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**the complete guide to**

# **simple swimming**

**from terrified to terrific**

**everything you need to know from first entering the  
water, to performing the four basic swimming strokes**

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**mark young**

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Understanding some of the key scientific principles of swimming will provide a greater understanding of how the human body behaves in water. It will also give a greater insight into how and why strokes are swum in the way that they are.

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### buoyancy

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It is important to understand buoyancy and relative density when learning how to swim. A basic understanding of this is a crucial element of overcoming a fear of water.

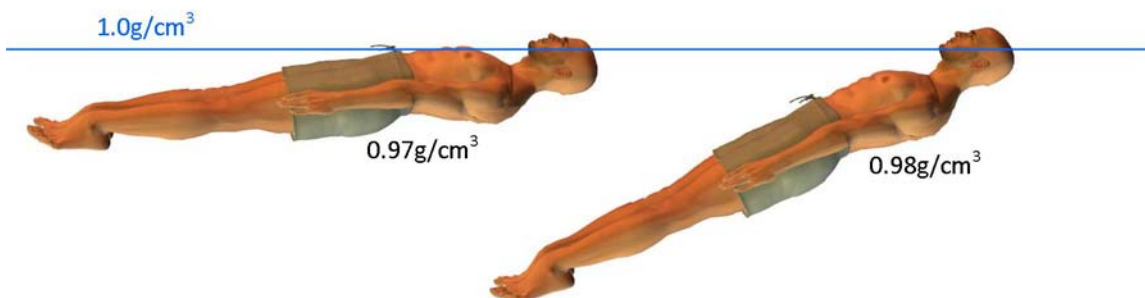
Floating is a characteristic of the human body. Some of us have good buoyancy while others do not. It's all down to our relative density. In other words, how dense our body structure is, compared to the density of the water we are attempting to float in. Let us put some actual figures to this:

Freshwater has a density of **1g/cm<sup>3</sup>**

Saltwater has a density of **1.024g/cm<sup>3</sup>**, therefore having a higher density

The average male has a density of **0.98g/cm<sup>3</sup>** and the average female **0.97g/cm<sup>3</sup>**.

We can deduce therefore that most human beings will float to a certain degree, with a small amount of the body staying above the water surface.



Females float better than males and both males and females float better in saltwater than in freshwater. Very few adults can float horizontally in the water, yet most children can hold a star float in the horizontal position.

~~It must be noted that a person's weight has little to do with their density. Muscle is denser and therefore has a greater effect on floatation.~~

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## Propulsion

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Swimmers have to provide movement in the water in order to propel themselves through it. Types of movement we use most commonly are paddling, sculling and kicking.

Paddling is likened to oars on a boat. A large flat surface area pulled in one direction causes another object to move in the opposite direction. In the case of the human body, we pull or push with our hands and arms, causing us to move backwards or forwards in the water accordingly.

Sculling takes the form of a curved shape in the water made by the hands as they move to find still, undisturbed water. Water that is not moving provides more propulsion than water that has already been moved. All of the swimming strokes require some kind of sculling action. Sculling is the most efficient way of moving our hands and arms through the water.

Kicking the water with the legs is the least efficient way of moving through the water as it can require a rapid movement that can very quickly become tiring. It can be argued that kicking, be it in an up and down motion or a curved motion as in breaststroke, is another form of paddling or sculling. This is true, but kicking is often the first means of propulsion in the water that children discover and therefore can be classed as a separate form of propulsion.

## Resistance

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As the body moves through the water, it is met by resistance coming from the water itself. If this resistance is to be easily overcome, the body moving through the water has to be streamlined as possible. There are three main types of resistance a swimmer will encounter in the water:

Profile resistance – this is the resistance met head on by the swimmer. As the swimmer moves forward through the water, the profile resistance is pushing him/her back. If profile resistance is to be minimised, the body has to be made as narrow and thin as possible.

Viscous drag – as a swimmer moves through the water, friction slows him/her down by creating a drag force. As water comes into contact with the skin, forward motion is compromised by the dragging force backwards. Excess body hair and baggy swimming shorts cause large increases in viscous drag.

Eddy currents – these are caused by an object moving through the water, causing the surrounding water to move and create turbulences. For example, if you place a floating object behind you as you swim, the object will follow you in the eddy current your swimmer improves

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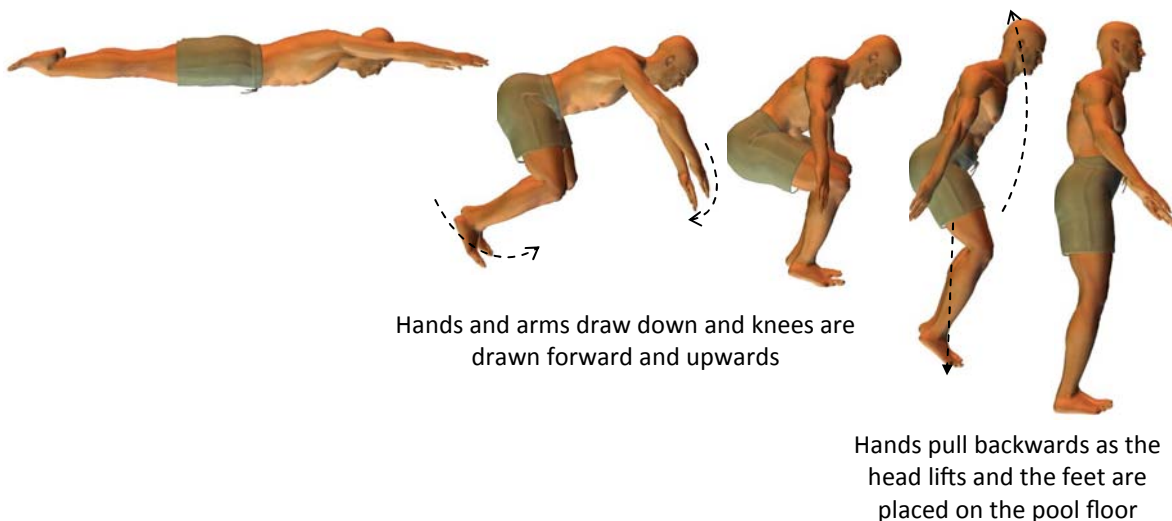
## regaining standing

from a face down position

Regaining a standing position from a face down (prone) position in the water is an essential movement to learn and is often overlooked when learning how to swim and overcoming the fear of water. Once you are able to execute this movement confidently, then your confidence will be enhanced. Knowing you are able to stand up from a floating or moving position will spur you on to greater things.

For complete beginners, an ideal starting point is from holding the poolside or floats held under each arm. As confidence grows, you can attempt standing without assistance, which requires a greater use of the arms and hands. This can also be progressed to a moving exercise, moving first towards and then away from the poolside.

Movement should be relaxed and smooth, knees are drawn forward as the arms simultaneously pull downward and backwards as the head lifts and faces forward.



### Key Focus Points

- o Pull down and back with both arms
- o Bend your knees forwards as if to sit
- o Lift your head upwards
- o Place

### Common Faults

- o The movement is rushed and not relaxed
- o Failure to bend the knees

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## front crawl

body position, legs, arms, breathing and timing

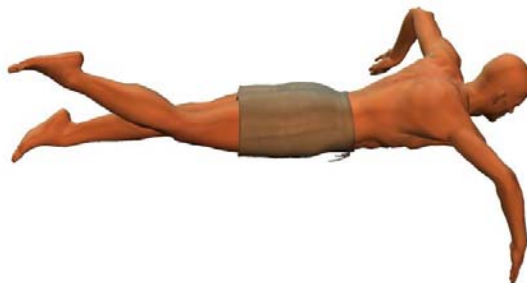
Front crawl is the fastest, most efficient stroke of them all. This is largely down to the streamlined body position and continuous propulsion from the arms and legs.

The alternating action of the arms and legs is relatively easy on the joints and the stroke as a whole develops aerobic capacity faster than any other stroke. In competitive terms it is usually referred to as Freestyle.



The constant alternating arm action generates almost all of the propulsion and is the most efficient arm action of all strokes. The leg action promotes a horizontal, streamlined body position and balances the, arm action but provides little propulsion.

Freestyle breathing technique requires the head to be turned so that the mouth clears the water but causes minimal upset to the balance of the body from its normal streamlined position.



The timing and coordination of front crawl arms and legs occurs most commonly with six leg kicks to one arm stroke. To download the full version of this book including all exercises, go to:

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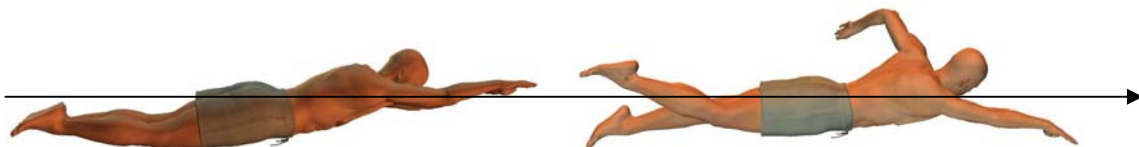
## body position

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The overall body position for this swimming stroke is streamlined and as flat as possible at the water surface, and the head in-line with the body.

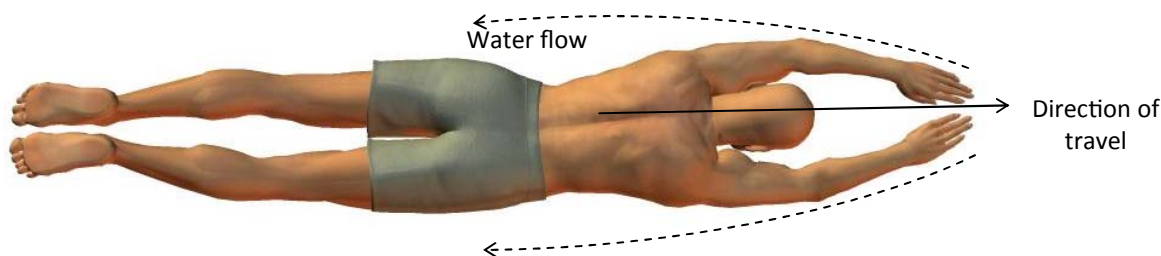
The waterline is around the natural hairline with eyes looking forward and down.

If the position of the head is raised it will cause the position of the hips and legs to lower which in turn will increase frontal resistance.



If the head position is too low it will cause the legs to raise and the kick to lose its efficiency.

Shoulders remain at the surface and roll with the arm action. Hips also roll with the stroke technique, close to the water surface and the legs remain in line with the body.



Streamlined body position minimises drag, allowing efficient movement through the water

## legs

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The leg kick for front crawl should originate from the hip and both legs should kick with equal force.

Legs kick in an up and down alternating action, with the propulsive phase coming from the down kick. There should be a slight bend in the knee due to the water pressure, in order to produce

To download the full version of this book including all exercises, go to:  
<http://www.swim-teach.com/simple-swimming-book.html>

The stroke exercises contained in the following parts of this book form reference sections for each stroke.

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### **what are they?**

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Each specific exercise focuses on a certain aspect of the swimming stroke, for example the body position, the leg kick, the arms, the breathing or the timing and coordination, all separated into easy to learn stages. Each one contains a photograph of the exercise being performed, a graphical diagram and all the technique elements and key focus points that are relevant to that particular exercise.

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### **how will they help?**

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They break down your swimming stroke into its core elements and then force you to focus on that certain area. For example if you are performing a leg kick exercise, the leg kick is isolated and therefore your focus and concentration is only on the legs. The technical information and key focus points then fix your concentration on the most important elements of the leg kick. The result: a more efficient and technically correct leg kick. The same then goes for exercises for the arms, breathing, timing and coordination and so on.

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### **will they improve your swimming strokes?**


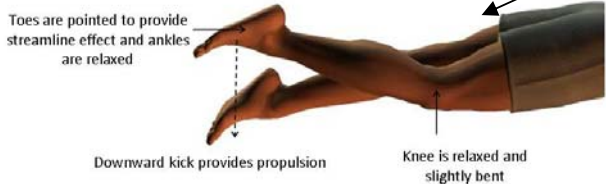
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Yes, definitely! These practical exercises not only isolate certain areas but can highlight your bad habits. Once you've worked though each element of the stroke and practiced the exercises a few times, you will slowly eliminate your bad habits. The result: a more efficient and technically correct swimming stroke, swum with less effort!

To download the full version of this book including all exercises, go to:  
<http://www.swim-teach.com/simple-swimming-book.html>

## how to use this section

The page layout for each exercise follows the same format, keeping all relevant information on one page. The aims, technical focuses and key points are all listed with a photograph and graphical diagram of the exercise.

Stroke	Stroke part	Exercise	
The stroke being practiced	The aspect of the stroke being practiced	The name and photograph of the exercise being practiced	
Aim	FRONT CRAWL Legs	Float held with both hands	
The basic aim of the exercise			
Technical Focus	<p><b>Aim:</b> To practise and learn correct kicking technique.</p> <p>Holding a float or kickboard out in front isolates the legs, encourages correct body position and develops leg strength.</p>	Key Actions	
Keys parts of the stroke technique	<p><b>Technical Focus</b></p> <ul style="list-style-type: none"> <li>o Kick comes from the hip</li> <li>o Kick is continuous and alternating.</li> <li>o Legs are close together when they kick</li> <li>o Ankles are relaxed and the toes are pointed.</li> <li>o Kick should just break the water surface.</li> </ul>	<p><b>Key Actions</b></p> <ul style="list-style-type: none"> <li>o Kick with pointed toes</li> <li>o Make a small splash with your toes</li> <li>o Kick with floppy feet</li> <li>o Legs kick close together</li> </ul>	
			Diagram
			A breakdown of the key part of the exercise

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## FRONT CRAWL: Arms

### Single arm practice with float held in one hand



#### Aim: to practise and improve correct arm technique

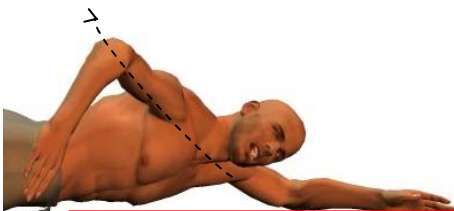
This practice allows the swimmer to develop arm technique whilst maintaining body position and leg kick. Holding a float with one hand gives the weaker swimmer security and allows the competent swimmer to focus on a single arm.

#### Technical Focus

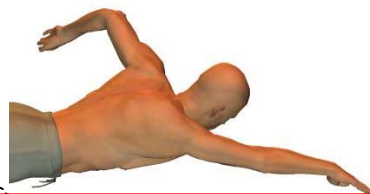
- o Fingertips enter first with thumb side down
- o Fingers should be together
- o Pull should be an elongated 'S' shape
- o Pull through to the hips
- o Elbow exits the water first
- o Fingers clear the water on recovery

#### Key Actions

- o Keep your fingers together
- o Brush your hand past your thigh
- o Pull fast under the water
- o Make an 'S' shape under the water
- o Elbow out first
- o Reach over the water surface



Elbow le



the hip

To download the full version of this book including all exercises, go to:  
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## BREASTSTROKE: Legs

Holding a float out in front with both hands



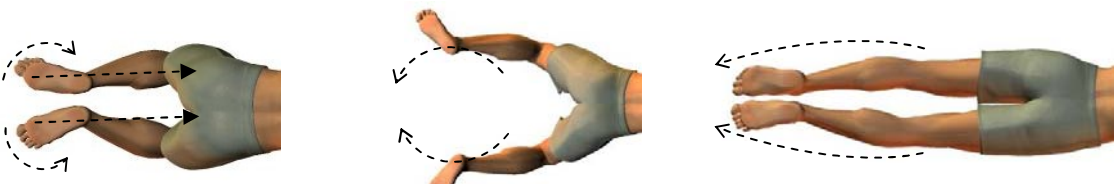
**Aim:** to practise and learn correct kicking technique and develop leg strength. Holding a single float or kickboard out in front isolates the legs and creates a slight resistance which demands a stronger kick with which to maintain momentum.

### Technical Focus

- o Kick should be simultaneous
- o Legs drive back to provide momentum
- o Heels are drawn towards the seat
- o The feet turn out before the kick
- o Feet come together at the end of the kick with legs straight and toes pointed

### Key Actions

- o Drive the water backwards with force
- o Turn your feet out and drive the water with your heels
- o Kick and glide
- o Kick like a frog
- o Make your feet like a penguin



Heels  
the seat

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