

# Overview of the Basic Strokes

Front crawl, back crawl, and breaststroke.

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# Note:

Make sure to check Red Cross website to learn more about on how to become an instructor and to get information about this PowerPoint.

<https://www.instructorscorner.org/s/candidate-water-safety-instructor>



# Objectives of module 2

- To go over the three basic strokes:
  - Freestyle – aka: front crawl
  - Backstroke- aka: back crawl
  - Breaststroke
- To understand the following:
  - Drag factor in water
  - Propulsion
  - Center mass in the body
- To practice the strokes on land and to feel more confident in oneself to take it into the water!



# The three basic strokes overview

- For every stroke in swimming, the following are important to learn about to keep in mind:
  - Body position and motion
  - Arm stroke
  - Recovery
  - Kick
  - Breathing
- Freestyle is the most common used stroke in swimming, and it's one of the fastest strokes too.
- Breaststroke is one of the slower-pace strokes, and it is known to be the stroke for leisure and cool down.
- Backstroke is similar to the freestyle, and it is one of the main strokes used in competitions.



# Front crawl - Freestyle

- **Body position:**
  - Forward, on our bellies, head looking down. The key is to remember that just like how we stand straight, and our spine must be aligned when we are doing exercises on land, it's the same concept for the water.
  - With body roll during breathing, your entire body rolls, from your shoulders to your hips.
- **Arm stroke - most of the propulsive movement.**
  - Begins with the catch - hands enters the water first.
    - This is where the hand presses down and through the water.
  - Pull phase - propels you forward through the water.
    - High elbow helps maximize the pull and an efficient forward motion.
  - The exit phase - Final pull of arm as it leaves the water; it's best to have arm past hip to return for the recovery phase
  - Recovery - returning to the starting position (repeating the stroke)
    - Reach forward over the water with a bent elbow and enter the water with your fingertips.
- **Kick - Helps to stabilize the body by keeping legs close to surface.**
  - Flutter kicks - straight feet out (opposite of how we walk on land)
  - The kick is our second place in where we can get propulsion in this stroke.
- **Breathing - to the side and keep head in the water instead of lifting high.**
  - The trick is to roll your head to the side with the arm movement.
    - Common mistake is to lift head upwards instead of turning it sideways.



# Back crawl - Backstroke

- **Body position:**
  - On our back, head looking up. The key is to remember to keep the chin a bit close to our neck.
- **Arm stroke - most of the propulsive movement.**
  - Begins with the catch - hands enter the water first rolling backwards starting from our shoulders and palms facing straight up.
    - Pulls down the pressure down the water. This is where the hand presses down and through the water.
    - Thumb enters first into the water followed by the pinky finger.
  - Pull phase - propels you forward through the water.
    - Slight bend in the elbow in the water.
  - The exit phase - Final pull of arm as it leaves the water; it's best to have arm past hip to return for the recovery phase.
  - Recovery - returning to the starting position (repeating the stroke). Yes, there's shoulder rotation in here as the hand is moving back to starting position.
    - Reach back up to the surface of the water with thumb returning to the water.
- **Kick - Helps to stabilize the body by keeping legs close to surface.**
  - Flutter kicks - straight feet out (opposite of how we walk on land). [Imagine pressing gas pedal, feet pressing down].
  - The kick is our second place in where we can get propulsion in this stroke.
  - Slight bent in the knee but not super extreme bent.
- **Breathing - to the side and keep head in the water instead of lifting high.**
  - Since our head is out of the water, breathing is done while we're looking up. Water could potentially still get into our nose; therefore, it's important to be able to do bubbles in this phase too.



# Breaststroke - good stroke to use for survival swimming

- Key with this stroke is to remember: **Pull + breath, kick, & glide.**
- **Body position:**
  - Just like with freestyle, forward on our bellies and our hands in front of us, head looking down.
- **Arm stroke & movement** - sweeping and scooping circular motion.
  - Three movements:
    - The catch - imagine scooping a gigantic bowl of ice-cream
      - Arms are straight out and palms facing downwards pressing down and out at the same time.
    - Pull - imagine pushing towards your mouth to eat
      - Elbows elevated above hands pulling hard towards your chest.
    - Recovery - imagine doing that again
      - Bring palms together facing up in front of your chest and push out until your arms are straight again.
- **Breathing technique:**
  - At the end of the pulling movement, lift your head and neck above the water to breath.
  - In the recovery phase is where you exhale all the bubbles out in the water while your hands are pushed forward.
- **Leg action:**
  - With legs straightened out, bend your knees to bring your heel towards your bottom to make a circular motion outwards. Think of it where duck feet, on how they're outward.
  - \*Remember to keep your feet in a dorsi-flexed position (flat-foot) whilst doing the breaststroke kick for more thrust.
- **Learn to glide:**
  - After the kick, your body should be in a streamlined position with your arms and legs straightened!
  - Stay in this position for one to two seconds as you "glide" forward.



# Drag in Swimming

- It is the force that opposes movement through the water.

- There are three types of frontal drag:
  - Pressure (form) drag - can be felt when swimmers begin to build up speed through the lap.
  - Surface (wave) drag - places a limit on how fast a swimmer can move through the water.
  - Friction - caused by the water molecules colliding and moving around the swimmer's skin.
- Ways to reduce frontal drag:
  - Wearing the proper swimsuit and cap can reduce the resistance of water that's created when swimming.
  - To reduce the surface drag, keep your head and body under the surface as much as possible.
  - Pull underwater with a high elbow.
  - Work on the kicks to make sure they're tight - meaning keeping the knees at or inside the hips.
- Read the following blogs for more understanding about this:
  - <https://theraceclub.com/2018/04/17/how-to-reduce-the-three-types-of-frontal-drag/>
  - <https://swimswam.com/10-ways-to-reduce-frontal-drag-in-swimming/>
  - <https://swimswam.com/why-the-fundamental-law-of-drag-matters-in-swimming/>
  - <http://www.civiced-ri.org/physite/Physics%20of%20Swimming/page%203.htm>
  - <https://scienceinswimming.weebly.com/reducing-drag.html>





# Propulsion

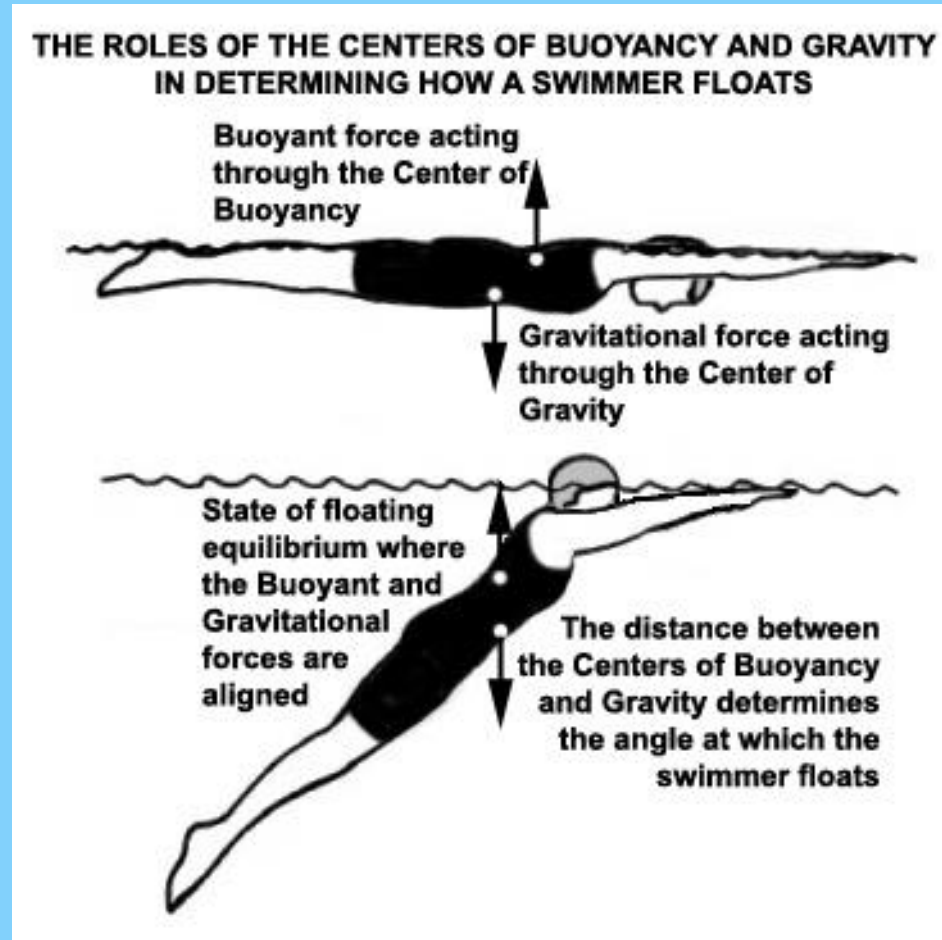
- It is the action of pushing or driving forward.

- Working on the stroke mechanics and becoming efficient in applying force to the water is important to improve our propulsion in the water.
  - Improving our arm stroke, our catch phase, and our power phase during the stroke.
  - The importance of engaging our core during our swim.
  - Hip rotation and drive are important for propulsion as well.
  - The kicks in each stroke play a huge role too.
- **Drag propulsion** - based on one of Isaac Newton's three laws of motion: the law of action and reaction.
  - Therefore it's important to work on maximizing drag propulsive forces.
- **Lift propulsion** - this force helps in the overall propulsion.
  - It is the natural result of several movements used in swimming
  - An example of this is sculling.
- Recommended blogs to read more into:
  - <https://www.teamusa.org/USA-Triathlon/News/Blogs/Multisport-Lab/2018/May/15/Your-Introduction-to-Propulsion>



# Center mass in the body & center of buoyancy

Figure 2. The roles of the centers of buoyancy and gravity and how they determine the angle at which a swimmer floats.



<https://coachsci.sdsu.edu/swim/bullets/float36.htm>

