

EAT SMART, WORK RIGHT FOR SHIFTWORKERS

increase your energy and improve your sleep
with smart food choices.



Shiftwork Services 2009

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INTRODUCTION

Whether you work nights, earlies or lates, chances are that at some point while you are at work you will have experienced fatigue (i.e. feeling very tired). While most people experience tiredness at work at one time or another, it can be a real problem for shiftworkers.

Everyone knows that the best way to avoid feeling tired is to have enough sleep. However, did you know that eating and drinking the right foods can help you manage how sleepy or tired you feel? This in turn affects how safe you are at work, on the road, at play, etc.

The information in this booklet is designed to help you make choices about what you eat and when, so that you can arm yourself with useful facts to keep yourself – and others – as safe as possible when you're at work.

Have you ever wondered:

- ▶ What time of day to have your main meal.
- ▶ How to avoid those uncomfortable indigestion problems so common when you eat at irregular hours.
- ▶ Why you feel sleepy after eating a big pie and perhaps a bun or cake at lunchtime.

The good news is that this booklet answers all these questions and more.

It contains specific and practical information about how to make smart food choices that help reduce the risk of fatigue by boosting your energy levels.

Smart eating for shiftworkers means:

- ▶ **A healthy diet**, including plenty of fruit and vegetables.
- ▶ **Cutting back** on your intake of sugar, salt and saturated fat.
- ▶ **Keeping yourself 'tuned-up'** by combining certain food and drinks at particular times of your day, thereby managing your blood sugar levels.

Read on to find out more about:

- ▶ How to use food and drink to maximise energy.
- ▶ What to eat when you want to be alert or when you want to sleep.
- ▶ Dispelling myths about what helps beat fatigue.
- ▶ Links to web sites on healthy eating.

FATIGUE AND SHIFTWORKERS

The basic problem with shiftwork is that you sometimes have to work when it's normal to be sleeping, which can upset your natural sleep rhythms.

Our internal body clock is designed to help us be alert during the day and then sleep at night. Working shifts means that the body requires energy at times that it expects to be resting, which makes it more difficult for us to be able to digest food at night and to produce energy at the right time for night work.

When added to the other things going on in our lives, e.g. family stress, a sleeping disorder or the effects of certain medications, working shifts can just add to the problem of fatigue or tiredness. There are ways however, to reduce the chance of being affected by fatigue - and watching what and when you eat is one of them.

Common signs of fatigue

- ▶ Daydreaming, slow reaction times.
- ▶ Increased risk-taking.
- ▶ Poor communication.
- ▶ Poor judgement of distance or time.
- ▶ Sore or tired eyes, blurred vision.
- ▶ Nodding off for a fraction of a second.
- ▶ Impatience, restlessness, irritability.
- ▶ Taking safety short cuts such as not bothering to wear safety equipment.

**According to the New
Zealand Health and
Safety in Employment Act**

**FATIGUE IS A
WORKPLACE HAZARD**

Because fatigue affects your ability to work safely, it has a huge impact on your safety and performance. Feeling tired affects your reaction time, your judgement of what is or isn't dangerous and your decision-making about what is going on and what to do about it.

It is common for people in this situation not to realise they are over tired and therefore underestimate the effect of fatigue on performance.

For more information on what causes fatigue and a range of ideas for avoiding or managing the problem, have a look at the workplace fatigue pages on the ACC website (www.acc.co.nz).

AVOID THE BLOOD SUGAR BLUES

You've probably heard of blood sugar, but you might not know how it can affect your safety and performance. Blood sugar is the body's main source of energy and how high or low it is at any time will affect how you feel.

Low blood sugar can cause shakiness, anxiety, excessive sweating and heart palpitations.

High blood sugar can cause feelings of fatigue – there is too much sugar in the body that can't be used for energy.

It makes sense to try and keep your blood sugar levels steady, no big spikes or dips. Your blood sugar levels depend on how much glucose you have in your body. You can keep your levels steady by making the right decisions about the kinds of glucose-containing food you eat.

Glucose

Lots of foods provide glucose for the body – some of them are better than others. For example some carbohydrates such as wholegrain bread, pasta and certain types of rice are good because they provide a steady release of glucose into the body. Foods with lots of added sugar are usually higher in glucose but while they give you an energy burst, they will end up making you feel tired later on.



To keep your blood sugar levels steady it helps to know how quickly energy is released from different food. This is what the Glycemic Index (GI) is useful for – it ranks food based on the immediate effect on blood sugar levels.

Glycemic Index (GI)

- ▶ Foods with a high GI cause your blood sugar levels to rise quickly which means your body has to work hard to bring its sugar levels back to normal.
- ▶ Foods with a low GI allow your blood sugar levels to rise gradually and keep you feeling fuller for longer. Foods containing fibre (see page 14-15) will help with this, too.

HIGH GI – 70 AND ABOVE

MEDIUM GI – 56-69

LOW GI – 55 AND UNDER

LOW GI FOODS INCLUDE:

- Rolled Oats • Corn**
- Wholegrain Bread**
- Whole Wheat Pasta**
- Baked Beans • Yams • Taro**
- Unripe Bananas • Some Fruit**

To find out more details about GI and healthy eating, have a look at The Home of the Glycemic Index - The University of Sydney (www.glycemicindex.com).

Cut back on sugar

Although sugar makes the food we eat taste sweet it contains energy without vitamin and mineral value. To avoid adding extra energy to your diet and inches to your waistline, here are some tips on cutting back on sugar:

- ▶ Eat porridge or untoasted muesli rather than sweetened processed cereals.
- ▶ Check the labels on muesli bars and other snack bars, some are much higher in sugar than others.
- ▶ Drink plain or mineral water instead of fizzy or energy drinks, that contain lots of sugar.
- ▶ Choose a piece of fruit instead of lollies or other confectionary.
- ▶ Plain yoghurt with chopped-up fruit or a fruit yoghurt is a healthy dessert.



TIMING IS EVERYTHING

Eating certain foods at certain times can help you fight fatigue and allow for improved concentration and reaction time.

Protein

Protein rich foods contain tyrosine, an amino acid that stimulates brain chemicals to help you feel more alert. It's important to choose low fat protein foods because high fat protein foods take longer to digest (this is especially important when these foods are eaten late at night when digestion naturally slows down).

- ▶ Protein foods high in fat take longer to digest and can give you digestive problems especially when eaten at night.
- ▶ Low-fat protein foods help you stay alert.

LEAN PROTEIN FOODS

Low-fat protein foods include:

- Grilled Fish · Shellfish**
- Skinless Chicken · Lean Meat**
- Chickpeas · Baked Beans · Hummus**
- Eggs · Nuts · Low-fat Dairy Products**
such as Cottage Cheese,
Low-fat Milk and Yoghurt

Carbohydrates

Carbohydrate based foods provide energy for everyday tasks and also help to create serotonin a brain chemical that allows you to feel less irritable and more able to focus.

When you eat a small meal containing about 120g of lean protein food with about a cup of certain slow releasing carbohydrate you will be 'powered up' to perform at your best without feeling sluggish.

But carbohydrates not only help you to focus, the same slow releasing carbohydrates can also help you to rest and sleep more effectively as well. Choosing a slow releasing, carbohydrate rich meal a few hours before you need to sleep promotes steady blood sugar levels – this will help you stay asleep.

'POWERED-UP' MEAL IDEAS

Grilled fish, boiled waxy/new potatoes and salad

Small bowl of spaghetti and meatballs

Chicken and salad wraps/pita pockets

'RELAXING' MEAL IDEAS

Cereal, fruit and low fat milk

Creamed rice and stewed fruit

2 egg omelette with whole grain toast and salad

Fruit salad and yoghurt

Serving sizes

If you eat the right types of food but eat too much of them, you won't get the best results. The 'right' serving size is different for different food groups and for different-size bodies.

To find out more details see the New Zealand Healthy Food Guide – Healthy Eating Guide Serving-Size
www.healthyfood.co.nz

THE SECRET TO GOOD DIGESTION

If you work shifts you may suffer from stomach pain, bloating, constipation and other digestive problems. This is most likely because, it may be hard for you to eat at regular times.

To help reduce these problems, here are some good eating habits to put in place.

- ▶ Eat little and often is the golden rule as it's difficult for your body to digest large amounts of food that's eaten all at once.
- ▶ Have several small meal breaks during a long shift rather than a single long one.
- ▶ Don't skip meals, especially before you start work.
- ▶ Avoid having a large meal near the time you go to bed as your body will be so busy digesting it you could find it difficult to sleep.
- ▶ Heavy meals can often leave you uncomfortably full, or cause heartburn and other indigestion problems, which can also make it difficult to get to sleep.



EXERCISE

Even just a short walk after a meal helps the digestion process – it'll work off some of that surplus energy you gain through eating.

Fill up on fibre

High fibre foods help to keep everything you eat moving right along through your bowels. If you eat regular amounts of plant-based foods like wholegrain cereals and breads plus lots of fruits and vegetables, all of which contain lots of fibre, you'll keep digestion problems and constipation at bay, which has to be good news whether you're on a long shift at work or at home.



 **To include more fibre in what you eat on a daily basis:**

- ▶ Top up your breakfast cereal or muesli with fresh or stewed fruit.
- ▶ Enjoy lots of fresh fruit – whatever is in season.
- ▶ Eat a jacket potato or potatoes with the skin on, rather than peeled potatoes.
- ▶ Eat wholegrain bread, or if you prefer white bread, try one with high fibre.
- ▶ Buy a bran muffin or wholemeal scone for morning tea.
- ▶ Choose a pie made with wholemeal pastry.
- ▶ Snack on chopped celery and carrot, raw unsalted nuts.
- ▶ Add lettuce, tomato, carrot, avocado, capsicum and beetroot to your sandwiches.
- ▶ Eat brown rice or pasta whenever possible, or mix brown and white rice/pasta together.



Cutting back on fatty food

Everyone needs a bit of fat in their diet; it adds flavour to food but most importantly it helps repair the body. Most of us eat way more than we need.

To reduce your fat intake:

- ▶ Swap to low-fat or trim milk.
- ▶ Trim excess fat from your meat.
- ▶ Buy lower fat cheese, e.g. edam, mozzarella or cottage cheese.
- ▶ Fry less – and bake, grill and steam more.
- ▶ Snack on a low-fat yoghurt.
- ▶ Eat tuna in wholemeal bread sandwiches.
- ▶ Instead of cheese, try hummus on crackers.
- ▶ Cook with olive oil or, even better, rice bran oil, instead of butter.



Biscuits, cakes, pies and sausage rolls are nice for an occasional treat but they're full of sugar and fat. It's good to get in the habit of reading the labels on the packaging so you can keep tabs on what you're eating. If it doesn't have a label, think about what's in it and whether it will be good for you!

WATER – SO GOOD FOR YOU

Refreshing, cooling, flushing, cleaning - water does it all!

Everyone needs to drink enough water to keep their body working well. Did you know that not drinking enough water can make you feel tired? Some people don't realise their fatigue is due to not drinking enough water. Get in the habit of drinking a glass or two of water first thing, and keep topping up throughout your day.

The fluid you need is based on your energy intake and how much activity you do. A good rule of thumb is to drink 200-300ml of fluid at every meal and snack - so at least six glasses a day - and preferably water - although other fluids such as diet beverages and milk all contribute to your daily fluid intake.

- ▶ Don't wait to feel thirsty - keep sipping to stay alert.
- ▶ Thirst is often mistaken for hunger. To avoid over-eating, drink water before a meal.
- ▶ Many fruit and vegetables contain water. Eating them can help increase your intake of water but you will still need to drink at least six glasses to make sure you have enough.
- ▶ Always keep a bottle of fresh water handy.

»» How to know if you're drinking enough water

Get in the habit of checking out the colour of your urine. If it's pale yellow you've probably had enough water that day but if it's strongly coloured (i.e. dark yellow), then you are not drinking enough.

CAFFEINE – WHAT GOES UP MUST COME DOWN

Most of us like a quick caffeine fix to keep us going during a long day, but too much is not good for the body. You've probably noticed that while a coffee, cola or energy drink gives you a bit of a lift, it's usually followed by a dip in energy. If you have too much caffeine, that lift just stops happening and you start to feel really tired. So it's best to limit these kinds of drink to under 300 mg a day (see caffeine chart on page 19). They also don't help you fight fatigue, they just mask it for a short while.



Caffeine can affect your sleep, which is never a good thing. Too much of it reduces not just the amount of sleep you are getting, but also the quality.

How much caffeine do you drink?

Check out the table below to see the approximate amount of caffeine in various food and drinks. Note: this is a guide only as the amount of caffeine may vary from brand to brand.

Coffee per cup	Caffeine (mg)
Instant	75
Plunger	100 - 300
Espresso/cappuccino	100 - 150
Decaffeinated	3-5
Tea per cup	Caffeine (mg)
Brown 'gum boot' five minute brew	50
Brown 'gum boot' one minute brew	9 - 33
Green tea (Chinese)	30 - 50
Soft drinks per 330 can	Caffeine (mg)
Energy drinks	30 - 160
Cola	32
Lemonade type drinks	nil
Other favourite drinks	Caffeine (mg)
Milo	nil
Hot chocolate	5-7
Herbal infusions	nil
Chocolate (50g bar)	Caffeine (mg)
Dark	Up to 25
Milk	Up to 50

GETTING ORGANISED

The key to eating foods that help you stay alert and avoid fatigue is being organised about your shopping. Aim to have the 'right' foods handy by planning when and where you'll do your shopping, and getting it done well before you want to eat.

As mentioned earlier, shiftworkers should eat little and often rather than having one big meal during or after a shift. Being organised about buying your food will help you stick to this plan.

Supermarket Shopping

- ▶ Look at your work schedule for the coming week and plan what you'll eat at work and what you'll eat at home.
- ▶ Once you've decided on what you want to eat, make a list of what you'll need to have in the house and what you'll buy to take to work.
- ▶ Buy enough seasonal fruit and veges to keep you going for a few days.
- ▶ Eat before you go to the supermarket – you'll be less tempted to buy unhealthy snack foods.
- ▶ Read food labels so you know exactly what you're eating.
- ▶ If possible, use the kitchen facilities at your place of work when you're working nightshifts to prepare simple, healthy snacks.

To help you remember which foods are best, check out the Healthy Food Guide (www.healthyfood.co.nz)

SLEEP • FATIGUE • FOOD HOW THEY INTERACT

If you don't get enough sleep on a regular basis, your body is likely to produce more of a hormone that will make you extra hungry and less of one that suppresses your appetite. In other words, if you're tired your brain starts telling your body to eat - especially foods that are starchy, sweet and high in carbohydrates. If this goes on for too long you'll eat too much of the wrong foods, which will result in blood sugar highs and lows, plus you'll put on weight and generally lack energy.



SMART FOOD FOR SHIFTWORKERS

Before a morning sleep

If your shift means you need to sleep in the mornings or during the daytime, the meal you eat before you go to bed should contain plenty of carbohydrates.

- ▶ Cereal/Porridge
- ▶ Toast
- ▶ Fruit
- ▶ Rice

After a morning sleep (main meal of day)

When you've woken up after a morning or daytime sleep, eat a mixture of protein and carbohydrates to help you wake up and give you energy for the rest of the day and into the night.

- ▶ Lean meat, such as chicken and fish
- ▶ Pasta
- ▶ Vegetables
- ▶ Dairy products, eggs and low-fat cheese
- ▶ Yoghurt
- ▶ Breakfast drinks or fruit smoothies
- ▶ Fruit (its natural sugar will give you an energy boost)

Night-time meal breaks

When you're working nights, eat a protein snack from time to time to help keep you alert. Fresh fruit is also good as it has lots of fibre to help your digestion processes as well as natural sugars to give you an energy boost.

- ▶ Nuts (mixed, raw and unsalted)
- ▶ Dried fruit
- ▶ Lean meat
- ▶ Wholegrain bread sandwiches
- ▶ Use spreads with the 'heart tick'
- ▶ Breakfast drinks or fruit smoothies, low-fat yoghurt drinks, water
- ▶ Beans on wholegrain toast
- ▶ Eggs (poached, boiled, omelette)
- ▶ Fresh fruit

If you don't have time to prepare a snack before you go to work at night, buy one of the healthier options from a petrol station or take-away place on the way to work, such as:

- ▶ Breakfast drinks
- ▶ Fruit smoothies
- ▶ Pies made with wholemeal pastry
- ▶ Fresh fruit
- ▶ Wholegrain bread sandwiches
- ▶ Low-fat or reduced sugar biscuits - look for the NZ Heart Foundation 'Pick the Tick'
- ▶ Wholemeal scones and muffins

REMEMBER
Read food labels

MYTH BUSTING FOR SMART EATING

▶ **Men need ‘man-sized’ or ‘super-sized portions’.**

Men do not need to eat that much more food than a woman of the same height and weight. They do not need ‘super-sized’ portions.

▶ **Carbohydrates (or sugars) cause weight gain.**

Carbs don’t make you fat! The body does not like converting carbs to fat. It’s the hidden fat in the diet that is the main problem when it comes to weight/fat gain.

▶ **Fresh fruit and vegetables are more nutritious than frozen ones.**

You can often get more nutrients from fruit and vegetables that were frozen as soon as they were picked than from so-called fresh fruit and vegetables that are past their best.

▶ **Chocolate or ice cream is OK to eat after a meal because they have a low GI.**

They may have a low GI, but they are also high in sugar and fat which makes them bad news for the waistline, and will effect your blood sugar levels.

▶ **Eating a big meal before going to bed tires you out and slows you down, making it easier to sleep.**

A large meal does not slow down your digestive system. It actually does the opposite – and lying down does not help your digestion.

SUMMARY: SMART EATING

▶ What you eat and when can influence how safe you are at work because these factors influence fatigue, your sleep patterns or feelings of tiredness. A good sleep is the best way to avoid fatigue and tiredness.

▶ To help manage your general well-being, follow the New Zealand healthy eating guidelines that you'll find at www.healthyfood.co.nz.

▶ To maintain your energy levels at work and to enjoy good quality sleep, choose low GI carbohydrates (e.g. whole grains, vegetables and some fruits), and limit how much refined sugar and processed foods you eat.

▶ Eat mainly low-fat protein foods (e.g. fish, lean white meats, eggs and dairy) to increase your alertness.

▶ Snack little and often to maintain steady blood sugar levels and to avoid over-working your digestive system. Avoid heavy meals 3-4 hours before you plan to go to sleep.

▶ If you have to sleep fairly soon after you eat, combine only a small amount of protein with your choice of low GI carbohydrates.

▶ Drink plenty of water. Most adults need between 6-8 glasses of fluid a day, more if they are active (and don't count caffeine drinks such as cola, coffee or tea as part of your liquid intake).

▶ Increase the amount of whole foods you eat and only eat highly processed food as an occasional treat.

▶ Plan ahead so you know what you will be eating at home for the next few days or so and keep plenty of healthy snacks at work.

SHIFTWORK SERVICES

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- ▶ training
- ▶ fatigue risk management systems
- ▶ staff optimisation
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