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## Zinc Taste Test

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### **Background**

Zinc is one of the most important trace minerals. Its effects on the body are far-reaching due to its role in more enzyme systems than the rest of all the trace minerals combined. Zinc is a major component of over 70 metalloenzyme complexes, which catalyze major biochemical reactions in the body. One of the most important of these is carbonic anhydrase, the enzyme that catalyzes the carbonic acid-bicarbonate buffering system, without which we would not survive. It is also essential in the maintenance of our basal metabolic rate and zinc deficiency has been associated with a decreased Basal Metabolic Rate (BMR).

Despite its essentiality in life processes, no functional store of zinc appears to exist. Most of the body's zinc is locked away in bone and protein, which is one of the reasons that zinc deficiency is very common. Zinc deficiency is also caused by impaired absorption, due to hypochlorhydria, inhibition by certain nutrients (iron), and drugs (birth control pills and steroids), and a lack of zinc in the soil.

Zinc deficiency has a large impact on cellular function and metabolism. Zinc deficiency is associated with a loss of taste and smell, reduced immunity, failure to thrive, reproductive difficulties, especially in men, loss of appetite, and various skin disorders including, seborrhea, scaling or flaking skin, and acne.

### **Discussion**



Zinc deficiency can lead to unnecessary suffering, making the Zinc Taste test a valuable assessment for most patients. The test is a non-invasive method of determining a patient's physiological zinc status. It is a functional assessment as opposed to the quantitative assessment for zinc, such as serum or plasma zinc studies.

- Zinc deficiency is strongly associated with a loss of taste acuity and this lack of “gustatory sensitivity” has been shown to be a possible indication of the “functional” availability of zinc.
- A percentage of patients presenting with functional zinc deficiency are also deficient in vitamin B6 and magnesium, synergistic nutrients with zinc. If a patient fails the ZTT and does not respond to zinc therapy, they should be evaluated for B6 and magnesium status to find out the cause of the problem.
- An initial short course of liquid zinc therapy is clinically more useful than tableted zinc, due to the fact that HCl production is also zinc dependent and tableted zinc may not be absorbed due to hypochlorhydria.

## **When would you ask your patients to run this test?**

1. A non-invasive, quick and in-expensive method to assess their zinc status.
2. If a deficiency is noted, this test can determine how deficient they are.

## **Supplies you will need to give patients**

1. A copy of the handouts "Zinc Taste Test"
2. 1 bottle of aqueous zinc (zinc sulphate)

## **Directions:**

This test helps to determine whether or not a zinc deficiency is present.

### ***Basic test instructions:***

1. Patient's mouth should be free of any strong tastes
2. Patient holds and swishes ¼ ounce of aqueous zinc in their mouth
3. Start timing and have patient indicate when they first taste the solution
4. Have them swallow after 15 seconds
5. Ask them to describe the strength of taste or presence of an after taste
6. Record strength of taste and seconds it took to taste the solution

## **Ranges:**

<b>Level</b>	<b>Interpretation</b>	<b>Description</b>
1	<b><u>Optimal Zinc levels</u></b>	An immediate, unpleasant and obviously adverse taste in a few seconds (strongly metallic)
2	<b>Mild zinc deficiency</b>	A definite but not strongly unpleasant taste is noted in 4-6 seconds and tends to intensify with time. (delayed metallic)
3	<b>Moderate Zinc Deficient</b>	No taste noted initially but develops in 7-13 seconds. May be described as sweet or bitter
4	<b>Very Zinc Deficient</b>	Tasteless or "tastes like water".

## **Clinical implications**

Levels 3 or 4 represent a zinc deficiency and should be treated by supplementing your patient with a high-quality form of zinc