Operating instructions

IMPORTANT

Dear Kwiggler,

You have chosen a fantastic product. Please note the following so that you can experience it to the full:

The saddle height is preset to your height. For your first ride, however, we have set the saddle a little further back so that you can sit on it and get both feet on the ground. First ride for 5 minutes on flat asphalt paths so that you get used to the new move.

Then you can gradually raise the saddle by turning the rear saddle adjustment screw S2 further to the right (see page 25).

The **saddle must be as high as possible** so that you can feel the kwiggle move. If you have the feeling that you are pedaling from top to bottom, then the height is optimal.

During the learning phase, be sure to try out whether small changes to the adjustment of the two long saddle bolts will result in a better riding experience. **Even half a turn of the screw** when adjusting the height or distance of the saddle can make a big difference to the riding experience.

Set the handlebars so high that your **forearms** are **almost horizontal in the riding position. Keep your arms loose** and your Kwiggle will bob a little with every pedal stroke.

Distribute your weight evenly between the pedals and saddle. Then you will make fast progress without it being strenuous.

Take your time until you have internalized the kwiggle move.

And then we wish you **lots of fun with your Kwiggle**.

ATTENTION:

Read carefully before using the Kwiggle for the first time!

Dear Kwiggle customer,

Congratulations, you have bought a great product - the worldwide unique Kwiggle.

Kwiggle driving is different

In contrast to a conventional bike, the Kwiggle is characterized by its superior riding characteristics. What are they?

1. the riding position is upright. You ride almost standing up. This allows you to use your body weight more effectively. Thanks to these physiological advantages, you can ride a Kwiggle for much longer than on a conventional bike. At the same time, back and neck pain and hand tingling are a thing of the past.

2. the saddle swings back and forth horizontally with your pedaling movements. This is because your hips also move due to the almost standing sitting position. As if you were walking on the spot, alternately putting weight on your right and left leg. The saddle follows your hip movement accordingly.

Kwiggle riding: a short familiarization period followed by pure riding pleasure

However, you have to get used to these special features of riding a Kwiggle at first. At the beginning, everything feels a little wobbly due to the swinging saddle. And you may feel a little unsure in the first few bends. But don't worry, you'll become much more confident after just a few attempts.

Our experience with countless test subjects has shown that kwiggling is much easier after just one hour. You should start carefully at the beginning, ride for a few minutes and then take a break for a few minutes. **After 2-3 days at the latest, you will be riding the Kwiggle with the same ease as you can see in the videos on our homepage.** By then you will be asking yourself how it was possible that it was a bit wobbly at the beginning!

The whole thing is comparable to learning to ride a bike: you also had to get used to keeping your balance at first, and today you can no longer imagine what was difficult about it.

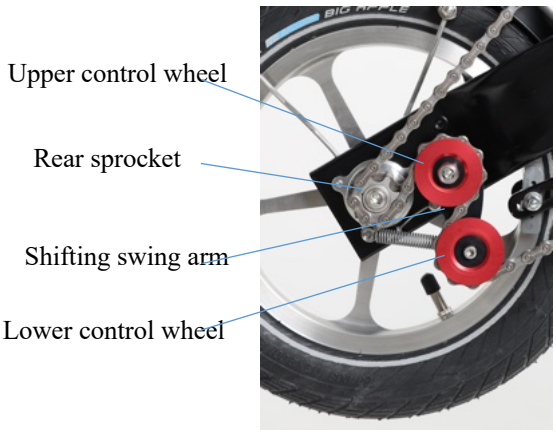
Please read the following operating instructions very carefully and follow all instructions.

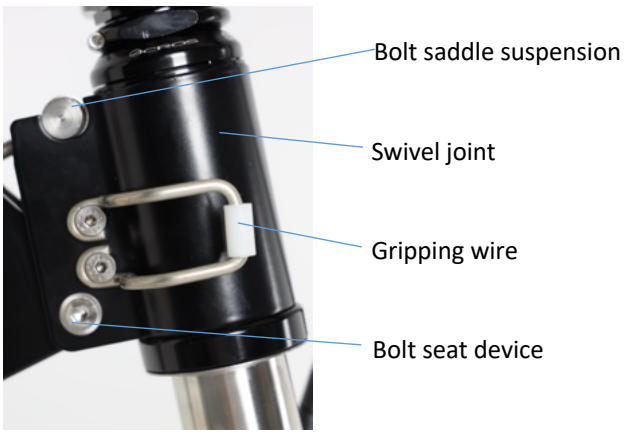
We have put together numerous videos on how to use the Kwiggle on our homepage. Here you can learn how to ride the first few meters, how to fold and unfold it and how to adjust the seating position. Then you will have a lot of fun with the Kwiggle right from the start.

Be sure to take a look here too:

www.kwigglebike.com/kwiggle-2024

Component description





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Dear Kwiggle customer,

In this manual, we have summarized many tips for operating your Kwiggle and a lot of interesting facts about the technology, maintenance and care. Please read this manual thoroughly before using it for the first time.

It's worth it, because the Kwiggle's riding technique is completely new.

These operating instructions are primarily intended for the driver and operator of the Kwiggle.

To ensure that you always have fun riding your Kwiggle and for your own safety, you should read the entire printed part of this manual carefully and

- read the chapter "Intended use" to find out what your Kwiggle is intended for and what the permissible total weight (Kwiggle, rider, clothing and luggage) is.
- read and observe all safety and hazard information carefully.
- observe and follow the instructions in the chapter "Riding the Kwiggle for the first time".
- and carry out the minimum function test before every ride. You can find out how to do this in the chapter "Check before every ride" in this manual. Do not ride if the test has not been passed one hundred percent!

You must already know how to ride a bike before you get on the Kwiggle. This manual cannot teach you how to ride a bike or the rules of the road. Kwiggle riding, like any other cycling sport, is a potentially dangerous activity with a risk of injury. You should be aware of this and always keep your Kwiggle under control.

Please always drive carefully and respect other road users. Never ride under the influence of alcohol, drugs or medication that affect your ability to ride. Never ride with a second person on your Kwiggle and always keep both hands on the handlebars.

Ride in such a way that you do not endanger yourself or others. Always wear appropriate cycling equipment, at least a suitable helmet, sturdy shoes and bright clothing suitable for cycling.

The Kwiggle team wishes you lots of fun with your Kwiggle!

We reserve the right to make changes to technical details compared to the information and illustrations in the operating instructions. For additional instructions, please also visit www.kwiggle-bike.de. There you will find news, hints and useful tips.

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www.kwiggle-bike.de

1. The intended use

The Kwiggle is a completely new type of movement device with a bicycle-type drive system. You first need sufficient practice and familiarization on a safe surface and without traffic before you should ride the Kwiggle on other paths and in traffic.

Under traffic law, the Kwiggle is classified as a bicycle and may therefore be used on cycle paths and roads.

The Kwiggle is designed for use on paved roads and paths with a smooth surface, e.g. tarred or paved. The Kwiggle is not a piece of sports equipment. The Kwiggle is not suitable for off-road riding.

The permissible total weight of the Kwiggle (Kwiggle plus rider, clothing and luggage, e.g. rucksack) is **100 kg.**

The payload including driver must not exceed **90 kg.**

1.1 Non-intended use

Failure to observe the intended use may result in personal injury and damage to property. The Kwiggle is not suitable for the following uses:

- Journeys with a damaged or incomplete Kwiggle
- Driving with an improperly maintained Kwiggle
- Driving with a higher payload than specified
- Driving with the folding lever open
- Riding with an improperly attached saddle device
- Driving over bumpy roads
- Climbing stairs
- Driving through deep water
- Lending the Kwiggle to untrained drivers
- Taking an additional person with you
- Driving with excessive luggage
- Hands-free driving
- Driving on ice and snow
- Trick and art rides
- Jumps from kerbs

Symbols used

⚠ **Warning!**	Can lead to serious injury or death if not observed.
⚠ **Caution!**	Can lead to injuries if not observed.
Attention!	Non-observance can lead to material damage and impair the function of the product.
Please note!	Additional information on operating the product.
✖	Not recommended or prohibited
✓	Recommended or offered

1.2 The most important hazard and safety information

The Kwiggle is unique in the world. It is so compact that when folded it is the only one that even fits in hand luggage. At the same time, both short and very tall people can ride the Kwiggle. The upright Kwiggle riding position is physiologically uniquely advantageous and is modeled as closely as possible on the natural human movement.

The sum of these advantageous features gives you mobile freedom of movement that you can't achieve with any other device in the world.

However, these properties can only be achieved with a completely new and previously unknown riding style and with the aid of many moving frame parts.

The compact folding size and upright riding style require a frame geometry with small wheels, a short wheelbase and a high center of gravity.

In addition to their advantages, these three Kwiggle features harbor risks to which you must pay particular attention in order to avoid falling and injuring yourself. The most important ones are

⚠ **Caution!** Due to the small wheels, you must always pay attention to the condition of the path and cannot rely on the Kwiggle being able to safely ride over obstacles that you would have no problem overcoming on a bike with large wheels.

⚠ **Warning! If you ride over obstacles or potholes that are too high, there is a risk of falling and injury.**

Edges, sticks, stones, roots, bumps and similar obstacles up to 2 cm high or potholes up to 2 cm deep can be ridden over without any problems.

In the case of larger obstacles or potholes, it is imperative that the rules of use in the chapter "Potholes, edges and bumps with the Kwiggle" are followed exactly.

When riding on dirt tracks and off-road, uneven surfaces, loose ground or on leafy or snow-covered paths can lead to falls if you do not recognize the obstacles and do not ride around them.

⚠ **Warning! Due to the short rear wheelbase, you must not pull on the handlebars while you are sitting on the saddle. This applies in particular when riding uphill. Otherwise there is a risk of falling backwards.**

⚠ **Caution! Never brake using only the front brake (left brake lever) and make sure that you never apply the front brake too quickly or too firmly.**
Although the front brake is equipped with a brake force limiter that prevents you from falling forward when braking, you could still fall forward if you apply the brake lever very quickly and hard. First carry out test braking by steadily increasing the braking force and the speed with which you pull the brake lever in order to carefully get to know the braking behavior of your Kwiggle.

⚠ **Warning! The saddle suspension must always click into place automatically when unfolding. If bolt S1 can move freely back and forth and the spring that pulls the bolt into the recess is intact, this is guaranteed. If it does not, the bolt into which the long screw S1 is screwed must be lubricated and/or the spring replaced. Never push the bolt with screw S1 into the recess by hand if the spring does not pull it into the recess by itself. Otherwise there is a risk that the bolt will jump out of the recess during the ride and you will fall.**

2. General information before first use

1. Please note that the Kwiggle is a completely new means of transportation that requires familiarization and

practice. Gradually familiarize yourself with the Kwiggle in an uncrowded area away from traffic and slowly get to grips with the riding characteristics, braking performance and the function of the gears. More information at www.kwiggle-bike.de

2. Are you familiar with the brake system? The Kwiggle is delivered with the front brake operated with the left brake lever. Check whether you can operate the front brake with the same brake lever as you are used to. If this is not the case, you will have to practise the new arrangement, as careless operation of the front brake can lead to a fall. If necessary, have the brake lever assignment converted by a specialist. You can find out more about this topic in the chapter "The brake system".

3. Make sure that you do not shift gears at the front and rear at the same time and that you do not pedal hard during the shifting process. You can find out more about this topic in the chapter "The gears".

4. Are the saddle and handlebars adjusted correctly? **To be able to ride the Kwiggle optimally, you need to adjust the saddle and handlebars as closely as possible to your body measurements. This is very important and applies to both the saddle height and the distance between the saddle and the handlebars.** Feel free to experiment a little with the saddle position and saddle angle. You can find out more about this topic in the chapter "Adjusting the saddle height".

5. Only the luggage carrier that we have individually manufactured for the Kwiggle may be used.

6. Your Kwiggle is subjected to high stresses due to the influences of the road surface and the forces that you apply to the Kwiggle. Bring your Kwiggle in for a regular inspection so that any resulting signs of wear and fatigue can be detected and rectified at an early stage. You can read more about maintenance and operational safety in the chapters "General care instructions and inspections", "Recommended tightening torques" and "Service and maintenance intervals".

7. Follow all safety instructions in these operating instructions.

3. The preparations

3.1 Unpacking

1. The box in which the Kwiggle is delivered is made of particularly strong cardboard and is therefore specially protected against damage. Please check that the box is undamaged. In particular, please check whether the corners of the box are intact or have been dented. Please inform us of any cardboard damage by email with a photo at info@kwiggle-bike.de.

2. Take the Kwiggle out of the box.

3. The high-quality transport box and the foam inserts are reusable.
   Keep the Kwiggle box and the inserts in case you need to return the Kwiggle at a later date.

4. Two transport locks are attached to the folded Kwiggle with red cable ties, which must first be removed.

   See the following video:

   https://youtube.com/shorts/Ml9bTY0wsg4

5. Check the Kwiggle for any transport damage. In particular, check that both trolley wheels on which the Kwiggle is standing are aligned.

6. The pedals must now be attached to the right and left crank arms.

   A. Kwiggle with pannier rack:
   The right pedal is attached to the luggage carrier. Push the outer ring of the pedal mount towards the luggage carrier and pull the pedal out. Continue with B.

   B. Kwiggle without carrier:
   Take the pedal and insert it into the mount on the right crank arm. Push the outer ring of the mount towards the crank. Now push the pedal further into the mount. Push the pedal into the mount with a little force until it clicks into place. The pedal manufacturer recommends that you then insert the yellow locking ring between the crank arm and the mount until it snaps into place. This ensures that the pedal is locked in place and can no longer come loose from the mount.

3.2 Unfolding

The Kwiggle fits on the plane as hand luggage and can still be ridden by people of all sizes. That's why a lot of joints have to be moved when folding and unfolding it. This requires some practice at first. The closer you look at the beginning and the slower you do the process the first few times, the better you will get at it. Once you have learned the correct movements and with a bit of practice, you should be able to unfold it in 15 - 20 seconds, even if it will certainly take 1 - 2 minutes at first.

First of all, an important note for orientation: The orientation of the Kwiggle always remains so that the chain side always points away from the body when folding and unfolding.

1. Place the Kwiggle backwards on the protruding pedal so that you can Kwiggle can read. Undo the Velcro fastening strap under the saddle by pulling up the upper part of the button.

2. Grasp the seat tube and handlebar and pull it up slowly until the saddle device audibly engages in the steering tube and the Kwiggle stands on its tires. Make sure that the bolt of the saddle suspension is fully sunk into the recess of the swivel joint and that the bolt in the bolt of the saddle suspension can be moved freely in the frame part (Kwiggle) so that the spring pulls the bolt of the saddle suspension noticeably downwards.

3. Close the lever on the steering tube by turning it all the way down.

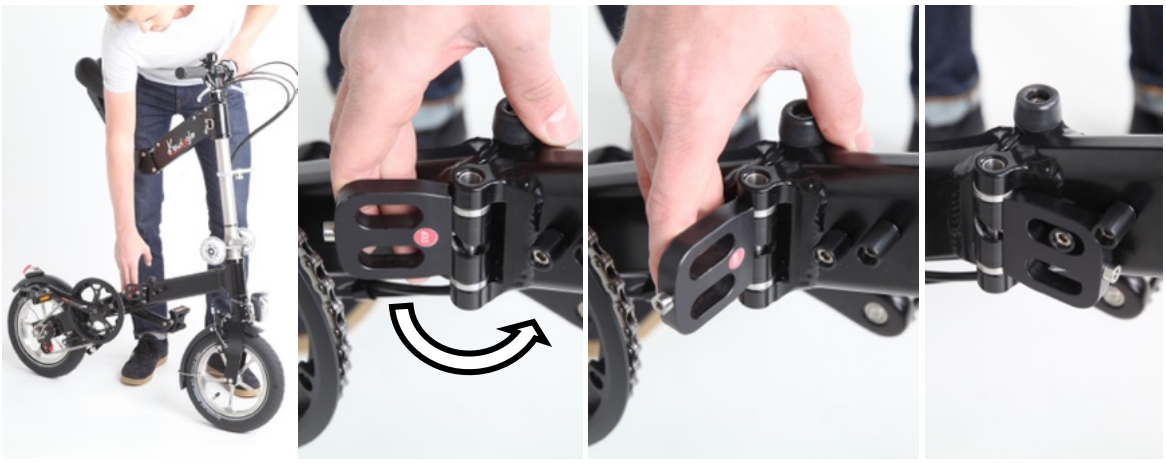


4. Stand behind the Kwiggle. Pull the right pedal upwards with your right instep until the two wheels come free and the frame comes off. Lift the Kwiggle slightly so that the rear wheel turns freely.

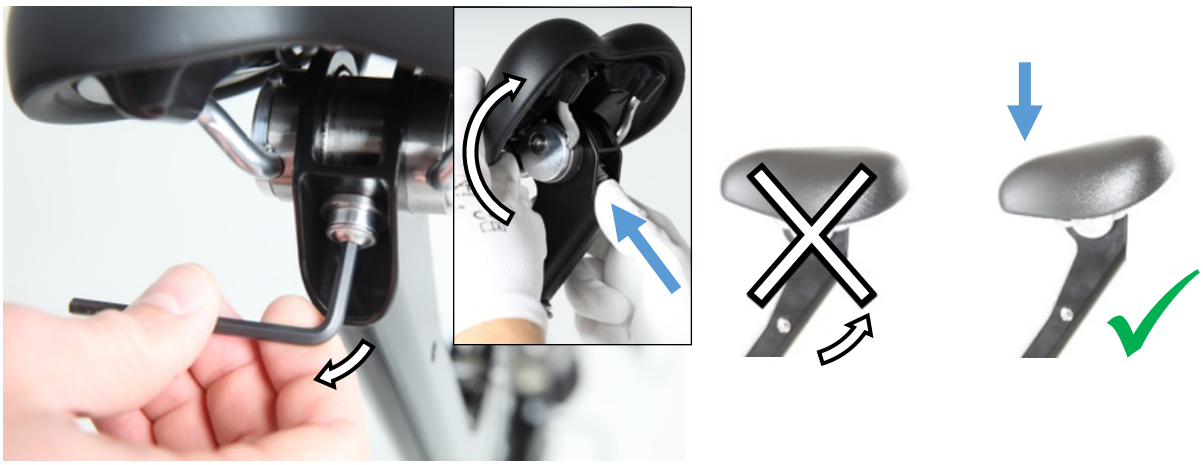


5. Pull the right brake lever and ride forwards with the front wheel to the side.

6. Close the frame joint and turn the folding lever until it is fully against the frame.



7. When you unpack the Kwiggle, the saddle is still folded up. Pull the supplied Allen key, which is located directly under the saddle, out of its holder and insert it into the small screw (S3 see below) and press the screw in. The saddle can now be tilted. Adjust the inclination of the saddle and tighten the small screw underneath the saddle. Put the Allen key back into its holder.



8. Open the handlebar clamp, pull out the handlebars and close the handlebar clamp again. Adjust the handlebars so that they are about 15 cm higher than the saddle.

3.3 The correct saddle adjustment

Important: If you have told us your crotch height and body weight in advance, we will have preset the saddle height that we think is best for you. **Otherwise, you must set the exact saddle position before your first ride.** This means that the height of the saddle and its distance from the handlebars must be adjusted. The settings are very important for the riding characteristics of the Kwiggle and for effortless movement.

In our experience, you need two things for the optimum saddle height:

1. Your crotch height, measured from the ground to the perineum
2. Your body weight

Go to the following website and enter this data in the appropriate fields, then the optimum saddle height will already be displayed:

www.kwigglebike.com/sattelhoehe

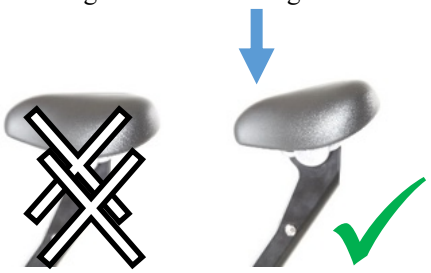
The appropriate formula is:

Optimum saddle height in cm above the ground = 12cm + crotch height in cm + body weight in kg/10

Or shorter saddle height (cm) = 12 + crotch height + body weight/10

The belly button can usually also serve as a guide. Lighter people adjust the saddle height slightly below the navel. The heavier you are, the closer the saddle needs to be adjusted to belly button height.

The nose of the saddle should always be tilted slightly downwards so that your pelvis is more in "standing mode" than "sitting mode". This straightens the lower back slightly.



At the beginning, you will often find that your back is still a little hunched and bent forward because you are used to it from riding a bike. The more confident you become on the Kwiggle, the more you can really straighten up, bringing your pelvis slightly forward. You will immediately feel the relief and mobilization in your lower back.

First adjustment at the factory: The saddle is set a little lower at the back to help you get used to it. This allows you to sit on the saddle with both feet in contact with the ground. Leave the handlebars pushed in for the first ride and lean slightly forward on the handlebars. Just like when riding a normal bike. This will allow you to do your first few laps and get used to the swinging saddle. Then all you need to do is turn the rear saddle adjustment screw S2 further in with the Allen key inserted under the saddle and pull out the handlebars. This will move the seat post further forward and upwards. As soon as you have the feeling that you are pedaling from top to bottom (and not from back to front), you have reached the upright Kwiggle position.

Once you have ridden the first few kilometers with the Kwiggle, feel free to experiment a little with the saddle adjustment by turning the bolts in or out by half a turn or one turn at a time to achieve the optimum ride feel.

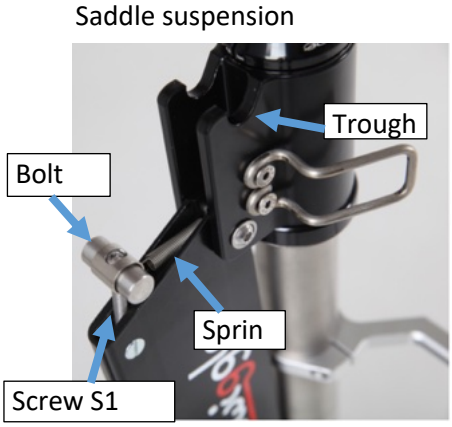
In **general, of course,** kwiggling is about riding comfortably standing up and putting as much weight as possible on the pedals. The saddle has more of a supporting role. On the other hand, if you put more than 50% of your weight on the saddle, riding will be more inactive, tiring and strenuous. Then the saddle may also feel too hard.

3.4 The correct handlebar setting

The handlebar height should be selected so that the forearms are horizontal or slightly inclined downwards when riding. Experience has shown that the handlebars should be set about 20 cm higher than the saddle.

3.5 Check before every journey

> ⚠ **Caution! Before every ride, make sure that both folding levers are closed**.
> Otherwise there is a risk that you will fall over with the Kwiggle when getting on. There is also a risk that the Kwiggle will be damaged because the folding joint is overloaded. A red STOP sticker is therefore attached to the inside of the two folding levers. As long as you can still see the STOP sticker, the folding lever is open and you must not drive off, but must first close both folding levers.



> ⚠ **Caution! Before every ride, make sure that the handlebar clamp is firmly closed and that the handlebars do not slide down when you lean on them.**
>
> Otherwise you run the risk of losing control of the Kwiggle.

Before every ride, check that both tires are in good condition and have sufficient air pressure. Have both wheels turned to check the concentricity. This will also allow you to detect laterally burst tires or broken axles in good time. See the chapter "The wheels".

Before every ride, check whether the chain is guided over the teeth of the chain wheel and the rear wheel sprocket. Check the chain tension.

Before every ride, make sure that the brake and gear cables are routed forward from the handlebars and are not wrapped around a brake lever.

> ⚠ **Caution!** Before every ride, make sure that the bolt of the saddle suspension engages in the recess with a click. Make sure that the screw S1, which is guided through the bolt, can move freely back and forth and that the spring pulls the bolt towards itself and into the recess.

Test the brakes when stationary by pulling the brake levers towards the handlebars with force. A pressure point must build up after a short lever travel; however, it must not be possible to pull the lever through to the handlebars! The brake pads must make full contact with the rim flanks. They must not touch the tires. See also "Brakes" in the chapter "The brake system".

If you want to ride at night, check the lighting system. See chapter "Lighting system".

4. Riding Kwiggle for the first time: the best way to do it

4.1 Ascending

You don't have to lift a leg to climb onto the Kwiggle.

Stand sideways next to the Kwiggle, hold the handlebars with your hands and tilt the Kwiggle towards you and the saddle will swing towards you. As soon as the saddle is low enough to pass between your legs, walk with the seat between your legs towards the frame until the saddle hovers in the middle of the frame. Your legs are now to the right and left of the Kwiggle.

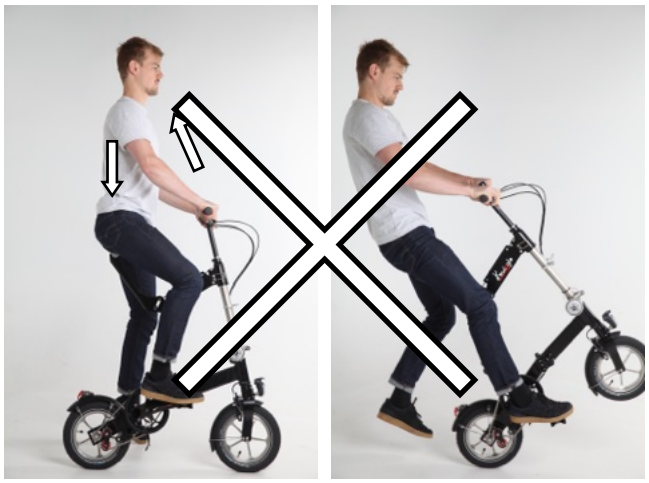
4.2 Riding the Kwiggle for the first time

⚠ Caution! Make sure that the bolt engages in the saddle suspension by itself before you set off. Never push the bolt down by hand. The automatic engagement ensures perfect function.

⚠ Caution! Whenever you kwigglest, first stand between the handlebars and saddle, position a pedal to start riding and then always start riding standing up and only sit on the saddle after you have ridden a few meters.

Otherwise there is a risk that you will start riding and pull on the handlebars and fall backwards.

⚠ **Warning! When riding the Kwiggle, never pull on the handlebars while sitting on the saddle.** As the Kwiggle has a short wheelbase to the rear, there is otherwise a risk of falling backwards with the Kwiggle**.**



Do not pull on the handlebars while you are sitting on the saddle and riding, **always get out of the saddle first.**

⚠ **Caution!** To begin with, ride on a well-paved surface without edges, potholes, stones etc. until you have developed a safe feeling when riding the Kwiggle.

⚠ **Caution!** Pay attention to the ground structure when riding. You must avoid all potholes, edges, bumps, sticks, stones and similar obstacles at the start.

Familiarize yourself with the brakes and shifting gears before heading out into traffic.

Have fun with Kwigglen!

4.3 Dismounting

Always dismount to the side.

You have two options for getting off:

1. You come to a stop and immediately stand between the handlebars and saddle again. Then lift your right leg over the lower frame. Take a few steps sideways and tilt the Kwiggle to the side until you can easily get the saddle back between the two of you

5. Kwiggle on the road and in traffic

The first ride often feels wobbly. You hold the handlebars very tightly and your hips swing to the left and right. This is very unfamiliar. Most kwigglers feel this way on their first few attempts.

The more you get used to riding, the more you should relax your arms so that the Kwiggle can automatically move back and forth in a rocking motion. Then you will move less yourself and the Kwiggle will move a little to the left and right almost automatically. You don't have to make this Kwiggle movement yourself, it is largely automatic if you can keep your arms loose. At the same time, your hands hold the handlebars firmly.

5.1 Potholes, edges and bumps with the Kwiggle

On cycle paths there are sometimes edges or an uneven section. How do you behave with the Kwiggle?

⚠ **Be careful! You must pay attention to the road you are traveling on at all times.**
Your Kwiggle has small wheels. Obstacles that you can easily ride over with a bike with large wheels cannot be easily ridden over with the Kwiggle. There is a risk that the obstacle is too high above the road surface or has too deep a gap in the road surface and you will fall when riding over it.

ⓘ **Please note!** You can ride over edges up to 2 cm high and potholes up to 2 cm deep without any problems.
For larger obstacles, you must observe all the following instructions in this chapter.

⚠ **Warning! Never pull on the handlebars when you are sitting on the saddle and riding.**
Otherwise you run the risk of falling backwards with the Kwiggle.
This instruction applies in particular when driving over obstacles and when driving uphill.

ⓘ **Hint!** If you want to ride over obstacles with the Kwiggle, the most important thing you need to do first is to get out of the saddle a little, i.e. no longer sit on the saddle, but stand up a little. Only when there is no more weight on the saddle can you pull on the handlebars to ride over the obstacle.

⚠ **Warning! You must avoid larger obstacles or dismount and carry the Kwiggle.**

Otherwise there is a risk that the front wheel will not be able to ride over the obstacle and you will fall forwards with the Kwiggle.

Bumps are uneven areas on the path that have differences in height but no edges. Bumps can occur on all paths, e.g. if the road surface has been raised by roots or if water drains cross the path or at junctions between roads and cycle paths.

⚠ **Caution! When riding over bumps**, the Kwiggle tilts backwards and forwards. To prevent this tilting movement from throwing you off balance**, here is our tip:** Before riding over bumps, you need to get out of the saddle a little, i.e. no longer sit on the saddle, but stand up a little. If there is no more weight on the saddle, the Kwiggle underneath you can perform the tilting movement better, but you yourself remain balanced. Otherwise, if you remain on the saddle when riding over a bump, there is a risk that you will lose steering control and fall**.**

⚠ **Caution!** It is imperative that you ride over **driveways and descents** at road crossings and sidewalks, as well as other obstacles such as speed bumps, cable tunnels and drive-over plates, etc., in such a way that you get out of the saddle before reaching the obstacle, i.e. you are no longer sitting on the saddle. Then the Kwiggle underneath you can perform the tilting movement triggered by the obstacle and you remain balanced. Otherwise, if you remain seated on the saddle, there is a risk that you will fall forwards or backwards.

Tip: Look for smaller edges first and practise riding over them by getting out of the saddle a little before reaching the edge and then pulling the handlebars a little just before reaching the edge to ride over it. Use this method to slowly approach larger edges and obstacles.

Always be careful and very attentive when you are riding on uneven ground. It is better to dismount once more and push the Kwiggle over the obstacle than to try to ride over it.

5.2 Sitting upright on the saddle

Riding a Kwiggle means adopting an active, upright, standing riding position.

The saddle is therefore always set significantly higher and closer to the handlebars than on a normal bike.

You are used to arching your back when riding a bike. Be aware of this and straighten up while riding the Kwiggle so that your back is straight.

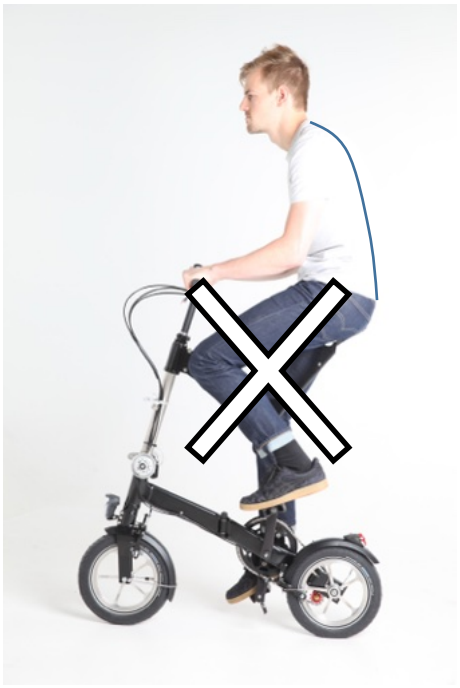
Riding a bike standing up is more efficient because you put your weight on the pedals from above and therefore need less strength. However, standing up without a saddle is more tiring because you have to lift your weight back up with every pedal stroke.

The Kwiggle saddle helps you to lift your weight back up after each pedal stroke. You should therefore only sit on the saddle as much as the saddle can effortlessly lift you up. You should use the rest of your body weight to push on the pedals in order to make particularly efficient progress. Be aware that you are pushing more of your weight onto the pedals from above and using less power from your thighs.

As a guideline, you should sit on the saddle with a **maximum of** half your weight and stand on the pedals with at least 50% of your weight.

When riding and rolling, you support yourself both on the pedals and on the saddle. It's all about the right mix.

Under no circumstances should you sit slumped on the saddle, as you would on a seated bike.



The Kwiggle movement: saddle nose down and maximum 50% of your body weight on the saddle

In order for the saddle to help you get into an active, upright position, the saddle nose must always point slightly downwards. This allows your pelvis to rotate forward and straightens your lower back. This puts you in a more upright and active position when riding.

Tip: If you can feel your thighs after riding Kwiggle for a while or it still feels wobbly, the saddle is probably still

set too low. Then adjust the saddle even higher, see the chapter "Adjusting the saddle height".

Only when riding feels easy have you found the upright Kwiggle saddle position.

We have made the saddle a little harder than you might be used to from your seated bike.

Why?

On the Kwiggle you ride standing up.

If you sit too much on the saddle, you might find it a little too hard. You should then make sure that you ride more upright and put more weight on the pedals. Only then will you be able to achieve the advantageous kwiggle movement.

In addition, your leg always slides over the curves of the saddle as you move. If the saddle were too soft, your leg would feel the hard edge of the saddle base as it glides along the saddle. That would be uncomfortable.

6. Handling the Kwiggle

6.1 Folding in

> **Caution! Move the Kwiggle carefully and slowly when folding and unfolding.**
> Movements that are too jerky can cause the chain to jump off.

Folding is done in the reverse order to unfolding.

1. Loosen the handlebar clamp, push in the handlebars, close the handlebar clamp.

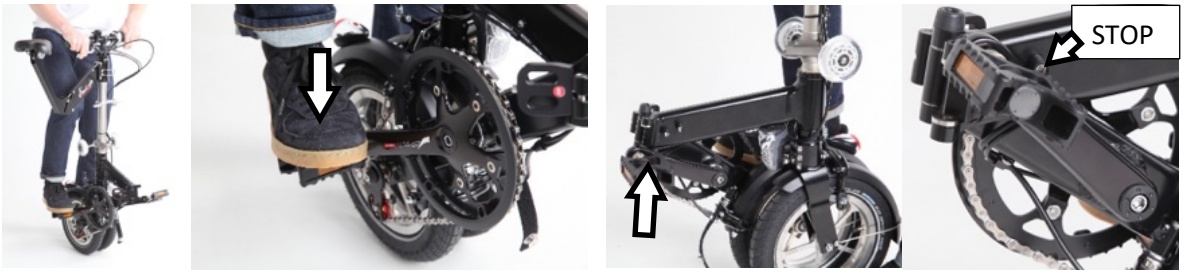
2. Align the left pedal forwards and downwards

3. Turn the folding lever on the frame until it is fully open.

4. Pull the right rear brake lever and push the frame towards the chain side.

5. Pull the front wheel backwards next to the rear wheel between your feet, keep the brake lever pulled
VERY IMPORTANT: The front wheel is not turned, but remains pointing forwards.

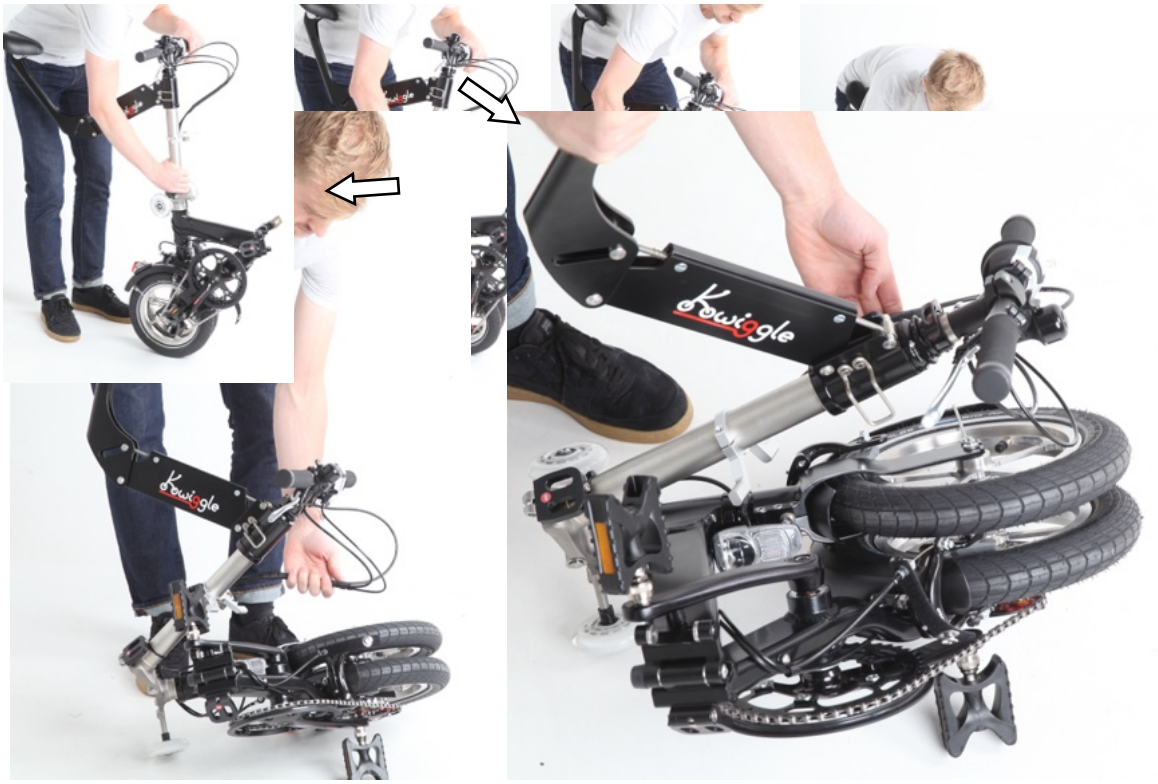
6. Both wheels must be close together. Press the right pedal down firmly with your foot until the left pedal engages with a "click" at the STOP.
VERY IMPORTANT: Both tires must be very close together to do this.



If necessary, push the pedal up with your hand until it engages, resting your thumb on the frame.

7. Open the black folding lever on the steering tube. You can now read the word "STOP".

8. Fold in the steering tube, placing the Kwiggle on the rear pedal. Pull the joint apart in the direction indicated by pulling it backwards with your right hand and pushing the handlebars forwards with your left hand.

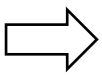


9. Take the seat tube in your right hand, pull all cables to the side under the steering tube with your left hand and guide the seat tube downwards.

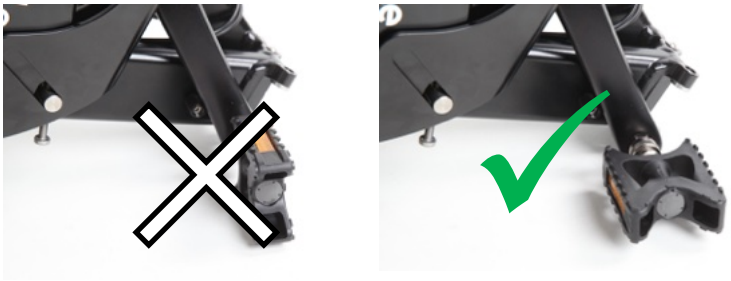
10. Use your thumb and index finger to unhook the bolt on the swivel joint upwards and allow it to slide out of the recess. Fold in the seat tube and turn it to the side.

The hook wire must come behind the fork

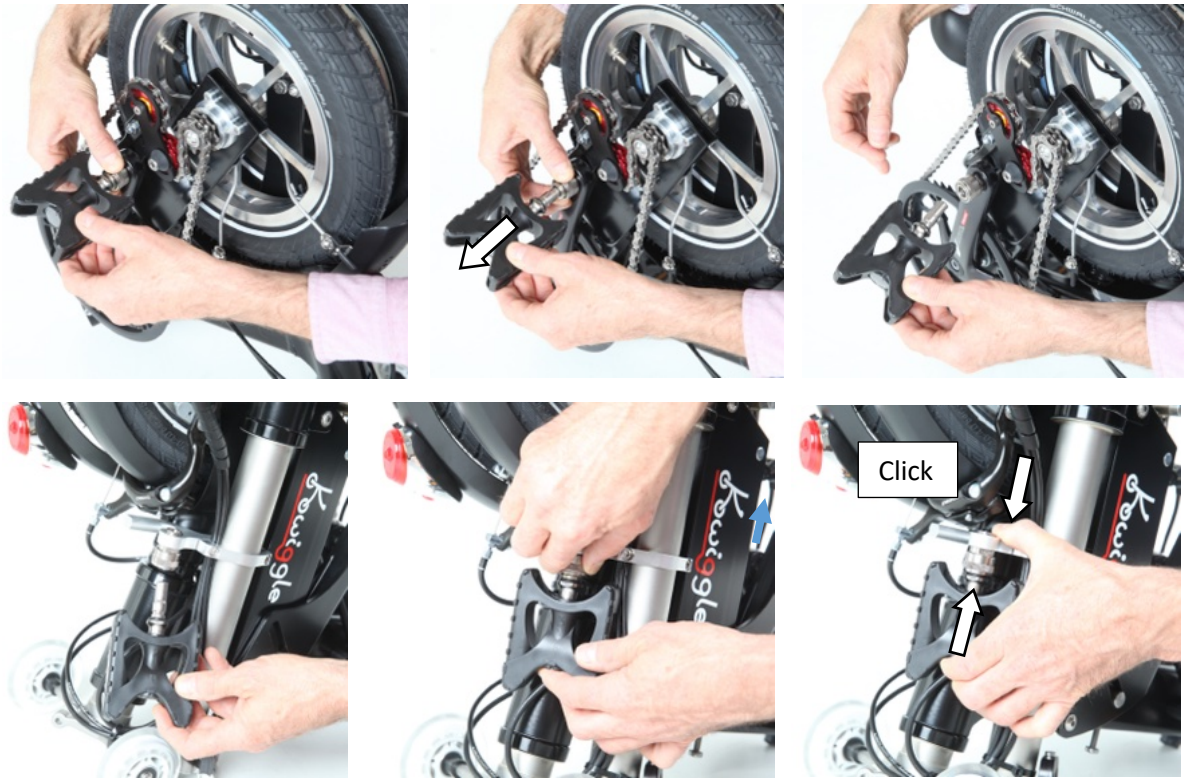
11. Close with the Velcro fastening strap by pressing on the press stud.



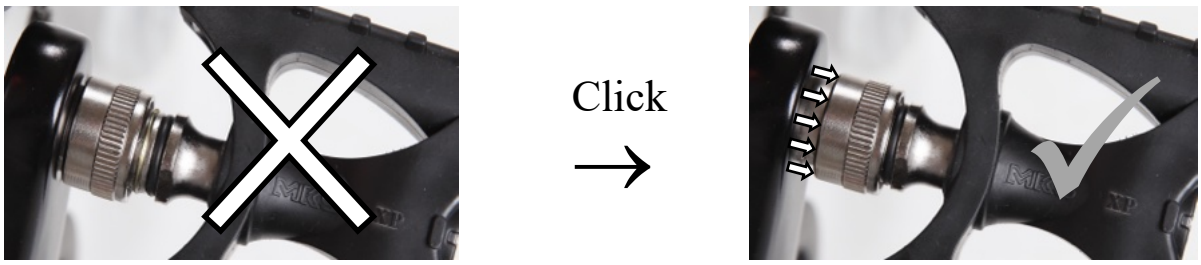
12. Set up and make sure that the pedal is positioned correctly



13. Remove the protruding pedal on the chain side. Push the ring away from the pedal and pull the pedal out. Insert the pedal into the ring on the luggage carrier above the white trolley wheels, pull the ring upwards and push the pedal into the holder until it engages and the ring springs back.



⚠ **Caution!** Make sure that the ring on the pedal holder always springs back when you have inserted the pedal. Otherwise there is a risk that the pedal will be lost and you will lose control of your Kwiggle and fall.



6.2 Adjusting saddle height and saddle position

The saddle device always engages at the pre-set height when unfolding.

To do this, the saddle is adjusted well once and then no longer needs to be adjusted.

In our experience, you need two things for the optimum saddle height:

1. Your crotch height, measured from the ground to the perineum
2. Your body weight

Go to the following website and enter this data in the appropriate fields, then the optimum saddle height will already be displayed:

www.kwiggle-bike.de/sattelhoehe

The appropriate formula is:

Optimum saddle height in cm above the ground = 12cm + crotch height in cm + body weight in kg/10

Or shorter saddle height (cm) = 12 + crotch height + body weight/10

Body weight has an influence because the steering tube compresses slightly due to the weight on the saddle, which increases riding comfort.

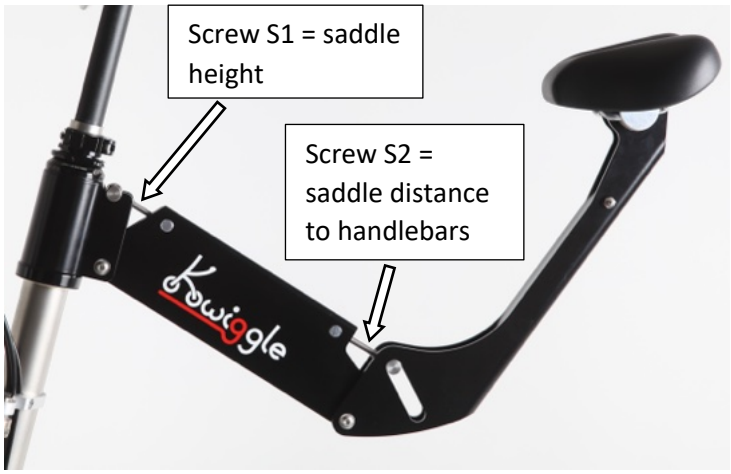
The belly button can usually also serve as a guide for the saddle height. Light people set the saddle height about 5 cm below the navel. The heavier you are, the closer the saddle needs to be adjusted to belly button height.

Further reference values:

- Sitting on the saddle, you should just be able to touch the ground with one toe.
- When riding, the leg should be almost fully extended at the lower pedal point.

To adjust the saddle to the correct height, the following 3 steps must be carried out one after the other and repeated several times if necessary:

a. Adjust saddle height with screw S1
b. Adjust saddle distance with screw S2
c. Adjust saddle tilt and tighten screw S3



⚠ **Caution!** Move the saddle far enough forward.

If the saddle is too far back, you will not be able to make the advantageous kwiggle movement and your center of gravity will shift backwards. This means you run the risk of falling backwards.
As a rule, the rear edge of the saddle should be level with the rear wheel axle (comfort saddle) and slightly in front of it on a standard saddle.

An Allen key is attached under the saddle, which you will need to adjust the saddle. Pull the Allen key out of the device.

a. Adjust saddle height with screw S1

To adjust screw S1, stand behind the Kwiggle and fix the rear wheel between your feet.

Then take the front bolt on the saddle suspension in your hand with your thumb and index finger and pull the saddle tube upwards with your other hand.

The bolt moves upwards and you can now remove it from the lock while simultaneously moving the seat tube downwards:



Now you can turn the S1 screw by inserting the Allen key into the hole in the stainless steel clip that surrounds the bolt.

Caution! Be sure to hold the bolt firmly when turning screw S1. Otherwise the retaining spring, which pulls the stainless steel clasp and the bolt into the lock, may be damaged. In addition, the screw can only be adjusted if the bolt is held firmly.

Be sure to hold the bolt as shown while turning the screw S1

Turn clockwise
= Saddle gets **higher**

Turn counterclockwise
= Saddle gets **lower**

Tip: Even a few turns have a significant adjustment effect. When fine-tuning, even half a turn has a big effect on the right ride feel.

Then take hold of the seat tube and pull it up again. The saddle suspension locks back into place at the new height.

b. Adjust saddle distance to handlebars with screw S2

If the saddle has been adjusted with screw S1, the distance between the saddle and the handlebars changes at the

same time.

This must be corrected again with screw S2. To adjust bolt S2, grasp the seat tube or the saddle and move the seat tube slightly forwards to relieve the bolt.

Screw S2 can then be screwed in or out using the wrench supplied. If the saddle was lowered with screw S1, the distance between the saddle and the handlebars will increase. In this case, you must turn screw S2 in a little clockwise until the correct distance between the saddle and the handlebars is reached again.

NOTE: The rear edge of the saddle should always be slightly in front of the rear wheel axle, never behind it! This also ensures that the distance between the saddle and handlebars is correct.

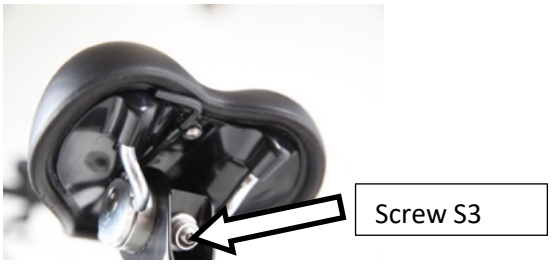
	
Screw in screw S2 = Saddle/handlebar distance is getting smaller 	Unscrew screw S2 = Saddle/handlebar distance increases 

Caution! Screw S2 is fixed in the threaded bolt by a small grub screw so that it cannot be turned by hand. If it is very difficult to unscrew with a wrench, the grub screw must be loosened slightly beforehand.
Screw 2 at the end of the screw is also protected against loss by a safety catch.
As soon as you feel greater resistance when unscrewing the screw, you have reached the maximum permissible screw length. You cannot overcome this resistance by hand. Do not unscrew the screw any further with a tool. Otherwise the locking is no longer guaranteed. There is a risk that the seat tube will fall backwards and you will fall while riding.

As long as the screw can be easily adjusted by hand, it is secure.

c. Adjust saddle tilt and tighten screw S3

To adjust the saddle angle, loosen the S3 screw at the rear under the saddle using the Allen key. The screw must then be pressed in so that the saddle can be turned.



Please loosen screw S3 by about 1.5 turns.

Caution! Never continue to tighten screw S3 if you feel resistance again after loosening the screw. There is a risk that the nut, which is connected to screw S3 on the inside, will come loose. This can adversely affect the function of the locking mechanism. Approximately 1.5 turns are sufficient to loosen the locking teeth that hold the saddle in the set position.

Screw S3 must then be pressed in so that the locking teeth are released and the saddle can be adjusted in inclination.

The saddle angle can now be adjusted and the saddle always locks into a new position.

First adjust the saddle horizontally and then push the saddle nose down by 1 notch.

As the Kwiggle is ridden standing up, the saddle nose should point slightly downwards. This puts the pelvis in a more active riding position and makes it easier to move forward.

Once the saddle tilt has been set, screw S3 must be tightened again using the Allen key.

6.3 Pulling the Kwiggle as a trolley

The folded Kwiggle is perfect for taking anywhere and simply pulling it behind you like a trolley.

To use the folded Kwiggle as a trolley, stand with the chain side facing away from you.

Loosen the handlebar clamp and pull the handlebars out as far as necessary and tighten the handlebar clamp again.

Make sure that the brake and gear cables are routed so that they are not wrapped around a brake lever.

Grasp the right handlebar grip with your right hand and pull the Kwiggle to the right of you on the trolley wheels behind you.

Make sure that you always remove the right pedal or attach it to the pedal holder on the luggage rack when you are moving the Kwiggle in the trolley function in confined spaces, especially where there is a lot of pedestrian traffic or in stores with protruding shelf corners and edges. Otherwise, there is a risk of the protruding right pedal catching on something or injuring a pedestrian.

After a long stretch of trolley pulling and especially after you have pulled the folded Kwiggle over bumpy roads, you must check after unfolding whether the saddle is positioned further back, because the saddle adjustment screw (screw S2) has unscrewed a little when pulling the trolley. Although we have coated screw S2 to prevent it from unscrewing, it may still unscrew slightly.

After unfolding the saddle again, please check whether the saddle is now positioned further back than before and, if necessary, screw the S2 screw back in a clockwise direction by hand until the old saddle position is reached again. When you start riding again at the latest, you should notice that the saddle position has changed and then at the latest you should screw the S2 screw back in a little.

6.4 Wear Kwiggle

Stand on the left side of the Kwiggle and reach over the seat to the frame with your right arm. Grasp the frame just before the folding joint with your right hand and stand up to carry the Kwiggle.

6.5 Stowing the Kwiggle

The folded Kwiggle has hand luggage dimensions, namely:

1-speed version and 3-speed version: 55 cm x 40 cm x 25 cm

6-speed version: 55 cm x 40 cm x 27 cm

As almost all stowage options are designed for luggage dimensions, the Kwiggle can be stowed anywhere that hand luggage cases can fit: Lockers, lockers, the smallest luggage compartments, storage compartments on trains and airplanes.

These storage options offer you unprecedented flexibility and freedom. You can always take the Kwiggle with you and no longer have to plug it in outside or leave it unattended away from your seat.

To store the Kwiggle in lockers or under the seats in long-distance trains or suburban trains, you should remove the right pedal and, if available, insert it into the pedal holder on the luggage rack. If the Kwiggle still does not fit in or underneath, remove the left pedal and check whether it now works.

Please note: The Kwiggle weighs around 9-10 kg. Please assess your strength correctly when lifting the Kwiggle at head height or overhead to stow it. Please do not endanger other people. A falling Kwiggle with its weight and especially with its metal edges can cause serious injury to a person sitting or lying below.

6.6 The pedals

We opted for high-quality plug-in pedals because they reduce the folded size by a decisive 2 cm. Only then does the Kwiggle fit under the seats on long-distance trains and the S-Bahn, and only then does it fit into small lockers and lockers.

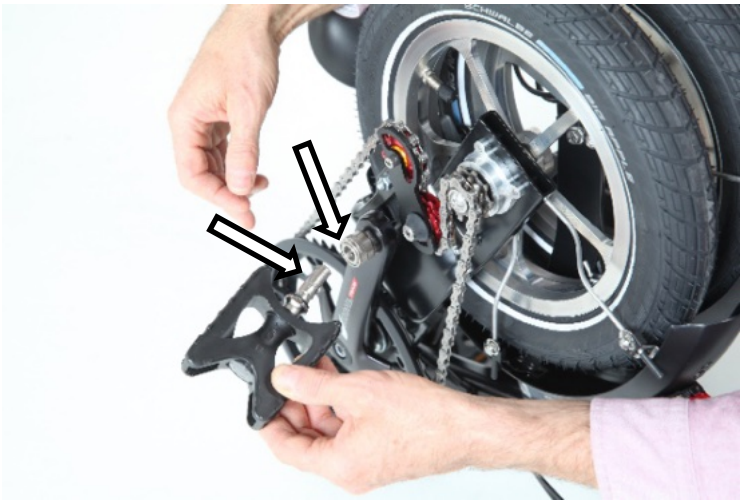
The clipless pedals have one disadvantage that you need to be aware of:

The end of the pedal is greasy and can therefore easily pick up dirt. Make sure that you always handle the pedal in such a way that the end of the pedal does not come into contact with your hands or other objects.

The pedal mount on the crank is also greasy and can trap dirt. There is a risk that you will come into contact with the pedal mount with your trousers or your hand and leave a round black mark on your trousers or hand. Therefore, always make sure that you handle the Kwiggle so that the chain side, and therefore the open pedal mount, is always facing away from you.

Always make sure that the chain side is facing away from you when pulling the folded Kwiggle as a trolley to avoid soiling your trousers.

Also observe the enclosed operating instructions from the pedal manufacturer.



6.7 Packing the Kwiggle in the backpack

Insert the right pedal into the pedal holder on the rack (if there is a rack) and take the left pedal and put it to one side.

Open the rucksack completely, let it fold out to the front and hold it by the top handle with your left hand. Take the folded Kwiggle by the right handle and place it, wheels first, in the bottom corner of the backpack.

Then place the Kwiggle all the way into the backpack. Make sure that the wheels are well positioned in the bottom corner. Pull the upper part of the backpack over the handlebars and tires. Place the pedal, which has been put to one side, in the backpack as well.

Close the zipper and position the zippers on one side. If they remain positioned at the top, the backpack could open slightly at the top under greater load.

There is a strap at the top in the middle. You should now tighten this so that the Kwiggle stays closer to your back and is easier to wear.

Now you can put the backpack on your back. The rucksack is particularly comfortable to wear if the shoulder straps are left long enough so that the lower part of the rucksack presses against the upper pelvis.

6.8 The luggage carrier

The luggage carrier on the Kwiggle is suitable for Ortlieb bags with Quick-Lock1 and Quick-Lock2 suspension systems and VAUDE bags with QMR system and for panniers with comparable suspension systems.

The maximum load on the carrier is 10 kg.

Adjust the two hooks on the back of the pannier so that there is a distance of 9.5 - 10 cm between them. Make sure that the hooks are set symmetrically to the center of the bag.

Hook the bag into the two protruding arms of the carrier from above.

As the pannier rack is attached to the steering column, the bag moves in the direction of steering. The heavier the bag, the more sluggish the steering becomes. In addition, a heavy bag can significantly increase the intended steering angle, which you must always take into account when steering.

Therefore, practice riding with a heavy bag first in an inanimate place and carefully carry out test steering maneuvers to be able to assess and learn to control the steering behavior with a heavy bag.

⚠ Caution! Never ride with a bag where the hooks are more than 10 cm apart. Never ride with a bag where the hooks are not correctly hooked in and secured. Otherwise there is a risk that you will fall and injure yourself.

⚠ Caution! When riding with a heavy bag, always hold the handlebars with both hands so that you can keep the steering angle under control at all times.

⚠ Caution! Be particularly careful when riding over edges and ledges with a heavy pannier.

As the overall weight is shifted more to the front due to the heavy pannier hanging from the steering column, there is a risk that you will fall forward when braking with the front brake, even with low braking forces. There is also a risk that you will no longer be able to ride over an edge that you would otherwise have ridden over with the Kwiggle, as the heavy pannier puts more weight on the front wheel. It is also more difficult to lift the front of the Kwiggle in order to ride over an edge that can be negotiated with the Kwiggle as described.

If in doubt, take some weight out of the bag and always ride with a lighter bag if you are unsure.

6.9 Riding the Kwiggle with a rucksack on your back

If you ride Kwiggle with a backpack, you have to take into account that the backpack shifts your overall center of gravity further back, which significantly increases the risk of falling backwards when you pull on the handlebars.

Therefore, only put on small and light backpacks and do not overload them. If in doubt, lean forward slightly when riding the Kwiggle with a backpack to shift your overall center of gravity slightly forward again.

Riding with a backpack requires you to pay more attention to the tipping point of the Kwiggle.

If in doubt, practise riding with a rucksack in an uncrowded area first.

6.10 Riding the Kwiggle with a trolley attached

Using the Kwiggle with an attached trolley case gives you enormous freedom when traveling.

To attach a wheeled suitcase to the Kwiggle, you need the wheeled suitcase strap, which we offer in our online store.

When extended, the handle of your wheeled suitcase must be at least the usual 104 cm above the ground. Otherwise, there is a risk that the wheeled suitcase will come into contact with the rear wheel guard or even the rear wheel of the Kwiggle while riding and impair or even endanger the Kwiggle ride.

We recommend only using trolley cases with quiet-running and robust wheels, ideally with rubberized wheels or even better with skate wheels.

Shopping trolleys can also be attached to the Kwiggle as long as they also have a handle that is at least 104 cm above the ground.

Loop the trolley strap around the handle of your trolley and pass the end of the strap through the loop of the strap so that the Loxx button connected to the strap sticks out forwards in the direction of travel.

Now attach the Loxx button to the corresponding counterpart on the seat tube.

Note that the rear light is obscured by the trolley. Therefore, only ride in the dark with a trolley with an adequate additional rear light that is not covered by the trolley but is clearly visible to other road users.

Make sure once again that the connection between the Loxx button and the seat tube is secure, and then you can start riding.

⚠ **Caution!** Ride over edges and bumps with the wheeled case in a straight line and, if necessary, more slowly. Otherwise there is a risk that the trolley will roll over and endanger your Kwiggle ride**.**

Always follow the manufacturer's instructions for use.

6.11 Parking the Kwiggle

The Kwiggle is designed so that you can take it with you wherever you go. To do this, you usually fold it up and put it in a suitable place. The Kwiggle therefore does not have a stand. If we want to lean it against something quickly, we lean it against a suitable place, e.g. a wall, fence, bush, tree, house wall or similar.

6.12 Connecting the Kwiggle outside

If, for once, you don't want to take the Kwiggle inside but want to connect it outside, you can fold it up and connect it through both wheels to a suitable fixed counterpart using a suitable lock.

The rear wheel rim can only be separated from the frame with considerable effort and only with special tools. As long as the rear wheel rim is securely connected, the Kwiggle as a whole cannot be stolen.

6.13 Pushing the Kwiggle

If the Kwiggle is pushed on bumpy ground, the saddle may rattle.

We spent a lot of time on this, because of course we are used to it differently from other bikes and the Kwiggle made a rickety impression at first.

Due to the system, however, this is difficult to change if you want to keep the adjustment and folding options so simple and the weight so light.

We therefore always push the Kwiggle by holding it by the saddle and applying a little pressure to the saddle while also steering it. It takes a bit of practice, but then it works perfectly.
Others push it by using both hands, one on the handlebars, the other on the saddle. As soon as there is some pressure on the saddle, the rattling stops.

It's even better to ride the Kwiggle and not push :)

6.14 Phone holder on the Kwiggle

The handlebars of the Kwiggle are narrow and the mounting space for a phone holder is limited. If you want to mount a phone holder on the handlebars, we recommend the Bike Mount product from SP Connect.

7. Care, maintenance and servicing of the Kwiggle

7.1 The braking system

As a rule, the brakes on your Kwiggle are needed to adapt the speed to the traffic conditions. If necessary, however, the brakes must be applied hard to bring your Kwiggle to a standstill as quickly as possible. Physics comes into play during such emergency braking maneuvers. When braking, the weight shifts from the rear to the front, taking the load off the rear wheel. On dry and grippy surfaces, the amount of deceleration is primarily limited by the threat of the Kwiggle rolling over and only secondarily by the grip of the tires. This physical law becomes even more pronounced when riding downhill. Avoid hard braking and try to shift your weight as far back as possible when braking on a hill.

Please note! We have equipped the front brake with a brake force limiter.

On the one hand, the braking force limiter ensures that the tendency to fall forwards is reduced and that there is only a risk of falling forwards when braking hard. On the other hand, this extends the braking distance slightly, which you should always bear in mind when braking.

Apply both brakes at the same time and remember that the front brake can transmit the far greater forces on grippy surfaces and by shifting your weight.

With rim brakes, prolonged braking or continuous dragging can lead to overheating of the rim, which can damage the inner tube or cause the tire to move on the rim. Sudden loss of air while riding can lead to a serious accident. Check your riding style in this respect and get into the habit of braking briefly but hard and releasing the brake every now and then. If in doubt, stop for a moment and let the rim cool down with the brake lever released.

Familiarize yourself carefully with the brakes. Practice emergency braking in a traffic-free area until you have your Kwiggle safely under control. This can prevent accidents on the road.
Wet conditions reduce the braking effect. Allow for longer stopping distances in the rain.

Brake function
A fixed brake pad is pressed onto a rotating braking surface via a hand lever and rubs against it. The friction decelerates the wheel. In addition to the force with which the pad presses against the braking surface, the so-called coefficient of friction between the friction partners sliding against each other is decisive.

If water, dirt or oil gets onto the friction surface, this coefficient of friction changes. This is the reason why a rim brake responds more slowly and brakes less effectively in the rain.

Rim wear
Compared to aluminum rims on other bicycles, the rims of the Kwiggle are very wear-resistant and durable. If you don't regularly ride through rain and dirt, and if you keep the rims clean at all times, the rims should therefore last a very long time.

First of all, check regularly whether the rims still feel nice and smooth everywhere where the brake shoes come into contact and do not show any grooves. As long as this is the case, the rim has no wear.

Nevertheless, the rim may suffer slight wear over time.

Friction, especially with dirt and sand, causes wear to the brake pads and rims. The wear of the friction partners is significantly increased by frequent riding in the rain.

If the rim starts to feel rougher, check the width of the rim at regular intervals.

The rim is supplied with a width of 31.5 mm.

⚠ **Caution!** If the width of a rim is less than 30.5 mm, the tire pressure can cause the rim to burst. The wheel may lock or the inner tube may burst. Risk of falling and injury. The width of the rim should be checked every 1,000 km at the latest when you have braked down the second set of brake pads.

When replacing, only use the original brake pads that match the rim:
Tektro P205(0°) - gray pads.

Align the brake pads correctly in the direction of travel when replacing them. The direction of travel is indicated by an arrow on the brake pad.

⚠ **Caution!** Have the rim checked by a specialist after the second set of brake pads at the latest. Worn rims can cause the inner tube to burst and lead to falls! To be able to brake effectively, the brakes must be checked occasionally and adjusted if necessary.

Damaged brake cables, e.g. with individual wires sticking out, must be replaced immediately. Otherwise brake failure and a fall may result.

Checking and adjusting the brakes

With side-pull brakes, the brake arms are suspended together, forming a closed system. When the brake lever is actuated, the arms are pulled together by a cable and the pads rub against the rim flanks.

Checking the brake system

Check that the brake pads are precisely aligned with the rims and have sufficient pad thickness.

With the front brake, the brake arms do not hit the rim at the same time when the hand lever is pulled due to the system. In addition, the braking force of the front brake has been limited to prevent it from falling forward too early during emergency braking.

However, the two brake arms of the rear brake should hit the rim at the same time when the hand lever is pulled.

Does the brake lever provide a precise pressure point during emergency braking and can it not be pulled through to the handlebars?

If both brakes function properly in all points, the brakes are correctly adjusted.

Height adjustment of the decking

Loosen the fastening screw of the pad with one to a maximum of two turns.

Slide the pad to the correct height, align it along the rim flank and retighten the fastening screw to the required torque. Make very sure that the pad is not mounted at the same height as the tires. The pad should always be flush with the inner edge of the rim and should never be mounted further out to prevent the pad from coming into contact with the tire when braking.

The tip of the brake shoe must point in the opposite direction to the running direction of the rim.

Brake manufacturers provide detailed instructions. Read them carefully before carrying out maintenance work.

7.2 The drive

The circuit

3-speed derailleur gears:

The 3-speed gear system is designed as a derailleur system.

There are 3 sprockets with the following numbers of teeth on the rear wheel:

7 teeth
8 teeth
10 teeth

This close gradation has proven its worth, as Kwiggling is largely done with the help of your own body weight.

On the one hand, the body weight must be moved forward, on the other hand, the body weight also drives the Kwiggler. This balance of forces results in a constant crank speed regardless of the body weight of the Kwiggler. It is therefore better to have a close gradation in the gears in order to be able to maintain the favorable crank speed in slightly different riding conditions such as uphill rides or headwinds.

The 3 sprockets are shifted via the Shimano twist shifter located on the left-hand side of the handlebars. The shifter has 3 shift positions, which are labeled with the numbers 1, 2 and 3.

	**Hardest gear: Shift position 1 (sprocket with 7 teeth)** **Lightest gear: shift position 3 (sprocket with 10 teeth)** Please note: This assignment is the reverse of the assignment of bicycle derailleur gears

⚠ **Caution! When you turn the twist grip to shift to another gear, you must pedal lightly to ensure that the shifting process runs smoothly.** If you do not pedal, the sprockets may jam. In the worst case, the gears could be damaged and you could fall. If you pedal too hard, the chain may jump over the sprockets and the crank may slip a little. This can also damage the gears and lead to a fall.

6-speed speeddrive gearshift

To the right of the bottom bracket is a planetary gearbox, which results in a gear ratio of 1:1.65.

When the light gears are engaged, the gear ratio is 1 : 1,

When the heavy gears are engaged, the gear ratio is 1:1.65

The 6-speed Speeddrive gearbox is shifted on the crank arms as follows:

Shift into the easy gears:

Press against the crank to the right with the left hoe until it engages.

Shift into the heavy gears:

Use the right hoe to press against the crank to the left until it engages.

So remember: light on the left, heavy on the right.

The chain gradations of the light and heavy gears

The small sprocket increments (7, 8 and 10 teeth at the rear) of the derailleur are then shifted using the rotary shifter on the handlebars.

It should be noted that the first gear is always the heaviest of the three chain gears.

We have installed a twist shifter that is normally used for a front derailleur. These shifters are much more robust than those for the rear derailleurs. However, this means that the order of the gears is reversed.

So remember: The first chain gear (shift position 1) is always the heaviest on the Kwiggle.

The gear sequence is thus:

Gear	Crank switch position	Switching position Rotary switch	Rear sprocket teeth	m/crank revolution
1 (heaviest gear)	Heavy gears = shift bar of the right crank pressed to the left	1	7	7,2
2		2	8	6,3
3		3	10	5,1
4	Easy gears = shift bar of the left crank pressed to the right	1	7	4,4
5		2	8	3,8
6 (lightest gear)		3	10	3,1

The light gears are shifted when folded.

Safety note:

The lighter the gears become, the more sensitive is the already described tilting moment to the rear when the handlebars are pulled (inadmissibly) while you are sitting on the saddle and pedaling.

At the beginning of every ride, you should therefore always push in the shifting bar on the right-hand crank (preferably by hand) so that the heavy gears are engaged first when starting off.

With increasing practice, you can then also use the easy gears for starting off.

How switching works during operation,

you can watch the following video

on Youtube:

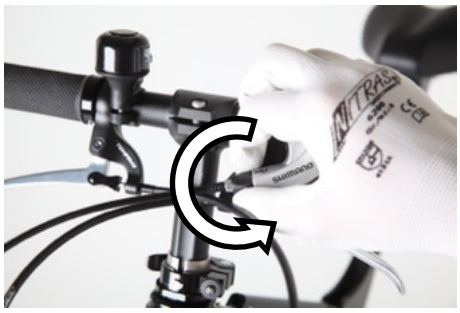
https://youtube.com/shorts/heUhaciOnds

You can find more information about the bottom bracket gearbox here:

http://www.schlumpfdrive.com/index.php/technischedokumente.html

Adjusting the 3-speed derailleur

The 3-speed derailleur is adjusted using the adjustment screw on the left twist shifter on the handlebars.

	
Turning in brings the chain further towards the small sprockets or towards the heavy gears	Unscrewing moves the chain further towards the large sprockets or towards lighter gears

The black adjustment screw turns 1/4 turn further. If the adjusting screw is turned clockwise in the direction of the shifting lever, the shifting rocker moves in the direction of the heavier gears, i.e. in the direction of the smaller sprockets away from the frame.

If the black adjustment screw is turned counterclockwise in the direction of the shifting lever, the shifting swingarm moves in the direction of the lighter gears, i.e. in the direction of the larger sprockets towards the frame.

If the shifting process does not run smoothly or the chain rattles over the sprockets while riding, adjust the gears as follows:

Either attach the Kwiggle to a suitable mounting stand by clamping the lower front part of the frame, or ride slowly with the Kwiggle.

Shift the gear lever to gear position 2 (sprocket with 8 teeth) and keep turning the crank. While cranking, turn the adjusting screw until the chain runs smoothly on the middle sprocket (with 8 teeth) without making any noise. Now shift into the heavier gear (shift position 1, 7th sprocket) and back again and check whether the shifting process runs smoothly. If necessary, adjust the adjusting screw again slightly to ensure that the chain runs smoothly on the 8th sprocket as well as smoothly to the 7th sprocket and back.

Now shift to the 9th sprocket (shift position 3) and also check whether the shifting process runs smoothly and the chain does not rattle on the 9th sprocket.

Adjust the setting screw on the twist shifter if necessary.

Chain care

The chain and the sprockets on the rear wheel of the Kwiggle are very wear-resistant. The very flexible chain links and the sprockets on the rear wheel are also made of stainless steel and are therefore less susceptible to rust and squeaking.

The chain needs little lubricant to run smoothly. The less grease and oil on the chain, the less dirt it absorbs. That's why we recommend the oil and grease-free ceramic-based chain lubricant DryFluid, which is also available to buy in our store.

The most important aim of chain maintenance on the Kwiggle is to keep the chain clean and lubricated with as little lubricant as possible.

►Clean the chain frequently with a dry cloth to remove deposited dirt. You should clean the chain with a dry cloth afterwards, especially after riding in the rain.
►To apply lubricant to the chain, proceed as follows:
Place the Kwiggle against a right-hand wall or in the front of a stand, turn the crank backwards and apply the lubricant to the inside of the chain. Preferably at the point where the chain runs over the upper of the two derailleur pulleys.

►Turn the chain through several revolutions. Repeat this process until the chain no longer squeaks and runs as smoothly as possible. Then leave your Kwiggle for a few minutes so that the lubricant can penetrate the chain links.
►Finally, you can rub off the excess lubricant with a cloth to prevent it from splashing away or attracting dirt when riding.

Chain and/or sprocket wear

Every chain and every sprocket is a wearing part, even on your Kwiggle. Sprockets with fewer teeth are generally more susceptible to wear than sprockets with many teeth. The sprocket material of your Kwiggle is equipped with the highest wear resistance. Even compared to high-quality derailleurs on the market, the Kwiggle materials have significantly higher wear resistance.

You can also influence the service life of the sprockets and chain.

Keep the chain as clean as possible and make sure that the chain is lubricated regularly but with as little grease as possible, especially after riding in the rain.

Mounting the chain

The chain tension is created by a shifting rocker, which is pulled backwards by a tension spring.

Proceed as follows to wind up the chain safely:

Detach the chain from the front sprocket. First guide the chain around the sprockets and the shifting swingarm. Then guide the chain onto the front sprocket and turn the crank until the chain is wound up.

Caution! Never pull the chain onto the sprocket first.

If you put the chain on the sprocket first, you will no longer be able to put the chain on the rear sprockets and thread it through the derailleur sprockets.

Chain change

The chain and sprockets can be obtained from us as spare parts.
You can also send your Kwiggle to us for servicing. We will then change the sprockets during the service.

The chain is designed as an endless chain without a lock link. The entire chain is guided on the right-hand side of the rear frame section as seen in the direction of travel and can therefore be easily removed.
Proceed as follows: Shift the chain into the heaviest gear (7th sprocket, shift position 1 on the twist shifter)

Pull the chain off the front sprocket to the inside by turning the crank. The chain will then lie without tension between the chain wheel and the rear part of the frame.	
Remove the chain from the sprockets.	
Loosen the chain from the two sprockets of the shifting swingarm and remove the chain from the shifting swingarm.	 

Guide the chain around the front sprocket to the outside.	

Mounting the chain

Place the chain between the front sprocket and the rear frame section.	
Thread the chain with the upper part of the chain between the two sprockets.	
Now guide the chain around the upper sprocket and then around the small sprocket connected to the rear wheel shaft.	
Finally, guide the chain onto the front sprocket from below.	

Turn the crank against the clockwise direction to wind the chain onto the front sprocket.	
Finally, check that the gearshift is working properly (see Adjusting the gearshift).	

7.3 Wheels: Tubes, tires and air pressure

The wheels on your Kwiggle make contact with the road. They are heavily loaded by the weight of the rider and luggage as well as by uneven road surfaces.

The wheels are manufactured with a very high running accuracy, which makes it possible to ride the Kwiggle very fast without the handlebars becoming twitchy.

The tire in which the inner tube is inserted is mounted on the rim.
If you want to fit a new tire, only use the tire intended for the Kwiggle:

12 inch tires: Schwalbe Big Apple - 50-203 with reflective stripes

Caution! Only use original Schwalbe Big Apple 50-203 tires with reflective stripes Other tires, including other 12-inch tires, carry the risk of not having the appropriate tread or not having the required load capacity: This means a risk of accidents.

You can buy replacement tires from bike shops or from our online store.

A tire only works well if it is inflated to the correct air pressure. The correct air pressure of 4 bar also ensures better resistance to punctures. If the air pressure is too low, the tube may be crushed by the rim when riding over edges, which is known as a "snake bite".

The air pressure recommended by the manufacturer can be found on the tire sidewall or the type label. We recommend an air pressure of 4 bar for the intended tire on the Kwiggle.

The tire and rim alone are not airtight. To keep the pressure inside, the inner tube is inserted into the tire. It is inflated through a valve.

Kwiggle uses the Schrader valve (like car valves). The valve is protected from dirt by a plastic cover cap.

Caution! Never inflate your tires above the maximum permissible pressure!
The tire could come off the rim or burst while riding. Risk of falling and injury!

Always ride with the prescribed tire pressure and check
this at regular intervals, at least once a week.

You should replace tires with worn tread or brittle sidewalls. The structure of the tire inside can be damaged if moisture or dirt gets in.

Caution! In extreme cases, damage to the tires can cause the inner tube to burst suddenly, resulting in an accident.

Repairing a flat tire

A flat tire can happen to any Kwiggler. However, a flat tire doesn't have to mean the end of your Kwiggle tour if you have the necessary tools for changing the tire and tube and a spare tube or repair kit with you.

Caution! Never remove the rear wheel of the Kwiggle.

It contains sensitive gear parts that can be damaged if removed. The rear wheel of the Kwiggle is only connected to the frame on one side. The rear wheel of the Kwiggle must not be removed for patching or changing tires.

We will show you how to do this below.

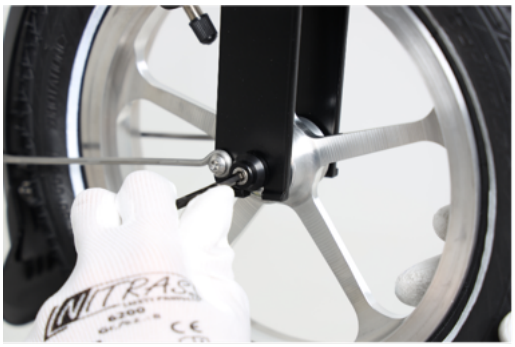
Preparations for repairing a flat tire on the rear wheel or for changing an inner tube or tire

Attach the Kwiggle to a suitable mounting stand.	
Clamp the Kwiggle in its unfolded state with its lower front frame section in the assembly stand.	

Loosen the brake nut on the rear wheel and let the air out of the rear wheel or loosen the nut on the brake that clamps the Bowden cable.	 
Pull the brake out of the tire until the brake hangs freely. Make sure that no slices are lost. The tire can now be removed or repaired. Then refill the tire with an air pressure of 4 bar.	

Preparations for repairing a flat tire on the front wheel or changing an inner tube or tire

Attach the Kwiggle to a suitable mounting stand. Clamp the Kwiggle in its unfolded state with its lower front frame section in the assembly stand.

Use the Allen key under the saddle to loosen the bolt on the front wheel axle.	
If you have not already done so, deflate the front tire. Pull the front wheel down and out of the fork.	

Note: The bolt head of the front wheel axle should always be mounted so that it is on the right-hand side of the Kwiggle.

Dismantling the wire tire

1. Unscrew the valve cover and the fastening nut from the valve and allow the air to escape completely by actuating the valve pin.
2. Press the tire from the rim flank into the middle of the rim. It makes removal easier if you do this over the entire circumference.
3. Place the tire lever approx. 5 cm to the right and left of the valve on the lower edge of the tire and lift the tire sidewall over the rim flange. Hold the lever in this position.
4. Slide the second lever between the rim and tire at a distance of about 10 centimeters from the first and lift the sidewall over the edge of the rim again.
5. Once part of the tire sidewall has been levered over the horn, the sidewall can usually be completely released by moving the mounting lever around the circumference.
6. Now you can pull out the inner tube. Make sure that the valve does not get stuck in the rim and the inner tube is not damaged.
7. Mend the inner tube according to the patch manufacturer's instructions.

If the fabric of the tire has been damaged by a penetrating object, replace the tire to be on the safe side.

Also observe the brake manufacturer's operating instructions.

The second tire sidewall can simply be pulled off the rim if required.

Fitting the wire hoop

⚠ Caution! When fitting the tire, make sure that no foreign objects such as dirt, sand, metal or similar get inside and that you do not damage the inner tube.

Otherwise, the tire could burst while riding and you could lose control of your Kwiggle and crash.

⚠ Caution! Make sure that you mount the tire so that the direction of rotation indicated on the tire is correct.

Otherwise, the tire tread is aligned the wrong way round and water drainage in the rain is impaired. This can lead to you slipping more easily in the rain.

1. Place the rim with one flange in the tire. Press this sidewall completely over the rim flange with your thumbs. This process should be possible without tools. Insert the valve of the tube into the valve hole of the rim.
2. Pump up the inner tube only slightly so that it takes on the round shape and place it completely inside the tire. Make sure that there are no creases.
3. Start the final assembly on the opposite side of the valve. Press the tire over the rim flank with your thumbs as far as possible.
4. Make sure that the inner tube is not pinched and squeezed between the tire and the rim. Therefore, keep pushing the inner tube into the tire with your index finger.
5. Work your way evenly along the tire circumference on both sides. Towards the end, you must pull the tire down firmly so that the already mounted area slides into the deep rim base. This makes fitting the last few centimetres much easier.
6. Check the fit of the inner tube again and press the tire over the horn with the ball of your hand.
7. If this does not work, you will need to use a fitting lever. Make sure that the blunt side is facing the hose and that you do not damage the hose.
8. Press the valve into the tire so that the inner tube is not trapped under the tire core. Is the valve straight? If not, you will have to remove one side of the tire again and realign the tube.
9. If you want to make sure that the inner tube is not crushed under the sidewall, you should roll the tire half-inflated back and forth over the entire circumference of the wheel, i.e. move it at right angles to the rolling direction.
10. Now pump up the inner tube until the tire is just touching the rim. Make sure that the inner, finely ribbed edge of the tire protrudes evenly from the outer rim edge on both sides of the tire. If not, correct the distance by flexing the tire in the appropriate direction. An even distance between the grooved edge ensures that the wheel rotates as smoothly as possible and that deflections are avoided. This is particularly important with such small tires at the speeds ridden with the Kwiggle.

11. Now pump the inner tube up to the desired tire pressure of 4 bar.
12. Check the fit of the tire again using the control ring on the rim sidewall. It is important that the ring has an even distance to the rim flange over the entire tire.

If you have a puncture on the road, you can try to fix it without removing the wheel and the inner tube. Inflate the inner tube, leave the valve in the rim and first look for the hole through which the air is escaping. Run the inner tube close to your ear and listen for hissing noises. Once you have discovered the hole, look for the corresponding spot on the tire and examine it as well. The foreign object is often still in the tire. Remove it.

Installing the rear brake

First pull the first ribbed spacer washer onto the rear brake bolt, then the eyelet of the wheel guard and then the second ribbed spacer washer. Then insert the rear brake bolt through the brake mount on the frame and tighten it again with the elongated brake nut.

Fitting the front wheel

The front wheel is installed in the reverse order to removal.

Ensure that the front wheel is positioned correctly: axle bolt on the right in the direction of travel and axle nut on the left.

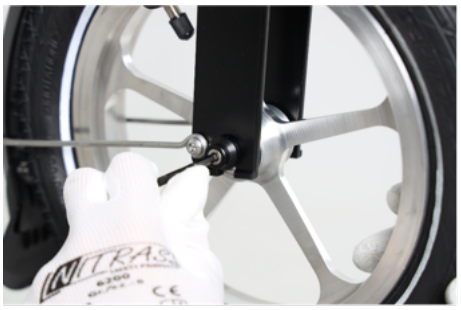
Pay attention to the direction of rotation of the tires. The direction of rotation is marked with an arrow and the word "Rotation" on the tire.

Insert the front wheel into the fork from below.

⚠ Caution! The axle must be fully seated in the top of the front fork and the axle bolt must be firmly tightened.

Otherwise, the front wheel will not sit firmly in the fork after mounting. There is then a risk that you will lose the front wheel while riding and fall. There is also a risk that the front wheel will wobble in the fork and you will lose control of your Kwiggle and fall.

Make sure that the front wheel axle touches the top of the fork and then tighten the axle bolt.



Inflate tires

Unscrew the lock nut on the valve and press the valve slightly into the rim.

Pump up the tire and make sure that it sticks out evenly from the edge of the rim everywhere.

However, if the fabric of the tire has been damaged by a penetrating object, replace the tire to be on the safe side.

Incorrect installation can lead to malfunctions or even failure of the brake.

7.4 Lighting

We deliberately mounted the front light only 40 cm above the ground.

This is particularly important so that you can recognize the ground structure very well even in the dark and avoid obstacles on the path. On the one hand, the path directly in front of you is then well illuminated. On the other hand, obstacles can be better recognized due to the shadows they cast.

Optionally, you can attach a small additional light to the handlebars if you want to be seen even better and feel safer.

To switch the front light on and off, press the top of the light for approx. 2 seconds. You can switch between full load (blue) and half load (red) by briefly pressing the button:

The light of the front light is detachable and can be charged via a micro USB cable (not included).

To remove the light, press down the lever on the bracket on the right-hand side and pull the light down to the left. The charging port is located behind the cover on the back of the light.

To install the light, push the light back onto the side of the holder until the lever snaps upwards and the light is securely fixed.

Please scan the QR code for more information.

The rear light is located in a holder on the rear mudguard. To switch it on and off, press the gray button from above for 2 seconds. To remove, pull out upwards and reinsert from above. Charging on the underside via a micro USB cable (not included), please scan the QR code for more information.

7.5 Steering bearings

The fork, the steering tube and the front wheel are pivoted in the frame with the steering bearing, also known as the headset. In order for your Kwiggle to stabilize itself and ride straight ahead, this steering area must be able to turn easily. Impacts from bumpy roads put a lot of strain on the steering bearing.

This can cause it to loosen and become misaligned.

Checking and adjusting

Check the play by placing your fingers around the upper steering bearing shell.

Put weight on the saddle with your upper body, pull the front brake with your other hand and push your Kwiggle forwards and backwards vigorously.

If the bearing has play, the upper shell shifts noticeably in relation to the metal ring on the steering tube

To check the ease of movement of the bearing, lift the frame with one hand until the front wheel is no longer in contact with the ground. Move the handlebars from left to right. The front wheel must turn very smoothly from the far left to the far right without catching. When the handlebars are tapped lightly, the wheel should automatically turn out of the center position.

Caution! If you ride with a loose steering bearing, the loads on the fork and the bearing will be very high. This can result in bearing damage or a broken fork with serious consequences! Risk of falling.

Adjusting the steering bearings requires a certain amount of experience, so this work should be carried out by a specialist. If you want to try it yourself, proceed as follows:

If the steering bearing is too loose:

Lean on the handlebars with your upper body so that you exert pressure on the handlebars from above during the following work.

Undo the 3 fastening screws of the fork and tighten them again immediately afterwards.

Then retighten all 3 fastening screws to the specified tightening torque.

Check the play of the steering bearing and the ease of movement of the steering again.

If the steering bearing is too tight:

Lean only slightly with your upper body on the handlebars.

Undo the 3 fastening screws of the fork and tighten them again immediately afterwards.

Then retighten all 3 fastening screws to the specified tightening torque.

Check the play of the steering bearing and the ease of movement of the steering again.

7.6 General care instructions and inspections

Your Kwiggle is a quality product. Nevertheless, as with other vehicles, you must look after your Kwiggle regularly and have the regular maintenance work carried out by a specialist.

Only take on work for which you have the necessary expertise and the right tools.

Important components must also be replaced after a certain period of time (see chapter "Service and maintenance intervals"). Only then can the long-lasting and safe function of all parts be guaranteed.

Washing and caring for your Kwiggle

Many parts of the Kwiggle are made of stainless steel or aluminum. However, there are also a few parts for which a stainless steel design was not possible. Aluminum can also react corrosively in aggressive media.

Dirt and salt from winter use or from the sea air will damage your Kwiggle. Therefore, regular cleaning and protection against corrosion of all components of your Kwiggle should be part of your regular routine.

Especially if your Kwiggle is very dirty after a ride in the rain, you should clean it with a soft jet of water and/or a bucket of water, using a sponge or a large brush, so that the chain, sprockets and bearing seals are free of sand and dust.

Caution! Do not clean your Kwiggle at close range with a very strong jet of water or with a steam jet.

The very sharp jet of water escaping under high pressure can push past the seals and penetrate the inside of the bearings. In the long term, this leads to the destruction of the bearing running surfaces and the smooth running of the bearings. It is not uncommon for steam jets to also remove stickers.

Once your Kwiggle has dried off again, you can occasionally preserve the paintwork and metallic surfaces with hard wax (exception: wheel rims). Less extensive parts can simply be sprayed with a hand sprayer. Polish the waxed surfaces with a soft cloth so that they shine beautifully and water beads up.

After completing the cleaning work, you should check the chain and lubricate it if necessary (see the "Chain care" section).

Keeping and storing your Kwiggle

If you look after your Kwiggle regularly, you do not need to take any special precautions when parking it for short periods, apart from theft protection. It is advisable to park your Kwiggle in a dry, well-ventilated area.

If your Kwiggle is due for winter storage or if you will not be using your Kwiggle for a long time, there are a few things to bear in mind:

1. The inner tubes gradually lose air during a long downtime. If your Kwiggle stands on flat tires for a long time, the body can be damaged. Therefore, fold up the Kwiggle and place it on the trolley wheels and check the tire pressure after a longer storage period.
2. Clean your Kwiggle and protect it against corrosion.
3. Store your Kwiggle in a dry room.
4. Shift to the smallest sprocket at the rear (shift position 1 on the twist shifter). This ensures that the cables and springs are as relaxed as possible.

⚠ **Caution!** Do not apply any care products or chain oil to the brake pads or the braking surfaces of the rims as this could lead to brake failure and cause an accident.

Maintenance and inspection

First inspection:
During the first few kilometers, the shift and brake cables may in rare cases become slightly elongated so that the shifting system cannot work properly. Some readjustment would then be necessary. Depending on the mileage, wear and tear repairs may also be necessary. Please contact us if this is the case.

Regular annual maintenance:
After a long Kwiggle season, we recommend having your Kwiggle completely checked in our service workshop. Who better to do this than the people who built your Kwiggle?
The annual inspection is carried out by our specialist staff according to a fixed maintenance schedule.

Attention! If you need to pack your Kwiggle to send it to our service workshop, please pack it exactly as described in the packing instructions "Shipping the Kwiggle". If possible, use the same box in which the Kwiggle was delivered. Otherwise there is a risk that the Kwiggle will be damaged during transportation.

Caution! Lightweight components in particular can have a shortened service life.

Therefore, for your own safety, have the components listed in the chapter "Service and maintenance intervals" checked at regular intervals and replaced if necessary.

Attention! Regular maintenance of your Kwiggle increases its service life, as with any bike. The times given in the table in the chapter "Service and maintenance intervals" are intended as a guide for Kwigglers that ride between 1,000 and 2,500 km per year. If you regularly drive more or a lot on bad roads, the inspection intervals will be shortened in line with the tougher use. This also applies to frequent journeys in the rain and generally in damp conditions.

If you use your Kwiggle for significantly less than 1000 km per year, the maintenance costs will be correspondingly lower. However, it is always advisable to have a safety check carried out at the start of a new Kwiggle season or before a planned Kwiggle vacation, so that you can get off to a carefree start. To keep the turnaround time of your Kwiggle as short as possible, please make an appointment in advance.

7.7 Packing the Kwiggle for shipping

Please watch these youtube videos to see how the Kwiggle is packaged.

First of all, the cable ties for the transport lock must be attached:

https://youtu.be/RjF1i0kb3_0

Please use the red cable ties supplied for this purpose.

The inserts must then be inserted correctly into the box and the Kwiggle placed between these inserts:

https://youtube.com/shorts/1gPCKbEKaUs

Please send the Kwiggle to

KwiggleBike GmbH
Hägenstraße 4
30559 Hanover

7.8 Service and maintenance intervals

After the running-in phase, you must have your Kwiggle serviced by a specialist at regular intervals
leave. The times given in the table below are intended as a guide for Kwigglers who ride between 1,000 and 2,500 km (approx. 40 to 100 hours) per year. If you regularly cycle more or a lot on bad roads, the inspection intervals will be shortened accordingly.

On our website www.kwiggle-bike.de you will find numerous service videos to help you with minor repair and maintenance work. But please don't take on too much during this work! If you are not absolutely sure or have any questions, please contact our service workshop:
Phone +49 (0) 176 84484684
Email: info@kwiggle-bike.de

Service and maintenance intervals

Component	Activity	Before every trip	Monthly	Annually	Otherwise. Intervals
Lighting	Check functionality	●			
Tires	Check air pressure	●			
	Check profile height and side walls		●		
Seat bolts (4 pieces)	Apply 1-2 drops of oil to the center of the bolts and move the frame part back and forth a few times				● every six months or when the S1 screw no longer moves freely back and forth
Brakes (rims)	Check lever travel, pad thickness and position in relation to the rim Brake test at standstill	●			
Brake cables/cables	Visual inspection for damage		●		
Rims (aluminum)	Rim surface smooth?		●		
Rims (aluminum)	Check rim width and replace if necessary (minimum rim width 30.5 mm)				x if the rim is no longer smooth after the second set of brake pads at the latest
Fork (aluminum)	Check			x	or after a fall
Inner bearing	Check bearing play		●		
Inner bearing	Regrease			x	
Chain	Check chain tension, check chain lubrication and relubricate if necessary	● ●			
Chain	Check or change				x from 1,000 km
Both folding levers	Check whether firmly closed	●			
Crank handle	Check or retighten			x	
Lacquer	Conservation				● At least every six months
Impellers/	Check concentricity		●		
Impellers	Check bearing play		●		
Handlebars	Check whether firmly closed	●			
	Check and replace if necessary			x	or after a fall
Steering bearings (2 pieces)	Check bearing play, retighten if necessary		●		
Metallic surfaces	Preservation (exception: rim flanks)				● At least every six months
Pedals	Engaged in pedal holder?	●			
Pedals	Check bearing play		●		
Pedals	Cleaning the latching mechanism				
	Lubricate		●		
Frame	Check for cracks		●		
Rear derailleur	Cleaning		●	x	
Screws and nuts	Check or retighten		●		
Trains: gears/ brakes	Remove and grease			x	

You can carry out the checks marked with ● yourself if you have manual skills, some experience and suitable tools, e.g. a torque wrench. If defects are identified during the checks, take appropriate measures immediately. If you have any questions or queries, we will be happy to help you: Service number 0511 22844260 or email: service@kwiggle-bike.de

The work marked with an x should ideally be carried out by us, otherwise by a specialist experienced in bicycle technology in a master bicycle mechanic's workshop.

Spare parts

Only use original spare parts if replacement is necessary.

Only spare parts authorized by Kwiggle may be used, which you can also purchase from our store on request:
12-inch tire: Schwalbe Big Apple Black-Reflex 50-203

Tube: Continental Compact 10/11/12

Brake pads: Tektro P205(0°) - gray shoes

For safety reasons and to ensure that the Kwiggle functions properly, all other spare parts must be original spare parts that can be ordered directly from us.

7.9 Recommended tightening torques

Caution! If the tightening torques are noted on the component itself, adhere to the values on the stickers or imprints.

Caution! To ensure the operational safety of your Kwiggle, the screw connections of the components must be tightened carefully and checked regularly. A torque wrench that switches off when the desired tightening torque is reached is best suited for this purpose. Always approach the maximum torques from the lower value and check the secure fit of the components as described in the corresponding chapters. For parts where there are no torque ranges, tighten the screws gradually and check the tight fit of the component again and again in between. Never exceed the maximum torque.

Caution! On some components, the tightening torques are printed on the component itself. Observe the values on the stickers or imprints.

If necessary, also refer to the enclosed instructions from the component manufacturer or check our website www.kwiggle-bike.de.

Recommended tightening torques

Component	Screw connection	Tightening torque
Brake lever	Fastening screw	5 Nm
Luggage carrier	Fastening screws	5 Nm
Gripping wire on the swivel joint	Fastening screws	4 Nm
Front light	Fastening screws	4 Nm
Rear wheel guard	Fastening nuts on the mudguard	6 Nm
	Fastening screws on the frame	5 Nm
Rear sprocket	Pinion locking screw	10 Nm
Inner bearing	Housing	35-50 Nm
Cable clamp frame	Fastening screw	3 Nm
Folding hinge frame	Upper fastening screw in the rubber buffer	4 Nm
Folding lever on the steering tube	Adjusting screw for voltage	Folding lever should be tensioned when open
Folding lever on the frame	Adjusting screw for voltage	It should be possible to close the folding lever with tension
Crank counter	Fastening screw	4 Nm
Crank stop	Fastening screw	4 Nm
Crank set	Chainring mounting	8-11 Nm
	Crank bolt (grease-free square)	35-50 Nm
Handlebars	Fastening screws	5 Nm
Handlebar grips	Fastening screw	3 Nm
Handlebar clamp	Adjusting nut	when closed, handlebars must not slip in under vertical load
Pedal	Pedal axle	35-55 Nm
Saddle	Fastening screw Saddle tilt	5-6 Nm
	Fastening screws	5-6 Nm
Rotary switch handle	Fastening screw	3 Nm
Shifting swing arm	Attachment to the frame	4-5 Nm
	Fastening the shaft screw to the frame	4-5 Nm
	Fastening lower shift pinion	4-5 Nm
Shift cable	Tension clamp	2 Nm
Side-pull brakes front and rear	Fastening bolt of the screw	8-10 Nm
	Brake shoe fastening screw	8 Nm
	Tension clamp screw	6-8 Nm
Seating system	Bolt fastening screws	4-5 Nm
Seat tube	Fastening screw for fastening strap	4-5 Nm
Trolley castors	Fastening screws	2 Nm
Front wheel guard	Fastening screws	5 Nm
Front wheel axle	Fastening screw	6 Nm
Front fork	3 Tighten the fastening screws several times	10 Nm

7.10 Faults

To make the Kwiggle suitable for all body sizes and as compact as hand luggage on an airplane, some joints and parts have to be moved.

We have endeavored to make this as simple and robust as possible.

Especially at the beginning, however, malfunctions can sometimes occur.

The chain jumps off when folding or unfolding

When folding and unfolding, the kwiggle is placed on the side of the chain facing away from the body. If the chain is folded or unfolded too robustly, it can sometimes come off, especially at the beginning.

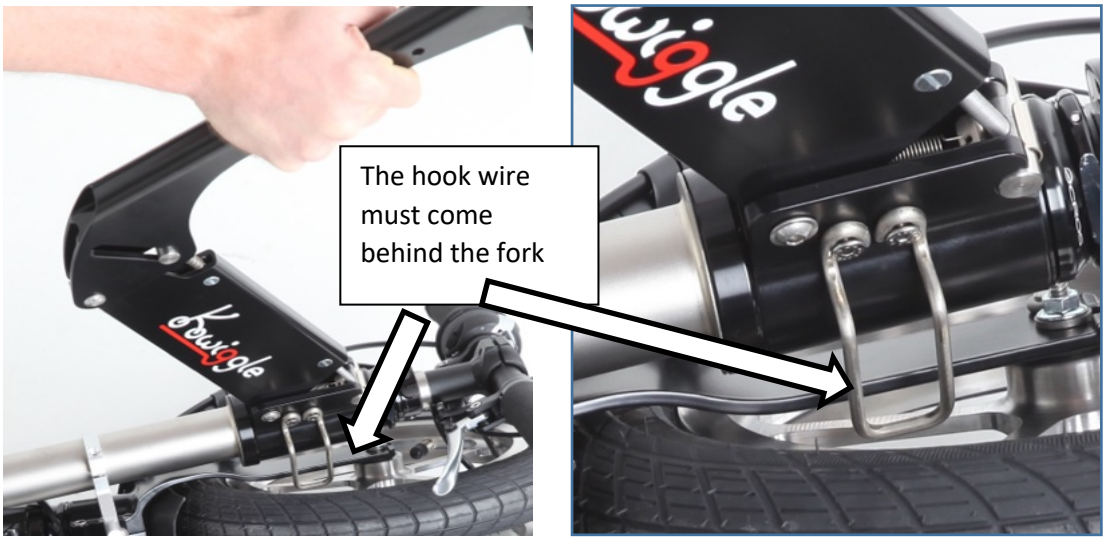
To avoid jumping off, practise folding and unfolding carefully and slowly until you have mastered the movements.

If the chain has come off the lower sprocket, first detach it from the sprocket and thread it back into the sprocket. Then put it back on the lower sprocket and turn the crank backwards to tension the chain on the entire sprocket.

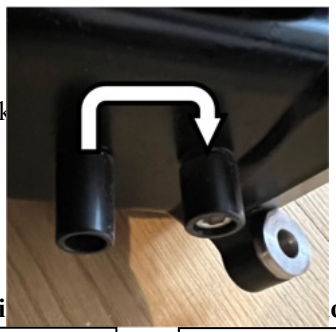
If the chain has come off the sprocket, you can place it on the lower side of the sprocket and turn the crank backwards to tighten it on the entire sprocket.
See also the chapter "Drive" under "Mounting the chain".

The seat hangs too loosely after folding in

Please make sure that the gripper wire also reaches behind the fork before you close the fastening strap.



If the tension between the lower frame parts is too small
and the crank comes loose too easily when folded,
you can remove a washer from the crank stop and add it to the crank lock
on the crank counter.

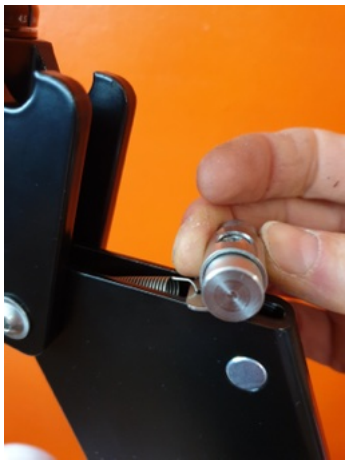


The stainless steel clip that holds the bolt of the saddle suspension sli ded.

Please ensure that you pull up the seat slowly and carefully, especially when unfolding, and allow it to lock into the swivel joint.

If you pull the seat up too far or too quickly without taking the handlebars with you, the bolt may press against the swivel joint and the stainless steel clip may come loose from the bolt.

In this case, you must first slide the stainless steel clasp back over the bolt before you can unfold the saddle further.



8. Legal information

If you want to ride your Kwiggle on public roads, your Kwiggle must be equipped in accordance with the national regulations! Find out about the applicable regulations in your country.

In principle, the same rules apply to cyclists as to drivers of motor vehicles. Familiarize yourself with the country-specific Road Traffic Regulations (StVO).

IN GERMANY

In Germany, the Road Traffic Licensing Regulations (StVZO) specify the braking and lighting systems and prescribes a brightly sounding bell. In addition, every cyclist is obliged to keep their bike in a roadworthy and roadworthy condition.

The braking system

A wheel must have at least two independently functioning brakes, each one per front and rear wheel. The type of construction is not bindingly regulated, but rim, drum and disc brakes are used.

The lighting system

All lighting equipment on the bicycle must have an official test mark. Recognizable This is indicated by a serpentine line with the letter K and a five-digit number. Only officially tested Lighting equipment may be used in road traffic.

Reflectors with test mark
Section 67 StVZO prescribes the following lighting equipment:

- A rear light for red light must be positioned at a height of at least 25 cm above the road surface. be attached.
- The center of the light cone of the front headlamp must not be positioned more than 10 m in front of the bicycle. hit the road.
- In addition to these light sources, the following reflectors must be permanently fitted to every bicycle:
- At the front, a white spotlight with as large an area as possible, which can be combined with the spotlight.
- A red rear reflector with Z marking at the rear. The rear light may be combined with the spotlight.
- Two yellow side reflectors per wheel, which must be securely attached. Optional white reflective rings are also permitted around the entire circumference of the wheel in the spokes, on the sidewalls of the tires or on the rims.
- Two yellow pedal spotlights per pedal, facing forwards and backwards.

⚠ **Caution!** For your own safety, switch on your lights as soon as dusk begins to fall.

Riding without lights and reflectors in poor visibility can lead to serious accidents with unforeseeable consequences for your life or limb.

⚠ **Caution!** Always ensure that the lighting system is clean and working properly. In particular, check the charge status of the front light battery and the batteries in the rear light before riding

Liability for material defects

Your Kwiggle has been carefully manufactured and delivered to you pre-assembled. According to the law, we are responsible, among other things, for ensuring that your Kwiggle does not have any defects that invalidate or significantly reduce its value or suitability. During the first 2 years after purchase, you are fully entitled to the statutory warranty. Should a defect occur, you can contact us at the address given. In order to process your complaint as smoothly as possible, it is necessary for you to provide us with the order number of the Kwiggle you have purchased. Please keep this carefully.
In the interest of a long service life and durability of your Kwiggle, you may only use the Kwiggle
in accordance with its intended use (see chapter "Intended use"). Also observe the permissible weights and the regulations for transporting luggage and children (in the chapter "Intended use"). Furthermore, the manufacturer's assembly instructions (especially torques for screws) and the prescribed maintenance intervals must be strictly observed. Please observe the checks and work listed in these operating instructions and in any other enclosed instructions (in the chapter "Service and maintenance intervals") and any replacement that may be necessary.
safety-relevant components such as handlebars, brakes, etc.

We wish you a safe journey with your Kwiggle. If you have any questions
Our service will be happy to help you.
Phone: +49 (0)176 84484684
Email: info@kwiggle-bike.de

Caution! Always use your Kwiggle for its intended purpose.

Enclosed you will find the operating instructions from the component manufacturers. There you will find all the details on use, maintenance and care. These special and detailed instructions are referred to several times in this user manual. Make sure that you have the relevant instructions for pedals, shifting and brake components and lights and that you keep them in a safe place together with this user manual.

Notes on wear

As with bicycles, some components of your Kwiggle are subject to functional wear. The amount of wear depends on the care and maintenance and the type of use of the Kwiggle (mileage, riding in the rain, dirt, salt, etc.). Kwiggle that are often parked outdoors can also be subject to increased wear due to weather conditions. These parts require regular maintenance and care, but sooner or later they will reach the end of their service life depending on the intensity and conditions of use.

The following parts must be replaced when they reach their wear limit:
- the chain,
- the trains,
- the handlebar grips,
- the sprockets,
- the pinions,
- the rear derailleur pulleys,
- the gearshift cables,
- the tires,
- the brake pads.

The pads of rim brakes wear out due to their function. Check the condition of the pads regularly and have them replaced by a specialist if necessary.