WaterCoach
About Technique

Rowing is an endurance sport which requires a high level of skill. This skill is based on the co-ordination of the legs (which create the most amount of driving force of the rowing action), torso and arms in propelling the boat across the water. The rowing action comprises of both fast (drive phase) and slow (recovery phase) movements. Skill is also required in combining these movements into a rhythm in order to create a smooth, flowing, unhurried rowing action (what we call in this section ratio and rhythm).

The correct rowing action can be a difficult to grasp especially if not having experienced rowing in an actual boat. In this section, About Technique we outline a variety of ways in order to learn the correct rowing technique.

Elements of Rowing Technique

Rowing is unique amongst other whole bodied exercises in that it strengthens the static muscle groups of the torso (strengthening posture) and simultaneously it uses the muscle groups of the upper and lower body dynamically and in a full range of motion (length).

The work of the static muscles of the torso is done without them moving. They work to brace the torso (keep a strong postural position) to allow it to transfer work from the lower to upper body. The majority of the range of motion in the rowing stroke is created by the dynamic muscle groups of the arms and legs.

It is a combination of these muscle groups that form the rowing action, this combination then needs to be a smooth, flowing continuous motion and is achieved with the correct ratio and rhythm .

The elements of technique (discussed in the next few pages) combine all the above key issues of the rowing action and are crucial to realizing the unique physiological and psychological benefits of rowing.

There are five key elements of rowing technique,

Posture and Length
Lower Body Movement
Upper Body Movement
Rhythm and Ratio
Timing

Posture and Length

One of the main elements of the rowing action is posture and length; poor posture and lack of length in the rowing stroke will result in injury and unrealized benefits of rowing. It is therefore essential that a strong postural position is maintained with full reach and length throughout the rowing action.

To achieve full range of motion, the user must think of reaching as far forward with the handle and compressing the legs as much as possible whilst maintaining a strong upright position.

A common problem when rowing is using movement of the torso to contribute to the range of motion. This is usually done by bending the torso at the lower back, weakening the posture (most lower back injuries occur when work is being transmitted through a weak posture).

Beginning each stroke with the correct posture will ensure a positive workout. To achieve correct posture, the torso is simply rocked at the pelvis from a backward (11 o'clock) position to a forward (1 o'clock) position (this is known as the Rock Over phase and is discussed in more detail later on in this section).

Lower Body Movement

The muscles of the legs are the largest and strongest muscle group in the body, and therefore contribute a large portion of the work during the rowing stroke. The muscles of the upper body and torso simply add to the work of the legs as the angle between the calf and the thigh increases and the effectiveness of the legs declines.

The speed at which the leg angle opens is related to the speed of the boat moving through the water and is relatively slow. The speed of the drive phase is anything from ½ second to 1 second (discussed later in section in Ratio and Rhythm).

Upper Body Movement

As the leg angle passes through 90 degrees the contribution of the legs lessens bio-mechanically. At this point the muscles of the upper body and torso are recruited to add to or maintain the acceleration initiated by the lower body. The transition between the two is made seamless by maintaining a flowing motion.
The hands are drawn into the body so that the forearms are horizontal. This is at about the height of the second bottom rib. The hands do not stop at the end of the drive, they flow back out and into the recovery phase, moving in and out from the body at a constant speed.

A common problem when rowing is stopping at the end of the drive. This encourages “two-piecing” of the stroke where the drive and recovery are two separate actions. “Two-piecing” often allows the rower to slump at the release position, encouraging poor posture. The rowing action needs to be smooth and seamless with each phase transitioning into the next.

Rhythm and Ratio

Ratio is the relationship between the work phase (the drive) and the recovery phase (rockover and return) of the rowing action. The correct ratio in rowing is 1:2 - spending twice as long to “recover” and come back up the slide as was spent in driving the legs down. When the correct ratio is achieved, there is a satisfying rhythm to the continuous flow of the rowing stroke.A common problem in rowing is that people “rush” up the slide, meaning that the ratio of drive to return is more one to one, rather than one to two.

Rowing is a relatively low cadence exercise. Even when racing, stroke rates rarely reach 40 strokes per minute (spm) and most training is done between 20 to 26 spm. A stroke rate of 20 spm would give a 1 second drive followed by a 2 second recovery, completing one complete stroke each 3 seconds. Cycling and running by contrast can reach rates in excess of 200 revolutions per minute.

Timing

Timing relates to the co-ordination of the rowing action between each member of a crew. Co-ordinating technique so that everyone does the same thing at the same time improves efficiency and hence speed, and is essential to on-water elements such as boat balance.

In a WaterCrew class, timing is functional and aesthetic. Encouraging correct timing between WaterCrew participants will enhance what they get out of a class.

The Rowing Action

As discussed previously the rowing action should not be considered to have any distinct parts but be one smooth, flowing, uniform action. However for instruction purposes it can help to break the rowing action into its three phases and three corresponding positions.

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The Rowing Action

There are 3 positions (stationary) and 3 phases (flowing movement).

Position I: The Release Position

The Release position is at the end of the Drive phase. The release is where active propulsion of the boat ceases and the oar is removed from the water. This is not the end of the stroke but simply the change in direction of the handle. This is also known as the “backstops” position.

Instructor Tip- Encourage your client to sit in a tall but relaxed posture position. Elbows behind and shoulders relaxed.

Phase I: The Rock Over Phase

The Rock Over begins at the Release position and ends at the Rocked Over position. The arms extend and the torso rocks over from the pelvis (not the lower back).

Instructor Tip- It is important that the handle moves in and away from the body at a constant speed.

Position II: The Rocked Over Position

The Rocked Over position occurs at the end of the Rock Over phase. The arms are extended and the torso is rocked over adopting the upper body positioning of the catch.

Instructor Tip- Weight is transferred towards the front of the seat.

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Phase II: The Recovery Phase

The Recovery phase begins at the Rocked Over position and ends at the Catch position. No active propulsion is taking place at this point. There is no movement of the upper body and torso during the Recovery phase, all torso and upper body positions having been set at the Rocked Over position.

Instructor Tip- The Slow Slide drill is good for reinforcing relaxation and recovery up the slide.

Position III: The Catch Position

The Catch is the position of the body at the end of the Recovery phase and the beginning of the Drive phase. The body is coiled into a spring, ready to release. This is also known as the “front stops” position.

Instructor Tip- In this position it is important to keep the head up, eyes forward and shoulders relaxed.

Phase III: The Drive Phase

The Drive phase is the work phase of the Rowing Action beginning at the Catch position and ending at the Release position.

Instructor Tip- Encourage your client to firstly push with the legs whilst maintaining a strong core, when the handle gets to above the knees the arms are used.

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Instructing Rowing Technique

Blending the elements of rowing into the rowing action is the art of rowing technique instruction. Here we cover several methods of instruction. While none is preferred to the other, you will note that individuals will respond differently to various forms of instruction. Having a broad range of tools will assist in getting your message across.

Technique Check Points - the positions through which the body moves. This breaks down the stroke into its constituent elements, assists instruction and helps develop co-ordination.

Focus Points - the points of focus for each of the phases and positions of the rowing stroke. This assists in honing the rowing action, adding movement to the Check Points and making the action more fluid.

Technique Drills - assist in coordinating the Check Point and Focus Point instruction and smooth the action into one flowing stroke.

Technique Calls - ways of expressing the desired technique element which may assist instructors to teach correct rowing style.

Technique Check Points

For ease of instruction the rowing stroke may be paused at several steps in order to check body position and technique. The positions where one pauses are known as Check Points. Remember, the rowing stroke itself is a continuous, smooth and flowing action.

At each Check Point use focus points (in the next few slides) to reinforce technique. For example, at Check Point One ensure that you are sitting tall, shoulders relaxed, handle drawn into the chest.

Check Point One - The Release

Check: Legs straight, feet in contact with footboard, sitting t all, head up, eyes forward, shoulders relaxed, elbows behind, handle drawn to chest and wrists flat.

Check Point Two - The Rock Over

Check: Body rocked over from the pelvis not lower back, arms straight, shoulders relaxed, head up, eyes forward, legs straight, feet in contact with footboard and wrists flat.

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Check Point Three - The Recovery (half slide position)

Check: Body maintains rocked over from the pelvis not lower back, arms straight, shoulders relaxed, head up, eyes forward, legs bent to half slide position, feet in contact with footboard and wrists flat.

Check Point Four - The Catch

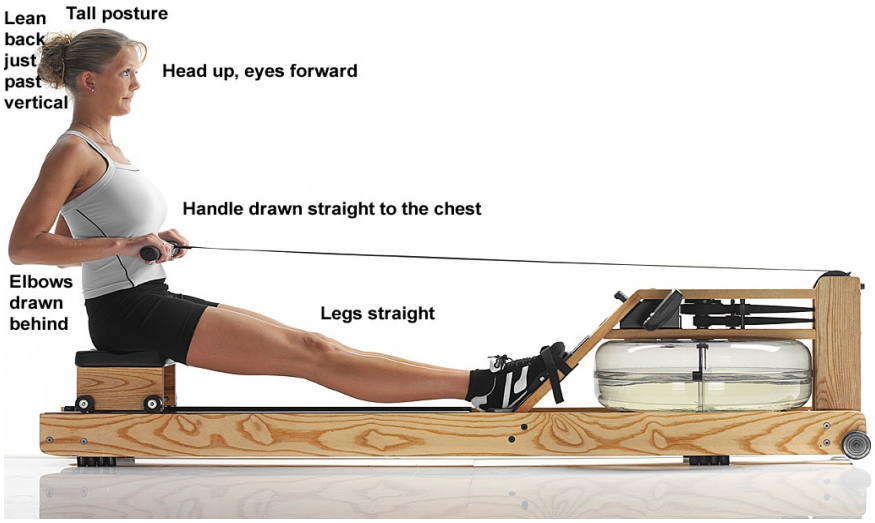
Check: Body again maintains the rocked over position, arms straight and in full reach, shoulders relaxed, head up, eyes forward, legs fully compressed, feet in contact with footboard and wrists flat.

Instructor Tip: Moving from one Check Point to the next allows the user to embed the correct rowing elements for each position in the stroke. Moving more quickly from Check Point to Check Point creates a flow which, as the pauses between the Check Points decrease, produces the smoothness of the rowing action.

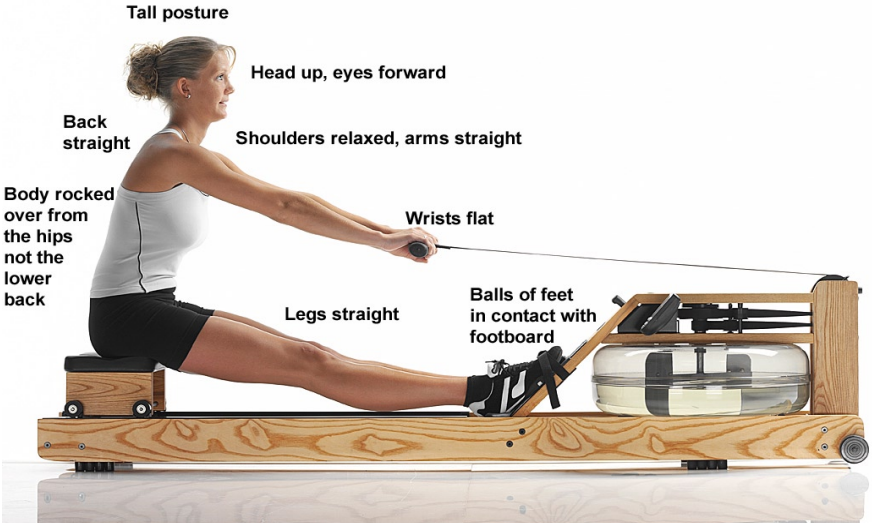
Focus Points

Focus points are areas of focus for each phase or position of the rowing action. They may take the form of calls or simple instructions. These points can be used either during warm up, workout or cool down. They may be particularly useful during Check Point drills.

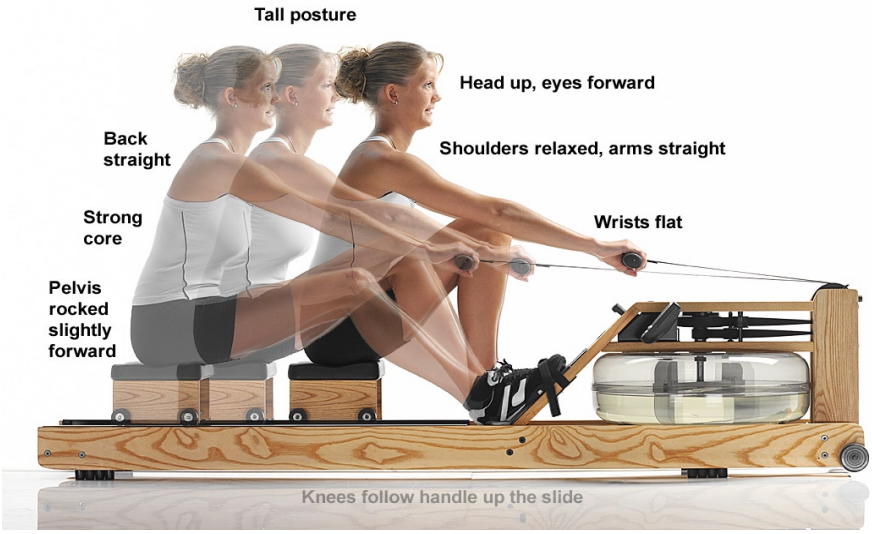
Release Position Focus Points



Rocked Over Position Focus Points



Recovery Phase Focus Points



Catch Position Focus Points

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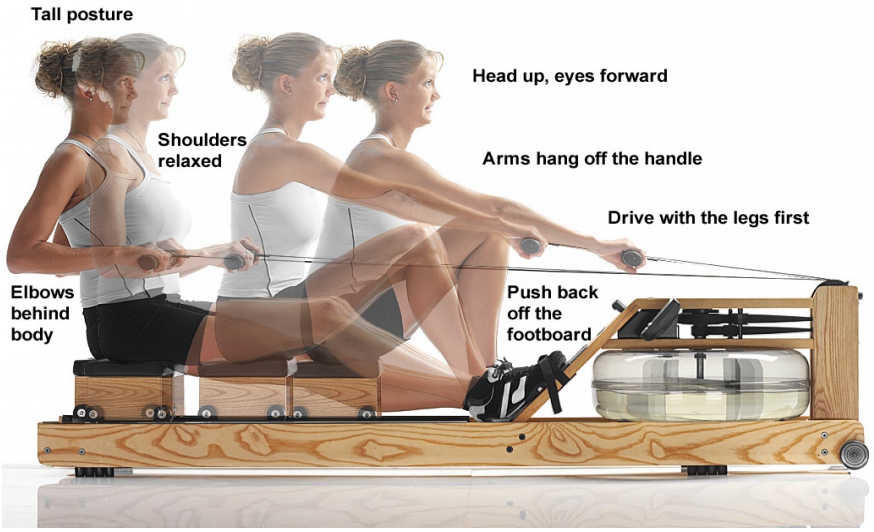
Drive Phase Focus Points



Technique Drills

Technique drills break the stroke down into constituent parts to separate out each movement. Four drills are particularly useful;

1. Fixed-seat rowing Drill

The fixed-seat drill ensures there is no leg action when moving from the release position through the rocked over phase to the rocked over position.

The fixed-seat drill improves smoothness of the transition from drive to return. It is also very helpful in correcting and improving posture by rocking from the pelvis and not bending from the lower back.

Instructor Tip: Stopping the drill at the rocked over position Check Point encourages the hands to flow smoothly throughout the transition from the release position through the rockover phase. It also allows the user to concentrate on the body rock over from the hips and not the lower back.

2. Catch Drill

The catch drill isolates the leg action at the beginning of the drive.
Practice shoulder relaxation and leg-back co-ordination by moving back and forth between the catch position and the beginning of the drive.

Concentrate on feeling the connection of the paddle in the water as it “locks on”, with the arms and shoulders staying still as the legs start to drive down. In this phase of the stroke, the legs do everything, so the body angle should stay the same and the arms should be straight throughout the exercise.

This drill can be tricky to teach.

3. Slide work

Slide work commences with fixed-seat rowing and then the slide (or legs) are gradually included, beginning with half slide (half leg compression)) and finally full slide (full leg compression). This drill is particularly useful for teaching people correct technique in small stages.

No slide: as with Fixed Seat Rowing above, the legs are kept straight and the body is rocked over from the pelvis. Only the upper body and arms are used.

Half slide: at the rocked over checkpoint, the knees break and the legs are allowed to compress to about half slide (the recovery checkpoint). The drive is commenced from the recovery checkpoint.

Full slide: concentrating on maintaining the above sequence of movement, the legs compress fully reaching the catch checkpoint.

Slide work combines the different slide length drills together so that the user gradually builds up to full side and then builds down to no slide. This embeds the elements of technique into the full slide action. Practicing each slide length for a minute or so and then returning to full-range rowing enables you to feel the effect of each drill on your co-ordination.

An examples of using the slide drill when warming up is: 20 strokes at no slide
20 strokes at half slide
20 strokes at full slide
20 strokes at half slide
20 strokes at no slide

4. Slow Slide Drill

The slow slide drill entails a slow (to very slow) return to the catch with the intention of over emphasizing relaxation and posture during the recovery. The slow slide drill improves slide control, enhancing ratio and rhythm. The ratio of work to recovery can be increased to 1:3 or 1:4.

Instructor Tip: Over emphasizing the slowness of the recovery can assist in the perception of control.

Technique Calls

These are some examples of calls to re-emphasize correct rowing technique.

The Drive
- Support the spine - back straight
- Even push away on the footboard
- Hang off the handle
- Straight arm / level arm draw
- Accelerate the handle
- Try to allow the knees and arms to finish the drive at the same time

The Recovery
- Keep the hands moving at all times especially around the turn at the release
- Hands away, body over before knees break
- Hold the knees down
- Let the knees follow the handle
- Slow up the slide, let the boat run (listen to the sound of the water)
- Curl slowly up the slide like a spring ready to unwind, but stay relaxed
- Try to get the seat close to your heels for full range of motion
- Sit up (at all times)
- Hands away, then the body, then the slide (or hands, body, slide)

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Other

• Keep the movement flowing (don't stop)
• Tap it along
• Lift and run
• Relax and draw

Some of these calls can be confusing if you have not rowed in a boat before. If you have any queries please do not hesitate to contact advice@watercoach.com.

Common Technical Faults

To many people the rowing stroke is an unnatural action. However, with the correct technical instruction most people can master rowing and enjoy its physiological benefits. We have outlined a number of common faults which as an instructor you need to be able to recognize and correct.

Common faults to look out for include:

Bent Arm Rowing
Bending the arms too early on in the drive phase or not straightening the arms properly at the release and during the recovery phase.

Correction: think of hanging off the handle as you drive with the legs and feel the paddle pick up the water. At the release think of moving hands away, and reaching out with straight arms (not locked) on the recovery.

Bent Wrists
Bent wrists, as the name suggests, occurs when the user cocks the wrist either up or down. This can occur either in the catch position or the release position. The wrists should be flat and the fingers simply hooked over the handle.

Tips for correction include;
• Focus on drawing the handle to the second from bottom rib
• Focus on keeping the elbows close to the body.
• Focus on keeping the forearm horizontal.
• Squeeze the shoulder blades together at the release.

Bum Shoving or Seat Shoving
The bum shove occurs when the drive of the legs is not well connected to the handle. The seat is pushed back and the shoulders are left forward.

Tell tale signs include;
• The seat moves independently of the handle
• The body angle closes as the legs are driven down

Tips for correction include;
• Focus on the seat being connected to the handle with the seat only moving when the handle moves.
• Focus on not closing the body angle but maintaining the same torso position through the beginning of the stroke.
• Keep chest up and spine straight

Raising the Knees too Early
Raising the knees too early, as the name suggests, occurs when the user raises the knees before the hands have moved beyond the knees. The hands should move away from the body and over the knees before the knees break. This is known as the rock over phase.

Tell tale signs include;
• The hands fall in behind the knees
• The hand height varies up and down

Tips for correction include;
• Focus on moving the hands away from the body and rocking the torso over before the knees break
• Focus on finishing the stroke with the hands away and torso over and not at the release
• Let the knees follow the handle up the slide on the recovery.

Exaggerated Lean Back
The exaggerated lean back occurs when the user over exaggerates the use of the torso through the early part of the drive. The torso position at the release should position the shoulder just behind the torso.

Tell tale signs include;
• The body leans too far back.
• The torso is used to draw the handle back rather than the legs and arms

Tips for correction include;
• Focus on sitting up at the finish, with the head held high.
• Focus on using the legs for the first part of the drive

Hunched Catch
Hunched catch, as the name suggests, occurs when the user is hunched over at the catch. Hunched catches show bad posture and may make the user susceptible to back injuries.

Tell tale signs include;
• The back is exaggeratedly curved at the catch
• The head is down at the catch

Tips for correction include;
• Focus on strong posture
• Focus on keeping the head up.
• Focus on looking forward.
• Focus on getting the seat up close to the heels at the catch.

Low Hands
Low hands, as the name suggests, occurs when the user carries the hands too low on the way forward. The hands should move away from the body and back to the catch in a horizontal line.

Tell tale signs include;
• The hands follow the profile of the legs
• The catch position is short

Tips for correction include;
• Focus on reaching above the tank, not to the tank, reaching for the front pulley of the machine
• At the release think of moving hands away, and reaching out with straight arms (not locked) on the recovery.

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Drawing Too High
Drawing too high, as the name suggests, occurs when the user draws the handle too high. The handle should be drawn in to the middle of the torso, about the second from bottom rib.

Tell tale signs include;
• The handle is drawn up uncomfortably high
• The elbows are poking out

Tips for correction include;
• Focus on drawing the handle to the second from bottom rib.
• Focus on squeezing the shoulder blades together.

Elbows Out
Elbows out, as the name suggests, occurs when the user pokes their elbows out. This can often be associated with drawing too high. The elbows should be tucked into the side of the body as shown.

Tell tale signs include;
• The handle is drawn too high
• The elbows are poking outTips for correction include;
• Focus on drawing the handle to the second from bottom rib.
• Focus on keeping the elbows close to the body.
• Focus on keeping the forearm horizontal.

Hunched Finish
Hunched finish, as the name suggests, occurs when the user is hunched over at the finish. Hunched finishes show bad posture and may make the user susceptible to back injuries.

Tell tale signs include;
• The back is exaggeratedly curved at the finish.
• The head is down at the finish.
• The shoulders are in front of the hip at the finish.

Tips for correction include;
• Focus on strong posture, sitting up
• Focus on keeping the head up.
• Focus on looking forward.
• Focus on keeping the shoulders back at the finish.
• Keep feet firmly on the foot stretcher during the drive.

Group Training - WaterCrew

WaterCrew is an instructor led program developed to replicate many of the benefits derived through crew based rowing. The class is led by a WaterCoach Professional. The program takes the class through the different stages of warm up, stretching, work out and cool down.

The benefits are threefold;
1) It refines the elements of rowing technique necessary to achieve the renowned physiological benefits of rowing
2) It emulates crew rowing and the enjoyment of working as a group
3) It provides the additional focus of following an instructor

To become a WaterCrew Instructor an individual must first complete these WaterCoach Professional Level I modules, and then progress to WaterCoach Level II (a face to face instructor led workshop).