



Optimal Nutrition for Fitness by Meredith MacKay RHN

We have all heard many times over how important exercise and fitness are to our health. Exercise has many benefits-physiologically, psychologically and spiritually. It is a great way to reduce stress, to make yourself feel better, to make you happy, to make your muscles, bones and heart stronger - but exercise cannot do it alone. You have to help your body to be the best it can be by feeding it appropriately.

What you eat before exercising affects your performance. The latest study on the effect of pre-exercise meals has shown that

athletic performance was significantly improved in those who consumed a low Glycemic Index (GI) meal prior to exercising (1). The carbohydrate oxidation rate of the low GI group was higher than the high GI group; fat oxidation was significantly higher in the high than the low GI group; insulin rose significantly following the high compared to low GI meals but dropped significantly during exercise (1). The low GI meal provided increased availabil-



"What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?"

ity of carbohydrate and greater carbohydrate oxidation throughout the exercise period which may provide sustained energy production nearing the end of the exercise and lead to improved athletic performance (1). Thus, it is critical to consume a pre-exercise meal that is low on the glycemic index to provide the body with the sustained energy required to complete the workout or athletic performance.

During strength training, also known as resistance training, your muscles work in order to contract to lift or hold a heavy load – that load may be body weight or some kind of external weight. This work, or contraction, is powered by the glycogen stores in your body (2). Your body adapts to this stressor (the contraction) by creating a stronger muscle, this process is known as muscle hypertrophy (3). This adaptive response, muscle hypertrophy, is only able to occur if the body can create muscle protein faster than it is broken down by the contractions of the muscle (4).

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Baby Its Cold Outside! by Lorene Sauro

It is minus 16 C currently outside – the kind of temperature that reminds us that we do, indeed live in Canada. So, this is the perfect time to discuss the health benefits of cold weather.

A quick look at the Canadian government website (1) and their concerns about Global Warming provides a list of many health conditions that could increase as overall year-round temperatures increase. Mosquitos, ticks, fleas, parasites and bacteria all die in the cold and so does their potential to spread viruses and infections. The site also discusses an increase in food-borne and airborne allergens as well should we experience shorter winters. Hot weather also creates more smog, creating more problems for those with breathing difficulties.

Is there a benefit to actually being physically cold? The answer is yes-as many studies indicate that being cold stimulates weight loss (2, 3, 4 5). However, there is a catch – your body must be able to adjust enough to keep you

warm. This is called non-shivering thermogenesis. We have two types of fat: white fat and brown fat. Our brown fat levels decrease as we age to about 1% as adults. Brown fat helps convert white fat or storage fat to energy (glucose) and in effect, promotes thermogenesis which is our ability to produce heat and burn calories. A person can lose weight as the body uses this method to stay warm. Unlike other methods of increasing thermogenesis, there is no increase in appetite which is often experienced during high-intensity exercise, which is another way to increase thermogenesis. Non-shivering thermogenesis converts white fat for energy and heat, so we do not need to consume more food to stay warm.

So how cold do you have to be? A 1980 study, featuring nine women, measured heat loss and heat expenditure for a 30 hour period on two occasions, one with the ambient temperature at 22°C and the other at 28°C. **CONTINUED ON PG 2...**

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See a holistic nutritionist!





Baby Its Cold Outside by Lorene Sauro

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All participants had a pre-determined food intake and activity level. The results showed a greater resting metabolism rate at 22°C than at 28°C or in other words, participants were burning more calories when the ambient temperature was lower (4). A recent article in the New York Times cited a paper from British researchers who argue that rising indoor temperatures are contributing to obesity. In 1968, British living rooms were kept at an average temperature of 64.9°F and 59°F for the bedrooms at night. By 1996 the living rooms were on average 70.3°F and bedrooms at night were 64.3°F. Similar data in the US also show an increase in household temperatures. People also now heat their whole house whereas in the past they would only heat the living rooms and their bedrooms would be cold at night. This means the body temperature does not have to adjust when they go into the colder room and therefore, non-shivering thermogenesis does not kick in to allow them to burn more calories (5). This is an interesting theory, but if the idea of lowering the house temperature is not appealing other studies have indicated that these results can also be achieved by exposure for short periods to

very cold temperatures. So, go for a walk outside (6). Get as cold as you can handle while still enjoying the experience. If you start to get cold, jump up and down or walk more quickly.

Unfortunately, there is one problem with this method of weight loss. Our brown fat levels decline as we age and with its decline, the ability to burn calories to stay warm goes with it (7). It is important to maintain our brown fat levels. A deficiency in carnitine can result in lower brown fat levels and studies show increasing carnitine in the diet can increase brown fat levels (8). High levels of carnitine can be found in beef, dairy products, chicken and codfish as well as lower levels in some vegetables such as asparagus. Isoflavones are found in high levels in soy as well as lower levels in split peas, peanuts, clover sprouts, navy beans, mung beans and chickpeas (9). Corticosteroids deplete brown fat levels and inhibit non-shivering thermogenesis (10) so this may explain weight gain in those who take these medications. And finally, noradrenaline—the opposite of adrenaline—also plays a role in the function of brown fat (12). In other words, brown fat functions best when stress levels are low.

Hot Maca Chocolate Drink by Lorene Sauro

After a nice walk outside or any winter activity, a delicious warm drink can add to the benefits of the outdoor experience by providing valuable extra nutrients over the usual hot chocolate. Cocoa or Cacao is a source of potent phytonutrients called polyphenols. Studies show that polyphenols are potent antioxidants and help prevent cancer, heart disease, Diabetes and many other prevalent diseases. They are also acids so their potency decreases if they are mixed with too many alkalizing substances so non-alkalized cocoa or cacao is best. Maca is beneficial for energy and stamina and can help the body cope with stress. The phytonutrients in all the high antioxidant fruit powders bring even more disease-preventing substances, so research the ones you enjoy the most. Organic whole milk or almond milk add protein, carbohydrates and fatty acids to complete the drink. Whole sweeteners all contain valuable nutrients and are low glycemic. More importantly they help lift the strong bitter taste of the cocoa and maca so you can make this drink suitable to your palette with no guilt.



Ingredients:

- 1 tbsp non-alkalized cocoa powder or raw cacao powder
- 1/2 to 1 tbsp raw maca powder
- 1 tbsp high antioxidant fruit powder such as maqui berry, acai berry, goji berry or pomegranate*
- 1 cup organic whole milk or almond milk**

1-2 tbsp of your favorite whole sweetener such as raw honey, sucanat evaporate cane juice, agave, coconut or palm sugar, jaggery or maple syrup

Instructions:

Mix all ingredients in a blender until smooth. Transfer to a small saucepan and heat just to the point that it starts to bubble. Remove from heat and pour in a glass. Serve.

*high antioxidant fruit powders can be a single fruit or a combination – it is a question of your taste preference. They should be pure with no added ingredients and freeze-dried to maintain nutritional content. This beverage can be turned into a dessert by spooning some of this drink over your favourite ice cream and top with fresh berries.

Raw Almond Milk Recipe

- 1 cup raw almonds · water for soaking nuts
- 3 cups water
- 2 dates (optional)
- 1/2 tsp vanilla (optional)

Soak the almonds in water overnight or for at least 6 hours. Drain the water from the almonds and discard. Blend the 3 cups of water, almonds and dates until well blended and almost smooth. Strain the blended almond mixture using a cheesecloth or other strainer.

Homemade raw almond milk will keep well in the refrigerator for three or four days



Maca X 6 is full of antioxidants and enzymes and nutrients making it a super food

* For a raw food option, use raw milk (if available to you) or make your own almond milk and use the raw cocoa powder and raw honey or raw agave as the sweetener. When heating, keep the temperature to under 118°F or 47°C to maintain the enzymes.



Optimal Nutrition for Fitness by Meredith MacKay RHN

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The muscles must break themselves down in order to build themselves up stronger, therefore protein ingestion is required to provide the building blocks to create stronger muscles. Muscle synthesis and muscle breakdown are both triggered by resistance training, but if the proper nutrients are not provided to the body, catabolism of tissues will occur (4).

After exercise, carbohydrate consumption increases the levels of insulin available in the plasma (5), which decreases the breakdown of protein, as measured by excretions in the urine (6). Carbohydrate consumption does not directly affect muscle synthesis, but carbohydrate consumption following strength training is necessary and very important to replenish glycogen stores and lessen the breakdown of muscles and protein (4). Muscle glycogen is critical as it is the fuel for all muscle contraction.

The synthesis of muscle protein is created by consuming proteins and amino acids after exercise-to produce a positive net balance of protein in the body. Protein consumed immediately after exercising stimulates muscle protein synthesis (8), even small amounts of protein at that time will result in a positive nitrogen balance for a short duration of time, after which the balance will become negative unless feeding occurs (4). To maximize the body's adaptive response to resistance training, the recommendations are to consume 15g of protein immediately following resistance training (4).

High intensity or prolonged endurance training also shows benefits of consuming carbohydrates and proteins immediately post-

exercise (9). Consuming a high carbohydrate replacement meal (0.8g/kg per hr post-exercise) compared to a low carbohydrate replacement meal (0.4g/kg per hr post-exercise) has been shown to reduce damage to muscles, as measured by interleukin-6 (IL-6) – a marker of inflammation in the body (9) – and a combined protein and carbohydrate replacement meal was shown to reduce plasma protein kinase levels in endurance athletes (10). Similarly to resistance training, there is optimal timing of post-exercise nutrition, as the body is more receptive to certain nutrients during that time due to increased blood flow to the working muscles, greater insulin sensitivity, amino acid uptake and protein synthesis (11).

Recommendations for carbohydrate consumption after endurance training are 1.2g/kg every 30 minutes for the first four hours following exercise (7, 14). The consumption of protein after endurance training is similar to its effects on resistance training. High protein (0.7g/kg per hr post workout for 4 hours) diets compared to low protein diets (0.1g/kg) had lower levels of creatine kinase and also positive overnight nitrogen balance (anabolism rather than catabolism) for muscle hypertrophy and improved performance 60 hours later (12). 24g of protein within 4 hours after exercising also reduced tiredness and muscle soreness (11).

Nutrition post-exercise helps maximize performance and enhance recovery; this does not necessarily mean supplementation post-exercise. The following table provides post-exercise snack ideas.

Snack	Protein (g)	Fat (g)	Carbohydrates (g)
Nut butter and Jam sandwich on whole wheat bread	12	11	36
Tuna sandwich on whole grain bread	25	23	24
Chicken sandwich on whole grain bread with cheese	22	15	72
Yogurt smoothie (8 oz)	6	5	43
Cottage cheese with pineapple (1cup)	20	5	14
Yogurt	8	6	20

So now we know how to eat to maximize our workouts, whether those workouts are designed to push us to the next level of athletic performance, maintain our health or help us trim down after the holidays. Let's put it into simpler language. Eat before you exercise – eat something low on the glycemic index so that you will have enough energy to make your exercise productive. During your workout, drink lots of water. If you are exercising for a long time or are sweating a lot, rehydrate with coconut water to replenish your electrolytes as well as the fluid lost. After your

workout eat ASAP! Eat carbohydrates and protein to allow your body to adapt, meaning strengthen your muscles and your bones – to do that it needs muscle glycogen stores and a positive nitrogen balance so that it will build itself up (anabolic) rather than break itself down (catabolic).

If weight loss is your goal, you will follow these guidelines, being sure to eat food that is natural, alive and good quality. The question remains – what type of exercise should you be doing to maximize your time and minimize the time to your goals? **CONTINUED ON PG 4 ...**

Is Honey the Perfect Food for Training or Exercising?

Exercising has many benefits but as indicated in the previous article, replenishing glycogen scores after exercising is essential for building new muscle and maintaining energy levels. Honey may be the best carbohydrate source for this purpose.

A group of 39 weight-trained athletes, both male and female had an intensive weight-lifting workout and drank a protein supplement drink mixed with either sugar, maltodextrin or honey as the carbohydrate. The honey group maintained optimal blood sugar levels throughout the two hours following the workout and muscle recuperation and glycogen restoration was best in those individuals consuming the honey-protein combination. Honey also is ideal to consume before a workout and studies have shown added to water and sipped during a workout, helps maintain energy levels. Honey also contains potent antioxidants, helps maintain healthy triglyceride levels and lowers inflammation.

Honey even helps promote the growth of good bacteria in the gut. So add honey to your after-workout and consume it before and during as well!

Choose raw honey for maximum nutrient benefits.



Enjoy your love of food ...with food that loves you back



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CONTINUED FROM PG 3 ...

Traditionally, most exercise protocols have been based on steady-state aerobic exercises, such as jogging, walking, or cycling, at a moderate intensity. Unfortunately however, these protocols have been shown to produce negligible weight loss results (16, 17). Studies are now showing that regular high-intensity intermittent exercise produce more significant fat loss, including both subcutaneous and abdominal fat loss (17). High Intensity Intermittent Exercise consist typically of short sprints (all-out intensity) followed immediately by low intensity exercise or rest. The length of time for

the sprint and the recovery time is generally anywhere between 6 s and 4 minutes (18). High intensity intermittent exercise has shown significant increases in aerobic and anaerobic fitness, significant increases in skeletal muscle, dramatic effects on insulin sensitivity and subcutaneous and abdominal fat loss (18). Resistance training is also anaerobic and interval in nature, when performed intensely with appropriate breaks. Some of the best exercises for weight loss, but also for strengthening your bones and muscles involve using several muscle groups at once, maximizing your time.

Nutrition In The News 2011 by Eleanor Healy RHN

As we bring 2011 to a close and welcome in 2012, let's look back on what the news has reported about nutrition in 2011. It may be interesting to note what constitutes a top news story-of course as always, it depends on who you ask.

Main stream news:

The following links are from mainstream news groups or blogs, including CBC and the Government of Canada News Centre. Note the top stories highlighted on their news pages and then compare them to the news stories that the Harvard School of Public Health, Natural Health Care and The Institute of Integrative Nutrition put forth.

(If you are confused about how to interpret all the seemingly conflicting data and points of view found in news stories, click here for some tips on how to decipher mass media reporting on current research [here](#))

Business Insider reports on the reasons General Mills can't cut out any more sugar from cereals [here](#)

Canada News Centre talks about the progress made with the Nutrition North Canada Advisory board and Northerners in Canada [here](#)

Yahoo news offers an article that resurrects the good name of salt [here](#)

CBC news talks about the failure to address the two distinct issues of nutritional value versus food security when it comes to school lunch programs [here](#)

The New York Times talks about their version of issues over the school lunch programs [here](#)

Alternative news:

Empty your plate! This article talks about the different visual suggestions people can follow for healthy eating guidelines-from the food pyramid to the plates [here](#) See the chart below

The Natural Health Care website reports on the power of foods for cancer prevention [here](#)

Study on the anti-inflammatory properties of apple peel [here](#)

McMaster University media release also talks about the sodium debate [here](#)

The latest update on Michael Schmidt and the hot topic of raw milk [here](#)

This is just a small taste of the nutrition news stories of 2011-some definite strides in a positive direction with food research; inevitably there are also the usual tiring examples of circular nutrition debates. Let's hope that 2012 will unveil some exciting discoveries and put an end to some of the dizzying arguments about holistic nutrition.

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