

Nutraceuticals in Acute and Prophylactic Treatment of Migraine

Current Treatment Options in Neurology

April 2016, 18:14 | Cite as

- Oved Daniel (1) Email author (drmigrena@gmail.com)
- Alexander Mauskop (2) (3)

1. Headache & Facial Pain Clinic, Laniado Medical Center, , Netanya, ISRAEL
2. Clinical Neurology, SUNY Downstate Medical Center, , Brooklyn, USA
3. New York Headache Center, , New York, USA

Headache (JR Couch, Section Editor)

First Online: 29 February 2016

- [1 Shares](#)
- 1.6k Downloads
- [11 Citations](#)

Part of the following topical collections:

1. [Topical Collection on Headache](#)

Opinion statement

People who suffer from headaches often prefer nutraceutical treatment over traditional pharmacological approaches, due to fear of possible side effects, drug dependence, or addiction. Since treatment with nutraceuticals does not require a doctor's prescription, many patients rely on their own judgment as to when and which one to take, often without consultation or guidance from their physician. Some physicians could provide information about potential efficacy and side effects of various products, but many are not familiar with the nutraceuticals. Widespread skepticism persists among doctors about the effectiveness of these treatments. This is largely due to the lack of rigorous clinical studies. However, even when incontrovertible scientific evidence exists, many physicians remain distrustful of the evidence. The following review summarizes randomized controlled trials of some of the most commonly used non-pharmacological treatments, including magnesium, coenzyme Q₁₀, riboflavin (vitamin B₂), petasites, and feverfew (Table 1).

Keywords

Nutraceuticals Headache Migraine Vitamins Minerals Herbal preparation

This article is part of the Topical Collection on *Headache*

This is a preview of subscription content, [log in](#) to check access.

Notes

Compliance with Ethical Standards

Conflict of Interest

Oved Daniel and Alexander Mauskop declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent

This article does not contain any studies with human or animal subjects performed by any of the authors.

References and Recommended Reading

Papers of particular interest, published recently, have been highlighted as: • Of importance •• Of major importance

1. Victor TW, Hu X, Campbell JC, Buse DC, Lipton RB. Migraine prevalence by age and sex in the United States: a life-span study. *Cephalalgia*. 2010;30:065–1072.
[CrossRef](https://doi.org/10.1177/0333102409355601) (https://doi.org/10.1177/0333102409355601)
[Google Scholar](http://scholar.google.com/scholar_lookup?title=Migraine%20prevalence%20by%20age%20and%20sex%20in%20the%20United%20States%3A%20a%20life-span%20study&author=TW.%20Victor&author=X.%20Hu&author=JC.%20Campbell&author=DC.%20Buse&author=RB.%20Lipton&journal=Cephalalgia&volume=30&pages=065-1072&publication_year=2010) (http://scholar.google.com/scholar_lookup?title=Migraine%20prevalence%20by%20age%20and%20sex%20in%20the%20United%20States%3A%20a%20life-span%20study&author=TW.%20Victor&author=X.%20Hu&author=JC.%20Campbell&author=DC.%20Buse&author=RB.%20Lipton&journal=Cephalalgia&volume=30&pages=065-1072&publication_year=2010)
2. Steiner TJ, Birbeck GL, Jensen RH, Katsarava Z, Stovner LJ, Martelletti P. Headache disorders are third cause of disability worldwide. *J Headache Pain*. 2015;16(1):1–3.
[CrossRef](https://doi.org/10.1186/s10194-015-0544-2) (https://doi.org/10.1186/s10194-015-0544-2)
[Google Scholar](http://scholar.google.com/scholar_lookup?title=Headache%20disorders%20are%20third%20cause%20of%20disability%20worldwide&author=TJ.%20Steiner&author=GL.%20Birbeck&author=RH.%20Jensen&author=Z.%20Katsarava&author=LJ.%20Stovner&author=P.%20Martelletti&journal=J%20Headache%20Pain&volume=16&issue=1&pages=1-3&publication_year=2015) (http://scholar.google.com/scholar_lookup?title=Headache%20disorders%20are%20third%20cause%20of%20disability%20worldwide&author=TJ.%20Steiner&author=GL.%20Birbeck&author=RH.%20Jensen&author=Z.%20Katsarava&author=LJ.%20Stovner&author=P.%20Martelletti&journal=J%20Headache%20Pain&volume=16&issue=1&pages=1-3&publication_year=2015)
3. Diener HC, Solbach K, Holle D, Gaul C. Integrated care for chronic migraine patients: epidemiology, burden, diagnosis and treatment options. *Clin Med*.

2015;15(4):344–50.

Google Scholar (http://scholar.google.com/scholar_lookup?title=Integrated%20care%20for%20chronic%20migraine%20patients%3A%20epidemiology%2C%20burden%2C%20diagnosis%20and%20treatment%20options&author=HC.%20Diener&author=K.%20Solbach&author=D.%20Holle&author=C.%20Gaul&journal=Clin%20Med&volume=15&issue=4&pages=344-50&publication_year=2015)

4. Bigal ME, Serrano D, Reed M, Lipton RB. Chronic migraine in the population Burden, diagnosis, and satisfaction with treatment. *Neurology*. 2008;71(8):559–66.
CrossRef (<https://doi.org/10.1212/01.wnl.0000323925.29520.e7>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=18711108)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Chronic%20migraine%20in%20the%20population%20Burden%2C%20diagnosis%2C%20and%20satisfaction%20with%20treatment&author=ME.%20Bigal&author=D.%20Serrano&author=M.%20Reed&author=RB.%20Lipton&journal=Neurology&volume=71&issue=8&pages=559-66&publication_year=2008)
5. GÖKSEL BK. The use of complementary and alternative medicine in patients with migraine. *Arch Neuropsychiatr*. 2013;50 Suppl 1:S41–6.
CrossRef (<https://doi.org/10.4274/npa.y6809>)
Google Scholar (http://scholar.google.com/scholar_lookup?title=The%20use%20of%20complementary%20and%20alternative%20medicine%20in%20patients%20with%20migraine&author=BK.%20G%C3%B6KSEL&journal=Arch%20Neuropsychiatr&volume=50&issue=Suppl%201&pages=S41-6&publication_year=2013)
6. • Tepper SJ. Nutraceutical and other modalities for the treatment of headache. *CONTINUUM: Lifelong Learn Neurol*. 2015;21(4, Headache):1018–31. A very comprehensive review on complementary treatment modalities for migraine (not only nutraceuticals).
Google Scholar (http://scholar.google.com/scholar_lookup?title=Nutraceutical%20and%20other%20modalities%20for%20the%20treatment%20of%20headache&author=SJ.%20Tepper&journal=CONTINUUM%3A%20Lifelong%20Learn%20Neurol&volume=21&issue=4%2C%20Headache&pages=1018-31&publication_year=2015)
7. Sun-Edelstein C, Mauskop A. Alternative headache treatments: nutraceuticals, behavioral and physical treatments. *Headache: J Head Face Pain*. 2011;51(3):469–83.
CrossRef (<https://doi.org/10.1111/j.1526-4610.2011.01846.x>)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Alternative%20headache%20treatments%3A%20nutraceuticals%2C%20behavioral%20and%20physical%20treatments&author=C.%20Sun%20Edelstein&author=A.%20Mauskop&journal=Headache%3A%20J%20Head%20Face%20Pain&volume=51&issue=3&pages=469-83&publication_year=2011)
8. Mauskop A. Nonmedication, alternative, and complementary treatments for migraine. *CONTINUUM: Lifelong Learn Neurol*. 2012;18(4, Headache):796–806.
Google Scholar (http://scholar.google.com/scholar_lookup?title=Nonmedication%2C%20alternative%2C%20and%20complementary%20treatments%20for%20migraine&author=A.%20Mauskop&journal=CONTINUUM)

M%3A%20Lifelong%20Learn%20Neurol&volume=18&issue=4%2C%20Headache&pages=796-806&publication_year=2012)

9. Pfaffenrath V, Wessely P, Meyer C, Isler HR, Evers S, Grotemeyer KH, et al. Magnesium in the prophylaxis of migraine—a double-blind, placebo-controlled study. *Cephalalgia*. 1996;16(6):436–40.
[CrossRef](https://doi.org/10.1046/j.1468-2982.1996.1606436.x) (https://doi.org/10.1046/j.1468-2982.1996.1606436.x)
[PubMed](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=8902254) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=8902254)
[Google Scholar](http://scholar.google.com/scholar_lookup?title=Magnesium%20in%20the%20prophylaxis%20of%20migraine%2E2%80%944%20double-blind%2C%20placebo-controlled%20study&author=V.%20Pfaffenrath&author=P.%20Wessely&author=C.%20Meyer&author=HR.%20Isler&author=S.%20Evers&author=KH.%20Grotemeyer&journal=Cephalalgia&volume=16&issue=6&pages=436-40&publication_year=1996) (http://scholar.google.com/scholar_lookup?title=Magnesium%20in%20the%20prophylaxis%20of%20migraine%2E2%80%944%20double-blind%2C%20placebo-controlled%20study&author=V.%20Pfaffenrath&author=P.%20Wessely&author=C.%20Meyer&author=HR.%20Isler&author=S.%20Evers&author=KH.%20Grotemeyer&journal=Cephalalgia&volume=16&issue=6&pages=436-40&publication_year=1996)
10. Peikert A, Wilimzig C, Köhne-Volland R. Prophylaxis of migraine with oral magnesium: results from a prospective, multi-center, placebo-controlled and double-blind randomized study. *Cephalalgia*. 1996;16(4):257–63.
[CrossRef](https://doi.org/10.1046/j.1468-2982.1996.1604257.x) (https://doi.org/10.1046/j.1468-2982.1996.1604257.x)
[PubMed](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=8792038) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=8792038)
[Google Scholar](http://scholar.google.com/scholar_lookup?title=Prophylaxis%20of%20migraine%20with%20oral%20magnesium%3A%20results%20from%20a%20prospective%2C%20multi-center%2C%20placebo-controlled%20and%20double-blind%20randomized%20study&author=A.%20Peikert&author=C.%20Wilimzig&author=R.%20K%C3%B6hne-Volland&journal=Cephalalgia&volume=16&issue=4&pages=257-63&publication_year=1996) (http://scholar.google.com/scholar_lookup?title=Prophylaxis%20of%20migraine%20with%20oral%20magnesium%3A%20results%20from%20a%20prospective%2C%20multi-center%2C%20placebo-controlled%20and%20double-blind%20randomized%20study&author=A.%20Peikert&author=C.%20Wilimzig&author=R.%20K%C3%B6hne-Volland&journal=Cephalalgia&volume=16&issue=4&pages=257-63&publication_year=1996)
11. Bigal ME, Bordini CA, Tepper SJ, Speciali JG. Intravenous magnesium sulphate in the acute treatment of migraine without aura and migraine with aura. A randomized, double-blind, placebo-controlled study. *Cephalalgia*. 2002;22(5):345–53.
[CrossRef](https://doi.org/10.1046/j.1468-2982.2002.00364.x) (https://doi.org/10.1046/j.1468-2982.2002.00364.x)
[PubMed](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=12110110) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=12110110)
[Google Scholar](http://scholar.google.com/scholar_lookup?title=Intravenous%20magnesium%20sulphate%20in%20the%20acute%20treatment%20of%20migraine%20without%20aura%20and%20migraine%20with%20aura.%20A%20randomized%2C%20double-blind%2C%20placebo-controlled%20study&author=ME.%20Bigal&author=CA.%20Bordini&author=SJ.%20Tepper&author=JG.%20Speciali&journal=Cephalalgia&volume=22&issue=5&pages=345-53&publication_year=2002) (http://scholar.google.com/scholar_lookup?title=Intravenous%20magnesium%20sulphate%20in%20the%20acute%20treatment%20of%20migraine%20without%20aura%20and%20migraine%20with%20aura.%20A%20randomized%2C%20double-blind%2C%20placebo-controlled%20study&author=ME.%20Bigal&author=CA.%20Bordini&author=SJ.%20Tepper&author=JG.%20Speciali&journal=Cephalalgia&volume=22&issue=5&pages=345-53&publication_year=2002)
12. Hershey AD, Powers SW, Vockell AB, et al. Coenzyme Q10 deficiency and response to supplementation in pediatric and adolescent migraine. *Headache*. 2007;47:73–80.
[CrossRef](https://doi.org/10.1111/j.1526-4610.2007.00652.x) (https://doi.org/10.1111/j.1526-4610.2007.00652.x)
[PubMed](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=17355497) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=17355497)
[Google Scholar](http://scholar.google.com/scholar_lookup?title=Coenzyme%20Q10%20deficiency%20and%20response%20to%20supplementation%20in%20pediatric%20and%20adolescent%20migraine&author=A) (http://scholar.google.com/scholar_lookup?title=Coenzyme%20Q10%20deficiency%20and%20response%20to%20supplementation%20in%20pediatric%20and%20adolescent%20migraine&author=A

D.%20Hershey&author=SW.%20Powers&author=AB.%20Vockell&journal=Headache&volume=47&pages=73-80&publication_year=2007)

13. Schoenen J, Jacquy J, Lanaerts M. Effectiveness of high-dose riboflavin in migraine prophylaxis. *Neurology*. 1998;50:466–70.
CrossRef (<https://doi.org/10.1212/WNL.50.2.466>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=9484373)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Effectiveness%20of%20high-dose%20riboflavin%20in%20migraine%20prophylaxis&author=J.%20Schoenen&author=J.%20Jacquy&author=M.%20Lanaerts&journal=Neurology&volume=50&pages=466-70&publication_year=1998)
14. Pothmann R, Danesch U. Migraine prevention in children and adolescents: results of an open study with a special butterbur root extract. *Headache*. 2005;45:196–203.
CrossRef (<https://doi.org/10.1111/j.1526-4610.2005.05044.x>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=15836592)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Migraine%20prevention%20in%20children%20and%20adolescents%3A%20results%20of%20an%20open%20study%20with%20a%20special%20butterbur%20root%20extract&author=R.%20Pothmann&author=U.%20Danesch&journal=Headache&volume=45&pages=196-203&publication_year=2005)
15. Grossmann M, Schmidramsl H. An extract of *Petasites hybridus* is effective in the prophylaxis of migraine. *Int J Clin Pharmacol Ther*. 2000;38(9):430–5.
CrossRef (<https://doi.org/10.5414/CP38430>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=11020030)
Google Scholar (http://scholar.google.com/scholar_lookup?title=An%20extract%20of%20Petasites%20hybridus%20is%20effective%20in%20the%20prophylaxis%20of%20migraine&author=M.%20Grossmann&author=H.%20Schmidramsl&journal=Int%20J%20Clin%20Pharmacol%20Ther&volume=38&issue=9&pages=430-5&publication_year=2000)
16. Lipton RB, Gobel H, Einhaupl KM, Wilks K, Mauskop A. *Petasites hybridus* root (butterbur) is an effective preventive treatment for migraine. *Neurology*. 2004;63:2240–4.
CrossRef (<https://doi.org/10.1212/01.WNL.0000147290.68260.11>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=15623680)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Petasites%20hybridus%20root%20%28butterbur%29%20is%20an%20effective%20preventive%20treatment%20for%20migraine&author=RB.%20Lipton&author=H.%20Gobel&author=KM.%20Einhaupl&author=K.%20Wilks&author=A.%20Mauskop&journal=Neurology&volume=63&pages=2240-4&publication_year=2004)
17. Diener HC, Pfaffenrath V, Schnitker J, Friede M, Henneicke-von Zepelin HH. Efficacy and safety of 6.25 mg tid feverfew CO₂-extract (MIG-99) in migraine prevention—a randomized, double-blind, multicentre, Placebo-controlled study. *Cephalalgia*. 2005;25(11):1031–41.
CrossRef (<https://doi.org/10.1111/j.1468-2982.2005.00950.x>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=16232154)

Google Scholar (http://scholar.google.com/scholar_lookup?title=Efficacy%20and%20safety%20of%206.25%20mg%20tid%20of%20feverfew%20CO2%E2%80%90extract%20%28MIG%E2%80%90909%29%20in%20migraine%20prevention%E2%80%9094a%20randomized%2C%20double%E2%80%90blind%2C%20multicentre%2C%20Placebo%E2%80%90controlled%20study&author=HC.%20Diener&author=V.%20Pfaffenrath&author=J.%20Schnitker&author=M.%20Friede&author=HH.%20Henneicke%E2%80%90von%20Zepelin&journal=Cephalalgia&volume=25&issue=11&pages=1031-41&publication_year=2005)

18. Pfaffenrath V, Diener HC, Fisher M, Friede M, Henneicke-von Zepelin HH. The efficacy and safety of Tanacetum parthenium (feverfew) in migraine prophylaxis— a double-blind, multicentre, randomized placebo-controlled dose–response study. *Cephalalgia*. 2002;22:523–5322.

CrossRef (<https://doi.org/10.1046/j.1468-2982.2002.00396.x>)

PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=12230594)

Google Scholar (http://scholar.google.com/scholar_lookup?title=The%20efficacy%20and%20safety%20of%20Tanacetum%20parthenium%20%28feverfew%29%20in%20migraine%20prophylaxis%E2%80%9094a%20double-blind%2C%20multicentre%2C%20randomized%20placebo-controlled%20dose%E2%80%90response%20study&author=V.%20Pfaffenrath&author=HC.%20Diener&author=M.%20Fisher&author=M.%20Friede&author=HH.%20Henneicke-von%20Zepelin&journal=Cephalalgia&volume=22&pages=523-5322&publication_year=2002)

19. Lea R, Colson N, Quinlan S, Macmillan J, Griffiths L. The effects of vitamin supplementation and MTHFR (C677T) genotype on homocysteine-lowering and migraine disability. *Pharmacogenet Genomics*. 2009;19(6):422–8.

CrossRef (<https://doi.org/10.1097/FPC.ob013e32832af5a3>)

PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=19384265)

Google Scholar (http://scholar.google.com/scholar_lookup?title=The%20effects%20of%20vitamin%20supplementation%20and%20MTHFR%20%28C677T%29%20genotype%20on%20homocysteine-lowering%20and%20migraine%20disability&author=R.%20Lea&author=N.%20Colson&author=S.%20Quinlan&author=J.%20Macmillan&author=L.%20Griffiths&journal=Pharmacogenet%20Genomics&volume=19&issue=6&pages=422-8&publication_year=2009)

20. Schimatschek HF, Rempis R. Prevalence of hypomagnesemia in an unselected German population of 16,000 individuals. *Magnes Res: Off Organ Int Soc Dev Res Magnes*. 2001;14(4):283–90.

Google Scholar (http://scholar.google.com/scholar_lookup?title=Prevalence%20of%20hypomagnesemia%20in%20an%20unselected%20German%20population%20of%2016%20000%20individuals&author=HF.%20Schimatschek&author=R.%20Rempis&journal=Magnes%20Res%3A%20Off%20Organ%20Int%20Soc%20Dev%20Res%20Magnes&volume=14&issue=4&pages=283-90&publication_year=2001)

21. Ramadan NM, Halvorson H, Vande-Linde A, et al. Low brain magnesium in migraine. *Headache*. 1989;29:590–3.

CrossRef (<https://doi.org/10.1111/j.1526-4610.1989.hed2909590.x>)

PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=2584000)

Google Scholar (http://scholar.google.com/scholar_lookup?title=Low%20brain%20magnesium%20in%20migraine&author=NM.%20Ramadan&author=H.%20Halvorson&author=A.%20VandeLinde&journal=Headache&volume=29&pages=590-3&publication_year=1989)

22. Mauskop A, Altura BT, Cracco RQ, Altura BM. Intravenous magnesium sulfate relieves acute migraine in patients with low serum ionized magnesium levels. *Clin Sci.* 1995;89:633–6.
CrossRef (<https://doi.org/10.1042/cs0890633>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=8549082)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Intravenous%20magnesium%20sulfate%20relieves%20acute%20migraine%20in%20patients%20with%20low%20serum%20ionized%20magnesium%20levels&author=A.%20Mauskop&author=BT.%20Altura&author=RQ.%20Cracco&author=BM.%20Altura&journal=Clin%20Sci&volume=89&pages=633-6&publication_year=1995)
23. Gallai V, Sarchielli P, Morucci P, Abbritti G. Red blood cell magnesium levels in migraine patients. *Cephalalgia.* 1993;13(2):94–8.
CrossRef (<https://doi.org/10.1046/j.1468-2982.1993.1302094.x>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=8495462)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Red%20blood%20cell%20magnesium%20levels%20in%20migraine%20patients&author=V.%20Gallai&author=P.%20Sarchielli&author=P.%20Morucci&author=G.%20Abbritti&journal=Cephalalgia&volume=13&issue=2&pages=94-8&publication_year=1993)
24. Gallai V, Sarchielli P, Morucci P, Abbritti G. Magnesium content of mononuclear blood cells in migraine patients. *Headache: J Head Face Pain.* 1994;34(3):160–5.
CrossRef (<https://doi.org/10.1111/j.1526-4610.1994.hed3403160.x>)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Magnesium%20content%20of%20mononuclear%20blood%20cells%20in%20migraine%20patients&author=V.%20Gallai&author=P.%20Sarchielli&author=P.%20Morucci&author=G.%20Abbritti&journal=Headache%3A%20J%20Head%20Face%20Pain&volume=34&issue=3&pages=160-5&publication_year=1994)
25. Trauninger A, Pfund Z, Koszegi T, Czopf J. Oral magnesium load test in patients with migraine. *Headache.* 2002;42:114–9.
CrossRef (<https://doi.org/10.1046/j.1526-4610.2002.02026.x>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=12005285)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Oral%20magnesium%20load%20test%20in%20patients%20with%20migraine&author=A.%20Trauninger&author=Z.%20Pfund&author=T.%20Koszegi&author=J.%20Czopf&journal=Headache&volume=42&pages=114-9&publication_year=2002)
26. Storer RJ, Goadsby PJ. N-Methyl-D-Aspartate receptor channel complex blockers including memantine and magnesium inhibit nociceptive traffic in the trigeminocervical complex of the rat. *Cephalalgia.* 2009;29:135.
CrossRef (<https://doi.org/10.1111/j.1468-2982.2009.01849.x>)
Google Scholar (http://scholar.google.com/scholar_lookup?title=N-Methyl-D-Aspartate%20receptor%20channel%20complex%20blockers%20including%20

memantine%20and%20magnesium%20inhibit%20onociceptive%20traffic%20in%20the%20trigemino-cervical%20complex%20of%20the%20rat&author=RJ.%20Storer&author=PJ.%20Goadsby&journal=Cephalalgia&volume=29&pages=135&publication_year=2009)

27. •• Holland S, Silberstein SD, Freitag F, Dodick DW, Argoff C, Ashman E. Evidence-based guideline update: NSAIDs and other complementary treatments for episodic migraine prevention in adults Report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. *Neurology*. 2012;78(17):1346–53. An extensive analysis of published studies from June 1999 to May 2009 that provides evidenced based recommendations for the preventive treatment of migraines. [CrossRef](https://doi.org/10.1212/WNL.0b013e3182535d0c) (https://doi.org/10.1212/WNL.0b013e3182535d0c) [PubMed](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=22529203) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=22529203) [PubMedCentral](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3335449) (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3335449) [Google Scholar](http://scholar.google.com/scholar_lookup?title=Evidence-based%20guideline%20update%3A%20NSAIDs%20and%20other%20complementary%20treatments%20for%20episodic%20migraine%20prevention%20in%20adults%20Report%20of%20the%20Quality%20Standards%20Subcommittee%20of%20the%20American%20Academy%20of%20Neurology%20and%20the%20American%20Headache%20Society&author=S.%20Holland&author=SD.%20Silberstein&author=F.%20Freitag&author=DW.%20Dodick&author=C.%20Argoff&author=E.%20Ashman&journal=Neurology&volume=78&issue=17&pages=1346-53&publication_year=2012) (http://scholar.google.com/scholar_lookup?title=Evidence-based%20guideline%20update%3A%20NSAIDs%20and%20other%20complementary%20treatments%20for%20episodic%20migraine%20prevention%20in%20adults%20Report%20of%20the%20Quality%20Standards%20Subcommittee%20of%20the%20American%20Academy%20of%20Neurology%20and%20the%20American%20Headache%20Society&author=S.%20Holland&author=SD.%20Silberstein&author=F.%20Freitag&author=DW.%20Dodick&author=C.%20Argoff&author=E.%20Ashman&journal=Neurology&volume=78&issue=17&pages=1346-53&publication_year=2012)
28. Choi H, Parmar N. The use of intravenous magnesium sulphate for acute migraine: meta-analysis of randomized controlled trials. *Eur J Emerg Med*. 2014;21(1):2–9. [PubMed](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=23921817) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=23921817) [Google Scholar](http://scholar.google.com/scholar_lookup?title=The%20use%20of%20intravenous%20magnesium%20sulphate%20for%20acute%20migraine%3A%20meta-analysis%20of%20randomized%20controlled%20trials&author=H.%20Choi&author=N.%20Parmar&journal=Eur%20J%20Emerg%20Med&volume=21&issue=1&pages=2-9&publication_year=2014) (http://scholar.google.com/scholar_lookup?title=The%20use%20of%20intravenous%20magnesium%20sulphate%20for%20acute%20migraine%3A%20meta-analysis%20of%20randomized%20controlled%20trials&author=H.%20Choi&author=N.%20Parmar&journal=Eur%20J%20Emerg%20Med&volume=21&issue=1&pages=2-9&publication_year=2014)
29. Rozen TD, Oshinsky ML, Gebeline CA, Bradley KC, Young WB, Schechter AL, et al. Open label trial of Coenzyme Q10 as a migraine preventive. *Cephalalgia*. 2002;22:137–41. [CrossRef](https://doi.org/10.1046/j.1468-2982.2002.00335.x) (https://doi.org/10.1046/j.1468-2982.2002.00335.x) [PubMed](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=11972582) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=11972582) [Google Scholar](http://scholar.google.com/scholar_lookup?title=Open%20label%20trial%20of%20Coenzyme%20Q10%20as%20a%20migraine%20preventive&author=TD.%20Rozen&author=ML.%20Oshinsky&author=CA.%20Gebeline&author=KC.%20Bradley&author=WB.%20Young&author=AL.%20Schechter&journal=Cephalalgia&volume=22&pages=137-41&publication_year=2002) (http://scholar.google.com/scholar_lookup?title=Open%20label%20trial%20of%20Coenzyme%20Q10%20as%20a%20migraine%20preventive&author=TD.%20Rozen&author=ML.%20Oshinsky&author=CA.%20Gebeline&author=KC.%20Bradley&author=WB.%20Young&author=AL.%20Schechter&journal=Cephalalgia&volume=22&pages=137-41&publication_year=2002)
30. Sandor PS, Di Clemente L, Coppola G, Saenger U, Fumal A, Magis, et al. Efficacy of coenzyme Q10 in migraine prophylaxis: a randomized controlled trial. *Neurology*. 2005;64(4):713–5. [CrossRef](https://doi.org/10.1212/01.WNL.0000151975.03598.ED) (https://doi.org/10.1212/01.WNL.0000151975.03598.ED)

PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=15728298)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Efficacy%20of%20coenzyme%20Q10%20in%20migraine%20prophylaxis%20a%20randomized%20controlled%20trial&author=PS.%20Sandor&author=L.%20Clemente&author=G.%20Coppola&author=U.%20Saenger&author=A.%20Fumal&author=.%20Magis&journal=Neurology&volume=64&issue=4&pages=713-5&publication_year=2005)

31. Di Lorenzo C, Pierelli F, Coppola G, Grieco GS, Rengo C, Ciccolella, et al. Mitochondrial DNA haplogroups influence the therapeutic response to riboflavin in migraineurs. *Neurology*. 2009;72(18):1588–94.
CrossRef (<https://doi.org/10.1212/WNL.0b013e3181a41269>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=19414726)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Mitochondrial%20DNA%20haplogroups%20influence%20the%20therapeutic%20response%20to%20riboflavin%20in%20migraineurs&author=C.%20Lorenzo&author=F.%20Pierelli&author=G.%20Coppola&author=GS.%20Grieco&author=C.%20Rengo&author=.%20Ciccolella&journal=Neurology&volume=72&issue=18&pages=1588-94&publication_year=2009)
32. Pringsheim T, Davenport W, Mackie G, Worthington I, Aubé M, Christie, et al. Canadian Headache Society guideline for migraine prophylaxis. *Can J Neurol Sci*. 2012;39(2 Suppl 2):S1–59.
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=22683887)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Canadian%20Headache%20Society%20guideline%20for%20migraine%20prophylaxis&author=T.%20Pringsheim&author=W.%20Davenport&author=G.%20Mackie&author=I.%20Worthington&author=M.%20Aub%C3%A9&author=.%20Christie&journal=Can%20J%20Neurol%20Sci&volume=39&issue=2%20Suppl%202&pages=S1-59&publication_year=2012)
33. Heptinstall S, Williamson L, White A, Mitchell JRA. Extracts of feverfew inhibit granule secretion in blood platelets and polymorphonuclear leucocytes. *Lancet*. 1985;325(8437):1071–4.
CrossRef ([https://doi.org/10.1016/S0140-6736\(85\)92371-2](https://doi.org/10.1016/S0140-6736(85)92371-2))
Google Scholar (http://scholar.google.com/scholar_lookup?title=Extracts%20of%20feverfew%20inhibit%20granule%20secretion%20in%20blood%20platelets%20and%20polymorphonuclear%20leucocytes&author=S.%20Heptinstall&author=L.%20Williamson&author=A.%20White&author=JRA.%20Mitchell&journal=Lancet&volume=325&issue=8437&pages=1071-4&publication_year=1985)
34. Heptinstall S, Goenewegen WA, Spangenberg P, Loesche W. Extracts of feverfew may inhibit platelet behaviour via neutralisation of sulphhydryl groups. *J Pharm Pharmacol*. 1987;39:459–65.
CrossRef (<https://doi.org/10.1111/j.2042-7158.1987.tb03420.x>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=2886604)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Extracts%20of%20feverfew%20may%20inhibit%20platelet%20behaviour%20via%20neutralisation%20of%20sulphydryl%20groups&author=S.%20Heptinstall&author=WA.%20Goenewegen&author=P.%20Spangenberg&author=W)

%20Loesche&journal=J%20Pharm%20Pharmacol&volume=39&pages=459-65&publication_year=1987)

35. Pugh WH, Sambo K. Prostaglandin synthetase inhibitors in feverfew. *J Pharm Pharmacol.* 1988;40:743–5.
CrossRef (<https://doi.org/10.1111/j.2042-7158.1988.tb07010.x>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=2907548)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Prostaglandin%20synthetase%20inhibitors%20in%20feverfew&author=WH.%20Pugh&author=K.%20Sambo&journal=J%20Pharm%20Pharmacol&volume=40&pages=743-5&publication_year=1988)
36. Makheja AM, Bailey JM. A platelet phospholipase inhibitor from the medicinal herb feverfew (*Tanacetum parthenium*). *Prostaglandins Leukot Med.* 1982;8:653–60.
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=6810384)
Google Scholar (http://scholar.google.com/scholar_lookup?title=A%20platelet%20phospholipase%20inhibitor%20from%20the%20medicinal%20herb%20feverfew%20%28Tanacetum%20parthenium%29&author=AM.%20Makheja&author=JM.%20Bailey&journal=Prostaglandins%20Leukot%20Med&volume=8&pages=653-60&publication_year=1982)
37. Johnson ES, Kadam NP, Hylands DM, Hylands PJ. Efficacy of feverfew as prophylactic treatment of migraine. *Br Med J.* 1985;291:569–73.
CrossRef (<https://doi.org/10.1136/bmj.291.6495.569>)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Efficacy%20of%20feverfew%20as%20prophylactic%20treatment%20of%20migraine&author=ES.%20Johnson&author=NP.%20Kadam&author=DM.%20Hylands&author=PJ.%20Hylands&journal=Br%20Med%20J&volume=291&pages=569-73&publication_year=1985)
38. Murphy JJ, Heptinstall S, Mitchell JR. Randomised double-blind placebo-controlled trial of feverfew in migraine prevention. *Lancet.* 1988;2:189–92.
CrossRef ([https://doi.org/10.1016/S0140-6736\(88\)92289-1](https://doi.org/10.1016/S0140-6736(88)92289-1))
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=2899663)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Randomised%20double-blind%20placebo-controlled%20trial%20of%20feverfew%20in%20migraine%20prevention&author=JJ.%20Murphy&author=S.%20Heptinstall&author=JR.%20Mitchell&journal=Lancet&volume=2&pages=189-92&publication_year=1988)
39. Kuritzky A, Elhacham Y, Yerushalmi Z, Hering R. Feverfew in the treatment of migraine: its effect on serotonin uptake and platelet activity. *Neurology.* 1994;44 Suppl 2:293.
Google Scholar (http://scholar.google.com/scholar_lookup?title=Feverfew%20in%20the%20treatment%20of%20migraine%3A%20its%20effect%20on%20serotonin%20uptake%20and%20platelet%20activity&author=A.%20Kuritzky&author=Y.%20Elhacham&author=Z.%20Yerushalmi&author=R.%20Hering&journal=Neurology&volume=44&issue=Suppl%202&pages=293&publication_year=1994)
40. De Weerd CJ, Bootsma HPR, Hendriks H. Herbal medicines in migraine prevention: randomized double-blind placebo-controlled crossover trial of a feverfew preparation. *Phytomedicine.* 1996;3(3):225–30.

CrossRef ([https://doi.org/10.1016/S0944-7113\(96\)80057-2](https://doi.org/10.1016/S0944-7113(96)80057-2))
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=23195074)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Herbal%20medicines%20in%20migraine%20prevention%3A%20randomized%20double-blind%20placebo-controlled%20crossover%20trial%20of%20a%20feverfew%20preparation&author=CJ.%20Weerd&author=HPR.%20Bootsma&author=H.%20Hendriks&journal=Phytomedicine&volume=3&issue=3&pages=225-30&publication_year=1996)

41. Palevitch D, Earon G, Carasso R. Feverfew (*Tanacetum parthenium*) as a prophylactic treatment for migraine: a placebo-controlled double-blind study. *Phytother Res.* 1997;11:508–11.
CrossRef ([https://doi.org/10.1002/\(SICI\)1099-1573\(199711\)11%3A7<508%3A%3AAID-PTR153>3.0.CO%3B2-H](https://doi.org/10.1002/(SICI)1099-1573(199711)11%3A7<508%3A%3AAID-PTR153>3.0.CO%3B2-H))
Google Scholar (http://scholar.google.com/scholar_lookup?title=Feverfew%20%28Tanacetum%20parthenium%29%20as%20a%20prophylactic%20treatment%20for%20migraine%3A%20a%20placebo-controlled%20double-blind%20study&author=D.%20Palevitch&author=G.%20Earon&author=R.%20Carasso&journal=Phytother%20Res&volume=11&pages=508-11&publication_year=1997)
42. Vogler BK, Pittler BK, Ernst E. Feverfew as a preventive treatment for migraine: a systematic review. *Cephalalgia.* 1998;18:704–8.
CrossRef (<https://doi.org/10.1046/j.1468-2982.1998.1810704.x>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=9950629)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Feverfew%20as%20a%20preventive%20treatment%20for%20migraine%3A%20a%20systematic%20review&author=BK.%20Vogler&author=BK.%20Pittler&author=E.%20Ernst&journal=Cephalalgia&volume=18&pages=704-8&publication_year=1998)
43. Draves AH, Walker SE. Parthenolide content of Canadian commercial feverfew preparations: label claims are misleading in most cases. *CPJ, Can Pharm J.* 2003;136(10):23–30.
Google Scholar (http://scholar.google.com/scholar_lookup?title=Parthenolide%20content%20of%20Canadian%20commercial%20feverfew%20preparations%3A%20label%20claims%20are%20misleading%20in%20most%20cases&author=AH.%20Draves&author=SE.%20Walker&journal=CPJ%20Can%20Pharm%20J&volume=136&issue=10&pages=23-30&publication_year=2003)
44. Abdel-Tawab M, Werz O, Schubert-Zsilavecz M. *Boswellia serrata*. *Clin Pharmacokinet.* 2011;50(6):349–69.
CrossRef (<https://doi.org/10.2165/11586800-000000000-00000>)
PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=21553931)
Google Scholar (http://scholar.google.com/scholar_lookup?title=Boswellia%20serrata&author=M.%20Abdel-Tawab&author=O.%20Werz&author=M.%20Schubert-Zsilavecz&journal=Clin%20Pharmacokinet&volume=50&issue=6&pages=349-69&publication_year=2011)

45. Lampl C, Haider B, Schweiger C. Long-term efficacy of *Boswellia serrata* in four patients with chronic cluster headache. *Cephalalgia*. 2012;32(9):719–22.
[CrossRef](https://doi.org/10.1177/0333102412451357) (https://doi.org/10.1177/0333102412451357)
[PubMed](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=22767962) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=22767962)
[Google Scholar](http://scholar.google.com/scholar_lookup?title=Long-term%20efficacy%20of%20Boswellia%20serrata%20in%20four%20patients%20with%20chronic%20cluster%20headache&author=C.%20Lampl&author=B.%20Haider&author=C.%20Schweiger&journal=Cephalalgia&volume=32&issue=9&pages=719-22&publication_year=2012) (http://scholar.google.com/scholar_lookup?title=Long-term%20efficacy%20of%20Boswellia%20serrata%20in%20four%20patients%20with%20chronic%20cluster%20headache&author=C.%20Lampl&author=B.%20Haider&author=C.%20Schweiger&journal=Cephalalgia&volume=32&issue=9&pages=719-22&publication_year=2012)
46. Plaza HRC. Late-Breaking Abstracts. 2014.
[Google Scholar](https://scholar.google.com/scholar?q=Plaza%20HRC.%20Late-Breaking%20Abstracts.%202014.) (https://scholar.google.com/scholar?q=Plaza%20HRC.%20Late-Breaking%20Abstracts.%202014.)
47. Bekkelund SI, Alstadhaug KB. Migraine prophylactic drugs-something new under the sun. *Expert Opin Investig Drugs*. 2011;20(9):1201–10.
[CrossRef](https://doi.org/10.1517/13543784.2011.601741) (https://doi.org/10.1517/13543784.2011.601741)
[PubMed](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=21819271) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=21819271)
[Google Scholar](http://scholar.google.com/scholar_lookup?title=Migraine%20prophylactic%20drugs-something%20new%20under%20the%20sun&author=SI.%20Bekkelund&author=KB.%20Alstadhaug&journal=Expert%20Opin%20Investig%20Drugs&volume=20&issue=9&pages=1201-10&publication_year=2011) (http://scholar.google.com/scholar_lookup?title=Migraine%20prophylactic%20drugs-something%20new%20under%20the%20sun&author=SI.%20Bekkelund&author=KB.%20Alstadhaug&journal=Expert%20Opin%20Investig%20Drugs&volume=20&issue=9&pages=1201-10&publication_year=2011)
48. Peres M, Goncalves A. Double-blind, placebo controlled, randomized clinical trial comparing melatonin 3 mg, amitriptyline 25 mg and placebo for migraine prevention. *Neurology*. 2013;80(Meeting Abstracts 1):S40–005.
[Google Scholar](http://scholar.google.com/scholar_lookup?title=Double-blind%20C%20placebo%20controlled%20C%20randomized%20clinical%20trial%20comparing%20melatonin%203%20mg%20C%20amitriptyline%2025%20mg%20and%20placebo%20for%20migraine%20prevention&author=M.%20Peres&author=A.%20Goncalves&journal=Neurology&volume=80&issue=Meeting%20Abstracts%201&pages=S40-005&publication_year=2013) (http://scholar.google.com/scholar_lookup?title=Double-blind%20C%20placebo%20controlled%20C%20randomized%20clinical%20trial%20comparing%20melatonin%203%20mg%20C%20amitriptyline%2025%20mg%20and%20placebo%20for%20migraine%20prevention&author=M.%20Peres&author=A.%20Goncalves&journal=Neurology&volume=80&issue=Meeting%20Abstracts%201&pages=S40-005&publication_year=2013)

Copyright information

© Springer Science+Business Media New York 2016

About this article

Cite this article as:

Daniel, O. & Mauskop, A. *Curr Treat Options Neurol* (2016) 18: 14. <https://doi.org/10.1007/s11940-016-0398-1>

- First Online 29 February 2016
- DOI <https://doi.org/10.1007/s11940-016-0398-1>
- Publisher Name Springer US
- Print ISSN 1092-8480
- Online ISSN 1534-3138
- [About this journal](#)
- [Reprints and Permissions](#)

Personalised recommendations

SPRINGER NATURE

© 2019 Springer Nature Switzerland AG. Part of [Springer Nature](#).

Not logged in Not affiliated 82.80.86.234