

# August 10, 2018

Now that all three macronutrients have been discussed, this week's post will focus on timing eating for peak performance. Not only does what you eat matter, but so does when you consume your fuel for training. This is general information, but if anyone would like more or has questions, feel free to email me!

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## *Pre-raining/competition fueling*

One point to emphasize is the importance of fueling properly for training and competitions. While it may not always be necessary to eat before sessions such as a recovery spin/jog and other rest/recovery day lighter activities, fueling before normal and intense training sessions as well before competitions is crucial.

Consuming a well-balanced snack or meal before training can aide in restoring liver glycogen stores after overnight fasts, serve as an additional fuel source during exercise, and promote quicker recovery after training sessions (Bonci, 2009, p. 36). The size of the meal or snack should depend on how much time there is before the event. When eating 30-60 minutes before an event, what you consume should be primarily liquid (sports drinks, juice, water, etc.). Eating between an hour and two hours before your session, you still want most of your fuel coming from liquid sources and potentially a small snack if you are still hungry. If the span of time before your training or competition is between two to three hours, most people can handle a small meal in addition to fluids, and if there is four or more hours before you train/compete, a regular sized meal in addition to properly hydrating should suffice (Kundrat, 2005, p. 94).

On the next page, you will find examples of meals and snacks that might work for you depending on how much time you have before your event. Not all of the options may work for everyone while each individual handles food a little differently, but taking advantage of off-/pre-season exercise and training blocks without a closely approaching competition can be great opportunities to experiment to see what your body handles well and how you feel when working out on various fuel sources!

## *Fueling during exercise*

If you have prolonged intense training sessions, fueling during these can help prevent early fatigue and continue allowing you to train at a higher intensity than if you were just drinking water. Sessions such as long bike rides, runs, and other higher volume/intensity training sessions can be enhanced by consuming carbohydrate early during the training. Also training in extreme temperature conditions may require additional carbohydrate intake to allow the body to adequately regulate its temperature as well as perform at the level demanded of it (Manore, M., Meyer, N., Thompson, J., 2009, p. 46). Consuming roughly 40-75g CHO/hour depending on the intensity and duration of the training can help to supply the muscles with the carbohydrate required to sustain the level of exercise performed (Manore, M., Meyer, N., Thompson, J., 2009, p. 49).

Most people have difficulty digesting solid foods during prolonged and/or intense exercise, so some easy options for fuel are sports drinks (not sugar-free), gels + water, and other liquid/powder sports drink mixes. For those who can stomach more solid food, things such as sport beans, bars, a banana, pretzels, honey sticks, etc. may be an option. Another benefit of consuming things such as sports drinks, gels, and bars are that they contain sodium, which helps improve the absorption of carbohydrates in the gut and also helps in preventing dehydration and [hyponatremia](#) (low sodium levels in the blood) (Manore, M., Meyer, N., Thompson, J., 2009, p. 49). Again, what works for you may not work for someone else but experimenting and figuring out what does may benefit your performance during training and competitions greatly!

## *Refueling post training/competition*

Equally as important as fueling before and during exercise is properly fueling your body post-exercise to promote quicker recovery and improved performance in the future. There are three key points to focus on when fueling your body after training/competing, they are: drinking fluids, consuming carbohydrates, and consuming protein.

When focusing on fluid replenishment, one of the best ways to ensure you are meeting your rehydration needs is to weigh yourself before and after exercise. A general guideline for using this method is to consume 2-3 cups (16-24oz) of fluid for each pound lost (Kundrat, 2005, p. 99). If not using this method, try and be diligent with your intake of fluids after exercise. You may not seem that thirsty, but if you were sweating a lot or exercised for a long period of time, try to consume at least 3-4 cups of fluid within the hour or so after completing your workout.

If you cannot stomach solid food after your workout, consider options such as sports drinks, smoothies with protein powder, milk and protein powder, juice and some yogurt, or your favorite type of recovery drink. Not only will these options help to meet fluid requirements, they will supply the body with carbohydrate and protein as well.

Consuming carbohydrate and protein within 15-30 minutes of completing a workout can help the body more effectively replace muscle and liver glycogen stores as well as promote quicker recovery (Bonci, 2009, p. 42). A general guideline to aim for is 50g CHO and 10-15g PRO post-exercise (Kundrat, 2005, p. 99). More ideas for post-workout nutrition can be found on the next page!

## *Caffeine and exercise*

Technically caffeine is not a source of energy for the body, it is a stimulant. When consumed, caffeine mobilizes fatty acids in the blood to be used during exercise, which can spare some carbohydrate (Bonci, 2009, p. 106). Some individuals may be more sensitive to the drug, so while it may help to improve performance for some, it may hinder others. Even if caffeine is beneficial to you as an athlete, over-consumption can hinder performance as well and bring about some unpleasant side effects. Caffeine can cause rapid heart rate, increased blood pressure, insomnia, nervousness and anxiety, jitters/shakiness, an inability to focus, and irritability (Bonci, 2009, p. 106). There is not an official upper limit on the amount of caffeine that can be safely consumed by an individual (different individuals have different tolerance levels as well), but researchers have recommended no more than 400mg caffeine/day (Bonci, 2009, p. 106). Also, the caffeine in caffeine pills is more concentrated, so consuming caffeinated drinks (ie coffee, tea, etc.) may be safer and more beneficial than ingesting caffeine pills. Information on caffeine content of popular drinks can be found on the next page.

## Pre-training/competition meal ideas

### Night before event

Ideally this meal would be roughly ½ - ⅔ CHO while incorporating healthy fats and proteins as well (Bonci, 2009, p. 38). Some examples could be:

- Pasta w/ meat sauce + 1-2 slices bread
- Sandwich w/ meat (or other PRO source) & toppings + veggies
- Stir-fry w/ rice

### Day of event

#### *4+ hours before:*

- Soup & sandwich
- Omelet (or any form of eggs) + toast & jam
- Bagel w/ nut butter (or any favorite topping) + yogurt
- Oatmeal + fruit, trail mix, or granola

#### *2-3 hours before:*

- Milk + cereal + berries
- Toast (or bagel, English muffin, etc.) w/ nut butter and/or jam
- Muffin + 8 oz milk or juice
- Sports bar (ie CLIF bar, LaraBar, PowerBar, etc.)

#### *30-60 minutes before:*

- 8 oz juice + handful pretzels
- Small yogurt
- Small smoothie
- Granola bar

### Post-workout refueling:

- 8 oz milk (regular or flavored) + granola bar
- 8 oz Gatorade + PowerBar or other PRO bar
- Nut butter sandwich + 8 oz juice
- Milk + cereal
- Milk or water + protein powder + piece of fruit
- Yogurt + trail mix

### Portable snack options for in-between training sessions/races:

- Granola bar
- Pretzels
- Trail mix
- Yogurt
- String cheese
- Nut butter & jam sandwiches (or you can use honey or bananas if you don't like jam!)
- Mini bagels/muffins
- Cereal

These are just ideas, but any other snack food that sits well with you would work perfectly as well!

Amount of Caffeine in Various Products

Beverage	Amount, oz (ml)	Caffeine per serving, mg
Espresso	2 (60)	100
Coffee	8 (240)	100
Starbucks Tall	12 (360)	375
Starbucks Grande	20 (600)	555
Starbucks Venti	24 (720)	650
Soft drink	12 (360)	30-50
Black tea	8 (240)	50
Green tea	8 (240)	30
Mountain Dew	12 (360)	55
Red Bull	12 (360)	80
Amp	8 (240)	75
Monster	16 (480)	400
Jolt	12 (360)	70
Bawls	12 (360)	80
Rockstar	16 (480)	275
KMX	12 (360)	38
Adrenaline Rush	12 (360)	79
XS	12 (360)	83

*Above:* caffeine content of popular drinks. Here is another resource for checking caffeine content of other popular drinks not listed in this table

*Below:* comparison of various sports drinks and their nutritional profiles

Table 8.6 Sport Drink Comparison Table

Sport drink Ingredients per 8 oz	Carbohydrate content (%)	Carbohydrate (g)	Carbohydrate type	Calories (kcal)	Sodium (mg)	Potassium (mg)	Protein (g)	Caffeine
Gatorade	6	14	Sucrose syrup, high-fructose corn syrup	50	110	30	0	No
Gatorade EF	5	14	Sucrose syrup, high-fructose corn syrup	50	200	90	0	No
Propel	1	3	Sucrose, sucralose	10	35	0	0	No
Powerade	7	17	High-fructose corn syrup, maltodextrin	60	55	30	0	No
Accelerade	6	15	Sugar, trehalose	80	120	15	4	No
Amino Vital	3	8	Fructose	35	10	35	<750 mg amino acids	No
ClifShot electrolyte drink	8	19	Organic brown rice syrup, organic evaporated cane juice	80	200	50	0	Yes, in some
Cytomax	5	13	Fructose, dextrose, maltodextrin	50	55	30	0	Yes, in some
GU20	5	13	Maltodextrin, fructose	50	120	20	0	No
HEED (1 scoop)	10	25	Maltodextrin	100	62	16	0	No
Ultima Replenisher (1 scoop)	2	6	Maltodextrin	50	75	150	0	No

References (Information & Pictures):

Bonci, L. (2009). *Sport nutrition for coaches*. East Peoria, IL: Versa Press.

Kundrat, S. (2005). *101 sports nutrition tips*. Monterey, CA: Coaches Choice.

Manore, M., Meyer, N., Thompson, J. (2009). *Sport nutrition for health and performance: Second edition*. Champaign, IL: Human Kinetics.