

Food for Fuel

A Quick Nutrition Guide for Boston Dragon Boat Festival

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Paddlers, the crew season you have been longing for all winter is finally here! Dragon boat is a high calorie-burning sport that requires incredible power and endurance. How you perform will highly depend on how well you fuel your muscles and body.

When it comes to training and races, you need an ample supply of calories to support your paddling. A balance of carbohydrate, protein and fat are essential to provide you the energy to reach your full potential. As a professional paddler, your dietary needs will vary based on your own body conditioning, age, gender, weight, and training duration. Below is a set of guidelines for how much of each nutrient you need, in the format of *grams of nutrients per pound/kilogram of body weight*.

	Intense training day (professional paddler)	Less training day (recreational paddler)
Carbohydrate	2.3-3.6 g/lbs (5-8 g/kg)	1.4-2.3 g/lbs (3-5g/kg)
Protein	0.6-0.8 g/lbs (1.4-1.7g/kg)	(0.5-0.7 g/lbs) (1.0-1.5g/kg)
Fat	No specific recommendation	

Carbohydrate

Carbohydrate provides the fuel for the muscle and brain and should be the foundation of your diet. A variety of carbohydrates should be consumed with an emphasis on wholesome forms.

<i>EAT MORE</i>	EAT LESS
Whole grain bread	Pastries
Brown rice	Cookies, Cakes
Oatmeal	Candy
Whole wheat pasta	Sugar sweetened soft drinks
Whole/Dry fruits	Fruit drinks
Sweet potato/Yam	
Low fat milk	
Yogurt	
Beans/Peas	

Many people believe that carbohydrate is fattening and shy away from it. In fact, it is the excessive calorie, rather than the carbohydrate that is responsible for fat gain. Both carbohydrate and protein provide 4kcal per gram, which is much lower than the 9kcal per gram found in fat. Carbohydrate is largely stored in the muscles and in the liver. The muscles utilize carbohydrate during active exercise while the liver uses it to maintain your blood glucose levels and maintain normal brain function. When your carbohydrate stores (also known as glycogen) get too low, you will experience a sudden intense fatigue, typically described as a “hitting the wall”. Depleted liver glycogen makes you “crash”, or “bonk” resulting in feeling uncoordinated, light-headed, and unable to concentrate.

In sports like dragon boat paddling, glycogen stores are the primary source of energy. Make sure you consume adequate amounts of carbohydrate every day to maintain your glycogen levels.

Protein

Protein provides your body with amino acids, which are the building blocks for muscle. Protein supports muscle maintenance, growth, and repair after training.

As animal meat is often high in saturated fat, lean meats are recommended. Plant-based protein sources, such as nuts, legumes, and tofu are also excellent options as well.

<i>EAT MORE</i>	EAT LESS
Lean beef/pork/chicken/turkey	Regular burgers
Fish	Brisket
Eggs	Ribs
Low fat milk	Sausage
Yogurt	Full fat cheese and dairy foods
Beans/peas	
Peanut butter	
Hummus	
Lentil soup	
Tofu	

There are lots of protein supplement products on the market, but the truth is most people can get adequate amounts of good quality protein just from diet alone. Eating more protein than the recommended amount will neither build muscle faster nor add extra muscle mass. It is the weightlifting, push-ups, planks and other resistance exercises that build and strengthen muscles.

Fat

There is no specific recommendation regarding fat for paddlers, but healthy fats are essential in every athlete's diet. When given the choice, choose olive and vegetable oils, nuts and nut butter, and avocado over saturated fat.

Omega-3 polyunsaturated fatty acids may have cardiovascular benefits. Good sources include canola oil, walnuts, flaxseed, and oily fish such as trout, herring, and salmon.

Vitamin and minerals

You can get all the vitamins and minerals you need from a healthy balanced diet with a variety of foods. Aim for at least 5 servings of fruits and vegetables daily. Active people don't need more vitamins and minerals than the general population. Excessive amounts of vitamins and minerals are not required for better health, nor have any effect on performance and competitiveness.

However female athletes, especially during teen age years, need to pay more attention to iron and calcium, which are needed in large amount. Consume the following foods to lower the risk of iron and calcium insufficiency.

Iron rich foods	Lean beef, dark meat chicken/turkey, kidney/black beans, breakfast cereals fortified with iron
Calcium rich foods	Low fat milk, cheese, yogurt and other dairy products, leafy green vegetables, tofu, juice with added calcium

Fluids

Sweating may cause excessive fluid loss. When you lose up to 2% of body weight in sweat, physical performance and mental concentration will start to deteriorate. Staying hydrated with water is best for most athletes. Try to stay on schedule and drink whenever you are thirsty for adequate hydration and to stave off heat stroke.

Timing	Amount
2-3 hours before exercise	2 cups (16 oz)
10-20 minutes before exercise	1 cup (8 oz)
Every 10-20 minutes during exercise	1 cup (8 oz)

When you have extended intensive workouts or multiple races, sports drinks are good choices to replenish lost electrolytes (sodium, potassium, calcium, magnesium). Stick to basic sports drinks such as Gatorade or PowerAde for a good balance of carbohydrate and electrolytes. Follow the same schedule above.

Meals before and after exercise

Pre-exercise meal or snack energizes your hard practices or competitions, just like filling the gas tank of your car before a long road trip. Depending on the timing of your meal, refer to the following list for recommended amounts of food for optimal performance.

Timing	Amount	Sample meal
3-4 hours before	2g carbohydrate per pound of body weight + 30g lean protein	<ul style="list-style-type: none">• Turkey Sandwich + baked chips + an apple• Grilled chicken breast + steamed brown rice + low fat milk/juice
1-2 hours before	0.5g carbohydrate per pound of body weight + 15g lean protein	<ul style="list-style-type: none">• Small bagel with peanut butter• Low fat cheese and crackers• Cereal with milk and banana• Yogurt with fruit
<1 hour before	Liquid	<ul style="list-style-type: none">• Energy drinks• Low fat kefir milk

Tolerance for pre-exercise meals varies from individual to individual. You need to experiment and find out the optimal pre-exercise food that works best for you during practice season. In general, fatty foods should be avoided in pre-exercise meals. Large amounts of fat take an extended time to digest and can often cause GI stress during exertion. Sugary food may cause mixed results with some athletes performing well with elevated blood glucose levels, but with others experiencing light-headedness and fatigue due to rebound low blood glucose level after a “sugar high”.

After a hard training session, recover with carbohydrate and protein rich foods similar to pre-exercise meals/snacks. If you need to exercise later in the same day or the next day, start your recovery meal within 30 minutes after training. If not, simply make your next meal your recovery meal.

If you have additional questions, you can email Lin at zhanglin.kong@gmail.com for more information.

References

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