



LifeExtension[®]
Stay Healthy, Live Better

CURIOUS ABOUT
CURCUMIN?

The golden spice that
everyone should take!


By Michael A. Smith, M.D. and Life Extension[®]



Table of Contents

The Golden Spice that Makes Big Pharma Nervous	3
Enjoy Less Joint Pain with Curcumin	6
Reverse Brain Aging with Curcumin	9
Skin Care with Curcumin	12
Infographic – Curcumin’s Whole-Body Benefits	14
References	15





The Golden Spice that Makes Big Pharma Nervous

Turmeric is the golden spice that spans cultures, making all sorts of food appear more appetizing and taste delicious. It's also the spice that makes big pharma a little nervous.

Well, if there's anything in the natural world that could take away some of the "business" of the drug industry, it is turmeric.

Turmeric has a natural golden color because it contains curcumin, a nutrition superstar that's been used medicinally for over 4,000 years! Curcumin provides enormous health-promoting effects for almost every organ system.^{1,2}

Just take a look at the documented benefits of consuming turmeric, and its rock star curcumin. It's easy to see why big pharma is nervous about this health-promoting, savory spice.

Curcumin's Whole Body Benefits³⁻¹⁰



Eases chronic inflammation by inhibiting powerful pro-inflammatory signals.

May help prevent cancer by several mechanisms, including its ability to support healthy cell growth.

Helps maintain a robust immune system.

Promote healthy brain function, including cognition and memory.

Supports healthy blood throughout the body by maintaining healthy platelet function.

Defends against the damaging effects of estrogen-mimicking chemicals, such as those found in plastics and aerosols.

Improves bowel function and joint health.

Let's take a closer look at curcumin's beneficial effects in the joints, brain, and the skin.



Turmeric is an herbaceous perennial plant native to southwest India. It's golden in color and adds its appetizing hue to soups, stews, rice and noodle dishes, and meats. The flavor is very distinct, making it one of the most recognized spices in the world.



The spice is made by boiling the plant's rhizome (root system), drying it in hot ovens, and then grinding it into a fine, golden powder. When combined with additional spices, the result is the world famous curry — a complex combination of spices or herbs, usually including fresh or dried hot chilies.



The primary active ingredient in turmeric is curcumin, which has a distinctly earthy, slightly bitter, slightly hot peppery flavor and a mustardy smell. Curcumin, about 10% of the dried turmeric spice, is a nutrition superstar.

Analyzing the Spice

Curcumin about 10%



Turmeric spice



90% other compounds



But there's not enough curcumin available in a few pinches of turmeric to make much of a difference. Supplementing with a high-quality curcumin product is the only way to obtain it in a high enough dose to fully reap its benefits.

Even though curcumin is a part of turmeric, they both have unique properties when separated. Here's an easy-to-follow breakdown of turmeric versus curcumin following separation:

Turmeric

Golden color spice grown in India and Asia. It's closely related to ginger. It dates back 5,000 years ago. To make the spice powder, turmeric's rhizome (root system) is cleaned, boiled, and then dried.

As a culinary spice, turmeric is mild and able to complement the flavor of a wider variety of foods.

Turmeric is considered an herbal remedy in Ayurvedic and Chinese medicine tradition. It possesses a number of pharmacological (drug-like) properties, including anti-inflammatory, analgesic, antioxidant, antispasmodic, antiseptic, anti-allergic, and anti-tumor.

Natural turmeric powder has low bioavailability. This means that most of the turmeric ingested does not get absorbed by the intestines. Unfortunately, many of the health benefits of turmeric are hard to obtain.

Curcumin

Curcumin belongs to a family of health-promoting compounds called curcuminoids. It's probably the most bioactive and health-promoting curcuminoid found in turmeric. It makes up to less than 10% of dried turmeric.

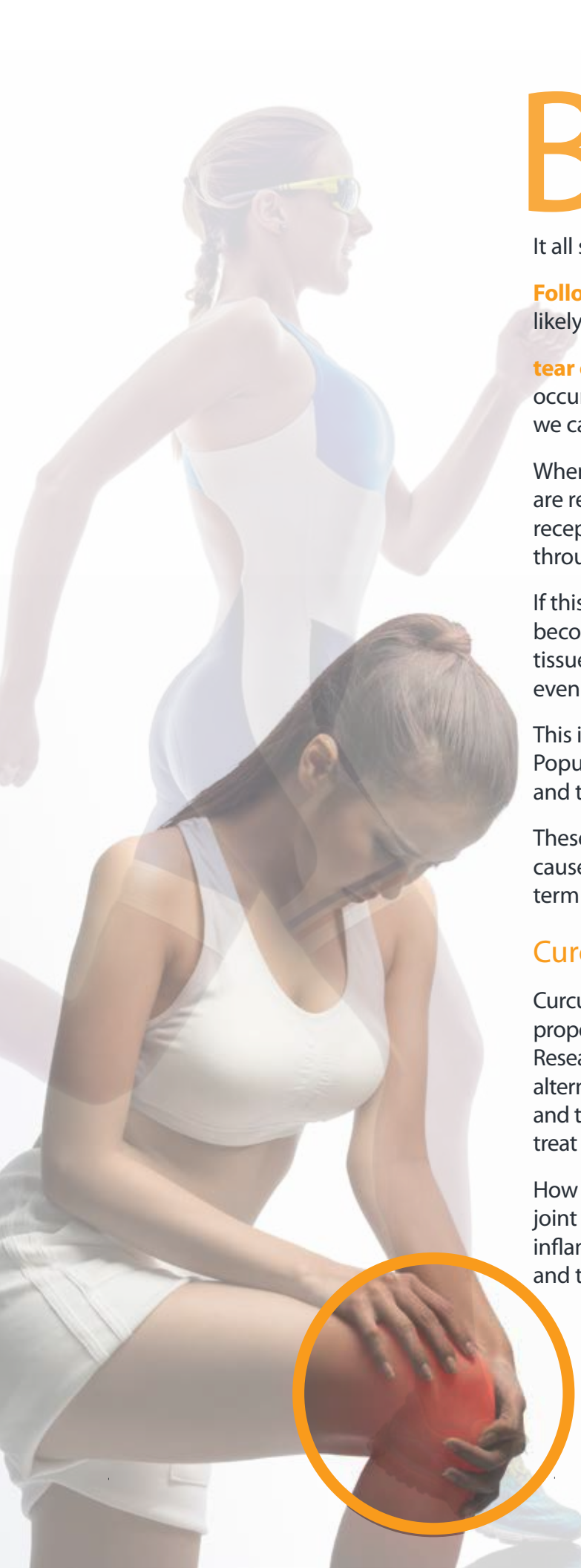
Curcumin has a bolder flavor, limiting its use in recipes.

It's pretty clear from research that curcumin is what gives turmeric all of the "drug-like" properties. So here's what we suggest: Cook with turmeric and supplement with curcumin.

Curcumin also has low absorption. However, researchers have significantly improved its absorption by adding natural turmeric oils. This is great news. This means that with these added absorption enhancers, we can all experience the many health benefits attributed to curcumin when taking it as a supplement.



Enjoy Less Joint Pain
with Curcumin



Before we jump right into curcumin's joint pain relieving properties, let's first discuss why our joints hurt in the first place.

It all starts with inflammation.

Following an injury — which can be from a fracture or more likely from a chronic situation like the wear and

tear of aging joints — a cascade of biochemical reactions occur that signal the body there's been an injury. This is what we call inflammation. And it can hurt!

When you experience an injury, several inflammatory signals are released at the site of the injury and interact with pain receptors. Activated pain receptors send intense signals throughout the nervous system.

If this process becomes chronic, the sensation to the pain can become exaggerated or inappropriate. For example, inflamed tissue from arthritis in the knee may be excessively tender and even a light touch might cause excruciating pain.

This is why taking steps to ease inflammation is so important. Popular drugs like ibuprofen happen to be anti-inflammatories and that's why they can relieve pain.

These drugs and others like them are very effective, they often cause alarming side effects, which compromises their long-term use and benefit.

Curcumin to the rescue!

Curcumin has been shown to possess potent anti-inflammatory properties, without all of the side effects of common drugs. Research suggests that curcumin may represent a viable alternative to common over-the-counter anti-inflammatories and that it may complement some prescription drugs used to treat arthritis.^{11, 12}

How does curcumin ease inflammation and ultimately relieve joint pain? By inhibiting the production and action of powerful inflammatory signals.¹³ With less inflammation, pain subsides and the joint begins to heal.

Add curcumin and experience less inflammation and pain



See a Doctor if you have the Following Joint Symptoms

Pain, swelling, or stiffness in one or more joints



Joints that are red or warm to the touch



Joint tenderness or stiffness that never goes away



Difficulty moving a joint or doing daily activities



Joint symptoms that cause you concern

5 Other Foods that Reduce Pain

Tart cherries

Tart cherries are very effective at relieving joint pain. Many people claim that just two tablespoons of the concentrated juice is all they need to ease their pain. By the way, sweet cherries may help a little but they are not as effective as the tart varieties.

Ginger

Ginger reduces the circulation of pain-causing prostaglandins, powerful inflammation and pain signals. In India, doctors use ginger for muscle and joint pain with great results. They recommend 500 to 1,000 mg a day of a ginger extract. Although cooking with ginger is recommended, the spice probably won't provide enough of the key compounds that help to reduce pain.

Flax seeds and oil

Freshly ground flax seeds and cold-pressed flax oil contain plentiful amounts of omega-3 fatty acids. Polyunsaturated fats like the omega-3s help to reduce pain by easing inflammation throughout the body.

Celery seed

Celery seeds contain many anti-inflammatory compounds and one in particular, called apigenin, is quite powerful. It also has the added benefit of boosting cell protection. Add celery seeds to soups, stews, or as a salt substitute in recipes.

Raw walnuts and walnut oil

Raw walnuts and walnut oil contains the same omega-3 fatty acids as flax oil. A delicious, pain-reducing recipe is your favorite greens dressed with flax oil and vinegar, then topped with raw walnuts.

www.prevention.com
www.arthritis.org



Reverse Brain Aging with Curcumin

There are a number of factors that cause your brain to age. These include the cumulative effects of oxidative stress, environmental toxins, and inflammation.¹⁴⁻¹⁶

Curcumin can help protect against the causes of brain aging. For example, studies demonstrate curcumin's ability to improve cellular energy and to enhance cellular protection. This means that with curcumin, your brain cells can function at an optimal level and diminish the damaging effects of toxins that contribute to brain aging.¹⁷

Now, here's where it gets interesting. Much of curcumin's value in the brain may relate to its ability to turn on genes that trigger the growth of new brain cells. This is really exciting — a discovery like this has far-reaching implications for people suffering from neurodegenerative disorders, like Parkinson's and Alzheimer's disease.

In one study, researchers gave curcumin to old mice. After a few weeks, the old mice experienced a significant increase in new brain cells, particularly in areas of the brain responsible for memory.¹⁸ Now that's impressive.

And this isn't just in mice. For us humans, adding turmeric (which contains curcumin) to meals can improve short-term memory for up to 6 hours after eating.¹⁹ That's right ... better memory for 6 hours! College students should know about this.

In other studies, curcumin improved learning and memory ability. In these studies, mice with Alzheimer's symptoms were given curcumin, followed by memory and neurochemical tests. Across the board, mice taking curcumin did a lot better on these tests than mice without it.²⁰



So are you up for a memory test? Let's go to the next page and see how you score on a classic test of short-term memory.



Why Mice are Important?

In research, mice are wonderful models for humans. Since we share many biochemical pathways with mice, if a drug or supplement is tested in mice and a certain result is observed, then that provides support for testing it in humans.

Test Your Memory ...

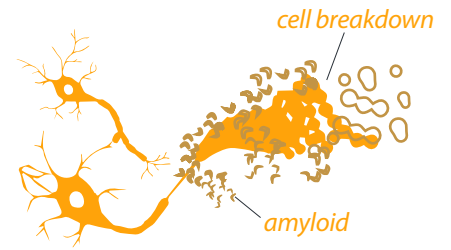
and if it's not very good try supplementing with curcumin!

Your short-term memory quiz. Slowly read each line once and then look away and try to recall the numbers. Each line comes with a numbered score. The last line that you can recall is your score.

4 8 6	10 points
2 5 7 8	9 points
5 8 2 5 7	8 points
9 1 3 4 0 6	7 points
6 7 2 8 4 3 8	6 points
1 9 8 3 0 7 5 2	5 points
0 9 3 7 0 4 6 9 1	4 points
6 6 9 4 6 2 7 8 1 0	3 points
9 6 2 4 3 7 2 0 1 9 5	2 points
6 3 1 0 9 9 7 1 4 2 6 5	1 point

Below are supplement suggestions for improving memory based on your performance. The better you did, the fewer suggestions we provide. But if you didn't do so well, you'll get more suggestions. Makes sense right?

- 1-3 points** *Excellent.* No memory supplement suggestions.
- 4-6 points** *Good.* Consider a curcumin extract.
- 7-9 points** *Needs work.* Consider curcumin and blueberry extracts.
- 10 points** *Poor.* Consider curcumin, blueberry, and a special form of magnesium called magnesium threonate.
- All points** *Play memory games.*



Curcumin has emerged as a leading “natural” contender for treating the leading cause of dementia in older people, Alzheimer’s disease.

The reason curcumin is considered a critical component in the battle against Alzheimer’s is because it interferes with the formation in the brain of abnormal proteins called amyloid.

When amyloid proteins clump together, they form dangerous “plaques” that promote inflammation and contribute directly to brain cell death.

Amyloid plaques also disrupt brain cell communication by damaging the points of contact between brain cells, called synapses.

By preventing amyloid plaque formation, curcumin helps to preserve brain cell connections. It’s the connections that brain cells make between each other that produce thoughts and memories.

In a remarkable study, scientists found that even at very small concentrations, curcumin has the ability to bind to amyloid proteins, preventing them from clumping into plaques.²¹

We believe that there’s enough research evidence of curcumin’s benefits that Alzheimer’s treatments should include the golden spice!



Skin Care with Curcumin
A soothing face mask

Did you know that turmeric makes a great face mask?

Well, it's actually a flour and turmeric mixture that can be applied to your face and neck. With daily use, your face will feel smooth and soft.

You can make the mixture in advance and store it in a cool, dry place. When you're ready to apply it, just add a little oil and water and voila ... a wonderful face mask!

Ingredients

1. ½ cup garbanzo (chickpea) flour
2. 1 ½ Tbsp. ground turmeric
3. 5 drops of your favorite beneficial oil – almond, avocado, grapeseed, or hemp seed oils work the best
4. 1-2 tsp filtered water

Directions

1. Mix the flour and turmeric and save in an airtight container until you are ready to prepare your mask.
2. To prepare the mask, mix 1 Tbsp. of the flour mixture with 5 drops of oil and enough water to make a paste.
3. Smooth the mixture on your face and neck, avoiding the eyes.
4. Let the mixture remain on your face until it dries (about 15 minutes) and then wash it off in the shower.
5. Make sure you remember to take your shirt off before you put this mask on. Avoid getting this mask on your clothes because it might stain!

Sit back and relax! After using this mask your skin will feel unbelievably soft, firm, supple and radiant!

If your skin is oily, try this: Combine 1 Tbsp. sandalwood powder, a pinch of turmeric, and 3 tablespoons of orange juice and apply the paste to your face. Leave it on for about 10 minutes, then rinse with lukewarm water.

www.abcnews.go.com

Additional Skin Care Regimens with Curcumin

Turmeric for facial hair

Mix turmeric with chickpea flour. Leave on for 10-15 minutes, then wash off in light circular motions.

Turmeric as a deep cleanser

Mix chickpea (or rice) flour with turmeric powder in equal proportions. Add just enough raw milk or plain yogurt to make a paste. Apply evenly to the face and leave on for about 10-15 minutes; wash off with warm water.

Turmeric for acne

Mix one tablespoon of turmeric with a few drops of milk and sandalwood. Apply on skin for 15-20 minutes and then wash off with plain water. This will both reduce active acne and lighten the scars.

Turmeric as a skin brightener

Mix 2 tablespoons of sandalwood powder, a pinch of turmeric powder and a few drops of lemon juice. Add enough milk to make a paste. Apply this mask on your face and neck; wash off with warm water once dry.

People swear by their skin care regimens using curcumin; however, there's very little research evidence to support their claims. But that's ok, subjective evidence still holds some weight.

Are you taking the golden spice?

Joint pain relief



Skin care



CURCUMIN THE GOLDEN SPICE



Memory and mental sharpness



Robust immune system



Healthy heart

It's a great idea to cook with turmeric and curcumin. But obtaining all of the health benefits attributed to them really requires a high quality supplement. The problem is that curcumin does not absorb very well ... it needs some help. A few years ago, an exciting "next generation" curcumin was introduced that absorbs up to 7 times better.

If you'd like to learn more about curcumin,
call Life Extension's Wellness Specialists at
1-888-236-0683.

References

1. *Nat Sci Biol Med.* 2013 Jan-Jun;4(1):3-7.
2. *Biofactors.* 2013 Jan-Feb;39(1):2-13.
3. *AAPS J.* 2014 Jul;16(4):649-57.
4. *Ceska Slov Farm.* 2014 Feb;63(1):26-31.
5. *AAPS J.* 2009 Sep;11(3):495-510.
6. *Anesth Analg.* 2014 Jun;118(6):1336-44.
7. *Zhongguo Zhong Yao Za Zhi.* 2014 Oct;39(19):3846-9.
8. *Platelets.* 2011;22(4):270-6.
9. *Phytother Res.* 2014 Oct;28(10):1553-60.
10. *Pharmacol Res.* 2015 May-Jun;95-96C:71-81.
11. *Osteoarthritis Cartilage.* 2011 Jan;19(1):1-21.
12. *Rheumatology (Oxford).* 2006 Feb;45(2):171-7.
13. *Inflamm Res.* 2009 Dec;58(12):899-908.
14. *Steroids.* 2015;101:78-89.
15. *Neurobiol Aging.* 2002;23(5):787-94.
16. Available at: <http://www.ninds.nih.gov/disorders/neurotoxicity/neurotoxicity.htm>. Accessed December 3, 2015.
17. *Biogerontology.* 2006;7(2):81-9.
18. *J Biol Chem.* 2008;283(21):14497-505.
19. Available at: <http://www.airitilibrary.com/Publication/alDetailedMesh?DocID=09647058-201303-PP201303130005-PP201303130005-1-11-0079>. Accessed November 21, 2014.
20. *Chin Med J (Engl).* 2008 May 5;121(9):832-9.
21. *Adv Exp Med Biol.* 2007;595:197-212.

Choose Life Extension®

we focus on quality, purity, and potency.



Quality

Your partners in good health

Our quality control standards actually exceed FDA requirements, and every Life Extension product comes with a 100% satisfaction guarantee.



Purity

Only the best, nothing less

We use only the best raw materials, so you know that what's on our label is what's in your supplement. Nothing more ... and *certainly* nothing less.



Potency

The best value, guaranteed

Our raw materials are carefully processed to preserve chemical complexity. And unlike many store bought brands, we never choose our ingredients based on cost.



Unique Formulations

You won't find anywhere else

A scientific approach to nutrition has been the bedrock of our company for over 35 years and is what lets us create groundbreaking nutritional supplements unlike anything else on the market.



All of our clinically-validated formulations come with a 100% money back guarantee.***



Life Extension® has earned GMP (Good Manufacturing Practices) Registration from NSF International.††



99% of our products are made in the United States. And all of our quality ingredients are verified for purity and potency before they go into our supplements.

LifeExtension®
Stay Healthy, Live Better