



Module Four

Next Level Nutrition

GET YOUR BODY BUZZING ~~==~~ EXPRESS Workbook

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Next Level Nutrition

Hydration (caffeine, energy drinks, sports drinks), Calcium and Iron

Introduction

There are many aspects of nutrition that are vital to our well-being but sometimes they can get forgotten or overlooked in our rush to manage the 'big things' in our day. This can result in poor daily performance, fatigue and less than ideal health.

This week we take a look at the importance of hydration with a spotlight on caffeine, energy drinks and sports drinks, establish your calcium and iron needs and how to meet them.

Hydration

Many people do not consume enough fluid day-to-day or during exercise. This problem is amplified in the cooler months as we don't feel like drinking cool fluids and tend to consume more tea and coffee. Caffeine containing beverages such as tea, coffee and cola drinks do act as diuretics to varying degrees and can promote the loss of fluid, although this is often minimal.

Thirst is not a good indicator of your fluid needs. It can be difficult to estimate fluid losses when there is no proof of sweat e.g. sitting in an air-conditioned office.

Taking enough fluid on board is one of the most effective ways of enhancing your daily performance. Fluids are lost in sweat and how much you sweat will depend on your size, temperature on the day, clothing you are wearing, and whether you are exercising. Sweat rates vary a lot but when sweat loss is not matched by fluid intake, dehydration will occur.

So how does dehydration affect your daily performance?

- Decrease in physical and mental performance
- Inability to make a decision
- Loss of coordination

In short, you feel exhausted, lifting your feet becomes an impossible feat, you can't make decisions and you get a headache!

If you lose more than 2% of your body weight through fluid loss, the health risks become more serious and can result in nausea, vomiting, diarrhoea and other gastrointestinal problems. And no, you can't toughen up or train your body to handle being dehydrated.

How many cups of fluid are you drinking each day?

Fluid	Number of Cups
Water	
Tea / Coffee	
Other	
TOTAL	

Aim for 6-8 cups of fluid each day to keep your body hydrated and refreshed.

So we know that staying hydrated is key to your general performance but what are some good fluid tips if you are exercising?

- Begin your exercise session hydrated, drink well before you start
- Drink at regular intervals, around every 15 minutes and try to consume between 150-250 mls each time. You could set your watch timer at 15-minute intervals to remind yourself to drink.
- If exercising for less than 60 minutes, water is the most practical and economical fluid. Cool water is better absorbed and is more refreshing and palatable.

Sports Drinks and Energy Drinks?

Sports drinks can be a useful performance-enhancing tool when exercising. Electrolytes such as sodium (salt) are lost in sweat and need to be replaced during and after prolonged exercise. Sodium improves fluid intake as it stimulates thirst and promotes carbohydrate and fluid uptake. Sports drinks contain electrolytes like sodium, carbohydrates and water, making it a complete package. These drinks are most effective for exercise sessions one hour or longer in duration and be mindful that buying sports drinks are not a substitute for actually doing exercise!

'Energy drinks' should not be confused with common 'Sports' drinks such as Gatorade, Powerade and others, which were originally developed for athletes.

Energy drinks such as Red Bull, V, Lift Plus and Black Stallion have flooded the market in the last few years and primarily appeal to weekend athletes, children and teenagers. They contain a wide range of ingredients including sugar, caffeine and/or guarana, B-group vitamins, amino acids and herbal products. Sugar is the main carbohydrate and energy source, and its concentration is often 11-15%. This level of carbohydrate is similar to cordials and soft drinks but significantly higher than sports drinks. The high sugar

concentration can slow your stomach emptying and affect fluid absorption. There is little scientific evidence to prove the addition of amino acids (such as taurine), or herbal ingredients (like ginseng) to energy drinks are beneficial.

The main ingredient of interest in energy drinks for most people is caffeine. Caffeine is a stimulant that affects the brain, nervous system, heart, kidneys, muscles and lungs. Despite marketing claims to the contrary, guarana contains caffeine and acts in exactly the same way.

Energy drinks are not a good choice for fluid replacement before, during or after sport and should not replace sports drinks or water.

Click on the following hyperlinks for some useful fact sheets on [Fluids in Sport](#) and [Sports Drinks](#)

Caffeine - the performance enhancer?

This topic has become hot over the past few years mostly due to athletes using it for performance enhancing purposes. Caffeine was a banned substance for many years until 2000 when it was delisted under IOC regulations. It has gained popularity amongst the general public since then.

You may be wondering whether caffeine will help you get through your day. Caffeine is a stimulant that speeds up parts of the body and the brain and can enhance your performance if used properly.

Although there is no recommended intake, most authorities agree that the safe daily upper limit for caffeine is 300mg for the average adult person. 300mg is equivalent to 3-4 cups of brewed coffee (cappuccino, latte, flat white etc). There is no safe limit for children.

Are you exceeding the limit?

It has been proposed that caffeine can promote the increased use of fat as an energy source during exercise and therefore spare carbohydrate (glycogen) stores, however, further research is required in this area.

Caffeine Counter

		Caffeine (mg)
Brewed coffee	1 cup	85 - 120
Instant coffee	1 cup	60
Brewed tea	1 cup	75
Instant tea	1 cup	30 - 50
Green tea	1 cup	50 - 80
Cocoa powder	2 tsp	20
Milo	2 tsp	1
Energy drink	250ml	80
Milk chocolate	30g	6
Cola drink	375ml can	40
Caffeine table (No Doz)	1 cup	100

Technically, caffeine is a diuretic but this does not necessarily mean that it will make you wee excessively. For example; a 200ml cup of tea containing 50mg of caffeine will produce 60ml of urine with the remaining 140ml being part of your fluid intake.

Iron

How do we pump iron?

Iron deficiency is a condition in which the number of red blood cells or their capacity to carry oxygen is limited resulting in tiredness and fatigue, breathlessness, poor working ability and minor skin and nail changes. It can occur in men and women.

	Mg iron / day
Men	7mg
Women (19 - 54 years)	12 - 16mg
Women (54 +)	5 - 7mg
Pregnancy (Trimester 2 & 3)	22 - 36mg

Dietary iron can be difficult to obtain and is found in two different forms - 'haem' iron which is found in animal foods and 'non-haem' which is found in non-animal food.

'Haem' foods usually contain more iron, which is well absorbed compared to non-haem iron, which is not well absorbed. Foods containing non-haem iron can also contain other substances, which make the iron unavailable to your body. These include tannin (in tea), phytates (in wheat bran and breakfast cereals) and oxalates (in spinach). **The consumption of Vitamin C at the same meal enhances the iron absorption of these foods.**

Therefore, if your diet is based mainly on vegetables you may find your iron intake to be quite poor and also unavailable. With planning and consistency this can be resolved.

Where do we find iron?

Haem Foods

Food	Serve	mg Iron
Liver	100g (cooked weight)	11
Liver pate	40g (2 tbsp)	2 - 3
Lean steak	100g (cooked weight)	4
Chicken (dark meat)	100g (cooked weight)	1.2
Fish	100g (cooked weight)	0.6 - 1.4
Oysters	1 dozen	4.7
Salmon	100g (small tin)	1.4

Non - haem foods

Food	Serve	mg Iron
Eggs	100g (2)	2
Breakfast cereal (fortified)	30g (1 cup)	2.5
Wholemeal bread	60g (2 slices)	1.4
Spinach (cooked)	90g (2/3 cup)	3.6
Lentils / kidney beans (cooked)	100g	2.5
Tofu	100g	1.9
Almonds	50g	2.1
Sultanas	50g	0.9
Dried apricots	50g	2

The role of red meat

The role of meat in the diet in recent times has been controversial. In 2002 the International Agency for Research on Cancer published a meta-analysis on the relationship between meat consumption and colorectal cancer. Total fresh meat appeared to be unrelated to the risk of colorectal cancer. The increase in relative risk for colorectal cancer associated with increased consumption of processed meats appeared substantial.

Possible Mechanisms

- Flame: Polyaromatic hydrocarbons are produced when meat is cooked directly over a fire or grill on a BBQ. These compounds are common in the diet and are found in cereals, oils and fats.
- High heat: Formation of heterocyclic amines when meats are subjected to high heat e.g. Pan-frying
- Curing: Nitrite compounds may be generated during the preservation of some meat such as ham, bacon, salami etc.

Until more conclusive evidence is available it is advisable to avoid char-grilling, less high temperature cooking of meat, more roasting, stewing and microwaving and limit intake of processed meats.

Calcium

Dairy products are the foundation for your bones and keep your nerves and muscles firing.

Clinical studies have shown that those people with higher intakes of calcium and dairy foods also have lower body weight and less body fat. These protein foods are more satisfying and keep you fuller for longer.

It is true that dairy products are not the only sources of calcium. Calcium can be found in many other foods besides milk, cheese and yoghurt. The question is, are you prepared to eat 45 tablespoons of sesame seeds to obtain the same amount of calcium that you will find in 250 ml of milk?

People often ask me if they can use sesame seeds, green leafy vegetables or nuts as an alternate calcium source to dairy products. This table gives an indication of the quantities of some common foods that contain the same amount of calcium as 250ml of milk.

Compare the amount of non-dairy food that needs to be consumed to be equivalent to one serve of dairy.

Food	Quantity
Almonds	120 g
Apples	7.5 kg
Apricots, dried	430 g
Baked beans	900 g
Bread, wholemeal	20 slices
Broccoli	1 kg
Eggs, boiled	18
Salmon, canned with bones	140 g
Sesame seeds	45 tbsp
Spinach	600 g

The other factor to consider is that the calcium in dairy foods is absorbed more efficiently than from other sources. This means that although you might be feeling REALLY hungry and manage to munch your way through 7.5 kg of apples, you still won't absorb the same amount of calcium found in 1 cup of milk.

Most people will be able to obtain their average daily requirement of calcium by eating three serves of dairy every day. One serve of dairy is equal to:

- 1 glass (250ml) of milk
- 1 tub (200g) of yoghurt
- 2 slices (40g) of cheese

There are no shortcuts to any place worth going.

- Beverly Sills, Opera Singer

Your tasks for this week are

- Keep a record of the amount of fluid, iron and calcium that you consume over the next week. Are you meeting your requirements? If you need to improve, do you have any ideas on how to increase your intake?

Resources

- Check out <http://www.healthybonesaustralia.org.au>
- Recipe ideas for vegetarians to ensure an adequate iron intake can be found at <http://www.sanitarium.com.au>
- For red meat lovers go see <http://www.beefandlamb.com.au> for some tasty recipes