

FREECLIMBING NUTRITION TIPS

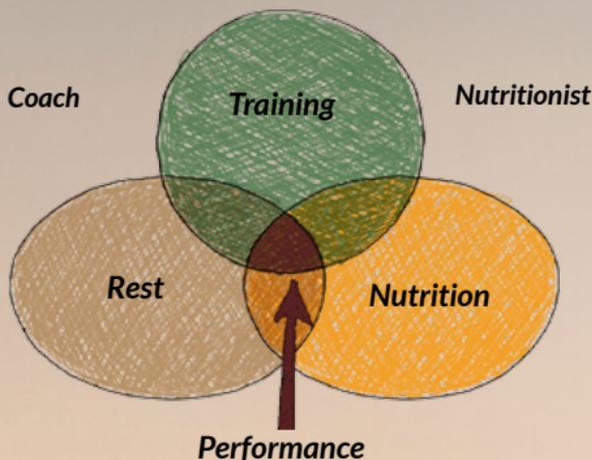
**Improve your nutrition,
enhance your performance
and reach your goals**

**ALL THE ENERGY
YOU NEED
UP TO THE TOP**

FREE CLIMBING NUTRITION GUIDE

Top physical shape comes from a mindful combination of training, nutrition (including hydration) and rest: attention to all of these factors is extremely important, because the competitive nature of sports today requires many athletes to cross-train and train multiple times per day.

To The Best Shape



When looking at the different percentages of Carbohydrate (C), Protein (P) and Fat (F) in a diet's total calories, we get something like 55-60% C, 20-22% P and 20-23% F, partly depending on the specific discipline, since bouldering requires more power, while lead climbing needs more endurance.

GENERAL TIPS



Each time we eat our blood changes its composition in relation to ingested foods, pay attention because the caloric power of foods does not determine their metabolic destiny within the human body.

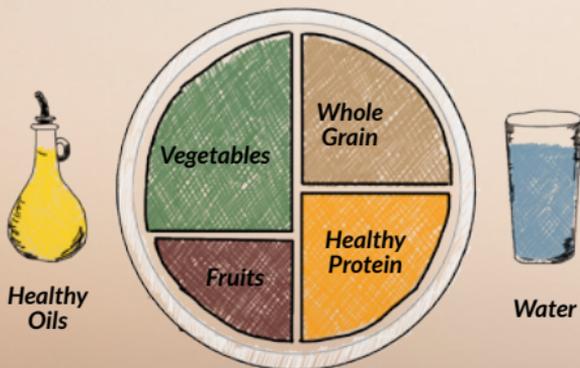
When dealing with a mixed sport such as free climbing, we should consider both the power and the endurance aspects, as well as coordination and agility skills, providing the right amount and type of nutrients, comprising carbohydrates, proteins, fats and of course fluids.

Depending on an individual's amount of training and fitness level, energy demand differs from 32 to 50 kcal per kg of body weight (BW) every day. The right amount of protein is considered to range between 1.4-1.6 g/kg BW, while for carbohydrates the amount rises to 4-5 g/kg BW. Avoid hydrogenated (trans) fat and never forget healthy fat, in the order of 0.5-1 g/kg BW; Omega-3 fats are especially important, due to their contribution to normal heart functions.

Last but not least, it is important to eat a wide range of antioxidants, vitamins and minerals, provided primarily by fruits and vegetables; a variety of types and colours should be consumed, since different colours have different protective functions.

A good reference for the major meal of the day is based on the "healthy plate" model developed by Harvard School of Public Health.

Healthy Eating Plate



BODY COMPOSITION



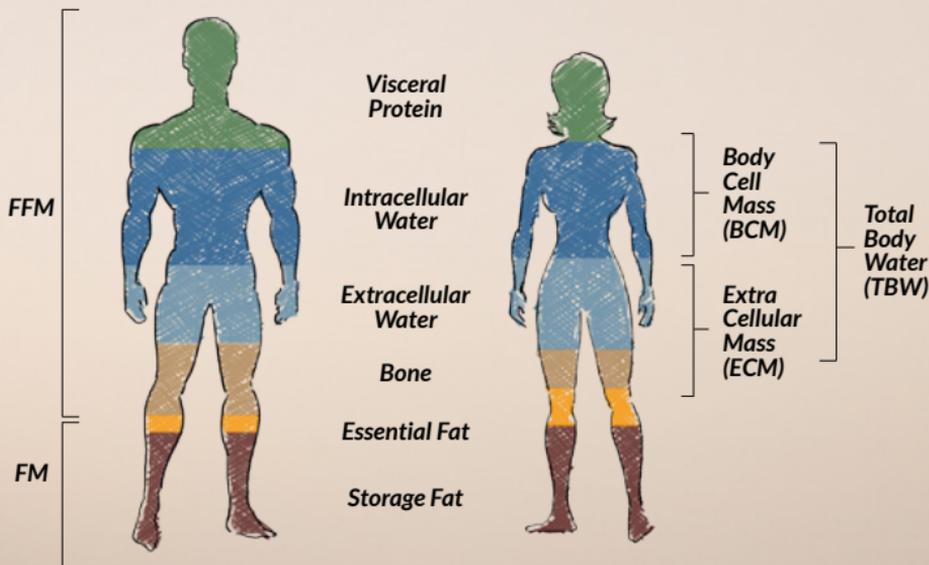
Beside these general rules, an individual diet plan is always recommended, since **individual needs may differ significantly depending on body composition, metabolic flexibility, training level and lifestyle.**

By body composition, we mean that our weight is made up both of fat mass (FM) and fat free mass (FFM), including, for example, water, muscles and bones.

Since free climbing is one of those sports in which weight-to-power ratio may be decisive, it is important to check on body composition and, when losing or changing weight, to make sure muscles or water are not lost, for example, since this may affect performance.

Different parameters like phase angle, resistance, reactance, body cell mass (BCM) or extracellular water variation (ECW) are valid and useful indicators of an optimal workout rather than an overtraining trend reflecting the ratio between anabolic and catabolic processes besides the inflammatory status.

Body Composition Compartments



SOME MISTAKES 9 CLIMBERS OUT OF 10 MAKE!

- 1 *To follow general rules or even worse, trendy diets not adapted to their specific body composition and needs*
- 2 *Lack of antioxidants and micro-nutrients (e.g. vitamin D, calcium)*
- 3 *Approximative hydration (undervalue weather conditions)*
- 4 *Dysbiosis and bowel poorly functioning drop in performance, probably with cramps*
- 5 *Wrong estimation of total daily energy expenditure (TDEE)*
- 6 *Pay little attention to the distribution of meals and "timing"*
- 7 *Poor management of stress and performance anxiety (oxygen consumption, heart rate)*
- 8 *Restrictive habits*
- 9 *Alcohol abuse*
- 10 *Casual use of (often wrong) supplements*

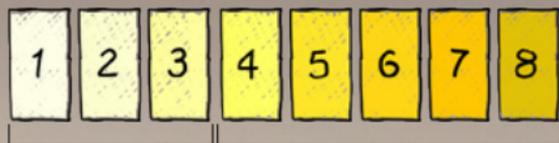
WHY FOCUS ON HYDRATION?

- ✓ **Losing 1.5-2% of BW** (body weight) means an immediate reduction in performance skills, feeling thirsty, with the body's core temperature increasing, just as the heartbeat does
- ✓ **Losing 3-5% of BW** causes a dramatic 10%-30% drop in performance, probably with cramps
- ✓ **Losing >5% of BW** is a real health risk, which can lead to hyperthermia and heat stroke



First rule: never try new combinations on competition days. You can experiment with what you take during training sessions, testing how much and how often.

Urine Color Chart: are you drinking enough fluids?



1-3: Hydrated

4-8: Dehydrated

Adapted from Wakefield. 2002

Be aware: vitamin supplements may change the color of your urine for a few hours making it bright yellow or discolored!

HYDRATION: HOW TO

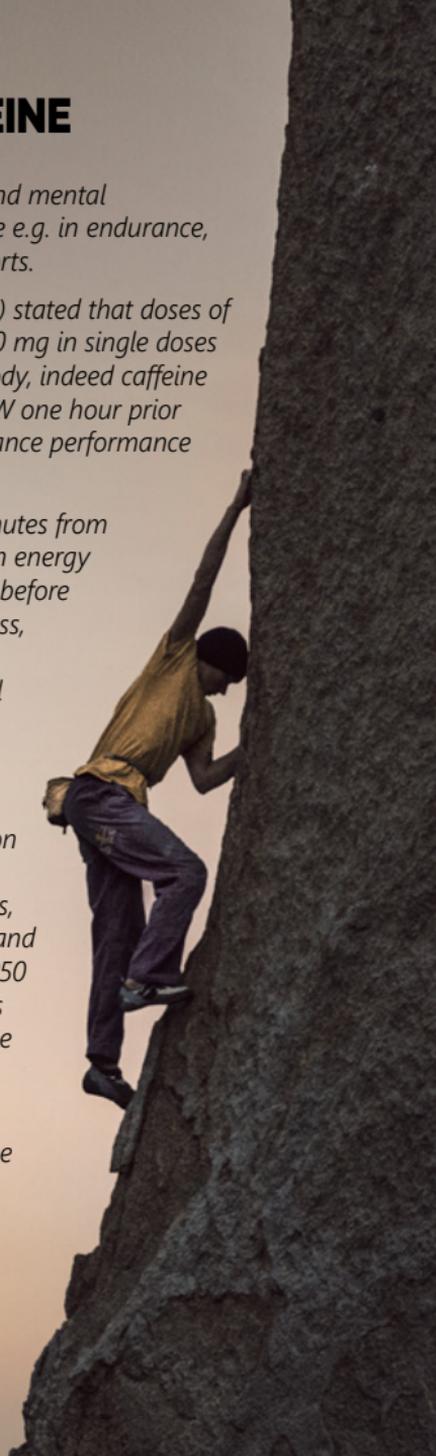
Water requirements for adults are around 30-40 ml/kg/day or 1-1.5 ml/kcal/day PLUS physical activity and sport needs:

- ✓ **The day before:** stay well hydrated by drinking water regularly
- ✓ **2-3 hours before:** drink small sips of still water (400-600 ml)
- ✓ **15-20 minutes before:** drink 300-500 ml of water or sports drinks
- ✓ **During:** regularly drink small amounts of isotonic drink; 150-350 ml every 15-20 minutes will maintain blood glucose with an ergogenic effect. The percentage of sugar will be around 4-8% (a 2:1 glucose/fructose ratio gives optimal absorption) and for sodium 0.5-0.7 g/l (intake varies depending on the heat and humidity)
- ✓ **After:** fully replenish losses gradually in the following hours (check weight variation). Many kinds of fluids rich in ions are suitable. Alcohol could be the worst choice possible since it impairs fluid retention, reaction time and balance, especially if you are dehydrated.



A DEEP DIVE INTO CAFFEINE

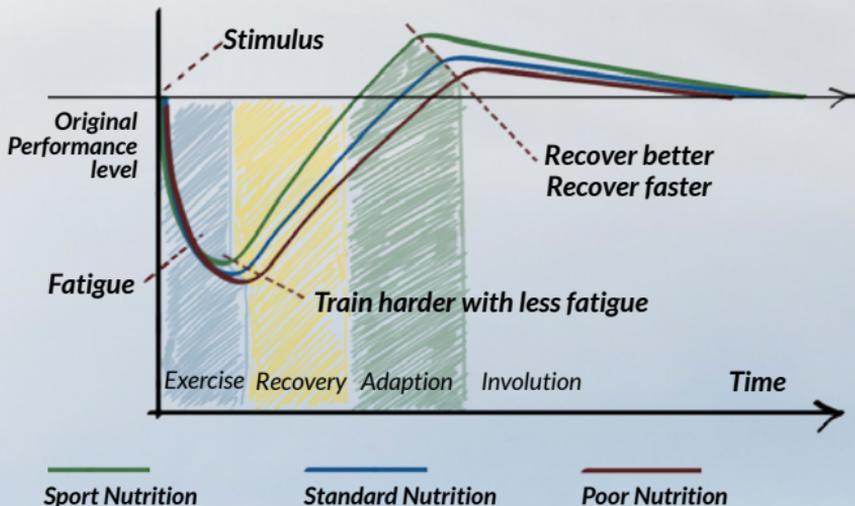
- ✓ *Caffeine helps to improve concentration and mental performance, reduces tiredness and fatigue e.g. in endurance, team, ability, power and concentration sports.*
- ✓ *The European Food Safety Authority (EFSA) stated that doses of caffeine up to 400 mg a day and up to 200 mg in single doses do not have any negative effects on the body, indeed caffeine intake in an effective dose of 3-4 mg/kg BW one hour prior to the endurance exercise increases endurance performance and reduces perceived exertion.*
- ✓ *Caffeine is completely adsorbed 30-60 minutes from ingestion. Caffeine is inter alia contained in energy drinks, so consuming these 10-60 minutes before exercise can improve mental focus, alertness, anaerobic performance, and/or endurance performance as suggested by International Society of Sports Nutrition (ISSN).*
- ✓ *When using energy drinks, remember that they do not have a rehydrating effect and you should test out the effects of caffeine on your body before using it in a competition. The caffeine content in energy drinks varies, but it is usually around 30 mg per 100 ml and is labelled on the product. An example: a 250 ml can of Red Bull® Energy Drink contains approximately the same amount of caffeine as a cup of coffee (80 mg) in combination with B vitamins.*
- ✓ *Furthermore, caffeine is not included on the list of banned substances that is updated every year by the World Anti-doping Agency. Consequently, there is no reason to think that there is any link between doping and energy drinks.*



Sport nutrition should provide the right amount of the right nutrients at right time in order to:

- ✓ *Preserve hydration*
- ✓ *Prevent deficiencies (minerals, vitamins, macro-nutrients)*
- ✓ *Increase concentration*
- ✓ *Increase power and endurance capacity*
- ✓ *Decrease fatigue*
- ✓ *Maintain muscle function*
- ✓ *Allow the body to recover faster*
- ✓ *Support immune system function (modulate inflammation)*
- ✓ *Improve body composition (e.g. more muscular mass, less fat mass, development of strong bones)*

Correct TIMING is the optimal aim for better training and faster recovery besides nutrient partitioning (where nutrients go when you ingest them); give a look at the synergy between sports **NUTRITION** and **TRAINING** supercompensation theory.



NUTRIENT TIMING



First Step: Before

The last meal before training should be ate 4-7 hours before and should be a complete Healthy Plate, when climbing in the morning this will be the dinner and breakfast will become just a “waiting snack”. When climbing in the afternoon breakfast will be the last main meal so don’t worry to make it complete with protein (e.g. eggs, FAGE greek yogurt), low glycaemic carbohydrates (e.g. porridge oats and fruit, rye bread and honey/jam) and some fats of good quality (e.g. seeds, nuts, tahin) making the lunch a light “waiting snack”; finally when training in the evening the last meal will be lunch and afternoon snack will be just something to maintain satiety.

This “waiting snack” should be consumed 1-2 hours before workout and its function is to optimize energy stores, being light and quite digestible; it should provide some carbohydrates plus a good source of protein and essential amino acids (e.g. cereals bar), and of course fluids from water to green tea to energy drinks.



Second Step: During

When training for more than 90 minutes, it is important to preserve glycogen stores by eating some carbohydrates with fruit or dried fruit or cereal bars every hour:

ingest 30-60 g/hr of carbohydrate in high-intensity training lasting 1.5 to 2.5 hours (e.g. bouldering) or 60-90 g/hr in activities lasting more than 2.5 hours, such as a climbing day.

Examples of foods and beverages that provide around 50 g of carbohydrates:

- ✓ 2 medium bananas
- ✓ 70 g dark chocolate
- ✓ 1-2 cereal bars
- ✓ 70-80g dates, figs, raisins, dried fruits
- ✓ 400 ml energy drink
- ✓ 600-1000 ml sport drinks
- ✓ 500 ml apple or orange juice
- ✓ 1-2 sports gel (add water!)

Third Step: After



Recovery from prolonged strenuous exercise, whether it is of an aerobic or anaerobic nature, requires depleted fuel stores to be replenished, damaged tissue to be repaired and training adaptations to be initiated. If you are unable to have a complete meal (e.g. as a result of time constraints, discomfort, being away from home, work etc.), focus mainly on:

- ✓ *Hydration: water and electrolytes are required*
- ✓ *Restoring energy stores*
- ✓ *Repairing muscular tissue that is damaged or inflamed*

What is needed first is to top up water and mineral (sodium) levels by drinking gradually and to recover all liquids you have lost (weigh yourself before and after training and add 1-1.5 litres for every 1 kg lost).

Some practical examples for a 60kg climber (must adapt adding cereals or pool of amino acids for your weight or reducing servings) that provide more or less 50g of carbohydrates and 10g of proteins are:

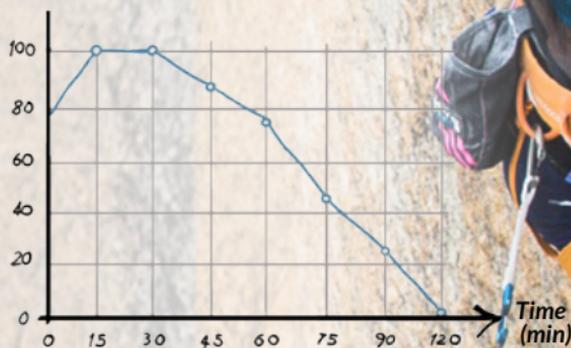


- ✓ *1 large glass of smoothie or shake with fresh fruits and soy-milk*
- ✓ *Cereal bars (70-80g)*
- ✓ *2 slices of bread with hummus cream*
- ✓ *1 cup of fruit salad with Greek yogurt*
- ✓ *1 cup of almond drink with cornflakes and nuts*
- ✓ *2 homemade black bean brownies*
- ✓ *5-6 corn/rice cakes with 3 bresaola slices*
- ✓ *A slice of homemade carrot and apple pie*
- ✓ *1 protein bar + 1 apple*
- ✓ *70g of toasted bread + one egg*

The second thing you need are carbohydrates, since glycogen synthesis is a relatively slow process, so they should be consumed in the order of 1.2 to 1.5 g/kg every hour until the next meal. Maximizing glycogen synthesis with less frequent supplementation and fewer carbohydrates is possible with the addition of some proteins: this will also promote protein synthesis, thus stimulating muscle tissue repair and adaptation, reducing DOMS (Delayed Onset Muscle Soreness) and have a more positive influence on subsequent exercise performance. If both carbohydrates and proteins are consumed, it is recommended that 0.8 g/kg of carbohydrate plus 0.2 g/kg of protein be consumed immediately and 2 hours after exercise during a 4-hour recovery period.



Potential Anabolic Activity (Percent)



Ivy and Portman 2004

Note:

Directly after you exercise, glucose uptake is increased, glycogen storage is increased, amino acid uptake is increased, and protein synthesis is also boosted. By taking advantage of this post-workout refuelling window, you can improve your insulin sensitivity over the next few hours.



ABOUT THE AUTHOR

Dr. Bosetti Gianluca is a molecular biologist and nutritionist, specialized in sports nutrition and taking care of amateur and professional trail runners, football and volleyball players, hockey, cyclists, marathoners, swimmers and, of course, climbers like himself. Over the last years he collaborated with the scientific division of international companies in the world of nutrition, body composition and dietary supplementation. His scientific and updated approach offers specific guidelines on how to optimize nutrition, so that it becomes a support rather than an obstacle to training and improving, avoiding mistakes.

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This small compendium on nutrition suggestions has been prepared for Melloblocco 2016 (www.melloblocco.it). For more information and advice about how nutrition can help to optimize your sporting performance, contact a professional nutritionist or your medical doctor.