

Collected Notes, Summaries, Resources, & References for a Natural Approach for Arthritis

[Edited by Chris Pringer, 1/7/16]

Set 1

Section Headers

- Keywords
- Notes from the book 'Eat To Win' by Robert Haas, on Arthritis, serum iron, free radicals, antioxidants
- Joint Health Regimen (Herbal Supplements, antioxidants)
- [see] See Arthritis, Set 2), Summary for Joint Health Regimen 1a (Dietary)
<[http://www.chalicebridge.com/Files/ArthritisNotes&-Set2-\[cp2015\].pdf](http://www.chalicebridge.com/Files/ArthritisNotes&-Set2-[cp2015].pdf)>
- And <<http://www.chalicebridge.com/Files/Arthritis-NaturalApproach-DrsBalch.pdf>>
- [see] See Arthritis, Set 3), A Summary for Natural Anti-Inflammatories
<[http://www.chalicebridge.com/Files/ArthritisNotes&-Set3-\[cp2015\].pdf](http://www.chalicebridge.com/Files/ArthritisNotes&-Set3-[cp2015].pdf)>
- (Just the basic list included at <<http://www.chalicebridge.com/Sci-HealthFul-Lvg.html>>)
- Joint Health Regimen 2 (Vitamins & Minerals)
- Proteolytic Enzymes
- Androgens influence ...matrix proteins and proteolytic factors ...healing
- Tendinosis ('O'sis means Insufficient blood flow in tendons)- Injury, Collagen, Future Treatments
- [see] See Arthritis, Set 4, Alternative Treatments
<[http://www.chalicebridge.com/Files/ArthritisNotes&-Set4-\[cp2015\].pdf](http://www.chalicebridge.com/Files/ArthritisNotes&-Set4-[cp2015].pdf)>

Some Keywords: Arthritis, Natural Approach, Protein, Digestion, Uric Acid, Kidney Health, Elimination, Cell Toxins, Anti-Inflammatories, Apple Cider Vinegar, Joint Health Regimen, Herbs, Vitamins, Proteolytic Enzymes, antioxidants, Collagen, Osteoarthritis, Inversion Therapy, Androgens, matrix proteins, proteolytic factors, Ankylosing Spondylitis, Oriental Medicine, TCM, Qigong, Yoga, Injury, Tendinosis, Collagen Treatments, Growth Factors [ed. 1/6/16]

Collected Notes for a Natural Approach for Arthritis

INTRODUCTION

Including Protein Digestion (as relates to Uric Acid and Kidney Health, Elimination, Cell Toxins, Anti-Inflammatories (incl. Vitamin C & Apple Cider Vinegar), antioxidants. Assembled from various sources as noted, by Chris Pringer. Includes some internet addresses for reference, but are there in case you get so healthy & energized that you want to explore ... AND in case you might like your doctor to check these things out some day. [~cp]

[===]===[Excerpt from ARTHRTIS.LOG, Question on back/arthritis pain]

[Question:]

Gentleman is supposedly losing quantity of disks. Has been told that cartilage in the form of gelatin will help. He is tired of the pain. Has had chiropractic help before.... no offense to anyone but he seems to think they just want his \$ and never seem to help what is wrong. Would really appreciate any help anyone has to offer.

[Response:]

Taken from the book 'Eat To Win' by Robert Haas [on Arthritis, serum iron, free radicals, antioxidants:

Since there are over a hundred forms of arthritis caused by many factors, some of which remain unknown, we have no cure for this painful and crippling disease.

Free radicals contribute to the pain, swelling and joint injury of arthritis. Serum iron accumulates in the membranes and fluids surrounding affected joints and interacts with oxygen to form free-radicals called superoxide anion radicals. These, in turn, damage red blood cells, causing them to leak their contents into the inflamed area, which then produces the most damaging of all the free-radicals known-- hydroxyl radicals - that destroy DNA and break down the protective fluid that normally lubricates joints. The less fluid, the more stiffness and pain. The free-radicals also interact with unsaturated fats in the body, producing even more free-radicals and more injury.

During this process, lysozomes (little sacs that contain powerful protein-dissolving enzymes) are destroyed, leaking their enzymes into the damaged area, which further increases the damage to joint membranes. Most physicians who specialize in the study and treatment of arthritis and related diseases will tell you that diet has little to do with causing arthritis or relieving its pain and stiffness.

High fat, high cholesterol diets that are low in natural antioxidants such as vitamin E, beta carotene, vitamin C, and antioxidant metals such as selenium and zinc contribute to the damage done by oxygen and other unavoidable free radical stimulants.

Rely on antioxidants to prevent excessive production of harmful free radicals. Antioxidants can reduce the damage from most traumatic injuries and minimize free radical destruction of joint tissues.

[Full log in Arthritis Set 4 ..."Alternative Modalities of Approach"]

[===]===[Joint Health Regimen 1, Herbal Supplements]

[See "Joint Health Regimen 1a" for many dietary considerations]

Joint Health Regimen

[Excerpt:] Because of its ability to reduce inflammation, turmeric may help relieve the symptoms of osteoarthritis. A study of people using an Ayurvedic formula of herbs and minerals containing turmeric as well as *Withania somnifera* (winter cherry), *Boswellia serrata* (*Boswellia*), and zinc significantly reduced pain and disability. While encouraging for the value of this Ayurvedic combination therapy to help with osteoarthritis, it is difficult to know how much of this success is

from turmeric alone, one of the other individual herbs, or the combination of herbs working in tandem. [Ref.Source:] If You Have Arthritis or Bone Spurs You May Want To Read This Page, http://www.energycenter.com/grav_f/arthritis_book.html

[] **BIRCH** (Essential Oil) may give relief from bone, joint and muscle pain associated with arthritis and injury. (taken from the medical research of Daniel Penoel, M.D. of Paris, France.) [E:\Datafile 2\Resources\Ess-oil-rec.htm]

[] **polyphenols**: "compounds that suppress the expression of a key gene involved in arthritis. Tea leaves are rich in polyphenols; ref: "5 Little-Know Ways to Reduce Arthritis Pain..." in BottomLine/Personal, Winter 2016 [n.1/6/16]

[] **Grape skins** contain **resveratrol**, a Cox-2 inhibitor [see further below]; ref: "5 Little-Know Ways to Reduce Arthritis Pain..." in BottomLine/Personal, Winter 2016 [n.1/6/16]

[] **Cat's Claw, polyphenols, and more** ...concentrated extracts of Cat's Claw, herbal practitioners around the world have treated a variety of conditions including arthritis, AIDS, allergies, dermatological problems, a wide range of digestive disorders including ulcers, colitis, irritable bowel syndrome, Crohns disease and conditions involving chronic inflammation, all with amazing results. ...The therapeutic benefits seen in most studies and reported by patients who use Cat's Claw have been attributed to a series of alkaloids called oxindole alkaloids. These alkaloids include isopteropodine and rhynchophylline. They are credited for the unspecified stimulation of the immune system including pronounced enhancement of phagocytosis. Cat's Claw boosts the bodies ability to fight infectious bacteria. Besides these alkaloids other researchers have isolated several polyphenols and triterpenes and the plant steroids beta sitosterol and stigmasterol and campasterol.

"...[Next Pharmaceuticals]... offers two products for joint health - Nexrutine and Citrofen. N. is a proprietary blend of actives from the bark of Phellodendron amurense. The product acts to indirectly inhibit the COX-2 enzyme and works to alleviate joint discomfort associated with exercise and over-exertion... Citrofen is a blend of patented polymethoxylated flavones and berberine. ...supports joint health by inhibiting the TNF-alpha, a pro-inflammatory cytokine, thereby helping to alleviate the joint discomfort associated with osteoarthritis..."

[Free Radicals, Antioxidants, Proanthocyanidins, Grape Seed Extract & Pine Bark]

Free radicals are extremely unstable and highly destructive oxygen molecules. Free radicals attack, damage and ultimately destroy almost any material. The rusting of metal, the browning of a fresh cut apple, or the hardening of paint are all examples of the constant bombardment of free radicals and the resulting damage they cause.

Antioxidants defend us against and help us destroy dangerous free radicals. Proanthocyanadin, the active ingredient of grape seed extract has been proven to be 20 times more potent than Vitamin C and 50 times more potent than Vitamin E as an anti-oxidant!

Proanthocyanidins [are a] class of bioflavanoids that are composed of polyphenols, or Proanthocyanidin complexes, also referred to as Oligomeric Proanthocyanidin Complexes (OPCs), are virtually identical whether they come from pine bark, grape seeds, lemon tree bark, cranberries, or hazel nut tree leaves. The difference is in the varying concentration in the different plants. Grape Seed Extract Proanthocyanidin yields a 95 % concentration, the highest concentration of any known source, which is 10% higher than the yield obtained from pine bark.

...intensive analytical, toxicological, pharmacological and clinical studies have been performed with OPC from grape pips to obtain authorization to market the extract as a medicine... [Including research] on specific affinity for collagen and the duration of its fixation to living tissue, capabilities to prevent oxidation of LDL Cholesterol or oxidative damage from UVB radiation... impressively demonstrated the inhibition of histamine induced hives by oral administration of Endotelon, a 95% Proanthocyanidin Grape Seed Extract ...doctors who are recommending it to their patients will tell you that they get the best results when they recommend a dose of 20 mg per every 20 lbs of body weight, or approximately 150 - 200 mg per day.

[~Clark Hansen, N.D.]

[See "Joint Health Regimen 1a" for many dietary considerations]

[===]===[Joint Health Regimen 2]

[Ref.Source:] Selected from General Wellness Regimen via
<http://www.vitaminherbuniversity.com/wellnessWheel.asp>

[Excerpt:]

* Methylsulfonylmethane 750 mg/day - MSM is a dietary source of sulfur that helps maintain the elasticity and flexibility of the connective tissue surrounding joints.

* Glucosamine 1500 mg/day - Glucosamine stimulates the formation of cartilage, which promotes joint comfort and flexibility.

* Chondroitin 800 mg/day - Chondroitin assists in maintaining water content in cartilage, making it more resilient and flexible.

* Vitamin D 1000 IU/day - Vitamin D exerts natural anti-inflammatory activity, which may help reduce joint discomfort.

* Vitamin E 200-400 IU/day - Antioxidants that include vitamins C and E, selenium and other antioxidants, help the body to maintain cartilage health by combating free radicals that may cause damage to joint tissues.

* Vitamin C 500 mg/day - Antioxidants that include vitamins C and E, selenium and other antioxidants, help the body to maintain cartilage health by combating free radicals that may cause damage to joint tissues.

* Selenium 50-200 mcg/day - Antioxidants that include vitamins C and E, selenium and other antioxidants, help the body to maintain cartilage health by combating free radicals that may cause damage to joint tissues.

* Vitamin C 500 mg/day - Antioxidants that include vitamins C and E, help the body to maintain cartilage health by combating free radicals that may cause damage to joint tissues.

* S-adenosyl-L-methionine 200 mg/3x day - For joint health, SAM-e stimulates the synthesis of proteoglycans, which are necessary for the growth and repair of cartilage and to maintain joint comfort.

* Fish Oil 500 mg EPA/DHA per day - Fish oil provides omega-3 fatty acids, EPA and DHA, that provide protective effects to promote joint health.

* Glucosamine is well known as supplement to support healthy joint function partially because of a recent best seller book written by Jason Theodosakis, M.D. entitled "The Arthritis Cure". In his book Dr. Theodosakis goes to great length to explain the importance of maintaining healthy cartilage in our joints and how painful symptoms can result if it is not maintained. He discusses how cartilage is normally present at the ends of the bones in our joints and that it acts as a "cushion" helping us stay comfortable when we walk, move our arms, fingers etc. It also acts like a sponge holding fluid ensuring softness and joint lubrication. All this results in healthy joint function and mobility.

[===][Science and Research Supporting Benefits of Minerals]

Boron

Abstract: Since 1963, evidence has accumulated that suggests boron is a safe and effective treatment for some forms of arthritis. The initial evidence was that boron supplementation alleviated arthritic pain and discomfort of the author. This was followed by findings from numerous other observations epidemiologic and controlled animal and human experiments. These findings included a) analytical evidence of lower boron concentrations in femur heads, bones, and synovial fluid from people with arthritis than from those without this disorder; ...data indicate that boron is an essential nutrient for healthy bones and joints, and that further research into the use of boron for the treatment or prevention of arthritis is warranted. [Newnham RE. Essentiality of boron for healthy bones and joints. Environmental Health Perspectives, 1994 Nov, 102 Suppl 7:83-5.]

Abstract: Osteoporosis is a disease that characteristically afflicts postmenopausal women. It is estimated that millions of people are plagued yearly with this debilitating disease. Associated health care costs are in the billions of dollars, annually. Much research has been conducted in the area of osteoporosis and mineral supplementation, mainly focusing on calcium and vitamin D. Nonetheless, more recent studies have reported possible improvements in bone mineral density in women who were supplemented with the ultratrace mineral, boron. Boron may play a role in bone metabolism, but its role is most likely to be associated with its interactions with other minerals and vitamins such as calcium, magnesium and vitamin D. Although the focus of this review will be to discuss the interactive role of boron with magnesium and bone metabolism, some discussion of its interactive role with vitamin D is also necessary. [Volpe SL; Taper LJ; Meacham S. The relationship between boron and magnesium status and bone mineral density in the human: a review. Magnesium Research, 1993 Sep, 6(3):291-6.]

Abstract: Osteoporosis-related bone fractures are a significant cause of mortality and morbidity, with women being particularly affected. Osteoporosis is a condition of bone fragility resulting from micro-architectural deterioration and decreased bone mass; adult bone mass depends upon the peak attained and the rate of subsequent loss; each depends on the interaction of genetic, hormonal, environmental and nutritional factors. An adequate supply of calcium is essential to attain maximum bone mass, and adult intakes below about 500 mg/day may predispose to low bone mass. Supplementation with calcium may conserve bone at some skeletal sites, but whether this translates

into reduced fracture rates is not clear. Chronically low intakes of vitamin D -and possibly magnesium, boron, fluoride and vitamins K, B-12, B-6 and folic acid (particularly if coexisting) - may pre-dispose to osteoporosis. Similarly, chronically high intakes of protein, sodium chloride, alcohol and caffeine may also adversely affect bone health. The typical Western diet (high in protein, salt and refined, processed foods) combined with an increasing sedentary lifestyle may contribute to the increasing incidence of osteoporosis in the elderly. [Bunker, V W. The role of nutrition in osteoporosis. British Journal of Biomedical Science, v.51, n.3, (1994): 228-240.]

Abstract: A large number of responses to dietary boron occur when the boron content of the diet is manipulated. Numerous studies suggest that boron interacts with other nutrients and plays a regulatory role in the metabolism of minerals, such as calcium, and subsequently bone metabolism. Although the mechanism of action has not been defined, it may be mediated by increasing the concentration of steroid hormones such as testosterone and beta-oestradiol. Boron is obtained from a diet rich in fruits, vegetables, nuts and legumes. The daily intake has been estimated to range from 0.3-41 mg per day. The wide range is due to the variation of the analytical methods used and differences in the soil content of boron. Based on a limited number of studies, increasing dietary boron results in increases in the boron concentration of all tissues. Large amounts of boron are well tolerated while consistent signs of deficiency include depressed growth and a reduction in some blood indices, particularly steroid hormone concentrations... [Naghii MR; Samman S. The role of boron in nutrition and metabolism. Progress in Food and Nutrition Science, 1993 Oct-Dec, 17(4):331-49.[E:\Datafile 2\Resources\BORON.TXT]

[===][from eidon.com]

Calcium Research

Calcium is well known as a component of bone and is recommended as the supplement of choice for those with bone and joint ailments. The truth is that while calcium gives our bones rigidity, it is only 20% of total bone mass and provides no flexibility to bone. Bone is the storehouse for calcium. Equally important metabolic roles for calcium are blood clotting, nerve transmission, and energy production. The body recognizes the essential need for calcium and will hold on to whatever it can absorb. When taken in excess and without the other elements necessary to properly store calcium in bones, where 99% of it is supposed to be, our body will store it wherever it can. This can lead to many problems including: arteriosclerosis, stones, fibromyalgia, osteoarthritis, and osteoporosis. (See also: Silica.)

Silica Research

Silica is the combination of the 2 most common elements on the planet – Oxygen and Silicon. Some scientists hypothesize that we could just as easily have been a Silicon based organism as a Carbon based organism. Two functions have been identified for Silicon. It is the primary Calcium management element and is responsible for making sure calcium is not stored in any locations other than bone. Without Silica, the body will store calcium (of which most of us get too much of) in areas like, artery walls, joints, organs and soft tissue. The second Silicon role is in collagen formation. The physical manifestation of aging is the inability of the body to reproduce collagen the way we could in our 20's and 30's. This leads to wrinkles, loss of flexibility, porosity of bones, digestive problems, arthritis and many other issues associated with aging. We feel Silica is the most natural and effective supplement on the market today to reverse or eliminate, arthritis, GI tract disorders, and osteoporosis. Silica is also known to enhance appearance of hair, skin and nails.

Magnesium Research

Magnesium is a fascinating element which plays a role in many different body functions. Magnesium is found throughout the body. It is believed to be essential for calcium deposition into bone. It is required for energy production and muscle relaxation. It has been shown to be very effective in stopping nervous twitches, muscle cramping while at rest, and nervous leg syndrome. More important, it is absolutely essential for proper heart function. Without magnesium, the heart cannot relax. Sudden heart attacks are many times the result of a lack of Magnesium. Alcohol consumption impedes the availability of Magnesium to the cells.

[===] ===[*Proteolytic Enzymes*]

[Ref.Source:] Article: What Are Systemic Proteolytic Enzymes and How Can You Benefit from Them - by Steven Hefferon, CMT, PTA, CPRS
<http://www.naturalhealthweb.com/articles/Hefferon9.html>,
<http://www.losethebackpain.com/inflammation.html>

[Excerpt:] Proteolytic enzymes, also referred to as "proteases," are enzymes that break down proteins into their smallest elements. If this breakdown of proteins happens in your gut, we call the enzymes "digestive," because they help us digest our food. Systemic proteolytic enzymes, however, have a completely different purpose, so please don't confuse the two.

When taken on an empty stomach, proteolytic enzymes will pass through the stomach or intestine lining and enter the circulatory system. This is why they are called "systemic"—once they enter the circulatory system, they circulate throughout the body.

Why are systemic proteolytic enzymes important?

[Excerpt:] The most important thing that systemic proteolytic enzymes do is to break down excess fibrin in your circulatory system and in other connective tissue, such as your muscles. These enzymes bring nutrients and oxygen-rich blood that remove the metabolic waste produced by inflammation and excess fibrin.

Which conditions do help and how?

The list below is only a sample of the types of conditions that can be addressed with systemic proteolytic enzymes. If you are still wondering how one little substance can support all of these conditions, remember that they all have one thing in common—excess fibrin, which causes a reduction in blood flow.

Arthritis - Herniated Disc

Atherosclerosis - Hyper-coagulation

Back Pain - Sciatica

Chronic Fatigue - Spinal Stenosis

Chronic Pain - Strains and Sprains

Fibrocystic Breast - Post-operative Scar Tissue Fibromyalgia - Traumatic Inflammation High Blood Pressure - Uterine Fibroids

[===] Androgens influence ...matrix proteins and proteolytic factors ...healing

Laboratory Investigation

Androgens influence expression of matrix proteins and proteolytic factors during cutaneous wound healing, Stephen C Gilliver¹, Jayalath P D Ruckshanthi¹, Susan J Atkinson² and Gillian S Ashcroft¹; Research Article;

[Ref.Source:] Laboratory Investigation (2007) 87, 871-881; doi:10.1038/labinvest.3700627; published online 2 July 2007, Research Articles
<http://www.ncbi.nlm.nih.gov/entrez/labinvest/journal/v87/n9/index.html#ra>

[Excerpt:] Following cutaneous injury, the damaged dermal matrix is replaced by activated fibroblasts, which migrate from the surrounding stroma into the wound space in a process mediated by the binding of fibroblast-expressed 51 integrin molecules to locally deposited fibronectin¹ and stimulated by platelet-derived growth factor.² Immature granulation tissue, formed as a result of transforming growth factor--stimulated fibroblast matrix protein biosynthesis,³ is cell-rich, highly vascularized and composed largely of fibronectin,⁴ proteoglycans⁵ and type III and V collagens.⁶ Over time, through tissue remodeling, these matrix components are gradually replaced by type I collagen,⁷ the most abundant collagen in uninjured skin. Newly deposited collagen fibers are cross-linked to form larger bundles and reorganized to give a more ordered structure. The ultimate product is a mature connective tissue scar, in which macroscopic structure and function are disturbed and tensile strength reduced compared to normal skin.

Making important contributions to the processes of matrix turnover and tissue remodeling are members of the matrix metalloproteinase (MMP) family of zinc-dependent proteases, which share the ability to cleave proteins of the extracellular matrix, including collagens, gelatins and casein. To date, 23 human MMPs have been cloned. Synthesized as prepro-enzymes and secreted as an inactive pro-form, they have variously been implicated in a range of physiological processes, including tissue remodeling, organ morphogenesis, angiogenesis and embryonic development, and in several pathological conditions, including cardiovascular disease, neoplasias and rheumatoid arthritis.⁸

[===] ===[Tendinosis- Injury, Collagen, Future Treatments]

[Ref.Source:] Tendinosis.org: Future Treatments (research into tendinosis, tendinitis, and chronic tendon injuries) <<http://www.tendinosis.org/future.html>>Future Treatments

[Note:] Tendinosis: Insufficient blood flow in tendons

Future Treatments

[Excerpt:] <<http://www.osiristx.com/>>Osiris Therapeutics Inc. is a small, private company in Baltimore, Maryland that is developing methods to use MSCs from adult bone marrow to treat injuries and diseases. Osiris can take a small number of MSCs and culture them to grow into large numbers of cells; then the cells can be directed to differentiate into cells for tendon, cartilage, bone, bone stroma, or muscle. Osiris is working on products to treat bone fractures, to treat patients who need to regrow bone marrow, and to create new heart tissue after heart attacks. Osiris is also investigating using the MSCs to treat osteoarthritis, cartilage injuries, and tendon/ligament injuries.

[Ref:] mesenchymal stem cell or MSC; this type of cell can differentiate into various kinds of connective tissue. Adult bone marrow is one source for MSCs. Researchers are exploring how to use MSCs to repair tissues such as bone, tendon, ligament, and cartilage.[47]

...[The MSCs would be healthy cells uninjured by repetitive motion, and they could go to work creating new healthy collagen to slowly repair the area of failed healing.]

...[In cases where the patient had genetically weaker tendons to start with, perhaps from a high Type III/Type I collagen ratio, stem cells taken from a donor without tendinosis would produce normal tendon collagen that might be stronger than the patient had originally.]

...treatments would not make people immune to tendinosis, nor would they provide instant healing. [They might, however, provide a way to get the tendon to heal with better collagen so that people could return to the way they were before the injury.]

Manipulating Growth Factors

[Excerpt:] Growth factors are proteins that stimulate cell proliferation and differentiation. [Some growth factors can cause normal uninjured tendon fibroblasts to proliferate and synthesize more collagen and proteoglycans.] Since growth factors play an important role in tissue healing, researchers have wondered if they could be used to improve the healing of tendons and ligaments.

... [the stem cells would provide normal uninjured cells for the growth factors to stimulate, and the growth factors could stimulate them to produce healthy tendon/ligament collagen.]

... [Insulin-like growth factor 1, or IGF-1, is a growth factor that is important for tissue healing. It can stimulate an increase in Type I collagen when added to normal fibroblasts.]

... [Another study showed that IGF-1 and IGF-II stimulated collagen, proteoglycan, and DNA synthesis in a dose-dependent manner in rabbit flexor tendon in vitro.][35]

[===][===] Tendinosis, Injury, Collagen]

[Ref.Source:] Tendinosis.org: Future Treatments (research into tendinosis, tendinitis, and chronic tendon injuries)

Possible Reasons For the Failed Healing of Tendinosis

...

3. Genetic Variants In Collagen

[Excerpt:] Another possibility is that some people with chronic overuse injuries could have genetic differences that make their tendons and ligaments weaker and make them heal with abnormal collagen. Quite possibly, more than one genetic variant exists that causes tendons and ligaments to be prone to overuse injuries.

Many genetic collagen defects have already been discovered; some cause fairly rare collagen diseases, but some cause more common problems like osteoporosis, osteoarthritis, and vertebral disk herniations. A colIA1 defect has recently been discovered to cause some cases of osteoporosis; the colIA1 defect causes weaker Type I collagen in the bones because of an abnormally high alpha1(I) to alpha2(I) ratio.[10,12] A defect in Type II collagen has been associated with osteoarthritis. A colIXA2 defect is associated with an increased susceptibility to vertebral disk herniations (Type IX collagen is found in small amounts in vertebral disks).

[Refs:]

<<http://www.tendinosis.org/injury.html>>The Tendinosis Injury

<<http://www.tendinosis.org/current.html>>Current Treatments

<<http://www.tendinosis.org/future.html>>Future Treatments

<<http://www.tendinosis.org/refs.html>>References