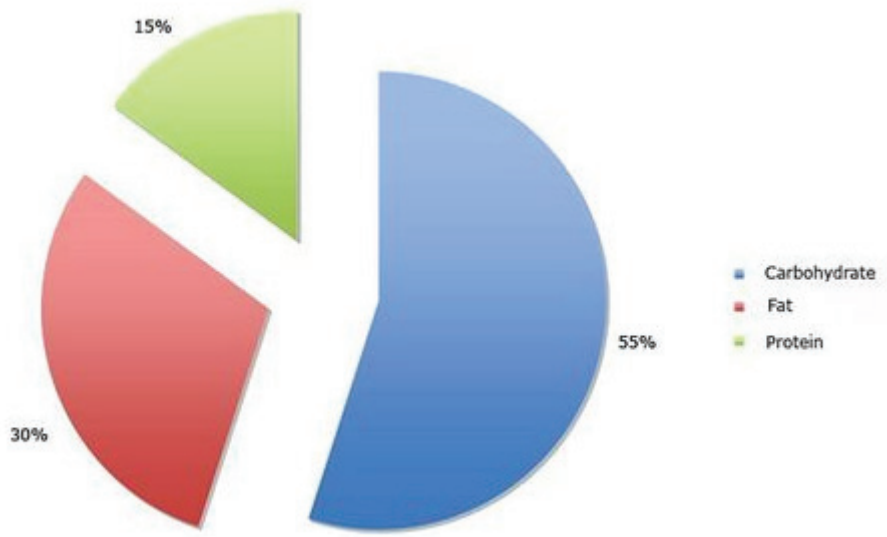
Q & A: Catherine Norton, Sports Nutritionist

1. *What should the breakdown of food in terms of fats/ carbohydrates/ protein for rowers in order to support high training volumes? What should you be eating before and after training?*

This pie chart shows the recommended macronutrient contribution to total energy for a non-athletic population:



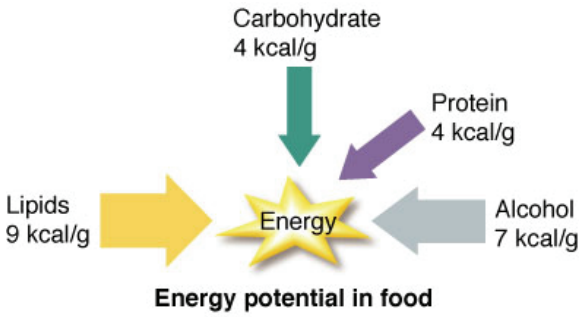
The recommendation for high performance sport / those engaging in frequent high intensity training would be that the carbohydrate contribution increases to ~65%, with a lower fat contribution and a protein intake between 15 – 20%. So YES – the breakdown of macronutrients should be different to the average Joe!

In general, athletes have a higher requirement for carbohydrates relative to other macronutrients. Carbohydrate should contribute most to total daily energy intake (in some cases in excess of 50% or even 60% dependent on training demands. What this means is consuming large portions of carbohydrates at each meal as well as in snacks between meals. Carbohydrates need to be nutrient dense; don't focus on white pastas or jelly babies, rather on unprocessed starches and fruit and vegetables.

A rower can calculate a carbohydrate target in grams, and use food tables or information on food labels to plan to meet this goal. Even better, a rower can see a Sports Dietitian for advice to further narrow this target range according to his/her specific situation, and have an individualised meal plan fitted to their needs.

Situation	Recommended Carbohydrate Intake
Daily refueling needs for training programs less than 60-90mins per day or low intensity exercise	Daily intake of 5-7g per kg body mass.
Daily refueling for training programs greater than 90-120 min per day	Daily intake of 7-10g per kg body mass.
Daily refueling for athletes undertaking extreme exercise program: 6-8 hours per day	Daily intake of 10-12+ g per kg body mass.
Pre-event meal	Meal eaten 1-4 hrs pre-competition 1-4g per kg body mass.
Carbohydrate intake during training sessions and competition events greater than 1 hour	1g per minute, or 60g per hour
Rapid Recovery after training session or multi event competition, especially when there is less than 8 hrs until the next session	Intake of 1g per kg body mass in the first 30 min after exercise, repeated every 1-2 hrs until regular meal patterns are resumed

Following endurance training, carbohydrates should be the focus of a recovery meal. However, in a training phase where the emphasis may be on increasing muscle mass, protein amounts and types should be given greater consideration in recovery.
Fat is a nutrient that all athletes need to make every effort to keep to a minimum at all eating occasion, but especially before engaging in activity.



Calorie content of 1 gram of each of the macronutrients

The figure above, depicting the calorie content of the different macronutrients, outlines the importance for all athletes in maintaining a low fat intake. This is of particular importance for weight category sports.

2. What would you recommend eating before, during and after racing?

Generally a meal that provides carbohydrate should be consumed 2-3 hours before a race, e.g.: breakfast cereal, toast, muffins, sandwiches, yoghurt, fruit, pasta and creamed rice. Some rowers need to take special care with pre race eating, as it can be very uncomfortable to race with a full stomach. Low bulk choices such as liquid meals and sports bars can be useful in these situations. This meal should be followed up with frequent consumption of small amount of carbohydrate (probably in fluids) to top up carbohydrate levels.

Rowers need to organise themselves to have appropriate food and fluids available at all times during competition. Many athletes find that they easily lose weight over the course of a competition due to being unable to consume their usual high energy diet (as they are spending much of the day in preparation and the race itself) To help avoid this from happening take along a supply of cereal bars, liquid meal supplements sports bars, fruit bars, dried fruit, sandwiches, yoghurt, juice etc…

After an endurance event, carbohydrate is the most important nutrient to consume in recovery in order to replace that which you have burned as a fuel source during the session. This differs to a resistance / weights session where the primary focus in recovery should be the consumption of quality protein containing essential amino acids. This is proven to facilitate repair, recovery and hypertrophy (muscle growth).
So while each nutrient has a role to play in preparation or recovery from training or competition, depending on the primary goal of the session, one nutrient is likely to be the more important in that scenario.

Finally, be aware of your fluid needs. You can be dehydrated from your rowing efforts, making weight practices or just from sitting in the sum watching competition.

3. *How would you recommend rowers manage during competition?*

During competition, energy needs of most rowers will be reduced compared to when they're training, however nerves and having several races over a day can disrupt normal eating patterns. There is both a risk of over-eating and under-eating on these occasions, so rowers should plan their intake ahead of each regatta day to ensure they remain on track with their nutrition goal.

As most regatta courses are often some distance from shops, athletes should be encouraged to take their own supply of foods and fluids to get through the day. Suitable choices include cereal bars, liquid meal supplements, sports bars, fruit bars, fresh & dried fruit, sandwiches, yoghurt, juice, low fat flavoured milk and powdered sports drinks. High sweat rates during racing and exposure to the summer heat throughout the day at the regatta site means fluid intake remains a priority. Athletes should be encouraged to keep a drink bottle by their side throughout the day, acting as a constant reminder to drink while also ensuring ready access to fluid. The answer to Q1 above addresses more of this.

4. *In terms of nutritional supplements, what is unnecessary and what would you recommend??*

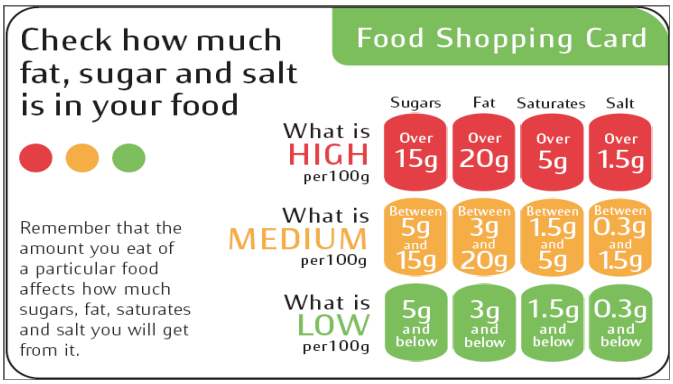
Most athletes, particularly at amateur levels, should manage to meet their nutritional requirements through food, with little need for sports supplements. As the name suggests, supplements are designed to supplement an inadequate diet, and never to replace habitual food intakes. However, some rowers (particularly male heavyweights) struggle with the sheer volume of food they need to consume to meet their training demands. Frequent

snacks and the use of compact, energy dense food or drinks such as juice, flavoured milk, jam, honey, sports bars and liquid meals are necessary to keep the volume of food manageable.
Some sports foods and dietary supplements play a role in providing a practical alternative to food (e.g.: sports drinks, sports gels, sports bars, and liquid meal supplements). Rowers may find these products valuable in helping them achieve their nutrition goals in a busy day or during an exercise session. They are an alternative to every day foods, which might need to be combined and juggled to produce the same nutritional composition, or which might be too impractical to consume directly before or during intense exercise. Sometimes the convenience factor is the selling point.

Some rowers however use these products outside the conditions in which they are likely to achieve a direct sport nutrition goal (e.g.: eating sports bars as a snack). In these situations sports foods may simply be a more expensive version of food. Over-consumption of any sports foods can lead to dietary imbalances as well as being an unnecessary burden on the wallet.

5. *Any particular food items/ products you would discourage rowers from eating and why?*

General healthy eating guidelines recommend the avoidance of foods that are high in saturated fats, high in simple sugars or high in salt. Clearly this advice is even more important in an athletic diet. Following these rules of thumb you would be aiming to choose foods that have the following information on their labelling (in green).



Broadly speaking, avoiding processed foods, fried foods, baked goods, confectionary and carbonated drinks is required to follow this advice. I would recommend this for every day, but there are occasions where high sugars are necessary within a training schedule.

6. Could you recommend any further reading?

http://www.ausport.gov.au/ais/nutrition/factsheets/sports/rowing

http://www.britishrowing.org/education-training/nutrition

http://www.indi.ie/ (Sports Nutrition Interest group)