

# Featured Topic: Glutathione (5 slides)

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# Glutathione

- The body can make two antioxidants – the rest must be obtained in the diet
- One is superoxide dismutase and the other is **glutathione**
- Mechanism of action
  - Neutralizes free radicals
  - Regenerates spent antioxidants including Vitamins C and E
  - Helps the immune system fight off infections and cancer
  - Critical for detoxification: sends poisonous toxins through the liver and out of the body
- Glutathione is critical to life
  - All cells in the body can synthesize glutathione
  - People born unable to properly metabolize glutathione usually suffer from serious illnesses and will probably die early in life

# The Two Faces of Glutathione

- Glutathione occurs in two forms
- The desirable form – reduced glutathione
  - Active form
  - Able to neutralize free radicals and provide all the health benefits of glutathione
  - Abbreviated as GSH
- The undesirable form – oxidized glutathione
  - Inactive glutathione
  - Must be regenerated to be effective
  - Abbreviated as GSSG

# Low glutathione levels

- A healthy child has about **99% of their glutathione in the active form**, and 1% or less in the inactive form
- A healthy young adult has about **90% of their glutathione in the active form**, and about 10% in the inactive form
- But the older we get, the less active glutathione we have, and the more inactive glutathione is present
- In fact, **by age 65 we have up to 50% less of the active form of glutathione**

# Other factors which reduce glutathione levels

- **Disease**
- **Poor nutrition**
- **Toxins and pollution**
- **Infections**
- **Trauma**
- **Drugs—especially acetaminophen**
- One study found that children with autism have only 60% active glutathione (and 40% in the inactive form)

# Restoring glutathione levels

- The difficulty with supplemental glutathione is that it breaks down rapidly when taken orally
- The only effective way to get glutathione in its active form was to have it injected
  - Inconvenient
  - Very expensive (up to \$1000 a treatment)
- New research has found a way to stabilize glutathione so that it remains in its active form

# French Research on Glutathione

- French researchers have patented a stable, oral glutathione
- Tablet dissolves in the mouth
- Shown in clinical research to increase glutathione ratios (active versus inactive) **230%** over unprotected glutathione
- Also improved glutathione ratios 73% better than NAC – a glutathione precursor

# Who can benefit from glutathione?

- Much of the research on glutathione has focused on brain diseases, especially Parkinson's disease
- Also use for
  - Cancer
  - Autism
  - Diabetes
  - Depression
  - Arthritis
  - Lyme disease
  - HIV/Aids
  - Any disease of the brain/nervous system

Take 150 mg of active (reduced) glutathione twice daily, allowing it to dissolve under the tongue.  
Don't eat or drink until the tablet has dissolved.

# Listener Question

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## Ask Terry

Dear Terry:

I am having trouble with my hands swelling during the night. When I wake up in the morning, my hands feel so tight and uncomfortable. I think it is related to water retention because my lower legs and feet swell at the end of the day. Is there a natural remedy I could try?

R.L, from Indiana

# **B12 for Infant Brain Development (2 slides)**

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# B12 for the Brain

- Researchers measured blood levels of vitamin B12 in 500 infants
- Five years later they were able to contact 320 of the children and tested their development and mental function (solving puzzles, recognizing letters, interpreting other children's feelings)
- Children who had low (suboptimal, not deficient) B12 levels as infants had lower test scores than children who had optimal B12 levels
- During pregnancy, vitamin B12 is concentrated in the fetus and stored in the liver
  - Babies born to mothers who had ample Vitamin B12 during pregnancy have enough B12 to sustain them for several months
  - Babies whose mothers have low B12 are at risk of deficiency, especially between 6 and 12 months of age

# Methylcobalamin – the active form of B12

- B12 is naturally found in animal products: fish, eggs, meat, and milk
  - B12 is generally not found in plants, so B12 supplementation is important for vegetarians
- Typical form of B12 in supplements is cyanocobalamin
- Must be converted to the active form once ingested
- Look for methylcobalamin, the active form of B12 which does not require conversion in the body
  - 1,000 mcg daily, plus 800 mcg folate as 5-methylfolate and 25 mg vitamin B6 as pyridoxal-5-phosphate

# Nutrient of the Day: Lemon Balm

## (4 slides)

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# Melissa officinalis – Lemon balm

- Lemon balm has been recommended for “disorders of the nervous system” for over 2,000 years
- Modern research has found that it binds to two receptors in the brain
  - One receptor triggers feeling of relaxation and a positive mood
  - The other receptor is important for learning and memory
- Clinical studies have found lemon balm helpful for mood, anxiety, and insomnia

## Lemon balm for mood

- Randomized, double blind trial of 20 healthy young people
- Received a single dose of lemon balm once a week for 3 weeks (600 mg, 1000 mg, and then 1600 mg)
- Results 2.5 hours after taking lemon balm
  - Up to a 20% improvement in calmness score
  - Alertness was reduced at all dosages – a sign that lemon balm acts as a mild sedative
  - Effects lasted up to 6 hours

## Lemon balm for anxiety and sleep problems

- 20 volunteers with mild to moderate anxiety and sleep problems, but otherwise healthy, received lemon balm for 15 days
- Results
  - 42% reduction in insomnia symptoms overall
  - 70% of the participants achieved complete remission of their anxiety
  - 85% of the participants achieved complete recovery from insomnia
  - No adverse effects experienced

# How to take lemon balm

- For sleep problems
  - 125 to 250 mg of a combination of lemon balm with mandarin oil, ravensara oil and lavender oil
  - Take before bedtime
- For stress and anxiety
  - 375 mg of lemon balm with Holy basil leaf oil
  - Take twice a day
  - Can also add 20 mg of *Echinacea angustifolia* two to four times daily