

8 Guilt-Free Snacks For Joint Pain Relief

There's no denying it: as far as your physical health is concerned, there are few things more debilitating than chronic joint pain.

Whether you suffer from back pain, knee pain, shoulder pain, hip pain, or pain in another area of your body, all of this pain is putting a serious cramp in your lifestyle. In fact, it may even be sidelining you from the activities you want to perform. As we get older, we tend to suffer from joint pain more often both due to the fact that our joints have less natural lubrication and we experience wear and tear from so many years of doing various types of physical activity.

If you didn't take care during your earlier years to strengthen all the muscles, tendons, and ligaments that surround the joints, the chances that you experience pain will be even higher.

Arthritis is one of the big causes of joint pain for many people. According to the Centers for Disease Control and Prevention¹, 22.7% of individuals annually are told they have some form of arthritis. In other cases, joint pain is simply a lifestyle related issue. With obesity rates skyrocketing in today's world, all this excess bodyweight we are carrying down is creating a serious burden for our joints, setting us up for severe pain.



Even if you aren't overweight, poor lifestyle choices including your nutrition plan can be setting you up for problems. The good news is that in many cases, joint relief is within your control. By making a few changes in how you are leading your life, you can step away from joint pain and step *back* into the activities you love to do.

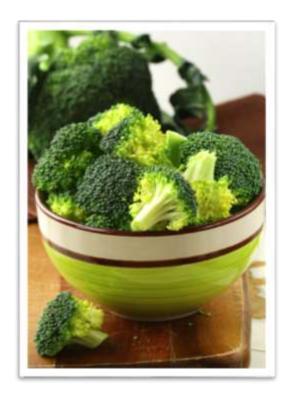
Today we're going to look specifically at some natural remedies that you can utilize that involve nutrition and supplementation. It may seem odd to think that what you eat on a daily basis could be influencing your joint health, but that is exactly the case. Bodyweight aside (as shedding excess body weight will almost always help reduce your risk of joint pain!), certain foods and supplements contain compounds that will assist with lowering inflammation of the joints, providing added lubrication to the joint area, and providing relief from any pain that you may be dealing with.



Let's take a closer look at the 8 top natural remedies that you can begin utilizing in your life right now – and 1 extra that's putting joint pain medication to shame. Whenever possible, you should always take a natural approach to treating your joint pain as this is what will help ensure that you are not suffering from any unwanted side effects that drugs can potentially have.

Broccoli

Chances are when you were young, your mother told you to always eat your broccoli. She couldn't have given you better advice. Not only is broccoli chalk full of antioxidants that will help fend off free radical damage, broccoli is also rich in a particular compound called sulforaphane. This compound is found in foods that are part of the cruciferous family and it helps to slow any cartilage damage that is taking place in the joints due to osteoarthritis, according to one study published in the Arthritis & Rheumatism² journal.



Other good food choices that contain this compound include Brussels sprouts, cabbage, Bok choy, cauliflower, collard greens, as well as kale.

Since all of these foods are very low in calories as well, they're perfect for assisting with the management of your body weight also. Since that is key for keeping stress of the joints as noted in the introduction, it should be not be overlooked.

Try steaming broccoli or lightly sautéing it for best results. It's generally best to avoid boiling your broccoli however as many of the nutrients found in the broccoli can then leach out into the water it's being cooked in. Other cooking methods are superior then for this reason. And, nothing will ever beat raw, so consider snacking on some raw broccoli florets dipped in a little salsa for a quick snack while you prepare dinner if you have the munchies.

Keep in mind you'll want to avoid using any heavy sauces such as butter, cheese, or other condiments with your broccoli to keep the calorie intake in check.

Salmon



When it comes to improving your health, there really isn't a better food you can eat than wild caught salmon. It is important to try and choose wild caught salmon over farm raised salmon whenever you can as wild caught has a much healthier nutritional profile with more omega-3 fatty acids and fewer omega-6 fatty acids and is less contaminated by toxins as well.

These omega-3 fatty acids found in salmon are what provides the major benefits as far as helping improve your joint health go, so you want the variety of fish that is going to give you the best 'bang for your buck' so to speak.

Let's look at a few differences between the two so you can see just how much better wild caught salmon stacks up³.

- Calorie Level: Per ½ filet, wild caught salmon contains 281 calories while farm raised salmon contain 412 calories.
- Fat Content: Half a filet of wild salmon will provide you with 13 grams of dietary fat while farmed salmon will provide you with 27 grams of dietary fat.
- Calcium: Wild salmon offers 2.4% of your daily intake of calcium while farm raised salmon offers 1.8% of your DRI for calcium.
- Iron: Wild caught salmon comes out ahead here again with 9% of your total iron intake while farm raised salmon contains a mere 4%.
- Potassium: Wild caught salmon offers 28% of your total daily potassium needs while farmed salmon falls short with just 21% of your total needs.
- Zinc: Wild caught salmon offers 9% of your RDI for zinc while farm raised provides just 5%
- Saturated Fat: Farmed salmon not only has more total fat, but more total saturated fat as well. You'll get 30% of your total saturated fat intake from ½ filet of farmed salmon while wild salmon provides just 9.5%

So as you can see, there are a great many benefits to consuming wild caught salmon over fresh. Wild caught salmon also has higher quality omega-3 fatty acids, so these will work better in the body to help provide the benefits you are looking for.



What's more is that the omega-3 to omega-6 ratio

in farmed salmon is a lot higher than in wild salmon, which is a key point to note. One of the big reasons many people are suffering from health related problems in today's society is because they are consuming far too many omega-6's. If they would just focus on bringing this intake down, that in effect could help to dramatically improve their health, even if they didn't add any further omega-3's to their plan.

You can improve your profile by working at it from both directions: bring up your omega-3 fatty acid intake and bring down your omega-6 fatty acid intake. Wild caught salmon will essentially help you do both.

Omega-3 fatty acids are associated with a wide array of powerful health benefits. One primary way they assist with joint related pain is by lowering the total levels of inflammation in the body. One study published in the Pain⁴ journal noted that consumption of omega-3 fatty acids for a period of 3-4 months helped patients show notable improvements in reported joint pain, the minutes of morning stiffness they experienced, the number of painful or tender joints, as well as the consumption of NSAID's as part of their pain management therapy.

As you can see, the addition of these omega-3 fatty acids to their diet plan provided greatly improved benefits on the symptoms that they were experiencing.

In addition to improving joint pain, adding more salmon and the omega-3 fatty acids it contains to your diet can help assist with lowering total body inflammation not just within the joints, but also within the heart and other organs, reducing your risk of cardiovascular disease and other organ failure, as well as it can have powerful effects on the brain, lowering your chances of agerelated cognitive decline as well as depression⁵.

Unless you are a vegetarian eater, you should be making an effort to include wild-caught salmon as part of your diet 1-3 times per week. Wild caught salmon also tends to be lower in total mercury content, so there is no worries with regards to the frequency that you are eating it.

And, if you choose to eat some of the bones from the wild caught salmon, this will give you an added calcium boost, which in turn could further help to lower your rate of joint-related pain.



Garlic

Next time you're cooking, it's time to load up on the garlic. Garlic is one of the best herbs that you can utilize in your cooking and it's virtually calorie free. It'll pack a wallop of flavor though, reducing your need to add other calorie containing condiments or sauces.

Garlic offers a wide array of health benefits – too many to miss out on. So what's so great about garlic as far as your joint health is concerned?

Garlic is part of the allium family, which is also home to onions and leeks. Essentially, you could eat either of these and reap great benefits. What's more is that often



when cooking, onions and garlic go together hand-in-hand to create a great tasting dish, so you'll basically get twice the benefits when you use these first. Add a little olive oil to enrich the flavor of the garlic and you are all set.

Getting back to the allium family, this group of foods contains a compound called diallyl disulfide, which may help to limit the rate of cartilage damaging enzymes found in the body and therefore help to reduce the harmful effects that arthritis can have on the body.

By including these foods – garlic and onions – more often in your diet plan, you may step away from further increased arthritic symptoms. Research published in the BMC Musculoskeletal Disorders⁶ noted that subjects who had diets rich in fresh fruits and vegetables along with garlic showed the best overall protection against symptoms of osteoarthritis of the hand, hip, and knee.

In addition to potentially help weaken the level of joint pain you are experiencing, garlic is also beneficial for other health concerns. Garlic has been shown to help lower your degree of hypertension in research published in the Molecular and Cellular Biochemistry⁷ journal. For anyone suffering from high blood pressure who may also have a higher risk for stroke or a heart attack, this is very powerful news.

Research published in the Journal of the Royal College of Physicians of London⁸ also noted that consuming garlic may help to improve your cholesterol profile by reducing bad cholesterol by as much as 12%. This can then lower your overall risk for heart disease and heart attacks.

Garlic is also a powerful herb that can help keep your brain health in check as well. Studies⁹ suggest that it can help to decrease the rate of oxidative damage taking place in the brain and may help to prevent Alzheimer's disease and dementia. For anyone who is getting older and who is at an increased risk for age-related cognitive decline, this is another very important point to note.

Finally, garlic actually does contain nutrients to be aware of. Per one ounce serving of garlic, you'll take in 23% of your total daily intake for manganese, 17% of your total daily intake of Vitamin B6, 15% of your total daily intake of vitamin C, and 6% of your intake for selenium. You'll also get one gram of dietary fiber as well.



Do note that garlic does contain calories, however they are quite low. Per one ounce serving, you'll take in 42 calories, along with 1.8 grams of protein and 9 grams of carbs. Most people will not eat a full ounce of garlic in one sitting though (as this would be quite potent to those around you!), so chances are, per meal, you may only be adding an additional 5-10 calories on top of the energy your foods provide. This is something that just about everyone should be able to fit in.

With so many ways to incorporate garlic into your diet plan, there is no reason you should not be able to get this in.

Ginger



Speaking of herbs, we come to another great herb that should make its way into your menu. Ginger is a delicious tasting herb that can be used in a variety of dishes and is just about as versatile as garlic.

When most people think of ginger, they tend to think of gingerale or dried ginger, both of which are often utilized to treat nausea. And while both of these can certainly help fend off nausea as well as morning sickness in those who are pregnant, there are many other beneficial uses for ginger as well. One of those uses being to fend off joint pain.

Research published in the Arthritis & Rheumatology¹⁰ journal noted that

when 261 patients suffering from moderate to severe knee pain due to osteoarthritis of the knee took part in a study lasting 6 weeks where they received either a ginger extract or placebo, the percentage of responders experiencing a reduction in knee pain after taking the ginger supplement was much higher than the control. The ginger supplement group noted reductions in knee pain on standing as well as reductions in knee pain after walking.

Researchers concluded that lending to the relief it provided, was the components gingeroles, beta-carotene, capsaicin, caffeic acid, as well as curcumin, all of which are found in ginger.

Ginger can be taken in supplemental form if you wish, or you can use fresh or dried ginger in your cooking as well. It's a great spice to use in Asian based dishes along with a light soy sauce to create a delicious low-calorie sauce used in stir-fry's.

Due to the fact that ginger also contains capsaicin, this also makes it a great general pain reliever as well. While you might focus primarily on the fact that it helps to relieve joint pain, it can also help to relieve other pains and aches you may be experiencing as well.



Furthermore, capsaicin

has been shown to temporarily elevate the metabolic rate, causing the body to expend more energy as heat, so it may also help give you a slight edge on weight loss as well. This is the same compound that is found in cayenne peppers as well as chili peppers, both of which are touted for their weight loss inducing properties.

Finally, one last great benefit of ginger to note is that it can help to improve your level of insulin sensitivity, as noted in a study published in the Biofactors¹¹ journal.

The greater your insulin sensitivity is, the better your body will be able to handle the carbohydrates you eat, meaning the less weight you may potentially gain over time. Since once again, excess body weight is directly correlated to joint pain, this may help over time lessen the degree of pain you are experiencing.

So do try and add ginger into your menu whenever you can. Look for creative ways to use it and soon you'll find it's not nearly as hard to add in as you may have initially thought.

Turmeric

Moving on to yet another herb, we come to turmeric. What makes turmeric so special is the fact that it contains curcumin, which is one of the most well researched compounds in the world of joint pain. In fact, one study published in the Current Opinion of Pharmacology¹² even considered turmeric to be a 'goldmine' in terms of treatment for those who are suffering from arthritis. The study noted that this spice was able to better help manage arthritis because it helped to suppress the expression of tumor necrosis factor a, interleukin-1B, and cyclooxygenase-2, lipoxygenase, all of which tend to amplify arthritic symptoms. With these factors suppressed, symptoms are



improved upon and the individual begins feeling better.

Another study published in the Phytotherapy Research journal¹³ had groups of test subjects receive one of three different treatments for their active rheumatoid arthritis. They received either curcumin, diclofenac sodium by itself, or a combination of the two treatments. The subjects were then assessed for their disease activity score as well as a reduction in tenderness and swelling of the joints. While patients in all three groups noted that they showed statistically significant changes in their DAS scores, it was the curcumin group that showed the highest overall improvement in their disease activity score as well as their overall soreness and level of swelling. Their scores were much higher than those who were a part of the diclofenac sodium group and what's more is that the group taking the curcumin did not report any adverse events associated with using the spice.

This spice has been used by many centuries in India to help ward off inflammation associated with inflammatory disease, so this is perhaps one reason why it is so beneficial for those who are suffering from joint related pain.

Turmeric is beneficial for more than just joint pain as well. Research¹⁴ suggests that it may also help to serve as a natural anti-depressant in the body as well. While this doesn't mean you should ditch any prescription medication that has been prescribed by your doctor, you may want to speak to them about this natural remedy as well. Anti-depressant medications often come with a wide variety of unpleasant side effects, so taking a more natural approach is almost always a beneficial idea.

In addition to this, interesting research published in the Biological and Pharmaceutical Bulletin also noted that turmeric may hold positive benefits for those who are at risk or who are suffering from type 2 diabetes. It appears as though this spice can help to significantly lower blood glucose levels, thus decreasing the total amount of insulin required after a meal is consumed.

Finally, turmeric may also help to lower cholesterol levels suggest research¹⁶, therefore it may help you decrease your risk factor for heart disease or stroke. If you currently have high cholesterol levels, it's worthwhile to add this spice to your menu as often as you can.



Along with providing these stated benefits, turmeric is also a rich source of manganese, iron, vitamin B6, and will even provide a small dose of fiber as well. At just 16 calories per 2 tsp. serving, it's something that everyone can add to their day without a struggle.

While most people associated turmeric with egg based recipes (as it's what gives egg salad that bright yellow color when added!), it can also be used in a number of different ways.

Try mixing it in with some brown rice along with nuts, raisins, and coriander for something truly unique and different from your usual side dish. Or, you can try it with lentils or add it to salad dressing as well. It does have quite a distinct flavor, but once you start using it more often, there's a very good chance it'll be one spice that you turn to time and time again.

Pineapples



Looking for something sweet? Why not try a pineapple? This fruit is very often forgotten about for more popular options such as apples, oranges, and bananas but it offers powerful benefits that should not go unknown.

One such benefit is the assistance and management of joint pain. Pineapples are a very rich source of vitamin C in the diet, with one cup providing 105% of your daily nutrient needs. Most people tend to think of oranges as the powerful vitamin C supplier, but in contrast, one medium orange supplies just 93% of your total daily needs, so pineapples are actually a better source.

Vitamin C is an important antioxidant in the body that will help to combat oxidative damage caused by free radicals, reducing your chances of disease. In addition to that, it can also strengthen your immune system, helping you better fend off any invading bacteria or viruses you come into contact with.

Most important, it may also help assist with the prevention of joint related pain as well. One study published in the Journal of Bone & Joint Surgery¹⁷ noted that when 416 subjects with 427 wrist fractures were randomly allocated to treatment with placebo or treatment with 200, 500 or 1500 mg of vitamin C per day for fifty days, the 328 patients who received the vitamin C treatment noted the prevalence of complex regional pain syndrome at 2.4%, while the placebo group noted the occurrence at 10.1%.

This indicated that it appeared as though the vitamin C group showed lower overall pain development throughout their treatment protocol. If you are suffering from bone related pain due to injury, this is important information to know and remember.

Likewise, another study published in the Arthritis & Rheumatology journal¹⁸ noted that of subjects studied who were suffering from osteoarthritis of the knee, those who had the highest intake of vitamin C in their diet tended to show the lowest amount of total joint pain development.

In addition to helping to reduce your occurrence of joint pain, another great thing about pineapples is that they also contain digestive enzymes, which is uncharacteristic of most fruit. This sets them apart and means that when eaten before or after a meal, they may help with the better breakdown of the foods you are eating and as such, ensure that you are able to absorb all the nutrients in the foods that you are consuming.

Bromelain, which is a compound found in pineapples may also be beneficial for providing anti-inflammatory effects in the body, so serving yourself up some pineapple may just help to reduce overall inflammation in the body as well.

Along with being a very rich source of vitamin C, pineapple is also an excellent source of manganese, copper, vitamin B6, vitamin B1, and will also provide some folate as well.

It does contain a little more natural fruit sugar than say berries would, but as long as you account for that in your total daily intake, you should have no problem incorporating pineapple into your diet. Per one cup of chopped pineapple, you'll take in 83 calories,



0.2 grams of dietary fat, 21.6 grams of carbohydrates with 2.3 grams of dietary fiber and 16.3 grams of sugar, and almost 1 gram of protein.

Pineapple taste great on its own or it can also be added to smoothies, used within your main course meals, added to a healthy homemade pizza, or even added on top of salads if you are looking for something truly unique.

Don't overlook this fruit any longer. Next time you're in the supermarket, stop and pick some up.

Noni

Another fruit that you may not be so familiar with but one that's worth paying attention to is noni. You'll be hard pressed to find noni itself in the supermarket, but what you can find out and about in many health food stores is noni juice. This is what you want to look for.

Noni has earned its place as a 'superfruit' as it has so many beneficial properties it stands right up there with the gogi berry, which everyone has heard of by now.

Noni itself is the name of a plant that is found in the Pacific Islands in Southeast Asia as well as in Australia



and India. You'll find it wherever you find lava, so think volcanic environments.

Like any superfruit, noni packs in a serious antioxidant punch. This is one of the top benefits you'll get from it and what keeps people coming back for more. That means this antioxidant rich fruit is excellent for helping to prevent the development of disease by reducing cell damage that can occur. It's rich in anthocyanins, beta-carotene, catechins, coenzyme Q10, flavonoids, lycopene, lutein, selenium, as well as vitamin C and E. It's quite the line-up indeed.

What's more is that noni contains a specific type of fatty acid that's a new ascorbic acid derivative and may help to provide strong anti-inflammatory benefits to the body.

One study published in the Phytotherapy Research journal¹⁹ carefully assessed the use of Noni as a method of treatment for those who are suffering from arthritis and noted that the effect of taking in noni was comparable to hydrocortisone and that this fruit proved to be an effective alternative therapy for decreasing pain and joint destruction caused by arthritis.



Do be aware of course that like any fruit juice, the total sugar content of this will be on the higher end, so you'll want to limit how much of it you are drinking at once to maintain good control over your blood glucose levels. And, if you can, consume it with a meal so that you are getting some protein and healthy fats in your system as well, both of which will help to balance out the glucose found in the juice.

Pomegranate Juice



If you can't seem to locate noni juice in your area as it is one that can be harder to find, take comfort in knowing that another smart alternative that you might want to consider turning to instead is pomegranate juice.

Most people have heard of pomegranates before and how they have been touted as well as a superfruit. These fruits contain a wealth of antioxidants just like noni fruit does and in addition to that, are also contain a small dose of omega-3 fatty acid sin the peel as well.

Nutrition wise, this fruit stacks up strongly. One cup of the fruit will provide you with 144 calories, 24

grams of sugar, 7 grams of dietary fiber, 3 grams of protein, and you'll also get a strong dose of vitamin C, vitamin K, folate, and potassium as well.

Research²⁰ indicates that pomegranates may help to lower total inflammation taking place in the digestive tract, thus reducing your risk of digestive track health issues and possibly even cancer of the digestive system.

It's also been shown²¹ to help lower the incidence of breast cancer rates among females as well, so that's yet another added benefit that should not be overlooked.

Research published in the Phytotherapy Research²² journal also noted that pomegranate was useful in helping to lower blood pressure levels of those who consumed the juice on a regular basis.

This is good news for anyone who is suffering from a higher risk of heart disease and stroke as high blood pressure is closely correlated to these conditions.

Finally, pomegranate has also been shown to help lessen the symptoms of arthritis and help you battle against joint pain. A study published in the Journal of Nutrition²³ noted that pomegranate extract may help to block enzymes that are known to cause damage to the joints in those who are suffering from arthritis. This can help both those who are already suffering or those who may feel as though they are at risk due to a family history of the disease. Sometimes, preventative methods are best to help reduce the incidence altogether.

While you can simply choose to eat pomegranates whole and some people do this, most will find it simply easier to serve the fruit as juice instead.

Just like with noni juice, be sure that you are tracking how much sugar you are taking in from this juice and including it as part of your overall daily meal plan to prevent unwanted weight gain or blood sugar spikes. Pairing the juice with a source of protein will be your best bet to help ensure that you aren't experiencing any negative repercussions due to using the juice in your plan.



Grapes

Finally, one last fruit that is more common that you'll want to consider adding to your diet if you are looking to do away with joint pain is the grape. While grape receive a great amount of attention for their ability to improve heart health in the form of wine, we must not overlook their other health promotion properties.

Research published in the Experimental & Molecular Medicine journal²⁴ noted that grape seed extract was very helpful in reducing the pain and degeneration associated with



osteoarthritis thanks to the high level of proanthocyanidin's that it contains.

These powerful compounds are helpful in reducing the overall level of inflammation taking place in the body and therefore will be very beneficial in lowering your rate of joint related pain and discomfort.

In addition to that, grapes are another very rich source of antioxidants, so can help to lower inflammation as well as help to provide great protection against disease.

Grapes are a sweet treat and can be made even sweeter by placing them in the freezer and taking them out on a hot summer's day. They serve as an excellent replacement for higher calorie ice cream.

So there you have some of the best foods that you can use in your menu to help lower your degree of joint pain. Don't let joint pain get you down any longer. While you may not be able to completely remove joint pain through nutrition alone, it is a very powerful part of the overall treatment equation and one that must not be looked over.

Add two or three (or more!) of these foods on a regular basis and you can anticipate seeing benefits from doing so shortly.

"Cheddary" Yeast

...and wait! That's not all. Let me let you in on a little secret. I've recently discovered a special kind of 'cheddary yeast' that's proving to banish joint pain from the lives of hundreds. Use this yeast and you can kiss joint pain good-bye. It's so powerful in fact that major pharmaceutical companies are looking at this as a means of replacing traditional joint pain medication. Basically, it's better than what's being prescribed today. What's more, is that you likely even have it in your bread box right now....

Click here to learn more.



References:

- https://www.cdc.gov/arthritis/data_statistics/arthritis-relatedstats.htm
- 2. Kong, Jin- Sun, et al. "Inhibition of synovial hyperplasia, rheumatoid T cell activation, and experimental arthritis in mice by sulforaphane, a naturally occurring isothiocyanate." *Arthritis & Rheumatism* 62.1 (2010): 159-170.
- 3. http://www.prevention.com/content/which-healthier-wild-salmon-vs-farmed-salmon
- 4. Goldberg, Robert J., and Joel Katz. "A meta-analysis of the analgesic effects of omega-3 polyunsaturated fatty acid supplementation for inflammatory joint pain." *Pain* 129.1 (2007): 210-223.
- 5. Nemets, Boris, Ziva Stahl, and R. H. Belmaker. "Addition of omega-3 fatty acid to maintenance medication treatment for recurrent unipolar depressive disorder." *American Journal of Psychiatry* 159.3 (2002): 477-479.
- 6. Williams, Frances MK, et al. "Dietary garlic and hip osteoarthritis: evidence of a protective effect and putative mechanism of action." *BMC musculoskeletal disorders* 11.1 (2010): 1.
- 7. Dhawan, Veena, and Sanjay Jain. "Garlic supplementation prevents oxidative DNA damage in essential hypertension." *Molecular and cellular biochemistry* 275.1-2 (2005): 85-94.
- 8. Silagy, Christopher, and Andrew Neil. "Garlic as a lipid lowering agent--a meta-analysis." *Journal of the Royal College of Physicians of London* 28.1 (1993): 39-45.
- 9. Amagase, Harunobu, et al. "Intake of garlic and its bioactive components." *The Journal of nutrition* 131.3 (2001): 955S-962S.
- 10. Altman, Roy D., and K. C. Marcussen. "Effects of a ginger extract on knee pain in patients with osteoarthritis." *Arthritis & Rheumatism* 44.11 (2001): 2531-2538.
- 11. Sekiya, Keizo, Atsuko Ohtani, and Shuichi Kusano. "Enhancement of insulin sensitivity in adipocytes by ginger." *Biofactors* 22.1- 4 (2004): 153-156.
- 12. Khanna, Dinesh, et al. "Natural products as a gold mine for arthritis treatment." *Current Opinion in Pharmacology* 7.3 (2007): 344-351.
- 13. Chandran, Binu, and Ajay Goel. "A randomized, pilot study to assess the efficacy and safety of curcumin in patients with active rheumatoid arthritis." *Phytotherapy research* 26.11 (2012): 1719-1725.

- 14. Lopresti, Adrian L., et al. "Curcumin for the treatment of major depression: a randomised, double-blind, placebo controlled study." *Journal of affective disorders* 167 (2014): 368-375.
- 15. Kuroda, Minpei, et al. "Hypoglycemic effects of turmeric (Curcuma longa L. rhizomes) on genetically diabetic KK-Ay mice." *Biological and Pharmaceutical Bulletin* 28.5 (2005): 937-939.
- 16. Godkar, P. B., P. Narayanan, and S. V. Bhide. "Hypocholesterolemic effect of turmeric extract on Swiss mice." *Indian Journal of Pharmacology* 28.3 (1996): 171.
- 17. Zollinger, P. E., et al. "Can vitamin C prevent complex regional pain syndrome in patients with wrist fractures?." *The Journal of Bone & Joint Surgery* 89.7 (2007): 1424-1431.
- 18. McAlindon, Timothy E., et al. "Do antioxidant micronutrients protect against the development and progression of knee osteoarthritis?." *Arthritis & Rheumatism* 39.4 (1996): 648-656.
- 19. Basar, Simla, et al. "Analgesic and antiinflammatory activity of Morinda citrifolia L.(Noni) fruit." *Phytotherapy Research* 24.1 (2010): 38-42.
- 20. Colombo, Elisa, Enrico Sangiovanni, and Mario Dell'Agli. "A review on the anti-inflammatory activity of pomegranate in the gastrointestinal tract." *Evidence-Based Complementary and Alternative Medicine* 2013 (2013).
- 21. Shirode, Amit B., et al. "Antiproliferative effects of pomegranate extract in MCF- 7 breast cancer cells are associated with reduced DNA repair gene expression and induction of double strand breaks." *Molecular carcinogenesis* 53.6 (2014): 458-470.
- 22. Asgary, Sedigheh, et al. "Clinical Evaluation of Blood Pressure Lowering, Endothelial Function Improving, Hypolipidemic and Anti- Inflammatory Effects of Pomegranate Juice in Hypertensive Subjects." *Phytotherapy Research* 28.2 (2014): 193-199.
- 23. Ahmed, Salahuddin, et al. "Punica granatum L. extract inhibits IL-1β–Induced expression of matrix metalloproteinases by inhibiting the activation of MAP kinases and NF-κB in human chondrocytes in vitro." *The Journal of nutrition* 135.9 (2005): 2096-2102.
- 24. Woo, Yun Ju, et al. "Grape seed proanthocyanidin extract ameliorates monosodium iodoacetate-induced osteoarthritis." *Experimental & molecular medicine* 43.10 (2011): 561-570.