

School of Sport, Health & Outdoor Education

Assessment Feedback Sheet

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Module: Aquatic Activities

Module Code: SHSS4075

Personal Evaluation – to support your academic progress please complete the section below BEFORE submitting your work.										
What do you consider to be the best aspects of this work?	Learning about the different strokes in depth.									
Which aspects do you consider could have been improved in this piece of work?	Could have used more varied references.									
What have you found most satisfying whilst undertaking this submission?	Finishing it, I found this one significantly harder than the rest.									
ASSESSMENT CRITERIA	Learning Outcomes	GRADE								
		Poor < 20%	Weak 20-29%	Unsatisfactory 30-39%	Satisfactory 40 – 49%	Good 50 – 59%	Very Good 60 – 69%	Excellent 70 – 84%	Exceptional 85– 100%	%
Accuracy and relevance of content.40%	1									40%
General plan and structure of answer.40%	1									40%
Range of sources of information and referencing accuracy.20%	1									20%
It is expected that students will present work that is proof read and follows the School Reference Guide and Assessment Checklist . Therefore a range of 0 – 10 marks will be deducted for non-completion of any of the points on the checklist below .										
TUTOR COMMENTS:										
Submission date: 10 th January 2020 via Turnitin		Return date: (at least within 4 weeks)		Tutor: Karin Thomas				Mark:		

“Water is 1000 times more dense than air, so when the body moves forward through it, the water resists its movement”

According to Greater Cleveland Aquarium (2016) and Laughlin, T (2004) state that water is 1000 times denser than air. This means that it is harder to move through the water because it creates a resistance to a swimmer when they are trying to move through it. Although the water creates a resistance, the swimmer is able to minimise the resistance pushing against them. Toussaint, H.M. and Beek, P.J (1992) state that if a swimmer is able to generate a propulsive force as well as reduce the resistance acting on them then they will be able to travel through the water at a good speed. There are four types of drag, they are; Profile drag, viscous drag, eddy drag, and wave drag. If you do not complete a stroke correctly then you are increasing the chances of the water resisting your movement.

When completing a front crawl movement in the pool your body shape must be correct to ensure that you are able to swim fast and efficiently through the water. Front crawl is the easiest stroke to do if you want to swim fast as a beginner swimmer, this is because it is the most streamlined stroke which insinuates that there is less resistance being pushed against the swimmer's movement. Toussaint, H.M and Beek, P.J (1992) argue that frontal drag can be caused if the swimmer's head is not in line with the swimmer's body, and the swimmer's shoulders should be sitting on the edge of the water surface and should also roll side to side in flow with the stroke. If the swimmer's shoulders do not roll with the stroke then this will mean that two shoulders and double the surface area will be causing frontal drag instead of only the one shoulder if rolling correctly (Toussaint and Beek, 1992).

Similarly, to front crawl, Barbosa et al., (2011) states that whilst completing the back crawl the swimmer's body should always remain horizontal to the surface of the water. However, Barbosa et al., (2011) suggests that there should be a slight bend at the swimmer's waist, this will ensure that their knees and thighs do not break the surface on the upbeat during the kick. If they do break the surface, this will create wave drag causing the swimmer to be fighting against the resistance. The swimmer must also roll approximately 45 degrees and should roll simultaneously with the movement of each arm, if the swimmer rolls correctly then this will prevent frontal drag from slowing the swimmer down.

Just like keeping your shoulders close to the surface edge, it is also important to keep your hips high and close to the surface. Sanders, R.H. and Psycharakis, S.G (2009) suggests that if the swimmer's hips drop down below the body line, eddy currents cause high pressure to build in front of the swimmer's body, this results in the swimmer being pushed backwards. Sanders, R.H. and Psycharakis, S.G (2009) also suggests, that just like your shoulders, your hips must roll during the front crawl movement. Sanders, R.H. and Psycharakis, S.G (2009) goes on to argue that if you do not roll your hips enough then it will cause an increase in frontal drag and if there is too much rolling of the hips then it can cause an increase of frontal drag and wave drag due to the body not being streamlined enough.

Finally, to help minimise eddy drag acting upon you and pulling you back, the swimmer's legs should remain level to the swimmer's body. When completing the front crawl movements, Sanders, 2009 argues that to generate a good propulsive force and to minimise the resistive drag then the swimmer must alternate the leg kicks with diagonal sweeps which will keep the swimmer's body as streamlined as possible. The swimmer's legs should stay straight through the recovery of the kick, this will ensure frontal drag is kept as a very minimum as the legs exit the water. Also, on the entry of the kick, having a straight leg would stop the creation of wave drag and toes should be pointed throughout the whole stroke to minimise frontal drag, all of this will help the swimmer gain a good propulsion during the stroke.

Unlike the front crawl, Barbosa et al., (2011) and Chatard et al., (1989) both argue that the swimmer's hips and legs must remain shoulder width apart because it will help reduce eddy drag and frontal drag, this is because if the legs are too far apart then the eddy current that will form behind the legs will pull the swimmer back causing the swimmer to work harder than needed. Barbosa et al., (2011) also states that during the downbeat of the leg action, the whole leg must sweep down which maintains its extended position until it surpasses the body line under the surface. Barbosa et al., (2011) and Chatard et al., (1989) both state that if the swimmer has a bent leg during the downbeat, this will create frontal drag as the leg enters the water which will slow the swimmer down. De Jesus et al., (2011) argues that the most efficient way for a swimmer to generate a good propulsive force is by keeping the body and legs as streamlined as possible. Barbosa et al., (2011) and De Jesus et al., (2011) both

compare the upbeat action of the leg movement to a whip action. Having flexion at the hips and following it with the extension of the leg on the exit through the surface is the best way to keep your body streamlined and reduce resistance on the exit.

During the front crawl movement, the swimmer's arms should never enter the water flat because it will mean that the swimmer is slapping the water with his or her full hand hitting the water with a large area, this will create frontal drag and wave drag which will make it hard for the swimmer to gain propulsion. Barbosa et al., (2011) and Chatard et al., (1990) states that the swimmer's arm should enter with the fingertips first as this allows the swimmer to move fluently without the negative influence of resistance. Chatard et al., (1990) also suggests that to prevent frontal drag, the swimmer's elbow should be bent and then the arm should extend forward on entry into the water. If the swimmer does this incorrectly and their arm enters the water in a straight position, as the arm hits the water, it would create turbulence which will increase waves and slow the swimmer down instead of aiding during the propulsive phase. Barbosa et al., (2011) and Chatard et al., (1990) and states that if the swimmer's arms fingers enter the water first and then bend their arm at the elbow then when it comes to pulling back, the smooth entry into the water and the large surface area of the swimmer's forearm will help with a good propulsion and reduce eddy drag due to the body arms and body together being streamlined.

Front crawl has fairly few things you have to do regarding arm action to minimise resistance and gain an optimum propulsion compared to back stroke. However, Schnitzler et al., (2008) and De Jesus et al., (2011) both state that the arm action is split into four different phases. Schnitzler et al., (2008) and De Jesus et al., (2011) also state that the first arm action is a downwards sweep and a catch action. This means that as the arm enters the water, it moves down and out to the widest and deepest position. Schnitzler et al., (2008) argues that this action could cause frontal drag but if the swimmer rotates the arm so their thumb is faces upwards then it can minimise frontal drag. Schnitzler et al., (2008) states that the next phase is the first upsweep which consists of sweeping with your arm bent at approximately 90 degrees and parallel with the swimmer's chest as the sweep comes to an end. The third phase is when the arm sweeps back down to an extended position which ends up down below the

swimmer's thigh. The fourth and final phase is the most propulsive phase due to the amount of force generated from the upwards sweep towards the surface. Schnitzler et al., (2008) and De Jesus et al., (2011) both state that by completing each of the four phases will minimise resistance under the surface and will help give the biggest propulsion on each stroke.

Thomas (1989) states that there are two different types of breathing during front crawl, there are people who breathe once during each stroke and there are also people who alternate and breathe every three strokes. Thomas (1989) argues that during front crawl, your breathing should be determined and correlate with your head position as it rolls. If this is done correctly then it will minimise drag. Chatard et al., (1990) and Thomas (1989) both state by raising your head out of the water to breathe above the surface slows the swimmer down due to the amount of frontal drag it causes. However, Chatard et al., (1990) and Thomas (1989) both agree that breathing whilst rolling your head to the side in flow with your body, the small wave formed from the top of the swimmer's head leaves enough of a gap for the swimmer to breathe before the next stroke. Breathing this way ensures that the swimmer is completing each stroke efficiently with no unnecessary resistance against each movement.

Just like front crawl, breathing plays a large part of the movement in back stroke. However, Thomas (1989) states that although your face is not submerged in the water, unlike the front crawl, it's still very easy for a swimmer to become distracted and mess up their stroke due to a mistake in breathing. Thomas (1989) suggests that a breathing pattern is crucial and recommends inhaling when one arm exits the water and breathing out as the other arm exits. This will ensure you can focus on the things that will help make your strokes efficient.

In conclusion, Schnitzler et al., (2008) and De Jesus et al., (2011) both agree that several different resistive drags will always occur during swimming to an extent. For example, viscous drag can affect a swimmer during all strokes and can be decreased by wearing tight swimwear, by wearing a swimming cap, and perhaps shaving. This will ensure viscous drag is kept to a minimum. Also, resistance and other drags can be kept to a minimum by completing each stroke using the correct technique. The water will only resist your movements if you are not acting as the slippery, streamlined swimmer.

Reference List

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