

United States Masters Swimming

Open Water Swimming Clinic Manual

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Introduction

1. Welcome participants
2. Outline the instructors' backgrounds and experience
3. Ask the participants for their backgrounds, experience, and expectations for the clinic.
4. Define Open Water Swimming – Any swimming done in oceans, lakes, rivers, bays, or other “non-pool” bodies of water.

Clinic Outline

The goal for this clinic is to introduce participants to the world of Open Water Swimming. Fundamentals and basics of the sport will be emphasized and advanced topics will be presented. Questions are encouraged throughout the clinic. To accomplish these goals, the following outline has been prepared:

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SECTION ONE: INTRODUCTORY "OVERVIEW"

- 101 Mother Nature Always swim with a buddy or an escort craft. Try to have someone watch you from shore that can get to you fast in the event of trouble. This person supporting you from shore should have either a cell phone or know where the closest phone is. Unpredictable things can happen that can make it hazardous to swim alone.
- 102 Surroundings and environment Be conscious of the weather and water conditions at all times. Before you start, know the current weather report, preferably on a weather radio from the National Oceanic and Atmospheric Administration (NOAA).
- 103 Temperature Both air and water temperature are critical factors to consider. Whether you are racing or training, make sure that you can handle the temperature. In hot water, you will need to drink more. Consider not wearing a swim cap if conditions permit. In cold water, hypothermia is a risk and can be dangerous if not recognized soon enough. The first sign is shaking from inside the body. Acclimation to colder water takes time (days/weeks/months). For some, it can never be obtained at a level below 70 degrees.

SECTION TWO: EQUIPMENT

- 201 Bathing suit Wear a comfortable, snug suit, with no rough spots that will rub. Train with it and break it in. A race is not the best time to wear a brand new suit.
- 202 Cap A swim cap is an important piece of safety equipment.
- A The available types are Silicone, Latex, or Neoprene. Silicone is warmer than Latex, but Neoprene is the warmest, especially if the water is cold. In a race, check to see what material is allowed and whether you may wear one or two.
- B Event supplied/required? If the cap is provided to you by the race, then you must wear that one. Yellow or a bright color is best for safety; orange can look like a buoy.
- 203 Goggles
- A Pretest the fit and have an extra preadjusted pair with you.
- B Consider the color. Clear goggles are best if weather is cloudy while smoked and/or mirrored are best if the weather is sunny. Smoked mirrored goggles are especially helpful during open water races since they cut down the glare that bounces off the water. This is especially helpful with sighting.
- C Consider putting your goggle strap under your cap to avoid losing them if they should get knocked off at the start, when everyone is jockeying for position, or in a tight pack during the race.
- D If you are near-sighted, good prescription goggles are available for under \$30 from KEIFER (phone: 1-800-323-4071 or www.kiefer.com.) They improve navigation and confidence when you are in the water.
- 204 Grease for chaffing
- A Chaffing is most likely to occur during salt water swims. The prime chaffing spots are the arm pits, the neck, between the thighs and at the top of the shoulders (for men in need of a shave). Women are especially vulnerable on their necks and along the suit strap lines. Suit rubs can be virtually eliminated by using some sort of grease.
- B Common varieties of grease readily available are Vaseline, Body Glide, Lanolin, Bag Balm, Glide, Pam, Sportslick and Channel grease. To make your own, mix a teaspoon of Vaseline with a 1 oz. tube of lanolin, heat in a microwave until runny then stir the mixture until the lanolin is evenly spread. Let it cool before using it.
- 205 Wet suits
- A If you are wearing a wet suit, Pam cooking spray works well to help it slide on easily and it won't harm your suit. A silicone spray from a dive shop also works well.
- B Remember to train with your wet suit prior to the race. Wet suits affect your intake breathing and your body position in the water, both of which take some getting used to. In a wet suit, your body position is higher and requires a bit of stroke adjustment. This higher position may also cause lower back soreness. Consider the effect of the thickness of your wetsuit.

- 206 Ear plugs
- A Ear plugs are helpful in keeping a little warmer during cold water swims. Silicone ear plugs work great because they mold to your ear, and they are waterproof. (They are great for getting a good night's rest before a race too since they block out distracting sounds!)
 - B Ear plugs also cut back on cold water ear aches.
- 207 Watch
- A Make sure your watch is waterproof and easy-to-read.
 - B A watch is especially useful when you are practicing so you know how long you have been in the water. It's not necessary when you're racing (it's an extra weight and a distraction) although some swimmers are lost without one.
- 208 Thermometer Monitoring the temperature in cold water is important.
- A A pool thermometer or watch thermometer works best but use whatever you are able.
- 209 Sunscreen
- A Please wear at least 30 SPF, waterproof sunscreen! Try out different types to see what works best for you; and don't forget sunscreen for your lips.
 - B Apply it as soon as you get up and then again at least 30 minutes before the race to obtain maximum effect.
 - C If you are in a longer race, or if you are swimming on a relay and will be in the sun a lot, remember that the sun rays bounce off the water and the effect of the sun is therefore increased.
- 210 First Aid Kit
- A Always have first aid supplies on hand for jellyfish stings, abrasions, cut, scrapes, etc.
 - B Adolph's Meat Tenderizer provides relief for jellyfish stings; rubbing alcohol for sea lice.
- 211 Fluids and food
- A Drink at least a pint of water/fluid 30 minutes before your race/workout.
 - B Make sure to bring fluids with you, especially a sports recovery drink for afterwards which will replace lost fluids and replenish the glycogen expended.
 - C Eat jelly beans (Randy Nutt's advice!).
- 212 Mouthwash
- A Rinsing with mouthwash, both during and after swimming, usually alleviates the salty-sting.
- 213 Boats, kayaks, and other support craft
- A If you are doing a long swim, these are helpful.
 - B They need to be arranged ahead of time and in most cases, they will cost money.
 - C You also want to setup and arrange how to communicate with your supporters to let them know what you want (feedings intervals and foods, etc.)

SECTION THREE: THE ELEMENTS

- 301 Water Temperature
- A Hot water - Hydrate; take in lots of cool liquids. Consider not wearing a swim cap.
 - B Cold water -Take in warm liquids. Increase your stroke count. Grease offers relief from chaffing but no warmth.
- 302 Acclimating/Training for cold water swims
- A Acclimating is a long-term project . Do it anywhere you can find water under 65°F. Some spots are La Jolla, CA, Atlanta, GA, Greenwich, CT, the coast of Maine and alpine lakes.

- B Physical Discipline: Almost everyone can acclimate to some degree. It takes the discipline of getting into colder and colder water over a series of swims. The unpleasant part of acclimation is that you actually have to continue to get into water that is below your “comfortable temperature.” Cold water baths and showers help some people.
- C Mental Discipline: A lot of cold water acclimation is mental. Training your mind not to respond to the cold is part of the process. Talk yourself through it. Convince yourself it's not all that bad. “I can take 10/100/etc. more strokes.” This actually works.
- D Longevity: Acclimation stays with you. Once you've acclimated, you develop a durability and permanence, resulting in the fact that you never really go back to the point where you can't handle cold anymore. From year to year when you are actively acclimating, you often take 2 steps forward by the end of the season and only a 1/2 step backwards at the beginning of the next. Be aware that there are some people who, due to their own body chemistry, are unable to acclimate to racing longer than a mile in water under 65 degrees.

303 Hypothermia

- A The normal body temperature is 98.6° F (37°C). Hypothermia develops when the body temperature falls below about 95°F (35°C). Moderate hypothermia can usually be reversed, and a complete recovery made if it is recognized and treated quickly. For the quickest relief, combine drinking warm liquids with taking a warm shower, removing your wet bathing suit, and putting on dry clothing. In most cases, drinking warm liquids appear to expedite recovery.
- B If the body temperature falls much lower and exhibits two or more of the symptoms listed below, the swimmer **MUST BE PULLED**. The weather conditions of the day play a part in the onset of hypothermia. Obviously, warm sunny skies will keep a swimmer warmer than a cold, overcast/drizzling day.
- C Symptoms of hypothermia:
 Uncontrollable shivering
 Disorientation
 Irrational behavior (The supporter says go left and the swimmer goes right)
 Blue lips (very obvious)
 Inability to concentrate or respond to simple requests or questions (“What day is it today?”)
 Slurred or uncoordinated speech
 Ashen or gray skin color
 Lucidity tests (“What town do you live in?” “How many fingers am I holding up?”, etc.)

304 Water Conditions/Visibility There are no 100% guaranteed rules for what are safe or unsafe conditions. These few guidelines will assist in making a valuable decision whether to swim or not. The local coast guard may also provide helpful information.

- A Surf: If conditions are hazardous, don't go in! No swim is worth risking your life. If you do enter the water from the beach into surf, enter cautiously and be aware of submerged rocks and uneven terrain when entering the surf. Dive or swim **UNDER** the waves (if the water is over 3 feet deep.) Going over the top of the wave will usually push you back to the beach.
- B Chop: This is more of an annoyance than anything else, but it **WILL** tire you out. You also run the risk of swallowing a lot of water, resulting in what is called “chumming.” Obviously it is easier to swim in flat water than in chop. Recognize this variable and maybe back off a little so you don't expend more energy than you have to, particularly for a course that has several changes in direction, causing the chop to come from many directions.
- C Currents: Swimmers often can't feel currents, but a current can take someone way off course. You cannot fight the currents. Instead, you need to compensate for them. Swimming the course at an angle (such as 30 degrees) can offset a cross current.
- D Waves: Watch the waves and ride them in to the finish. This sounds easier said than done since you have to accelerate your swimming speed to match the wave, at the end of your ocean race. It's a great feeling when you catch one, particularly when it results in passing other competitors into the finish.
- E Visibility: Normally visibility in the open water will not be good in most areas except for the tropics. Don't expect it to be like a pool. Try to learn the course before the race; warm up by swimming out to some of the buoys (or course markers) and sight the course.
- F Obstacles: Watch out for both fixed (rocks, submerged pilings and piers) and variable (garbage, water pollutants, and boaters).

- 305 Salt versus Fresh Water
- A Buoyancy and flotation differences: Salt water has greater buoyancy resulting in a swimmer swimming higher or closer to the surface than in fresh water, thus usually faster. Stroke and breathing adjustments are necessary when switching from one to the other.
 - B Temperature differences: The same temperature in salt water "feels" warmer than in fresh.
 - C Currents and surf: In the ocean swims that parallel the beach, currents can make or break you by their impact on your navigation.
- 306 Marine Life (or why we love open water!)
- A Jellyfish
 - B Sharks
 - C Rays
 - D Dolphins
 - E Coral
 - F Sea Lice – Those little critters that get under your suit and give you chicken pox-looking bites, reminding you of your swim for the next several days.
 - G Man-O-War
- 307 Fear
- A Reality: Fear of open water swimming is a very real thing. The comfort of a pool has trained us to want to see everything in our surroundings and have total control. But the ocean is home to predators some of which can be aggressive toward humans as well as other sea life. If you feel uncomfortable, it is always safest to recognize this feeling and then make a conscious decision one way or the other.
 - B Experience: For everyone, fear of "what's in the water" or "what's underneath me" is quite common. The more races and the more time training in open water you do, the better for easing these fears. In the heat of the moment of a race, a lot of times you forget about this fear, which is one way of overcoming it. Anyway, most of the creatures living in the water are swimming away from you as fast as they possibly can.
 - C Safety in Numbers: In a race, tell yourself that it's OK to be afraid because there are lots of people around you. "Safety in numbers" is a huge comfort.
 - D Sharks and other animals with teeth: Although the threat of sharks in open ocean water is theoretically real, the likelihood of actually running into a shark is so slim there is no rational need to worry. (But we're not rational beings.) Safety in numbers goes a long way towards combating this fear. Statistically there are very few people who have ever had run-ins with sharks. If you see a lot of commotion in the water that looks abnormal, DON'T swim over to investigate. If you truly feel uncomfortable, get out.
 - E Guidelines for swimming in the Tropics:
 Never swim alone; always swim with a buddy.
 Swim only when the visibility is 15 feet or greater.
 Never swim in a storm chop.
 Never swim when whales are giving birth, or when there is blood or boat/fish refuse in the water.
 Be aware if there are a lot of turtles or seals around (shark diet!).
 Be aware around the entrances to caves or at points of underwater drop off's (where shelves and cliffs create sudden changes in water depth.)
 Be aware of your surroundings when doing speed work involving slow/fast ("fartleks" or "pickups") since alternating speed is a sign of weakness to a shark.
 Never swim at dawn or dusk (feeding time).

SECTION FOUR: GUIDELINES

- 401 Personal Safety
- A Always wear a brightly colored bathing cap.
 - B Swim with a partner or with a boat, kayak, or canoe.

- C Swim as shallow as possible and try to have someone watch you from shore who can get to you fast in the event of trouble. This person supporting you from shore should have either a cell phone or know where the closest phone is.
- D Tow a lifeguard rescue float behind you. It allows you to save yourself if necessary, to increase your visibility to boats, and it works as a great resistance device.
- E Tell the lifeguards in the vicinity what you are doing. Ask for any suggestions.

402 Train often in open water

- A This will put you in front of your competition by adapting to as many variables in the open water as you can BEFORE the day of a race.
- B Organize regular workouts in a lake or ocean with others. Make it fun! If you have a group, play some games. Set up buoys and do sets around the buoys. Having two or even three buoys will make it more fun so it doesn't seem so much like going up and back in a pool.

SECTION FIVE: NAVIGATION TECHNIQUES

501 Sighting

- A Lift your head to look in front and around you with only your eyes out of the water, "crocodile style". This can be practiced during any workout. During an arm stroke, you want to incorporate a lifting and forward look so that you can see what is in front of you. (It usually accompanies a breath.) Practice lots of different ways and decide what works best for you.
- B Sight about every 6 to 8 strokes. It's hard to get very off course with this amount of strokes in calm conditions. You may find that each time you sight, you are drifting and may have to compensate back to where you should be heading for your target. If this is the case, sighting more often can keep you on a straighter course. Get to know your ability to swim straight and to which way you veer, so you can adjust!
- C Sight by staying aware of your surroundings. Swimmers will often go off course by not doing this. In a race, the field will be following the better swimmers, who normally navigate well. Avoid a situation where there are no swimmers around you (unless you are way out in front of the pack during a race). This would be a big indicator that you have drifted off course. In an ocean swim this is extremely important. If you aren't too sure of yourself, arrange for a buddy before a race. Find someone who is about your speed and agree to swim with them, sharing the responsibilities of sighting and keeping on course.
- D Don't always follow the leader. Trust your instincts if you have reviewed the course carefully.
- E Use landmarks. Often you will have large enough man-made or natural landmarks on land or anchored boats in the water that you will be able to use these as a means of navigation. Be careful about using boats because boats have a tendency to move.
- F If the water is clear and you can see a sandy bottom and current ripples, note the angle that these ripples are to the course. For example, if they are at about 30 degrees to you, this can become another visual alignment. The sun is good landmark, especially early or late in the day.

502 Learn Bilateral Breathing

- A It can be very important to assist in sighting to the right and left.
- B It can also help you correct the angle to which you veer.
- C It can help with neck and shoulder fatigue in long swims.

503 Read the Currents and Weather Conditions while you swim This comes with open water experience. Notice any changes you can in the weather patterns as you swim.

- A If you are in a situation with a current, you will need to sight more frequently.
- B Sudden changes in water temperature (warm to cold and vice versa) create funky currents – pay attention.
- C A cross current will have the effect of pushing you to the left or right.
- D Wind direction can cause a cross current, a wave chop, a head-on 'mess', or a substantial push. Read the wind before the race.

- E When training in open water, always start out by swimming against the current so that when you are more tired at the end, you finish up with the current.

504 River and Back Bay Swims

- A If you are going upstream (i.e. against the current) in a river, it is best to be closer to the shore as the water moves slower there and the effect of the current will be less.
- B Conversely, if you are going downstream, you want to be in the fastest part of the water, which is normally in the middle.

SECTION SIX: DRILLS AND TRAINING

Drills often can be practiced on land before trying them in the water. Some require grouping by ability level.

601 Swimming Straight Drill

Most swimmers have a direction to which they veer, either to the right or to the left. It's important for each swimmer to know which way they veer. Have the group watch one volunteer (or the instructor) swim straight out in to the water for 50 strokes without lifting his/her head to sight. Determine his position at the end of the 50 stroke cycles. Have they drifted to the left or to the right? Have small groups do this as the others watch from land and note the 'veering' direction. Then work on correcting it, using some of the navigations techniques mentioned.

602 Head Up Drill

Sighting involves lifting your head to site for navigation. To practice this, the swimmer takes 10-20 strokes with his head out of the water, looking straight ahead. The goal is to keep the head completely still (not moving from side to side) and focus the eyes on a fixed point ahead. (This is good work for the abs too!) This is sometimes referred to as the "crocodile look" or "water polo-style". Gradually the swimmer will decrease the number of Head Up strokes he is taking, resulting in more of a sighting drill. Eventually the swimmer will learn to lift his head and sight without swimming "head up" all the time. The smoother you can make it the better. This technique is best accomplished efficiently with one hand/arm is extended in front, at the water surface, permitting a lift at the start of the stroke cycle (just before the breath).

Note: With waves or swells it is important to sight at the top of the wave. Also, use the sun or shoreline if available to help stay generally on course and then lift the head and site for fine tuning. Generally, if you sight every 6 to 8 strokes, you will actually see the course markers about every 4th time you try sighting. Lifting the head will slow the swim and increase strain on the lower back but it beats swimming in circles.

- To practice this in a pool, do 50's or 100's where you practice getting used to lifting your head and looking directly in front of you. Place a tennis ball at gutter level and try to sight on it. If there is someone on deck, have them move the ball around to various spots.

603 Buoy Drill

Practice swimming around buoys and you can save yourself precious time during your race. Swimmers assemble into a single file line approximately 5 meters from the buoy. Then one at a time, they swim to the buoy practicing the turn and the change of direction, getting as close to the buoy as possible. The turn can resemble a partial corkscrew stroke: take an arm stroke of freestyle, then an arm stroke of backstroke, then an arm stroke of freestyle as the legs perform a scissor-like movement. This enables the swimmer to turn on a dime. In cable swims with fixed poles or a piling at the turn, some swimmers actually reach out and hook their hand around the vertical pole underwater, and do a flip turn to change direction.

Note: There are two reasons you would not want to swim and turn close to the buoy.

- A Too many swimmers in the area can make it unsafe.
- B If there is a strong current, it can force the buoy anchor line up near the surface.

On race day it may be wise during your warm-up to swim at least to the final turn buoy. Face the finish line and look for a landmark that is clearly visible. Memorize this landmark so that in the actual race you can maintain a straight course to the finish, unlike many of your competitors who will waste time looking for the finish line. If possible during warm-up, swim to all turning buoys, swim through the turn to see the landmarks and to gauge the angle of the turn. Also, pay attention to the time of day. There are many swims where the buoys are directly in line with the sun and not easily visible, especially during morning or evening swims.

- 604 Pickup Drill
Take 25 strokes easy, then 25 strokes FAST. The swimmer can vary this in whatever he chooses, working up to 25 easy, 25 fast, 25 easy, 50 fast, 25 easy, 75 fast, 25 easy, 100 fast. This is a good drill for concentration, to get a sense of changing speed, and a good technique for racing.
- 605 "Indian Sprints" Drill
This drill works best with 3-4 swimmers in a group. The group starts swimming in a line. The last swimmer must sprint by everyone to the front of the line. When he gets to the front of the line, the swimmer who is now last sprints by everyone in the line to the front. This process is repeated through the full rotation of swimmers in the line and may be done a few times over a straightaway (or until everyone is wiped out.) It is important that the leading swimmer swim slowly in order to give the 'passer' a chance to pass everyone. This drill brings home the point about how difficult it is to pass swimmers in open water and easy it is to draft behind someone.
- 606 Acclimation Drill
This is more of a process than a drill and it takes a lot of time and practice. Although it primarily applies to cold water, it also includes hot water swims, salt water, and fresh water (all the different types of open water.) Learn to swim in colder water by starting with a short swim, gradually increasing the time. Swim with a friend, swim near shore, and/or have someone watching you the whole time from the shore or in a boat/kayak. Be very aware of safety factors with acclimation. When entering cold water for the first time before a race or a practice, wet your wrists and the back of your neck first. Then wet the back of your knees and chest. Again, be patient with yourself. Acclimation takes a lot of time and practice.
- 607 Practice in-water starts, beach starts and finishes whenever you train open water!

If you have access to a diving well or a pool without lane ropes, you can practice the drills above in these ways:

- 608 Swimming Straight Drill
This can be done in as little as two 50M pool lanes with no lane rope. Have groups of 3 or 4 swimmers swim on the diagonal from one corner of the double lane to the opposite corner at the other end of the pool practicing sighting. Since there is normally not a lot to site on a pool deck (use a tennis ball), it will really show whether you naturally swim straight or if you veer to one side. If you tend to go to the left or the right, remember this fact when racing. Chances are it is a habit that is consistent no matter where you are swimming, and whenever you don't have a black line to follow. If it continues, you may have a problem with your underwater pull. It usually takes 5 to 6 weeks of continuous, correct drill work to correct a stroke problem, requiring major repetition in order to incorporate a change into your 'normal' stroke pattern. Be patient.
- 609 Indian Sprints Drill, but in a tighter group
Set up groups of 4-5 swimmers in slowest to fastest order. Set them off on the diagonal and make it a challenge. The fast swimmers have to make it to the front by the end of the lap, and the slower swimmers have to try not to get passed by the end of the lap.
- 610 Drills for: Starts/Turning around buoys/The Finish
Set up a course in a diving well or a pool with no lane ropes and a buoy in the middle of the pool. Designate one corner of the pool as the start. You – the coach, will be the finish. Start the swimmers in groups of 4-5 but very close together. Have them swim to the buoy and when they round the buoy, they will need to look up and site the point where you are standing on deck. (You will have walked to a spot somewhere down the deck.) They will then use you (or a tennis ball) as the navigation point to finish with. Do this a couple of times, but vary the position at which you stand for the finish. This will force them to sight very quickly after turning around the buoy, a critical skill in a race.

SECTION SEVEN: POOL TRAINING FOR OPEN WATER SWIMMING

Most swimmers do the majority of their training in a pool. This is a perfectly acceptable manner of training for open water. Many swimmers are able to train for marathons exclusively with pool training.

- 701 Recruit other people
A It's always more fun to train for something if others are going to do it with you.

- 702 Educate your pool coach about your training needs
- A When possible, set aside a lane as the distance or open water training lane.
 - B It is nice for swimmers to have “distance” days so they can get used to the feel of swimming longer. Most masters workouts are geared toward fitness and shorter distance competitions.
- 703 Technique and drills
- A Practice to improve your stroke in open water.
 - B Stroke counts, especially in a 50M pool, will indicate your stroke efficiency.
- 704 Pacing and interval training
- A Training for a 1-mile open water race, is much the same as training for a 1500M race in a pool. However most masters groups train for shorter freestyle races and stroke races.
 - B If you train alone, try doing a number of longer distance sets. Get the feeling of not stopping every 100 or 200. Long pace work is what you need to be able to handle the distance, with some short interval sets to keep your times fast/consistent.
 - C Fartlek training/Pickups (slow/fast) is a great way to improve your speed. Speed work is very important!
 - D Stroke rate: consistency is the key.
- 705 Do simulation swims
- A Once a week or once every other week, do a straight 1-mile, 2-mile (or much longer!) swim for time. Make it like a race where people don't stop if they are getting passed. Instead, the person passing has to sprint or swim closely side by side, just like in the open water. Keep track of these swim times and try to improve on them.
 - B If you have a 50M pool to train in, you can even practice drafting, although this manual does not advocate drafting. (Watch out on the turns though, as people will be bunched up.)
- 706 Training for the distance
- A When training for a race over 5K, it is a good idea to do a straight swim of either the same distance as the race you will be doing, or get as close as you can.
 - B Plan what you are going to do in advance. Either set a specific amount of time you are going to swim for (like 2,3,4,5 hours) or a specific distance.
 - C Take food to practice feeding with and make regularly, scheduled stops. This is the time to experiment with different foods and feeding time intervals.
 - D Pay attention to your body. If you start to bonk in the pool, it's OK. Getting used to what it feels like will help you deal with it if it happens in a race, plus it will help you realize what you can do to avoid it.
- 708 Be creative In some locations, commercial water parks are willing to open their inner tube float area early (for a fee), allowing swimmers to train against the current. After a few rounds of this in a single workout, you're ready to surrender!
- 709 USMS Postal Swims
- Since you are training so much, try to enter any of these postal events (you swim the distance and have someone record the splits then mail the entry in.) The USMS Long Distance web site has the full calendar at www.usms.org. Some USMS postal swim events are:
- A One Hour Swim (held annual every January)
 - B February Fitness Challenge (total cumulative yardage swum during the month of February).
 - C 5/10K Postal Swims (held annually between May 15 and September 30)
 - D 3000/6000 yd postal swims (held in September and October)
- 710 Equipment Fins, paddles, pull buoys, and other training aids are just that - training aids. They will and do increase endurance and speed when used as part of your overall program. Remember to not become dependent on these items, because you will not have them in your race.

SECTION EIGHT: SUPPLEMENTAL (DRY LAND) TRAINING

- 801 Dry land training is not a substitute for swimming. But it is better than nothing if you don't have access to a pool (business trip, vacation, scheduling) for a few days. It will help you to keep in cardiovascular shape. Dry land training includes but is not limited to the following:
- A Stretch Cords
 - B Calisthenics
 - C Stretching
 - D Swim bench
 - E Flywheel rowing machine
 - F Running and other cross training (stair climbing, cycling, spinning). Make sure to taper this off as the day of your big swim nears.
 - G Weight training (individual decision, not for everyone). Weights build strength into your stroke. Weight training can increase your strength and help you better handle situations like swimming against a current, or in water with heavy chop or swells. Circuit training at high reps and lower weights will help with endurance as well as strength. With any supplemental weight training, do high repetitions with lighter weights instead of heavy lifting.
- 802 Massage Massage can be very beneficial during heavy training. Many swimmers prefer the massage to take place 7 to 10 days before your event rather than the day before or race day. Know your body and how it reacts to massage.

SECTION NINE: NUTRITION AND FEEDINGS DURING A SWIM

- 901 Day to day nutrition Maintaining a healthy, balanced diet and hydration level is extremely important for swimmers training for and/or competing in open water swims. Carbo-loading and supplements are commonly used.
- 902 Feeding during a swim
- A Races over 10K: The biggest difference between racing a race less than 10K and a race over 10K is that you'll want to feed during a race if it's going to last over about 1 1/2 hours. 10K generally appears to be the accepted dividing line between feeding and not feeding during a race. This needs to be taken into consideration when training so that it's not something new when you race. It doesn't have to be practiced at every workout, but suggested for days when you do longer swims.
 - B Practice feeding: In preparation for a race of a specific distance, the swimmer should do a long enough training swim so that they will need to feed. This will simulate what the body will go through in the race. Practice your feedings quickly, at the same rate you would feed in a race (less than 30 seconds).
 - C IMPORTANT: Train with what you will use in the big swim, and at the rate of speed that you will feed in a race. Experiment early on with the actual foods and time intervals. Determine what works and what doesn't work. You may react differently to certain foods in salt water versus fresh or chlorine– it's important to test it!
 - D Fast feeding or the 3-second feed: frequency of feeding (very dependent on conditions) Stay horizontal.
- 903 Feeding Methods The race director can set up the race to provide feeding to swimmers in one of two ways:
- A Feeding stations: Boats or land areas will be set up with a few people and various kinds of fluid replacement products. When you get to a station you will be handed a cup of fluid. Normally it will be in a plastic, paper, or Styrofoam cup.
 - B Escort craft: Each swimmer will be provided with an escort craft (canoe, kayak, boat) and the coach/trainer will be in the craft supplying food to the swimmer at predetermined intervals, in accordance with USMS regulations.
- 904 Why feed?
- A To keep glycogen levels up and sustain energy. Without energy the swimmer will "bonk big time". It's not fun when you're in the middle of a race and this happens.

- B Avoid hunger. Swimming while you are hungry can make you feel weak and lead to a bunch of problems, with stomach cramps being the most common.
- C Hydration. You **MUST** be hydrated. Swimmers do not realize that we perspire or become dehydrated. When you are thirsty it is **TOO** late; take liquids regularly in to alleviate the onset of dehydration which will impede one's performance and recovery from the swim.
- 905 Kinds of feeds
- A Popular fluid replacement products include Exceed, Gatorade, Cytomax, Metabolol, Endourox, coffee (watch out for too much caffeine though), chicken soup, etc.
- B Be sure the drink you choose to feed with is to your liking. If you don't like the taste of your feed, chances are you won't want to feed. Experiment with different products to determine what you like, what works best for you, and what digests easily for you. Everyone is different.
- C Hot/warm vs. cold fluids
- 1) If a race is in cold water, it is a good idea to feed with warm (but not too hot!) liquids. The warm liquid will heat you from the inside, which will keep your core temperature warmer and help you avoid hypothermia. Keep a thermos of boiling temp. water. Pour a cup of your feed and then pour a little of the boiling temp. water in to make it warm. It doesn't take much boiling temp. water to warm up the cupful and it won't dilute what you are feeding with so you will get the full amount of carbohydrates, etc. that you intended.
 - 2) In hot water swims, bring cold drinks and ice.
- D Food Options
- 1) Solids vs. Liquids vs. Gels: Although solids are difficult to quickly get in your system, often the liquids don't satiate your hunger so solid food is sometime needed. Pudding, mashed bananas, power gels, sports bars: these are all fairly easy to get into your mouth quickly. Chewing is difficult to do so if things are mashed up they are easier to get down quickly.
 - 2) Carbohydrates vs. Protein vs. Fat: Consider a balance of the big three. Experiment. One option is to alternate with two carbo feeds followed by one of all three. There are several protein liquid mixes on the market. You also may want to have a variety available since some tastes get monotonous after a few hours.
- E Take feeds with you when you practice. Tuck Gel packets into your suit.
- 906 Drinking Water Since the most common problem is dehydration, make sure that you have water available. You may not need it (your coach/trainer will probably need it more!) But on very hot days and especially in hot water, you are sweating more than normal. If it is really hot out, I would suggest one cup of "feed" and one cup of water.
- 907 How to Feed Swimmers may not hang on to the feed boat, feed pole, or a person in the feed/escort boat so a method of feeding must be determined.
- A Cup: Use when you can get close enough to your escort craft to be handed a cup of feed.
- B Water bottle: In rougher conditions, swimmers often use a water bottle attached by a string. The trainer will hold one end of the string so it can be retrieved. It is slower for the swimmer to feed this way, but if conditions are rough it is better so that the water you are swimming in doesn't get into your feed, and you can't really spill it either if it is in a water bottle.
- C Stick/pole: If conditions are such that getting close enough to the boat to be fed is not possible a feeding stick/pole is necessary. You need something like a broomstick with a basket or cup holder on the end (something that the cup can be securely placed in). Conditions that necessitate this are high side boards on the boat, large waves that could potentially push you into your boat, oars if rowboats are used or a swimmer's fear of a motor.
- 908 When to feed
- A On a schedule: The swimmer and trainer are a team. Before a race, establish a schedule feeding breaks. It should be based on how often you needed to feed during practice swims and what intervals you feel work best for you. Consider varying them in a long swim. Start with longer intervals and shorten them as the swim progresses. Prearranged hand signals are necessary to communicate since talking may not be possible during a race.

- B On request: If you feed only on request, chances are you will be feeding too late. If you wait until you feel your energy level dropping, or until you get hungry, then you have already started on the downhill slope. You want to feed just before this so that by the time your feed gets into your system, you are just to the point where you might be feeling a little weak. You don't want to be on an energy roller coaster. The idea is to have steady output of energy and steady input of fuel.
- C First feed of race: The first feed that you take will probably not be until at least after the 30-minute mark. Since most anyone can swim an hour race without needing replenishment, there is no need to feed right away. The pack will be tight for the first hour, so feeding will actually hinder your positioning a bit.

909 Bodily functions

- A Just because you are in a race doesn't mean that your body completely shuts down. If you are taking in a lot of fluids, chances are they will need to come out of you, usually in the form of urine. You won't sweat enough to get rid of all the fluids through your pores, so urination is part of the game.
- B Urinating while swimming is something that most people don't do hopefully since most of us swim in pools. But in order to be able to do it in a race, it needs to be practiced. If you can get into open water to train before the race, this is one of those things you should practice even though it sounds gross. Otherwise all the liquids will stay in your bladder and you will feel like a bloated whale, thus hindering your ability to take any further feeds.

SECTION TEN: SELECTING AND PREPARING FOR A RACE

1001 Race Selection

- A Consider the training, preparation and experience you have.
- B Consider the distance to be swum, water conditions, number of entrants and cost.
- C Once you've chosen an event, get your entry in on time and prepare your equipment bag.

1002 Race Day Preparation

- A One thing to remember is that every race is different. Even the same venue will be different from year to year. The key to a successful swim is being aware of the conditions THAT DAY and planning accordingly.
- B Before the race check out the course and listen for instructions from race directors. Consider the conditions as you plan race strategy. Warm-up taking the following topics into account:
- 1) The Course:
 - a) The race directors should provide a map.
 - b) There should be a meeting before the race to outline the course.
 - c) Note where the buoys are set up to mark the course.
 - d) Be sure to understand on which side of the buoys to swim.
 - e) Where is the start and how will it be conducted (in-water or running start, gun or horn start)?
 - f) Where is the finish and how are you to finish (in-water finish line or touch board, run up the beach)?
 - g) Check out the course yourself in warm-up.
 - 2) Landmarks: Are there mountains, tree variations or buildings that can be used for navigation?
 - 3) Currents: What are they doing? Pushing towards or away from shore? How can you use the currents to assist you?
 - 4) Tidal Effects: Is it an incoming (flood/high) tide or an outgoing (ebb/low). Which way will the tide be going at the time you finish your race?
 - 5) Winds: Will wave action affect your ability to site during the race?
 - 6) Sun glare: Wear goggles with tinted lenses
 - 7) Landscape of the finish area: Be alert for rocks, shells, boulders, and marine life, at the time you will be finishing. This might be tide-dependent.

- 8) Water temperature: If the water is warm be sure to hydrate yourself well. If the water is cold, consider wearing two caps (or a neoprene one) and ear plugs. Grease will take the "edge" off the cold when you first get in but has no long term effect.

1003 Warming up

- A Swim to the first buoy if it's not too far. Check out where the next buoy is and see how sharp a turn you will need to make.
- B Swim out from the finish and imitate your approach to the finish. Is it easy to spot exactly where the finish is? If not, pick out a larger landmark that can guide you.
- C Cold water warm-up
- 1) If you are accustomed to cold water or if you feel that you want to get the shock of the cold over with before the start of the race, then get in. If the water is cold enough to take your breath away, you may not want that to happen as you start the race.
 - 2) If you are doing a cold water swim, it is **STRONGLY** advised that you do some sort of acclimation.
 - 3) If you don't want to get in, then go for a short jog and do some arm stretching and swinging. This will get your blood moving into your muscles and joints.

SECTION ELEVEN: THE RACE Safety in everything you do!

1101 The Start

- A Decide where to start: at the front, side, middle or back of the pack. The faster swimmers will position themselves in the front of the pack. Use your judgment. If you are unsure how fast you will be, start towards the middle or back of the pack to be safe. Starts can be rough and intense with a lot of accidental smacking, kicking and knocking around. If you want to avoid this altogether, try to start off to the side.
- 1) Remain calm - it will even out.
 - 2) Look for pre-sighted landmarks.
 - 3) Use all your drills.
 - 4) Put your goggle strap under your cap! (Practice this beforehand).
- B Take into account what you learned during warmup. If there are currents, position yourself at the start to take the best advantage of them. Currents can offer tremendous assistance, as well as resistance. Be smart and swim with a current whenever possible.
- C If there are waves, remember to adjust your breathing accordingly. If you are breathing into the waves, the chance of getting mouthful of water is higher. However if you are breathing towards the waves, you are also watching them and will know when if they are going to hit you so you can time your breath. Breathing to shore is sometimes better if you keep taking in (swallowing) water. If you end up moving with the wave, try to breathe at the top of a wave instead of in the gully of the wave.

1102 Type of Starts

- A Beach start: If the start is on the beach, more than likely you will be running full steam into a set of waves. (And they won't necessarily start everyone at the optimal time to avoid hitting a wave.) While the water is still shallow, use a high knee'd step. As soon as the water gets too deep to run in, start "dolphining"*** if possible. **PAY ATTENTION TO THE WAVES.** If there are breaking waves and the water is deep enough to dive into, you should dive into the smooth underpart of the wave. You can "slice" through this. Once the wave breaks, the turbulence of the water is often more powerful than the strongest swimmers can handle. Practice this type of thing beforehand. Heading straight into a wave isn't the kind of thing you want to be doing for the first time in the beginning of a race. There is a little bit of a fear factor and if you hesitate because of that fear, a wave can hit you and knock you completely off your feet. Even though you may have survived the start well, if you are heading directly perpendicular from shore, you will want to keep your eyes open for waves breaking offshore. Waves breaking further out from shore can often be stronger than those right at the shore

** Dolphining technique: Similar to doing butterfly, but instead of kicking, you are pushing off the bottom, repeating as much as you need to in shallower water.

- B Standing start at a lake: There won't be any waves to worry about but getting from a standing to swimming position is still a factor. If it is a gradual slope into the lake, you can employ the dolphining technique. Without the distraction of waves, the major problem will probably come from all the other people entering the water with you. Stay alert.
- C Deep-Water start: You will normally be lining up behind an imaginary line between two points, like a boat and a buoy, or two buoys, or whatever the course director sets up. The hazard in this situation is that everyone will use their legs first to get started so there is the potential to get kicked underwater. There isn't enough space for everyone to comfortably go from vertical to horizontal instantly. Starting on the side of the group during deep-water starts is a good way to avoid this space crunch.
- D Wave Starts: If there are lots of participants, the start may be broken up into waves according to age, sex or entry time. If you are in one of the later waves, watch the swimmers before you for any obvious tips.

1103 Swim your race

- A Get into your rhythm early - use your pace work.
- B Bilateral breathe
- C Navigate and sight well

1104 Drafting

- A Position yourself just in back of the person you think you can draft. Avoid tapping their feet unless you really want to annoy them. Chances are if they get annoyed they may try to dissuade you from drafting by kicking or zigzagging or some other maneuver. Positioning yourself to the side of your draftee is also another strategy. This way you are not likely to tap their feet and can sight the course better, but you still get a draft. If you are drafting a person who is too slow, try to pass to the next person. Drafting may be beneficial to the person drafting but is not advocated since we encourage each swimmer to complete swims under their own ability.

1105 Finishing Strategy It can be intense. At the finish there is often a lot of bumping and pushing if you are finishing in a pack with each swimmer trying to out-sprint the other.

- A Sprint the finish. No sense in expending all this energy and then getting passed right at the end.... Go for it!
- B Stay with your competitors. If you've been racing someone the whole way and they make a move towards the end, don't let them get in front of you. It's hard to make that distance up right at the end so stick right next to them if you can.
- C For the non-sprinters: If you aren't a really fast sprinter, push the pace as hard as you can through the middle of the race and then maybe the swimmer next to you won't have enough left to sprint. Plus, being in front of people by more than a body length is a mental advantage. It's hard to make up distance, so as long as they aren't close enough to draft you, you are wearing them out physically and mentally.
- D When approaching the finish, make sure you are positioned in line with the finish. You don't want to have to zigzag back to the finish line. You should remember what the finish looks like from your warm-up.
- E Swim or dolphin all the way to the water's edge for a beach finish. It is faster to swim than run to the finish.
- F Know where and when you are allowed to touch the bottom. At some races, touching the bottom is grounds for disqualification.
- G Watch your footing at the finish for debris.
- H Keep your balance since your legs may be wobbly. (It's a good idea to engage your kick the last few hundred meters to "wake your feet up".
- I Some finishes are in the water so pay close attention to pre race instructions.

1106 Ocean finishes Swells and waves can push you to the finish line faster. Take advantage of this. In larger wave situations, keep an eye on the wave sets coming behind you; otherwise you could get clobbered just like at the start. Lengthen your stroke, and kick when you feel the surge lifting your feet, or even slightly before the surge gets to you. The wave should carry you for a bit and then you will roll off the back of the wave (unless you surf it all the way in).

- 1107 Flat-water finish As you approach the finish, keep swimming until your hand touches the bottom. Use the high knee-type step described in the starting section. If the incline is very gradual and it would be a long run in the water, dolphin a few times to get closer to the point where running is possible.
- 1108 After the Race
- A Swim down if possible.
 - B Hydrate.
 - C Try to swim easy in the next day or two. (Don't take a week off.) For long races, or races with challenging conditions, figure that it will take you about a day to recover for each mile swum.
 - D Write notes to yourself about your race: what you did right and what you need to work on.
 - E Modify your "Pack" checklist. Did you bring everything you needed?
- 1109 New frontiers: Solo Swimming
- A Design your own swim.

SECTION TWELVE: CLASSES/TYPES OF OPEN WATER SWIMS

- A A full calendar of masters events can be found at www.usms.org.
- B Events shorter than 5K: Most USMS races will fall in this category. Races are completed in a short amount of time and no boat assistance is needed.
- C Events between 5K and 10K: Masters will have a few races each year that are in this distance range.
- D Events over 10K: Numerous events over 10K are offered. Some examples are:
7.5 Mile Potomac River Swim
The Victor 12.5 Mile Swim Around Key West
8.5 Mile Snake River Swim, King Hill, Idaho
8 Mile Lake Champlain
12 Miles Wye Island, Queenstown MD
- E Marathons
Manhattan Island Marathon Swim (28.5 Miles)
Tampa Bay Marathon (24 Miles)
La Traversee du lac St. Jean
- F Solo Swims
English Channel
Catalina Channel
- G Relay swims
Maui Channel Relay <http://www.hawaiian.net/~ian/mcs>
Trans-Tahoe Relay
26 Mile Relay – Hudson River
English Channel
Manhattan Island Marathon Swim
The Victor 12.5 Mile Swim Around Key West

SECTION THIRTEEN: AVAILABLE RESOURCES Where you'll find answers to your questions.

- 1301 USA-S and USMS sanctioned races
- A Register with a governing body to become eligible (bring your registration card with you to all events). United States Masters Swimming (USMS) includes ages 19 and older. USA Swimming (USA-S) is generally for youth swimmers but 19 and older may register.
 - B You may register as a USMS swimmer through your local Registrar. Determine who your registrar is either through www.usms.org or by phoning the National Office at 1-800-550-SWIM.
 - C Insurance issues in non-sanctioned events. The race needs to provide it's own insurance if the swimmers are not covered by membership in the aforementioned organizations..
 - D There are several National Championship races at various distances conducted by both organizations.

- 1302 United States Masters Swimming - USMS
 Contact the National Office at 800-550-SWIM or E-mail <usms@usms.org>
 The Long Distance Calendar is available either through www.usms.org/longdist or send a SASE to
 Lynn Hazlewood, 1415 Aldenham Lane, Reston, VA 20190. E-mail Lynn at <zones@usms.org>
- 1303 Web sites:
 USMS Long Distance Site (United States Masters Swimming)
www.usms.org/longdist
 The World of Master Swimming
www.masterswim.net/
 For personal accounts of English Channel Swimming Information and more
www.doversolo.com
 The Channel Swimming Association
www.ChannelSwimmingAssociation.Ltd.uk
 The Channel Swimming & Piloting Federation
www.channelswimming.co.uk
 The Manhattan Island Swim is loaded with some great information on swimming the Manhattan
 Island Marathon Swim, the English Channel, and much, much more.
www.nycswim.org
 For events in the Southeastern United States, including the Key West and St. Croix swims.
www.thevictor.com
 A superb international site focusing on long distance swimming.
www.oceanswims.com
 For great advice:
www.RandyNutt.com
- 1304 International Swimming Hall of Fame (ISHOF)
 The Library at ISHOF has an extensive collection of open water swimming information.
 Contact: Preston Levi, Henning Library 954-462-6536 x. 204
 International Swimming Hall of Fame library@ISHOF.org
 1 Hall of Fame Drive
 Ft. Lauderdale, FL 33316 USA
- 1305 USA Swimming USA-S
 For information on USA Open Water Swimming, the following resources are available:
<http://www.usa-swimming.org/openwater/>
 Each year USA Swimming holds a 5K, 10K, and 25K. Some years there is also a 15K. For an
 information booklet contact USA Swimming. The open water coordinator for open water swimming
 is Everett Uchiyama. He can be contacted at euchiyama@usa-swimming.org or 719-578-4578 at
 the USA Swimming office. USA Swimming races are not just for kids! As long as you register with
 USA Swimming, it doesn't matter what age you are. Most often there are time requirements for the
 longer races, such as you should be able to prove a certain time in a pool 1650.
- 1306 FINA/Professional Circuit
 These used to be under the IMSA (International Marathon Swimming Association), but the series
 has since come under the control of FINA. These races are for prize money – normally \$25,000 or
 more for the total purse. There are races in the US, Canada, Argentina, Brazil, Macedonia, Egypt,
 Italy, Slovenia. There is a great article on one of the Argentina races named Hernandarias-Parana
<http://www.outsidemag.com/magazine/0599/9905maraswim.html>
 Contact Everett Uchiyama regarding these races (see USA Swimming above)
- 1307 International Marathon Swimming Pro-Circuit
- 1308 International Swimming Hall of Fame - ISHOF
- 1309 Federation International de Natation Amateur - FINA
- 1310 National Oceanic and Atmospheric Administration (NOAA)
 Known as the "Voice of the National Weather Service", specific information on the National
 Weather Service, coastal weather reports, coastal water temperature reports, and more is available
 at www.nws.noaa.gov. Weather reports are updated every two hours or so. NOAA weather radios
 are available at most marine supply stores for about \$20.

1311 Publications

The site www.Doversolo.com/bibliography has a superb bibliography on open water swimming resources. The following books are all available at www.amazon.com:

Open Water Swimming by Penny Lee Dean

Dover Solo by Marcia Cleveland

Wind, Waves, and Sunburn: A Brief History of Marathon Swimmers by Conrad Wennerberg

APPENDIX A: CREW INFORMATION & SUGGESTIONS

Congratulations! You're going to be part of a great experience - assisting someone in a long swim! This is a big job - you're the eyes and the ears of your swimmer. This is a fun experience but it can be a *long* experience. Most likely, you'll be busy the entire time; meaning several straight hours of attentiveness, just like your swimmer. He or she has put in a lot of work to get to the starting line of this swim and completion means a lot to them. But don't be afraid to be "light" with your swimmer throughout the swim.

Before the swim begins, you need to figure out with your swimmer how you're going to interact during the swim so that everyone stays happy and safe. You also need to be familiar with your swimmer's equipment so when they request something (like another pair of goggles), you get it to them immediately. Before you get on the boat it is best to decide what responsibilities each crew member will have, with the understanding that flexibility may be necessary.

We've tried to think of the key elements involved in being a crew member. Please add your own ideas.

The Trainer and Boat Pilot for Escorted Swims

A Everyone has a job: The swimmer swims. The trainer is the feeder, the monitor of the swimmer, and the major decision maker. The boat pilot navigates with suggestions from the trainer.

B The crew must pace themselves. As the race progresses, the crew needs to stay enthusiastic in order to help the swimmer stay fresh and motivated.

Communications

Grease board/Chalkboard

Verbal: Try to keep to a minimum, especially for the swimmer. Open-ended Questions (example: How are you? Vs. Do you feel tired?)

Hand Signals: Determine these (& others) with your swimmer before the race begins

OK

Stop

Thumbs up

Closer (fast & slow)

Farther away

Pointing indicates danger

Slowing down boat traffic

When your swimmer completes some request, give them an OK. Smile a lot (:)

Feedings

Mechanism:

Pole/Bucket

Cups over the side

No polluting

Preparation

Intervals

Quick communication during feedings:

Assess the mental and physical state of your swimmer

How are the feedings (taste, quantity, agreeing w/swimmer?)

Stretch?

Sightings

for Debris

for Other Swimmers

for Marine Life

for Boats

for Currents and Weather Patterns

Observation

Stroke Rate

Course Position

Keep a log

Bring a stop watch or watch with a second hand.

Bring a detailed map of the course.

On notebook paper using a ball point pen.

Photography

Who's going to take the pictures/video?

Pace yourself!

Crew Needs

Food & Water

Seasickness

Bring sunscreen, hat, rain slicker, sunglasses, change of clothes, food for boat pilot

If you eat/drink, do so out of sight.

Ditto

APPENDIX B: CLINIC EVALUATION AND COMMENTS

Name _____

Address _____

City/State/Zip _____

Phone day/evening _____

Email _____

Location of Clinic _____

Date of Clinic _____

What did you enjoy the most? _____

What did you enjoy the least? _____

What topics would you like to see added? _____

More of? _____

Less of? _____

How can we better serve you in the future? _____

Would you like to be put on our Open water Email list? _____