

EVERYONE IS TALKING ABOUT THE IMPORTANCE OF PROTEIN. FROM SIGNS IN SUPERMARKET AISLES TO PERSONAL TRAINERS, IT SEEM LIKE WHEREVER YOU GO YOU'RE BEING TOLD TO TAKE PROTEIN. IF YOU ARE NEW TO PROTEIN WE RECOMMEND YOU SHOP WITH EXPERTS WHO WILL TAKE THE TIME TO EXPLAIN WHAT THE LABEL MEANS, OR VISIT A DIETICIAN. WHEN IT COMES TO PROTEIN IT CAN ASSIST WITH WEIGHT LOSS TO MUSCLE GAIN, IMPROVED PERFORMANCE, INCREASED ENERGY AND BETTER RECOVERY. SO WHAT ARE YOU REALLY LOOKING FOR AND WHAT DOES IT MEAN? BODY SCIENCE MADE ITS FIRST PROTEIN IN 1999. AFTER OVER 16 YEARS IN THE INDUSTRY WE KNOW A THING OR TWO ABOUT PROTEIN AND HAVE A RANGE THAT COVERS EVERYTHING FROM CERTIFIED ORGANIC AND SUITABLE FOR VEGANS TO LEAN MUSCLE GAINERS.

## GUIDELINES FOR PROTEINS & PROTEIN POWDERS



Did you plan to achieve your recommended daily intake levels for a balanced diet before you left home today? Did your breakfast contain any protein? Do you know how much protein is in your lunch? What is enough protein? If you don't live a food prep lifestyle or don't plan your daily meals, then taking a protein supplement each and every day can help fill the gaps in your healthy diet and training program and ensure you are meeting your daily protein requirements.

But what are your daily protein requirements? You need to realize that everyone's protein needs are different. Are you an athlete? Are you dieting? Do you do functional training classes? Do you do boot camp? Do you lift all day at work? Do you sit at a computer all day? Are you a body builder who wants to maximize your lean muscle mass? Your daily protein requirements depend on a number of factors.

Let's start at the beginning.



# WHAT IS PROTEIN?

The role of dietary protein in health has been studied by scientists for decades and a considerable amount of scientific data has been gathered regarding protein. The word protein comes from the Greek word meaning 'prime importance' - which is quite appropriate given the significant role this macro-nutrient plays in the body. Protein is fundamental to life. 18-20% of our body is protein. After water, protein is the most important building block in the human body. Protein makes up our skin, muscles and connective tissue and plays a significant role in the look and feel of our hair, skin, nails and teeth. More importantly, it plays a substantial role in our fitness goals. Protein provides energy and supports muscle growth and can even help us burn fat. But most importantly, protein affects us in ways we can't see ..... our inner health. Our body needs protein to grow, heal and carry out nearly every chemical reaction in the body. And our bodies can't store protein so we need to consume it on a regular basis. So if you take your health and well being seriously, you really do need to ask yourself, have I had enough protein today?

## A BIT OF SCIENCE

The molecular building blocks of proteins are amino acids. There are two types of amino acids – non-essential and essential. Non-essential amino acids can usually be synthesized by a healthy body from the foods that we eat each day. The essential amino acids however, must be obtained through the daily diet.

This makes them essential nutrients. If you are not getting these essential amino acids in your diet every day then your body will not be performing at its best. It is that simple.

### THE ESSENTIAL AMINO ACIDS ARE:

- **Arginine** (required for the young but not for adults)
- **Histidine**
- **Isoleucine**
- **Leucine**
- **Lysine**
- **Methionine**
- **Phenylalanine**
- **Threonine**
- **Tryptophan**
- **Valine**

### THE NON-ESSENTIAL AMINO ACIDS ARE:

- **Alanine**
- **Arginine**
- **Aspartic acid**
- **Cysteine**
- **Cystine**
- **Glutamic Acid**
- **Glutamine**
- **Glycine**
- **Hydroxyproline**
- **Proline**
- **Serine**
- **Tyrosine**

Proteins do more in your body than just help build strong muscles. They are present in every cell and tissue, each one with a highly specialized function necessary for normal development and function with no one role more important than the others.

Proteins do more in your body than just help build strong muscles. They are present in every cell and tissue and are involved in highly specialized functions. These include:

- **Repairing body cells**
- **Building and repairing muscles and bones**
- **Providing a source of energy**
- **Regulating many important metabolic processes in the body**
- **Involvement in immunity**

## PROTEIN MYTH BUSTERS!

When it comes to eating protein, there are some myths out there that we need to dispel. The first myth applies to women. Many women out there are afraid that eating protein and/or strength training will make them bulky. This is simple not true. Ensuring you meet your required protein intake on a daily basis, and engaging in resistance training will not make you bulky. In fact, as we will discuss in more detail later, an adequate protein intake is an essential part of any weight loss program and helps ensure your metabolic rate remains high. Most men struggle to gain a significant amount of muscle even when strength training several times a week. And women are no different. Consuming your recommended daily intake of protein and doing resistance training will help you be lean and toned and strong, not bulky.

The second myth is that getting enough protein every day is difficult or expensive. Again, this is not true. Ensuring you get enough protein every day doesn't have to be a chore or break the bank. The key is to make sure you consume some protein at every meal. Inexpensive sources of protein include eggs, tuna and protein powders.

## **DO I NEED TO TAKE A PROTEIN SUPPLEMENT?**

Ultimately whether protein supplements will be of value to you depends on your training habits and your dietary intake. Many health professionals will argue that protein supplementation is unnecessary and that the recommended daily intake for protein is easily achieved via a normal dietary intake. However, this argument is based on the assumption that everyone takes the time to ensure they consume a well balanced diet containing a range of high quality protein sources everyday.

If you do manage to eat a well balanced diet every day then that is great – nothing beats a healthy diet that includes lots of fresh, good quality, nutrient rich foods. But if in today's hectic world you don't always get to tick this box on your to do list, then using protein supplements can help fill the gaps and ensure you meet your minimum daily protein requirements. Protein supplements are very quick and easy to use and can be taken on the run. So even when you're time poor you can still be nutrient rich!

Lastly, athletes and bodybuilders who want to maximize their lean muscle mass may find it hard to obtain their increased protein requirements from food alone. Furthermore, if you eat three meals per day your protein intake is limited to three intakes per 24 hours. However, protein synthesis is a continuous activity that requires a balanced supply of amino acids. By consuming high protein supplements in-between meals you can increase the frequency of protein ingestion, which will assist in maintaining blood amino acid concentrations across the day. This can increase protein synthesis, which is of benefit to those wanting to maximize their lean muscle mass.

So if you don't eat a balanced diet every day, are time poor, or are looking to maximize your lean muscle mass and need extra protein, then a protein supplement could be of benefit. Almost any type of training will increase your daily protein requirements also. Insufficient intake of quality protein in your daily diet can cause a chain of defensive events to occur within the body, which can impair effective fat loss, muscle development, muscle tone and immunity. The best person to judge whether or not protein supplementation is necessary is you.

Protein supplements these days are designed around lifestyle. You can look for Dairy Free Protein Blends, Gluten free Protein blends, Organic Certified Plant Blends, Whey Protein Blends, Fast and Slow Protein Blends, Recovery Blends, Mass Gainer Blends, Amino Enriched Blends and Weight Loss Blends and Lean Ripped and Shredded Blends. Before we answer the question, 'Which protein is best for me?' lets look at how much protein you need per day.

## **HOW MUCH PROTEIN DO I NEED PER DAY?**

According to the National Health and Medical Research Council (2004), the recommended protein intake for adult individuals who are inactive or sedentary is 0.75g/kg/day. This means that if you are a 70kg office worker that does no exercise your daily protein intake would be  $0.75g \times 70kg = 52.5g$  per day.

However it is generally accepted that those involved in sport, functional exercise or performance training have higher protein requirements. Those involved in strength (weight) training are generally advised to consume around 1.6-1.7g/kg/day, while those involved in endurance training (e.g. triathlon) are generally advised to consume around 1.2-1.4g/kg/day (Lemon, 1998). Therefore if you were a 100kg bodybuilder you would be advised to consume around  $1.7g \times 100kg = 170g$  protein per day. Likewise if you were a 65kg Triathlete you would be advised to consume  $1.4g \times 65kg = 91g$  protein per day.

So now that you have an idea about how much protein you need to consume each day for your general health and well being, let's look at the different types of proteins that are available to choose from.

## **WHAT TYPES OF PROTEIN POWDERS ARE THERE?**

There are many different options to choose from when it comes to protein supplements. Let's look at the eight main types of protein powders available and examine their purposes, advantages and when they are suitable to use.

Protein sources can be divided into two main categories – Dairy sources and Plant sources. Dairy Proteins consist of rapidly absorbed proteins and slowly absorbed proteins.

### **The rapidly absorbed Dairy Proteins include:**

- **Whey Protein Isolate (WPI)**
- **Hydrolysed Whey Protein Isolate (HWPI)**
- **Whey Protein Concentrate (WPC)**

## The slowly absorbed Dairy Proteins include:

- **Milk Protein**
- **Caseine Protein**

## Plant Protein sources include:

- **Soy Protein Isolate**
- **Rice Protein**
- **Pea Protein**

## WHEY PROTEIN

The most common proteins we read about are the Whey proteins. As listed above, there are three types of whey proteins - Whey Protein Isolate (WPI), Hydrolysed Whey Protein Isolate (HWPI) and Whey Protein Concentrate (WPC). The Whey proteins are the most rapidly absorbed proteins. Whilst rapid absorption has its advantages in certain situations, the quickest doesn't always mean the best...but more on that later. Whey Proteins, in particular the isolates (i.e. WPI and HWPI), are also the most expensive proteins to buy. WPI is renowned in the bodybuilding world as the protein with the highest absorption rate and best taste.

Whey protein is actually a by-product of the cheese making process. When cheese is made from milk, a by-product of this process is whey. Then, via a number of purifying processes, whey protein is made. Whey protein contains upward of 70—90% protein. Whey Proteins are also considered complete proteins, which means they contain all 9 of the essential amino acid required for adults.

Rapidly absorbed Whey Proteins are suitable for use before and after exercise. Their rapid absorption means they won't cause gastrointestinal upset. Rapid absorption also supports greater protein synthesis.

## MILK AND CASEIN PROTEINS

Apart from the Whey Proteins, the other dairy proteins are Caseine protein and Milk proteins. When you look at Caseine protein, it is at the opposite end of the absorption rate spectrum compared to Whey. Caseine is absorbed very slowly by the body. It takes 5-7 hours to be fully broken down. This makes it the perfect inclusion for weight loss protein blends, where rapid absorption is not the best option. By being absorbed slowly, it helps you stay full and satisfied for longer by providing a constant supply of protein over many hours. Caseine is also an optimal protein choice for before bed.

Milk proteins naturally contain both whey proteins and caseine, but are often higher in carbohydrate than whey and caseine proteins. Both Caseine and Milk proteins are complete proteins.

## PLANT PROTEIN

Recently plant based proteins such as soy protein isolate, rice protein and pea protein have become increasingly popular. Plants proteins have the obvious advantage of being suitable for vegetarians and vegans. However, most plant proteins are rich in naturally occurring glutamine, arginine and BCAA's making them a suitable contender for both everyday protein needs and post workout.

Soy protein Isolate is regarded by many as the 'powerhouse' plant protein as it is one of few plant protein sources that offers all of the essential amino acids. It delivers high protein levels whilst being very low in carbohydrates. It has received some bad press by the many bloggers out there who preach that it's a genetically modified protein. At Body Science our Quality guidelines on raw material supply is material must be non-GMO (Genetically Modified Organism). If a raw material supplier cannot supply NON-GMO then we do not use them – it's that simple.

Another perfect Vegan or Vegetarian Protein supplement is a combination of Rice and Pea protein. When consumed as single protein sources, the amino acid profiles of rice and pea proteins do not stack up well compared to whey and soy proteins. However, when combined together, like in the Certified Organic Plant Protein blend made by Body Science, rice and pea proteins provide a rich supply of amino acids, capable of meeting the protein synthesis requirements of any athlete.

Note – whilst egg white protein powder has been commercially available for some time, it is not very popular among many protein manufacturers. It could be considered a good choice for lacto-ovo vegetarians (i.e. vegetarians that include eggs in their diet).

## WHAT ARE THE BEST PROTEIN SOURCES?

You should aim to incorporate a wide variety of good quality protein sources in your diet every day, including lean red meat, chicken, turkey breast, fish, eggs, lentils and beans, and protein supplements when necessary.

The following table lists a number of foods containing a good level of quality protein:

<b>Food</b>	<b>Protein (g)</b>	<b>Calories</b>
<b>Beef</b>		
Rump 100g	31.8	212.8
Fillet 100g	29.8	205.4
Sirloin 100g	28	192.4
<b>Chicken</b>		
Breast 100g	28	157.1
Drums 100g	28	207
<b>Fish</b>		
Whiting 100g	19	93.3
Salmon 100g	20	154
<b>Miscellaneous</b>		
Egg (1 large)	5.5	65
Kidney Beans 100g	12.8	114
Almond Nuts 50g	8.4	274
Milk 250ml	8.2	161.9
Cheese (cottage) 50g	8	61.4
<b>Body Science Protein Supplements</b>		
HydroxyBurnPRO diet Cookies and Cream 40g	20	155
NitroBulk Muscle Vanilla 60g	20	224
Nitrovol Lean Muscle White Milk Chocolate 60g	21	224
Whey Protein Isolate Chocolate 30g	25.6	113
RTD Athlete Milk Protein Shake Vanilla 300mL	20	140
High Protein Bar Cookies and Cream 65g	21.5	265
High Protein Stix Dark Choc Cherry 40g	13	131
High Protein Balls Cookies and Cream 70g	24.4	256
Nitrovol Primal Protein Bar Peanut Butter Fudge 80g	24.8	288
HydroxyBurn Shred Protein Chocolate 35g	25	127
BODY Shaping Protein Vanilla Coconut 25g	17.4	90
High Protein Lo Carb Bar Choc Caramel 65g	21.8	253
Naturals Organic Plant Protein Chocolate 25g	18.2	97
Daily Protein Vanilla 40g	12.8	149
Strength Protein Chocolate 60g	16.2	222
Fitness Protein Caramel 40g	13.5	150

\*Please note: This table aims to help you choose quality foods. It is not meant to replace the professional advice of a dietician. Table modified from P. Rhodes, Dietary Sources of Protein'. The calories column combines figure carbohydrate and fat, not just protein.

## MORE PROTEIN FOR MORE MUSCLE

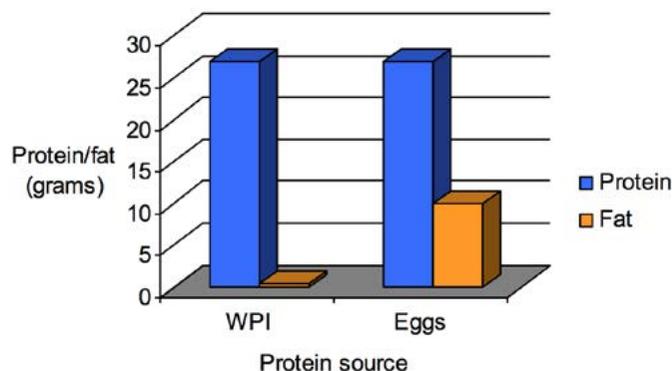
Over the years there have been a number of research articles published that have indicated ingesting protein prior to and after training can produce a greater increase in protein synthesis. Over weeks or months this can lead to greater protein accumulation, resulting in greater gains in muscle size, strength and athletic performance. Obviously the form of protein ingested prior to training is immensely important so as not to induce gastrointestinal distress that could ultimately impair the quality of your training. Protein supplements can provide a more practical protein source for athletes wanting to consume protein in close proximity to exercise. Protein supplements provide a quality source of protein that is rapidly absorbed without causing the gastrointestinal distress that can be associated with eating whole food protein sources before training. That is, a protein drink is going to sit more comfortably in your stomach during exercise than eggs and bacon. Similarly, protein supplements offer a quick and convenient protein source, perfect to take when time is against you, such as when you're squeezing in a gym session on your way home from work.

Protein supplements also make meeting the increased protein demands of an athlete easier to obtain. Protein supplements taken as in-between meal snacks will help maintain the balanced supply of amino acids necessary for protein synthesis, which is of obvious benefit to those wanting to maximize their lean muscle mass.

## PROTEIN FOR WEIGHT LOSS

Protein supplements are a great option for those of us wanting to maintain our dietary protein intake while reducing our calorie intake, such as when dieting. Protein supplements allow protein to be consumed without the saturated fat, carbohydrate and unnecessary calories that come hand in hand with many whole food protein sources or cooked meals. A protein supplement can ultimately provide you with what you need to meet your daily protein requirements, whilst maintaining a low calorie intake. One of the advantages of ingesting adequate protein and performing resistance training during calorie restriction is that it helps maintain your lean muscle mass. This is important as lean muscle tissue burns calories and helps ensure your metabolic rate remains high. Let's remember that it is fat (not weight) that you want to lose. If you lose muscle mass during energy restriction your metabolic rate will drop and it will make it increasingly difficult to lose the desired body fat. To lose weight healthily, you need to maintain an adequate protein intake while simultaneously restricting your calorie intake.

Some protein supplements provide a good source of protein that contains very little fat and low calories. If you take Body Science HydroxyBurn Shred Protein as an example, one 35 gram serve provides 25 grams of protein. To achieve this protein intake (25 grams) from a whole food source such as eggs you would need around four eggs. However, as seen in figure 1 below, Body Science HydroxyBurn Shred Protein provides a method of ingesting protein while minimising fat intake. It also helps you keep your calorie intake low. One serve of HydroxyBurn Shred Protein provides 1.2 grams of fat. Four eggs provides approximately 19 grams of fat. One serve of HydroxyBurn Shred Protein provides 127 calories. Four eggs provides 260 calories. That's quite a difference.



**Figure 1:** A comparison of the protein and fat content in one 30g serve of Body Science HydroxyBurn Shred Protein versus four eggs. Note that while the protein intakes are identical the fat intake is higher with the consumption of the eggs.

## WHAT ARE BCAA'S?

Branched Chain Amino Acids (BCAA'S) consist of 3 essential amino acids - Leucine, Isoleucine and Valine. In the body they facilitate energy production, enhance endurance and aid the healing and repair of muscle tissue. Some people refer to BCAA's as the body's very own "spack filler" or "putty filler". Putty filler helps to soothe torn and cracked walls in buildings. BCAAs do the same kind of job for our muscle tissues. You will commonly see amino acids being referred to as "building block"; they have the ability to create better foundations for you to work with.

BCAA make up one third of muscle protein in the body. They differ metabolically to other amino acids as they are able to be taken up by muscle cells and used as an energy source. For this reason, during strenuous physical activity and training BCAA levels drop significantly. Supplementing with BCAA's will help muscle building and aid healing and repair. When you recover better after training you will be able to get up and do it again the next day. You will find that your sore tired fatigued muscles are more supple and limber.

## WHAT IS THE BEST PROTEIN TO TAKE WHEN EXERCISING?

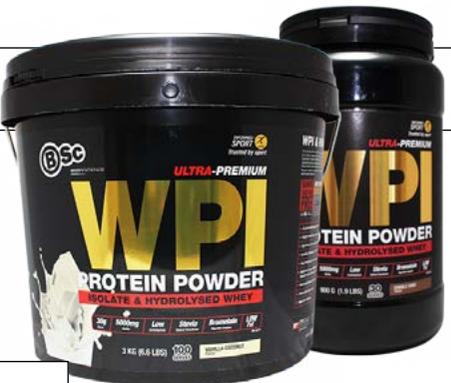
Taking protein before exercise and after exercise (during recovery) helps muscle building. When ingesting protein prior to or immediately after exercise it is advisable to consume a protein source that maximizes amino acid availability in the shortest amount of time. This makes the rapidly absorbed proteins the ideal choice. These include Whey Protein Isolate (WPI), Hydrolysed Whey Protein Isolate (HWPI) and Whey Protein Concentrate (WPC). Body Science's WPI contains a blend of WPI & HWPI making it an excellent choice for pre and post training protein supplementation. Soy protein or a blend of rice and pea proteins are the obvious choice for those individuals who are strict vegetarians.

## DO ANY OF THE BODY SCIENCE PROTEIN SUPPLEMENTS STACK WELL TOGETHER?

Yes, there are a number of potential ways to stack BSc protein supplements. One combination that is particularly effective for strength athletes and bodybuilders is stacking KOS Pre-Workout with your favourite protein. Consuming this stack in conjunction with your exercise regime helps facilitate enhanced protein synthesis. Many Body Science proteins contain a blend of both fast and slowly absorbed proteins. Consuming a mixture of both rapid and slowly absorbed proteins immediately post exercise will supply fast release amino acids for protein synthesis, while slow release proteins potentially offsetting protein breakdown. This combined action will enhance your lean muscle main gains.

An example is provided below as to how this stack could be used.

	SUPPLEMENT PROTOCOL
<b>PRE-TRAINING</b>	<p>Consume one serve (9 grams) KOS Pre-Trainer with water</p> 
<b>BUY NOW</b>	

	IMMEDIATELY PRIOR TO TRAINING
<b>POST-TRAINING</b>	<p>One serve of your favourite protein immediately post exercise</p> 
<b>BUY NOW</b>	

Another popular stack is combining your favourite protein with a sports drink to facilitate recovery after an endurance event such as a Triathlon. This is a practice used by many athletes. In fact a recent study investigated the effect of adding protein to a standard carbohydrate type sports drink (Niles et al., 2001). The study involved endurance athletes performing a long and fatiguing exercise session. Athletes then ingested either a carbohydrate drink (standard sports drink) or a carbohydrate drink with added protein. Several hours later the athletes performed another exercise performance test. Results indicated that athletes that consumed the carbohydrate drink with added protein performed much better in the second exercise test than those that consumed the carbohydrate drink alone. These results suggest that the addition of protein to a sports drink facilitates enhanced recovery compared to carbohydrate alone.

To trial simply combine a serving of a sports drink with your favourite protein (e.g. WPI) immediately after exercise.

	<b>SUPPLEMENT PROTOCOL</b>
<b>POST-TRAINING</b>	Scoop one serve of your favourite sports drink into a shaker
<b>POST-TRAINING</b>	Add one serve of your favourite protein & water, and consume immediately post exercise for best recovery.

## **SUGAR SUBSTITUTES**

As Body Science is a health & fitness manufacturer we avoid adding sugars to our products wherever we can. All of our Protein and Proprietary powders are sweetened with very low levels of the plant based sweetener stevia, or the high intensity sweetener sucralose, rather than sugar.

Sweeteners are a constant source of controversy. Body Science recognizes the necessity of using sweeteners in sports supplements, where the desire is to keep sugars at a minimum. However, the demand for great tasting high protein supplements and the desire to produce better tasting flavours has increased the need for the use of sucralose, rather than just using the natural sweetener stevia. When you research our range you will see there are a variety of products that use the natural sweetener stevia and some that contain sucralose. Both are approved by Australia's regulatory bodies for use as sweeteners in food. We endeavor to use stevia wherever we can, but sometimes in order to achieve the desired taste profile, we need to use sucralose.

## **WHAT'S THE VERDICT?**

The bottom line is we all need to make sure we eat an adequate amount of protein for optimum health and well being. Protein is not just important for muscle development, it's an essential macronutrient that plays a crucial role in many bodily processes. And it can't be stored in the body so you need to meet your dietary protein requirements each and every day. Ensure you include some protein with every meal. When you exercise have an extra protein hit. On the days when you don't eat three healthy balanced meals fill the gaps with a protein supplement. It doesn't have to be complicated. In fact, Body Science's extensive range of protein supplements actually makes it quite easy to answer yes to the important question – have I had enough protein today? Your body will thank you.

## **SOME EXTRA HEALTHY LIVING TIPS FROM BSC TO HELP YOU GET THE MOST OUT OF LIFE!**

Keep a food and exercise diary – write down everything you eat, drink (or chew!) and every type of physical activity you undertake. You should also include water and supplement intake. Be honest – this is the only way you will be able to assess what your pitfalls might be and how you can improve your health and fitness.

Encourage friends or family members to exercise with you.

Drink more water and unsweetened herbal tea rather than soft drinks and coffee throughout the day.

Make every meal an occasion and savour every bite rather than gulping down your food. You might also like to set the table and sit down with your family, rather than everyone eating separately in front of the television.

Do not punish yourself if you eat too much - simply get back to your good eating habits as soon as possible.

If you feel hungry, do not deny yourself – listen to your body! But ask yourself if you are really hungry or if you are just bored, angry, upset etc.

Do not go grocery shopping when you are hungry or upset – only when you have planned a trip and have a list to follow.

## **Other tips to help you with your grocery shopping include:**

- **Read food labels**
- **Plan your meals ahead so you know what you need to buy every week**
- **Buy fresh produce in season**

Plan and prepare your meals for the day ahead of time. For example, grill a few kilograms of chicken breast, steam your vegetables and cook rice, and then keep it all in the fridge, ready to serve and eat at meal times.

Keep a shaker and BSc protein powder in your office, car and gym bag so you always have a convenient, healthy and tasty snack on hand.

Involve your family in meal planning and preparation.

Avoid buffets, if possible. But if you have no choice, consider portion size. Do not feel you have to eat as much as possible.

Use the stairs rather than the lift, and walk rather than stand still on escalators.

If you use public transport, get off a few stops before your regular stop so you have to walk further.

If you feel too tired or unmotivated to exercise after work, try getting up an hour earlier and exercise then. It will not take your body long to adjust to early-morning exercise and you will feel invigorated and more energetic during the day.

Craving something sweet? Rather than reaching for the tub of cookies and cream ice cream, try the BSc high protein version instead. Our high protein, low-carbohydrate and low-fat cookies and cream bar tastes great, is nutritious and will satisfy your hunger and cravings for something sweet, while saving you a heap of calories.

Prepare most of your meals, rather than buying takeaway. Not only will this save you money, but you will also know exactly what you are eating. On those occasions when you do need to eat out or buy your lunch, stick to the healthier options, such as a chicken salad or wrap at McDonald's rather than a Big Mac and fries.

Keep away from the scales - unless you are weighing your food! It is easy to get obsessive about your weight, but scales are not an accurate indicator of body composition (i.e. fat to muscle ratio). Muscle weighs more than fat and your aim should be to be leaner and more toned, not to simply weigh less. To get a more accurate picture of your body composition, try using the tape measure and mirror, or simply go by how your clothes fit and how good you feel.

Reduce stress. Research has shown that stress is a key contributor to poor health. Stress can detrimentally affect the body in a number of ways (headaches, high blood pressure, depression, insomnia, and fluid retention to name a few). It can also slow down fat loss. Try these stress-busters:

Listen to your favourite music.

Meditate – you do not need to get into the lotus position! Simply take some time to “chill out”, breathe deeply and slowly and think positive thoughts. Free meditation courses are offered throughout Australia, so check your local papers for information.

Treat yourself well. We are often so busy rushing through life and doing things for others that we forget to look after ourselves. It is essential to recognise that you will not be helpful to anyone if you are unwell. So take some time every week to do something you love which makes you feel good. It might be a movie night with your partner, a manicure, or a massage.

Reduce caffeine intake. Caffeine is a stimulant and can make you feel even more anxious and stressed. Try replacing coffee with herbal teas and water. You will also be better hydrated which will provide additional benefits.

Learn to say no. Many of us have difficulty saying no when we are asked to do something – even if we do not want to do it or do not have the time. Learn to be assertive without hurting anyone's feelings.

Pat your pet. Research has shown that owning a pet provides many health benefits. Animals provide unconditional love and great companionship. If your pet is a dog, he/she can also be your exercise buddy.

Get enough sleep. Sleep allows your body to rest and recover – both physically and mentally. Aim for six to eight hours every night.

Make exercise fun – participate in a range of activities that you enjoy. There are many fun ways to exercise, and you are more likely to be active if you are also having fun. Try a fun run/walk with friends, roller blading, surfing, bike riding, beach running, or dancing the night away every Saturday!

Create a healthy recipe book containing all your favourite meals, from breakfast to desserts. This way you will always have a collection of your favourite healthy meals on hand. Share them with friends, or get together and swap.

Smile! Maintaining a positive attitude is one of the keys to achieving your goals – in every aspect of your life. Believe in yourself and your ability and focus on all the good things in your life, rather than anything less than perfect. Look around you and take notice of the people who seem to attract ‘good luck’ – is it luck or their attitude and self belief?

## References

1. Demling, R.H. and DeSanti, L. Effect of a hypocaloric diet, increased protein intake and resistance training on lean mass gains and fat mass loss in overweight police officers. *Annals of Nutrition & Metabolism*. 44:21-9, 2000.
2. Ha, E. Zemel, M.B. Functional properties of whey, whey components, and essential amino acids: mechanisms underlying health benefits for active people. *Journal of Nutritional Biochemistry*. 14:251-258, 2003
3. Houston, M.E. Gaining weight: the scientific basis of increasing skeletal muscle mass. *Canadian journal of applied physiology*. 24:305-316, 1999
4. Kreider, R.B. Which protein is best for sports performance? Available online at: <http://www.fnmag.com/ASP/home.asp>
5. Mosoni L. Mirand PP. Type and timing of protein feeding to optimize anabolism. [Review] [41 refs] [Journal Article. Review. Review, Tutorial] *Current Opinion in Clinical Nutrition & Metabolic Care*. 6(3):301-6, 2003 May.
6. National Health and Medical Research Council, 2004: Available online: <http://www.nhmrc.gov.au/publications/diet/h6p1.htm>
7. Niles, E.S., Lachowetz, T., Garfi, J., Sullivan, W., Smith, J.C., Leyh, B.P., Headley, S.A. Carbohydrate-protein drink improves time to exhaustion after recovery from endurance exercise. [Article URL] *Journal of exercise physiology online* 4(1), Jan 2001, <http://www.css.edu/users/tboone2/asep/Niles1Col.doc>
8. Rerat AA. Nutritional supply of proteins and absorption of their hydrolysis products: consequences on metabolism. [Review] [41 refs] [Journal Article. Review. Review, Tutorial] *Proceedings of the Nutrition Society*. 52(2):335-44, 1993
9. Rasmussen, B, B., Tipton, K.D., Miller, S.L., Wolf, S.E. and Wolfe, R.R. An oral essential amino acid-carbohydrate supplement enhances muscle protein anabolism after resistance exercise. *Journal of Applied Physiology*. 88:386-392, 2000
10. Tipton, K.D., Rasmussen, B.B., Miller, S.L., Wolf, S.E., Owens-Stoval, I.S.K., Petrini, B.E. and Wolfe, R.R. Timing of amino acid-carbohydrate ingestion alters anabolic response of muscle to resistance exercise. *American Journal of Physiology - Endocrinology & Metabolism*. 281:E197-E206, 2001
11. World Anti Doping Agency prohibited list. Available online: <http://www.wada-ama.org/en/t1.asp>

