

## The Healing Properties of Turmeric

With Steven Horne, RH(AHG)

### Introducing Turmeric

- Latin Name:  
*Curcuma longa*
- Zingiberaceae family
- An Asian spice that gives curry its yellow color
- Comes from a rhizome
- Related to ginger



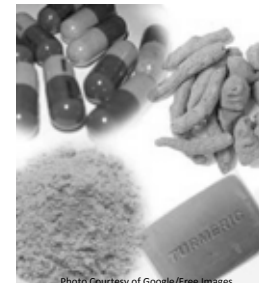
### Curry Anyone?

- Turmeric is widely used in South Asian cooking. It is a classic ingredient in Indian cuisine, and curry powders invariably contain turmeric.
- Turmeric has a bitter, earthy taste by itself, but it combines nicely with other Indian flavors such as fresh ginger root, cumin, garam masala, coriander and coconut milk.



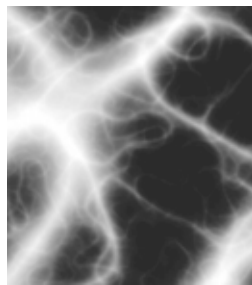
### Traditional Herbalism

- Turmeric has a long history of use in Ayurvedic medicine and traditional Chinese medicine (TCM).
- It is rapidly gaining favor in Western herbalism as well – especially among herbalists and alternative health practitioners.
- Numerous studies are confirming the many benefits of this plant



### New Discoveries

- Science is discovering that turmeric has exciting new properties that may treat and prevent disease.
- According to the National Institutes of Health, 61 clinical trials are completed or underway to study the use of dietary curcumin for a variety of clinical disorders.



### What's in Turmeric?

- Diarypeptanoids (yellow pigments) known as curcumin
  - Numerous properties
- Essential Oil (3-5%)
  - Antimicrobial, anti-inflammatory, anti-histamine, choleric
- Tumerin
  - Antioxidant, antimutegen, protects DNA
- Ukonan-A
  - Phagocytic (activates white blood cells)
- Ukonan-D
  - Inhibits carcinogens
- Oleo-resins
- Vitamin A, carotenoids, minerals

### Research on Curcumin Suggests It...

- ...has antimutegenic properties
- ...helps detoxify cancer-causing chemicals
- ...inhibits lipid peroxidation
- ...is anti-inflammatory
- ...stimulates immune function
- ...interferes with viral replication
- ...is antihortmbotic
- ...reduces muscle injury after trauma
- ...inhibits arachidonic acid metabolism



Photo Courtesy of Wikipedia

### Anti-Everything?

**In *in vitro*, animal and human studies, curcumin has shown antioxidant, anticancer, antitumor, antiarthritic, antiamyloid, anti-ischemic, and anti-inflammatory properties, as well as other benefits.**

Strofer, Mareike; Jekmann, Wolfgang; Depping, Reinhard (2011). "Curcumin Decreases Survival of Hep3B Liver and MCF-7 Breast Cancer Cells". *Strahlentherapie und Onkologie* 187 (7): 393–400.

Aggarwal, Bharat B.; Shishodia, Shishir (2006). "Molecular targets of dietary agents for prevention and therapy of cancer". *Biochemical Pharmacology* 71 (10): 1397–421.

Choi, H.; Chun, Y.-S.; Kim, S.-W.; Kim, M.-S.; Park, J.-W. (2006). "Curcumin Inhibits Hypoxia-Inducible Factor-1 by Degrading Aryl Hydrocarbon Receptor Nuclear Translocator: A Mechanism of Tumor Growth Inhibition". *Molecular Pharmacology* 70 (5): 1664–71.

Shukla, Pradeep K.; Khanna, Vinay K.; Ali, Mohd. M.; Khan, Mohd. Y.; Srimal, Rikhab C. (2008). "Anti-ischemic Effect of Curcumin in Rat Brain". *Neurochemical Research* 33 (6): 1036–43.

Stix, G. (February 2007). "Spice Healer". *Scientific American*, 296 (2): 66.

### Properties of Curcumin

- Curcumin, the active ingredient in turmeric, stimulates the gall bladder to produce bile, which may aid digestion. Germany has approved the use of turmeric as a prescription for various digestive disorders.
- See (ClinicalTrials.gov): Kaiser Permanente-Southern California, Chris Nicholas Contreas, MD. Identifier: NCT00779493, Study ID Number: 4893, Study First Received: October 22, 2008. Last Updated: August 1, 2011. Health Authority: United States Institutional Review Board.



Photo Courtesy of Wikipedia

### Liver Herb

- One of the main uses of turmeric in TCM and Ayurveda is as a tonic to the liver
- Turmeric is hepatoprotective and aids liver detoxification
- It increases glutathione levels and glutathione-S-transferase activity
- It also stimulates bile flow and eases nausea

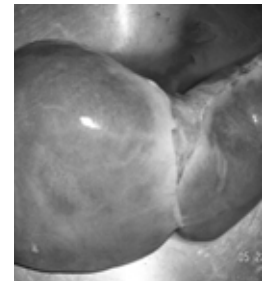


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### Digestive Remedy

- According to the University of Maryland Medical Center, a double-blind placebo-controlled study confirmed the effectiveness of turmeric in reducing bloating and gas in patients with indigestion
- It increases mucus production in the stomach
- Clinical research suggests that turmeric can ease symptoms of dyspepsia (indigestion)
- Thamlikitkul V, Bunyapraphatsara N, Dechatiwongse T, et al. Randomized double blind study of Curcuma domestica Val. for dyspepsia. *J Med Assoc Thai* 1989;72:6:13-20.



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### Ulcer Study

- Forty-five patients, 24 males and 21 females, aged between 16-60 years were used to study the effects of turmeric on gastric ulcers.
- Twenty-five patients, 18 males and 7 females, were endoscoped. Ulcer sizes varied between 0.5 to 1.5 cm in diameter.
- Turmeric was given orally, 2 capsules (300 mg each) five times daily, one half to an hour before meals, at 16:00 hours and at bedtime continuously.
- After 4 weeks of treatment showed that ulcers were absent in 48% or 12 cases. Eighteen cases had absence of ulcer after 8 weeks of treatment. Nineteen cases (76%) did not have ulcers after 12 weeks of treatment.
- The rest, 20 cases were not found to have ulcers and some were not endoscoped. They appeared to have erosions, gastritis and dyspepsia. They received turmeric capsules for 4 weeks of treatment. The abdominal pain and discomfort satisfactorily subsided in the first and second week.
- Prucksunand C, Indrasukhsri B, Leethochawalit M, Hungspreugs K. Phase II clinical trial on effect of the long turmeric (*Curcuma longa* Linn) on healing of peptic ulcer. *The Southeast Asian Journal of Tropical Medicine and Public Health*. 2001 Mar, 32(1): 208-15

### More Research

**An oral dose of 500 mg/kg of turmeric extract produced significant anti-ulcerogenic activity in rats. Turmeric extract increased the gastric wall mucus significantly.**

(Evaluation of turmeric (*Curcuma longa*) for gastric and duodenal antilucer activity in rats

S. Rafatullah, M. Tariq, M.A. Al-Yahya, J.S. Mossa, A.M. Ageel. Medicinal, Aromatic and Poisonous Plants Research Center and Departments of Pharmacology and Pharmacognosy, College of Pharmacy, King Saud University, P.O. Box 2457, Riyadh-11451 Saudi Arabia)

**NCCAM also acknowledges the practice of using turmeric to treat heartburn, stomach ulcers and gallstone pain.**



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### Turmeric and Cholesterol

- In animal studies, turmeric lowered LDL cholesterol levels and prevented blood clots. (Williamson E. (2002). *Major Herbs of Ayurveda* (pp. 117-121). Edinburgh: Churchill Livingstone.)
- 18 rabbits were fed a diet containing 95.7% standard chow, 3% lard and 1.3% cholesterol, for seven weeks, to induce atherosclerosis. The rabbits were divided into groups, two of which were given varying doses of a turmeric extract. A third group acted as a control. Plasma and LDL lipid composition, plasma  $\alpha$ -tocopherol, plasma retinol, LDL TBARS, LDL lipid hydroperoxides and analysis of aortic atherosclerotic lesions were assayed. The low but not the high dosage decreased the susceptibility of LDL to lipid peroxidation. Both doses had lower levels of total plasma cholesterol than the control group. Moreover, the lower dosage had lower levels of cholesterol, phospholipids and triglycerides in LDL than the 3.2-mg dosage. (Oral administration of a turmeric extract inhibits LDL oxidation and has hypocholesterolemic effects in rabbits with experimental atherosclerosis M.C. Ramirez-Tortosa, C., , M.D. Mesa, C, M.C. Aguilera, C, J.L. Quilesb, c, L. Baróc, C.L. Ramirez-Tortosad, E. Martinez-Victoriab, C, A. Gila, c)

### Antioxidant Action

- Curcumin's antioxidant action has been found to help prevent certain cancers, Alzheimer's disease and cardiovascular conditions. This may be due to the inhibition of eicosanoid biosynthesis.
- Maheshwari RK, et al. (2006). Multiple Biological Activities of Curcumin: A short review. *Life Sciences*, Mar. 27, 78(18): 2081-2087.
- A study found that curcumin acts as a free radical scavenger, inhibiting lipid peroxidation and oxidative DNA damage, and protecting against neurotoxicity from lead and other heavy metals.
- Shukla, Pradeep K; Khanna, Vinay K; Khan, Mohd Y; Srimal, Rikhab C (2003). "Protective effect of curcumin against lead neurotoxicity in rat". *Human & Experimental Toxicology* 22 (12): 653.

### Turmeric and the Brain

- Several studies have shown that curcumin has a positive effect on neurogenesis in the hippocampus and increases the levels of brain-derived neurotrophic factor (BDNF) in rats. Curcumin was also found to be protective against brain trauma and stroke.

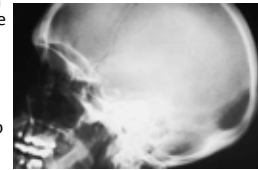


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The Maher, Pamela; Akaiishi, Tatsuhiro; Schubert, David; Abo, Kazuo (2010). "A pyrazole derivative of curcumin enhances memory". *Neurobiology of Aging* 31 (4): 706-9.

Liu, Y.; Dargusch, R.; Maher, P.; Schubert, D. (2008). "A broadly neuroprotective derivative of curcumin". *Journal of Neurochemistry* 105 (4): 1336-1345.

Wu, A.; Ying, Z.; Schubert, D.; Gomez-Pinilla, F. (2011). "Brain and spinal cord interaction: a dietary curcumin derivative counteracts locomotor and cognitive deficits after brain trauma". *Neurorehabilitation and Neural Repair* 25 (4): 332-342.

Lapchak, P.; Schubert, D. R.; Maher, P. A. (2011). "Delayed Treatment with a Novel Neurotrophic Compound Reduces Behavioral Deficits in Rabbit Ischemic Stroke" *Journal of Neurochemistry* 116 (1): 122-131.

### Turmeric for Memory

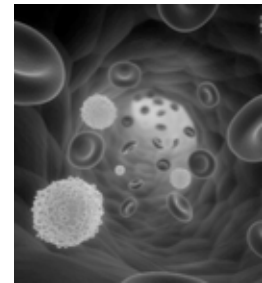
- In an animal study, curcumin was shown to be effective in protecting against toxicity and impairment of spatial memory induced by amyloid  $\beta$ -protein infusion.
- Frautschy, S; Hu, W; Kim, P; Miller, SA; Chu, T; Harris-White, ME; Cole, GM (2001). "Phenolic anti-inflammatory antioxidant reversal of  $A\beta$ -induced cognitive deficits and neuropathology". *Neurobiology of Aging* 22 (6): 993-1005.



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### Anti-ischemic Action

- A study using a transgenic animal model indicated that curcumin diminished plaque burden and overall inflammation.
- It also had a synergistic effect with fish oil to improve blood flow and protect against cognitive deficits.
- Chu, Giselle P.; Chu, Teresa; Yang, Fusheng; Beech, Walter; Frautschy, Sally A.; Cole, Greg M. (2001). "The Curry Spice Curcumin Reduces Oxidative Damage and Amyloid Pathology in an Alzheimer Transgenic Mouse". *The Journal of Neuroscience* 21 (21): 8370-7.



### More Research

- Another study found that curcumin shrank the size of plaques and reduced neurite dystrophy in an Alzheimer mouse model.
- Garcia-Alloza, M.; Borrelli, L. A.; Rozkalne, A.; Hyman, B. T.; Bacskai, B. J. (2007). "Curcumin labels amyloid pathology in-vivo, disrupts existing plaques, and partially restores distorted neurites in an Alzheimer mouse model". *Journal of Neurochemistry* 102 (4): 1095-104.



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### Anti-Inflammatory Action

**Turmeric inhibits activity of the transcription factor NF- $\kappa$ B, a pro-inflammatory messenger. This supports turmeric's anti-inflammatory action.**

Aggarwal, B. B.; Shishodia, S. (2004). "Suppression of the Nuclear Factor- $\kappa$ B Activation Pathway by Spice-Derived Phytochemicals: Reasoning for Seasoning". *Annals of the New York Academy of Sciences* 1030: 434-441.



Photo from Wikipedia

### Turmeric and Joint Health

- Mice fed curcumin displayed less infiltration of immune cells in the joints, less synovial hyperplasia, and less cartilage destruction and bone hyperplasia than control mice.
- Chopra A, et al. (2004). A 32-week randomized, placebo-controlled clinical evaluation of RA-11, an ayurvedic drug, on osteoarthritis of the knees. *Journal of Clinical Rheumatology*. Oct
- Studies performed by scientists at Konkuk University suggest that turmeric might suppress type II collagen-induced arthritis.



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### Osteoarthritis Study

- In one clinical trial, taking a 500 mg. turmeric extract twice daily significantly reduced pain and improved functionality compared to baseline after 8 weeks of treatment in patients with osteoarthritis of the knee. Patients taking this extract also had significantly reduced usage of analgesics and NSAIDs. The extract used in this study was standardized to contain 20% curcuminoids (providing 75% curcumin) complexed with phosphatidylcholine
- Belcaro G, Cesarone MR, Dugall M, et al. Efficacy and safety of Meriva, a curcumin-phosphatidylcholine complex, during extended administration in osteoarthritis patients. *Alt Med Rev* 2010;15:337-4.

### Other Research

- Curcumin has been shown to reduce inflammation, which makes it valuable in treating rheumatoid arthritis, osteoarthritis and other inflammatory conditions.
- Chopra A, et al. (2004). A 32-week randomized, placebo-controlled clinical evaluation of RA-11, an ayurvedic drug, on osteoarthritis of the knees. *Journal of Clinical Rheumatology*. Oct. 10 (5): 236-245.



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### Rheumatoid Arthritis Study

- In a study of 18 patients with rheumatoid arthritis, taking 1200 mg of curcumin daily was as effective as taking 300mg per day of phenylbutazone, a non-steroidal anti-inflammatory drug for reducing morning stiffness and joint swelling.
- "International Journal of Clinical Pharmacology, Therapy and Toxicology," Evaluation of Anti-inflammatory Property of Curcumin in Patients With Postoperative Inflammation; R.R. Satoskar, June 1986



### Anti-Cancer Potential

In one study, curcumin induced apoptosis (cell death) in cancer cells without cytotoxic effects on healthy cells.<sup>1</sup> In an animal study, curcumin inhibited the growth of cancer cells in the stomach, liver and colon as well as oral cancers.<sup>2</sup>

<sup>1</sup>. Aggarwal, B. B.; Shishodia, S. (2004). "Suppression of the Nuclear Factor- $\kappa$ B Activation Pathway by Spice-Derived Phytochemicals: Reasoning for Seasoning". *Annals of the New York Academy of Sciences* 1030: 434-441.

<sup>2</sup>. Ravindran, J.; Prasad, S.; Aggarwal, B. B. (2009). "Curcumin and Cancer Cells: How Many Ways Can Curry Kill Tumor Cells Selectively? The AAPS Journal 11 (3): 495-510.



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### Potential for Weight Loss

- The U. S. Department of Agriculture investigated the possible benefits of turmeric on weight management.
- Mice fed high-fat diets supplemented with curcumin displayed less weight gain and total body fat than control mice fed a similar diet without curcumin.
- A study by Dr. Asai and Dr. Miyazawa concluded that a turmeric extract lowered fats in the blood stream and reduced weight gain volunteers.

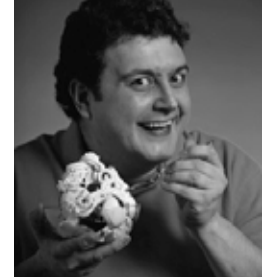


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### Turmeric and Herpes

- A study found that low concentrations of curcumin interfere with Herpes simplex-1 replication. It inhibited the recruitment of RNA polymerase II to viral DNA, thus inhibiting transcription.
- Kutluay, Sebla B.; Doroghazi, James; Roemer, Martha E.; Triesenberg, Steven J. (2008), "Curcumin inhibits herpes simplex virus immediate-early gene expression by a mechanism independent of p300/CBP histone acetyltransferase activity." *Virology* 373 (2): 239-47



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### Another Herpes Study

- Another study found that curcumin is significantly associated with protection from infection by HSV-2 in animal models of intravaginal infections.
- Bourne, Krystyn Z.; Bourne, Nigel; Reising, Shirley F.; Stanberry, Lawrence R. (1999). "Plant products as topical microbicide candidates: Assessment of in vitro and in vivo activity against herpes simplex virus type 2". *Antiviral Research* 42 (3): 219-26.

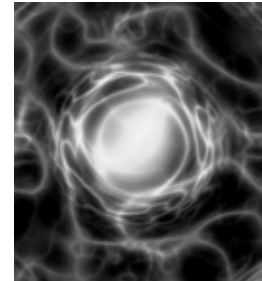


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### Eye Health

- In an Indian study conducted by King George's Medical College and reported in the 1999 issue of "Phytotherapy Research," curcumin was as effective as corticosteroids in treating uveitis, an inflammatory eye condition.
- The eyes are particularly prone to oxidative stress



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### Historical Uses

- An Ayurveda text dating back to 250 BC, recommends making a turmeric paste to alleviate the effects of food poisoning.
- In India, Turmeric is known to be warming and strengthening to the body and is used in times of convalescence.
- Traditionally, it is used in the digestive system to improve digestion, promote metabolism, expel worms and relieve gas.
- Turmeric is a folk remedy in India for swelling in joints and for the relief of arthritis.
- It is believed to normalize and purify the blood flow and is used topically on cuts, burns, sprains and bruises.
- The herb was found in Hawaii and the ancient people there used in to prevent and treat sinus infections and ear infections.

### Modern Uses

- Turmeric has strong anti-inflammatory effects and can stop, as well as, repair damage to joints. It promotes circulation and reduces pain by blocking substance P to afflicted areas.
- The herb encourages flexibility in tendons, joints and ligaments, which aids movement in people suffering from arthritis.
- Turmeric stimulates the healing of tissue, this is helpful to lessen scarring and as post-operative treatment.
- The herb is used to heal wounds and applied topically it will promptly stop bleeding.
- Internally or externally, Turmeric can be used to obtain healthy skin for those suffering from psoriasis, eczema or acne.

### Specific Indications

- Inflammation
- Ligament or tendon pain
- Arthritis
- Sprains
- Wound healing, scarring
- Eczema, psoriasis, acne
- Sinus and ear infections
- Food poisoning
- Poor circulation



Photo from Wikipedia

### Preparations and Doses

- Turmeric can be used as a versatile culinary ingredient and is best paired with fats, as it is absorbed more readily through them.
- The recommended dosage for standardized curcumin powder is 400 to 600 milligrams, three times per day.
- Capsules, 750 mg, taken 3 times a day
- Tincture, 1:2, 40-60 drops, 3 times a day

### Safety

- Curcumin and turmeric are completely safe when eaten in foods and at recommended dosages, but larger doses may cause stomach upset.
- The Food and Drug Administration (FDA) has given turmeric and curcumin "Generally Regarded As Safe" status.



### Upcoming Educational Opportunities

- Free webinar: Healing with Herbs and Water (April 30 – 6:30 Mountain Time)  
<https://www2.gotomeeting.com/register/610358970>
- Advanced Herbal Training—Module 10: Herbs for the Fluid Systems (May 14 and 21, June 11 and July 9 – 6:30 Mountain Time)  
Cost \$97 pre-registered (\$72 for members)
- Register at [www.treelite.com](http://www.treelite.com) or by calling 800-416-2887

### Join the Herbiverse Member Program

- \$19.95 per month for webinars on three different topics each month with access to recordings, handouts and PowerPoint presentations in the member archives. Discounts on classes and materials. 30 day free trial.
- PowerPoint for this webinar will be available in the member archives
- May member webinars:
  - The Holistic Perspective (May 9) — Flower Essences for Emotional Healing
  - Business Coaching (May 22) — Marketing 101: Building Your Herd: Finding and Keeping Customers
  - Sunshine Sharing Hour (May 28) — Quenching Free Radical Damage with Antioxidants (Nature's Sunshine specific version)
  - The Herbal Hour (May 29) — Quenching Free Radical Damage with Antioxidants with Thomas Easley (Generic version)

**Question and Answer Time**

