

# FATIGUE

YOUR GUIDE TO MANAGING FATIGUE



Supporting healthy  
energy production

Discover the keys to recognising  
and managing fatigue.



**Metagenics**

Genetic Potential Through Nutrition

# Supporting Healthy Energy Production Naturally



# Supporting Healthy Energy Production

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## Supporting Healthy Energy Production

### **ARE YOU SICK AND TIRED OF BEING SICK AND TIRED?**

Do you jump out of bed every day with a smile and excitement about your day? If you have to force yourself up and drag yourself through the day then you may be fatigued. With our stressful busy lives, most people experience tiredness at some time but usually this resolves with rest and relaxation. For an increasing number of people however, persistent unremitting tiredness becomes a major problem. Many people often consider their low energy levels to be normal.

Fatigue is a common condition in Australia and New Zealand and is often misunderstood or even dismissed. This may occur if there is no identifiable 'cause' from diagnostic procedures, such as blood tests, but that doesn't mean you shouldn't want to strive to be your best.

Fatigue occurs if the mechanisms which provide the body with the energy to function are not working effectively. The result is everything slows down, both physically and mentally, and functioning normally becomes harder and harder. The resulting low energy and enthusiasm affects all facets of life - relationships, performance at work, chance of driving accidents, desire to eat well and exercise - to name a few. Working with your practitioner to perform a 'tune up' and get your energy producing mechanisms working again is one of the best ways to improve both the quality and quantity of your life.

This booklet is designed to help you understand some of these mechanisms that create energy within the body and things you can do to help gain and maintain the drive to make the most of every day.

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### **HOW DO YOU KNOW IF YOU ARE FATIGUED?**

Some times it is difficult to know whether you just need a holiday or whether you have underlying fatigue that needs to be addressed before you can be your best. Ultimately we all have 'off days' but if you have prolonged periods of fatigue, even though you have had time to rest and recover, then it might be time to look at the underlying mechanisms and make sure all is well.

Over the page are some simple questionnaires that should help you ascertain if you, your family or friends have fatigue. We suggest you complete this and share the results with your Practitioner. It may be worth reviewing your answers on a monthly basis to see your results improve.

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### Question 1:

Have you noticed that you've been getting tired recently?

Yes

No

Have you felt that you've been lacking in energy?

Yes

No

If Yes to the above:

On how many days have you felt tired or lacking energy during the past week? \_\_\_\_\_ days

**Score 1 for greater than or equal to 4 days**

Score \_\_\_\_

Have you felt tired / lacking in energy for more than 3 hours on any day in the past week? \_\_\_\_\_ hours

**Score 1 for greater than 3 hours**

Score \_\_\_\_

Have you felt so tired that you've had to push yourself to get things done during the past week?

Yes

No

**Score 1 for yes**

Score \_\_\_\_

Have you felt so tired or lacking in energy when doing things you enjoy during the last week?

Yes

No

**Score 1 for yes**

Score \_\_\_\_

This gives a total fatigue score from 0 – 4.

**Scores of 2 or above are regarded as fatigue.**

Trudie C, Berleowitz G, Pawlikowska T, Watts L, Wessely S, Wright D, Wallace EP. Development of a fatigue scale. *Journal of Psychosomatic Research*, Vol. 37. No. 2. pp. 147-153. 1993.

To help narrow down the symptoms and severity of your fatigue, these additional answers may be of benefit to you and your Practitioner. Please tick the appropriate box for each question. It is worth reviewing this table after the completion of treatment to reassess each symptom and discuss with your Practitioner.

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### DO YOU SUFFER FROM:

	Rarely/ Never	Some of the Time	Often	Always	Review After Treatment?
Fluid retention					
Regular sweating					
Frequent migraines or headaches					
Muscular aches and pains					
Heart disease					
High blood pressure					
High cholesterol					
Numbness and abnormal sensations					
Memory loss					
Poor circulation					
Sugar cravings					
Lowered immune function					
Sleep apnoea					
Inflammatory conditions - for example arthritis, psoriasis, irritable bowel syndrome, asthma					
Past or current exposure to heavy metals or toxic residues					
Increased fat mass					
Increased fat mass in abdominal area					
3 serves of fish and seafood in weekly diet					

### **WHAT CAN YOU DO TO HELP?**

Whilst you are working with your Practitioner to correct the underlying mechanisms that may be causing the fatigue, it is equally important to address any lifestyle factors that may be perpetuating it. If the lifestyle components are not addressed you may end up taking two steps forward and one step back and never feel like you gain complete wellness.

Naturally you can only do as much as you can do, especially when you are fatigued, so even small steps are worthwhile. Work with your Practitioner to set realistic goals and ensure that you are not over-doing it.

#### **1. Get adequate, regular and consistent amounts of sleep each night**

The human body needs a certain amount of sleep each day to function correctly - to repair and recharge. A sleep cycle of eight hours is recommended, however some people require 9-10 hours, and care with not falling into 'sleep debt' is essential. 'Sleep debt' is the notion that if we need eight hours and only get seven hours, then we are one hour in 'debt' and that hour needs to be 'topped up'. The ultimate goal is going to bed and waking at the same time each day (yes that means no weekend marathon sleep-ins) as this helps to set the body 'clock' and maintain a consistent sleep cycle.

Gaining a regular sleep cycle is sometimes easier said than done as there may be underlying issues that need to be addressed. Sleep apnoea, for example, is a common issue in which breathing stops for a short period of time causing the body to awaken to recommence breathing. This constant waking will have a huge

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impact on the quality of sleep. Sleep studies can be performed if this is implicated. Stress, pain, noise (snoring partners!), high caffeine use and depression are all issues that take their toll on the sleep cycle and need to be addressed.

If you feel that you are unable to gain and maintain a healthy sleep cycle please discuss this with your Practitioner so you can work to maximise the quality and quantity of this vital rejuvenation time.

### **2. Eat a healthy, well-balanced diet and drink plenty of water throughout the day**

Depending on the quality and balance of food, your daily diet can either be a medicine or a poison, creating a considerable impact on your energy and vitality. Returning to basics regarding food is one of the best things you can do for your body and often results in increased energy. We recommend the Wellness pyramid (see page 10) as the basis of a healthy lifestyle. Naturally 'fresh is best' and avoiding processed foods is always preferable. Organic, free-range choices are best when available. Locating and buying at a local produce market makes the process easier to put in place as they frequently provide seasonal produce at a cheaper cost.

To help achieve wellness there are eight simple dietary and lifestyle targets you need to aim for.

For recipe ideas, ask your Practitioner about the "Your Guide to Wellness" booklet.



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### WELLNESS LIFESTYLE PYRAMID

Take a Multivitamin, Omega-3 fatty acid and Antioxidant daily

Keep high glycaemic load foods (potato, bread, pasta and rice) to a minimum

Include nuts and seeds and healthy oils in your diet

Fruit two pieces or one cup daily if you are trying to lose weight

Protein rich foods with each meal or snack

Fresh vegetables, a minimum of three cups daily

Water minimum eight glasses daily (drink alcohol in moderation)

Regular exercise, minimum 30 min most days



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### 3. Exercise Regularly

Regular physical activity helps address many of the underlying mechanisms that may cause or perpetuate fatigue, including stress, immune system problems, unstable blood sugars, mood changes, irritability and excess body fat. Exercise can help manage symptoms and improve physical functioning in people suffering from fatigue. Studies also report that those suffering from fatigue have normal muscle strength and either normal or slightly reduced muscle endurance, so the best option is not to shy away from the exercise but rather 'use it, don't lose it'.



If you have been suffering from long term fatigue it is suggested that you work with your Practitioner to create a graded exercise plan so that you start gently and gradually increase. That way you won't exert yourself too much too soon and gradually be able to make exercise part of your weekly routine. Your Practitioner can also provide you with this simple and easy to use booklet - "Your Guide to Exercise" that can provide motivation and information on exercise options that best suit your life.

### 4. Learn Better Ways to Relax

We all have stressful aspects to our lives - work, family, finances and illness. When the stress that we feel from these issues is not resolved quickly, we may find our health and wellbeing really start to suffer. Stress is a part of modern day living, it is therefore important to put in place techniques to manage it in an effort to limit the negative impact stress may have on your body. It is also beneficial to work on ways to reduce your exposure to stressful situations in the first place, which is always easier said than done, but definitely worth thinking about.

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Often issues that seem to be very important, and require your immediate attention, can resolve themselves without your input. Sometimes not getting involved in every issue can reduce your exposure to stressful situations. Ask yourself whether the current issue would resolve itself eventually if you were not available, and if the answer is yes, then you can choose to not play a role.

One of the keys to managing stress is to understand that your inbuilt stress response is designed to support physical activity. Many people find that Yoga and Tai Chi, both traditional forms of exercise which also incorporate relaxation and stress management elements, are highly beneficial to calm the mind and 'switch off' the stress response. They are slow and gentle, and can be performed by just about anyone.

### Deep Breathing for Relaxation

Deep breathing exercises can assist in relieving stress and, when performed daily, provides a cumulative benefit as it becomes easier to relax into the breathing. The exercises are best performed laying flat on the back on a hard surface, usually the floor. Bend the knees and relax the body (particularly the mouth, nose, and face). One hand should be placed on the abdomen to monitor how deep the breath goes. The aim as you breathe is for the abdomen to rise further than the chest. Take a series of long, deep breaths through the nose, attempting to raise the abdomen instead of the chest. Placing a hand on both the chest and the abdomen may help you gauge the height of the abdomen. Deep breathing can be continued for up to 20 minutes.

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### **5. Avoid stimulants or excess alcohol**

All too often it might seem tempting to use stimulants - coffee, energy drinks, high sugar foods and even drugs - to give you a 'kick' when you are tired and unmotivated. The benefit from this artificial 'up' is short lived and, ultimately, leaves the body even worse off than before as they artificially 'rev up' the metabolism. What goes up must come down and quite often comes crashing down after a false 'up'. If you are currently using stimulants it is suggested that you decrease the amount slowly over a period of weeks rather than simply stopping 'cold turkey' as this may lead to headaches, irritability and drowsiness. The overuse of alcohol will also frequently lead to fatigue by affecting the sleep cycle.

### HOW YOUR BODY MAKES ENERGY

As previously mentioned, there are a number of physical and mental mechanisms that cause fatigue and that ultimately must be addressed to provide you with the foundation to be your best. If the mechanisms aren't identified and treated then the body is more susceptible to feeling fatigued and a vicious cycle commences.

In this section we will look at how energy is made in the body and examine how these processes can be made as efficient as possible.

#### The Energy 'Powerhouse' - the Mitochondria

The energy 'powerhouses' of every cell in the body are called mitochondria. Each cell has between 200 and 2000 mitochondria and each one needs a favourable environment to function effectively. Minimising the factors that damage the structure of the mitochondria whilst ensuring specific nutrients are available is important for maximum energy production and is often the starting place in the treatment of fatigue.



Some helpful nutrients which have been scientifically researched and proven to assist the mitochondria to produce energy effectively are:

- Magnesium
- Carnitine
- Coenzyme Q10
- Lipoic acid
- Omega 3 oils
- Antioxidants

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Deficiencies in these nutrients can lead to persistent fatigue. Unless the deficiency is corrected it may prove difficult to overcome the state of low energy and motivation. Your Practitioner can assist you to decide which of these nutrients you may be deficient in.

### Magnesium

Magnesium is needed everywhere in the body, in fact in over 300 processes in the body depend on magnesium. With regards to energy production, it is important for the conversion of sugars, fats and proteins to energy. Magnesium deficiency is very common, with over half the Australian and New Zealand population having a deficiency. One of the factors that cause this deficiency is the increase in the intake of processed foods and refined grains as well as a decrease in green vegetables, which are a good source of this crucial mineral.

**Magnesium may be particularly useful when fatigue is accompanied by:**

- muscle aches, pains, cramps and spasms
- mood changes, irritability, poor concentration
- stress - mental or physical
- tension headaches
- strenuous exercise
- regular sweating
- visual fatigue induced by computer screens
- restlessness and anxiety
- insomnia
- tremors
- vertigo

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### Carnitine

Carnitine plays an important role in fat metabolism and energy production. It acts by transporting dietary fats directly into the mitochondria for breakdown and energy production.

**Carnitine may support energy production if fatigue is accompanied by:**

- poor memory and concentration
- mental fatigue
- neuropathy - numbness and abnormal sensations
- high fat diet
- strenuous exercise
- vegetarian or vegan diets

### Coenzyme Q10

Small amounts of Coenzyme Q10 are obtained from eating meat and seafood, but the majority of your supply is made within the body. Although nearly all body cells make it, coenzyme Q10 concentrates in the muscles, heart, kidneys, liver, and pancreas with about half of the body's stores in the mitochondria of these cells.

**Coenzyme Q10 may be helpful in the management of fatigue via the following actions. It may help:**

- support cardiovascular and heart health
- enhance cellular energy production
- minimise the affects of high cholesterol and/or cholesterol lowering medications
- maintain healthy immune function, therefore increasing the ability to combat illness
- maintain stamina and endurance

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### Lipoic Acid

Lipoic Acid is important for the correct transport and conversion of carbohydrates into energy whilst protecting the mitochondria from damage (as it is a potent antioxidant). Lipoic Acid improves the way the body deals with carbohydrates and, therefore, is particularly useful for people that have problems with blood sugar metabolism, or are overweight - particularly if the weight is stored around the middle (apple shaped people).

### Lipoic Acid may improve general wellbeing and fatigue by:

- supporting the use of sugar and carbohydrates from the diet
- assisting in blood circulation especially in hands, feet and legs
- maintaining eye health
- assisting in the maintenance of a healthy nervous system
- supporting healthy liver function
- enhancing cellular energy production

### Omega 3 Oils

Omega 3, or fish oils, are vital for the integrity and stability of every cell membrane in the body - including the all important mitochondria. Naturally if the cell membranes are damaged the health and function of the cell is decreased. Omega 3 oils also stimulate the growth and size of the mitochondria along with helping lower stress levels, which will contribute to the overall energy levels.

The majority of Western diets are low in omega 3 oils as a result of the increase of processed and refined foods far overtaking the use of fresh foods, including fish which are a source of these 'good oils'. The best sources of omega 3 oils are the 'fatty fish' - tuna, salmon, mackerel and herring - which should be eaten several times per week.

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Even when people are trying to eat well they can sometimes create an imbalance in the different types of 'good oils' in the diet. This can result in an increased amount of inflammation in the body resulting in fatigue and pain. The following table separates the 'good oils' into the omega 3 and omega 6. Ultimately a good goal should be that for every 4 serves of the foods listed in omega 6 oils list it is necessary to have 1 serve of omega 3 oils - a ratio of 4 to 1 (or even lower would be best!). Currently it is suggested that the Western diet has a ratio of 10 to 1 or higher.

### 'Good Oils'

Omega 6	Omega 3
Cereals Wholegrains Vegetable oils Eggs Chicken	Fatty fish Nuts Linseeds

Many people don't achieve this goal, and a concentrated, purified fish oil supplement can be very helpful.

### Omega 3 oils may be beneficial for decreasing fatigue by:

- supporting cardiovascular and heart health
- increasing the creation of some important anti-inflammatory messengers in the body
- maximising the structural fluidity of cell membranes throughout the body - therefore may be helpful in reducing inflammation and swelling
- maintaining healthy cholesterol levels
- reducing early morning stiffness associated with arthritis
- increasing circulation especially to the hands and feet
- supporting eye health

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### Antioxidants

One of the reasons people become excessively fatigued is due to the damage to the delicate mitochondria. Damage frequently occurs when components of our food and/or lifestyle stimulate the formation of 'free radicals' which create 'oxidants'. We have natural systems in the body to deal with a small amount of the oxidants, but when the systems are overloaded the oxidants build up and become excessive, they have the potential to harm every cell in the body. Interestingly, the oxidants can set off a chain reaction that leads to an ever increasing production of these oxidants, creating more and more damage as they go. By including 'antioxidants' you provide the tool to mop up these 'free radicals' and minimise their dangerous effects.

### Examples of common generators of 'free radicals' in diet and lifestyle include:

Alcohol	Cigarette smoke	Pesticides on foods
Air pollution	Car exhaust fumes	Gases found in hairsprays

### Powerful antioxidants include:

- Vitis vinifera (Grape seed)
- Vitamin A
- Vitamin C
- Vitamin E
- Selenium
- Camellia sinensis (Green tea)
- Zinc
- Polygonum cuspidatum (Resveratrol)

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Antioxidants may assist in improving general wellbeing and, in turn, fatigue by:

- enhancing and maintaining immune function thereby decreasing the susceptibility of infection
- supporting a healthy cardiovascular system
- protecting against cell damage

### **UNDERLYING CAUSES OF FATIGUE**

So far we have focused on the health of primary energy creation 'powerhouses' - the mitochondria - and the nutrients that fuel them. Due to the complexity of the body and the interplay between all the systems of the body, this is a major factor but, unfortunately, not the only factor. It is vital that we address these 'drivers' to ensure that the fatigue is properly managed and also minimise that likelihood of recurrence. In this section we will briefly discuss these drivers.

**The common mechanisms that may lead to decreased energy production are:**

- Low iron / B12 and folate
- Inflammation and infection
- Hormonal imbalances – low thyroid hormones
- Digestive and liver toxicity
- Excess body fat and unstable blood sugars
- Stress and mood changes

### **Low Iron, B12 or Folate**

Iron or B vitamin deficiency is a common situation that results in decreased transport of oxygen throughout the body leading to 'tired blood' and 'tired tissues'. Iron is also required for the creation of energy at the mitochondrial level, and for synthesis of carnitine - a mitochondrial fuel.

If the iron deficiency is only mild or moderate, fatigue is often only noticed after physical exertion as opposed to constant fatigue. This is due to the increased need for oxygen and the 'tired blood' is unable to provide it.

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Iron levels and iron stores can be gauged through blood tests. It is interesting to note that you may have low iron for several months before it is reflected in blood tests due to the turnover rate of the cells that transport the iron throughout the body - the red blood cells.

Vitamins B12 and folic acid deficiency and digestive insufficiency may also result in fatigue.

**Iron, B12 or folic acid deficiency may be suspected if fatigue is accompanied by:**

- Pale and dry skin
- Poorly formed, upturned nails
- Difficulty staying warm in the cold weather
- Poor memory and concentration
- Lowered immune function, therefore increased rate of infections
- Vegetarian or vegan diet
- Chronic use of antacids or nonsteroidal anti-inflammatory drugs, steroid use, aspirin.
- High intake of coffee or black tea with meals

### **Inflammation**

Anyone who has had a cold or flu knows how the energy levels are low both during and straight after the illness. This is due to the underlying inflammation that is created by the immune system in response to the 'bad bugs'. There are various other triggers that cause both short and long term inflammation including diet, stress, infection, poor digestive function, excess body fat - to name but a few - and your Practitioner will address these if they are a cause of your fatigue.

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### Low Thyroid Hormones - Hypothyroid

Hormones are chemical messengers that are vital for maintaining correct processes within the body and ensuring that the flow of information from one body system reaches the other body systems evenly. The thyroid hormones play an important part in the running of the metabolism and low levels frequently see the whole body slow down, including the production of energy. A low level of the thyroid hormones is called Hypothyroidism.

The level of the thyroid hormones can be assessed through blood tests or a basal temperature test. It is recommended that you discuss with your Practitioner if you suspect low thyroid function to ensure that the most appropriate tests are performed.

### **Low thyroid hormones may be suspected if fatigue is accompanied by:**

- Coarse, dry hair or loss of hair
- A decreased tolerance to cold weather
- Muscle cramps, aches and pains
- Increased weight or difficulty losing weight
- Low libido
- Mood changes
- Irritability
- Constipation

### **Digestive and Liver Function**

On a daily basis our body processes a constant array of substances. Through a variety of ways it will either extract and absorb the 'beneficial' portions or process and eliminate the 'detrimental' in an effort to keep the body healthy and balanced. One of the

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primary ways this task is performed is through the digestive system and the liver.

If the daily intake is made up of a majority of 'beneficial' with only small amounts of 'detrimental' the process of detoxification and elimination can be easily maintained. If, however, the intake is filled with large amounts of 'detrimental', the elimination process may slow and over time become sluggish causing an ever increasing 'toxic load' to build up in the body. As the proportion of processed and refined foods in the daily diet increases so too does the exposure to such 'detrimentals' increase. In addition, most people have some exposure to toxins from alcohol, cigarettes, medications, air pollution and a myriad of other factors. It is easy to see how your body can quickly become overburdened. This will affect every system within the body leading to a decreased sense of well-being and health. Fatigue is a common result of increased toxic load and many people feel their energy levels and motivation increase as their toxic load decreases.

Just as we have our car serviced on a regular basis, it is suggested your digestive system and liver is serviced in an effort to maximise its ability to detoxify and eliminate. Your Practitioner may conduct some tests to ascertain and monitor your toxin levels, helping you to see not only your progress but also when it is time for the next 'service'.

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Your Practitioner has a thorough and supportive detoxification process ready for you which includes:



- Reducing toxin exposure through dietary and lifestyle changes
- Removing bad bugs from your digestive system - 'weed'
- Replacing the bad bugs with healthy ones - 'seed'
- Improving your digestive function - 'feed'
- Increasing the rate at which your body removes toxins - 'speed'
- Making long term changes to slow or prevent becoming toxic again

**An increased toxic load may be suspected if fatigue is accompanied by:**

- Recurrent headaches
- Muscle aching and weakness
- Nerve pain or numbness
- Poor short term memory and concentration
- Infertility
- Adverse reactions / sensitivity to environmental chemicals, odours and/or nutritional supplements
- Mood swings

### **Body Composition - High Fat and Low Muscle**

It used to be thought that fat was simply something that sat on the body and didn't affect it all that much. Over the past decades however, it has been established that fat cells have the ability to create chemical messengers that can negatively impact the body,

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including the ability to create and maintain energy. Unfortunately as we learn about the damaging effects of these fat cell messengers, we also see an increase in obesity, type II diabetes and Metabolic Syndrome in the Australia and New Zealand, all of which result in an increase in these chemical messengers.

As the amount of fat increases, particularly in the abdominal area, the body's ability to deal with refined processed foods (especially carbohydrates) decreases and a vicious cycle begins where one leads to the other and vice versa. It is important to break this cycle by focusing on reducing the processed carbohydrates and returning to a diet filled with health giving foods - see page 8.

Body composition, however, is not just about fat. It is important to remember the significance of good quality muscle. Energy is predominately created in muscle and is one of the primary tissues which burn sugars and fats from our diet. Low muscle quantity and quality will not only affect energy production but also immune response and healing times.

So as you can see, as vital as it is to reduce fat mass, it is also critical to increase muscle mass. Your Practitioner can provide you with the information and one-on-one support to assist in stimulating fat loss whilst maintaining or gaining muscle mass - this program is called The KetoSystem. Not only does The KetoSystem provide nutritional guidance for the daily intake of healthy carbohydrates and fats, but also proteins which are needed for providing fuel for muscle growth and suppressing the appetite. The KetoSystem is more than a 'quick-fix fat loss program' as it teaches life long diet and lifestyle fundamentals to support on going healthy body composition.

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### Stress and Mood Changes

Last but by no means least, is the effect of stress on energy production and motivation. Stress is a necessary and needed response to switch us into the 'go' position when we need it. We must switch back to 'stop' to ensure that the body has the time to rejuvenate and get ready for the next 'go' requirement. Things go awry when the 'stop' mechanism is not functioning correctly and the stressors keep building up until eventually 'burn out' occurs, leading to mood changes and chronic fatigue.

The stress messengers are reliant on various nutrients to ensure they function correctly and, if deficient, the process may not run as smoothly. A number of herbs have also been found to assist in switching to the 'off' position. Your Practitioner will choose the most appropriate combination of herbs and nutrients to support a healthy stress response.

**Excess stress may be suspected if fatigue is accompanied by:**

- Insomnia
- Anxiety
- Trembling
- Dilation of pupils
- Phobias
- Pre-menstrual syndrome
- Panic attacks
- Decreased appetite

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### Mood Changes and Chronic Fatigue Syndrome

As mentioned above, if the stress reaction doesn't adapt correctly, there is an increased chance of moving into a 'burn out' state which may lead to a state of low mood, and lack of interest in life. The loss of guided control over the stress reaction can have far reaching effects including a decreased ability to control inflammation in the body which results in a weakened immune system. Diseases such as Rheumatoid Arthritis, Fibromyalgia, Ulcerative Colitis, Crohn's disease and Systemic Lupus Erythematosus (SLE) can often be associated with this 'burn out' in the stress reaction. It is vital to address the depleted chemical messengers as, without assistance, the body finds it difficult to correct the insufficiency and gradually the depressive state may diminish even further resulting in conditions including Chronic Fatigue Syndrome. There are various other causes of Chronic Fatigue Syndrome including recent or long term viral and parasitic infections and a weakened immune system.

Fortunately your Practitioner has the ability to provide the support to reverse the 'burn out' whilst assessing and addressing the factors that led to it in the first place. Naturally diet and lifestyle plays an important part in contributing factors, and sometimes it is necessary to seek professional counseling if there are other underlying issues.

### Low mood may be suspected if fatigue is accompanied by:

- Increased sleep
- Weight gain
- Increased usage or reliance on alcohol
- Increased appetite and consumption of food
- Apathy / disinterest

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**Chronic Fatigue Syndrome** may be suspected if fatigue is accompanied by:

- Mild fever
- Sore throat
- Painful lymph nodes
- Muscle weakness
- Headaches
- Sleep disturbance
- Muscular or joint pain or tenderness, especially when no specific pattern throughout the body
- Sleep disturbance

The other side of the coin is when low mood is partnered with anxiety instead of indifference or apathy. Though they may seem like they are opposite in nature, a vicious cycle of depression and loneliness may lead to fear and anxiety which in turn leads to exhaustion and then further depression and fatigue - and so it goes on.

**Low mood and anxiety** may be suspected if fatigue is accompanied by:

- Nervousness
- Difficulty concentrating
- Agitation
- Irritability
- Racing thoughts
- Frustration
- 'Panic attacks' with bouts of breathlessness, pounding heart, head spinning, feelings of terror, sense of loss of control

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### SUPPLEMENTS FOR ENERGY PRODUCTION

Your Practitioner may prescribe some of the following supplements to ensure the mitochondria have the necessary nutrients to maximise output and enhance your energy levels. As every person is different, your Practitioner will choose the most appropriate supplements for you and personalise the dosage to match your current level of symptoms. Naturally it is important to also address any of the underlying drivers which were previously discussed.

SUPPLEMENT NAME	PROVIDES NUTRIENTS
CardioX or Fibroplex Plus	Magnesium
N-Acetyl Carnitine	Carnitine
BioQ100 or BioQ150	Coenzyme Q10
Lipoic Acid	Lipoic Acid
Meta EPA/DHA	Omega 3 / Fish Oils
Oxidant Protection	Antioxidants
Hemagenics Intensive Care	Iron, B12 and Folate

### MAINTENANCE -

SUPPLEMENT NAME	PROVIDES NUTRIENTS
Mitochondrial Complex	Fish oil, Lipoic acid, Coenzyme Q10 and antioxidants
Meta B Complex	Vitamin B complex
CardioX or Fibroplex Plus	Magnesium

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### FIRST LINE TREATMENT OPTIONS

- **CardioX or Fibroplex Plus**

CardioX or Fibroplex Plus provides high quality, high absorption magnesium in a pleasantly flavoured drink.



Dosage: \_\_\_\_\_ serve/s \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

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- **N-Acetyl Carnitine**

N-Acetyl Carnitine assists in the conversion of fats into energy and has the ability to enter directly into the brain and may support brain functions, such as memory and concentration.



Dosage: \_\_\_\_\_ teaspoon \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

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- **BioQ100 or BioQ150**

Providing a high potency Coenzyme Q10 in a patented format to maximise absorption, Q100/150, may enhance energy production whilst providing antioxidant and cardiovascular support.



Dosage: \_\_\_\_\_ capsule/s \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

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- **Lipoic Acid**

Lipoic Acid may enhance cellular energy production whilst supporting healthy blood sugar balance and providing antioxidant support. Lipoic Acid may also assist in supporting liver detoxification.



Dosage: \_\_\_\_\_ tablet/s \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

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- **Meta EPA/DHA capsules or  
Meta EPA/ DHA liquid**

Provides the cell with high potency omega 3/fish oil, free from pesticides and heavy metals.



Dosage: \_\_\_\_\_ capsule/s/mls \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

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- **Oxidant Protection**

An excess of 'free radicals' may damage the energy producing mechanisms within cells leading to fatigue. Antioxidants combat the effect of these 'free radicals'. Oxidant Protection provides a broad spectrum of powerful antioxidants including grape seed, green tea, resveratrol, vitamins A, C and E, zinc and selenium.



Dosage: \_\_\_\_\_ tablet/s \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

\_\_\_\_\_

- **Hemagenics Intensive Care**

A low irritant, high absorption iron and vitamin B complex to assist in maximising the health of the blood, and therefore all tissues.



Dosage: \_\_\_\_\_ tablet/s \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

\_\_\_\_\_

- **Additional Product** \_\_\_\_\_

Dosage: \_\_\_\_\_ tablet/s \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

\_\_\_\_\_

## Supporting Healthy Energy Production

### MAINTENANCE OPTIONS

- **Mitochondrial Complex**

A combination of Coenzyme Q10, lipoic acid, vitamin E and omega 3 fish oils for the health and maintenance of the 'energy powerhouses' of the cells.

Dosage: \_\_\_\_\_ capsule/s \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

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- **Meta B Complex**

A high potency vitamin B complex may assist in relieving stress, increase energy production, assist brain functions and maintain healthy digestive function.

Dosage: \_\_\_\_\_ tablet/s \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

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- **CardioX or Fibroplex Plus**

CardioX or Fibroplex Plus provides high quality, high absorption magnesium in a pleasantly flavoured drink.

Dosage: \_\_\_\_\_ serve/s \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

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## Supporting Healthy Energy Production

• **Additional Product** \_\_\_\_\_

Dosage: \_\_\_\_\_ tablet/s \_\_\_\_\_ times a day

Additional instructions: \_\_\_\_\_

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\_\_\_\_\_

### SUPPLEMENTS TO ADDRESS THE 'DRIVERS' OF FATIGUE

#### INFLAMMATION

- **Kaprex**

Kaprex is a powerful anti-inflammatory that is made from plant extracts. Kaprex may provide relief from pain and inflammation from a variety of causes, has an excellent safety profile and is gentle on the stomach.



Dosage: \_\_\_\_\_ tablet/s \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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- **Meta EPA/DHA capsules or  
Meta EPA/DHA liquid**

Meta EPA/DHA is concentrated fish oil supplement. In the long term, EPA and DHA can help to reduce pain and swelling caused by inflammation.



Dosage: \_\_\_\_\_ capsules / ml \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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## Supporting Healthy Energy Production

### LOW THYROID HORMONES

- Energenics

Energenics contains a combination of nutrients that are essential for normal thyroid hormone production.

Dosage: \_\_\_\_\_ tablets \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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### DIGESTIVE AND LIVER FUNCTION

- Parex

Parex contains a broad range of herbal medicines which have powerful antimicrobial actions. This formula is effective against bacterial, fungal and parasitic overgrowth in the digestive system.

Dosage: \_\_\_\_\_ tablets/s \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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- Ultra Probioplex

Ultra Probioplex contains colostrum, a natural dairy product which supports immune function. It assists with the removal of 'bad bugs' from the digestive system and creates a healthy environment for good bugs to grow in.

Dosage: \_\_\_\_\_ tsp/capsule/s \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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## Supporting Healthy Energy Production

- **Ultra Flora Restore**

Ultra Flora Restore provides the two most important 'good bugs' to help maintain a healthy digestive system and prevent the regrowth of 'bad bugs' in the digestive system.



Dosage: \_\_\_\_\_ teaspoon \_\_\_\_\_ times a day

Or \_\_\_\_\_ capsule/s \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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- **Glutagenics**

Glutagenics contains glutamine, a nutrient which is essential for the health and growth of the cells lining your digestive system. It also contains Aloe Vera and Licorice, both of which have soothing and healing properties for inflamed tissues.



Dosage: \_\_\_\_\_ serves/s \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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- **Thermo Phase Detox**

Thermo Phase Detox is a blend of protein and other nutrients that provides the body with all the nutrients required for successful liver detoxification. It also contains Silymarin, which may protect the liver from toxic exposure.



Dosage: \_\_\_\_\_ serves/s \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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## Supporting Healthy Energy Production

- **Phyto Pro**

Phyto Pro contains some of the most active natural substances for enhancing detoxification of the liver, kidneys and other organs of elimination. It is also very high in natural antioxidants which protect the body during detoxification.



Dosage: \_\_\_\_\_ tablet/s \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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## Supporting Healthy Energy Production

### BODY COMPOSITION – HIGH FAT AND LOW MUSCLE

- **Ketoslim or Ketoslim Plus**

Ketoslim is a tasty high protein powder that can be used as a convenient drink or snack. It contains high amounts of the finest quality protein to support muscle mass during fat loss, and provides a balanced ratio of vitamins and minerals to improve nutritional status.



Dosage: \_\_\_\_\_ serves/s \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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- **Keto Bars**

The Keto Bar is a high protein, low carbohydrate, high fibre, chocolate coated bar providing a convenient snack for those 'on the move'.



Dosage: \_\_\_\_\_ bar \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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## Supporting Healthy Energy Production

- **Resist X**

A powerful combination of specific nutrients and herbs formulated to support normal healthy blood sugar levels. Sugar cravings, tiredness, mood changes and poor concentration may all be associated with blood sugar imbalances.



Dosage: \_\_\_\_\_ tablets \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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- **Insulex**

Insulex is a herbal formula that is designed for the support of normal blood sugar levels in healthy people.



Dosage: \_\_\_\_\_ capsule/s \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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## Supporting Healthy Energy Production

### STRESS

- **NeuroCalm**

NeuroCalm is a supplement that promotes a healthy stress response and may improve your tolerance to stress and reduce the effect that stress has on you. It is particularly helpful with insomnia and mild anxiety.



Dosage: \_\_\_\_\_ tablets \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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- **Adaptan**

Adaptan is a combination of nourishing, tonifying herbs that may assist in the management of symptoms of anxiety and nervous exhaustion, in a gentle yet effective manner.



Dosage: \_\_\_\_\_ tablets \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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## Supporting Healthy Energy Production

- **AdrenoTone**

AdrenoTone is a herbal and nutritional formula that is designed to support the production of stress hormones by the adrenal glands. AdrenoTone can help to reduce the fatigue that you experience after being stressed for a long time.



Dosage: \_\_\_\_\_ tablets \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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## Supporting Healthy Energy Production

### MOOD CHANGES

- Proxan

Proxan is a nutritional supplement that may provide assistance in supporting healthy moods and may improve sleep patterns.



Dosage: \_\_\_\_\_ capsules \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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- Prozestan

Prozestan may support healthy moods and may reduce mental sluggishness and anxiety.



Dosage: \_\_\_\_\_ capsules \_\_\_\_\_ times a day

Additional instructions \_\_\_\_\_

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## Supporting Healthy Energy Production

### **MAINTAINING BOUNTIFUL ENERGY?**

As you can see there are multiple reasons that you may feel fatigued. By providing the body with sufficient amounts good quality nutrients you will take full advantage of the various mechanisms that create energy. It is also important to ensure that all the focus is not just on the energy producing powerhouses - the mitochondria - but that the other body systems are in balance and working effectively.

By working closely with your Practitioner you will be able to determine which diet, lifestyle and nutrient factors are letting your body down which is resulting in fatigue. Each and every step you make, no matter how small it may feel, will be setting you up to reach that goal of jumping of out bed every day with a smile and excitement about your day!









# Metagenics

Genetic Potential Through Nutrition

## Australia

A division of  
Health World Limited  
Cnr Nudgee & Toombul Rds,  
Northgate,  
Queensland, Australia 4013

PO Box 675  
Virginia BC,  
Queensland 4014

Telephone: (07) 3117 3300  
Facsimile: (07) 3117 3399  
Telephone Country and  
Interstate: 1800 777 648

[www.metagenics.com.au](http://www.metagenics.com.au)  
[hworld@healthworld.com.au](mailto:hworld@healthworld.com.au)  
[orders@healthworld.com.au](mailto:orders@healthworld.com.au)

## New Zealand

Metagenics New Zealand Limited  
2/15 Parkway Drive,  
Mairangi Bay,  
Auckland, New Zealand

PO Box 35383,  
Browns Bay,  
Auckland

Telephone: (09) 478 2540  
or 0508 227 744  
Facsimile: (09) 478 2740  
or 0508 227 733

[www.metagenics.co.nz](http://www.metagenics.co.nz)  
[info@metagenics.co.nz](mailto:info@metagenics.co.nz)

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