

## Nutrient and botanical support for relief of occasional simple nervous tension

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Migranol™ is a blend of nutrients and herbs designed to aid individuals who experience recurrent migraine headaches. This product contains curcuminoids and rosemary extract for their well-regarded role in supporting a healthy inflammatory response, as well as magnesium for its effects on muscle relaxation. The star ingredient, however, is feverfew, a traditional herb that has been used since the first century and is known for its ability to support a balanced response to inflammation. Unlike many popular over-the-counter pain relievers commonly used by individuals with simple nervous tension and migraines, this product may be safely used long-term.

### Feverfew

Feverfew's botanical name, *Tanacetum parthenium*, pays homage to its use in ancient Greece ("parthenium" recalls the *Parthenon*), while the common name comes from the Latin *febrifugia*, meaning "fever reducer." In modern times, feverfew is not typically used for this purpose, but it is still used for other situations that may be said to be related to "heat" in the body, including pain and inflammation. Historically, it has been used for headaches, stomachaches, toothaches, insect bites, and menstrual cramps.<sup>1</sup> Anti-inflammatory and anti-nociceptive effects are dose-dependent, and result from inhibition of synthesis of inflammatory prostaglandins, and also from inhibition of platelet aggregation.<sup>2,3</sup>

Migraine headaches are the ailment for which feverfew is best regarded. (As an aid for neurological issues, it has also been used for tinnitus and vertigo.<sup>3</sup>) It appears to work best when taken over the long term as a prophylactic, with the preventive effects in some cases taking several months to set in. In a double-blind placebo controlled trial of subjects who were habitual daily consumers of fresh feverfew leaves for the purpose of migraine prophylaxis, subjects were randomized to receive capsules containing freeze-dried feverfew powder or placebo for six months. Subjects receiving the placebo experienced a significant increase in the frequency and severity of headache, nausea and vomiting (particularly in the early months of treatment), while subjects given feverfew showed no change in the frequency or severity of migraine symptoms.<sup>4</sup> Another study showed that compared to placebo, subjects taking one capsule of dried feverfew leaves per day for four months experienced a reduction in the mean number and severity of migraine attacks, and a reduction in the degree of vomiting. (Duration of individual migraines was not affected.)<sup>5</sup>

A systematic review that included only randomized, placebo-controlled, double-blind trials of feverfew mono-preparations determined that "feverfew is likely to be effective in the prevention of migraine."<sup>6</sup> However, a Cochrane review of randomized, double-blind trials evaluating feverfew as a prophylactic for migraines concluded that evidence was "mixed and did not convincingly establish that feverfew is efficacious for preventing migraine."<sup>7</sup> Individual subjects clearly do find feverfew helpful, so it may be case-specific: some migraine sufferers will experience benefit, while others may not. Migraines can be triggered by a number of factors, so it is unsurprising that a single compound may not be efficacious for everyone. Moreover, mixed findings regarding the efficacy of feverfew for migraines may be due to wide variation in study doses, and even more so, concentration of the plant's most bioactive constituent, parthenolide.<sup>8,9</sup>

### Riboflavin

According to Oregon State University's Linus Pauling Institute, "Some evidence indicates that impaired mitochondrial oxygen metabolism in the brain may play a role in the pathology of migraine headaches. Since riboflavin is the precursor of the two flavocoenzymes (FAD and FMN) required by the flavoproteins of the mitochondrial electron transport chain, supplemental riboflavin has been investigated as a treatment for migraine."<sup>10</sup> A review of riboflavin supplementation for migraine prophylaxis determined "supplementation with vitamin B2 in adults can play a positive role in reducing the frequency and duration of migraine attacks with no serious side effects."<sup>11</sup> A systematic review of riboflavin for migraine prevention found that it is "well tolerated, inexpensive and has demonstrated efficacy in the reduction of adult patients' migraine headache frequency."<sup>12</sup>

Among patients with migraines, supplementation with high-dose riboflavin resulted in a significant reduction in headache frequency and the use of pharmaceutical agents.<sup>13</sup> In a separate study of 55 migraine patients, high-dose riboflavin was superior to placebo in reducing attack frequency and number of headache days. Regarding headache days, 59% of subjects receiving riboflavin reported improving by at least 50%, compared to just 15% receiving the placebo.<sup>14</sup>

## Magnesium

A common finding among individuals who experience recurrent migraines is lower intracellular magnesium levels compared to those who do not suffer migraines. (This may be particularly true of women who experience migraines associated with the menstrual cycle.<sup>15</sup>) As with riboflavin, insufficient magnesium may contribute to metabolic shifts that result in “instability of neuronal function which enhances the susceptibility of brain to develop a migraine attack.”<sup>16</sup> As many as 50% of migraine patients have reduced levels of ionized magnesium during an acute attack, with intravenous magnesium infusion providing rapid and sustained relief.<sup>17</sup> As IV magnesium is inconvenient and costly, fortunately, oral magnesium supplementation has shown efficacy in reducing migraine frequency and severity. In a 12-week study of adults with migraines, magnesium supplementation resulted in a 42% reduction in attack frequency compared to a 16% reduction in the placebo group during weeks 9-12. (As is the case for feverfew, the prophylactic effects of magnesium may take time to be established.) The number of days with migraine and drug consumption for symptom relief per patient also decreased significantly in the magnesium group.<sup>18</sup> Owing to magnesium’s safety, availability and efficacy, some researchers have gone so far as to say that “empiric treatment with at least oral magnesium is warranted in *all* migraine sufferers.”<sup>19</sup> (Emphasis added.)

## Rosemary and Curcumin

Rosemary has long been recognized for its antioxidant and anti-inflammatory effects.<sup>20,21</sup> A study of cultured mouse adipose cells showed that carnosic acid extracted from rosemary led to reduced levels of the inflammatory markers TNF- $\alpha$  and NF- $\kappa$ B.<sup>22</sup> (The rosemary extract in Migranol™ is standardized to contain 7% carnosic acid.) Rosmarinic acid, another constituent of rosemary, has also been shown to cause substantial reductions in inflammation in animal models of local and systemic inflammation and neuropathic pain.<sup>23,24</sup> Curcumin is “a highly pleiotropic molecule capable of interacting with numerous molecular targets involved in inflammation.”<sup>25</sup> Its powerful anti-inflammatory effects are due in part to suppression of NF- $\kappa$ B and expression of the products it regulates, including COX-2, TNF, 5-LOX, IL-1, IL-6, IL-8 and adhesion molecules.<sup>26</sup> Researchers have called curcumin an “age-old NSAID,” but importantly, it exerts its benefits safely, without the harmful side-effects of NSAID use.<sup>27,28</sup>

### Recommended Use:

- As a dietary supplement, take three capsules per day, or as directed by your health care practitioner.

## Supplement Facts

Serving Size 3 capsules  
Servings Per Container 30

Amount Per Serving	% Daily Value	
Riboflavin (Vitamin B-2)	150 mg	11538%
Magnesium (as Di-Magnesium Malate)	180 mg	43%
Feverfew ( <i>Tanacetum parthenium</i> )(aerial)	300 mg	*
Rosemary Extract ( <i>Rosmarinus officinalis</i> )(leaf, stem) [standardized to contain 7% carnosic acid]	75 mg	*
Curcuminoid Powder (as Curcumin C3 Complex®) ( <i>Curcuma longa</i> )(rhizomes)(containing three curcuminoids: curcumin, bisdemethoxycurcumin, demethoxycurcumin) [standardized to contain 95% curcuminoids]	75 mg	*

\*Daily Value not established.

**Other Ingredients:** Cellulose (capsule), microcrystalline cellulose, vegetable stearate, silicon dioxide

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