

Moringa Seed Extract for Back Relief & Fatigue

A clinically studied ingredient that addresses the common causes of discomfort

Back discomfort & fatigue are more prevalent than you think!

A staggeringly common problem

8 out of 10

American adults are estimated to experience back pain at some point in their life

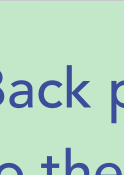
Nearly 65 million

Americans reported a recent episode of back pain

16 million — 8%

American adults experience persistent or chronic back pain, limiting certain everyday activities¹

Respondents report that back pain affects everyday activities²



Daily Tasks



Exercise

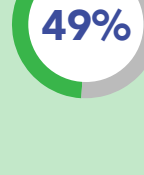


Sleep

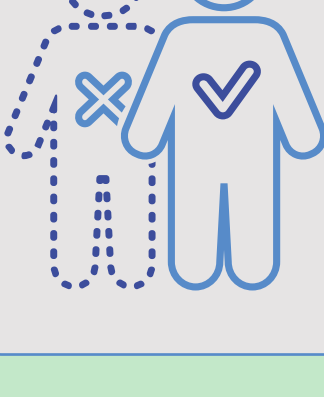
Back pain complaints rise amid lifestyle changes due to the pandemic



experienced chronic back pain pre-Covid-19



experienced back pain since Covid-19³



Extreme fatigue can cause injury affecting productivity

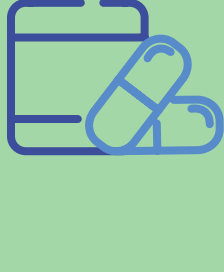
A study in the *Journal of Occupational and Environmental Medicine* found that US businesses lose > \$100 billion per year to fatigue-related absenteeism and reduced productivity.



13% of workplace injuries are due to workplace fatigue

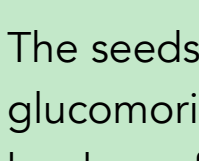
Common solutions for back relief are limited and not sustainable long term

Most common treatments for back discomfort may be potentially harmful, permanently life-altering, expensive or inaccessible.



Dietary supplement back discomfort formulas often include vitamins, minerals and antioxidants that suggest back relief but have not been tested or clinically studied to actually aid back discomfort – until now.

What is MorActive™?



Known as a superfood, moringa has been used both in traditional Indian Ayurvedic medicine and as a source of nutrition.

The seeds have been found to have high levels of glucomoringin – this sulfur-containing compound has been found to possess anti-inflammatory, antioxidant and antibacterial properties.

MorActive™ is a new, patented, water extracted ingredient from the moringa seed.



Why MorActive™ is an Ideal Solution for Back Discomfort & Fatigue

✓ It is a naturally derived, effective option that will appeal to brands and consumers alike.

✓ The Glucomoringin in MorActive™ has been shown to exhibit strong antioxidant and anti-inflammatory properties.

MorActive™ has been shown in a clinical study to be effective in

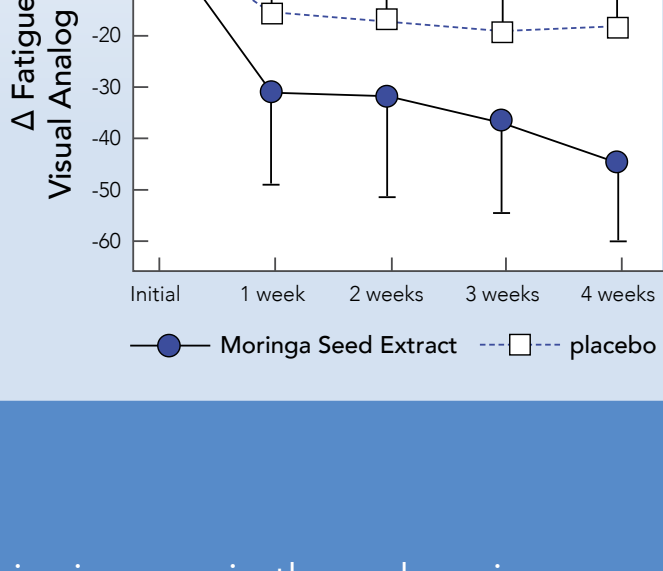
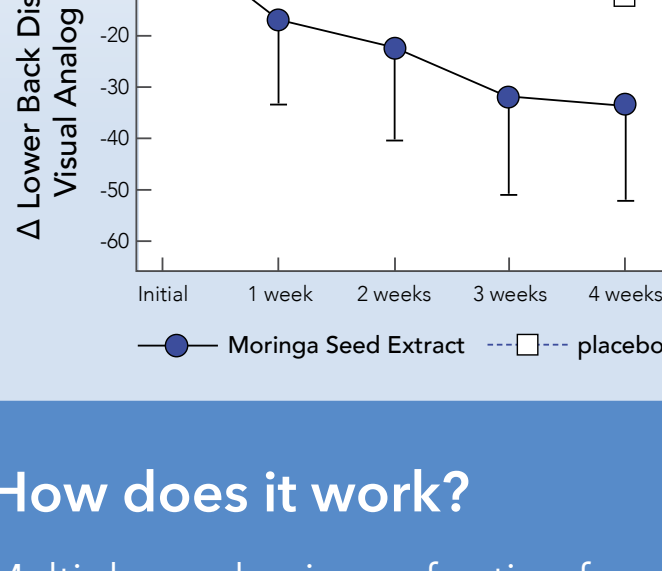
✓ reducing the severity of lower back discomfort and fatigue.⁴

The Proof is in the Science

MorActive™ has been studied in a randomized double-blind placebo-controlled clinical study⁵

Methodology and observations

- ✓ The severity of physical discomfort and fatigue were evaluated by validated scoring scales
- ✓ Significant changes in lower back discomfort scores were observed after 2 weeks
- ✓ Changes in fatigue scores were significant after 4 weeks
- ✓ There was a greater effect in those participants with more severe symptoms



How does it work?

Multiple mechanisms of action for moringin on pain through various biochemical pathways have been proposed by scientists. These include:

- Antioxidant and anti-inflammatory activity that decreases cellular stress impact fatigue and pain.
- Desensitization of the TRPA1 ion channel to reduce pain sensations.
- Activation of PPAR beta/delta nuclear receptor to increase muscle endurance and reduce inflammation.

Moringin is shown to be a very effective and potent agonist of TRPA1 – this ion channel is a known sensor for pain.

Back Discomfort:

- Glucomoringin in MorActive™ is an agonist of the TRPA1 receptor
- MorActive™ activates TRPA1
 - Desensitizes the associated nerves to future stimuli that may come through the receptor
- When pain stimulus reaches the TRPA1 receptor after it is desensitized, the nerves are not as reactive, resulting in lower pain sensation



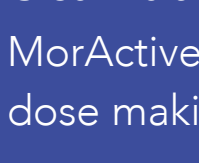
Fatigue:

- Oxidative stress is one of the main factors leading to fatigue
 - Oxidation inhibits normal cell function, generating inflammation, which then leads to fatigue and physical discomfort
- MorActive™ acts as an antioxidant which may help to reduce ROS and contribute to fatigue recovery

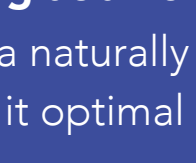


Formulating with MorActive™

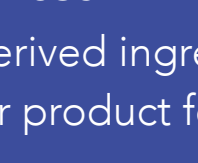
MorActive™ is a fine pale-yellow powder, soluble in water, with little taste. It can be formulated into:



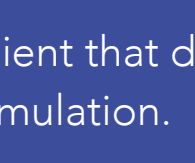
Capsules



Tablets



Powders



Gummies



Foods

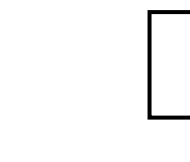


Beverages

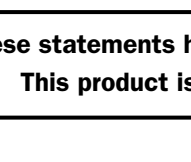
Clean labeling at a Low Dose:

MorActive is a naturally derived ingredient that delivers benefits at a low dose making it optimal for product formulation.

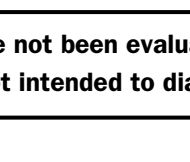
MorActive™ is an excellent option for brands looking to offer new, differentiated products that deliver effective natural solutions for back discomfort and fatigue, helping consumers live the active lifestyle they desire.



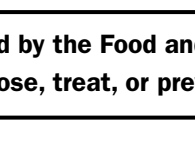
Reduce Back Discomfort



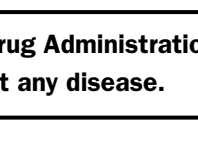
Reduce Fatigue



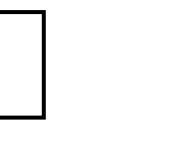
Antioxidant



Gluten free



Non-GMO



Vegan

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, or prevent any disease.

[Learn more about MorActive™](#)

NutriScience
Ingredients Matter.

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MorActive™ is part of an exclusive portfolio of proprietary ingredients and a trademark of NutriScience Innovations LLC. It is an exclusive brand of Taiyo International, Inc.

References

1. Georgetown University Health Policy Institute
2. The American Physical Therapy Association (APTA) Move Forward survey, 2,600 respondents
3. Grech S., Borg J.N., et. al., Back pain: An aftermath of Covid-19 pandemic? A Malta perspective, Musculoskeletal Care: 2021 Jun 6;10.1002/msc.1574. doi: 10.1002/msc.1574. <https://pubmed.ncbi.nlm.nih.gov/34092019/>
4. Shimizu K., Abe A. et. al. "Impact of Moringa Seed Extract on Daily Fatigue and Low Back Pain." Nutrition Division, Taiyo Kagaku Co., Ltd. 1-3 Takaramachi, Yokkaichi, Mie 510-0844, Japan. doi: 2019; 56: 606-613. https://www.shinyo-to-shinyaku.com/db/pdf/sin_0056_08_0606.pdf
5. Ibid.