



4th Annual Petaluma River Marathon-Half Marathon

Sunday morning, Sept 2, 2007

Presented by The Friends of the Petaluma River

Overview:

Since 2004, The Petaluma River Marathon has served as the West Coast flat-water marathon/half marathon championship for all paddled and rowed watercraft. This event is open to and safe for all levels of paddlers and rowers, from beginners to elite. It takes advantage of a unique combination of favorable factors:

Excellent racing conditions: The water is usually flat at race time, and there is very little interference from motorboat wakes. The air temperature is cool at start time. The "river" (it is really an estuary) is almost precisely half-marathon length. So the full marathon is from head to mouth (on San Francisco Bay) and back.

Beautiful venue: The picture above of the S curve on the lower Petaluma does not exaggerate the unique character of the river. For most of its course, the river flows through a nature preserve that conveys an impression of pre-Conquest California. In the foreground, the competitors will pass next to native plants and wildlife, and in the background the California coastal range rises to define the horizon.

Fortunate coincidence: The river is almost precisely 13.1 miles from the mouth in downtown to the mouth at San Francisco Bay. So the marathon course is down and back.

Times:

	Registration opens	Racer's Meeting	Start
Full Marathon	6:30 am	7:00 am	7:30 am
Half Marathon	6:30 am	8:00 am	8:30 am
Lunch & awards when marathon racers finish			

Start/Finish location:

The race begins and ends at the docks of the North Bay Rowing Club at the end of 2nd Street in Petaluma California. Enter 38.2314° N, 122.6294° W in the search box on Google Maps to see the start and finish points. Racers can park in the parking lot at Foundry Warf adjacent to the gate into the North Bay Rowing Club boatyard.

Eligible craft: Any rowed or paddled craft, including

For rowers: Sliding-seat (8+, 4+, 4-, 2-, 4x, 2x, 1x), both flat water and open water designs), Fixed-seat craft are welcome, but 26.2 miles is a long way in a fixed-seat rowboat.

For paddlers - Kayaks (both ocean and flat water), surfkis, canoes, and 1,2, and 6-person outrigger canoes. Paddle boards are welcome as well, but the same caution holds for paddle boards as for rowboats.

The full marathon (26.2 miles) will begin in Petaluma, go downriver 13.1 miles to the Highway 37 bridge at the mouth of the river, and return to Petaluma. Enter 38.115° N, 122.505° W to see the downstream turn for the marathon.

The half marathon will begin at the same point, and turn at a mark half-way to the Highway 37 bridge.

The Petaluma River has significant tidal currents. This year the starting time will be close to max ebb, making both the full marathon and half marathon shorter and faster than in still water.

Entries

Entries are made online at www.Regattacentral.com. Go to <http://www.regattacentral.com>, Click on the "Regattas" tab on top. Scroll to the date, 9/02, and then select Registration form from the options on the left.

The entry includes a participant medal, refreshments, lunch, and insurance. The entry fee varies with the size of the craft:

For a single or a double of any kind, \$40/racer (\$40 for a single, \$80 for a double)

For 4-person kayak or quad, \$37.50 per racer (\$150 per boat)

Coxed four (4+) or OC-6, \$35/racer (\$175 and \$210)

8+, \$30/racer (\$270)

Prizes

Each participant receives a 3-color medal depicting the venue.

Special prizes will from event sponsors will be awarded for the winners in the single and double events.



Questions and comments

Please direct questions and comments to Steve Schaffran, race manager, at the e-mail address stephend@schaffran.com.

Nutrition and Hydration

The half marathon can be as short as 1.5 hours for a fast double scull to twice that for a recreational paddler in a sea kayak. Double these times for the full marathon. The physical challenges for these distances are linked strongly to good nutrition and good hydration. Elizabeth Brown, a former national team rower and currently a sports nutritionist at San José State University has kindly contributed the essays that follow to provide some guidance in these important issues.

Rowing & Paddling the Petaluma Marathon, Part 1: Hydration

By Elizabeth Brown, San Jose State University

Editor's Note: Elizabeth (Izzie) Brown is a sports nutritionist who teaches at San Jose State University. In riding, she has competed at the elite level, winning silver at the Pan Am Games in the double scull, and coached at the university level. She has competed in cycling, and completed a ride across the USA.

To successfully row and paddle the Petaluma Marathon greatly depends on appropriate training and nutrition. This article is the first of two. Currently, discussion includes the importance and how to's of hydration. The second article will address carbohydrate, protein and fat consumption necessary for successful completion of this 26-mile event.

Dehydration, defined as more body water lost than consumed, compromises performance by inhibiting one's ability to dissipate heat. When body temperature rises too much, proteins, including enzymes, cook and become ineffective. Think of cooking an egg and how the protein changes or denatures. This same type of change happens when body temperature rises above 104 degrees F, which is not uncommon during exercise. Performance is compromised when as little as 2% body weight is lost. An athlete weighing 180 lbs experiences a decrease in performance with a 3.6 lb loss during a workout or race. An athlete weighing 135 lbs experiences a decrease in performance with a 2.7 lb loss during a workout or race.

A discussion of what to do comes next and a discussion of why to do it follows that.

What to do

For a great marathon performance, match fluid lost with fluid consumed. To do this, consider fluid consumption before, during and after the marathon. In addition to quantity of fluid consumed, timing and type of fluid is important.

Before the marathon: Drink enough fluid of any kind, except alcohol-containing fluids, until urine is nearly clear and fairly frequent. A pre-event meal should include plenty of fluids and watery foods – fruit, juice and caffeine-containing beverages, as desired. Drink 16 ounces (oz.) just prior to start of race.

During the marathon: Keep in mind thirst and the desire to drink does not match body-water requirements. Thirst is usually triggered when 2% of body weight is lost, an already compromised state. Numerous researchers have demonstrated volitional drinking (drinking when and as much as the athlete wants) during exercise in the heat does not meet needs. So, knowing the amount and frequency of fluid needed, will improve performance. Athletes have two options, which are either use established sweat rates for most athletes or calculate your own sweat rate. See below to calculate individual sweat rate. General guidelines include taking 8 oz. (one cup) of fluid every 15 minutes of exercise. Athletes who are heavy sweaters should consume more. Those who sweat less, compete at a lower intensity, if temperature is cool or humidity is low, less than 8 ounces four times an hour may be adequate.

The nature of rowing and paddling makes drinking (and urination) during an event difficult. Stopping to drink from a water bottle every 15 minutes (min) may impede progress (although not drinking will absolutely impede progress and stopping on a regular basis may provide reasonable mental and physical breaks necessary to complete 26 miles). An alternative to consider would be wearing a hydration system on one's back (Camelback for example). The rower or paddler could drink easily with minimal interruption of rhythm. Also, consider an ice-filled hydration system. What better way to stay cool than to wear an ice pack on one's back? The challenge when using a hydration system is knowing how much fluid is consumed. With a water bottle it is easy. A 22 oz. bottle should last most athletes 30 min or so, depending on the athlete. How will the athlete using a hydration system know when enough has been consumed? Consider doing a test. Pour 8 oz. of fluid into a cup. Place the hydration system hose into the cup and count how many seconds it takes to suck 8 oz. Plan to suck on the hose for that many seconds every 15 min during the race.

After the marathon: Drink until urination is frequent and urine is nearly clear.

Type of beverage

For many years, caffeinated beverages were taboo for athletes due to their diuretic effect. More recently it was determined that, while caffeine is a diuretic, it is not nearly as detrimental as once believed. Researchers have demonstrated that 2/3 of a caffeinated beverage contributes to hydration. Thus, if one consumes 12 oz. of coffee, 8 oz. will go toward promoting hydration. So drink caffeine-containing beverages, if desired. Caffeine may even provide an ergogenic effect, allowing the race to feel easier than it really is.

During the marathon, drink sports drinks. A combination of sports drinks and water would be a second choice. Cool, flavored beverages with a sugar concentration similar to Gatorade, Powerade, or Allsport (6% sugar solution) that contains sodium, potassium and chloride (electrolytes) get absorbed into the blood stream faster than water and the flavor will promote consumption more than plain water. With an event of this length, it is possible to over consume water resulting in dilution of sodium in the blood and water toxicity. In rare instances, this is lethal.

Why athletes need to stay hydrated

Ambient temperature, relative humidity, wind velocity and solar radiation contribute to body temperature changes. In addition to exercise, factors that increase body temperature include high ambient temperature, above body temperature, through convection and conduction and solar radiation both directly from the sun and reflected off the water. Factors that lower body temperature include evaporation of sweat and conduction and convection from air and wind passing by exposed skin. The most effective method of cooling is evaporation. Think of how one's skin feels when being swabbed with alcohol before blood donation or shots. Evaporation, however, is inhibited when relative humidity is high. Humidity is a measure of how much moisture is present in the air. When water content in the air is low, evaporation of sweat occurs (think of osmosis) and results in cooling. When water content in the air is high, little evaporation thus little cooling occurs. So imagine a dry cool breezy race day and cooling will occur readily. If race day is cool with fog and no wind, cooling by evaporation will not occur. Add to this day, the burning off of fog after one hour and then a slight breeze with an increase in ambient temperature, evaporation, convection and conduction will occur but adequate fluids must be consumed to allow heat dissipation.

Wear light colored clothing that wicks moisture away from the skin for evaporation. Poorly ventilated clothing can create a humid environment next to the skin even on dry days. The direction of wind also makes a difference in cooling. Moving into a head wind promotes cooling through convection and conduction; moving with a tail wind inhibits it. When cooling is inhibited, sweating will increase in an attempt to dissipate heat, making appropriate hydration even more important.

Determining Sweat Rate

For those who want more personalized information about how much fluid to consume, determine your sweat rate. To a great extent sweat rate depends on exercise intensity, ambient temperature and humidity. So, when determining sweat rate, pick a day and a workout (race pace workout but not of race duration) that most closely matches conditions on race day.

- 1) Weigh yourself naked right before your workout and write it down.
- 2) Workout at the intensity you plan to race at.
- 3) Drink fluids as you normally would.
- 4) Weigh yourself naked after working out.
- 5) Subtract your post-exercise weight from your pre-exercise weight. This represents water weight lost during a workout.
- 6) If you drank during your workout, weigh how much you drank. (remember that 16 oz. water weighs 1 lb.)
- 7) Add weight of fluids consumed to water weight lost during exercise (#5).
- 8) Multiply the result of 7 by 60 and divide it by the number of minutes in the test workout . This is the weight loss per hour in lbs.
- 9) Convert lbs of water back into oz. by multiplying by 16 oz. The result represents sweat rate in oz. per hour. Now, to keep hydration at a steady state, and promote thermoregulation while racing, match this intake target during the race.

Example: test period is 90 minute workout

180 lbs (pre-exercise weight) – 175 lbs (post-exercise weight) = 5 lbs water lost

Consumed 20 oz. water bottle during = 1 lb 4 oz = 1.25 lbs

Total water lost = 6.25 lbs

90 min workout or 1.5 hours: 6.25 times 60 divided by 90 = $6.25 \times 60 / 90 = 4.17$ lbs per hour sweat rate

4.17 lbs x 16 oz. = 67 oz must be consumed per hour to match fluid losses.

This represents slightly more than 3 water bottles each hour. Few athletes will carry that much fluid during a workout but to successfully complete the marathon, challenge yourself to do so and watch a terrific race unfold.

Rowing & Paddling the Petaluma Marathon, Part 2: Fueling for Marathon

By Elizabeth Brown, San Jose State University

Editor's Note: Elizabeth (Izzie) Brown is a sports nutritionist who teaches at San Jose State University. In riding, she has competed at the elite level, winning silver at the Pan Am Games in the double scull, and coached at the university level. She has competed in cycling, and completed a ride across the US

This is the second of two nutrition articles aimed at helping competitors optimize their race day performance. The first article addressed hydration. The questions of why, with what and how were answered. This article is geared to improve food choices during training to make your time on the water count and to give guidelines for fueling on race day.

Athletes obtain their calories from four sources, carbohydrates, protein, fat and alcohol. Of course, alcohol does not enhance athletic performance but the other 3 macronutrients do.

Protein, found in meat, dairy, soy, grains, legumes and a small amount in vegetables, helps build and repair tissue and is a part of hormones and enzymes. Protein can provide energy for exercise but is not truly designed for that purpose.

Fat, found in oil, nuts, fat, dairy and animal foods, and carbohydrate, found in grains, dairy, fruit and vegetables, on the other hand, are designed to provide energy for exercise. So, in order to meet the demands of the Petaluma Marathon, carbohydrate should be the main source of energy while fat contributes a good bit. How much carbohydrate compared to fat that is burned depends entirely on intensity of exercise. Higher exercise or racing intensities results in a greater contribution from carbohydrate and less from fat.

Protein contributes anywhere from 5-15% of total calories during training and racing. The percent of protein depends on the carbohydrate content of the diet and the duration of exercise. To a great extent, an athlete consuming a high carbohydrate diet reserves protein for its primary job, tissue building, maintenance and repair, and uses very little for energy. An athlete on a low carbohydrate diet requires the use of protein to meet energy needs regardless of how much fat is in the diet or body fat.

Having dispensed with the formalities, there are two crucial periods of time to focus on for training and racing at the Petaluma Marathon. First, you must eat well daily to support proper training. It is reasonable to think that you only race as well as you train. If training is hampered by poor nutrition, your training will be less effective and race day will be less than stellar. So, proper daily nutrition is needed. Second, you must carry fuel during the race to meet your racing energy needs. Even with ideal pre-event eating and drinking, the race is so long that carbohydrate, and possibly protein, is needed during the race.

Proper daily fueling means that 50-65% of your calories should come from carbohydrate sources. Protein should comprise 12-20% of calories and fat should make up the balance, 15-30% of calories. Another way to look at it is you should consume about 5 to 10 grams of carbohydrate per kilogram of bodyweight. About 1.2-1.6 grams of protein per kilogram of bodyweight should be consumed. And fat should make up the balance of your calorie needs. The best way to know how many calories you need, as well as determine how well your diet meets your exercise and health requirements is to use a computer program to analyze it. www.mypyramid.gov is a terrific and free analysis program. Use the MyPyramid Tracker on the home page to create an account and then evaluate your eating and exercise habits. Keep in mind if you only enter your diet without entering your exercise, the estimated calories, carbohydrate and protein needs will be low. These are dependant on the type, intensity and quantity of exercise. Add and extra 300-800 extra calories for each hour of rowing or paddling, add one half more grams of protein and 100-200 additional grams of carbohydrate.

As for fueling on race day, hydration and carbohydrates are the keys to success. The pre-event meal or snack has a few purposes: primarily to provide hydration and secondarily to provide some carbohydrate or glucose or sugar to the blood so your brain has something to run on after an overnight fast. Thirdly, the pre-event meal should be of low residue, meaning not containing a lot of fiber, and also low in fat. Both contribute to slow gastric emptying and potential gastrointestinal (GI) upset on the racecourse. Satisfying pre-event meals could be yogurt, fruit and water or cereal, milk and juice or French toast, fruit and water or eggs, toast, fruit and juice. The longer time you have before the start of the race the larger the meal can be and the more fat it can contain. Be sure to do a trial run of eating before a practice to see what works best on race day.

During the race, plan to consume 0.7-1 gram of carbohydrate per kilogram of bodyweight per hour of racing. Sports drinks are the best way to accomplish this. They provide hydration and fuel in a tasty, easy to consume package. Please refer to the article on hydration for details. Of course, you need to train using these products to get your gut used to digesting large quantities while racing. Race day is

never the time to try something new. Whether you choose to obtain your calories from drinks, bars or gels is a personal preference. Carbohydrates will get into the bloodstream fastest if obtained from sports drinks in the concentration that the manufacturer recommends. Do not water down your Gatorade, Powerade or other drink. They are made in about a 6% carbohydrate solution, which doesn't require digestion to get into the blood for transport to working muscles and to your brain. Drinks like Coca Cola, juice and bars and gels all require digestion to be broken down into a form that can enter the blood and used by working muscles. This means that the time to feel better after ingestion is longer if you choose to consume anything more concentrated than sports drinks. There are products that are more energy dense (contain more calories) than sports drinks and come in liquid form so they provide hydration, carbohydrate, protein and fat in an easy-to-digest form and can be consumed during an event. Metabolol is such a product. PowerBar makes one as well, and there are probably more on the market. You would do well to experiment with these products in long training sessions. It may be that sports drinks work well for you until the 90 minute mark and then you need more sustenance before consuming sports drinks again or even water. Water should not be consumed in large quantities especially to the extent that you gain weight during an event. Please refer to the Hydration article written earlier for information on water toxicity.

It appears there may be some benefit to including a carbohydrate and protein beverage during long training sessions. Athletes using these products show less muscle breakdown during training, an unfortunate result of long training. Researchers demonstrated that consuming these products on race day hasn't shown any performance benefit. However, because protein is present, this product may stave off hunger. For some athletes, including protein in your during-event beverage or food may cause some GI upset. Use the products in training to see how you tolerate them. Your GI tract can be trained to handle more fluid and nutrients just as your heart can be trained to pump harder. Be sure to practice drinking the quantities that you anticipate needing on race day during training sessions to evaluate tolerance. If you wish to experiment with sports drinks that have protein in them, PowerBar makes one, Accelrade is another but my preference is Rad Endurance made by Nutribev Science and is available on line at www.nutribevscience.com.