is the link between the upper and lower body and ensures that both sections remain in position.



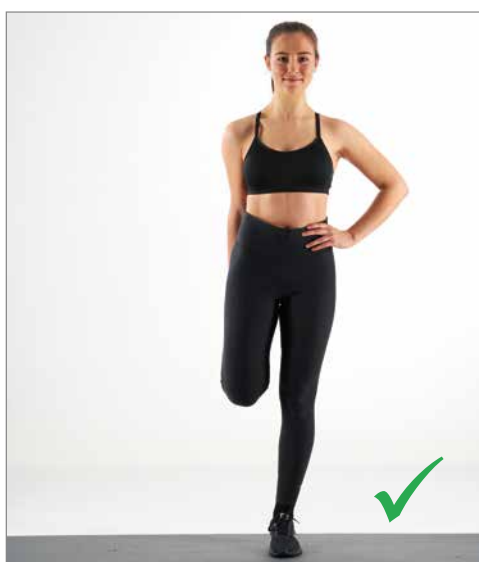
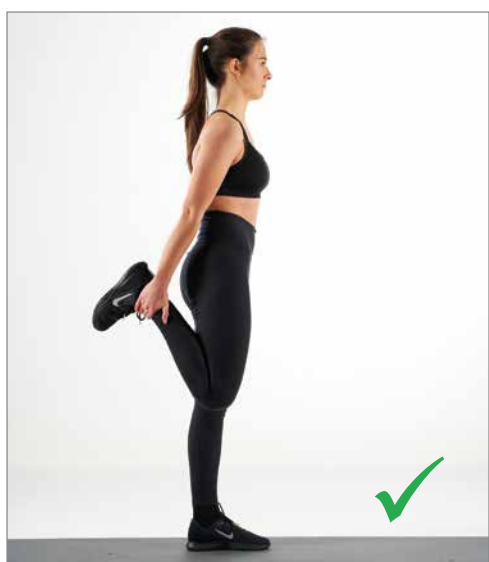
The psoas muscle ensures the upright position of the spine

Stretch quadriceps

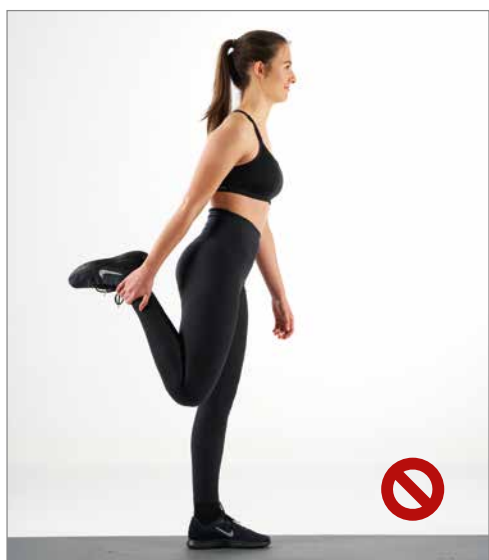
20-30 seconds per leg

This exercise should look very familiar to you and does not seem spectacular. However, if you perform it as it is described below, you will notice miracles happening. Psoas and quadriceps are very strong muscles that are always shortened when sitting, cycling, but also in the context of tension during sports. They pull the pelvis downwards. With the described exercise you can bring the pelvis back into a physiological position. The pubic bone (it can be felt below the bladder) shows you how your pelvis is positioned in space.

1. Stand up straight, angle your leg back and grasp it with your hand at the back of your foot. If you are too immobile here, you can be inventive and grab the lower leg of your pants or ankle with a towel or belt.
2. Determine where your pubic bone sits and pull it upwards by tensing the abdominal muscles (by this, your pelvis is straightened). Now freeze this position - the pubic bone should not move downwards during the stretch.
3. Now stretch the groin! You will notice a pulling in the thigh, note that it is not about the maximum bend in the knee!
4. Pull the pubic bone up a little more and at the same time pull the knee joint back.



Correct execution: Ensure a secure stance and a straight alignment of the spine and pelvis.



Incorrect execution: Avoid tilting too far forward.

Deep squat

1-3 Sets / 1-3 reps

If you don't have an injury in your knee joints or hips, the deep squat is an ideal exercise for improving flexibility and dexterity as well as stretching.

1. Position yourself in a neutral stance. Feet are hip-width apart, toes pointing slightly outward in a comfortable position.
2. Now (slowly to very slowly if you haven't done the exercise for a long time) bend your knees. The goal is to go as deep as you can until your buttocks touch your heels.
3. The heels must remain firmly on the floor throughout the exercise.

Important:

Only bend your knees as much as is comfortable for you. This is not a problem or disadvantage. After some time (days or even many weeks) of getting used to it, you can go a little deeper and deeper in stages.

Problems with the exercise:

At the beginning, you may fall backwards during the exercise. The reason is that you are too immobile in the ankles and have too little strength in the shin muscles.

Solution:

Choose a surface that is minimally tilted forward (heel elevation) and /or stretch the arms far forward as a counterweight, holding up a light weight is allowed as well (e.g. a ball).

Goal:

Over time, you will become more agile and will be able to perform the exercise on a perfectly straight surface, crossing your arms against your body if necessary.

Increase:

Choose a closer and closer stance until both heels are touching.



Make sure that your heels stay on the ground.



The goal is to go as deep as you can until your buttocks touch your heels.

Stretching the calves and back of the thighs

20-30 seconds / 2-3 reps

For this purpose, the well-known yoga position is ideal: the „downward-facing dog“. This exercise is part of the sun salutation.

1. Palms on the floor, arms stretched, balls of the feet on the floor, legs still bent, buttocks stretched upwards.
2. Now stretch the calves, trying to push the heels towards the floor, proceed gently. At the same time slowly extend the legs.
3. Gently push the buttocks further up and at the same time push the head and cervical spine back between the arms.



Beginner position: heels are not on the floor and knees are slightly bent.



Advanced position: feet on the floor and knees extended.

Stretching the adductors

10-20 Seconds per leg / 2 sets

We can stretch the adductors, which are the inner thighs, through the lateral lunge.

1. Stand wide-legged in straight posture.
2. Take a step to the right while still keeping both soles of your feet on the ground.
3. Now move the body to the right side, bend the right knee and straighten the left knee.
4. The body weight is now on the right bent leg. You should now feel a pull in the area of the inner side of the left thigh.
5. Return to the starting position and then stretch the opposite side.
6. Please note: For all exercises that require maximum flexion of the knee joint (stretching, bending the knees): Approach slowly, always perform the exercise slowly and in a controlled manner.



A daily stretch of the adductors allow free movement of the pelvis, especially in the forward tilt, and thus an optimal adjustment of the spine.

Part 2 - Exercises 2 times a week to daily

L-sit (floating sit)

2-5 seconds / 3 sets

The L-sit is gets its name because the body takes the shape of the letter "L". The exercise comes from gymnastics and is a basic exercise (for example, on the parallel bars or the rings). I do not recommend this exercise to train the abdominal muscles and the psoas (as well as the large back muscle, trunk muscles and triceps muscles), but with the exercise we use a crucial neurophysiological effect. We want to create a maximum contraction of the abdominal muscles and thus reactively a maximum relaxation of the back muscles.

1. Beginner version: If you lack the strength at first for this exercise, extend your legs and keep your heels on the floor the whole time. After some time, when you have developed enough strength, you can perform the L-sit in the correct form and extend your legs in the floating position.

2. Sit on the floor with arms slightly bent, I recommend placing hands flat on the floor. Alternative: rest on your fist or use push-up grips.
3. Bend the legs (a comfortable, cross-legged position is good) and pull them as close to the body as possible, this will make the exercise easier.
4. Now push the body up and lift your buttocks off the floor. Hold the position for 2 to 5 seconds.

Please perform the exercise slowly and in a controlled manner and be patient until you have developed enough strength.



Beginner version: Make it easier with your legs drawn in



Advanced position: Straight legs = correct L-sit

Bridge

5-20 seconds / 1-3 reps

With age, each of us becomes hunchbacked. The problem is the thoracic spine. It is rarely trained in extension (stretching/straightening), which means: in the truest sense of the word, we always tend to make a hump (flexion). In everyday life or during sports, the flexibility of the thoracic spine is rarely trained in extension.

Even in yoga, the extension of the thoracic spine is neglected. Swimming, on the other hand, has proven ideal (breaststroke, freestyle), but not everyone has the opportunity to use a swimming facility regularly.

So what to do?

The classic gymnast bridge is the ideal exercise to maintain the suppleness of the thoracic spine. Therefore, you should strive to learn this exercise. But please! Take your time, set yourself the goal of learning a basic bridge within a year. The following years you will then hone the perfect execution.

1. Shoulder mobilization: Warm up the shoulders with a towel or broomstick. Reach wide in front of the abdomen and raise the arms above the head until you touch the back.
2. Mobilization on the hard foam roller: Lie with your back on the roller and mobilize the thoracic spine.
3. Mobilization with the physioball: Sit on the physioball, then roll onto your back, keeping your legs on the floor. Now slowly roll upside down and press your hands towards the floor. Advanced users can finally push up into the bridge and get off the ball.
4. Preparatory exercise: raise the pelvis (half bridge).
5. Approach the „full bridge“.

It is best to do the mobilization before each bridge exercise, even if you are advanced. When doing the bridge, be careful not to do all of the extension in the lumbar spine. You should create a harmonious arc.



Preparatory position: shoulders on the floor (half bridge)



Advanced position: shoulders in the air (full bridge)

Rotating sit

10-20 Seconds per side / 1-2 sets

Ideal for actively (neurophysiologically) stretching tense muscles close to the spine and keeping the intervertebral joints (facet joints) supple.

1. Sit on the floor and place the left leg up and over the extended right leg.
2. With the right elbow to the outside of the left knee joint, lower the hand towards the floor. At the beginning you will only manage to bring the fingertips to the floor, later the goal is to bring the whole palm to the floor.
3. The goal now is to rotate the upper body first, then the head opposite to the pelvis. Proceed slowly, you determine the tension and the degree of rotation with the force you use for the rotation. The side that is not tensed is now actively stretched.
4. To increase the exercise, after some experience, you can additionally bend the right leg and bring it to the left buttock.
5. Don't forget to stretch the opposite side (everything is mirrored).



With relaxing twists you support your muscles and stimulate the metabolism.



Advanced version (see nr. 4)

Two-part lunge

10-20 seconds / 1-3 reps

With this ingenious exercise you will improve your mobility of the hip joints (deep hip flexion) in the first part and stretch the calves and back of the thighs in the second. This perfect and versatile exercise can be done in preparation for sports or on its own.

1. In the first part of the exercise, do a wide lunge with your left leg forward and support yourself with right arm next to your left ankle.
2. Now you will bend your left hip deeply, trying to touch the floor with your bent left elbow. Hold the position for a few seconds (picture 1 and 2).
3. In the second part, you now straighten up again by supporting yourself with both arms extended and positioning the hips centered between the two ankle joints (Fig. 3).
4. The goal now is to try to stretch both legs. You will now notice a pulling sensation in the back of the front thigh.
5. Then try to pull the toes of the front foot towards you and at the same time push the heel of the back foot towards the floor.



Part 1: Step into a wide lunge and support yourself with your arm next to your leg.



Part 1: Now push the back leg into extension.



Part 2: Now try to extend both legs.

Shane Beschen sit

20-30 seconds / 1-2 sets

I named this seat, which is known from Yoga, after one of the world's best surfers from Hawaii, Shane Beschen. Before each surfing session, Shane performs a sequence of warm-up exercises to get supple. Mobilization of the hip joints takes up a large portion of the program. I recommend doing this exercise after the lunge.

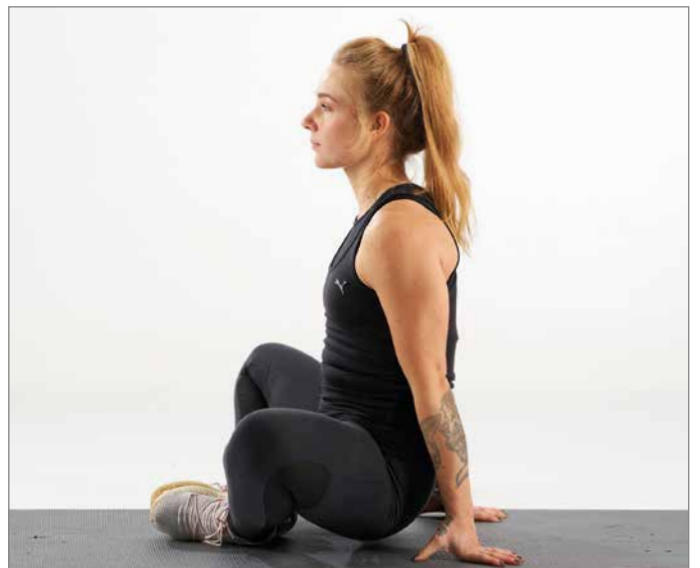
1. Come into a cross-legged position, placing both soles of your feet together.
2. Grasp the forefoot with both hands.
3. Now use your elbows to push both thighs outwards towards the floor (image 1).
4. Finally, you can try to shift your entire body weight to the outside of your foot by supporting yourself with both arms on the floor and pushing your body forward (image 2+3).



Starting position step 1 and 2



Advanced version step 4



Advanced version step 4 ((side view))

Hand walk

1-3 repetitions

The hand walk is an ideal exercise to regain mobility if you have become stiff and can no longer bend your trunk properly, for example. Marching with your hands on the floor can also improve spatial awareness and a feeling for the ground. This is not only interesting for cyclists in case of a fall.

1. Do a relaxed torso bend, positioning the arms some distance from the feet on the floor.
2. Stretch both legs.
3. Walk on your toes with small movements in your ankle and tiny steps towards your hands as far as you can or until you can achieve a full torso bend.
4. Now walk forward with your hands in small steps until the old distance is restored. Then you can walk after the hands again (like a caterpillar) and repeat this sequence a few times.

As an additional option, you can march forward with your hands as far as you can hold the tension (to additionally exercise abdominal muscles and anterior sling).



The starting position is the downward facing dog. Pay attention to a straight spine and extended legs.



Now lift...



... the heels slowly ...



... and march in very small steps ...



... towards the hands.

Sumo squat

3-5 repetitions

The Sumo Squat is another important exercise for mobilizing the hips. Even if you can do this exercise, most of us will still have to work at it for many years to perform it perfectly.

If you perform this exercise, you may understand why Olympic weightlifters must have perfect agility, coordination and body awareness.

1. The starting position is the torso bend: legs a little wider than your hips. Grasp your toes or even under the toes.
2. Keep your arms straight and squat down. Your arms should be between the knee joints.
3. Now pay attention to your spine posture. The back should be straight and as vertical as possible. This will not be possible for many at the beginning. This is perfectly normal, try to work on this position over the years. Push your chest out and pull your shoulders back and down. Hold the position for a few seconds and focus on your spine and pelvis posture.
4. Now straighten up to the starting position, but do not let go of the feet.



Grab your toes or reach under your toes as well. Tip: Make sure your back is straight. If it is not straight, bend your knees until it is straight.



From the starting position, move your buttocks towards the floor.



Pay attention to your balance: go as low as you can. Initially, the back will get rounded, try to keep it straight or even work towards a hollow back over time.

Stretching back of the foot

20-30 seconds / 2-3 sets per foot

I recommend regularly practicing stretching the back of the foot. You will see how beneficial the mobilization of the ankle joint, the metatarsal bones and the toes is. The shin muscle is also stretched.

1. Stand on your left leg, place the base of the big toe on the floor.
2. Now stretch the structures of the back of the foot.
3. Repeat the exercise with the right leg.



Stretching the back of the foot: important for mobility of the ankle and relaxation of the entire muscle chain. An exercise that you can easily perform from anywhere.

Scorpio

5-10 seconds per side / 1-3 reps per side

As already mentioned, the frontal slings are often neglected in the stretch. The scorpion provides a perfect remedy, also here the stretch (antagonist) must be brought about actively (agonist) by one's own muscles, i.e. one uses the decisive, neurophysiological effects for active stretching.

1. The starting position: Lie on your stomach on the floor, spread your arms out on both sides at a 90° angle and straighten out your legs in a relaxed manner.
2. Now bring your left leg with your heel towards your right hand and try to touch it.
3. While doing this, try to keep both shoulders on the floor as much as possible, allowing the pelvis to twist against it so that you are lying on one side of the hips.



This dynamic mobility and stretching exercise will help you stretch and activate the major muscle groups at the same time.

Lunge

2-5 reps / hold final position for 2 seconds

I recommend this particular execution of the lunges not as a strength exercise, but to stretch the groin and the frontal thigh (improving the extension of the hip joints).

1. Starting position: Take a wide step forward. The step size should be equal to one arm's length forward and one arm's length backward.
2. Now bring the back knee closer to the floor. Now pay strict attention that the front knee joint is behind the front heel. When you go down, the front knee should not move forward. The pelvis and upper body should be kept in neutral position.
3. Hold the final position close to the ground for a few seconds (back knee just a few inches off the ground) and then push back to the starting position and repeat 2 to 5 times.

Ideally, you should follow this exercise with a round of quadricps stretches (page 8).



Important: Make sure that your kneecap is behind the heel of the front leg.

"The Dog" #1 - lower back stretch

1-3 reps / hold final position for 10-20 seconds

While from yoga essentially only the downward facing dog has become popular, the real dog pose provides an excellent basis for many other useful exercises. This exercise mobilizes the spine.

1. Starting position: Get into a quadruped position: back straight, arms stretched, palms vertically below the shoulders, fingers pointing forward, knees vertically below the pelvis, toes on the floor.
2. Raise your head. In the starting position, assume a hollow back pose in the lower lumbar spine.
3. Now push your buttocks towards your heels as far as possible.

EXERCISES 2-7 x per week



starting position



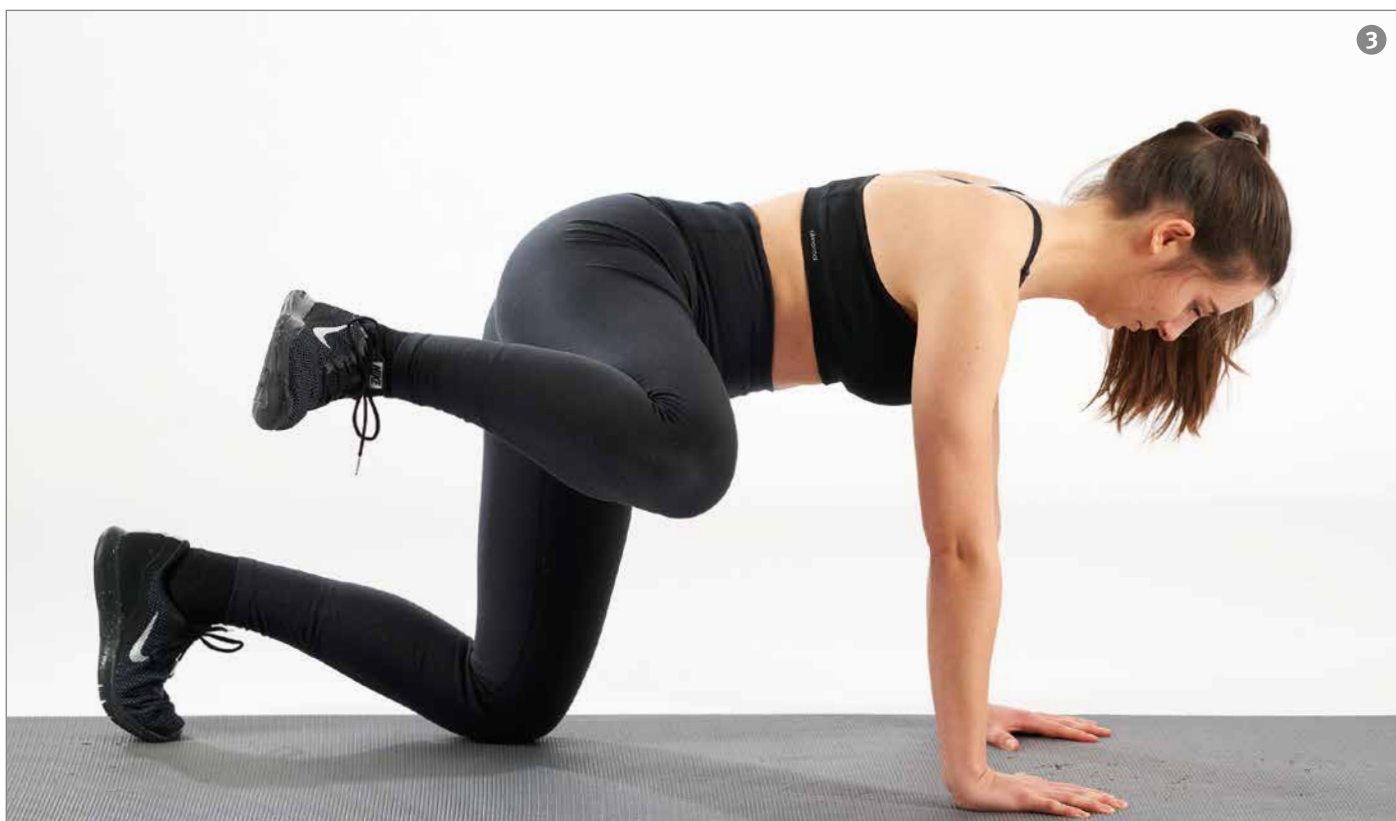
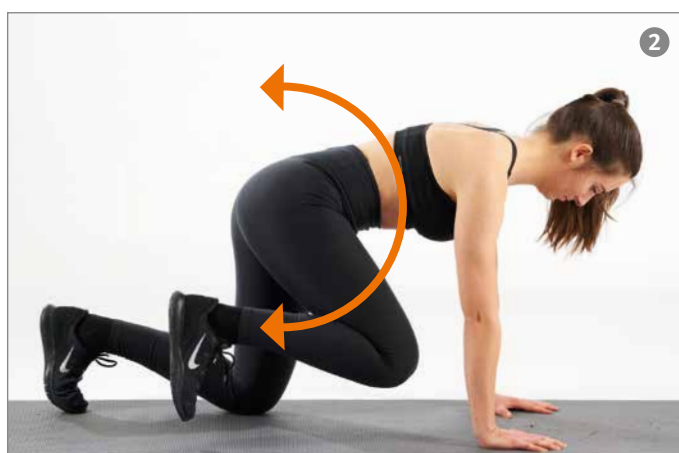
Lift the head and push the back into a hollow back posture. At the same time push the buttocks towards the heels.

"The Dog" #2 - hip joint mobilization

3-6 repetitions per side / semi-circle movement

This exercise strengthens the gluteal muscles, but most importantly, redistributes the joint fluid present in the joint. This exercise has an immediate effect on hip joint pain.

1. Starting position: Get into a quadruped position: back straight, arms stretched, palms vertically below the shoulders, fingers pointing forward, knees vertically below the pelvis, toes on the floor.
2. Bring the right knee joint forward, next to the elbow. (Picture 2)
3. Continue to guide the knee joint in a fluid (semi-circular) motion to the final position (hip abducted, knee joint flexed, all over, 90° angle everywhere).



Refer to the numbering for the exercise sequence. The exercise is designed to mobilize the hip joints. Pay attention to the straight alignment of your spine.

Part 3 - Exercise 1 to 2 times a week

Physioball shoulder blade control – Exercise 1

5-10 reps / 2-3 sets

The position of the shoulder blades plays a crucial role in good, powerful and pain-free shoulder function. The following exercise is ideal for getting a feeling for the shoulder blades and especially for feeling the position of the shoulder blades in space and on one's own body. At the same time, of course, this exercise also helps to bring the shoulder blades into the desired position.

1. Starting position: Place your knees on the mat and your chest on the physioball. Then roll forward until your hips and abdomen are on the ball. Extend your arms down in front of the ball and keep your thumbs up.
2. Pull the shoulder blades to the middle and down.
3. Raise your arms upward in a Y-shape until you form a plane with your body. Concentrate on maintaining the position of the shoulder blades.
4. Repeat the exercise 5 to 10 times. Remember, it's all about scapula control!



Starting position: Make sure your back is straight.



The exercise is used to learn control over the shoulder blades and their positioning.

Physioball shoulder blade control – Exercise 2

5-10 reps / 2-3 sets

Again, it's all about shoulder blade control, only the arm position and movement is different, an additional variation so to speak.

1. Bend your arms and elbows slightly outwards.
2. Now pull your shoulder blades back and down towards the middle.
3. Raise elbows outward and up to body level and forearms up (rotate in shoulder).
4. Repeat this exercise 5-10 times.



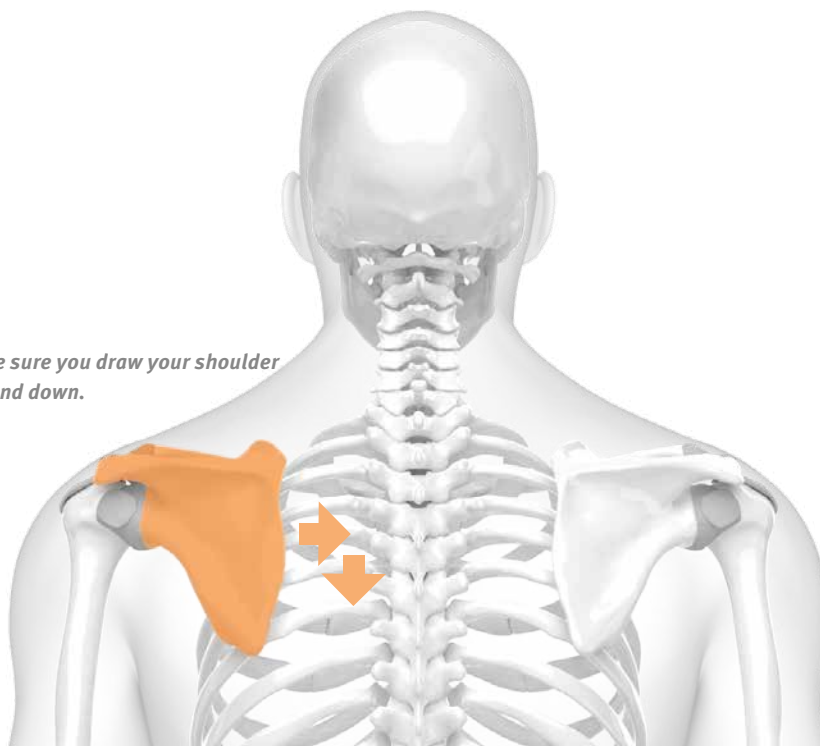
Starting position: arms slightly bent outwards.



Another variant for shoulder blade control and strengthening.



As you do this exercise, make sure you draw your shoulder blades in toward the center and down.



Abduction and adduction in lateral position

10-15 repetitions

If the tractus iliotibialis is never stretched, discomfort and pain in the hip or knee joint can be the result. This exercise is ideal for active stretching.

1. Lie on your side, spread your leg and tighten your toes. While doing so, place the upper hand on the floor to stabilize.
2. Now touch the knee joint of the lower leg with the toes of the upper leg and then bring it back to the starting position.



starting position



Guide the splayed leg in the direction of the extended leg. Tap lightly and then bring the leg back into extension.

Hard foam roller: quadriceps, IT bands, lower back

Roll 3-5 times per muscle group

The hard foam roller is a good way to loosen tense muscles. I recommend rolling the targeted areas 3 to 5 times per exercise. Do not overdo it. Because medically, the tissue pressures achieved are above the forces that vessels or nerves can handle, and furthermore, important venous valves and lymphatic vessels can be damaged if you roll outward from the trunk to the body's periphery.

1. Front of the thigh: roll between the bony pelvis and the kneecap.
2. Tractus Iliotibialis: Roll from the greater trochanter to the level of the kneecap.
3. Lower back and thoracic spine: roll the tense areas in the supine position, but good abdominal muscle fitness is a prerequisite.

Other uses: calves, inner thighs



Roller massage 1: Front thighs



Roller massage 2: Outer thighs



Roller massage 3: Lower back and thoracic spine

Push-ups on the wall

5-10 reps / 1-3 sets

I recommend push-ups as a compulsory exercise for everyone, regardless of age or training level. The trick is to make the exercise so simple that it can be done without effort. This succeeds with the wall (or door) push-ups.

1. Stand one meter away from the wall, lean forward and place both palms against the wall. Now you can perform a push-up. If this is too hard, move your feet closer to the wall.
2. Ensure correct body tension, do not let the pelvis sag, pull the pubic bone upwards and tense the abdominal muscles.
3. To increase you can:
 - a. Step back further from the wall.
 - b. Perform the push-up on a lower object, such as a dresser or railing.
 - c. The progression can be continued to the floor, as required.
4. I also recommend performing a one-arm push-up to increase. At the beginning also very close to the wall. With the one-arm push-up, the stabilizing, oblique abdominal muscles are ideally trained.



The closer you are to the wall, the easier the exercise.



To avoid back pain during the exercise, make sure you do it correctly: straight back, tense the abdomen, pull the pubic bone up.

Push-ups on the physioball

5-10 reps / 1-3 sets

Especially for cyclists, this form of push-ups is perfect, because the unstable posture on the ball gives you strength and coordination to stabilize yourself on the bike in difficult situations.

1. Support yourself on the ball with your hands shoulder-width apart, tense your abdominal muscles and pull your pubic bone up. Avoid your pubic bone to sag downwards.
2. For more intensity and also angle variation, the legs can also be positioned higher, for example on a sofa.



This stabilizing exercise is particularly important not only for cycling.

Abdominal muscles with the physioball

3-12 reps / 2-3 sets

This combination exercise trains body tension (plank) and abdominal muscles, as well as coordination and ground awareness.

1. Get into the push-up position with your toes on the physioball.
2. Now pull your knees towards your body, rolling your feet forward on the ball.



Step 1 - push-up position



Step 2 - knees to body

Negative push-up physioball

5-15 reps / 1-3 sets

Push-up variation with an unstable surface.



Step 1 - push-up position



Step 2 - Bend your arms and go deep into the push-up position

Calf training

5-15 reps / 1-3 sets

The calves eke out a shadowy existence in training. If you perform this exercise, you will see that there is some potential. Strong calves bring a stable stance, a good power transmission of the thighs and help to get a solid pedal stroke. Also, calf training is great for upper extremity injuries and many other limitations.

1. Starting position: legs shoulder-width apart.
2. Push up onto your toes..



Starting position: Firm, hip-width stance



lift heels

Tips & Suggestions

- Consistency is key! It is not a problem if you cannot do the exercises for a week or 2 or even longer because you are sick or have other things to do. Over the year, however, you should be able to tell yourself that the exercises are part of your life.
- The following applies: less is more. In case of lack of time, lack of motivation or lack of strength and energy, it is better to do a slimmed down circuit. Do at least a few exercises...at least one or two. You will notice how this will help you.
- **My recommendation for staying fit in everyday life:**
 - Do sports that you enjoy (cycling, etc.).
 - Be diverse.
 - Combine with strength and stretching exercises (such as in the back guide).
 - Control your body weight through diet and plenty of natural exercise in your daily life (taking the stairs, walking or biking to work, going for a walk).
 - Sports are for enjoyment and can develop many skills that are lost if not used: Endurance, strength (maximum strength, explosive strength, strength endurance), speed, reaction, suppleness, coordination, dexterity, determination, the ability to learn something new, etc.
 - Be versatile, try something new, don't overdo it.

Complementary Exercises

For almost all sports, especially in cycling, training on unstable ground has proven to be an ideal complement to the exercises presented. Training on unstable ground promotes balance, dexterity, proprioception (body perception in space) as well as the trunk muscles and deep back muscles (core training). The ability to perform balancing movements is improved. Thus, this training is perfect to improve performance, but also for the prevention of overloads and injuries or in the context of rehabilitation.

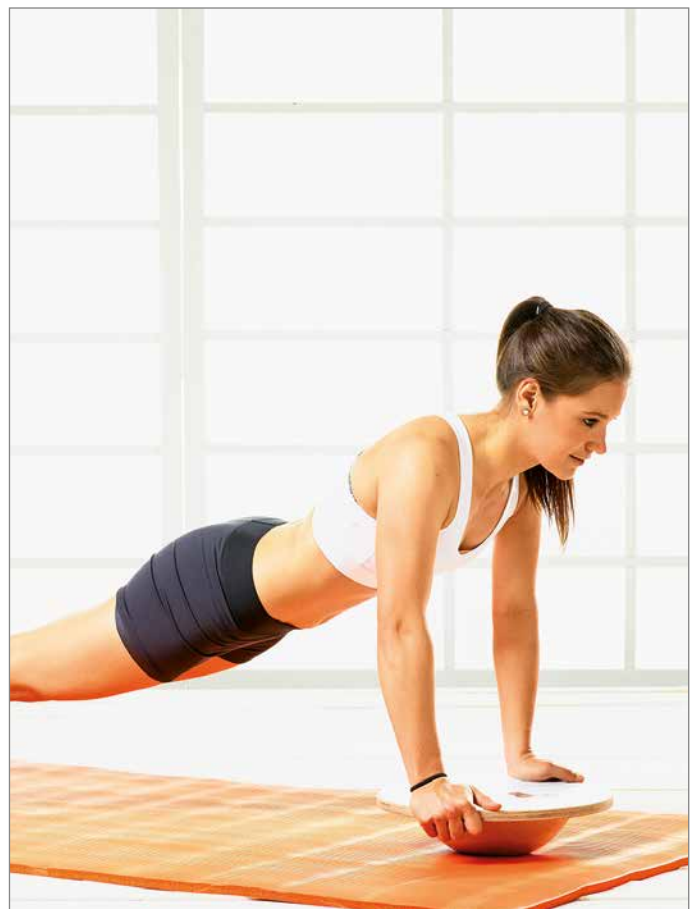
Squats on the therapy circle

10 reps / 3 sets



Push-ups on the therapy circle

10 reps / 3 sets



Slackline

Beginners should not take the first steps alone, but be guided by an experienced slackliner. The learning progress is simply much greater and the risk minimal. Alternatively, you can attend a course or inform yourself on the Internet (Youtube).

Advanced students can try easy tricks, e.g. turning around (change of direction on the slackline), surfing (with both legs on the line, pelvis parallel to the slackline), sitting down and standing up on the slackline.



Regenerative sleep through the right mattress

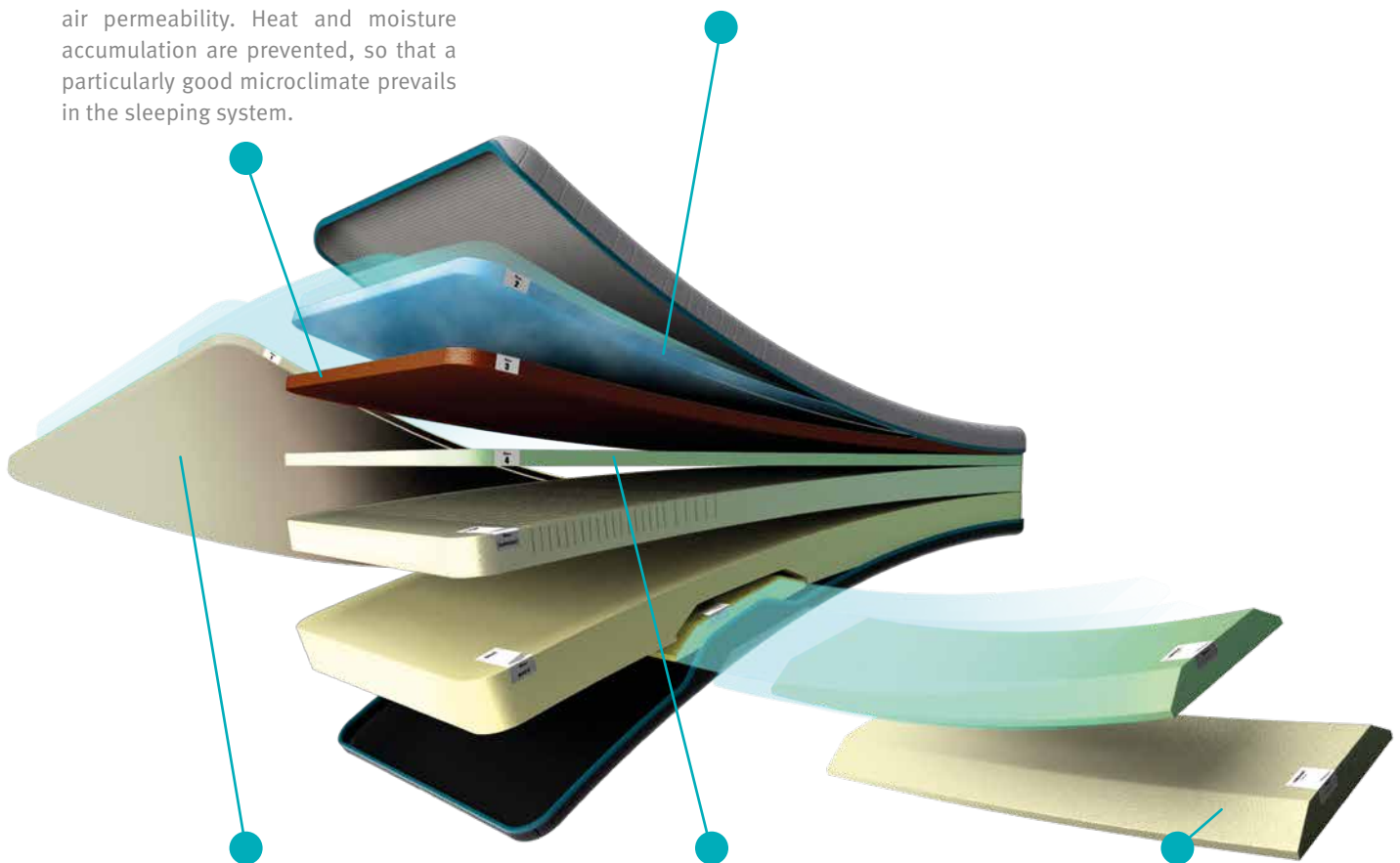
It is generally known that a healthy and restful sleep is necessary for a healthy, pain-free and efficient back. The Q [kju:] sleep system consists of the Q [kju:] mattress and the Q [kju:] pillow. The modular pillow and the modular mattress have been developed with the highest standards of ergonomics, design, sustainability as well as durability. We follow these high standards down to the smallest detail to achieve the best possible results for every athlete. The Q [kju:] mattress consists of a modular layer system. The seven layers that are not glued together, the three relief wedges and the leg support allow 576 different configuration options. In this way, an individual set-up can be determined according to sleeping position, complaint pattern or preference for an ergonomic lying position.

Q[kju:] Xdura – breathable

With Xdura, the sleeping climate is just right. The foam has a particularly open-pored cell structure that ensures high air permeability. Heat and moisture accumulation are prevented, so that a particularly good microclimate prevails in the sleeping system.

Q [kju:] gel foam – relieving

The mix of gel and foam is designed in such a way that you feel as if you are floating.



Q [kju:] Soft – point elastic

For side sleepers who need relief at the shoulders and hips, the Soft Foam is crucial as the top layer. The high point elasticity allows broad shoulders to sink deeply.

Q [kju:] Memory – adaptive

Memory Foam adapts very well to the body and thus reduces pressure. We recommend the memory layer for the middle position. Lovers of memory foam put this layer all the way up.

Q [kju:] relief wedge

The heart of the Q [kju:] mattress is the relief wedge in the lowest layer, the so-called base. Three hardnesses of the wedge are included in the delivery: Soft (back sleepers), Medium (stomach sleepers), Hard (side sleepers).

Back-friendly saddle & handlebars



Relief of the intervertebral discs and sit bones

In spring 2010, the SQlab active saddle technology was introduced with the MTB saddle 611 active. Since 2011, at least one active model has been available for every area of use. Meanwhile, more than every second SQlab saddle sold is equipped with active technology.

Construction of the saddle

The saddle's design allows the pelvis to move in a horizontal plane. The performance of the so-called pelvic swing is thus ensured - as in natural walking.

Effects

The pelvic swing enables our musculoskeletal system, which has evolved over millions of years, to perform a physiologically correct, adapted pedaling motion. The possibility of co-movement of the pelvis therefore minimizes the risk of developing complaints in the lower lumbar spine, pelvis and hip.

The step becomes more relaxed and rounded, premature fatigue is prevented. This is advantageous because our skeletal system is not exactly symmetrical. The dynamic saddle design compensates for differences such as those caused by leg length discrepancies.

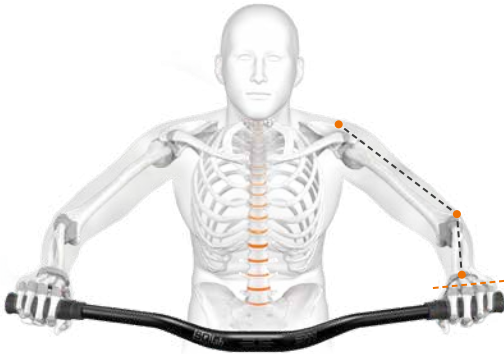
The saddle has room to move in the horizontal plane. As a result, the spinal discs are subjected to less tilted loading and the pressure close to the edge is reduced. The spinal discs are thus exposed to less potential for injury.

Finally, the possibility of slightly unstable, dynamic sitting ensures constantly changing, variable sitting positions. This is an important factor in preventing the pressure damage to spinal discs and facet joints caused by one-sided positions.

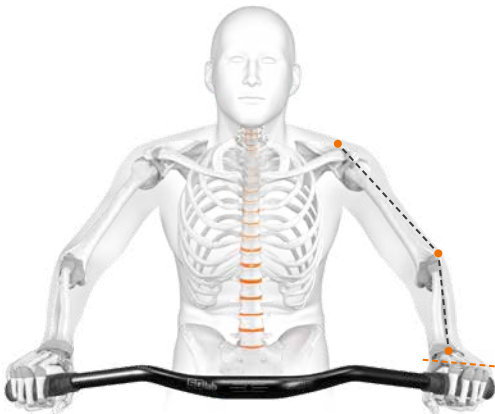




The bend up or down is matched to the area of use and ensures an aerodynamic arm position on the cross country or fast urban, fitness or trekking bike.



The upward bend brings the elbows up and out - for a technically optimal arm position on the MTB.



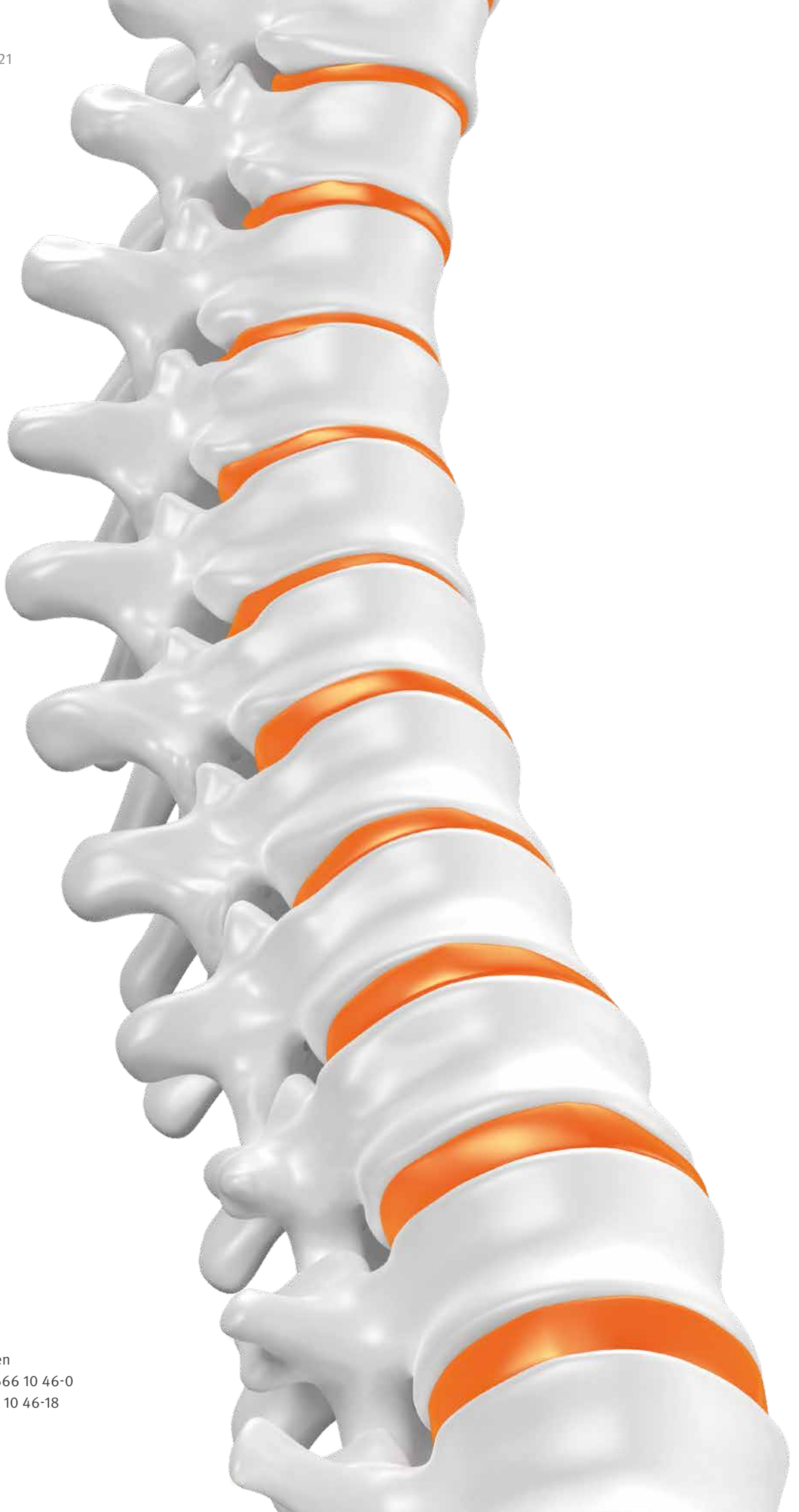
The hand position places the elbows lightly against the body. The backward/downward setting relieves the shoulders and is adapted to a moderate to slightly upright back inclination.

The handlebars have a significant influence on riding dynamics, aerodynamics and ergonomics. In addition to the sitting position, the handlebars determine the entire chain via the hands and elbows: shoulder - neck - spine down to the pelvis. In addition to the width and elevation of the handlebars, the bend to the rear plays a major role. However, the greatest influence on the neck, shoulders and back is the bend of the handlebar ends upwards or downwards - and it is precisely this angle that we have paid great attention to.



Comfort & ergonomics upgrade

Who does not know it, the desire to change the grip position during longer rides on the bike. Just relax your hands, bring them into a different position and that too without an awkward bending of the wrists. The Innerbarends® do this through an additional aerodynamic elbow position, close to the body. The Innerbarends® have no fixed area of use, so they are suitable for mountain biking, trekking and city biking.



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