

Natural Therapies to Support Myelin Health



July 8, 2021

Author: Liz Sutherland, ND

Demyelination is a major contributor to the progression and symptom burden in multiple sclerosis (MS). The myelination process is regulated by nerve growth factor (NGF). People with MS who have higher levels of pain and inflammation often have increased NGF. But NGF can also be released in response to tissue injury, so it's unclear whether NGF contributes to or derives from injury and inflammation. Either way, promoting healthy levels of NGF may support remyelination. Below are several natural approaches that may promote remyelination and adaptive levels of NGF in people living with MS.

Lion's mane

Hericium erinaceus is the botanical name for the lion's mane mushroom. Lion's mane has many bioactive compounds that can cross the blood-brain barrier and support neuroregeneration. In animal studies, lion's mane has been shown to facilitate nerve growth and remyelination after brain injury.¹ A small clinical trial in adults with mild cognitive impairment found they had a significant improvement in cognitive function after 16 weeks of lion's mane supplementation.² In another small trial, perimenopausal women had significant reductions in anxiety and depression after four weeks of supplementation.³ It's important to note that the mycelium of lion's mane does not contain active components, so only supplements obtained from the fruiting body or whole mushroom should be used. The whole mushroom can also be cooked and eaten, but do not wild harvest lion's mane without the help of a skilled mycologist.

Quercetin

Quercetin is a powerful antioxidant found in berries, grapes, red wine, and green tea. Animal research suggests it prevents demyelination and supports remyelination after neuronal damage. In animal models of brain injury, quercetin has been shown to increase oligodendrocyte progenitor cells (the cells that produce myelin), and protect oligodendrocytes once they differentiate.^{4,5} In an in vitro study that looked at blood isolated from people with MS, quercetin was found to modulate inflammatory immune cells.⁶

PQQ

Pyrroloquinoline quinone (PQQ) is found in green vegetables and fruits like spinach and green peppers. It's possible to get up to 1mg per day of PQQ through a diet rich in fruit and vegetables, but it can also be taken as a supplement. Animal studies have found that PQQ stimulates NGF in nerve cells; supports nerve growth and repair; improves memory and learning; and limits pro-inflammatory cytokines.^{7,8} A small study found that a single dose of PQQ decreased CRP, a marker of inflammation.⁹ A clinical trial in elderly adults found that 20mg per day of PQQ for 12 weeks increased cognitive function and attention.¹⁰ When used in conjunction with aerobic exercise, PQQ supports mitochondrial biogenesis and cellular energy metabolism.¹¹

Vitamin B₁₂

Cobalamin, or vitamin B₁₂, is required to produce the cofactors necessary for myelin synthesis. Without adequate levels of B₁₂, myelin will be defective. There are no clinical studies on B₁₂ in MS, but it has been shown to improve fatigue in other neurological disorders.¹² Due to its role in myelin production, low cost, and low side effect profile, it is a relatively safe clinical option.

Neuropeptides

Neuropeptide therapy is relatively new in the US, although it's been used in other parts of the world for decades. When injected, certain peptides may act like NGF, promoting neuroregeneration and remyelination. Glatiramer acetate has been approved by the Food and Drug Administration (FDA), and is one of the first treatments used in early-stage MS. Several studies over two years suggest it has almost no serious side effects and can decrease MS symptoms by up to 30%.^{13,14} Other promising peptides include Thymosin beta-4, which increases oligodendrocyte progenitor cells, and BPC-157, which promotes remyelination of neurons following injury.

Exercise

Animal studies suggest that physical exercise may promote remyelination following brain injury. No human studies have been published to date, although a clinical trial in people with MS is currently underway.¹⁵

References

1. <https://doi.org/10.14200/jrm.2017.6.0108>
2. <https://pubmed.ncbi.nlm.nih.gov/18844328/>
3. <https://pubmed.ncbi.nlm.nih.gov/20834180/>
4. <https://pubmed.ncbi.nlm.nih.gov/24480472/>
5. <https://pubmed.ncbi.nlm.nih.gov/24519463/>

6. <https://pubmed.ncbi.nlm.nih.gov/18926575/>
7. <https://pubmed.ncbi.nlm.nih.gov/19926923/>
8. <https://pubmed.ncbi.nlm.nih.gov/22040225/>
9. <https://pubmed.ncbi.nlm.nih.gov/24231099/>
10. <https://pubmed.ncbi.nlm.nih.gov/26782228/>
11. <https://pubmed.ncbi.nlm.nih.gov/31860387/>
12. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4406448/>
13. <https://pubmed.ncbi.nlm.nih.gov/22992072/>
14. <https://pubmed.ncbi.nlm.nih.gov/22992073/>
15. <https://clinicaltrials.gov/ct2/show/NCT04539002>

Categories:Restorative Medicine Digest