

# Non-Traditional Management of Vestibular Migraine (Review)

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## Abstract

**Objectives:** Vestibular migraine is one of the most common causes of episodic vertigo in adults and even in children. Traditional; management may have a side effect on the long run. So the aim of this review is to explain the other non-medical lines of management for patients with migraine. **Methods:** English articles from Medline and Cochrane library were searched and reviewed. **Results:** Evidence indicates that non-traditional management has a prophylactic and therapeutic effect on migraine patients with all its steps. **Conclusion:** Due to the possible side effects of pharmacological drugs and drug addictions, the use of non-traditional management alone or in combination with normal cures have been proposed. However, further constructive studies are required.

## Keywords

Vestibular Migraine, Blue Light, Obesity, Stress

## 1. Introduction

Vestibular migraine is one of the most common causes of episodic vertigo in adults, and even in children, migraine itself is one of the most common debilitating brain diseases [1].

Management of vestibular migraine depends on either vascular theory as abortive treatment as serotonin agonist as a triptan or prophylactic treatment as beta-blocker as propranolol. Or depend on neural theory either as barbiturate (abortive treatment) or prophylactic treatment as topiramate. All those traditional management could not be used safely for long-duration or with renal im-

pairment, liver impairment and severe hypertension.

Non-traditional management could be used safely for a long duration and in cases with renal impairment, liver impairment or severe hypertension. It could decrease the frequency of the attack, duration and severity of the attacks. Non-traditional management includes three steps. The first step is natural supplementation, the second step is to try to change your patient's lifestyle, and the third step is trying to detect the trigger factor for your patient.

## 2. Natural Supplementation

The essential natural supplementation is four types. The first one is **Magnesium** supplementation, Magnesium level in our body is 24 g [2]. Magnesium is one of the most frequent intracellular cations present in all tissues and acts as a cofactor for more than 300 enzymes that regulate diverse biochemical reactions in the body, including blood glucose control and blood pressure regulation [3]. Magnesium is present in natural form in Pumpkins, green leafy vegetables and figs. While present in a medical form combined with another molecule as citrates as it could not be absorbed alone for the intestine. Magnesium level in the blood of migrainous patients is low, and magnesium supplementation for long-duration decreases the attack's severity and frequency. The dose should be high dose it is about 400 mg for at least 4 m [4].

The second one is **Co-Enzyme-Q-10**, it is a vitamin-like substance, one of the essential anti-oxidant, and it is necessary for mitochondrial function and ATP formation. ATP is vital for energy supply for all body cells, especially the brain cells. It is present in natural forms as fish & meat and medical forms in some vitamins capsules. Also, when used in large dose could decrease the frequency & severity duration of the attacks [5] [6].

The third one is **Riboflavin** which is also called vitamin B2; it is essential for the metabolism of carbohydrates & fat and proteins. When used in a large dose of 300 mg/day but for long duration at least 4 m, it helps prophylaxis from vestibular migraine [7]. Riboflavin present in natural form in egg and milk.

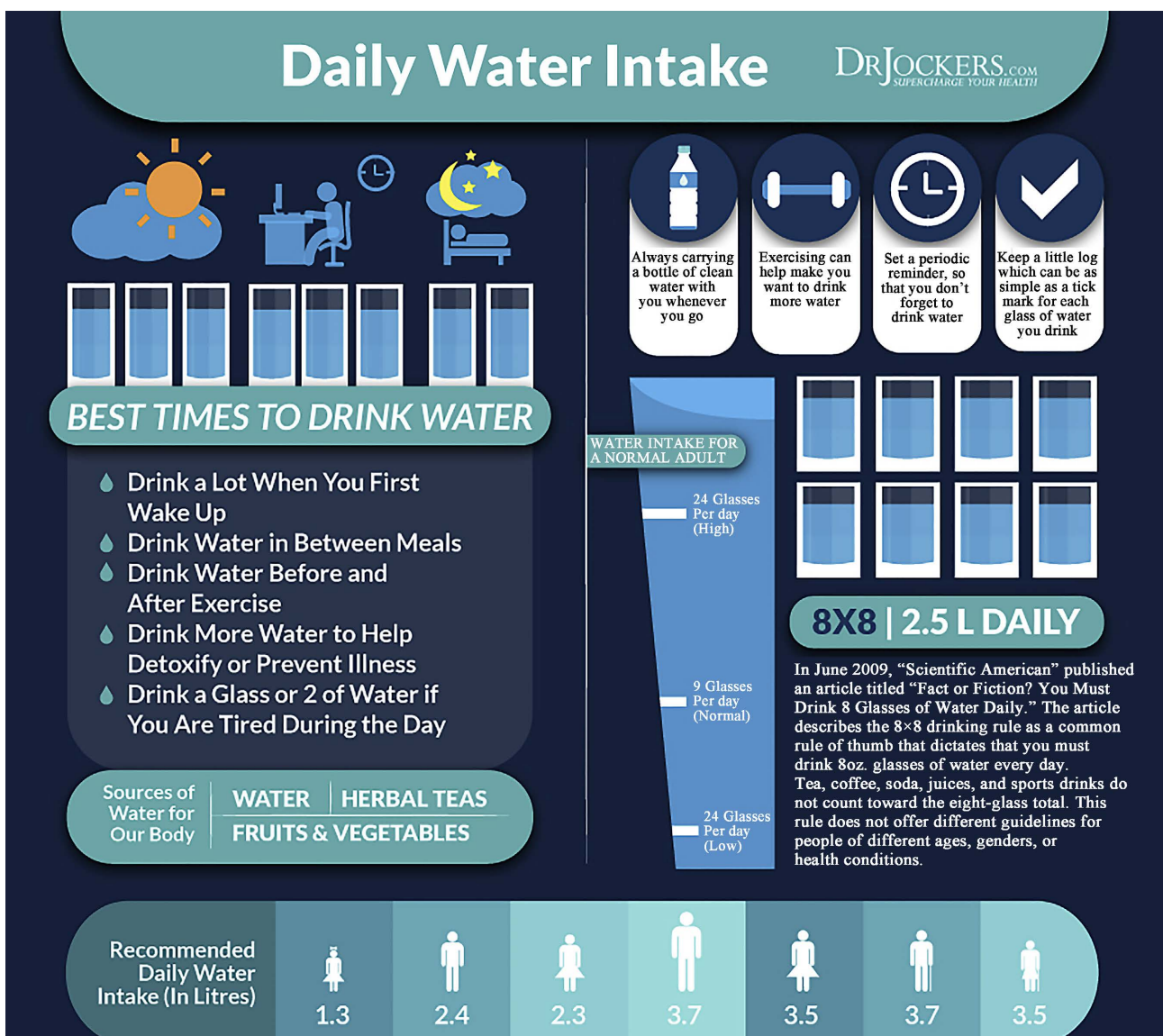
The fourth and last one is not used naturally, but it is excluded from natural flower called **feverfew**. It means low fever as it has anti-inflammatory action by decreasing the prostaglandin synthesis. It also reduces the blood vessels constriction by its action on the smooth muscle of blood vessels. Also, it decreases serotonin secretion. So by all those mechanisms, it could help in the reduction of the severity & duration and frequency of the attacks of vestibular migraine [8].

## 3. Modification of the Lifestyle

The second step in non-traditional management is to try to modify the lifestyle of your patient. This step includes 6 points, try to modify what the patient drink, try to modify what the patient eats, try to modify what the patient watch, try to modify the patient's sleep rhythm, try to modify the method of contraception, and try to modify the patient weight.

1) Modification of what the patient drink means making your patient well hydrated by drinking the needed amount of water, even minimal dehydration could irritate the brain cells easy [9]. See **Figure 1** for the required amount of daily intake of water [7]. And decrease soft drink intake as it contains caffeine [10] [11], see **Figure 2**. Caffeine overuse could trigger the attack of migraine [10]. Most soft drinks also contain additives as mono-sodium-glutamate (MSG) [12], which could irritate the brain cells.

2) Try to modify what the patient eats as increase intake of **healthy food**, especially which contain magnesium, co-enzyme-Q-10 and Riboflavin and decrease intake of processed food and **preserved food** as it contains additives. Avoid some food which could trigger migraine as **old cheese** [13] which contain tyramine formed by fermented bacteria, tyramine which act on nerve ending and release nor-epinephrine from it vesicles. **Chocolate** [13] also has serotonin



**Figure 1.** Daily water requirement (quoted from <https://drjockers.com/drinking-right-amount-water/>).

which could trigger the attacks of migraine.

3) Try to modify what the patient watches as **the blue light** emitted from **smartphone** and **video-games** could trigger migraine [13]. Blue light has a short wavelength, and high energy, it could pass easy from the retina to the optic nerve and the brain and could affect melatonin secretion and affect the sleep rhythm [14] [15] (see **Figure 3**). Decrease blue light hazards by decrease watching smartphone and laptops at nights-use the protective screen and good

### Beverage Boost

Caffeine content in soft drinks varies widely between brands, as well as within the same brand.

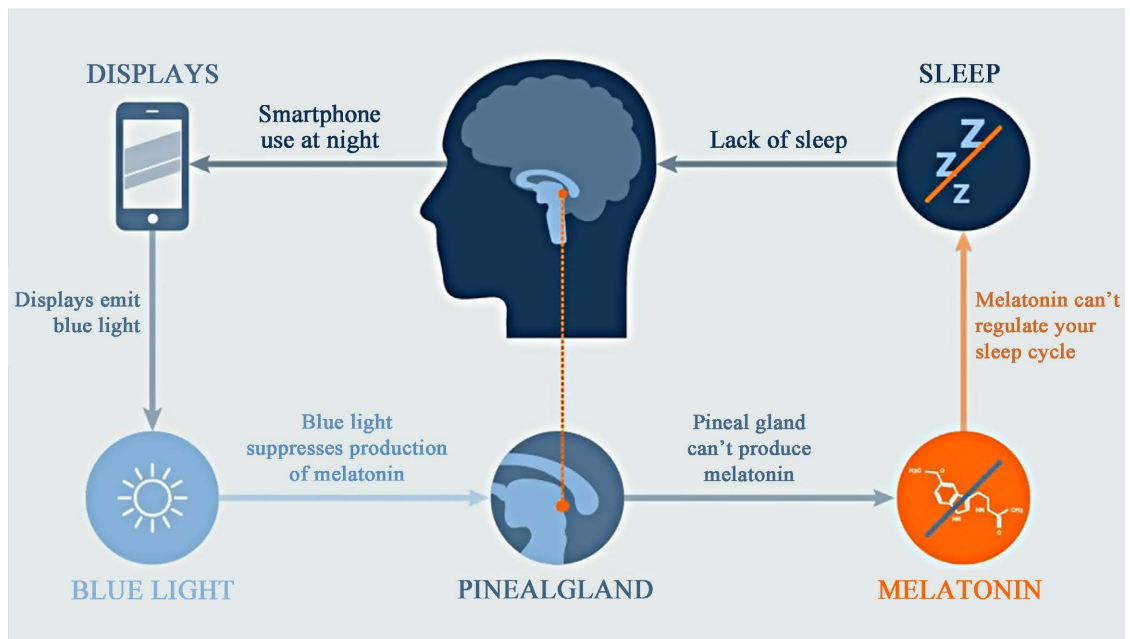
Caffeine content in select soft drinks, in mg per 12 ounces

Pepsi One	57.1
Mountain Dew	54.8
Diet Coke	46.3
Dr. Pepper	42.6
Pepsi	38.9
Diet Pepsi	36.7
Coca-Cola	33.9

NOTE: The same amount of coffee has 156 to 288 mg, tea has 30 to 135 mg

SOURCES: Auburn University: AP  
American Beverage Association

**Figure 2.** Caffeine content in selected soft drinks (quoted from <https://sites.psu.edu/siowfa15/2015/10/03/do-you-still-want-to-drink-coke>).



**Figure 3.** Penetration of blue light to the brain (quoted from <https://trainagainstgravity.com/lifestyle-diet/strengthen-your-immune-system-by-blocking-blue-light>).

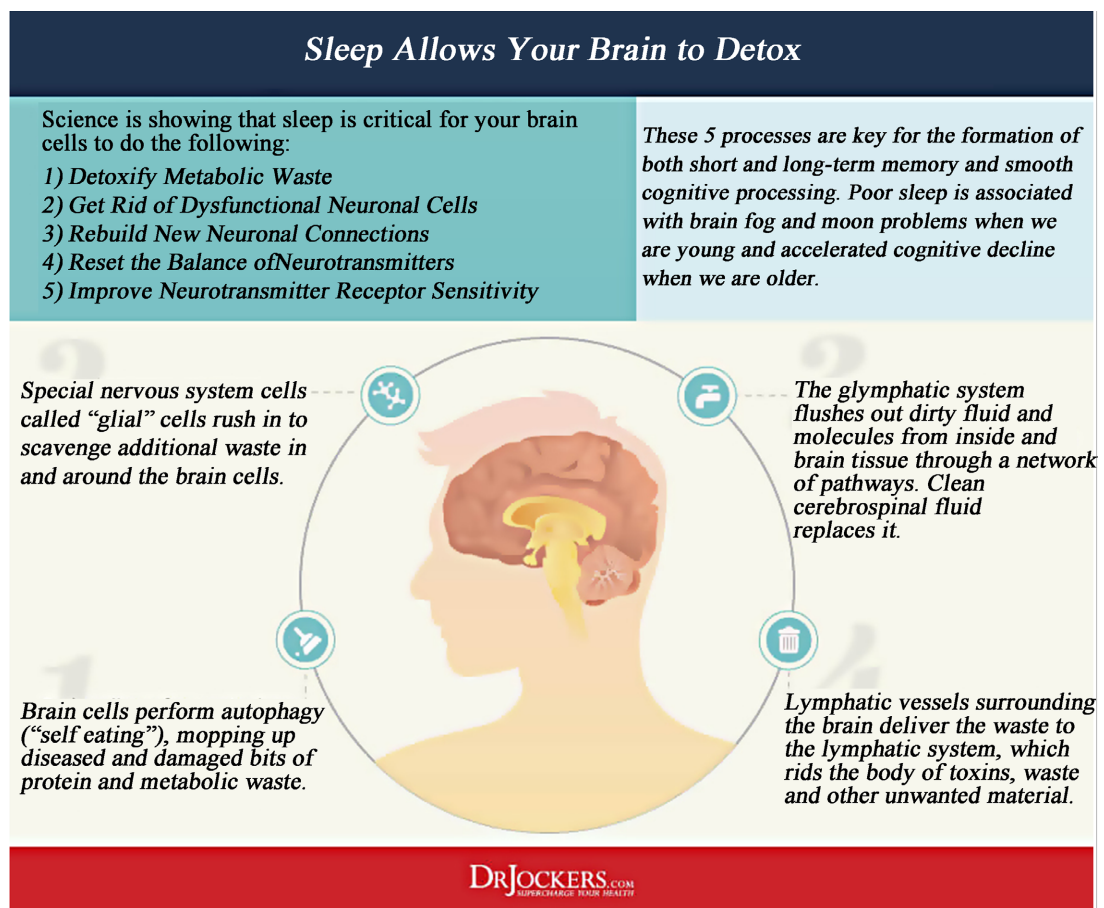
illumination and far distance from the light source.

4) Try to modify the patient **sleep rhythm** as try to make your patient take sufficient and continue sleep as sleeping can clear the brain and help maintain its normal functioning brain detox [16] (see **Figure 4**). The recommended duration for sleep according to national sleep foundation [17] (see **Figure 5**).

Insufficient sleep could irritate the brain and lead to serious health problem and variable brain disorders including anxiety and irritability [18].

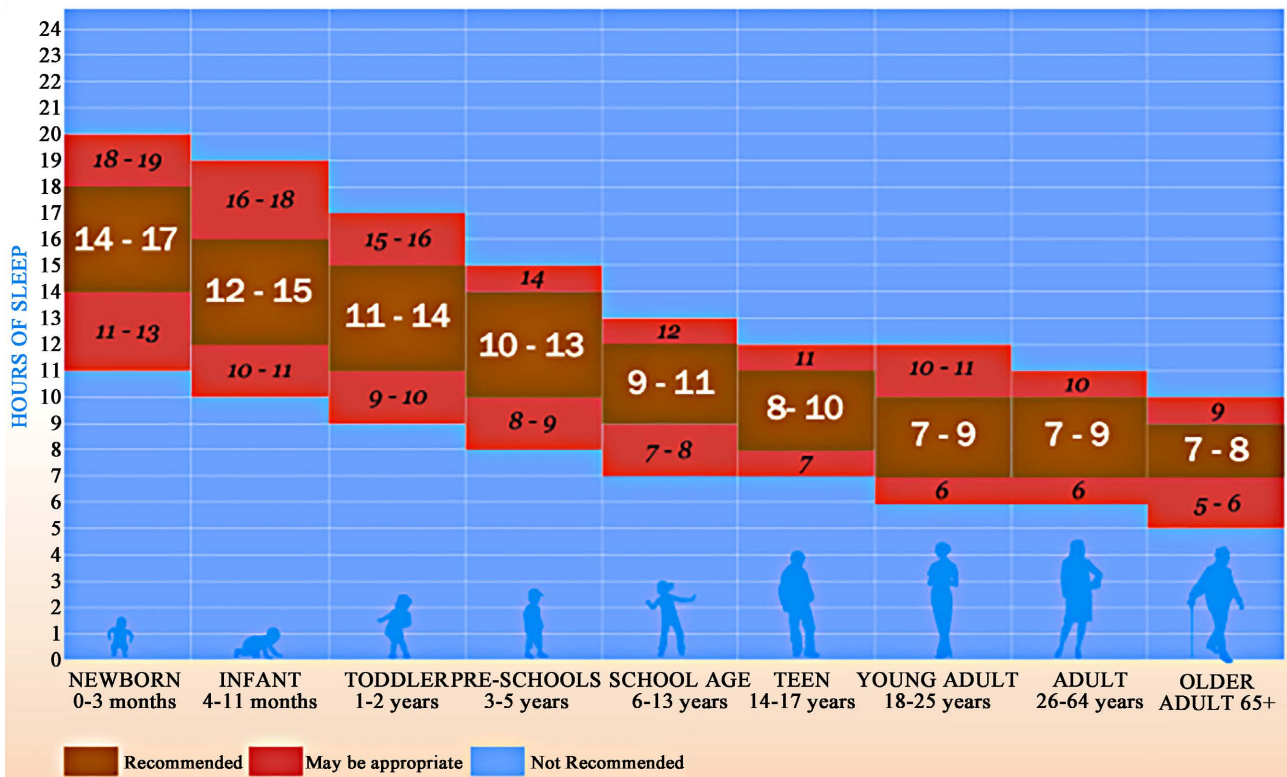
5) Try to modify **contraception** method, estrogen has a highly variable effect; it could be beneficial or detrimental [19] (see **Figure 6**). In migrainous patients especially with aura, the recommended way for contraception is Non-hormonal contraceptive method Or progesterone-only pills Or at least combined (progesterone and a low dose of estrogen). Estrogen pills in migrainous patients increase the risk of stroke, mainly if associated with visual aura [20].

6) Try to modify the **bodyweight** of your patient, especially obese patients. Obesity is not as simple symptoms, but it is a chronic disease. Excessive fat in the body collected to form adipose tissue. Adipose tissue is not only as simple tissue, but it also acts like endocrine gland as it enhances the secretion of offensive and inflammatory adipokines as plasminogen activator inhibitor-1 & interleukine-6 c-reactive protein, while decrease production of protective adipokines as adiponectin [21].

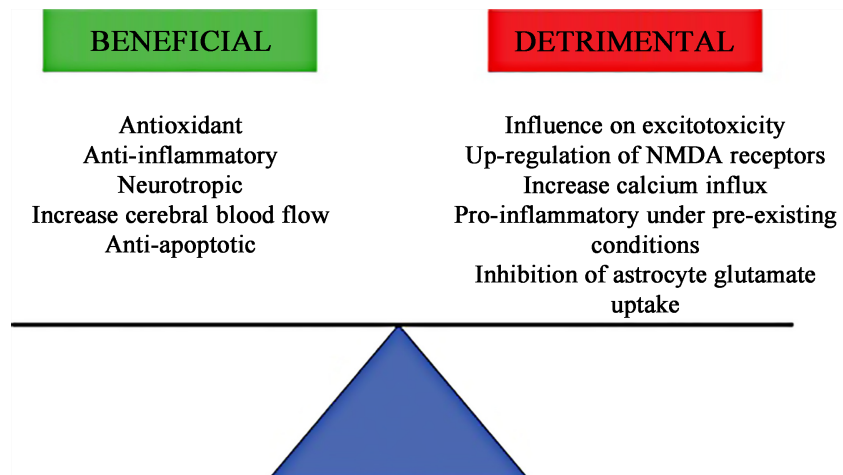


**Figure 4.** Benefit of sleep (quoted from <https://drjockers.com/sleep-benefits/>).

### SLEEP DURATION RECOMMENDATIONS



**Figure 5.** Recommended sleep hours (quoted from <https://jflahiff.wordpress.com/2015/02/03/press-release-expert-panel-recommends-new-sleep-times/>).



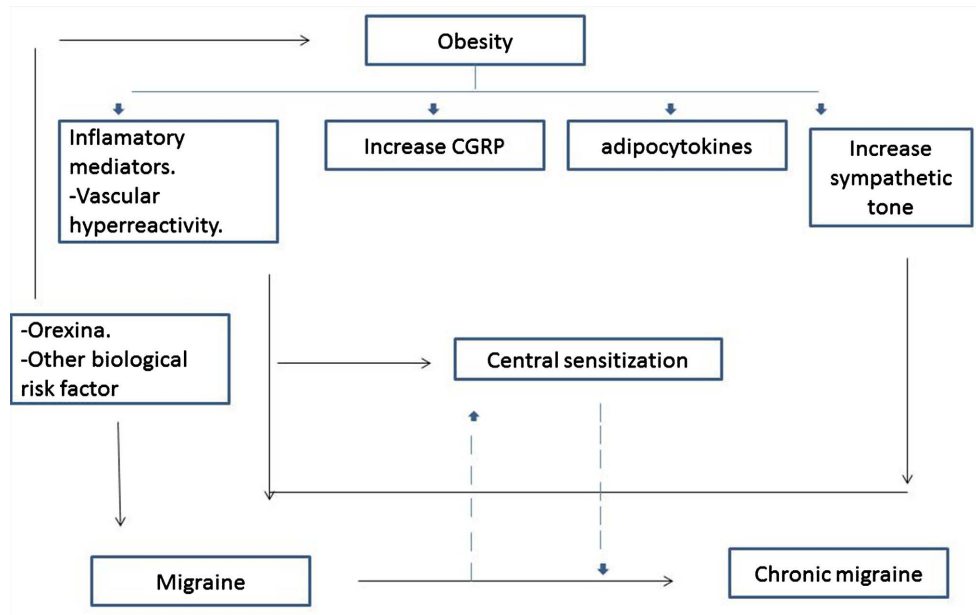
**Figure 6.** Variable effect of estrogen (quoted from <https://portlandpress.com/clinsci/article-abstract/118/6/375/68819/Complexities-of-estrogen-in-stroke?redirectedFrom=fulltext>).

**Obesity** could increase the attacks of migraine and even transform the condition from acute episodic migraine to chronic migraine by different mechanisms such as increased calcitonin-gene-related peptide (CGRP), which is one of the neurotransmitter which triggers the attack of migraine. Obesity also could enhance the transformation of migraine from acute episodic attack to chronic mi-

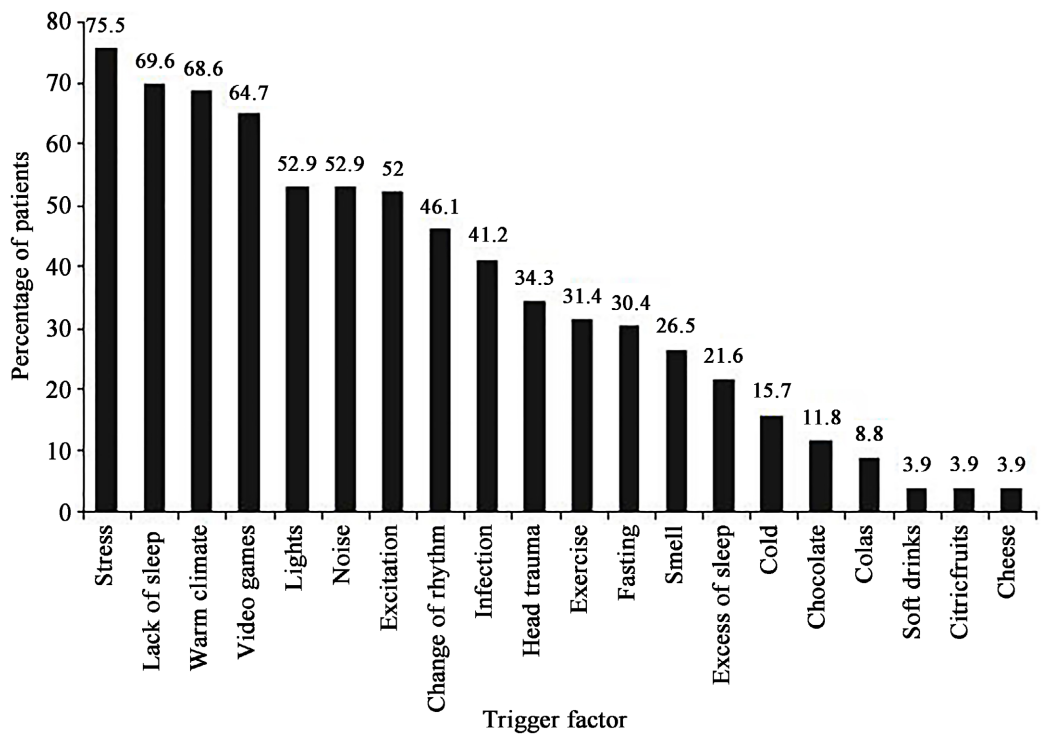
graine [22] (see **Figure 7**).

#### 4. Try to Detect the Trigger Factor for Your Patient

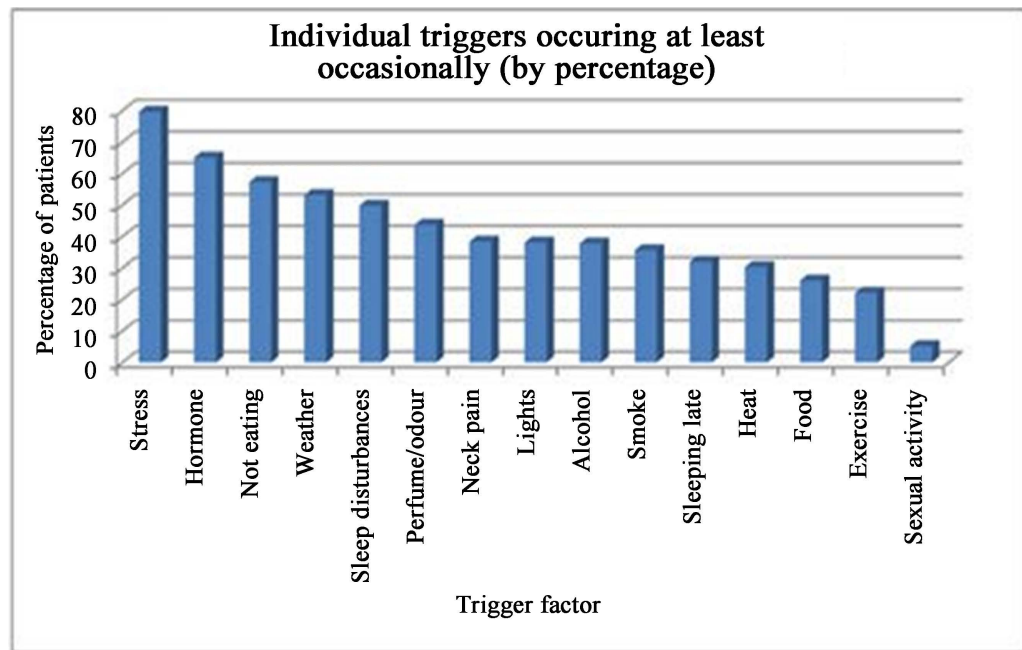
This well helps a lot in prophylaxis from the attack. Trigger factor for children [23] is highly similar to the trigger factor in adults [24] (See **Figure 8** & **Figure 9**).



**Figure 7.** Obesity and migraine (quoted from <https://n.neurology.org/content/68/21/1851/tab-figures-data>).



**Figure 8.** Trigger factor for children [23].



**Figure 9.** Trigger factor for migraine in adults [24].

Even the Internet could be one of the trigger factors as Emel Torun *et al.*, [25] found that the misuse of internet in adolescents with migraine might lead to emotional and psychosocial impairment.

Stress is the most common trigger factor; it represents about (80%) of all trigger factor. If we could relax the migrainous patient, this will help decrease their brain hypersensitivity and this will help a lot.

## 5. Conclusions

Nowadays, complementary and alternative medicines are widely used. Considering the complex pathogenesis of vestibular migraine, various drugs have been used for its treatment. However, these drugs have possible side effects. In patients who suffer from these side effects and are not treated efficiently by prophylactic medications, it might be wise to consider the non-traditional management for migraine prevention. Non-medical approaches for improving symptoms in migraine patients include using nutrient compounds such as Magnesium and CoQ10 and changing the patient's lifestyle, all of which have minimal adverse effects.

These nutrients reduce the frequency and severity of migraine attacks via positive effects on mitochondrial function, reducing inflammatory factors and improving anti-oxidant status. Using effective non-traditional management with prescribed drugs leads to decrease dosage of drugs required for the patient's treatment. So it will reduce the side effects of those drugs and it will change patient life and improve his condition with no side effects. So in summary, this manuscript is reviewing the different none traditional methods used for the management of migraine.



## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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