

A bone spur (osteophyte) is an abnormal bony growth that forms when the body deposits extra calcium on the surface of bones. Bone spurs typically form in response to injuries such as osteoarthritis, joint trauma, and joint overuse. Bone spurs are usually smooth and benign but can cause wear and tear or pain if they press or rub on other bones or soft tissues such as ligaments, tendons, or nerves. Bone spurs commonly occur in the joints of the spine, shoulders, hands, hips, knees, and feet. Joint degeneration due to aging causes most bone spurs that form in the frequently used joints of the spine and feet. Besides joint injury including osteoarthritis, joint trauma, joint overuse and degeneration, a liver deficiency is another underlying cause of bone spurs.



Osteoarthritis, joint trauma, joint overuse and degeneration can cause a progressive loss of articular cartilage which is accompanied by new bone formation. In the injured cartilage, articular chondrocytes can assume the hypertrophic phenotype that causes the mineralization of the growth plate and of the cartilage matrix. Such abnormal mineralization and crystal formation in the articular cartilage can lead to the development of bone spurs.

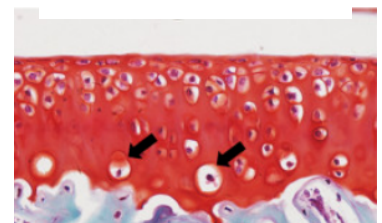
## Pathogenesis

Normal chondrocytes produce a matrix Gla protein (MGP) that is fully  $\gamma$ -carboxylated (cMGP). The  $\gamma$ -carboxylation of the MGP in chondrocytes is Vitamin K dependent. Fully  $\gamma$ -carboxylated MGP binds with fetuin-A to form the fetuin-MGP complex. In both cartilage and bone, the fetuin-MGP complex has high affinity for nascent mineral nuclei and thus prevents mineralization and inhibits bone spur formation.

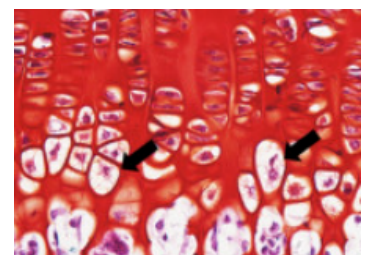
In hypertrophic chondrocytes, the MGP's produced are un-carboxylated (ucMGP) because they cannot utilize the Vitamin K. An ucMGP cannot form a complex with fetuin A to scavenge the mineral nuclei or inhibit mineralization to prevent bone spur formation. cMGP also has the ability to bind bone morphogenetic proteins-2 (BMPs-2) and bone morphogenetic proteins-4 (BMPs-4). BMPs-2 and BMPs-4 are transforming growth factors that stimulate cartilage and bone formations.

cMGP prevents these growth factors from transforming cells into bone forming cells and inhibits unnecessary and abnormal bony growths. When MGP is inactive (ucMGP) or absent from tissues, the BMPs become uninhibited and the action of BMP becomes pronounced, causing extensive calcification and bone formation leading to the development of bone spurs.

### Normal Chondrocyte



### Hypertrophic Chondrocyte



The  $\gamma$ -carboxylation of MGP in chondrocytes is a crucial process in preventing bone spur formation. It is a Vitamin K dependent reaction. Vitamin K is an essential cofactor in post-translational modification of a family of proteins where specific Glu residues in the protein sequence become modified to  $\text{Ca}^{2+}$  binding  $\gamma$ -carboxyglutamic acid residues (Gla). Chondrocytes synthesize MGP and utilize the Vitamin K to catalyze post-translational  $\gamma$ -carboxylation of MGP. Supplies of Vitamin K to the chondrocyte and other soft tissue is essential in preventing soft tissue mineralization and bone spur formation.

Dietary Vitamin K, mainly as phylloquinone, is a fat-soluble vitamin which is absorbed chemically unchanged from the proximal intestine after solubilization into mixed micelles composed of bile salts and the products of pancreatic lipolysis. Insufficient quantities of bile or deficient bile due to a liver deficiency could cause a Vitamin K deficiency. An epidemiologic study has shown a correlation between low plasma levels of phylloquinone (primary plasma form of Vitamin K) and the presence of bone spur on knee radiographs.

## **Wellness Recommendation**

The wellness recommendation for bone spurs or osteophytes includes the WHITEE Patches, LC Balancer, and Brown formula. The WHITEE Patch helps repair the joint cartilage tissue injury by enhancing blood flow and lymphatic circulation. When the joint damage is repaired, the bone spurs or osteophytes will be subsequently dissolved due to the chondrocytes returning from hypertrophic phenotype to their normal state so that they can utilize the vitamin K to catalyze the  $\gamma$ -carboxylation of MGP for bone spur removal. The LC Balancer will improve microcirculation and strengthen the kidney for enhanced nutrient absorption and support to the joint cartilage. Brown improves liver structure and function to restore bile production to normal levels, and thus improving normal Vitamin K absorption and metabolism. The use of Brown helps prevent bone spur regrowth after the bone spur has been removed.

Patients may experience symptom improvement in 1 month with a reduction in the size of the bone spur. The first month protocol requires 8 WHITEE Patches (23 days), with LC Balancer and Brown. If the patient has a severe bone spur condition from osteoarthritis or joint damage, a subsequent 3 months of the protocol may be required for significant and sustained results. Beginning on the 2<sup>nd</sup> month, each month will require 6 WHITEE Patches with LC Balancer and Brown. Patients may feel intermittent pain spikes at moderate to severe intensities during the treatment due to the mix of healing and increased nerve sensations. Patients over 50 or who have kidney deficiency also require Xcel formula to enhance kidney function for effective metabolic toxins and/or wastes secretion.

## **Selected Case Studies**

### **Case 1: WHITEE Patches Eliminated Symptoms of Arthritic Thumb with Bone Spur**

*Jeffrey C Kalins, DC, Georgia*

A female patient, 60 years of age, came in for treatment as she had no range of motion in her left thumb. She experienced occasional pain at an intensity of 5 out of 10. Her issue started with trigger thumb symptoms and was initially treated with minor thumb adjustments. The patient also used topical creams to get relief. None of the initial measures produced results. A subsequent x-ray showed a small bone-spur and arthritis in the thumb.

Dr. Kalins applied an herbal treatment program consisting of Wei Labs WHITEE patches (2 days on, 1 day off) as well as additional vitamins for a total of 2 weeks. The results have been great. Upon completing the herbal program, the patient's full range of motion has been restored. The patient is able to bend the thumb without limits. In addition, the pain has been completely eliminated. The results have been sustained ever since. She is very happy with the outcome as things are back to normal.

### **Case 2: WHITEE Patches and LC Balancer Resolved a Bone Spur**

*Lolita Smith, LAC, Maryland*

A female patient, age 48, came for treatment as she had been diagnosed with bone spurs on the left side of her foot. The patient experienced severe pain (8 out of 10). She had difficulty walking and needed to avoid certain shoes. The conventional treatment provided by her MD did not succeed; therefore, surgery had been recommended. The patient declined. She was able to work but was in constant pain.

Dr. Smith applied a combined treatment program composed of acupuncture and herbal remedies from Wei Laboratories (WHITEE Patch and LC Balancer) for a total of three weeks (one session per week). Upon completing the program, the pain had been completely removed. Her difficulties in walking disappeared. The results have been sustained ever since. The patient is very happy.

### **Case 3: Successful Resolution of Bone Fracture and Bone Spurs**

*John Reynolds, Physician Assistant, PA, Suffern, New York*

A female patient in her 30s came to John Reynolds. She was an active runner. While she was running, her left foot started to get swollen, the top of her foot become red, and she felt pain. X-Ray results showed that her left foot had

a stress fracture. Dr. Reynolds recommended the FASTT Patch from Wei Laboratories to put on her foot, which should accelerate the natural healing process for bones and shorten the healing time. Her pain greatly reduced after 2 days. After 5 weeks of treatment, she had great improvement. She continued to feel little to no pain, about half of the swelling on her foot was diminished, and she could walk on a treadmill painlessly. The patient had an X-ray which showed a healing response around the fracture area on the bone. After another month of treatment, her bone fracture had been completely healed as revealed by another X-Ray result. The patient was really happy about her fast recovery. She had no doubt that FASTT patches played an important part in the healing process.

She still had a bone spur on her left foot which started to hurt, Br. Reynolds recommended Wei Laboratories WHITEE Patch and LC Balancer to address that. WHITEE patch helps reverse degenerative conditions such as bone spurs and bunions, by help bypass lymph node filtration and clear extracted fluid from the swollen joints. LC Balancer is used to facilitate the process by enhancing microcirculation. After the treatment, according to the patient's own words, her foot is healed beautifully.

#### References

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