RAPID RESEARCH

@physicaltherapyresearch

March 2023

Inside This Week:

Vitamin & Mineral Supplements

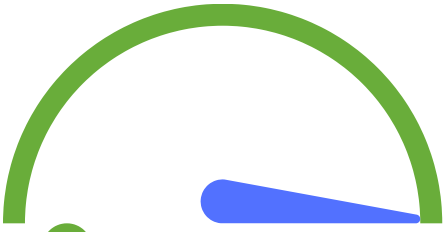
- Vitamin & Mineral Status in Chronic Fatigue & Fibromyalgia
- Vitamin & Minerals To Maintain Cognitive Function
- Vitamin D Supplementation for Low Back Pain

VITAMIN & MINERAL STATUS IN CHRONIC FATIGUE & FIBROMYALGIA

MARCH 2023

Click for Full Text (Joustra et al. 2017)

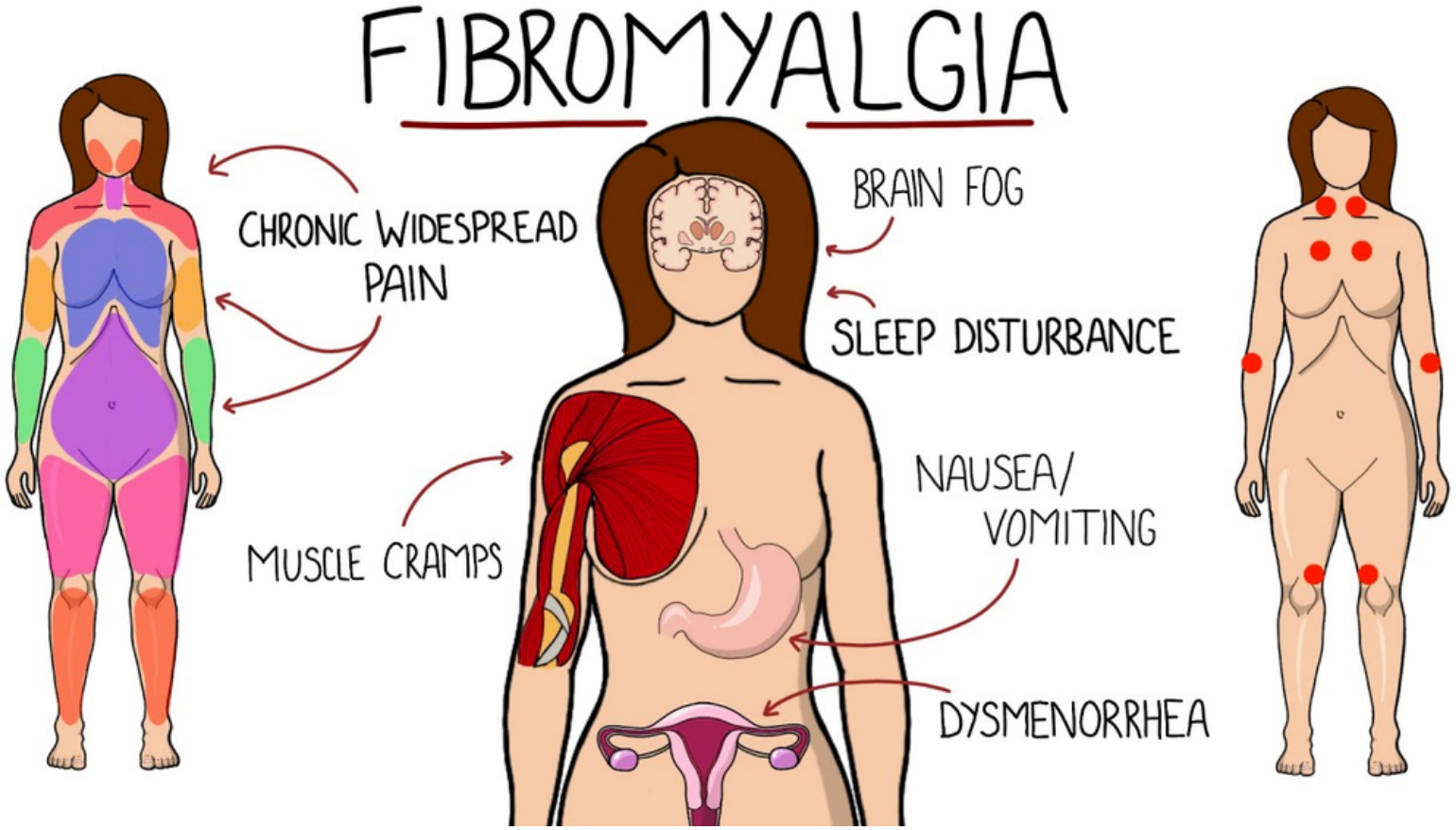
JBI 11/11 [100%]



Quality Check

*see appx

This systematic review determined vitamin and mineral status in CFS and FMS patients as compared to healthy controls and the effect of supplementation on clinical parameters.



KEY FINDINGS

4 RCT's, 40 Observational studies included;

Circulating concentrations of vitamin E were lower in patients compared to controls

However, this difference was not present when restricting the analyses to the subgroup of studies with high quality scores.

Poor study quality and a substantial heterogeneity in most studies was found.

No vitamins or minerals have been repeatedly or consistently linked to clinical parameters.

In addition, RCTs testing supplements containing these vitamins and/or minerals did not result in clinical improvements.

MAIN TAKEAWAYS

there is little evidence to support the hypothesis that vitamin and mineral deficiencies play a role in the pathophysiology of both CFS and FMS.

Current literature on vitamins and minerals in CFS and FMS is of poor quality.

According to tthe results, potential vitamins and minerals that should be further examined include vitamin A and vitamin E.

VITAMIN & MINERALS TO MAINTAIN COGNITIVE FUNCTION

MARCH 2023

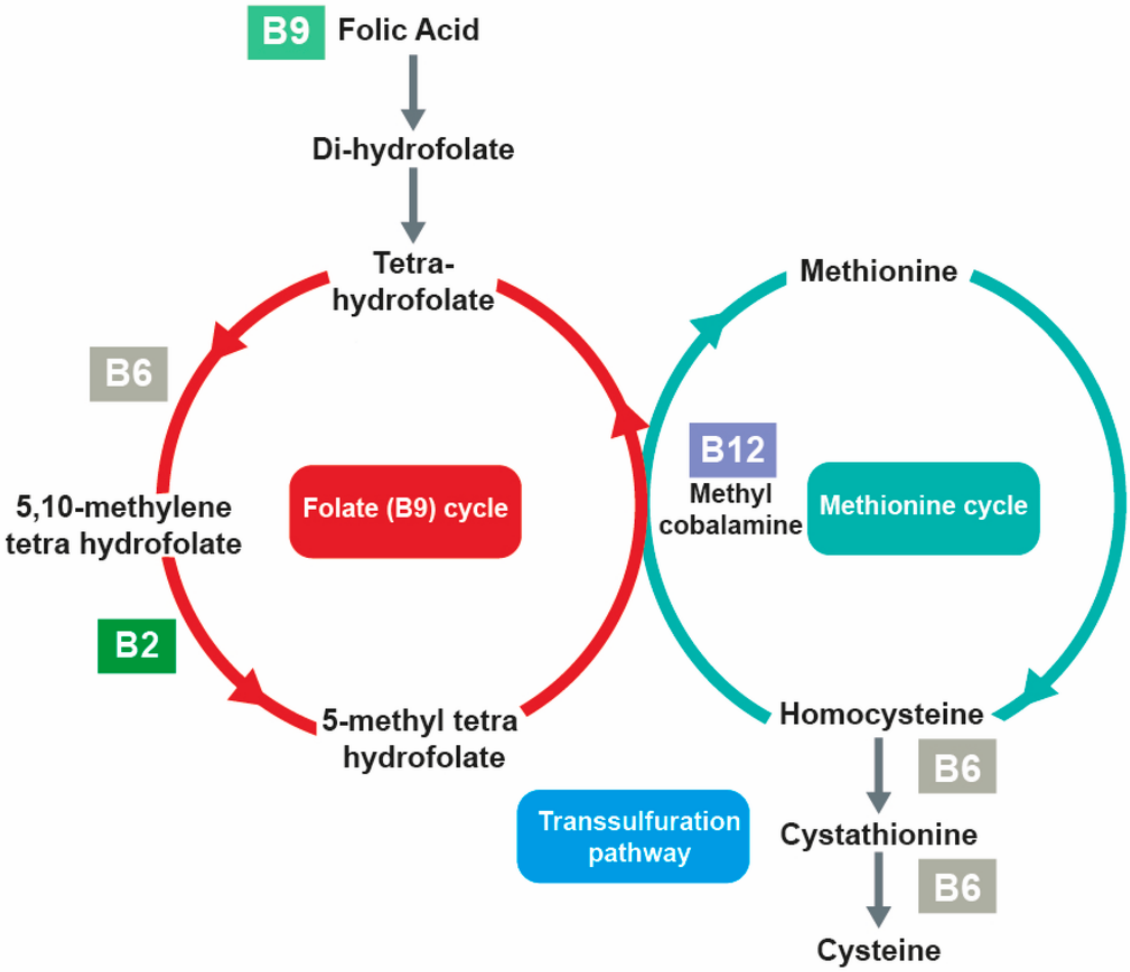
Click for Full Text (Rutjes et al. 2018)

JBI 10/11 [90%]

Quality Check

*see appx

This Cochrane review evaluated the effects of vitamin and mineral supplementation on cognitive function in cognitively healthy people aged 40 years or more.



KEY FINDINGS

28 studies were included; >83,000 participants

Folic acid, Vitamin B12, B6, Combo VS. Placebo (60-80 yrs old):

B vitamins had little or no effect on global cognitive function @ 5-10 yrs

Antioxidant vitamins: ß-carotene, vitamin C or vitamin E.:

Results were mixed For overall cognitive function -

Low certainty benefit of ß-carotene @18 yrs, or Citamin C @5-10 yrs.

No effect of Vitamin E, alone or combined with selenium.

Statistically significant increase in prostate cancer among men taking vitamin E.

Vitamin D3 and Calcium

No effect at any time-point up to 10 years.

Zinc & Copper supplementation:

No effect on overall cognitive function after 5 years to 10 years.

Complex supplements- Combo B vitamins, antioxidant vitamins, and minerals:

Low-certainty evidence of little or no effect at 8.5 years

MAIN TAKEAWAYS

No evidence that any vitamin or mineral supplementation strategy for cognitively healthy adults in mid or late life has a meaningful effect on cognitive decline or dementia.

There were very few data on supplementation starting in midlife (< 60 years); studies designed to assess cognitive outcomes tended to be too short to assess maintenance of cognitive function.

The only positive effect came from studies of long-term supplementation with antioxidant vitamins.

VITAMIN D SUPPLEMENTS FOR LOW BACK PAIN

MARCH 2023

Click for Full Text (Zadro et al. 2018)

JBI 11/11 [100%]

Quality Check

*see appx

This systematic review aimed to determine whether vitamin D supplementation improves pain more than a control intervention for individuals with LBP

KEY FINDINGS

8 articles included
Very low quality evidence overall.

Vitamin D Supplementation Outcomes in Low Back Pain:
Vs Placebo, No treatment, Other conservative/pharmacological Rx
Not effective for continuous pain measures.
Not effective for self-reported reduction in pain.

Meta-analyses Stratified by Type of Vitamin Supplementation:
Not effective for Vitamin D3 vs. Alfacalcidol

Not effective based on type of LBP
(non-specific vs. LBP resulting from osteoporosis or vertebral fractures).

MAIN TAKEAWAYS

Very low quality evidence that vitamin D supplementation is more effective than placebo, no intervention, or other conservative/pharmacological interventions for LBP.

This was true regardless of the type of LBP (non-specific or LBP due to osteoporosis or vertebral fractures) or vitamin D supplementation (vitamin D3 or alfacalcidol).

Until well-designed and adequately powered clinical trials suggest otherwise, the prescription of vitamin D for LBP cannot be recommended.

GIVE US YOUR FEEDBACK!

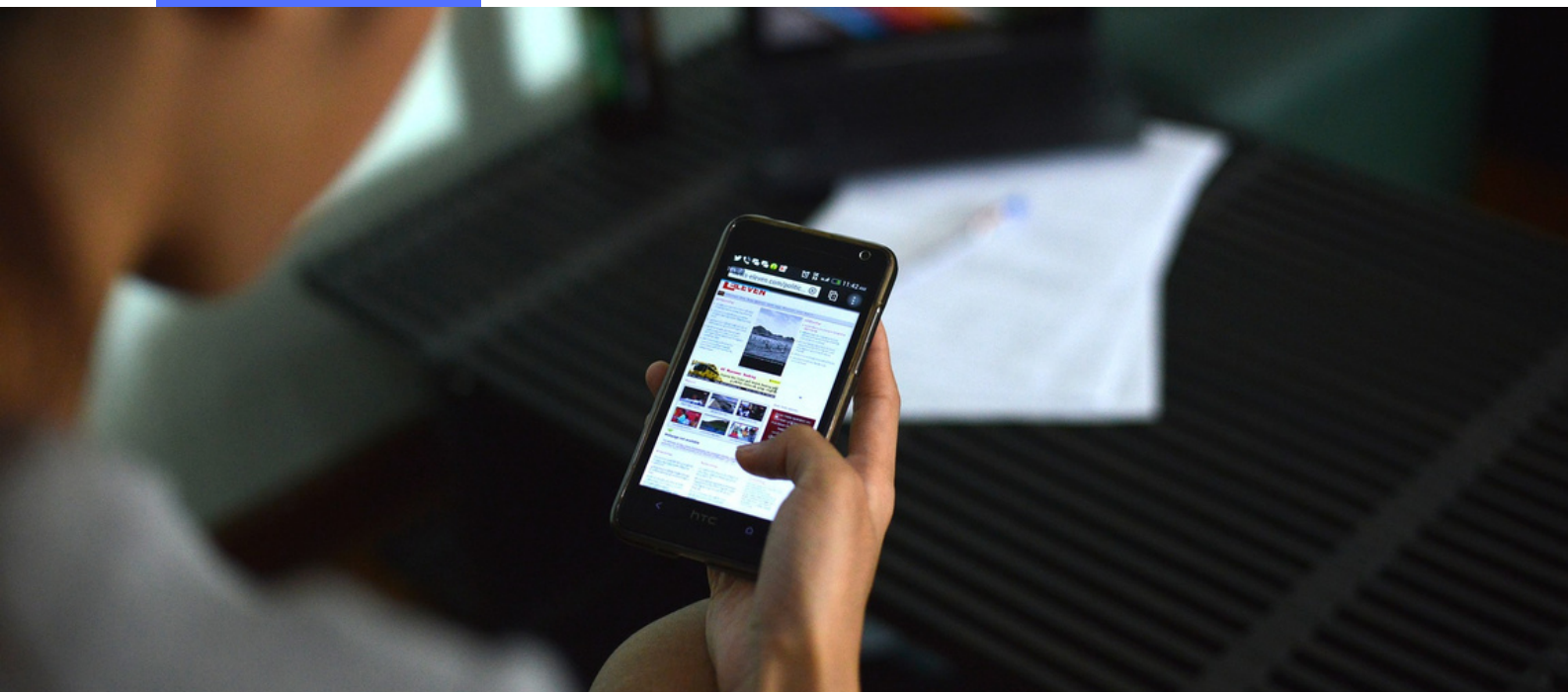
MEMBERS

We are on a mission to make research more accessible, easier to interpret, and quicker to implement.

Help us by giving 1 minute of your time to leave feedback for us.

We would greatly appreciate any feedback you have, as it helps us continually improve!

Leave Review



JBI Critical Appraisal Checklist for systematic reviews and research syntheses

Author: Joustra et al. Year: 2017

		Yes	No	Unclear	Not applicable
1.	Is the review question clearly and explicitly stated?	+	☐	☐	☐
2.	Were the inclusion criteria appropriate for the review question?	+	☐	☐	☐
3.	Was the search strategy appropriate?	+	☐	☐	☐
4.	Were the sources and resources used to search for studies adequate?	+	☐	☐	☐
5.	Were the criteria for appraising studies appropriate?	+	☐	☐	☐
6.	Was critical appraisal conducted by two or more reviewers independently?	+	☐	☐	☐
7.	Were there methods to minimize errors in data extraction?	+	☐	☐	☐
8.	Were the methods used to combine studies appropriate?	+	☐	☐	☐
9.	Was the likelihood of publication bias assessed?	+	☐	☐	☐
10.	Were recommendations for policy and/or practice supported by the reported data?	+	☐	☐	☐
11.	Were the specific directives for new research appropriate?	+	☐	☐	☐

Overall appraisal: 11/11 (100%)

LIMITATIONS:

Most studies were observational in nature, which have a lower validity and they are more susceptible to bias.

Quality assessment revealed a poor study quality in the majority of studies.

The significant outcomes of vitamin E in patients are influenced by publication bias.

JBI Critical Appraisal Checklist for systematic reviews and research syntheses

Author: Rutjes et al. Year: 2018

		Yes	No	Unclear	Not applicable
1.	Is the review question clearly and explicitly stated?	+	☐	☐	☐
2.	Were the inclusion criteria appropriate for the review question?	+	☐	☐	☐
3.	Was the search strategy appropriate?	+	☐	☐	☐
4.	Were the sources and resources used to search for studies adequate?	+	☐	☐	☐
5.	Were the criteria for appraising studies appropriate?	+	☐	☐	☐
6.	Was critical appraisal conducted by two or more reviewers independently?	+	☐	☐	☐
7.	Were there methods to minimize errors in data extraction?	+	☐	☐	☐
8.	Were the methods used to combine studies appropriate?	+	☐	☐	☐
9.	Was the likelihood of publication bias assessed?	☐	X	☐	☐
10.	Were recommendations for policy and/or practice supported by the reported data?	+	☐	☐	☐
11.	Were the specific directives for new research appropriate?	+	☐	☐	☐

Overall appraisal: 10/11 (90%)

LIMITATIONS:

Most participants were enrolled in studies which were not designed primarily to assess cognition.

These studies had no baseline cognitive assessment and used only brief cognitive assessments at follow-up.

Very few studies assessed the incidence of dementia.

JBI Critical Appraisal Checklist for systematic reviews and research syntheses

Author: Zadro et al. Year: 2018

		Yes	No	Unclear	Not applicable
1.	Is the review question clearly and explicitly stated?	+	☐	☐	☐
2.	Were the inclusion criteria appropriate for the review question?	+	☐	☐	☐
3.	Was the search strategy appropriate?	+	☐	☐	☐
4.	Were the sources and resources used to search for studies adequate?	+	☐	☐	☐
5.	Were the criteria for appraising studies appropriate?	+	☐	☐	☐
6.	Was critical appraisal conducted by two or more reviewers independently?	+	☐	☐	☐
7.	Were there methods to minimize errors in data extraction?	+	☐	☐	☐
8.	Were the methods used to combine studies appropriate?	+	☐	☐	☐
9.	Was the likelihood of publication bias assessed?	+	☐	☐	☐
10.	Were recommendations for policy and/or practice supported by the reported data?	+	☐	☐	☐
11.	Were the specific directives for new research appropriate?	+	☐	☐	☐

Overall appraisal: 11/11 (100%)

LIMITATIONS:

Potential for substantial between-study heterogeneity.

Only 2 studies included in this review were conference abstracts, and our main findings were derived from meta-analyses where conference abstracts were excluded