Using Nutritional Supplements To Prevent Migraine
VITAMIN & SUPPLEMENTS REVIEWED

There are many vitamins and supplements that may be considered to help directly or indirectly with migraine and headache disorders. This is not a comprehensive guide. The focus taken is on the vitamins and supplements which have the highest levels of evidence and potential. Therefore you will see supplements with “High” quality evidence as well as others with “Weak” levels of evidence but which may have high potential.

Peppermint oil or gingko biloba may be effective for migraine or headache conditions but lack sufficient high-quality research and evidence to warrant inclusion. Vitamins such as Vitamin C, D, E, B-complex are all important for general health and wellbeing but do not have strong evidence directly relating to migraine. Substances like valerian may show particular applications in related conditions such as a sleep disorder. This may lead to an improvement in migraine condition but does not exert a direct influence.

Vitamins and supplements reviewed are listed in order of evidence.

SAFE BRANDS QUALITY

The FDA and many other regulatory bodies do not review, inspect or certify the quality of ingredients for vitamin and supplement brands.

There is a wide array of supplements available to the public with little regulatory oversight to ensure consistency or quality.

Recommend brands are not included. Consumers should exercise caution when considering a new vitamin and supplement to ensure they are high quality, consistent and true to their label. Independent reviews of some supplement manufacturers have revealed that some do not deliver against label claims and may contain harmful substances (see Butterbur Watchouts).

INTERACTIONS

Every vitamin or supplement listed contains interactions or contraindications with some type of:

- medication
- disease
- disorder
- other supplements

Many are also not appropriate for pregnant or nursing women or those planning pregnancy.

For this reason, it is essential that you consult your healthcare professional before commencing a new treatment, even if it is a seemingly harmless, natural herb.

WHY YOUR DOCTOR RARELY ADDRESSES SUPPLEMENTS

Doctors are less likely to discuss vitamins and supplements where they receive traditionally little professional training and where there is no FDA oversight.

Vitamins and supplements are not strictly controlled or regulated like medicinal treatments despite their potential impact. For more insight on this topic, watch the 2017 Interview with Dr. Andrea Harriott of Beth Israel Deaconess Hospital. She suggests that there are several factors that determine what doctors often prescribe which include their experience, familiarity, the best evidence profile and the best patient safety profile.

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**ABOUT**

Alpha-lipoic acid is an antioxidant that is known to enhance mitochondrial processes and cellular energy production (Sun-Edelstein et al. 2009).

It occurs naturally in our body and in some plants.

Some of the strongest evidence for ALA is indicated for neuropathic pain in those with diabetes (Foster et al. 2007). There is also moderate evidence to support ALA’s use in nerve repair (Ranieri et al. 2007).

Alpha-lipoic acid lowers insulin resistance which is common amongst those with migraine (Cavestro et al. 2017).

In animal studies, ALA has improved memory scores and age-associated cognitive decline (Liu et al. 2002). An exploratory study in humans showed promise but not conclusive evidence for the use of ALA supplementation in early to moderate Alzheimer’s disease at 600 mg/day (Hager 2007).

Evidence is emerging, but more studies are required to better understand this potent antioxidant.

**FOOD SOURCES**

- Organ meats (kidney, liver, heart)
- Broccoli
- Spinach.

Lower quantities are found in:

- Tomatoes
- Peas
- Brussels sprouts

**EVIDENCE**

There is weak evidence to support the use of ALA because there have not been sufficiently large, high-quality randomized control trials.

There have been several smaller studies which show promise for ALA.

An open-label study in 2007 evaluated the use of ALA in migraine patients, and another conducted a randomized, double-blind, placebo-controlled study but only had 54 patients recruited.

Participants received 600mg of ALA daily for three months or the placebo. There was a clear trend for migraine reduction in frequency and severity, but the result was not validated due to a lack of sufficient numbers.

An exploratory study in 2017 gave 32 migraine patients 400 mg of ALA twice daily in addition for six months in addition to their own treatment at a headache center. As expected patients improved significantly but because of the poor study design, we are not able to tell if this was due to the consultations and doctor care or the supplement during this time.

**SIGNS OF DEFICIENCY**

In the absence of disorder or disease, it is thought humans create enough ALA to support their own needs (Biewenga et al. 1997).

**FOOD SOURCES**

- Organ meats (kidney, liver, heart)
- Broccoli
- Spinach.

Lower quantities are found in:

- Tomatoes
- Peas
- Brussels sprouts

**ADVERSE REACTIONS**

No adverse events were reported from studies. ALA is well tolerated.

Anecdotal user reports indicate that a rash may result from use in those allergic to ALA.

**WATCHOUTS & CONSIDERATIONS**

ALA does not perform well when taken with MCT oil or medium chain triglycerides or Benzoic acid as they compete for absorption.

**ORAL DOSE**

600 mg per day.

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ABOUT
Fish oils or omega-3 fatty acids can deliver a myriad of different effects on the heart and vessels. It is suspected that the sum of many small protective risk factor effects of omega-3 fatty acids build up to a larger protective effect on mortality and cardiovascular events.

Fish oils have anti-inflammatory properties including the suppression of pro-inflammatory cytokines.

Fatty acids are also major components of the brain. Essential fatty acids play an important role in neuronal membrane function and neurotransmitter function.

Fish oils have demonstrated anti-inflammatory properties, immunological effects and a range of beneficial actions within the cardiovascular system.

Daily ingestion of at least 1 gram EPA and DHA (equivalent to fish eaten at least twice weekly) may deliver a reduction in cardiovascular mortality, morbidity, and total mortality.

SIGNS OF DEFICIENCY
Low levels of fish oils are associated with:
- Fetal alcohol syndrome
- Attention deficit hyperactivity disorder
- Learning deficits
- Cystic fibrosis
- Cardiovascular disease
- Inflammatory disorders
- Rheumatoid arthritis
- Depression
- Senile dementia

FOOD SOURCES
Good dietary are from deep sea cold water fish provide the highest concentrations which include:
- Mackerel
- Salmon
- Herring
- Halibut

Other fish sources include:
- Tuna
- Anchovy
- Sardines
- Trout

Omega 3 fatty acids can also be found in nuts, seeds, and vegetable oils.

EVIDENCE
One good quality randomized controlled trial included 196 migraine patients. Patients were given 6 grams of omega-3 polyunsaturated fatty acid daily versus a placebo group for 16 weeks.

No difference was found in the reduction of attacks during the last four weeks of the trial.

The American Headache Society and American Academy of Neurology have given omega-3s a Level U rating which indicates insufficient evidence to support or refute its use in migraine prevention.

More studies are required to improve the availability of evidence.

WATCHOUTS & CONSIDERATIONS
Those with bleeding disorders or taking blood thinners should be under medical supervision while taking fish oil supplements.

High dose fish oil supplements should be avoided prior to surgery to avoid risk of excessive bleeding.

ORAL DOSE
Fish should be considered part of a healthy diet and consumed at least twice a week. Care should be taken to avoid fish suspected to contain high levels of mercury.

6 grams daily of omega-3 polyunsaturated fatty acid.

ADVERSE REACTIONS
Fish oil supplementation is generally safe and well tolerated. The few side effects reported are mild and may include gastrointestinal discomfort, loose bowels, fishy odor of the skin and urine.

Fish oil may interact with gingko biloba.
### MTHFR Mutation Supplement

#### ABOUT
The International Headache Genetics Consortium is working to find specific genetic factors that cause migraine. There have been many associations found, but no single causative gene has yet been determined.

There have been discoveries. One is a gene called the MTHFR (C677T) which was found to be a genetic risk factor for migraine with aura. This is a common mutation found in the general population. Migraine patients with this mutation and high levels of homocysteine may benefit from a supplement regime that compensates for the genetic mutation (Lea et al. 2009).

The MTHFR gene is responsible for an enzyme. Those who have the mutation produce only about half the normal level of this important enzyme which may lead to migraine.

Within migraine patients, the frequency of the genetic mutation for those had migraine with aura was four times higher than the general population (40.9% versus 9.6%) (Kowa et al. 2000).

Elevated homocysteine levels were also found to be significant in those who had the mutation. A blood test for the MTHFR gene and homocysteine levels can tell an individual whether this genetic mutation is present and if supplementation is warranted.

#### FOOD SOURCES
The richest sources of B6 include fish, beef liver and other organ meats, potatoes (including the skin, e.g. baked potatoes), other starchy vegetables and non-citrus fruit.

B12 is naturally found in animal products rather than plant foods. Highest sources include fish, meat, poultry eggs, milk and milk products.

Good sources of folic acid (folate) sources include beef liver, spinach, black-eyed peas, asparagus, Brussels sprouts, romaine lettuce, and avocado.

#### SIGNS OF DEFICIENCY
High levels of homocysteine that can be discovered from a blood test.

#### EVIDENCE
A randomized, double-blind, placebo-controlled trial lasting six months in 52 patients found significant improvements in the frequency and severity of their migraine attacks (Lea et al. 2009).

Importantly, all recruited patients had migraine with aura.

Homocysteine levels fell on average 39% and migraine disability scores halved from 60% to 30% after six months.

This study provides good initial evidence to support lowering homocysteine levels via supplementation can improve migraine disability in a subgroup of patients.

Despite the merit of the trial and the potential benefits from these individual supplements, larger clinical studies are required to establish a stronger evidence profile.

#### ORAL DOSE
The following combination was taken daily:
- 2mg of Vitamin B9 (folic acid)
- 25mg Vitamin B6 (pyridoxine)
- 400mcg of Vitamin B12

#### ADVERSE REACTIONS
No reports of adverse events from the listed study (Lea et al. 2009).

#### WATCHOUTS & CONSIDERATIONS
This is a genetic intervention tailored to migraine with aura patients who have an MTHFR (C677T) mutation and high levels of homocysteine.

This supplement combination has not been proven to help all patients with migraine with aura.

#### FOOD SOURCES
The richest sources of B6 include fish, beef liver and other organ meats, potatoes (including the skin, e.g. baked potatoes), other starchy vegetables and non-citrus fruit.

B12 is naturally found in animal products rather than plant foods. Highest sources include fish, meat, poultry eggs, milk and milk products.

Good sources of folic acid (folate) sources include beef liver, spinach, black-eyed peas, asparagus, Brussels sprouts, romaine lettuce, and avocado.
**COENZYME Q10 (CoQ10)**

### ABOUT
CoQ10 is an antioxidant vitamin or vitamin-like substance. It plays a vital role in intracellular energy production. It is used by every cell in the body. It is required for healthy function and can improve heart function, lower blood pressure and reduce angina.

CoQ10 has a plays an important role in mitochondrial function and may also have an anti-inflammatory effect (Schmelzer 2007).

Researchers have found evidence of mitochondrial dysfunction in the occipital lobes of patients with migraine. A correlation between the severity of this dysfunction and the intensity of the migraine condition was also found (Lodi 2001).

### SIGNS OF DEFICIENCY
There is speculation about possible symptoms of deficiency. These include fatigue, muscle aches and pains, and chronic gum disease.

Low CoQ10 levels are also associated with congestive heart failure; cardiomyopathy, hypertension, ischemic heart disease, hyperthyroidism and breast cancer.

Deficiency may develop due to advanced aging, medication use or dietary deficiency.

### FOOD SOURCES
Meat and fish products have the highest concentrations of CoQ10 while lesser quantities can be found in broccoli, cauliflower, nuts, spinach, and soy.

### EVIDENCE
An open-labeled trial investigated the effects of 150 mg/day over three months in 32 volunteers with episodic migraine. CoQ10 significantly reduced the frequency of attacks and the number of days with migraine after three months treatments (Rozen 2002).

A more recent trial is one randomized control trial of CoQ10 for migraine prevention. The trial tested CoQ10 supplementation of 300 mg/day over three months in 42 migraine patients. 47.6% of CoQ10 treated patients had a significant reduction in migraine frequency from treatment versus 14.4% for placebo (Sandor 2005).

The American Academy of Neurology, the American Headache Society and the European Federation of Headache Societies have given CoQ10 a Level C recommendation stating it is possibly effective and may be considered for migraine prevention.

CoQ10 may be particularly effective in pediatric migraine. A study of 1,550 patients (average age of 13) with frequent headaches found deficiency in CoQ10 was common. Supplementation with 1 to 3 mg/kg/day of CoQ10 in liquid gel capsules delivered improved CoQ10 levels, headache frequency and severity (Hershey 2007).

More well-designed studies are required to provide better evidence.

### WATCHOUTS & CONSIDERATIONS
Safety of CoQ10 in pregnant women has not been scientifically established.

Absorption occurs in the small intestine and is generally poor. Absorption is also influenced by the presencees of food and drink. A fatty meal will improve absorption.

10-12 weeks may be required before results appear for migraine.

Seek medical advice if you are taking or wish to take Warfarin and CoQ10.

### ADVERSE REACTIONS
CoQ10 appears to be relatively safe, non-toxic and is extremely well tolerated.

Dizziness, nausea, anorexia, diarrhea, photophobia, irritability and skin rash occur in less than 1% of patients.

These tend to occur with higher doses over 200mg/day.

### ORAL DOSE
150-300 mg/day

Better results are expected at the 300mg dose.

In pediatric migraine, 1 to 3 mg/kg/day.
**MELATONIN**

**ABOUT**
Melatonin is a naturally occurring hormone in the human body that regulates sleep and wake cycles. It is also available as an over the counter supplement for common sleep disorders.

Altered melatonin levels have been found in cluster headache and in migraine including migraine with aura, menstrual migraine and chronic migraine (Masrusha 2010).

A wide range of melatonin functions may relate to headache and migraine.

Melatonin collects toxic free radicals and reduces the up-regulation of proinflammatory cytokines. It may also help protect glutamate neurotoxicity, regulate neurovascular function and modulate serotonin (Peres 2004).

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**EVIDENCE**
A 2004 study found that 3 mg of melatonin helped reduce the frequency of migraine. The study reported that more than 75% of participants experienced at least a 50% reduction in attacks. Melatonin also appeared to reduce the attack duration as well as severity.

In 2010, a study using extended release melatonin did not find any benefit between the melatonin group versus placebo in the prevention of migraine.

A double-blind, randomized control trial compared melatonin to amitriptyline and placebo for migraine prevention in 196 adults (aged 18-65) with chronic migraine. Patients were given either 3 mg of melatonin, 25mg of amitriptyline or placebo each night.

Both the melatonin and amitriptyline groups improved in headache frequency and intensity. 54% of patients taking melatonin reduced their migraine frequency by half or more. This was higher than 39% who reduced their frequency by half in the amitriptyline group (Gonçalves 2016).

These inconsistent results show promise for melatonin, but more high-quality studies are required to provide sufficient levels of evidence.

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**SIGNs OF DEFICIENCY**
Sleep issues or disorders may be a sign that your natural production of melatonin may not be optimal.

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**FOOD SOURCES**
n/a

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**ADVERSE REACTIONS**
From studies, melatonin may result in weight loss, and 18% of users experienced daytime sleepiness.

Melatonin does interact with some medications. Make sure you speak to your doctor before taking melatonin.

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**WATCHOUTS & CONSIDERATIONS**
Melatonin is accessible and an affordable option for patients. It has minimal adverse effects and a significant reduction in attack frequency.

Timing is important when using melatonin. To mimic the body’s natural function, melatonin should be taken using an immediate release form rather than an extended release format.

It is not known if melatonin can safely be used to prevent or treat migraine on a long-term basis.

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**ORAL DOSE**
3 mg at night 30 mins before bed or between 10-11pm.
## Feverfew

**About**
Feverfew is a herbal preparation available as dried leaves of the weed plant *Tanacetum parthenium*. Feverfew’s name is derived from a Latin word meaning “fever reducer.” It has been used for centuries in Europe to treat headache, arthritis, and fever. In the 1970s it was rediscovered by the medical establishment and subjected to clinical studies.

Feverfew’s main action is its anti-inflammatory and analgesic effects. It is also an antispasmodic, and it inhibits serotonin release and binding.

In migraine prevention, feverfew may work by inhibiting serotonin release and platelet aggregation. Its anti-inflammatory function may also play a role (Sun-Edelstein 2009).

**Signs of Deficiency**

n/a

**Food Sources**

n/a

**Adverse Reactions**

No major safety issues have been identified. Feverfew is well tolerated, and adverse events are typically reversible and mild.

**Watchouts & Considerations**

Pregnant women should not use Feverfew.

No major safety issues have been identified. Feverfew is well tolerated.

Caution should be taken for those with diabetes, liver disease or alcohol dependence.

Those on blood thinning medications should not take feverfew.

**Evidence**

The first double-blind study was conducted in 1975 and since then multiple studies have been conducted. A review of 6 randomized, placebo-controlled double-blind trials of feverfew for migraine prevention concluded that feverfew was an effective preventative treatment for migraine and well tolerated (Ernst 2000).

A 2015 Cochrane review found six studies including 561 participants and found mixed results (Wider 2015). A more recent high-quality study showed that feverfew reduced migraine by little more than half a migraine per month compared to placebo. There was no difference in pain severity or duration. Note: the study was a moderate size and still requires confirmation by other high-quality trials (Wider 2015).

The inconsistency in results may be related to variations in preparations and dosing.

The American Headache Society and American Academy of Neurology have rated feverfew as “probably effective” in migraine prevention with Level B rating (Rajapakse 2016).

Of the studies that have produced results, feverfew reduced the severity of symptoms but do not reduce the duration of the episode.

**Oral Dose**

125-250 mg/day of powdered standardized to contain a minimum parthenolide content of 0.2% of 400 µg.

Four months is required to see results in migraine prevention.
**ABOUT**
Ginger is a commonly used cooking spice known for its anti-nausea, anti-diarrhea and digestive aiding properties.

Ginger and ginger root is used for migraine to alleviate the symptoms of nausea and vomiting. Its ability to deliver antihistamine, anti-inflammatory and gastric calming make it an attractive option *(Mustafa et al. 1990)*.

Ginger contains more than 200 substances in its oils that help facilitate its many roles.

For migraine, it is thought that ginger may block prostaglandins, which stimulate muscle contractions, control inflammation, and some hormones.

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**FOOD SOURCES**
Fresh, whole ginger root.

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**ADVERSE REACTIONS**
Ginger is well tolerated in small doses.

Side effects that may occur, particularly in higher doses include:
- Gastric irritation
- Heartburn
- Bloating
- Contact dermatitis of the fingertips has also been associated with topical use

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**WATCHOUTS & CONSIDERATIONS**
Speak to your doctor if pregnant, planning a pregnancy, or nursing.

People with gastric ulcers, gallstones or reflux should use ginger with caution.

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**EVIDENCE**
GelStat, a supplement brand presented findings to the American Academy of Neurology in 2006 claiming that 1 in 5 experienced complete relief after taking their Ginger and Feverfew multivitamin. Note: this study was not independently conducted *(Cady et al. 2005)*.

A separate double-blind, placebo-controlled trial recruited 100 patients with migraine without aura. Each patient randomly received ginger powder (150mg) or sumatriptan (50mg). After one month, patient responses reviewed and ginger was found to have a similar response rate to sumatriptan. Interestingly, sumatriptan had far more side effects than ginger, and in practice, ginger is far more affordable and available than sumatriptan *(Maghbooli 2010)*.

There is an unfortunate lack of high-quality, double-blind, placebo-controlled studies for ginger so only a modest rating can be given. In practice, however, its ability to ease nausea and vomiting associated with migraine, along with its other benefits makes for a strong case for preventing of the onset of a potential attack, to avoid the attack, or mitigate its severity. What makes this option even more attractive is there is little risk of overdosing from regular use so a patient may use this whenever they feel at risk to help prevent attacks or even in daily use.

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**SIGNS OF DEFICIENCY**
n/a

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**ORAL DOSE**
250mg oral powder or capsule equivalent.

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**RIBOFLAVIN (Vitamin B2)**

**ABOUT**
Riboflavin is essential to many different biological processes and is critical to maintaining good health. It is a B vitamin that is sensitive to light.

It assists in immune function, tissue repair, general growth and plays an important role in fatty acid oxidation and the metabolism of several B vitamins.

Riboflavin also influences how our body derives energy from protein, fat, and carbohydrates.

**SIGNS OF DEFICIENCY**
Initial symptoms of deficiency are often nonspecific. They may include:
- Weakness
- Fatigue
- Mouth pain
- Personality changes

Isolated riboflavin deficiency seldom occurs in isolation and is often accompanied by deficiency in other B vitamins.

**FOOD SOURCES**
Food sources are:
- Organ Meats
- Yeast Products
- Almonds
- Wheatgerm
- Wild Rice
- Mushrooms
- Milk
- Asparagus
- Broccoli

**EVIDENCE**
Three clinical studies of varying design have all found that high dose riboflavin (400mg) is effective in the reduction of migraine frequency.

The first study was an open pilot study including 49 patients over three months using 400 mg of riboflavin. 59% of participants experienced a 50% or greater reduction in migraine frequency (Schoenen et al. 1994).

Based on these results a second study with 55 patients was conducted using a more robust and higher quality design with a randomized, placebo-controlled study. Similarly, positive results were found (Schoenen et al. 1998).

In 2004 another open-label study re-tested the same high dose of riboflavin over six months and once again demonstrated a significant reduction in migraine frequency (Boenke et al. 2004).

Alternatively, another randomized, double-blind, placebo-controlled study using a combination of riboflavin (400 mg), magnesium (300mg) and feverfew (100 mg) failed to show benefits over riboflavin (25 mg). Notably, the results were higher than that of placebo groups in other trials.

Overall, the evidence supports the use of riboflavin for migraine. The American Headache Society and the American Academy of Neurology classified riboflavin with a Level B recommendation stating it is “probably effective” in the prevention of migraine.

**ADVERSE REACTIONS**
Riboflavin is considered safe. Side effects noted in trials occurred at high doses (400mg or higher). These were uncommon but included:
- Diarrhea
- Frequent urination

**WATCHOUTS & CONSIDERATIONS**
Certain medications deplete the body’s natural stores of riboflavin and may increase its requirements. These include:
- Antibiotics
- Oral contraceptive pill
- Tricyclic antidepressants
- Amitriptyline

Riboflavin is considered safe for use during pregnancy.

Riboflavin often imparts a distinct yellow color in the urine that may alert those not expecting it.

**ORAL DOSE**
400 mg per day.

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MAGNESIUM (Mg)

ABOUT
Magnesium (Mg) plays an essential role in over 300 essential enzymatic reactions and is necessary for every major biological process in the body. Low levels of Mg are associated with several serious conditions and diseases.

It is especially important for energy metabolism and is required for many important biological functions including:

- Nerve conduction
- Regulation of vascular tone
- Muscle activity
- Amino acid and protein synthesis
- DNA synthesis and degradation
- Immune function

People with frequent migraine have been shown to have lower intracellular Mg levels than healthy comparisons. Pilot studies of migraine patients have suggested that energy metabolism disorders or Mg deficiency may result in hyperexcitability. Since Mg decreases neuronal excitability, it may alter the threshold for triggering attacks (Boska et al. 2002).

SIGNS OF DEFICIENCY
Mg is one of 3 major intracellular elements, so when loss of magnesium or reduced intake occurs it often affects the balance of the others which express a range of symptoms including:

- Muscle spasms; anorexia; nausea and vomiting; muscular weakness and spasms; lethargy; insomnia; depression; mental confusion and decreased attention span; personality changes; hyper-irritability and excitability; vertigo; cardiac arrhythmia and ultimately convulsions if deficiency is prolonged.

FOOD SOURCES
Good dietary sources include legumes, wholegrain cereals, nuts, dark green leafy vegetables, cocoa, seeds, nuts and mineral water.

ADVERSE REACTIONS
Diarrhea and gastric irritation are the most common forms of adverse effects from oral magnesium.

Overuse of magnesium sulfate or magnesium hydroxide may cause deficiencies of other minerals or lead to toxicity.

WATCHOUTS & CONSIDERATIONS
Absorption is hindered by phytate, alcohol, excess saturated fat, phosphorus or calcium intake (Johnson 2001, Saris et al. 2000). Healthy people absorb 30-40% of ingested Mg (Braunwald et al. 2003).

Marginal deficiencies in Mg are common and often undiagnosed.

Do not take magnesium if you have severe kidney disease, heart block, renal failure and seek medical advice for use if pregnant.

Diarrhea may be an indication that you have reached your Mg threshold. Studies that have shown inconsistent results are those where poorly absorbed forms of magnesium were utilized and where diarrhea was a frequent symptom (Sun-Edelstein et al. 2009). Ensure you are taking a chelated form of Mg to maximize absorption.

ORAL DOSE
Recommended dose is 400-600 mg/day of chelated magnesium for adults (Tepper, AHS).

For children 9mg/kg/day.

EVIDENCE
Several randomized double-blind studies have shown that a high dose oral Mg is effective in reducing the frequency of migraine (Peikert et al. 1996, Tauber 1994).

A double-blind, placebo-controlled study found that those taking a high dose of magnesium each day (600mg of water-soluble granular powder) for the study period had a 52% reduction in migraine frequency after two months. This was 30% above the placebo group (Peikert et al. 1996).

Lower doses of magnesium used in one placebo-controlled study found no benefit (Pfaffenrath et al. 1996).

One reason why there is conflicting evidence may be due to the different forms of magnesium. Not all forms of magnesium have the same bioavailability. Studies have shown magnesium amino chelate, and magnesium citrate are better absorbed than magnesium oxide (Walker et al. 2003). Look for chelated forms of magnesium for higher level of absorption. These include magnesium oxide, diglycinate, aspartate, gluconate, and others.

For menstrual migraine, magnesium has been shown to decrease pain, premenstrual symptoms and the number of days with migraine (Facchinetti et al. 1991)

In children, magnesium oxide has been studied in a multicenter, randomized, double-blind, placebo-controlled trial. 9mg per kilogram per day (mg/kg/day) was divided into three doses with food. Significant reductions in migraine frequency were found (Wang et al. 2003).

FOOD SOURCES

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### ABOUT

Also known as Petasites hybridus, butterbur is a root that is used for treatments. Butterbur is thought to act on calcium channel regulation and inhibit mediators involved in the inflammatory cascade associated with migraine.

Butterbur has been used for centuries as a herbal remedy for conditions like fever, pain, and spasms. Today it is mostly used for migraine prevention however it is surrounded by controversy.

On the one hand, it has been rated by the American Academy of Neurology as having Grade A evidence to support its efficacy in migraine prevention (the highest of any supplement). At the same time, it is also a poisonous plant with only the certified and labelled detoxified root extract safe for human supplementation (i.e., PA-free).

In 2012, health regulation agencies in some countries banned Butterbur products which were linked with liver toxicity. The World Health Organization reported 40 cases of consumer toxicity (Rajapakse 2016).

This has not stopped a large range of Butterbur products made available online with questionable quality. Butterbur supplements sold online or elsewhere have largely unregulated certification, safety or quality controls.

Consumers should be exercise extreme caution when looking at products. Request details of manufacturer safety procedures, quality control, and third-party certifications and professional advice before beginning.

### FOOD SOURCES

n/a

### ADVERSE REACTIONS

The only side effect reported in controlled trials is burping.

Note: Butterbur is a poisonous plant. Only a detoxified root extract has been tested safe.

### WATCHOUTS & CONSIDERATIONS

Some preparations of Butterbur contain chemicals called pyrrolizidine alkaloids (PAs) which can damage the liver and be carcinogenic. Consumers are advised to only use butterbur products which are certified and labeled "PA-free."

A recent study testing 21 commercially available Butterbur supplements claiming to contain the active ingredient found that only 7 of the 21 manufacturers contained the reported level of active ingredient in their product. Of greater concern were the hepatotoxic pyrrolizidine alkaloids detected in 7 of the 21 supplement products (Avula et al. 2012).

Patients should consult their doctor or medical professional for updates on the ongoing controversy and most recent updates from governing headache bodies such as the American Headache Society and the European Federation of Neurological Societies.

Do not take Butterbur if you are pregnant, preparing for pregnancy or nursing. Liver disease, blood thinners, congestive heart failure, barbiturates or low blood sugar are all contraindicated with Butterbur.

### EVIDENCE

Several studies have found butterbur to be an effective migraine treatment. One study found that 75mg twice daily as superior to placebo in a randomized trial of 245 participants (Lipton 2004).

Another multicenter prospective open-label study of butterbur in 109 children and adolescents with migraine reported 77% of all patients experienced a reduction in migraine frequency of at least 50% (Pothmann et al. 2005).

In both studies, butterbur was well tolerated with no serious side effects.

In Canada, there are ten commercially available and licensed butter compounds which have all passed Health Canada inspection for absence of pyrrolizidine alkaloids (Rajapakse 2016).

### ORAL DOSE

75 mg twice daily (Lipton, 2015).

For results in migraine prevention, allow at least 12-16 weeks.
Reference List

**ALA**

**Butterbur**

**CoQ10**

**Feverfew**

**Ginger**
Reference List

Magnesium


Melatonin


MTHFR


Riboflavin