



JOINT MOBILITY FACTORS™

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THE JOINTS

The joints of the body, medically known as the articulation system, are responsible for nearly all our mobile functions -- our movement -- and with its proper function, we achieve agility in the body. Joints are parts of the body where connective tissues bind together the bones of the skeleton. They are classified by the type of tissue structure used and the type of functions each joint performs. Structurally, joints are classified as fibrous, cartilaginous, or synovial. Each type of tissue works with nerves and muscles to move and hold the body together.

The structure and the size of the joint cavity define the type of movement each joint is capable of performing. These types of movement are classified as *synarthroses* (immovable), *amphiarthroses* (partially movable), and *diarthroses* (freely movable). An example of a synarthroses joint is the suture, a layer of thick fibrous tissue which unites the bones of the skull. Parts of the body containing amphiarthroses joints are the connecting joints of the vertebrae and the anterior surfaces of the hipbones. Diarthroses joints are the most common and are found in many parts of the body, including the elbow, knee, or the wrist. The connecting bones of the diarthroses joint move freely by use of synovial fluid, a lubricant in the joint cavity.

FUNCTION OF THE JOINTS

Agility is a word seldom used in areas of health, but it is vital to a healthy life. Without the agility of mind and movement, you would find life a difficult experience. The most agile people appear to be athletes because they exercise almost every day. They are constantly moving the muscles and joints of their bodies. Every movement each of us makes helps to keep us agile.

It is through movement that the body keeps itself healthy, and producing agility requires the efforts of many systems in the body. To accomplish this state of agility, the

body needs frequent exercise and a proper diet. This can be accomplished by eating lots of fresh foods, such as fruits and vegetables. The more adequate amounts of nutrients you give your body, the better fed the cells will be.

The system which assures agility is quite interesting. Neurotransmitters carry brain impulses to the area being moved, causing the movement of the joints utilizing muscular action. The movement causes circulation of the blood system, which increases cardiovascular activity and feeds the cells of the body. As the cells are nourished, they are able to work properly to help keep the body agile and remain in homeostasis.

HOMEOSTASIS AND JOINT FUNCTION

Homeostasis (*homeo*=same; *stasis*=standing still) is defined as balance and harmony within the body. It is the condition created when each cell in the body functions in an internal environment which remains within certain physiological limits. Homeostasis is achieved when: (1) the body has the proper amounts of gases, nutrients, ions, and water; (2) maintains the optimal internal temperature and; (3) has an optimal volume for the health of the cells. When homeostasis is disturbed, health may be affected.¹

NUTRITIONAL SUPPORT

In the complex business of moving the body, nutrients in the body are essential for the continual growth of cells and tissues which participate in the process of movement. In the event of less than optimal nutritional levels, homeostasis of the body can be disrupted. Some of the nutrients necessary for the proper functioning of the joints include:

GLUCOSAMINE SULFATE is an amino sugar necessary for the construction of connective tissue. Glucosamine Sulfate

plays a role in the formation of tendons, synovial fluid, bones, and ligaments. It is created in the formation of proteins associated with cell adhesion, growth and structure. GS is one of the building blocks of protoglycans, the ground substance of articular cartilage.

VITAMIN D is an essential element in the functioning of joints because it participates in healthy bone formation at any age. It also serves as an agent for normal mineralization of bone and cartilage.

VITAMIN B-6 is necessary for the metabolism of fats, carbohydrates, and proteins. It is also important because it aids in nerve and muscle growth.

NIACINAMIDE, a derivative of the vitamin niacin and part of the B Complex group, is essential for the proper functioning of the nervous system which aids in the process of mobility. The vitamin is also important in nourishing cells with more nutrient-rich blood and allows for the removal of waste bi-products in the blood. **MICHAEL'S®** uses the -amide form of niacin for a softer reaction in digestion.

POTASSIUM helps control the fluid volume in cells. It is important to maintain proper amounts of fluids within the cells, as well as without. When potassium ions move in or out of the cell, they are replaced by hydrogen cells which regulate the pH of the body.²

MAGNESIUM is the body's fourth most abundant mineral and, as an electrolyte, is important in neuromuscular activity, neurotransmission within the central nervous, and myocardial functioning.³

L-HISTIDINE, an essential amino acid in the body, is crucial for proper joint function because it produces histamine. This neurotransmitter serves as an agent of permeability in blood capillaries, which allows for proper feeding of the joint's connective tissue.

HOW TO OBTAIN NUTRITIONAL SUPPORT

MICHAEL'S® NATUROPATHIC PROGRAMS offers targeted formulations which provide nutrients essential for the proper homeostasis of each system, function, and structure in the human body. MICHAEL'S® JOINT MOBILITY FACTORS™ contain the above vitamins and minerals, complemented with the herbs alfalfa and yucca, each known for their healthful attributes. MICHAEL'S® JOINT MOBILITY FACTORS™ PLUS GLUCOSAMINE contains all the above mentioned vitamins and minerals, but also includes Glucosamine Sulfate. These products contain FACTORS essential for the functioning of the joints.


About MICHAEL'S® Products

Seasoned health food shoppers already know that a combination of nutrients is always more effective than taking single nutrients one at a time. Add in the cost savings of taking combinations, with herbs included, and the math proves to be more efficient, too. Combinations increase assimilation and reduce the amount of binders and fillers. That's why MICHAEL'S® created the FACTORS OF LIFE® programs. Your life is busy enough as it is. Why worry when synergistically complete nutrition is conveniently at hand? Above all else, all MICHAEL'S® NATUROPATHIC PROGRAMS are designed to produce physical results you can feel, due to the innovative nutritional supplementation with specific, targeted FACTORS OF LIFE® programs. As always, the newest developments, the finest ingredients and the most effective formulations for your total healthcare from MICHAEL'S® NATUROPATHIC PROGRAMS.

Sources Cited:

- ^{1,2,3,4} Tortora, Gerald J. and Grabowski, Sandra R., *Principles of Anatomy and Physiology, 7th ed.* New York: HarperCollins College Publishers, 1993. pp. 9, 108, 910, 911.
- ⁵ Baltimore, D., Darnell, J., et. al., *Molecular Cell Biology*, Scientific American Books, Inc., 1986. (p. 97).
- ⁶ Stryer, Lubert, *Biochemistry*, New York: W.H. Freeman and Company, 1981. (p. 200).





Joint Mobility Factors™


Supplement Facts
Serving Size: One (1) Tablet

Amount Per Serving		% Daily Value
Vitamin D (as Calciferol)	333 IU	250%
Niacinamide (as Nicotinamide)	100 mg	1500%
Vitamin B-6 (as Pyridoxine)	33 mg	5000%
Pantothenic Acid (as calcium pantothenate)	100 mg	3000%
Magnesium (as Magnesium Amino Acid Chelate)	100 mg	75%
Potassium (as Potassium Amino Acid Complex)	96 mg	8%
Alfalfa Leaf (Medicago sativa)	333 mg	*
Hydrangea Root (Hydrangea arborescens)	100 mg	*
Yucca Root (Yucca liliaceae)	100 mg	*
Bromelain (from Pineapple)	67 mg	*
Phenylalanine (as DL-phenylalanine)	33 mg	*
Histidine (as L-Histidine)	33 mg	*
Devil's Claw Root (Harpagophytum procumbens)	33 mg	*
Uva Ursi Leaf (Arctostaphylos uva ursi)	17 mg	*
Celery Seed (Apium graveolens)	17 mg	*
Corn Silk (Zea mays)	17 mg	*
Fennel Seed (Foeniculum vulgare)	17 mg	*
White Willow Bark (Salix alba)	17 mg	*
MSM (Methylsulfonylmethane)	11 mg	*

*Daily Value not established.

CAUTION: Contains phenylalanine and should be avoided by phenylketonurics and women who are pregnant or lactating.

OTHER INGREDIENTS: Terra Alba (Calcium Sulfate), Dicalcium Phosphate, Magnesium Stearate and Stearic Acid.



Joint Mobility Factors™ Plus Glucosamine

Supplement Facts
Serving Size: One (1) Tablet

Amount Per Serving		% Daily Value
Vitamin D (as Calciferol)	333 IU	83%
Niacinamide (as Nicotinamide)	100 mg	500%
Vitamin B-6 (as Pyridoxine)	33 mg	1667%
Pantothenic Acid (as Calcium Pantothenate)	100 mg	1000%
Magnesium (as Magnesium Amino Acid Chelate)	100 mg	25%
Potassium (as Potassium Amino Acid Complex)	96 mg	2.7%
Alfalfa Leaf (Medicago sativa)	333 mg	*
Yucca Root (Yucca liliaceae)	100 mg	*
Bromelain (from Pineapple)	67 mg	*
Boswellia Extract (Resin)(Boswellia serrata)	42 mg	*
Turmeric Extract (Rhizome)(Curcuma longa)	42 mg	*
Devil's Claw Root (Harpagophytum procumbens)	33 mg	*
Phenylalanine (as DL-Phenylalanine)	33 mg	*
Glucosamine Sulfate	33 mg	*
Histidine (as L-Histidine)	33 mg	*
Celery Seed (Apium graveolens)	17 mg	*
Corn Silk (Zea Mays)	17 mg	*
Fennel Seed (Foeniculum vulgare)	17 mg	*
Hydrangea Root (Hydrangea arborescens)	17 mg	*
Uva Ursi Leaf (Arctostaphylos uva ursi)	17 mg	*
White Willow Bark (Salix alba)	17 mg	*

*Daily Value not established.

CAUTION: Contains phenylalanine and should be avoided by phenylketonurics and women who are pregnant or lactating.

OTHER INGREDIENTS: Dicalcium Phosphate, Microcrystalline Cellulose, Stearic Acid, Croscarmellose Sodium, Magnesium Stearate and Silica.