Cursus level 2+3 MudaGym

After the introduction we share the theory and guide all the students from a-z to deliver a safe training program.

MudaGym

Amsterdam

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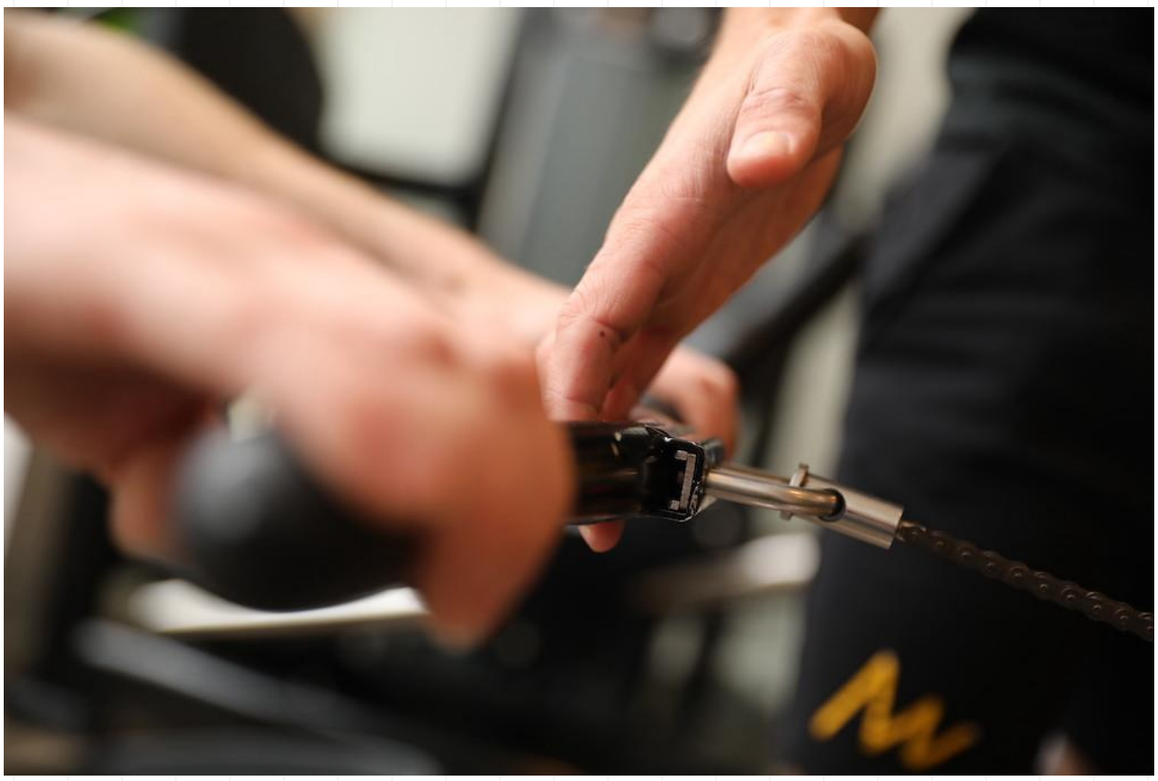


MudaGym® academy

Written by: Vincent Muda & Tycho Muda

MudaGym® academy by Vincent Muda & Tycho Muda

3 Safety

MudaGym considers safety to be a key pillar, if not the most important one. Therefore, it is our priority to strive for safety at all times. But how do you know when you have created a safe training environment? As a trainer, you are responsible for your client and must take all signals seriously. In this section, we cover the following aspects to ensure a stable foundation:

1. Welcoming the client before the training begins—asking them how they feel and if there is something you need to be aware of
2. Adjusting the rowing machine as it should be
3. Coping with resistance
4. Building up the training

3.1 Welcome the client (Personal)

Clients are more than a revenue source; they are individuals who enjoy coming to train with you. If you want them to come back, then a respectful, friendly and open attitude is vital. Your attitude as a trainer determines whether the training is successful.

The training is successful when
1. You cause no injury (or you try to avoid it).
2. You have communicated what you want to teach your client.
3. The client leaves the gym happy.
4. The client attends your next training.

Above all, look at what you can do for the customer. This starts with welcoming the person into your class. The following are some guidelines to personally approach the customer.

Step 1: Check how they feel

It sounds logical to ask how someone is doing. But the art is not in the question but in how you open up to someone. Of course, we must also deal with time pressure and large groups, so it is often difficult to make a connection with your customer. Nevertheless, try to make this connection. Above all, this gives you information and leads to return customers. You create your own fan base.

Prepare a short talk to be able to connect with the client. Consider the following questions to ask clients: Where are you from? What kind of sports do you normally do? What kind of work do you do? Also consider age because someone your own age will respond differently to questions than someone in a different age group. This also allows you to ask more specific questions; for example, are you going out this weekend or to a fun festival? These questions are superficial but help to make a contact. Try to remember the answers so you can ask follow-up questions next time.

Step 2: Check for injuries

Knowing the client's physical and mental states at the moment of the workout is important. Therefore, always ask about injuries or how they are feeling physically or mentally.

By making adjustments already before the training starts (read the chapter on injuries), you signal that you care about a safe training environment. You consequently gain the client's confidence and trust in you as a trainer. Often, the client will not tell you about their injury, so you must be able to observe injuries. We discuss this in Level 3.

3.2 Adjust the rowing machine to the client's posture

This section mainly covers the common situation you will encounter. It shows the desired situation. In the chapter on uncommon situations, we describe alternatives that can be applied and what these options entail.

In theory, it makes sense to check your equipment before you start your training. However, this is not always done in practice. Next, we present a number of steps to take so that everyone can start the training right away.

Determine the foot position

Check the height of the footboard and adjust the feet to the correct height. The entire foot should be on the footboard. If the toes are above the NON-adjustable part of the footboard, then the client must slide down the adjustable part (indicated with numbers from 1 to 6). As a result, the heel of the foot will drop closer to the ground, such that the foot will stand more fully on the footboard. This applies to the most accessible rowing machines, such as Concept2, RP3, TechnoGym and Waterrower. (*Figure 2: model footposition on the rowing machine)*

Another way to check if the feet are positioned correctly is to look at the straps. The strap should be positioned at the level of the forefoot. This is exactly where the toes start.

It is important to check each client's foot position and correct it if necessary. To save time and help each of them, you can share the following information.

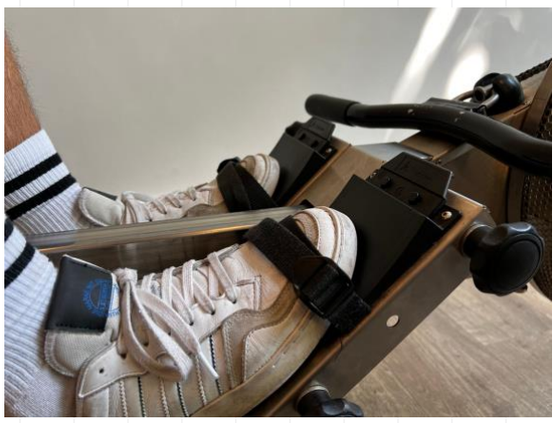
Shoe size	Position feet
36–37	Number 1
38–39	Number 2
40–42	Number 3
43–44	Number 4
45–46	Number 5
47>	Number 6

Feet position—high adjustment

Advantage	When to make higher adjustment
Efficient pressure on the feet	Better performance
Longer stroke	Better stroke distribution

Feet position—low

Advantage	When to make lower adjustment
Less tension on the lower back, knees and hamstring	When there is pain in the lower back
Easier to move towards the display	When there is pain in the knee
Low risk of injuries	When the client has a short Achilles tendon



Ideal adjustment

Advantage	When ideal adjustment
Low risk of injuries	Safe for the client
No stress on joints and muscles	Straps are in the right position on the foot

Figure 2: model foot position on the rowing machine

After you have explained foot position to the customer, please always check the height of their feet. It may vary due to the thickness of the sole of the shoe or because they are barefooted.

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Extra tip:
Check the flexibility of the person's Achilles tendon by squatting. If their heels are not flat on the ground, their Achilles tendon is too short. We then recommend that they adjust the footboard to a more downward position. This will reduce the strain on the back during the workout (see Figure 3 Testing Achilles tendon flexibility).

Flexible Achilles tendon	Shortened Achilles tendon
	

Figure 3 Testing Achilles tendon flexibility

3.3 How to handle resistance

In gyms, you will often see many inexperienced people using rowing machines with the resistance set to the heaviest level. For perspective, **Olympic rowers rarely train with the heaviest resistance.**

Training at the highest resistance brings risks and can lead to injuries. The rowing motion is by itself a difficult technical movement, and injuries can occur due to incorrect posture, improper movement or overload on the muscles or joints. Always start with technique before increasing tempo or resistance.

Once the client has mastered the correct rowing technique, they will already experience that resistance increases on the muscles. It is the amount of energy delivered on the rowing machine that translates into wattage: the higher the wattage, the more energy is produced (*see the chapter on technique—mastering the rowing motion and knowing how to communicate this to the client as a trainer*).

Adjust the resistance

When starting the workout, we always start on the lowest resistance. This ensures that the muscles are not overloaded during the warm-up. Different rowing machines allow you to set the resistance in different ways. (See *Figure 4: different rowing machines)*

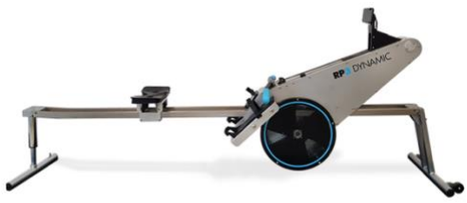
Type of rowing machine	Resistance slider
	The RP3 uses air resistance that can be adjusted by means of a slider above the handle on the rowing machine. The resistance is indicated by a number between 1 and 10. The higher the number, the higher the resistance.
	The TechnoGym rowing machine uses drag and magnets to increase resistance. The resistance can be increased by turning the button in the middle of the rowing machine to the right.
	The WaterRower uses resistance from water. It contains a reservoir that can be filled to the desired level. The more water, the higher the resistance.
	The Concept2 uses air resistance. A grid on the side can be slid up or down. The resistance is indicated by a number between 0 and 10. The higher the number, the higher the resistance.

Figure 4: different rowing machines

Resistance can be adjusted per individual depending on their experience, as indicated below. Please note, someone is not necessarily skilled at rowing if they have rowed at a resistance of more than 20 in the rowing class. Conversely, someone who has only had 3 lessons and has mastered the technique can afford to row at a slightly heavier resistance.

We can group clients according to three different titles:

1. The explorers (1–10 times)
2. The confident (11–20 times)
3. The achievers (≥21 times)

3.3.1 The explorers (1–10 times)

The beginner starts at resistance 1 (lowest resistance of the training) and maintains this level for the duration of the training. If the person's technique is good and conforms to all of the following requirements, then they can add resistance:

1. Applies the sequence of rowing movements correctly (see Chapter 8);
2. Is able to achieve the correct posture and maintain it during the workout; and
3. Is able to control the rhythm (see Chapter 11).

How much should resistance be increased, and what would be the best way to phrase this?

Beginners will not go straight to the desired resistance of someone who is more experienced. It is recommended to go up one level at a time, and if you are doing this in a group, it is best to specify this as well.

Example:

1. ***Everyone may increase the resistance by 1 level.***

Or

2. ***Everyone can go to resistance level 4, but beginners go to level 2.***

3.3.2 The confident (11–20 times)

This group is more familiar with the rowing motion and knows what to expect. However, this does not guarantee that they can do everything; therefore, we continue to be cautious with increasing resistance. See requirements for the explorers. We always start with resistance 1, and after the warm-up, we can adjust the resistance to the desired training type (see the chapter on training types).

3.3.3 The achievers (≥21 times)

The achievers who often come over to train; they have enough experience with the rowing machine and can usually row more rhythmically. To continue to challenge this group, you can slightly increase the resistance during the warm-up. Do this up to a maximum of level 3; only increase the training resistance later in the training.

However, even with this group, there is no guarantee that they can row well. They must thus also meet the requirements that we set for the explorers.

Type of training	Level experience	Maximum resistance during the training
Technical endurance resistance	The explorers	Resistance 1 (full training)
Technical endurance resistance	The confident	Resistance 1 (start), max resistance 3
Technical endurance resistance	The achievers	Resistance 4 (full training)

Power training	The explorers	Resistance 1 (start), max resistance 5
Power training	The confident	Resistance 3 (start), max resistance 5
Power training	The achievers	Resistance 4 (start), max resistance 7
HIIT	The explorers	Resistance 1 (start), max resistance 3
HIIT	The confident	Resistance 3 (start), max resistance 5
HIIT	The achievers	Resistance 4 (start), max resistance 6
Strength endurance	The explorers	Resistance 1 (start), max resistance 3
Strength endurance	The confident	Resistance 3 (start), max resistance 5
Strength endurance	The achievers	Resistance 4 (start), max resistance 6

Figure 5: level experience

During the training, you are free to increase or decrease resistance as long as the customer rows well and has the minimum risk of injuries.

4 The workout

A workout at MudaGym always consists of the same steps. This uniform structure offers stability, a clear transition in the workout and focus. As trainers, it is important to ensure continuity that is recognizable in any workout. Furthermore, we have the responsibility to reduce the risk of injuries and enable the client to train efficiently, effectively and above all safely.

The training has 4 steps that we always work through in this specific order:

1. the warm-up
2. the training
3. the cool-down
4. after care

4.1 The warm-up

The warm-up is a common phenomenon in every sport. We, too, take it seriously and see it as the start of the workout. The ultimate goal of the warm-up is to allow the body to gradually adapt to the effort. With the warm-up, we try to achieve the following effects:

1. Increasing the heart rate and the volume of the heart chambers, thereby allowing the heart to pump more oxygenated blood per minute through the muscles.
2. Widening the airways, which increases lung capacity. At the same time, the circulation of blood through the lungs also increases so more oxygen can be absorbed.
3. Increasing the body temperature in the muscles, thereby speeding up metabolism.
4. Warming up the muscles in a careful and controlled way.

These effects avoid overloading the muscles by being cold:

"Visualize a rubber band that feels cold and stiff; if you pull it hard apart, it eventually tears due to excessive tension. When the rubber band is stretched gently, the temperature rises, and as a result, the flexibility increases."

Flexibility provides more freedom in movement, eliminating impediments and preventing excessive tension in the body. At MudaGym, we also use the warm-up to go through the rowing motion.

At MudaGym, three components are evident in the warm-up, and they take place in sequence:

1. technical warm-up
2. increasing warm-up
3. intensive warm-up

4.1.1 Technical warm-up

The technical warm-up is constructive and gives you, the trainer, time to walk through the movement. The rowing movement consists of 2 phases: the relaxation phase (also recovery) and the tension phase (also the stroke).

As trainers, we build up the movements, starting with the arms, then adding the body and lastly including the legs in the motion. See the chapter on the relaxing phase of the rowing motion for a more detailed description.

During the technical warm-up, you as a trainer may explore every detail of the body, movement and execution. Use this warm-up to clarify everything and bring your client into the secure sequence of movement. Because we expand the range of motion step by step, the client can become familiar with the expansion of the motion. This applies to everyone, not just the beginners.

In the technical warm-up, we also bring awareness to the tension phase, or the stroke. This motion is the reverse of the relaxation phase. Here, we start pushing the legs flat down; then, we link the movement to the torso, which makes a swinging movement, and complete it by pulling the hands to the chest (***read chapter 8 technical row***).

4.1.2 Increase the intensity of the warm-up

During the technical warm-up or immediately after it, we recommend slowly increasing the intensity. After all, our muscles, heart and lungs need time to get used to the intensity as it builds. By gradually increasing the intensity of the warm-up, we also ensure that the muscles are warm, flexible and ready for the workout. In addition to ensuring that we start the workout safely, a constructive warm-up has further advantages. Always remember,

"Technique is always the same regardless of the intensity or rhythm we are in.
The technique of the rowing movement remains the same, and there should be no difference in the motion when the pace is increased. During a constructive build-up, we increase the pace

up and down with control. In this stage of the workout, we are still focusing on the technique and the sequence of the rowing motion (read chapter on rowing motion).”

4.1.3 Specific warm-up

The specific warm-up is the last step in the warm-up. Each session has its own specific focus, which can vary from power training to cardio training or strength endurance training. The goal of the workout is immediately visible in the warm-up.

The intensive part of the warm-up can be applied in many forms. We normally build up speed and increase the pace step by step. This can take around 1.5 to 3 minutes. The rower’s heart rate will increase, and they will begin to breathe heavily.

Depending on the type of training, we will adjust the setup of the intensive warm-up. If you plan to do a strength workout, then focus more on strength than on cardio, and keep the pace (stroke pace) low but increase strength or add resistance.

5 The training

In this chapter, we describe the different types of training that can be performed using the rowing machine. Each training program also has 3 different levels, from explorer to achiever. This is defined by the client’s background, age, and physical and mental condition. Each training form has its own energy supply. We divide the training programs into long endurance training, intensive endurance training, different interval training and strength training. Technical focus is important for each.

During the warm-up, the purpose of the workout is clearly identified. Moreover, we strive for clear communication between the trainer and the client at all times. For the client, knowing what is going to happen next is useful; it teaches them to divide their energy optimally during the workout.

5.1 Forms of intensities

The workouts involve different blocks, different intensities and different focusses. The following table (see figure 6 lists all the words and cues we use to clarify the exercises or intensities. Furthermore, a variety of blocks are provided from MudaGym, each reflecting a different function. By recognizing these blocks, you can also deliver a more focused workout.

Professional jargon	Color	Meaning	Focus
Technical focus on the rowing machine	Orange	A technical exercise with a technical focus for the group	Technical blocks are designed for clients to understand what good posture is, what rhythm does, how the rowing motion is built and which muscles to feel during the rowing motion. The following technical exercises are described below.
Ground exercises	Blue	The focus is on the rowing machine	Here, we do ground exercises with dumbbells, kettlebells, weighted balls, elastics or body weight.

Intensity	Red	The focus is on power, rhythm and intervals	Here, we focus on speed, rhythm and power. We work heavy and light resistance.

Figure 6:

6 Cool-down

We always end with the cool-down, which allows the client time to recover. By having everyone calmly unload, the worst of the lactate buildup is drained away, allowing recovery to begin. In addition, we also use the cool-down to stretch the muscles that were engaged during the workout.

6.1 Types of stretch exercises

In general, we can stretch all the muscles after the workout because rowing activates 86% of all muscles in the body. As a trainer, you must tailor the stretch exercises to the type of training you delivered. If the focus was mainly on the arms and upper body, then these muscles should receive more attention. If the focus was more on the legs, then the leg muscles should be stretched.

The following muscles are always good to stretch after rowing:

1. Hamstrings

This muscle is essential to stretch because you will notice that many clients have difficulty stretching their backs. This is due to hamstring and gluteal muscles that are too short, which puts pressure on the (lower) back. After a workout, the hamstrings are well warmed up, giving clients the opportunity to stretch these muscles effectively. The stretching also stimulates blood circulation, which in turn helps to speed up recovery.

	Stand with slightly bent knees and roll down until you feel a stretch in your hamstring. If you cannot touch the ground, do this exercise every day for 1 minute.
	Sit on your bum with slightly bent knees. Reach out to your toes and grab your ankles; then, pull yourself downwards to feel a stretch in your hamstrings. You might also feel a stretch in your lower back.

Figure 7: hamstring stretch

2. Glutes

The gluteal muscles are trained intensively in rowing. They are also connected to the hamstrings and lower back muscles. To ensure that the muscles remain flexible, it is wise to stretch them regularly to prevent back problems.

	While sitting on the rowing machine, place your right foot on the left knee. Keep the back straight and hinge forward to feel a stretch in the right glutes. Do the same for the left glutes.
	While standing, place your right foot on your left knee. Push your bum backwards and drop down (like a squat) on one leg. You will feel a stretch in the glutes.

	While sitting on the mat, stretch your left leg and take your right foot over the left leg. Place the sole of the foot over the leg on the ground. Bring the heel close to the bum, and press the right knee to the left shoulder.
	Place the soles of your feet together, and bring the heels to the bum. Then, place your elbows on the knees, and gently press them down.

Figure 8: Glutes stretch

3. Back muscles

The back muscles have a tough job not only during sports but also in daily life. We pay extra attention to these muscles to ensure that they do not lock due to excessive sitting or overstraining during training.

By stretching the glutes and hamstrings, we reduce considerable burden on the lower back. We present an overview of different back stretching exercises below.

	Take both hands above your head, and gently bend backwards. Feel the stretch in the whole back.
	Take both hands above your head; gently bend sideways, and stretch yourself as far as possible.
	Lie down on your belly, and keep the feet relaxed. Gently press yourself upwards, ensuring that your pelvis is always touching the floor.
	Lie down on the mat; put both feet flat on the ground, and place the legs outside. Then, rotate the knees to the left and right until you cannot go any further or until your knees touch the ground.

Figure 9: back muscle stretch

4. Shoulders

The shoulder area is key concern not only during training but also during normal life. In daily life, most people have improper posture due to extended periods sitting in front of a computer or long bouts of time on the phone with a bent head or due to lifting heavy objects incorrectly.

Even after training on the rowing machine, the shoulders have been under tension. Partly because we want to but also because of incorrect posture or heavy lifting. With various stretching exercises, we want to not only prevent neck tension causing headaches but also maintain mobility in the shoulder area.

	Stretch the right arm out in front of you; the left arm goes under the right outstretched arm and pulls the right arm in towards the body. For your view: the right arm will be pulled to the left. Repeat for the opposite arm.
	Bring the right arm behind your head between the shoulder blades; the elbow points out above the head. With the left hand, pull the elbow of the right hand further behind the head. Repeat for the opposite arm.
	Take with the right hand your left ear, you are facing to your right toes and gently you pull the head down into a stretch.

Figure 10: shoulder stretch

7 Additional cool-down activities

During the cool-down, all clients are moving at a relaxed pace, and you have time as a trainer to motivate your clients to attend your next class. You do this by giving them a general compliment about the workout. You can also highlight some technical focus for the group in general to prepare clients for the next workout. In addition, you could also go around giving each client a high five or pat on the shoulder to signal that they did a good job. If you are able to and have the time, you may want to offer some personal feedback on technique. However, be sure to check everyone and be positive and constructive in your feedback.

7.1 Aftercare

Aftercare is the last step before the client leaves the studio or gym. It can be likened to good service at the bakery where the person serving you asks, “anything else?”

We like to see good aftercare because it builds a fan base and signals that you are there for the client not only during the workout but also afterwards.

At the start of the training, when welcoming the client, always ask how they are doing and make small talk. Memorize what they say so you can engage with them on a personal level when they leave. This could mean wishing them well for something they have to do for work or wishing them a happy vacation. If they need to work on their technique, you could recommend an extra exercise for them to do at home. For physical issues, you can provide stretching exercises or, in the worst case, refer the client to a physiotherapist.

Aftercare is an acknowledgement to the client that you have listened to them and are sincere. Building a personal relationship with the client takes time, but you will earn their loyalty in return.

8 Technical rowing

The rowing movement can be performed using various techniques. MudaGym uses the technique that Vincent and Tycho Muda brought to the Olympics.

From this point on, you will become a trainer who focuses on a full body workout.
We will continue to focus on technique, as this ensures safe training and prevents injuries. In addition to improving technique, we will also increase effectiveness and efficiency. Before we discuss technique and posture, we cover what the rowing motion looks like and what muscles are being worked.

The rowing movement is a looped sequence that is constantly repeating. We divide the movement into 2 phases, each of which is further divided into 3 steps. The 2 repeating phases are the recovery, also called the preparation phase, and the power phase, also called the stroke. For us, the preparation phase is the most important because during the relaxation, before the next power explosion, we as trainers can adjust posture, technique and rhythm. This adjustment cannot be done during the power explosion.

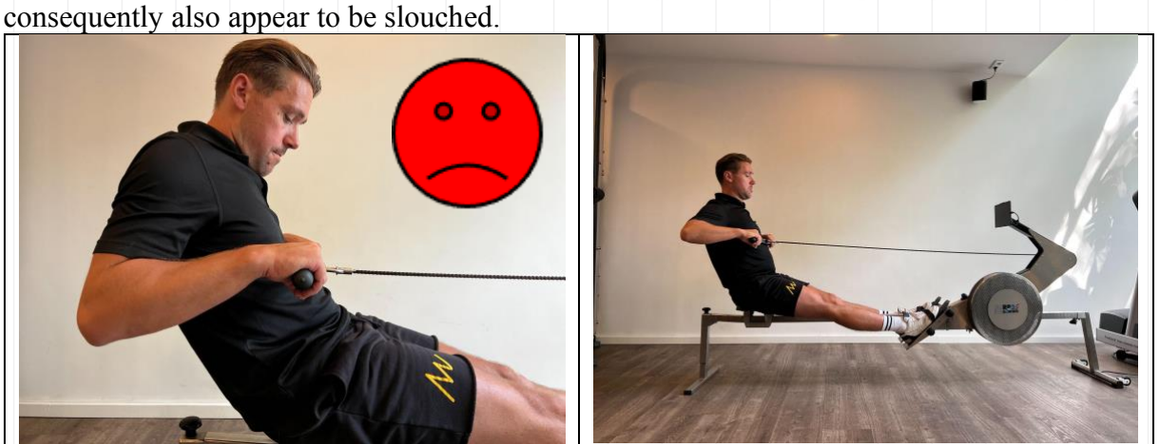
In the following chapters, we describe the sequences of the recovery and the power explosion.

8.1 The sequence of the preparation phase

We call it the preparation phase because, as the saying goes, good preparation is half the battle. The preparation phase is broken down into 3 stages: the stretching of the arms, the flexing of the torso and the raising of the legs. Before commencing with these three stages, we assume the starting posture.

8.1.1 Starting posture

The starting position to enter the preparation phase is as follows: the legs are stretched out, the upper body is leaning back slightly, and the hands are in towards the chest. We like to see a strong posture and an active, ready attitude. You will notice that many clients have little to no control over their core and therefore lack the ability of sitting strong and proud. They will consequently also appear to be slouched.



There are many different back posture mistakes, which we will discuss in detail later. For now, it is important that your client activates their core.

Figure 11: posture at the finish

When is a posture strong and active?

A strong posture is characterized by a strong torso (see *Figure 11: posture at the finish*): the chest faces forward, and the client need to use the abs to hang backward. Despite a backward lean, the entire foot is pressed firmly against the footboard. For this, it is necessary to flex the toes (see photo). In this pose, it is wise not to lean too far into the back. To avoid this, check that the client is not hanging on to the straps but still pressing their feet fully against the footboard. The elbows point back and away from the sides of the body. This keeps the wrists completely straight in line with the forearm and chain of the rowing machine. The shoulder blades pull together, and the chest pushes forward strongly. The client now has an active posture.

Step 1 in the preparation phase

The movement is initiated from the arms. When the handle of the rowing machine touches the chest, the arms move away from the chest first. At this point, the rower continues to lean back with legs stretched out. Even though they move back to the display, the feet continue to push against the footboard.

When the arms are almost fully extended, the torso bends forward from the hips. The back remains straight and active, with the shoulder blades still pulling together and the chest pushing forward. The legs are still straight, and it is even possible to feel tension in the hamstrings. Because the legs are still extended and the rower is bending in, they can feel tension in the glutes and hamstrings, which feels like a stretch.

Step 2 in the preparation phase

When the arms are extended and the torso is flexed, the abs as well as the chest, shoulder and back muscles remain activated. This is because during the bending of the body, which takes place through the hips, the full active position should be held before the legs come up. Here, the position of the hands is important. They remain at chest height and in line with the chain of the rowing machine despite the bending (see photo). In practice, you will find that many clients lower the arms and lose their active posture. Advise them not to pull the shoulders up towards the ears but to keep their arms at the right height through the chest and shoulder muscles.

Step 3 in the preparation phase

The posture is strong, the arms are at chest level, and the body is bent to approximately 20 degrees. Now it is important that the client progressively tightens all the muscles in the upper body as the legs come up toward the display. Because the upper body is under tension, they hold the position until the legs are fully raised and the shins are vertical. The heels are allowed to come off the footboard at the point when the shins are vertical.

What position is required after we are fully in front of the display?

The shoulder blades are pulled slightly together, there is tension in the chest and wing muscles, and the torso is flexed 20 degrees, while the buttocks point back and the heels have come off the footboard. The client is ready to start the power explosion!

Steps in the preparation phase

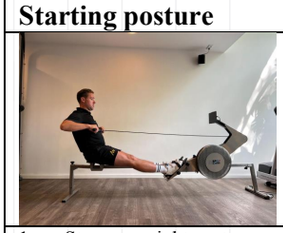
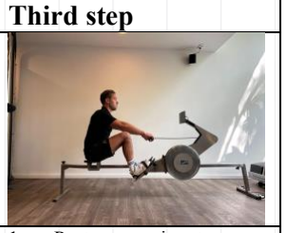
Starting posture	First step	Second step	Third step
			
1. Strong, upright posture 2. Chest points upward to the front 3. Elbows are wide on the sides of the body, moved towards the back 4. Shoulder blades are contracted 5. Legs are straight (but with a slight bend at the knees) 6. Toes are flexed towards the rowing machine	1. Strong, upright posture 2. Chest points upward to the front 3. Arms are stretched out 4. Shoulder blades are still contracted 5. Legs are straight (but with a little bend in the knees) 6. Toes are flexed towards the rowing machine	1. Posture remains strong and upright 2. Chest points forwards 3. Arms are stretched out 4. Chest muscles become more tensed 5. Hinge forward until the hands pass the knees 6. The legs can come up slightly 7. Feet are fully on the footboard of the rowing machine	1. Posture remains strong and upright 2. Chest points forwards 3. Arms are stretched out 4. Chest muscles become more tensed, and shoulder blades are contracted 5. The hinge remains the same, and the chest moves towards the knees 6. THE WHOLE BODY IS READY TO START THE STROKE

Figure 12: steps in the preparation phase

8.2 The sequence of the explosion phase (the stroke)

After the preparation phase, the movement will immediately turn into the power explosion. In practice you will find that the force explosion is not obvious to many clients. The only explanation for this is that the client is not prepared well enough in the preparation phase. As a trainer, it is up to you to better instruct the client and provide feedback. We cover how to improve technique and give feedback in detail later in the course. We use the strategy LIFO, which stands for: ***Last in, first out.***

Step 1 in the explosion phase

At the moment of the explosion, no corrections or adjustments should be made to the client's posture, rhythm and movement. These should be done in the preparation phase, where you clarify that the client must maintain that posture during the power explosion.

If the client completes the preparation phase properly, they will only have to tighten their core, chest and back muscles to explosively push down their legs. If they do this well, they will feel much resistance from the rowing machine. The harder the force is, the higher the wattage will be. The client's body will experience a high degree of tension during the explosion of force. During the kick of the legs the upper body need to be active and need to carring the load to bring the handle away from the display.

Step 2 in the explosion phase

When the legs are almost fully extended, the trunk takes over the movement. We call this the body swing. The torso takes over the full tension and swings the trunk backwards. The client continues to constantly push against the footboard with their feet. They will feel a healthy tension in the abdominal muscles, chest muscles and shoulder muscles during the swing. It is important that the arms remain extended during the body swing.

Step 3 in the explosion phase

Once the torso has swung backwards, the arms become engaged in the motion. The arms will carry the last of the force backwards and ensure that the handle of the rowing machine comes against the client's diaphragm. Ensure that the client ends their pull in such a way that they come to sit exactly in the starting position (see attachment…).

8.3 Last in, first out (LIFO)

We have explained each step and respective movement separately, but during LIFO, you will see that the movements flow closely into one another. The order we have described is the only correct order—if you start doing anything else, you increase the risk of injuries.

If you end with your legs raising in the preparation phase, then the legs will automatically go down first in the power explosion. The body swing always takes place second in both the preparation phase and the power explosion. The arms will end up last during the power explosion, but they will immediately flow through into a recurring movement in the preparation phase.

LIFO format:

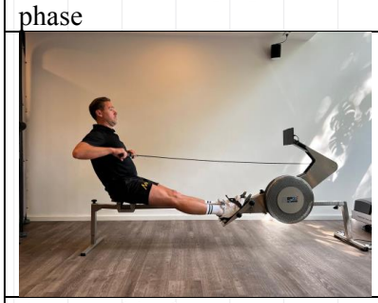
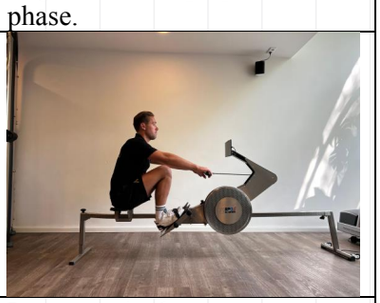
Preparation phase	**Preparation phase**	**Preparation phase**
Arms start in the preparation phase	Body hinges towards the front	Legs end in the preparation phase.
		
Arms end in the power explosion	Body swing takes over the power explosion	Legs start in the power explosion
Power explosion phase	**Power explosion phase**	**Power explosion phase**

Figure 12: LIFO

8.4 Handle position

The handle of the rowing machine, which the client holds, is the connector between the rowing machine and the client. Because the client is holding the handle, they can push against the rowing machine, thereby creating resistance.

As we want to make the movement as clear and easy as possible, we say that the handle is always at diaphragm height. This means the handle is at this height at the start position and when the rower nears the display for the power stroke.

Figure 13: the handle position