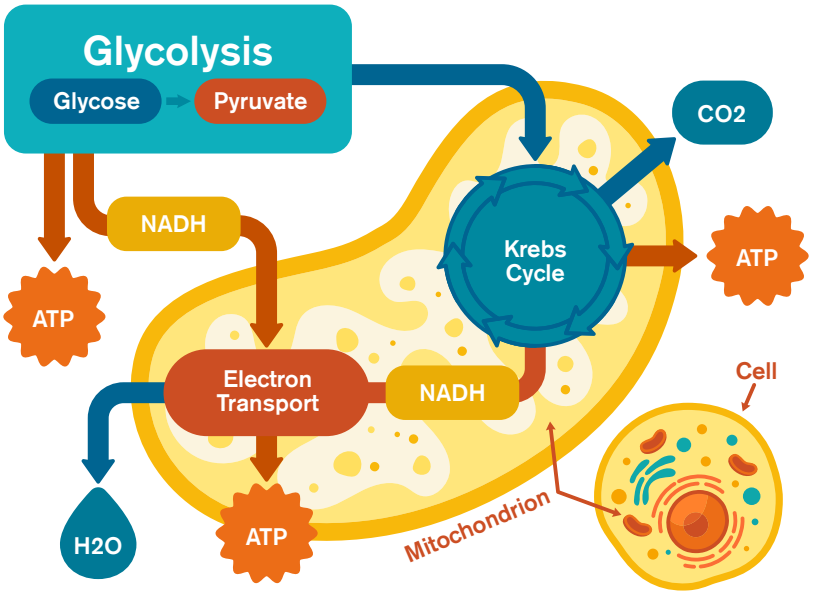
DR.VEGAN®

Supporting energy naturally

Nutrition-first solutions for low energy

Practitioner Paper • *For practitioner use only*

CELLULAR ENERGY PRODUCTION AND MENTAL AND PHYSICAL VITALITY



Mitochondria And Energy Metabolism

Energy production in the body occurs mainly within the mitochondria - the 'powerhouses' of the cell - through a process known as cellular respiration. This process transforms nutrients into adenosine triphosphate (ATP), the energy currency used for nearly all cellular functions, including brain activity, muscle contraction and immune response.

Stages Include:

- **Glycolysis:** The breakdown of glucose in the cytoplasm to generate pyruvate and ATP.
- **Citric acid cycle (Krebs cycle):** Converts acetyl-CoA into energy-rich molecules (NADH, FADH) in the mitochondria.
- **Electron transport chain (ETC):** Uses NADH and FADH to generate ATP through oxidative phosphorylation.

Many nutrients in UltraEnergy act as cofactors in these pathways, supporting sustained energy, focus, and stamina.

DIET AND LIFESTYLE TIPS FOR CLIENTS

Eat balanced, nutrient-dense meals

Include a source of complex carbohydrates (e.g. quinoa and oats), quality protein (e.g. beans and lentils), and healthy fats (e.g. avocado and olive oil) in each meal to stabilise blood glucose and provide steady energy.

Prioritise B-vitamin-rich foods

B vitamins are essential cofactors in cellular energy production. Include leafy greens (folate), whole grains (B1, B2, B3, B5), eggs (B7, B12), legumes, and seeds regularly.

Increase magnesium and iron intake

Magnesium supports mitochondrial ATP production, and iron is vital for oxygen delivery via haemoglobin. Include dark leafy greens, beans, pumpkin seeds, and, if not vegan, oily fish or lean red meat.

Support mitochondrial function with antioxidants

Oxidative stress can impair energy output. Encourage colourful plant-based foods (berries, beetroot, turmeric, tomatoes, and green tea) to provide antioxidant support.

Stay well hydrated

Dehydration can cause fatigue and impair mental clarity. Encourage water and herbal teas throughout the day, aiming for at least 1.5–2 litres, depending on body size and activity.

Eat at regular intervals

Skipping meals or erratic eating can lead to energy dips. A consistent eating pattern supports stable blood sugar and sustained energy.

Limit refined sugars and ultra-processed foods

These can spike blood sugar and insulin, followed by energy crashes and increased oxidative stress, taxing mitochondria.

Prioritise quality sleep

Aim for 7–9 hours of restful sleep. Deep sleep is when the brain and body restore energy reserves. Recommend a calming evening routine and limiting screen time before bed.

Manage stress proactively

Chronic stress increases cortisol, which over time can disrupt mitochondrial function and drain energy. Recommend techniques such as mindfulness, breathwork, yoga or journaling.

Move regularly, but don't overtrain

Physical activity boosts mitochondrial biogenesis and oxygen delivery, but excessive exercise can be draining. Encourage moderate, consistent movement like walking, swimming, cycling or strength training.

Get daily daylight exposure

Natural light helps regulate circadian rhythms and supports mood and energy via vitamin D synthesis and serotonin regulation. Aim for 20–30 minutes outdoors daily.

Minimise toxin exposure

Environmental toxins can increase oxidative stress. Recommend reducing exposure to alcohol, cigarette smoke and unnecessary chemical products where possible.

UltraEnergy

UltraEnergy is a high-strength B vitamin complex developed by practitioners, providing sustained energy for your mind and body throughout the day. Protecting against tiredness, fatigue, irritability and lack of focus, UltraEnergy supports your energy, heart health and brain function.

	PER CAPSULES	EC NRV % *
Vitamin B1 (Thiamin)	50mg	4545
Vitamin B2 (Riboflavin)	50mg	3571
Vitamin B3 (Niacin)	50mg	313
Vitamin B5 (Pantothenic Acid)	50mg	833
Vitamin B6	6mg	429
Vitamin B12	100ug	4000
Biotin	50ug	100
Folate	200ug	100
Choline	50mg	**
Inositol	50mg	**
Dandelion Leaf	100mg	**

* NRV - Nutrient Reference Value
** No NRV Established
*** At time of manufacture

Pairs well with

Vegan Omega 3

Magnesium Citrate

Protein & Creatine Superblend

Debloat & Detox

Hydrate+

Gut Works®

Ingredients

Vitamin B1 (Thiamin Hydrochloride), Vitamin B5 (Pantothenic Acid), Choline Bitartrate, Niacin (Nicotinamide), Vitamin B2 (Riboflavin), Inositol, Vitamin B6 (Pyridoxine Hydrochloride), Folate (Calcium-L-Methylfolate), Vitamin B12 (Methylcobalamin), Biotin, Dandelion Leaf powder (*Taraxacum officinale*), Capsule Shell (Hydroxypropyl Methylcellulose).

Free from

Added Sugar, Starch, Sweeteners, Gluten, Wheat, Soya, Lactose, Dairy, Artificial Flavours, Colours and Preservatives.

Directions

- Take one capsule each day. If needed, clients can take two.
- Lunchtime or mornings are the best time to take UltraEnergy so it fuels the day ahead; however, there are no set rules on when to take it.

KEY INGREDIENTS IN ULTRAENERGY

The combination of high-potency B-vitamins, choline, inositol and herbal support in UltraEnergy provides foundational and fast-acting support for:

- **Physical energy:** Enhanced ATP production and improved oxygen and nutrient metabolism.[12]
- **Mental clarity:** Support for neurotransmitter synthesis and brain energy.[12]
- **Mood and motivation:** Balance of dopamine, serotonin, and acetylcholine pathways.[12]
- **Stress resilience:** Adrenal and nervous system support under pressure.[13]

Vitamin B1 (Thiamin)

Thiamin is essential for converting carbohydrates into energy and plays a key role in the function of the nervous system. It is a cofactor for enzymes involved in the citric acid cycle and the pentose phosphate pathway. Studies have shown that thiamin supplementation may reduce mental fatigue and support focus and performance during cognitively demanding tasks. Thiamin acts as a coenzyme, specifically as thiamin pyrophosphate (TPP), which is required by key enzymes involved in this process. These enzymes include:

- Pyruvate dehydrogenase, which helps convert pyruvate (from glucose) into acetyl-CoA – a molecule that enters the citric acid cycle (also known as the Krebs cycle or TCA cycle).
- Alpha-ketoglutarate dehydrogenase, another enzyme in the citric acid cycle that helps generate ATP (cellular energy).
- Transketolase, an enzyme in the pentose phosphate pathway, which supports both energy production and the generation of NADPH – vital for antioxidant defence and biosynthesis.

Without sufficient thiamin, the body's ability to efficiently generate ATP from glucose is impaired, leading to reduced energy levels, especially in cells with high energy demands like brain and nerve cells.[1]

Vitamin B2 (Riboflavin)

Riboflavin is required for the production of FAD (flavin adenine dinucleotide), a coenzyme involved in redox reactions within the electron transport chain. It supports mitochondrial efficiency and helps reduce oxidative stress, which can drain energy reserves. Riboflavin is a precursor for two important coenzymes:

- FAD (flavin adenine dinucleotide)
- FMN (flavin mononucleotide)

These coenzymes are essential for numerous oxidation-reduction (redox) reactions, meaning they help enzymes transfer electrons during metabolic processes. FAD, in particular, is crucial in the electron transport chain (ETC) – the final stage of cellular respiration where most of the body's ATP (energy) is produced.[2]

Vitamin B3 (Niacin)

Niacin is a precursor for the coenzymes NAD (nicotinamide adenine dinucleotide) and NADP (its phosphorylated form), which are fundamental to redox reactions involved in energy metabolism, DNA repair, and cell signalling. NAD is essential for glycolysis, the citric acid cycle and oxidative phosphorylation, driving ATP production in mitochondria, while NADP plays a key role in anabolic processes and antioxidant regeneration, including glutathione recycling. Under conditions of physiological or psychological stress–when energy demand and oxidative load increase–adequate niacin status supports mitochondrial resilience and cellular recovery. Clinical research has linked niacin with improved mental and physical energy, especially under stress.[3]

Vitamin B5 (Pantothenic Acid)

Pantothenic acid is a precursor to coenzyme A, crucial in the metabolism of fats, carbohydrates, and proteins. CoA is required for the formation of acetyl-CoA, which serves as a key metabolic intermediate linking macronutrient breakdown to ATP production. Additionally, pantothenic acid supports adrenal gland function by facilitating the biosynthesis of steroid hormones such as cortisol, which are critical for the physiological stress response. Through these mechanisms, pantothenic acid contributes to cellular energy production and stress resilience. It also plays a role in adrenal function and the synthesis of steroid hormones, contributing to stress resilience.[4]

Vitamin B6

Vitamin B6 (pyridoxine) functions as a coenzyme - primarily in its active form, pyridoxal 5'-phosphate (PLP) - in over 100 enzymatic reactions, with a central role in amino acid metabolism, including transamination, decarboxylation, and deamination processes.

It is essential for the biosynthesis of key neurotransmitters such as serotonin, dopamine, GABA, and norepinephrine, thereby influencing mood regulation, cognitive function, and mental energy. B6 is also required for the conversion of homocysteine to cysteine in the methionine cycle; elevated homocysteine levels are linked to fatigue and vascular dysfunction. By supporting both neurotransmitter balance and methylation pathways, Vitamin B6 contributes to emotional wellbeing and sustained energy levels.[5]

Vitamin B12 (Methylcobalamin)

Vitamin B12 is involved in methylation, red blood cell formation, and the synthesis of myelin for nerve conduction. It plays a direct role in cellular energy production and supports mental clarity and stamina. B12 deficiency is well known to cause fatigue, brain fog, and low mood. Vitamin B12 is a critical cofactor for methionine synthase and methylmalonyl-CoA mutase, enzymes involved in one-carbon metabolism and mitochondrial energy production.

Through its role in methylation, B12 supports DNA synthesis, red blood cell formation, and homocysteine regulation. It is also essential for the maintenance of the myelin sheath that insulates nerve fibres, enabling efficient nerve impulse transmission and overall neurological integrity.

Adequate B12 status is vital for sustaining mental clarity, cognitive performance and physical stamina, while deficiency is clinically associated with fatigue, impaired concentration ('brain fog'), neuropathy and depressive symptoms due to disrupted energy metabolism and neurotransmitter synthesis.[6]

Biotin

Biotin assists in the metabolism of fatty acids, glucose and amino acids. It supports mitochondrial energy metabolism and may help improve fatigue in individuals with low energy output. Biotin functions as a coenzyme for carboxylase enzymes involved in key metabolic pathways, including gluconeogenesis, fatty acid synthesis, and branched-chain amino acid catabolism.

By supporting these reactions, biotin plays a vital role in mitochondrial energy metabolism, contributing to the generation of ATP from macronutrient substrates. It facilitates the conversion of food into usable energy at the cellular level, particularly in tissues with high metabolic demands. In states of biotin insufficiency, impaired enzyme function can lead to suboptimal energy production and symptoms such as fatigue and reduced physical and cognitive endurance, which may be improved with repletion.[6]

Folate

Folate is essential for DNA synthesis, methylation and red blood cell production. It indirectly supports energy by ensuring efficient cell division and oxygen transport throughout the body. Folate is a key cofactor in one-carbon metabolism, required for the synthesis of purines and thymidylate, which are essential for DNA replication and cell division. It also plays a central role in methylation reactions via its involvement in the conversion of homocysteine to methionine, supporting gene regulation and neurotransmitter synthesis.

Folate is critical for erythropoiesis, as it enables the proper maturation of red blood cells, which are responsible for oxygen delivery to tissues. By facilitating efficient cellular replication and maintaining oxygen transport capacity, folate indirectly supports optimal energy levels and reduces fatigue associated with megaloblastic anaemia.[8]

Choline

Choline is a vital nutrient that serves as the precursor to acetylcholine, a neurotransmitter essential for synaptic transmission involved in memory, attention, learning and neuromuscular function. It also contributes to mitochondrial function by supporting the synthesis of phosphatidylcholine, a key structural component of mitochondrial and cellular membranes and plays a role in lipid transport and metabolism via its involvement in very-low-density lipoprotein (VLDL) assembly.

Additionally, choline participates in methylation reactions through its metabolite betaine, influencing gene expression and homocysteine regulation. Research indicates that choline supplementation may enhance physical endurance and reduce mental fatigue by supporting neuromuscular coordination and sustained cognitive performance under stress.[9]

Inositol

Inositol functions as a key component of cell membrane phospholipids and serves as a precursor for inositol phosphates, which act as secondary messengers in intracellular signal transduction pathways. These pathways regulate a range of physiological processes, including insulin signalling and neurotransmitter activity. In particular, inositol modulates the sensitivity and function of serotonin and dopamine receptors, influencing mood, stress response and emotional resilience.

By enhancing neurotransmitter signalling and supporting cellular communication, inositol may help alleviate stress-induced fatigue and promote sustained mental and metabolic energy, especially in individuals with mood or metabolic imbalances.[10]

Dandelion Leaf Extract

Traditionally used as a gentle detoxifier and digestive tonic, Dandelion Leaf may support energy through liver and kidney function, reducing fatigue associated with sluggish detoxification or water retention. It also contains vitamins and minerals that support electrolyte balance and vitality.[11]

DRUG INTERACTIONS

Interaction Severity

Moderate

Tetracycline Antibiotics	Riboflavin may decrease the effects of these drugs.
Anticoagulant / Antiplatelet Drugs	Niacin and Dandelion may increase the effects of these drugs.
Antidiabetes Drugs	Niacin may decrease the effects of these drugs. Inositol and Dandelion may increase the risk of hypoglycaemia when taken with these drugs.
Antihypertensive Drugs	Niacin and Vitamin B6 may increase the risk of hypotension when taken with these drugs.
Bile Acid Sequestrants	Niacin may decrease the absorption of bile acid sequestrants
Gemfibrozil	Niacin may increase the risk of myopathy when taken with this drug.
Hepatotoxic Drugs	Niacin may increase the hepatotoxicity effects of these drugs.
HMG-CoA Reductase Inhibitors (Statin)	Niacin may increase the risk of myopathy when taken with these drugs.
Probenecid	Niacin may decrease the effects of this drug.
Sulfinpyrazone	Niacin may decrease the effects of this drug.
Thyroid Hormones	Niacin may decrease the effects of this drug.
Amiodarone	Vitamin B6 may increase the photosensitising effects of this drug.
Methotrexate	Folate may decrease the effects of this drug.
Phenobarbital	Folate may increase the risk of seizures when taken with this drug.
Phenytoin	Folate may decrease the blood level of this drug.
Primidone	Folate may increase the risk of seizures when taken with this drug.
Pyrimethamine	Folate may decrease the effects of this drug.

Interaction Severity		
Moderate	Glucuronidated Drugs	Dandelion may increase the rate of excretion of these drugs.
	Lithium	Dandelion may decrease the rate of excretion of this drug.
	Potassium-sparing Diuretics	Dandelion may increase the risk of hyperkalaemia when taken with these drugs.
	Quinolone Antibiotics	Dandelion may decrease the level of these drugs.
Minor	Levodopa	Vitamin B6 may increase the metabolism of this drug.

Drug-nutrient interactions have been taken from the Natural Medicines Database, April 2025. Please do your own due diligence before recommending this product to individuals taking medicines.

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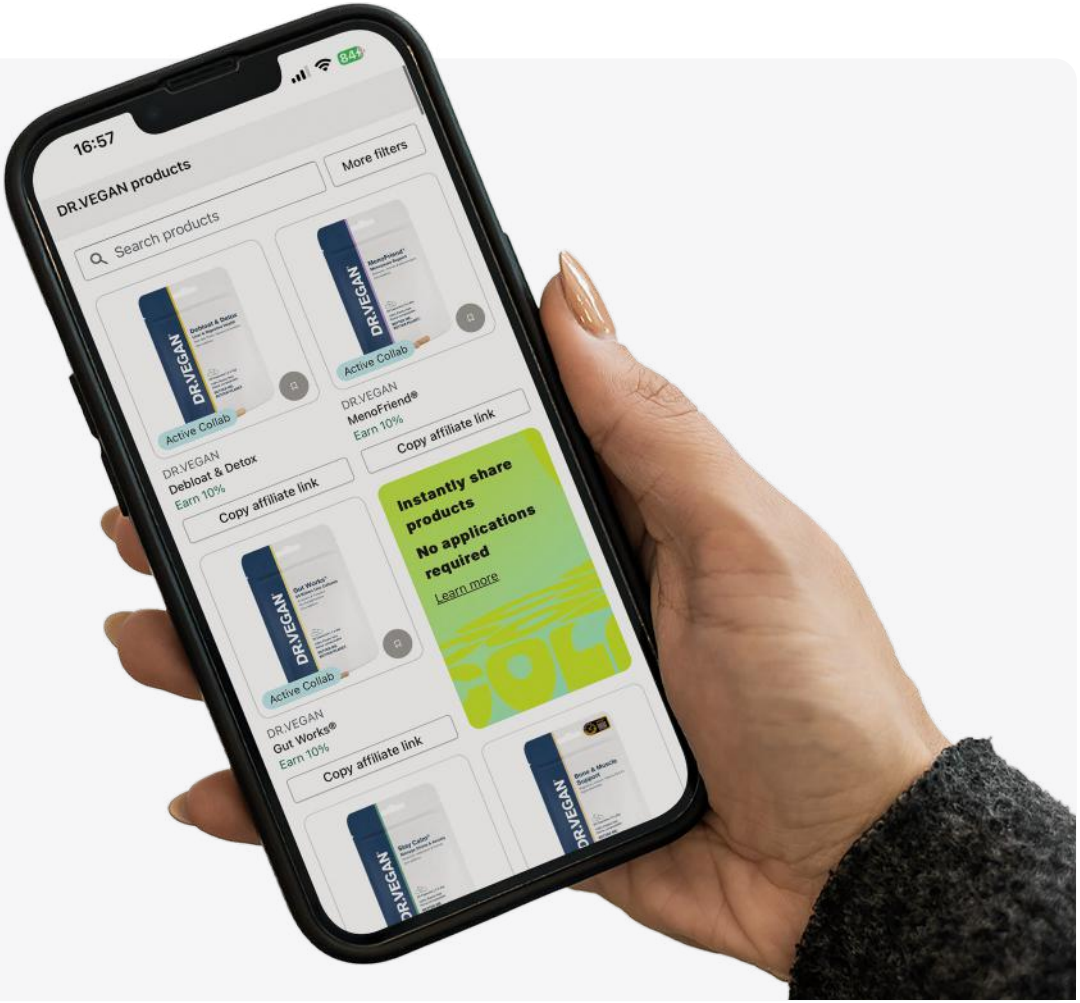

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