Curcumin: Linking Leptin, Obesity, Joint Problems, Inflammation
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Curcumin is the yellow pigment derived from the spice turmeric. Fine quality dietary supplements standardize curcumin for the amount of curcuminoids, the primary biologically active ingredient. It is widely researched as an anti-inflammatory nutrient with cancer risk reduction properties. A number of new studies demonstrate how curcumin can reduce the inflammation associated with obesity and in so doing simultaneously improve joint health.

While it is fairly easy to understand that carrying extra body weight places more mechanical stress on joints, a number of studies now demonstrate that joint wear and tear relating to obesity far exceeds this aspect of the issue as the only factor accelerating joint loss. Indeed, the obesity of inflammation, in addition to the extra stress of the weight itself, is a nasty combination that can drive rapid joint deterioration.

A review article by researchers at the MD Anderson Cancer Center reviewed the extensive body of science showing that curcumin is an important nutrient to combat obesity and metabolic disease. This review points out that curcumin directly interacts with fat cells, pancreatic cells, liver cells, muscles, and immune system macrophages. In this context curcumin directly regulates the primary anti-inflammatory gene signal, NF-kappaB. This helps lower leptin resistance, boost adiponectin, which regulates blood sugar, and reduce multiple inflammatory signals associated with obesity. The researchers concluded, “These curcumin induced alterations reverse insulin resistance, hyperglycemia (high blood sugar), hyperlipidemia (elevated triglycerides and cholesterol), and other symptoms linked to obesity.”

Other research shows that curcumin directly suppresses inflammation in chondrocytes, your joint cartilage building carpenter cells. If your chondrocytes get inflamed they start working against your cartilage instead of building it, like a drunk demo crew. The higher the dose of curcumin the less damage there is to joint cartilage and to the synovial fluid cells that provide joint lubrication. Indeed, curcumin has been proven to reduce the joint destruction in patients with rheumatoid arthritis.

A number of new studies show how curcumin can help combat the leptin/obesity driven process of joint loss. Interleukin-8 (IL-8) is a pro-inflammatory messenger that attracts other immune cells to a site of inflammation. Joints contain a lubricant material called hyaluronic acid that is produced by the collagen and matrix producing fibroblasts of the synovial tissue that line the surfaces within joints. Excessive leptin (obesity associated leptin resistance) can turn on IL-8 production within the synovial fibroblasts, via NF-kappaB activation. In turn this leads directly to joint inflammation. This has now been proven to happen in both rheumatoid arthritis and osteoarthritis. A cell study shows
that curcumin can completely block this leptin-induced IL-8 inflammation [7] in joint cells.

In addition to this direct support of joint health by curcumin, curcumin directly offsets the effects of leptin resistance within white adipose tissue as well as within the liver. New science shows that curcumin is yet another nutrient that helps regulate the formation of fat cells [8] within white adipose tissue, helping lower their activity, and thereby helping lower the production of leptin by fat cells in the first place. Furthermore, excessive leptin also activates genes within your liver that promote the improper accumulation of fat within liver cells, leading to fatty liver and consequent liver malfunction (including type 2 diabetes). Curcumin has been shown to help protect your liver [9] from such leptin induced problems, directly interfering with this undesirable leptin signaling.

Curcumin is a potent nutrient that helps reduce inflammation, protect joints, and generally improve the metabolic condition, helping offset the core problem of leptin resistance.

Referenced Studies:


[2] Curcumin, Hormone Therpapy, and Breast Cancer Risk Menopause, Carroll, Candace E.; Benakanakere, Indira; Besch-Williford, Cynthia; Ellersieck, Mark R.; Hyder, Salman M.

[3] Curcumin’s Multiple Effects on Obesity and Metabolism, Annu Rev Nutr, Aggarwal BB.


http://www.wellnessresources.com/health/articles/curcumin_linking_leptin_obesity_joint_problems_and_inflammation/