

Support for Intervertebral Disc Health

Developed and reviewed by the clinical, chiropractic, and naturopathic members of the Standard Process team

Intervertebral Health and Function

Intervertebral discs are fibrocartilaginous structures that allow the spine to be supportive and flexible. They counteract forces that lengthen or compress the spine, or that act on it in a torsional or shear manner. Distributing forces throughout the spine provides individual vertebrae protection from fracture and degeneration. Intervertebral discs also provide for separation between vertebrae to allow spinal nerves to exit the vertebral foramina.

The nucleus pulposus is a gel-like structure that sits at the center of the intervertebral disc. It is made up of water, collagen, and proteoglycans. This accounts for much of the strength and flexibility of the spine.

The annulus fibrosus makes up the outer ring of the disc. It includes layers of well-organized densely packed collagen fibrils.

The cartilaginous endplates are thin layers of hyaline cartilage that anchor the discs to adjacent vertebrae and act as a selectively permeable barrier for the diffusion of nutrients into the intervertebral disc which is mostly avascular.

While it is typical for disc height to decline with age due to repetitive loading and desiccation, degeneration may occur prematurely due to inflammation, muscular imbalances, or compressive forces.

Lifestyle and nutrition can support healthy disc connective tissue, spinal musculature, vascular health, and modulation of the inflammatory response.

Supportive Lifestyle Practices

- Recommend rehabilitative exercises to support improved posture. Extended periods of sitting at desks and in front of computers predispose patients to an anterior head carriage, rounded shoulders, and a flexed lumbar spine. These positions cause an imbalance of pressure on the anterior disc which can lead to nerve dysfunction and degenerative disc changes.¹

- Teach spine-safe lifting techniques to protect disc health. Improper lifting posture without core engagement contributes to muscle imbalance and excessive loading of intervertebral discs which can lead to chronic back pain and disability.²
- Encourage regular gentle movement like walking and spinal stabilization exercises to improve strength, mobility, and neuromuscular control — all of which protect intervertebral health.³

Whole Foods Nutritional Recommendations

- Encourage the consumption of foods rich in manganese such as mussels, oysters, hazelnuts, and brown rice. Manganese supports the healthy formation of cartilage and bone through its role as a cofactor of glycosyltransferase enzymes used to synthesize proteoglycans which comprise much of the extracellular matrix of connective tissue.⁴ Manganese is also a key cofactor of the antioxidant enzyme superoxide dismutase (SOD).
- Educate patients on the benefits of consuming foods rich in omega-3 fatty acids. Resolvins are lipid mediators biosynthesized from omega-3 fatty acids eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA). Resolvins modulate systemic inflammatory processes and support intervertebral disc health.^{5,6} EPA and DHA can be found in the flesh and liver of fatty fish such as salmon, tuna, and cod.
- Encourage patients to consume nitrate-rich vegetables like beetroot, Swiss Chard, mustard greens, and kale. Dietary nitrate has been demonstrated to benefit the vascular system via the nitrate–nitrite–nitric oxide pathway.⁷ Nitric oxide supports vasodilation and blood flow which can aid in the delivery of nutrients and oxygen to the vertebral endplates.

Dietary Supplement Regimen



Glucosamine Synergy®

Suggested Use: **1 capsule 3 times daily**

Glucosamine Synergy combines glucosamine, *Boswellia serrata*, and manganese.

- Maintains healthy connective tissue*
- Supports the body's normal connective tissue repair process*
- Supports joint health*
- Contains many of the same ingredients as Ligaplex® II, with the added benefit of glucosamine and boswellia for relieving discomfort in the affected areas after strenuous exercise*
- Excellent source of manganese



Cod Liver Oil

Suggested Use: **3 softgels per day**

- Contains omega-3 fatty acids EPA and DHA
- Supports the musculoskeletal system*
- Supports bone health*
- Supports healthy inflammatory processes*
- Excellent source of antioxidant vitamin A
- Good source of vitamin D



Gotu Kola Complex

Suggested Use: **1 tablet 3-4 times daily**

Gotu Kola Complex contains Gotu Kola leaf, Grape seed and Ginkgo leaf for healthy skin, capillary and circulation support.* These herbs have been traditionally used in herbal preparations to:

- Promote healthy skin*
- Promote healthy blood circulation*
- Support healthy capillaries*
- Provide antioxidant activity*



C Synergy™

Suggested Use: **1 tablet per meal**

C Synergy™, is a supplement to support collagen production and contains antioxidant vitamin C to support healthy connective tissue.*

- Provides whole food acerola and rose hips
- Excellent source of antioxidant vitamin C, which is involved in the production of collagen*

Assessment of Intervertebral Disc Health

In Office/Physical Exam

- Orthopedic tests: Valsalva Maneuver, Straight Leg Raise, Slump test, Maximal Cervical Compression
- Postural and biomechanical assessment
- Medical History: movement habits, inflammatory conditions
- Omega-3 Index Plus Test
- Imaging: MRI

REFERENCES

1. Du, S. et al. (2023) EFORT open review vol. 8, 9 708-718.
2. Washmuth, N. et al. (2022) International journal of sports physical therapy vol. 17, 1 104-110
3. Suh, J. et al. (2019) Med vol. 98, 26 e16173.
4. R. M. Leach. (1986) (Manganese in Metabolism and Enzyme Function, B. L. Schramm and F. W. Welder, eds, pp. 81-91 (1986).
5. NaPier, Z. et al. (2019) Med Sci Monit, 25:9531-9537.
6. Serhan, C. N., et al. (2008). Nature reviews. Immunology, 8(5), 349-361.
7. Lidder, S., & Webb, A. J. (2013). British journal of clinical pharmacology, 75(3), 677-696.