WORK WIZE

FIGHTING FATIGUE

The Silent DANGER That's Causing Incidents, Accidents and Injuries, and KILLING Australian Workers

INCLUDING SOLUTIONS

Includes special tips to boost your team's productivity, prolong their energy, heighten their concentration, and keep them safer in the field

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WORKWIZE

FIGHTING FATIGUE

Welcome…

And thank you for reading 'Fighting Fatigue -- The Silent Danger That's Causing Incidents, Accidents and Injuries, and Killing Australian Workers'.

If you're looking for a way to boost your team's productivity, prolong their energy, heighten their concentration, and keep them safer in the field, this report is going to be very important to you.

Because, in the next few minutes, I'm going to share some shocking statistics, troubling stories, and surprising answers including…

Thanks again for taking the time to this report.
We look forward to helping your team feel their best, perform their best, and stay safe – all day, every day.

Ben McMahon
Director

ABOUT US AND OUR MISSION

Adaptogenix (the creator of WorkWize) was formed in 2017 with a desire to make Nootropics and herbal supplements as common as tea and coffee.

We are driven to spread the positive influence Nootropics can have to all walks of life and across industries and market sectors. We will continue to innovate and produce new products that help people achieve their goals and improve their health.

We seek a future where the insights from Nootropics, herbal medicine and nutritive supplements are used to enhance daily activities in a healthy manner…

…To make the afternoon cup of 'pick me up' improve your health rather than detract from it.

…And to create supplements and beverages that improve the health of people and make them energised and feeling great.

1 INCIDENTS, ACCIDENTS, INJURIES AND DEATHS

According to Safe Work Australia, 3,414 workers lost their lives in work-related incidents between 2003-2016.

Personally, we think one is too many. But sadly, this stat is the tip of the iceberg.

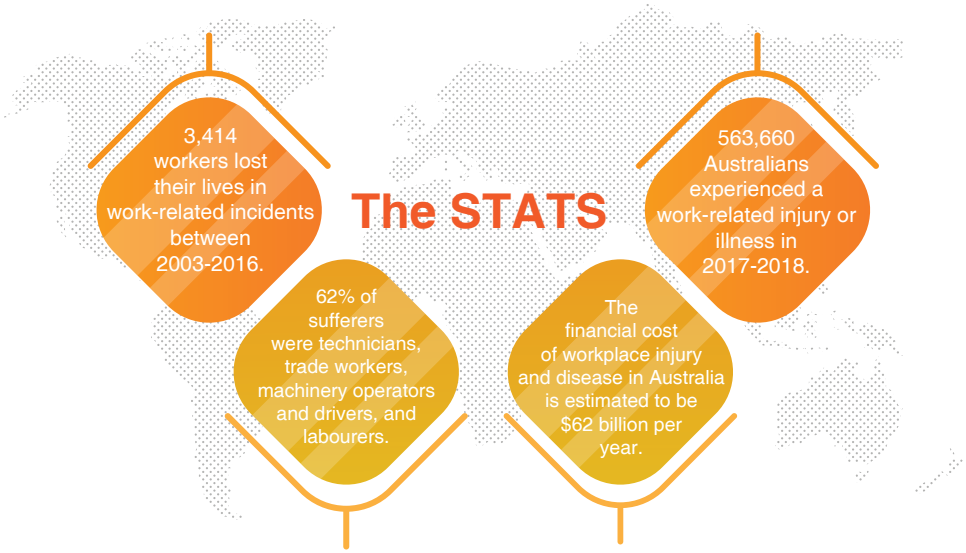
According to the Australian Bureau of Statistics (ABS), 563,660 Australians experienced a work-related injury or illness in 2017-2018. A whopping 62% of sufferers were technicians, trade workers, machinery operators and drivers, and labourers.

The Financial Cost

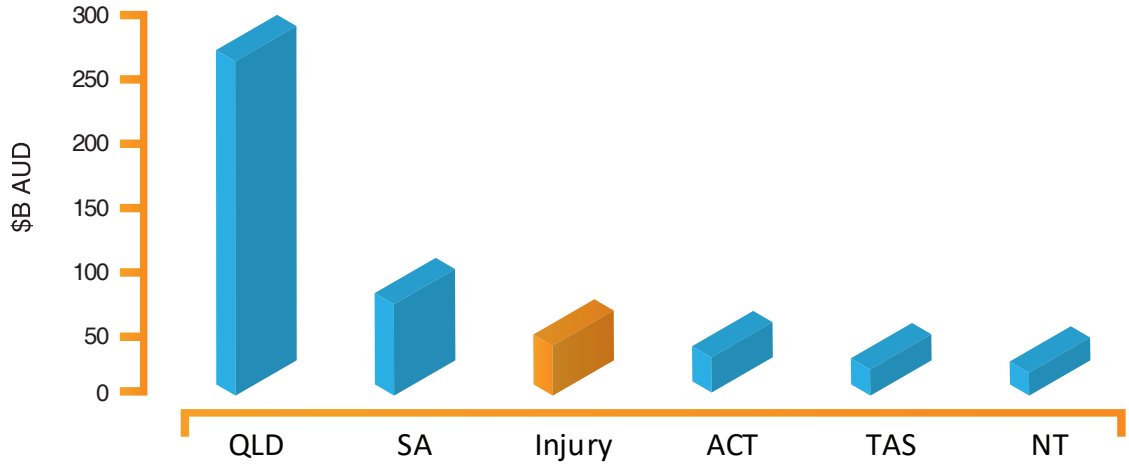
The financial cost of workplace injury and disease in Australia is estimated to be $62 billion per year. That's equivalent to the entire Gross State Product of Tasmania and Northern Territory combined.

But when you think about it, it's not hard to see how the costs add up including…

- Lost productivity
- Downtime (sick days from 1 day to months of rehabilitation)
- Health expenses
- Worker compensation
- Equipment repair and replacement (due to accidents)
- Raw material replacement (due to mistakes)
- Staff turnover (recruiting and training)



GSP and Workplace Injury

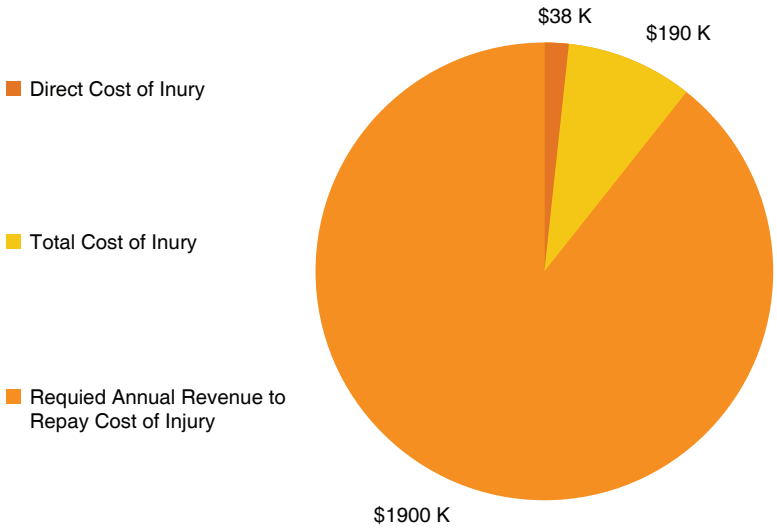


According to Safe Work Australia, the average work-related injury costs the employer $38,000 in direct expenses.

But according to Vitality Works' Injury Cost Calculator, the direct cost of an injury is just the beginning. They suggest there is an indirect cost of four times the direct cost. Added together, the total becomes $190,000.

On a 10% profit margin, the company would need revenue of $1.9 million to cover the average injury.

Real Cost of Average Workplace Injury



The Personal Cost

Regardless of the exact financial cost, the personal cost to workers and their families, friends and colleagues is immeasurable.

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WHAT'S BEHIND ALL THESE INCIDENTS?

Most accidents and injuries (including those that happen at work) are the result of a combination of factors. However, there is growing evidence that fatigue is a major contributor to workplace incidents.

Road Transport and Machine Operation

A Mining Australia article titled "Waking up to Driver Fatigue" states…

"Worker fatigue is one of the most crucial safety issues in the mining industry, particularly for heavy equipment operators.

According to a study published in 2007 by Caterpillar Global Mining, Viewpoint, perspectives on modern mining, up to 65% of truck haulage accidents in surface mining operations are directly related to operator fatigue."

Fatigue has long been recognised as a core safety issue in the transport industry. In fact, research indicates fatigue is four times more likely to be a contributor to workplace impairment than drugs and alcohol. Between 20 and 30 per cent of road accidents involve driver fatigue.

The Transport Accident Commission (TAC) reports that if a driver travelling at 100 km/h falls asleep for just 4 seconds, he/she will have travelled 111 metres while asleep.

In Driver Safety System assessments, mining trucks were discovered passing each other with both drivers asleep at the wheel.

And it's not just road transport ...

The FACTS

65% of truck haulage accidents in surface mining operations are directly related to operator fatigue.

Between 20 and 30 per cent of road accidents involve driver fatigue.

Fatigue is 4 times more likely to be a contributer to workplace imparement than drugs and alcohole.

> Fatigue causes an increased likelihood (risk) of incidents because of tiredness and lack of alertness. Fatigue may result in a slower reaction to signals or situations and affect the ability to make good decisions and adapt to a constantly changing environment like mining.

Accidents At Sea

The Exxon Valdez oil tanker accident in 1989, which resulted in 11 million gallons of oil spilling into the ocean contaminating 1,300 miles of coastline, and killing more than 250,000 seabirds, 2,800 sea otters, 300 harbor seals, 250 bald eagles, and 22 killer whales, has been officially attributed to fatigue (NTB 1990).

Although Exxon pledged to clean up the spill, thousands of gallons of oil remain in Prince William Sound. It's estimated, the remaining oil will take decades to disappear.

The environmental cost is incalculable. And with fines totalling $3.9 billion, this is noted as the worst environmental accident in history.

Other Industries Too

People are now realising fatigue may be the hidden cause of accidents and injuries in all industries including mining, construction as well as many trade and technical fields.

Torbjorn Akerstedt (director of Stockholm Stress Centre, a joint venture with Stockholm University) concluded…

"Fatigue is considered to be responsible for at least 30% of all workplace accidents and up to 65% of all surface mining truck accidents."

A NSW Government Fact Sheet states…

"Fatigue causes an increased likelihood (risk) of incidents because of tiredness and lack of alertness. Fatigue may result in a slower reaction to signals or situations and affect the ability to make good decisions and adapt to a constantly changing environment like mining. Consequently, the human error component of incidents is increased along with the risks to health and safety."

And it's no wonder. Increasing pressure for industries to become more competitive has resulted in longer hours (including shift work), increased job complexity, and heightened work intensification. This is leading to increased worker fatigue which can compromise health and safety and contribute to potentially dangerous or costly errors.

In short, people are working longer, harder, and more at night, leading to fatigue, which results in incidents, accidents, injuries and even deaths.

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FATIGUE:
THE INSIDE STORY

Fatigue (**fə ‘ti:g**)

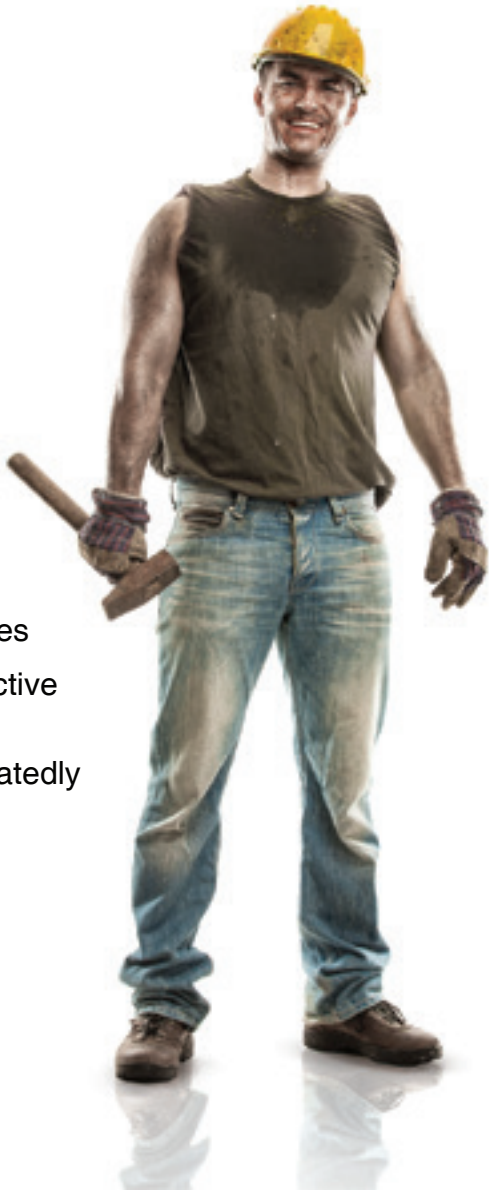
noun: Extreme tiredness resulting from mental or physical exertion or illness.

Fatigue is more than feeling tired and drowsy. In a work context, fatigue is a state of mental and/or physical exhaustion which reduces a person’s ability to perform work safely and effectively.

What Fatigue Looks Like

Fatigue manifests in many ways including:

- Drowsiness
- Headaches
- Dizziness
- Difficulty concentrating
- Low motivation
- Reduced immune system
- Blurred vision or impaired visual perception
- Short term memory problems
- Impaired decision-making and judgment
- Reduced hand-eye coordination or slow reflexes
- Noticeably reduced capacity to engage in effective interpersonal communication
- Other changes in behaviour, for example repeatedly arriving late for work



What Does Fatigue Feel Like for You?

Think back to the last time you felt fatigued. Remember the symptoms you suffered.

- Was your speed impaired (both physical and mental)?
- Did you make more mistakes than usual?
- Was your coordination affected?
- Did you tire more easily than usual?
- Were you in danger of falling asleep (perhaps at the wheel)?

Consequences of Fatigue at Work

Fatigue reduces productivity in all aspects of work and can lead to errors and an increase in incidents and injuries, particularly when:

- Operating fixed or mobile plant, including driving vehicles
- Undertaking critical tasks that require a high level of concentration
- Undertaking night or shift work when a person would ordinarily be sleeping

Long-Term Consequences of Fatigue

Fatigue can also lead to serious long-term health conditions including:

- Heart disease
- Diabetes
- High blood pressure
- Gastrointestinal disorders
- Lower fertility
- Anxiety
- Depression
- Chronic fatigue syndrome

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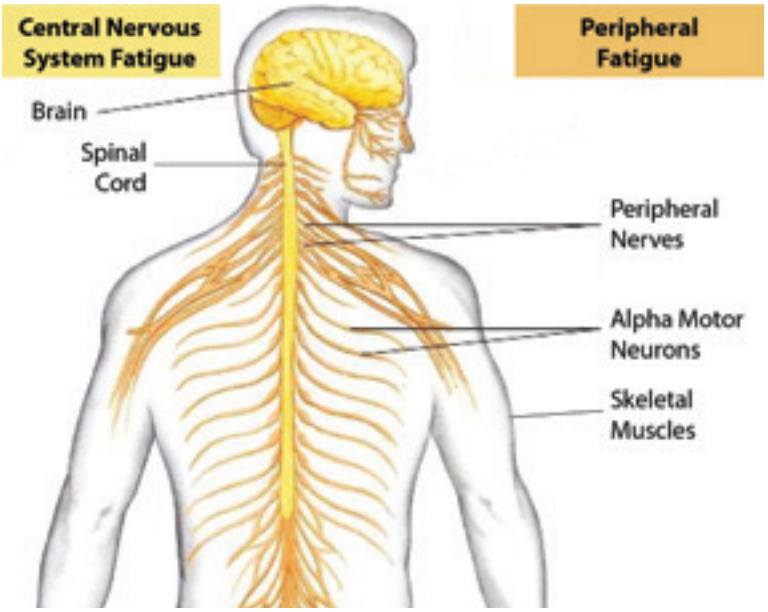
THE SCIENCE OF FATIGUE

Fatigue is a complex combination of processes in the body brought about through varying activities. Fatigue is typically dissected into two general categories; peripheral and central. Peripheral fatigue is more localised and muscular-skeletal in nature. It is brought on by the culmination of a workload in excess than the body is accustomed to and results in localised tiredness of the muscle group in question and a need to recover physically for a short period, for example needing to have a quick break and stretch after running or carrying a heavy load. The muscles are depleted of energy sources (glycogen and ATP), have lactic acidification and need time to flush the region with fresh blood.

Central fatigue or Central Nervous System (CNS) fatigue is more general in its effects and operates on a longer time scale. Central fatigue as the name suggests, has its mechanism based in the neurochemistry of your brain, it can therefore affect your entire body. A fatigued CNS means you may have trouble activating your muscles or even concentrating. In this way, even if your muscles are up to the task of producing force, the CNS cannot produce the signals required to give them the proper instructions. This manifests itself as decreased ability to motivate yourself, to work physically and even to concentrate.



Causes of FATIGUE

MEDICAL

Sometimes fatigue may be a sign of an underlying illness such as thyroid disorder, heart disease, diabetes or mental health challenges.

LIFESTYLE

Fatigue can also be caused by lifestyle-related causes including drugs, alcohol, diet, lack of regular exercise, and lack of quality sleep.

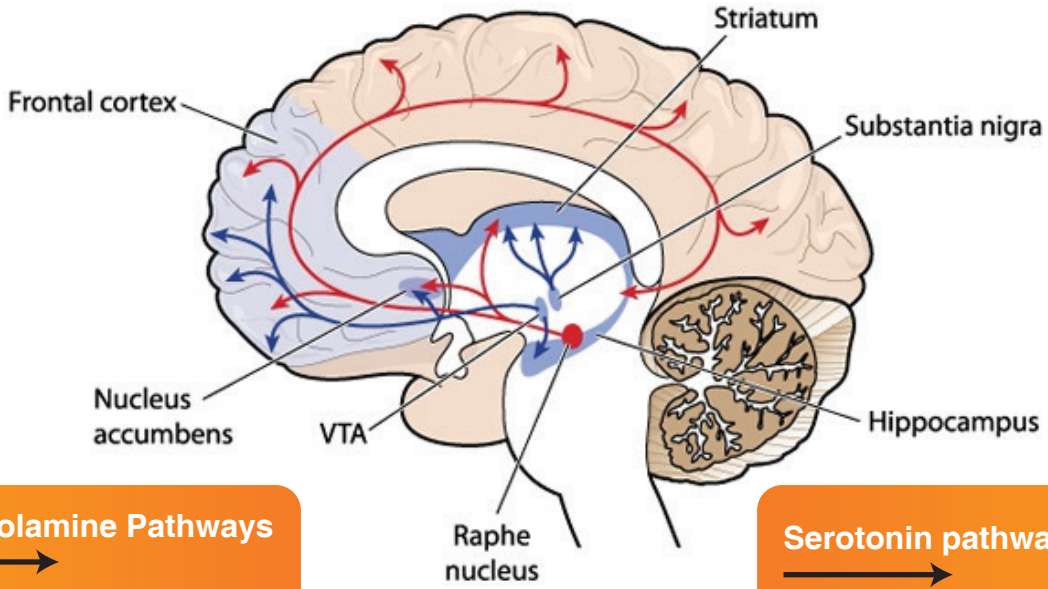
WORK

Fatigue is often the result of things happening at work including long hours, intense physical labour, hot working conditions, irregular hours or shift work, and poor hydration or vitamin replacement.

Research has shown that the dominant synaptic pathways that contribute to CNS fatigue are the catecholaminergic and serotoninergic pathways. Serotonin is a vital neurotransmitter which is responsible for relaxation, mood regulation and appetite. When serotonin levels increase you may feel sleepy. The catecholamine neurotransmitters; dopamine, adrenaline and noradrenaline are used to drive feelings of motivation, alertness and concentration. These catecholamines are vital for normal active functioning and concentration. When they are depleted you feel tired, un-motivated and have trouble concentrating. It is this catecholamine depletion relative to the level of serotonin, that is the dominant biochemical marker of central fatigue.

These neurotransmitters are produced in the brain from precursor nutrients. The precursor nutrient to the catecholamines are tyrosine and phenylalanine. These precursor nutrients originate in complex proteins and are broken down in the gut and absorbed into the blood. They are then absorbed from the blood through a highly selective semi permeable membrane in the brain called the 'Blood Brain Barrier' (BBB). The absorption rate of these nutrients and therefore the maximal production rate of the relevant neurotransmitter within the brain is dependent on the supply of the precursor nutrients to the brain from the blood. After working or exercising the body begins to run low on these vital nutrients and the corresponding level of neurotransmitter also begins to run low.

Regardless of the cause – whether within or outside your control as an employer -- the consequences often manifest themselves in the workplace. And they can be serious.



Catacholamine Pathways →

Functions

-Motivation
-Concentration
-Motor Function
-Vigilance

Serotonin pathways →

Functions

-Sleep
-Mood Regulation
-Appetite
-Relaxation

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MYTHS ABOUT FATIGUE & HYDRATION

The Importance of Drinking Water

The human body can last weeks without food, but only days without water. In fact, our bodies are made up of 50 to 75 per cent water. Water forms the basis of blood, digestive juices, urine and perspiration, and is contained in lean muscle, fat and bones.

Because our bodies can't store water, we need fresh supplies every day to make up for losses. The amount we need depends on our body size, metabolism, the weather, the food we eat and our activity levels. But in general, experts recommend 8-10 cups of water every day (that's 2-2.5 litres).

The Danger of Drinking Too Much Water

Did you know, you can drink too much water? It's called hyponatraemia or water intoxication, and it can be lethal.

Hyponatraemia occurs when sodium in the blood drops to a dangerously low level. Sodium is needed in muscle contraction and for sending nerve impulses.

At most risk of hyponatraemia are athletes or workers engaged in prolonged physical labour (especially in hot, humid conditions) who drink large amounts of water. You may have heard of cases of hyponatraemia in people trekking the Kokoda trail.

THE FACTS

- The human body can last weeks without food, but only days without water.
- 75% Our bodies are made up of 50 to 75 percent water.
- In general, experts recommend 8-10 cups of water every day (that's 2-2.5 litres)

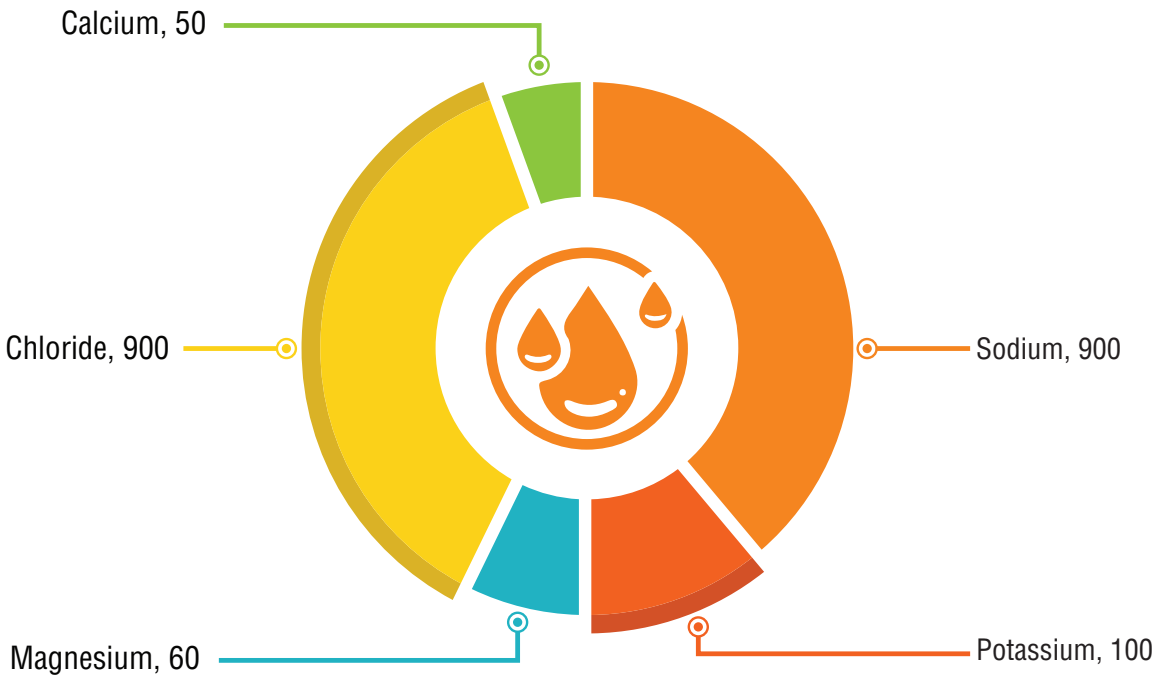
60 Minutes featured a story on hyponatraemia in people trekking Kokoda. Hyponatraemia occurs when sodium in your blood drops too low because too much water has been drunk.

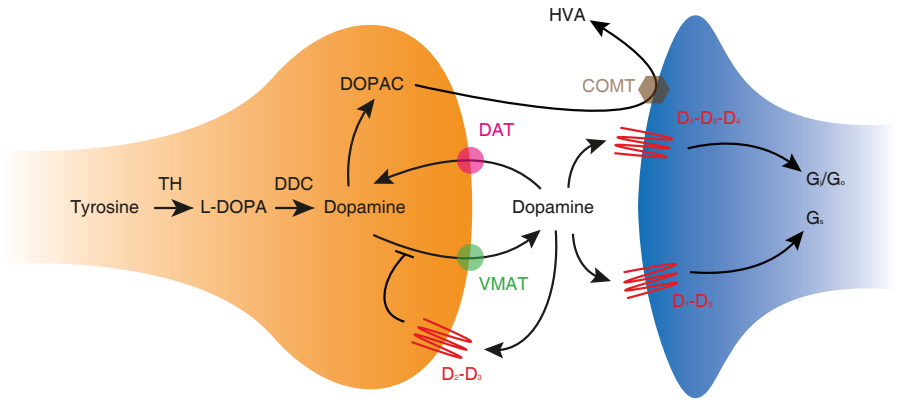
You Lose More Than Water When You Sweat

In an attempt to stay hydrated when working in hot conditions, people wisely drink more water. However, when they start to feel tired, they often increase their water consumption even more thinking it will re-energise them.

The problem is, you don't just lose water when you sweat. You also lose nutrients your body and brain need. To maintain optimum mental and physical performance, you need to replace those nutrients. And water alone won't do it.

Typical Electrolyte Levels in Sweat (mg/L)

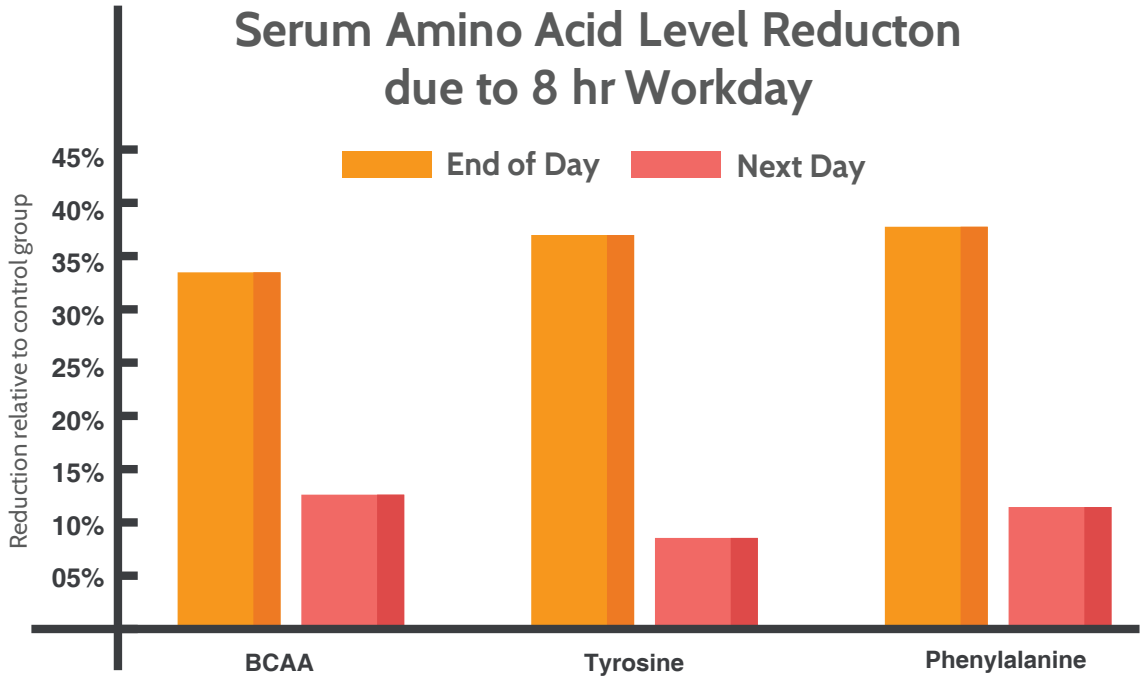




Doparmine natural transmission process in brain. Tyrocine is converted to doparmine (hydroxylase) in the neuron which is used to communicate with neighbuoring synapse.

You lose more than just sweat when you work

Working, exercising and just being awake depletes the body of nutrients it needs to operate. The brain uses specific precursor nutrients to remain motivated, alert and fight fatigue. The levels of the precursor nutrients (tyrosine, phenylalanine) for the catecholamine neurotransmitters (dopamine, noradrenalin) and others can stay depleted even after eating and sleeping during periods of accumulated fatigue. Research conducted into the effects of mental fatigue on serum amino acids has shown that an 8 hour simulated office workday can deplete the catecholamine amino acids by up to 40% relative to baseline (Tanaka, et al., 2007). The reduction of these levels can persist into the next day even after adequate food and sleep.

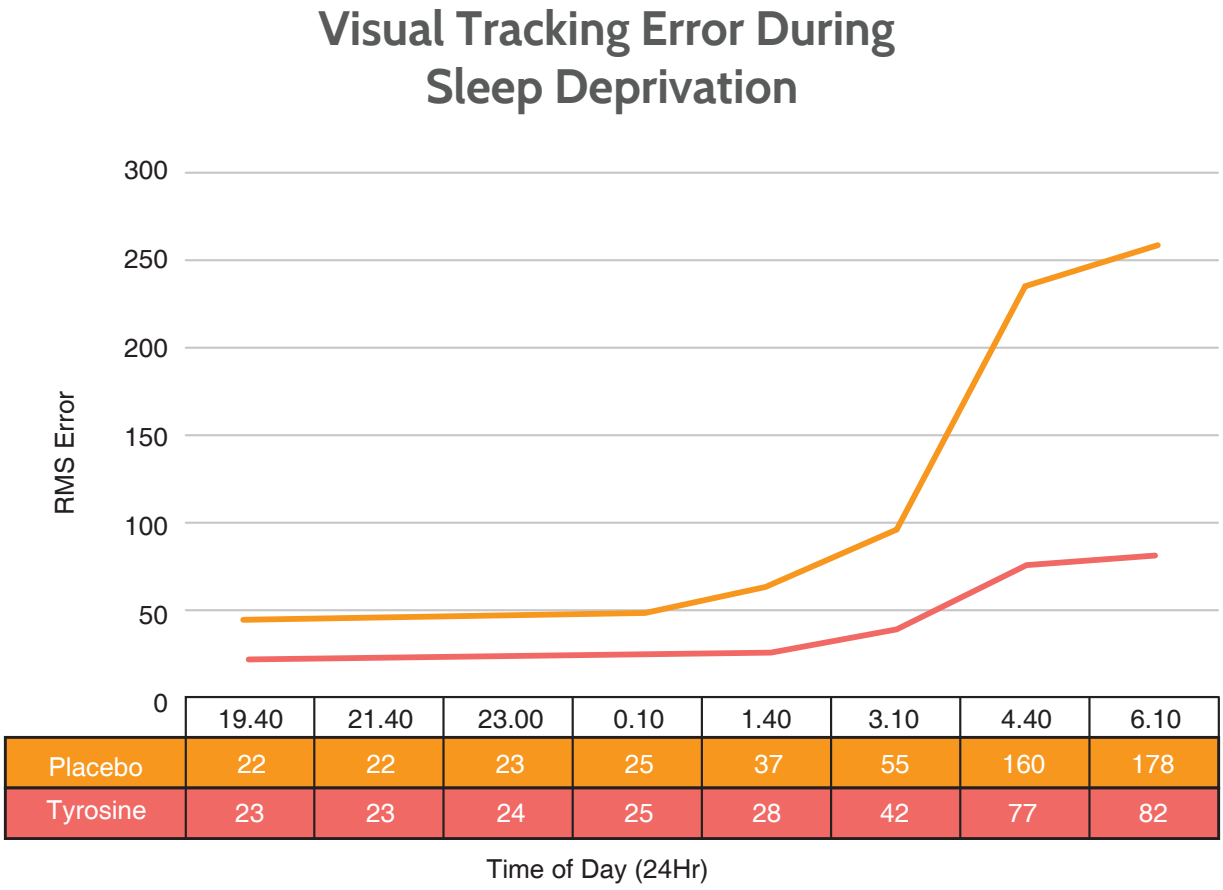


Data taken from (Tanaka, et al.,2007). Reduction in amino acid levels are nearly 40% relative to control from only 1 days work, and still 10% lower the next day.

Tanaka, M., Mizuno, K. & Nozaki, S., 2007. Mental fatigue-induced decrease in levels of several plasma amino acids. *Journal of Neural Transmission*, Volume 114, pp. 555-561.

SUPPLEMENTATION TO COMBAT FATIGUE

Just as electrolytes lost due to sweat can be replaced by sports drinks, the amino acids (neurotransmitter precursors) lost while working can be replaced in a drink now too. Supplementation has proven very effective in fighting the onset of the effects of fatigue. In a study of military personnel exposed to the effects of sleep deprivation, a group was given either a tyrosine supplement or a placebo (Wiegmann & Shappell, 1993). The volunteers were exposed to a simulated aircraft environment (noise and lighting) and required to operate a simulated targeting exercise during a period of extended wakefulness. The level of error associated with the airmen's ability to track a target onscreen was tested at various times during the evening. The group given the tyrosine supplement had significantly reduced tracking error, the tyrosine group also responded with lower subjective sleepiness scores (indicating they felt less tired). The plot shown indicated the comparison of the tracking error between the placebo and the tyrosine group during the overnight testing.



	19.40	21.40	23.00	0.10	1.40	3.10	4.40	6.10
Placebo	22	22	23	25	37	55	160	178
Tyrosine	23	23	24	25	28	42	77	82

Plot showing the tracking error results vs. time of day during the overnight study. The tyrosine group had a level of maximum tracking error nearly 50 % less than the placebo group.

Wiegmann, D. & Shappell, S., 1993. *Behavioral Effects of Tyrosine during Sustained Wakefulness*, Florida: Naval Aerospace MEdical Research Laboratory.

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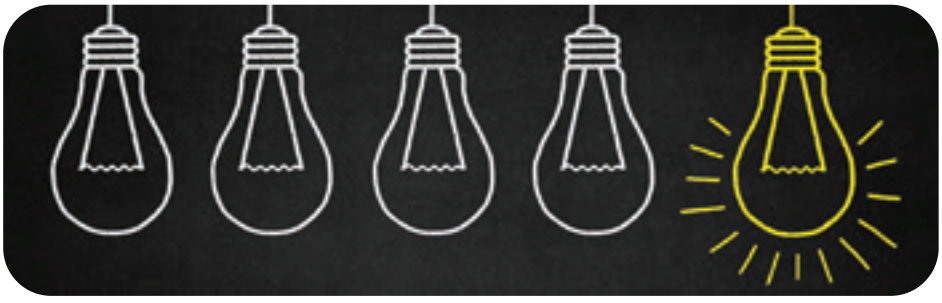
WHAT'S THE SOLUTION TO FATIGUE IN THE WORKPLACE?

As more workplaces are recognising the correlation between fatigue and compromised productivity, increased incidents, accidents, injuries and even death, positive measures are being taken including:

- Assessing and controlling risks
- Restricting work hours
- Managing shift times and days off
- Managing break times and providing facilities for rest
- Introducing job rotation
- Restricting physically intense work during extreme temperature
- Installing ventilation
- Providing education around fatigue management
- Actively monitoring workers in the field
- Providing sun-safe, cool-comfort uniforms
- Providing hydration and supplementation

WorkWize is proud to partner with some of the largest companies in Australia to help them fight fatigue in their workplaces.



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WHAT IS WORKWIZE?

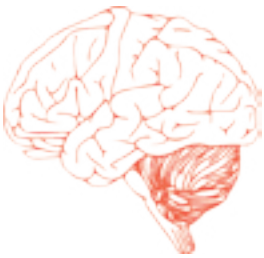
WorkWize is a Nootropic Electrolyte drink designed to enhance the safety and performance of workers in tough conditions.

It combines the latest modern research in neurochemistry and sports science and is known to boost productivity, prolong energy, heighten concentration, and save lives in the field.

WorkWize has a refreshing orange flavour with no added sugar or colours, and comes in convenient, easy-mix sachets you can carry with you and keep onsite for your team.

Nootropic *(noh-ə-TROP-ik):*

from the Greek root noos and tropein, meaning to steer the mind. Nootropics are a class of compounds that can benefit memory, attention, motivation and cognition in otherwise healthy individuals.



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WHO IS WORKWIZE FOR?

WorkWize is especially for Safety Offices, Managers and Foremen who want to help your team avoid the symptoms of fatigue, while thinking more effectively, working more efficiently, and staying safer.

More specifically, it has been shown to help people who work in tough environments to experience improved…

1. Strength and endurance (especially in tough conditions)
2. Physical and mental productivity
3. Judgement and decision making
4. Creativity and problem-solving
5. Focus and attention span
6. Mood and motivation
7. Interpersonal engagement and communication
8. Coordination and reflexes
9. Speed to master new skills

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HOW DOES WORKWIZE WORK?

WorkWize is a premium blend of amino acids, vitamins, electrolytes and nutrients specifically formulated to help you achieve and maintain optimal performance during a busy workday.

The Science Behind WorkWize

The human brain is a complex organ that coordinates, monitors and operates your entire body. It contains around 100 billion neurons (yes, that's BILLION), each of which needs specific nutrients to work effectively.

WorkWize has been specially developed to replenish the nutrients your brain uses to maintain focus, motivate you to work, combat fatigue and keep you hydrated.

When you suffer from central fatigue the catecholamine neurotransmitters are depleted. These levels will continue to diminish until the body can boost the supply of the precursor nutrients required to make them. WorkWize contains these precursor nutrients; tyrosine, phenylalanine and the BCAA's, all of which are required by the body to make the catecholamine neurotransmitters and directly combat the onset of fatigue at its bio-chemical source.

WorkWize also contains a specially formulated blend of creatine and acetyl carnitine both of which has been shown to help energise the brain during periods of mental fatigue.

How Is WorkWize Different to Other Drinks?

There are dozens of so-called sports and health drinks on the market. Every single one will hydrate your body (because they all contain water).

But very few have amino acids and chelated minerals for optimal hydration and bio-availability.

Almost none do this without artificial colours, flavours and loads of sugar.

And as far as we know no other drink has the additional anti-fatigue formulation designed to keep you more focussed, motivated and safer onsite.

Comparison of Leading Sports and Health Drinks

Other Leading Drinks	WorkWize
Provides hydration	Hydration + critical nutrients to maintain optimum mental and physical performance
Basic minerals	Chelated minerals to maximise absorption and uptake by bloodstream
Some electrolytes	Electrolytes + amino acid to nourish your body and brain
Full of sugar (as much as 15teaspoons)	No added sugar (100% organic stevia)
Artificial flavours	No artificial flavours
Artificial colours	No artificial colours
Bulky bottles	Easy-mix, no-spill sachet (carry in your pocket or lunchbox, and store easily onsite)
Imported	Australian made
No official approvals	FSANZ compliant

WHATS IN WORKWIZE?

AMINO ACIDS

WorkWize contains; Tyrosine, Phenylalanine, Glycine and the Branched Chain Amino Acids (BCAA's) (Leucine, Isoleucine and Valine). Tyrosine and Phenylaniline are converted to Catecholamines which keep the brain motivated, alert and active. The BCAA's are used in cellular energy production and supplementation can reduce fatigue. Glycine is utilised by the body in a multitude of functions. Consumption can assist brain health and help mitigate fatigue.

ELECTROLYTES

WorkWize contains all the major electrolytes needed by the human body; Sodium, Potassium, Chloride, Magnesium and Calcium, all in chelated form for optimal bio availability. The human body requires the presence of electrolytes in its serum and cellular fluids to enable signal transduction, to regulate osmotic gradients and for enzymatic reactions. Electrolytes are lost in sweat and need to be replenished.

VITAMINS

The vitamin formulation in WorkWize have been designed to replenish the supply of vitamins used by the brain for cognitive function. WorkWize contains Vitamins C, B5, B6 and B12, all essential for countless enzymatic reactions, immune function, energy generation and neurotransmitter production. They are consumed by the body and need constant replenishment.

NUTIENTS

WorkWize contains the vital nutrients Creatine and Carnitine to facilitate energy production. Creatine is an endogenous molecule vital to energy production in the human body by recycling cellular adenosine triphosphate (ATP). Carnitine is another endogenous nutrient that is linked to the conversion of fatty acids to energy by mitochondria.

MADE IN AUSTRALIA

SUPERIOR HYRDATION

ZERO SUGAR, ZERO CAFFEINE, GLUTEN FREE

ALL NATURAL

AMINO ACIDS, VITAMINS & MINERALS

DOES IT WORK?

Thousands of people benefit from WorkWize every day. Here's what some of them have to say…

Helps maintain speed and efficiency

"I provide WorkWize to my 20 staff in the kitchen and they really get a lot out of it. I find it helps them to maintain their speed and efficiency through their busy days, keeping them hydrated and motivated.

Aside from the efficiency increase I also like knowing this is helping them have a happier more comfortable day in a hot sweaty environment.

I personally love drinking it, it's got no sugar which straight sets it apart from most electrolyte drinks but tastes great.

I have found the afternoons are easier to get through, I have more energy and I don't feel dehydrated. I would definitely recommend this product for anyone interested, it's great."

Richard Ousby, Executive Chef – Stockhouse HQ

Boost of energy without the sickly come down of energy drinks

"WorkWize has helped me focus not only working on the tools, but in the office as well. It has a refreshing taste, which is easy to stomach no matter how hot and bothered you feel working. It has really become a staple part of me and my crew's day both to boost our water intake and improve energy levels, especially through the afternoon.

I feel it gives you a boost of energy without the sickly come down of energy drinks you get at the shops. I really notice it on days where we run out of WorkWize, everyone's day seems to drag, and you can see that energy levels are down. I also use it every gym session as a mild pre-work out it's that good!"

Liam Seiler, Director - Redshaw Constructions

Mental energy and focus has been noticeably improved

"I have been using WorkWize to refuel for training after long work days. I have found my mental energy and focus has been noticeably improved and in my training sessions I have been sharp and less fatigued."

Richard McMahon, Acupuncturist – Institute of Sports and Spines

HOW CAN YOU TRY WORKWIZE FOR YOURSELF?

I can go on and on about the benefits of WorkWize and how it is known to boost productivity, prolong energy, heighten concentration, and save lives in the field.

But there's only one way for you to know for sure. And that is to try WorkWize and experience the benefits first hand.

And so, with your permission, I'm going to send you a sample of WorkWize for you and your team to try. No charge. No strings attached. 100% free.

You're already providing your team with water to help keep them hydrated. Perhaps you're giving them some other sort of sports drink too.

Why not give them WorkWize – the drink that contains the nutrients they need to feel their best,
perform their best, and stay safe – all day, every day. Without artificial colours, flavours or added sugar that leads to energy lows.

Put WorkWize to the test. Click here and get your free sample.

Or contact us at sales@work-wize.com.au