

Headaches:

To Treat or Not To Treat,
That is the Question?

**Florida Chiropractic Association
Medical Errors, 2022**

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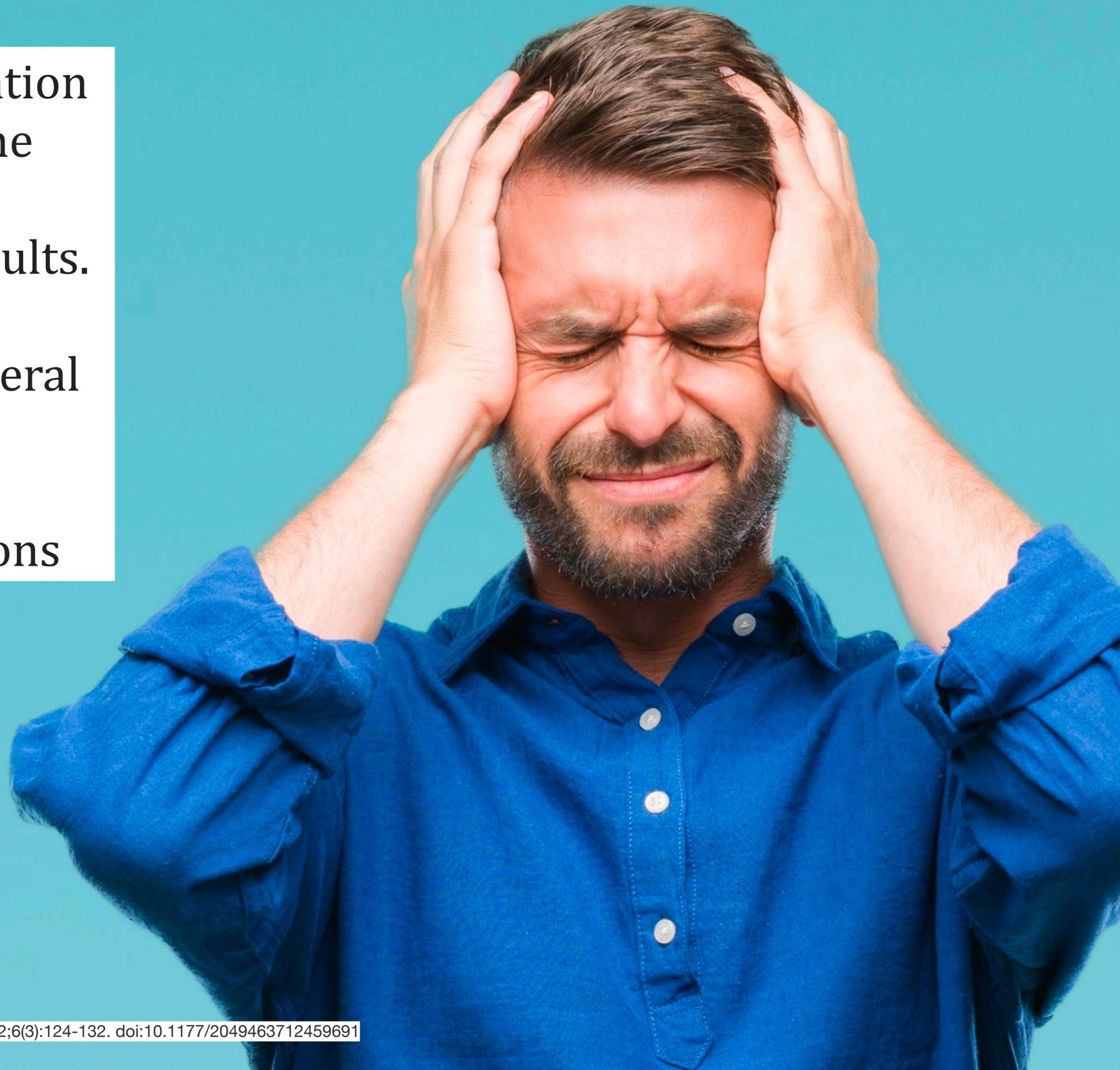
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To be here with you!



Around 95% of the general population have experienced headache at some stage in their life with a 1-year prevalence of nearly one in two adults.

Headache accounts for 1 in 10 general practitioner (GP) consultations,
1 in 3 neurology referrals
1 in 5 of all acute medical admissions





The Literature says.....

4 main classifications of headaches

Sinus
Tension
Migraines
Cluster

While musculoskeletal and biomechanical causes may be found so may hormonal, nutritional, environmental causes. Searching to get to the root cause can be life changing and knowing how to find them through appropriate history taking, laboratory testing and examination will help the astute practitioner be more successful in the treatment of headaches.



Over 39 million Americans have migraines more than the number who have diabetes and asthma combined.

HA disorders among the leading cause of disability worldwide

Migraine and severe HA affect 1/6 US adults and 1/5 women

Migraine and tension-type HA are most prevalent HA disorder

Migraines are associated with anxiety and depression

Migraine prevention treatments are underutilized in clinical practice

GBD 2019 Diseases and Injuries Collaborators. Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019 [published correction appears in *Lancet*. 2020;396(10262):1562]. *Lancet*. 2020;396(10258):1204-1222. doi:[10.1016/S0140-6736\(20\)30925-9](https://doi.org/10.1016/S0140-6736(20)30925-9)

Burch R, Rizzoli P, Loder E. The prevalence and impact of migraine and severe headache in the United States: updated age, sex, and socioeconomic-specific estimates from government health surveys. *Headache*. 2021;61(1):60-68. doi:[10.1111/head.14024](https://doi.org/10.1111/head.14024)

Smitherman TA, Burch R, Sheikh H, Loder E. The prevalence, impact, and treatment of migraine and severe headaches in the United States: a review of statistics from national surveillance studies. *Headache*. 2013;53(3):427-436. doi:[10.1111/head.12074](https://doi.org/10.1111/head.12074)

Green MW. Headaches: psychiatric aspects. *Neurol Clin*. 2011;29(1):65-80. doi:[10.1016/j.ncl.2010.10.004](https://doi.org/10.1016/j.ncl.2010.10.004)

Silberstein SD. Preventive migraine treatment. *Continuum*. 2015;21(4 Headache):973-989.



“Our study included 130 patients with migraine-type headache according to 3rd edition (ICHD-III-beta). We found that **81.5%** of them were misdiagnosed and managed as sinusitis.”

Al-Hashel, J.Y., Ahmed, S.F., Alroughani, R. *et al.* Migraine misdiagnosis as a sinusitis, a delay that can last for many years. *J Headache Pain* **14**, 97 (2013). <https://doi.org/10.1186/1129-2377-14-97>

“Delayed diagnosis and **misdiagnosis** is very frequent in **migraine**, leading to financial burden to patients.”

Rai NK, Bitswa R, Singh R, Pakhre AP, Parauha DS. Factors associated with delayed diagnosis of migraine: A hospital-based cross-sectional study. *J Family Med Prim Care*. 2019;8(6):1925-1930. doi:10.4103/jfmprc.jfmprc_376_19

“Cluster **headache** is uncommon (0.1%) but **often misdiagnosed** and mismanaged.”

“Headaches are one of the most challenging complaints in the emergency department (ED) accounting for 1–4% of all ED visits “

Doretti, A., Shestaritc, I., Ungaro, D. *et al.* Headaches in the emergency department –a survey of patients’ characteristics, facts and needs. *J Headache Pain* **20**, 100 (2019). <https://doi.org/10.1186/s10194-019-1053-5>



“A secondary headache disorder is more often suspected than detected.”

RED FLAGS!



SNNOOP10

systemic symptoms/signs and disease
neurologic symptoms or signs
onset sudden or onset after the age of 40 years
change of headache pattern



Table 1 SNNOOP10 list of red and orange flags

	Sign or symptom	Related secondary headaches (most relevant ICHD-3b categories)	Flag color
1	Systemic symptoms including fever	Headache attributed to infection or nonvascular intracranial disorders, carcinoid or pheochromocytoma	Red (orange for isolated fever)
2	Neoplasm in history	Neoplasms of the brain; metastasis	Red
3	Neurologic deficit or dysfunction (including decreased consciousness)	Headaches attributed to vascular, nonvascular intracranial disorders; brain abscess and other infections	Red
4	Onset of headache is sudden or abrupt	Subarachnoid hemorrhage and other headaches attributed to cranial or cervical vascular disorders	Red
5	Older age (after 50 years)	Giant cell arteritis and other headache attributed to cranial or cervical vascular disorders; neoplasms and other nonvascular intracranial disorders	Red
6	Pattern change or recent onset of headache	Neoplasms, headaches attributed to vascular, nonvascular intracranial disorders	Red
7	Positional headache	Intracranial hypertension or hypotension	Red
8	Precipitated by sneezing, coughing, or exercise	Posterior fossa malformations; Chiari malformation	Red
9	Papilledema	Neoplasms and other nonvascular intracranial disorders; intracranial hypertension	Red
10	Progressive headache and atypical presentations	Neoplasms and other nonvascular intracranial disorders	Red
11	Pregnancy or puerperium	Headaches attributed to cranial or cervical vascular disorders; postdural puncture headache; hypertension-related disorders (e.g., preeclampsia); cerebral sinus thrombosis; hypothyroidism; anemia; diabetes	Red
12	Painful eye with autonomic features	Pathology in posterior fossa, pituitary region, or cavernous sinus; Tolosa-Hunt syndrome; ophthalmic causes	Red
13	Posttraumatic onset of headache	Acute and chronic posttraumatic headache; subdural hematoma and other headache attributed to vascular disorders	Red
14	Pathology of the immune system such as HIV	Opportunistic infections	Red
15	Painkiller overuse or new drug at onset of headache	Medication overuse headache; drug incompatibility	Red

Abbreviation: ICHD-3b = International Classification of Headache Disorders 3b.
An overview of signs and symptoms, their related secondary headache, and distribution in red and orange flags.

MOH and Chemically Induced



six months
50 percent

5%

light
smells
dizziness
vom

**M/C Causes
of Headaches In My Office**

Nutritional

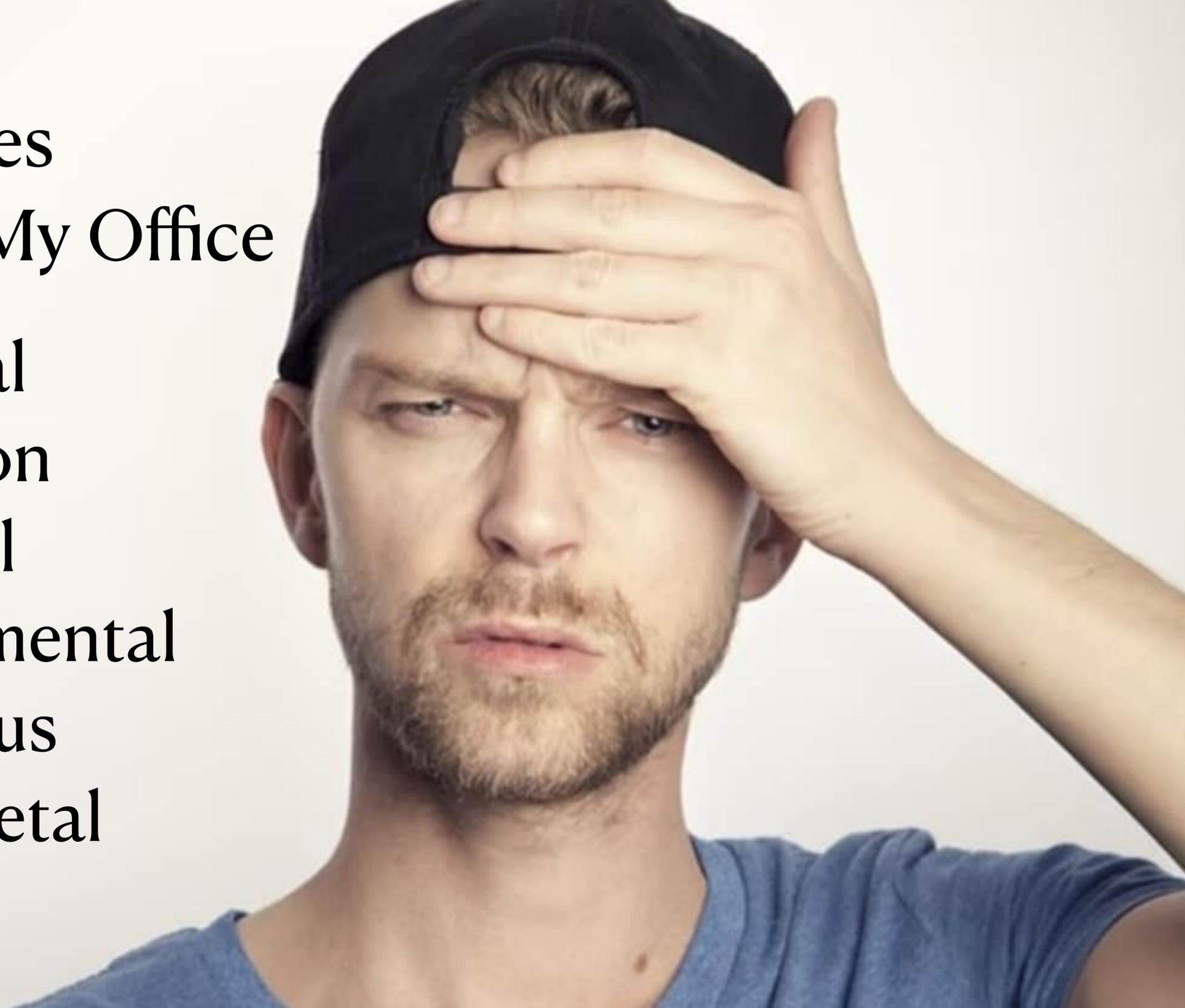
Dehydration

Hormonal

Food/Environmental

Fungal/Sinus

Musculoskeletal



Migraine Stats & Findings

Troy Healthcare identified a major, unmet need in the market for a safe and effective

Topical Migraine & Headache Treatment

Over
39 MILLION
Americans suffer
from migraines

157 MILLION
Work days are lost per
year due to migraine

Nearly half of the sufferers (**47%**)
indicate that they find OTC medications
just somewhat effective,

and **1 in 3** don't find them effective at all.

Source: Troy Healthcare's in-depth, targeted study of 900 migraine sufferers

A close-up photograph of a person's hand holding a white rectangular card. The person is wearing a white lab coat over a light blue button-down shirt and a dark, patterned necktie. The background is softly blurred, showing the person's torso and a stethoscope around their neck. The card has the text "Explore non-Opioid Alternatives" written in a dark red, cursive font.

Explore
non-Opioid
Alternatives

Adjust or not to Adjust or is there more than 1 option?



Let's find out!

Headaches, Headaches, Migraines and Headaches

Nutritional and Hormonal

Cindy M. Howard, DC , DABCI, DACBN, FIAMA, FICC

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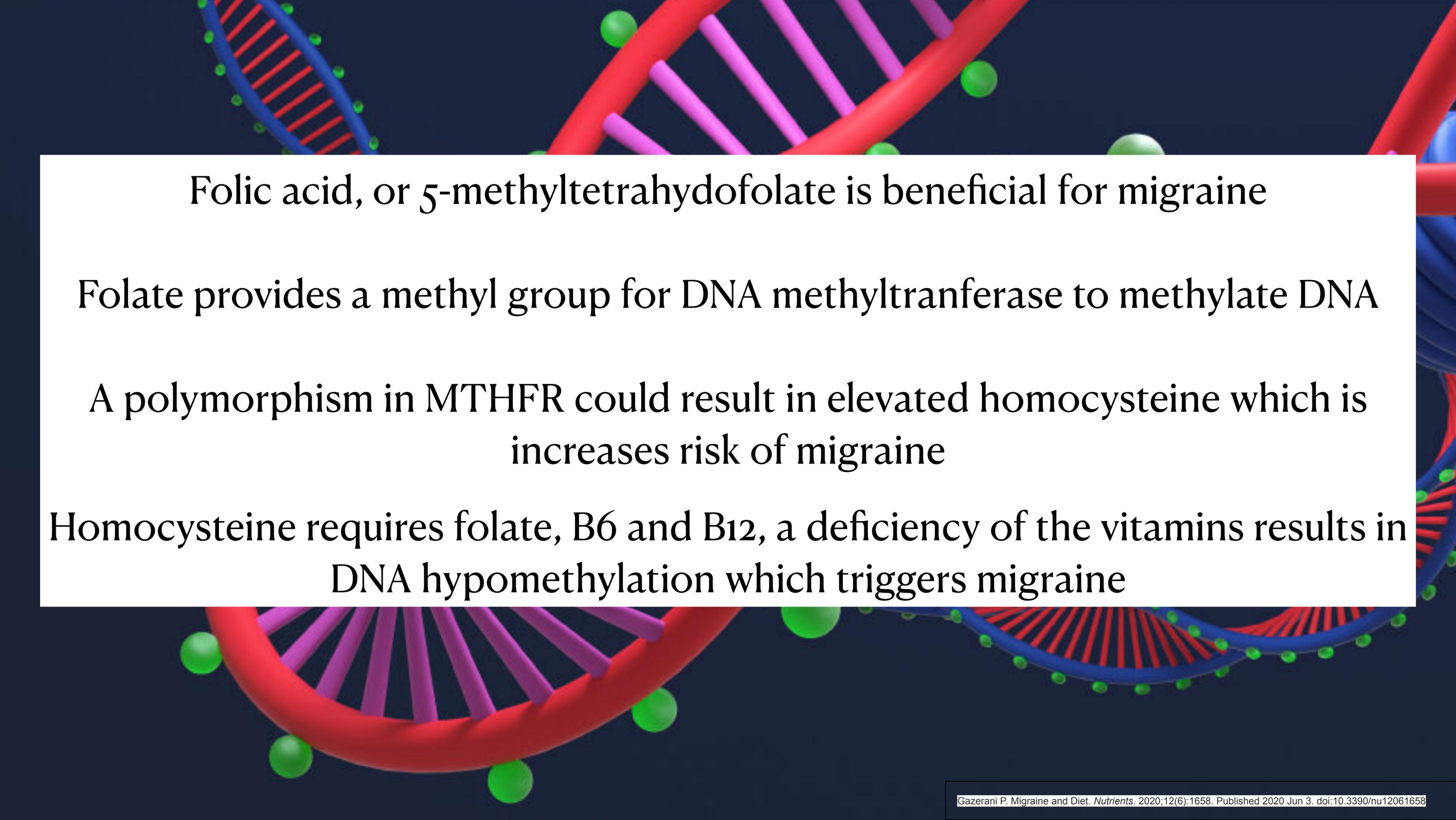


Katie

46 YOF
Migraines

Micronutrient	Serum			WBC			RBC		
	Current	Previous	Ref	Current	Previous	Ref	Current	Previous	Ref
Vitamin A	74.1		40.8~154.5 (mcg/dL)	3.1		0.9~17.3 (pg/MM WBC)			
Vitamin B1	11.7		1.4~71.3 (nmol/L)	0.41		0.10~7.00 (pg/MM WBC)			
Vitamin B2	19.5		5.6~126.1 (mcg/L)	0.5		0.2~3.6 (pg/MM WBC)			
Vitamin B3	26.8		2.6~36.1 (ng/mL)	62.8		39.6~303.5 (pg/MM WBC)			
Vitamin B6	4.9		2.8~76.2 (ng/mL)	0.4 ↓		0.5~9.7 (pg/MM WBC)			
Vitamin B12	680		232~1245 (pg/mL)	8.27		2.00~11.99			
Vitamin B5	61.9		22.7~429.2 (mcg/L)	2.5		2.5~32.8 (pg/MM WBC)			
Vitamin C	0.7		0.2~1.1 (mg/dL)	1.9		0.5~9.7 (ng/MM WBC)			
Vitamin D3	0.7		0.4~1.8 (ng/mL)	72.5		25.9~246.6 (pg/MM WBC)			
Vitamin D, 25-OH	41.0		30.0~108.0 (ng/mL)						
Vitamin E	11.4		7.4~30.6 (mg/L)	239.3		18.4~1031.1 (pg/MM WBC)			
Vitamin K1	0.77		0.10~8.10 (ng/mL)	0.24		0.10~0.71 (pg/MM WBC)			
Vitamin K2	0.51		0.10~5.19 (ng/mL)	0.09 ↓		0.10~0.89 (pg/MM WBC)			
Folate	17.3		≥4.6 (ng/mL)				166.7		≥95.5 (ng/mL)

Vitamins



Folic acid, or 5-methyltetrahydrofolate is beneficial for migraine

Folate provides a methyl group for DNA methyltransferase to methylate DNA

A polymorphism in MTHFR could result in elevated homocysteine which is increases risk of migraine

Homocysteine requires folate, B6 and B12, a deficiency of the vitamins results in DNA hypomethylation which triggers migraine



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46 YOF
Migraines

Micronutrient	Serum			WBC			RBC		
	Current	Previous	Ref	Current	Previous	Ref	Current	Previous	Ref
Calcium	9.6		8.9~10.6 (mg/dL)	5 ↓		15~120 (ng/MM WBC)			
Manganese	0.7		0.3~2.0 (ng/mL)	4		2~75 (pg/MM WBC)			
Zinc	0.7		0.5~1.0 (mcg/mL)	3 ↓		4~15 (ng/MM WBC)			
Copper	0.8		0.6~1.8 (mcg/mL)	3		2~15 (ng/MM WBC)			
Chromium	0.47		0.10~0.70 (ng/mL)						
Iron	91		37~145 (ug/dL)				101.2		88.9~117.0 (mg/dL)
Magnesium	2.3		1.6~2.6 (mg/dL)				3.7		3.6~7.7 (mg/dL)
Copper to Zinc Ratio	1.1		0.9~2.6						
Choline	9.6		6.8~31.0 (nmol/mL)	0.2		0.2~1.5 (ng/MM WBC)			
Inositol	40.9		20.5~60.7 (nmol/mL)	0.22		0.10~2.50 (ng/MM WBC)			
Carnitine	16.2		11.6~43.4 (nmol/mL)	0.3		0.3~1.5 (ng/MM WBC)			
MMA	0.28		0.10~0.50 (nmol/mL)						
Sodium	137		136~145 (mmol/L)						
Potassium	4.2		3.5~5.1 (mmol/L)						

Minerals

Metabolites

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46 YOF
Migraines

Micronutrient	Serum			WBC			RBC			
	Current	Previous	Ref	Current	Previous	Ref	Current	Previous	Ref	
Amino Acids										
Asparagine	47.8		39.2~89.8 (nmol/mL)	0.5		0.5~2.8 (ng/MM WBC)				
Glutamine	510.1		393.5~699.3 (nmol/mL)	2.6		1.4~7.0 (ng/MM WBC)				
Serine	139.8		94.2~246.8 (nmol/mL)	4.1		1.8~19.8 (ng/MM WBC)				
Arginine	101.2		81.6~249.0 (nmol/mL)							
Citrulline	23.1		18.7~47.5 (nmol/mL)							
Isoleucine	40.0		25.5~158.9 (nmol/mL)							
Valine	147.1 ↓		155.9~368.0 (nmol/mL)							
Leucine	107.7		101.2~249.3 (nmol/mL)							
Antioxidants										
Coenzyme Q10	1.12		0.56~2.78 (µg/mL)	29.3 ↓		39.6~225.3 (pg/MM WBC)				
Cysteine	14.7		3.4~37.0 (nmol/mL)	183.2		60.0~565.0 (pg/MM WBC)				
Glutathione				175.3		98.7~1163.0 (pg/MM WBC)				
Selenium	120.8		109.8~218.4 (ng/mL)	180 ↓		234~1050 (pg/MM WBC)				

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46 YOF Migraines

Micronutrient	Serum			WBC			RBC		
	Current	Previous	Ref	Current	Previous	Ref	Current	Previous	Ref
EPA							0.23		0.15~2.26 (%)
DPA							0.59		0.45~1.80 (%)
DHA							2.81		2.42~10.52 (%)
Total Omega-3							4.16		3.25~13.99 (%)
LA							4.38		3.22~10.49 (%)
AA							10.05		5.50~19.01 (%)
Total Omega-6							15.84		11.03~34.96 (%)
AA/EPA							43.7 ↑		2.5~10.9
Omega-3 Index							3.30		8.00~12.65 (%)

WBC Count

Test Name	Current	Reference Range	Previous
Lymphocyte Count (x 10 ³ /μL)	1.53	1.18~3.74	
Neutrophil Count (x 10 ³ /μL)	5.18	1.56~6.13	
WBC (x 10 ³ /μL)	7.71	3.98~10.04	

Omega-3 fatty acids may be useful for migraine prophylaxis And may lead to a significant reduction in the duration of migraine



Sadeghi O, Maghsoudi Z, Khorvash F, Ghasvand R, Askari G. The relationship between different fatty acids intake and frequency of migraine attacks. *Iran J Nurs Midwifery Res.* 2015;20(3):334-339.

Soares AA, Louçana PMC, Nasi EP, Sousa KMH, Sá OMS, Silva-Néto RP. A double-blind randomized, and placebo-controlled clinical trial with omega-3 polyunsaturated fatty acids (OPFA Omega-3) for the prevention of migraine in chronic migraine patients using amitriptyline. *Nutr Neurosci.* 2018;21(3):219-223. doi:[10.1080/1028415X.2016.1266133](https://doi.org/10.1080/1028415X.2016.1266133)

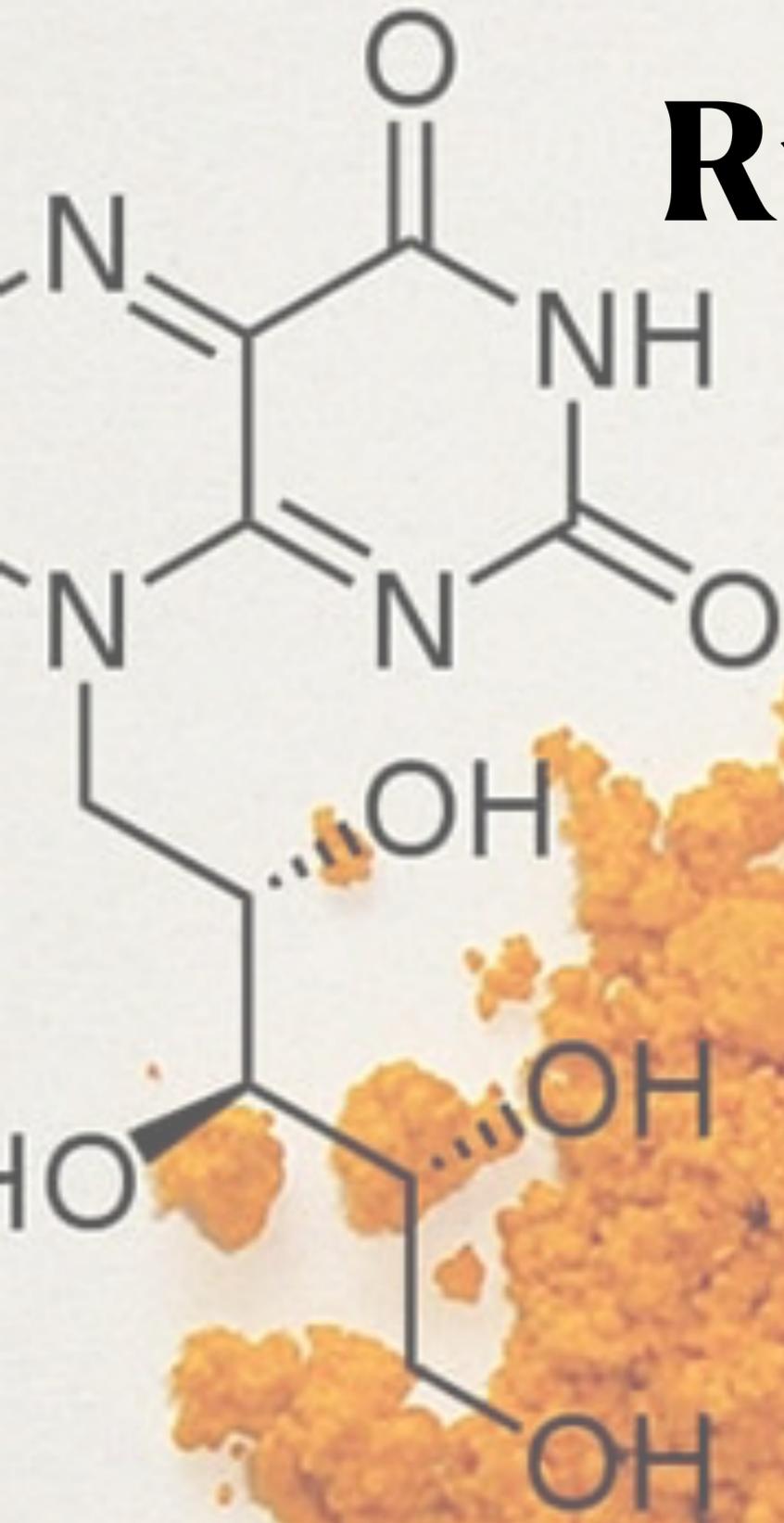
Maghsoumi-Noroyuzabad L, Mansoori A, Abed R, Shishehbor F. Effects of omega-3 fatty acids on the frequency, severity, and duration of migraine attacks: a systematic review and meta-analysis of randomized controlled trials. *Nutr Neurosci.* 2018;21(9):614-623. doi:[10.1080/1028415X.2017.1344371](https://doi.org/10.1080/1028415X.2017.1344371)

Riboflavin

**Reduction in Migraines using 400 mg of B2
over 12 weeks versus a placebo**

**Similar efficacy to valproate for prophylaxis
and is more tolerable**

Very safe



Magnesium

The image features a central glass dish filled with a fine white powder. Surrounding the dish are several capsules of various shapes and colors, including white, yellow, and light blue. The background is a solid blue color. The text is overlaid on the image in a black, serif font.

Reduction and Elimination of Headaches using 600 mg.

Good also for HA related to menstruation

Lowers Blood Pressure

Treat if levels are below 6 on RBC Magnesium

Threonate

Glycinate

Oxalate

CO Q10

May help reduce the duration and frequency of migraines

Lowers Blood Pressure

No serious side effects

May interact with anticoagulants and insulin



Vitamin D

18 out of 30 studies included in a recent literature review, published in Nutrients, showed a link between serum vitamin D levels and headaches, with the strongest connection established between serum vitamin D and migraine

Vitamin D can control up to 200 genes and increases intestinal absorption of magnesium

“Most studies revealed vitamin D deficiency or insufficiency in migraine patients, while some other studies showed normal vitamin D levels (levels ranging from 12.40 to 38.08 ng/mL),”

One concrete conclusion drawn from the review was the fact that a large proportion of headache patients suffer from vitamin D deficiency. Authors also note that vitamin D supplementation appears to be a safe form of treatments as “even at high doses... (up to 10,000 IU/day), no major adverse events have been reported.”



Katie

46 YOF Migraines

ABNORMAL	 CELLULAR	 SERUM	 COMMON FOOD RESOURCES	 SUGGESTED SUPPLEMENTATION
Vitamin B6	↓		Chickpeas, beef liver, tuna, salmon, chicken breast,	
Vitamin K2	↓		Natto, cheese, dairy curds	
Calcium	↓		Plain yogurt, tofu, mozzarella cheese, sardines, cheddar cheese, milk	
Zinc	↓		Oysters, beef, crab, lobster, chicken (dark meat only), turkey (dark meat), baked beans	
Valine		↓	Whey protein, cheese, eggs, soy protein, lamb, beef	
Coenzyme Q10	↓		Beef, herring, chicken, soybeans, trout, peanuts	
Selenium	↓		Brazil nuts, tuna, oysters, halibut, sardines, brown rice	
AA/EPA		↑		

(Your provider will discuss any nutrient deficiencies identified on the report. The suggested supplementation section will be filled by provider.)

What Do I Do With The Information From This Test?

<p>CELLULAR: Normal SERUM: Deficient</p> <p>Long term nutrient status is optimal, but short term needs improvement. Recommended interventions:</p> <ul style="list-style-type: none"> * increase dietary intake of nutrient * increase supplementation dosage * medications may have an effect on depletion 	<p>CELLULAR: Deficient SERUM: Normal/Excess</p> <p>Short term status of micronutrients is optimal, but cellular absorption may be a problem. Recommended interventions:</p> <ul style="list-style-type: none"> * increase dietary intake of nutrient * increase supplementation dosage * consider status of synergistic nutrients for cellular absorption * consider levels of oxidative stress on nutrient depletion * consider follow up testing to identify the source of malabsorption 	<p>CELLULAR: Deficient SERUM: Deficient</p> <p>Short term and long term status of micronutrients is not optimal, suggesting low dietary intake and both intestinal and cellular malabsorption as possible causes. Recommended interventions:</p> <ul style="list-style-type: none"> * increase dietary intake of nutrient * increase supplementation dosage * medications may have an effect on depletion * consider follow up testing to identify the source of malabsorption
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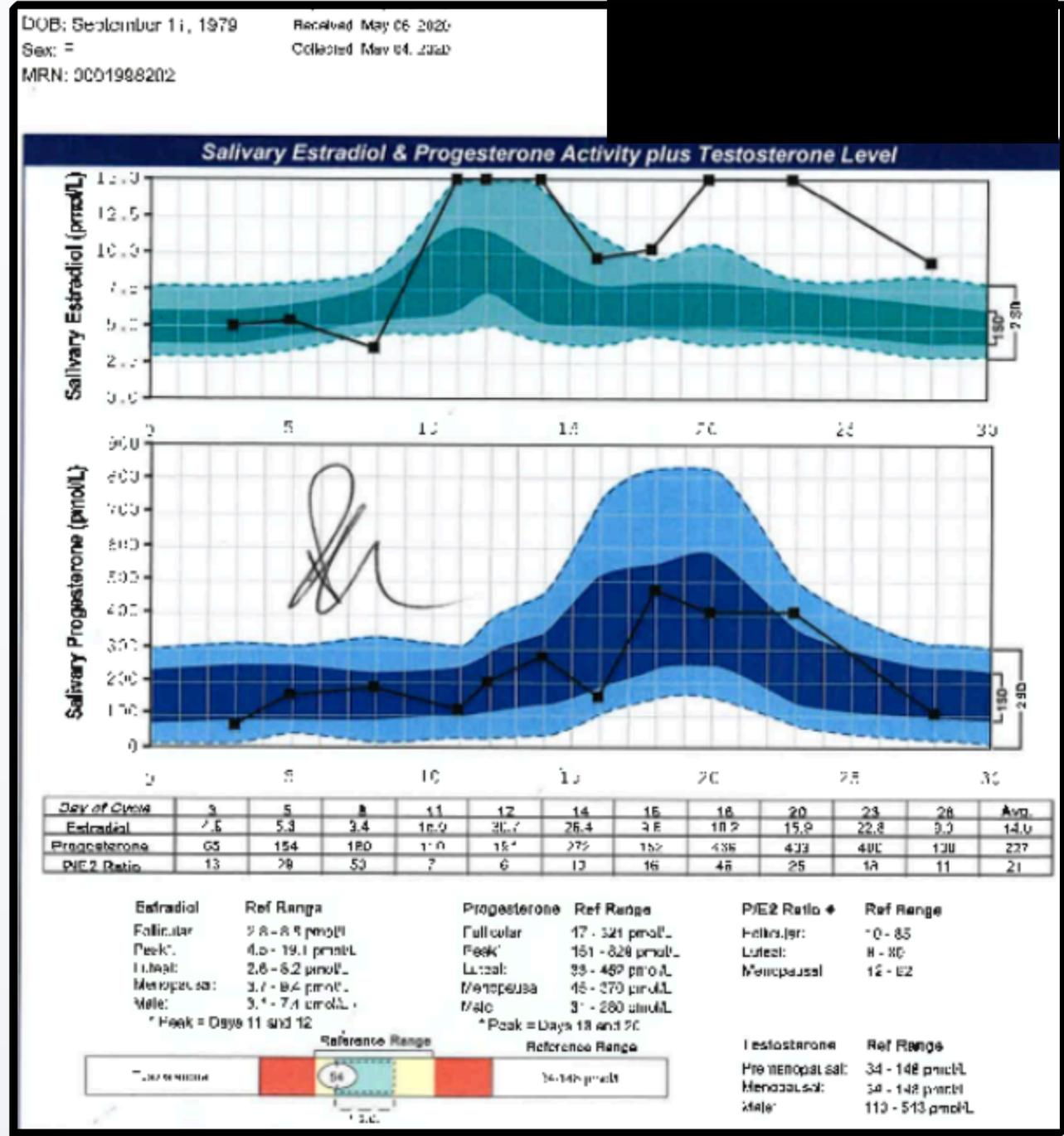


Katie

**6 Months post Treatment
Only one Migraine when she had covid**

Laura

PMS Headache





Laura

3 months

Reduced Xenoestrogens

Herbals to balance estrogen dominance

Calcium D-Glucarate

No Hormonal Headaches

STUDY: MEN WITH MIGRAINE MAY HAVE HIGHER ESTROGEN LEVELS



While it has been known that estrogen plays a role in migraine for women, new research shows that the female sex hormone may also play a role in migraine for men, according to a small study published in the **June 27, 2018, online issue of *Neurology*[®], the medical journal of the American Academy of Neurology**. Migraine is a disabling neurologic disorder marked by frequent attacks of severe headaches. During childbearing years, women are three times more likely to have migraine than men. “Previous research has found that levels of estrogen can influence when women have migraines and how severe they are, but little is known about whether sex hormones also affect migraine in men,” said study author W.P.J. van Oosterhout, MD, of Leiden University Medical Centre in the Netherlands. “Our research found increased levels of estrogen in men with migraine, as well as symptoms of lower levels of testosterone.” The study involved 17 men with an average age of 47 who had a migraine an average of three times a month. None were taking medication known to affect hormone levels. They were compared to 22 men without migraine. All participants were of healthy weight, matched for age and body mass index. Researchers measured the levels of both estradiol, an estrogen, and testosterone in the blood. They took four blood samples from each participant on a single day, each three hours apart. For those with migraine, the first blood samples were taken on a non-migraine day and then each day thereafter until the participant had a migraine.

They found that men with migraine had higher levels of estrogen between migraines, 97 picomoles per liter (pmol/L), compared to 69 pmol/L in men without migraine, while testosterone levels were similar for both groups. This resulted in a lower ratio of testosterone to estrogen between migraines, 3.9, compared with men without migraine, 5.0. Testosterone levels did increase 24 hours before a migraine in men who experienced pre-migraine symptoms like fatigue, muscle stiffness and food cravings.

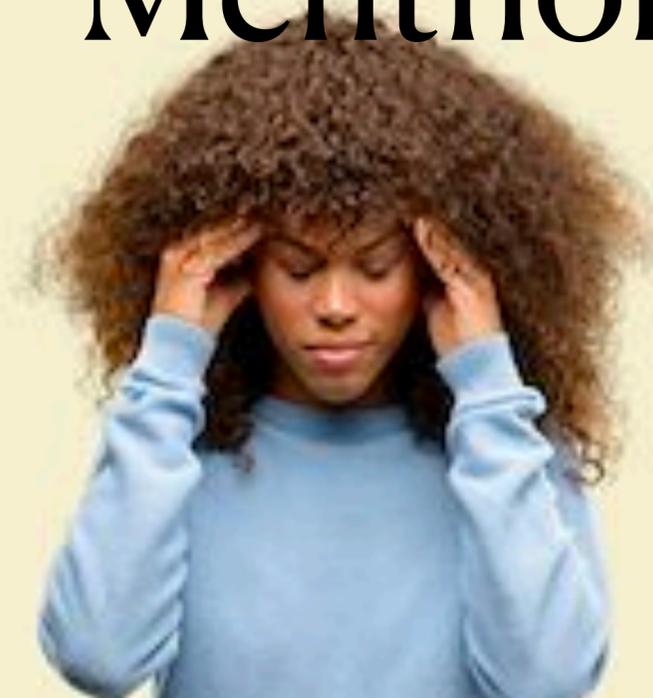
ORAL

Feverfew
5-HTP
Magnesium
Butterbur



TOPICAL

Belladonna
Nux Vomica
Iris Versicolor
Sanguinaria
Menthol



Find
&
Fix

