

## Blood Iron, Glutathione, and Micronutrient Levels and the Risk of Oral Cancer

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The risk of oral cavity cancer was determined in relation to serological levels of iron; vitamins A, B2, C, E; zinc; thiamin; and glutathione (GSH). The study included 65 hospitalized patients with oral cancer and 85 matched controls. In comparing the highest to the lowest tertiles, the risk was odds ratio (OR) = 0.3 [95% confidence interval (CI) = 0.1-0.6] for iron; 3.2 (95% CI = 1.3-8.1) for total iron binding capacity (TIBC), which measures the concentration of the iron delivery protein transferrin; and 0.4 (95% CI = 0.2-0.9) for transferrin saturation (iron/TIBC  $\times$ 100). These associations were stronger in never smokers than in ever smokers. The risk associated with the iron storage protein ferritin was significantly elevated, but this association could reflect disease-related inflammation or comorbidity. The OR for GSH was 0.4 (95% CI = 0.1-0.9), and the OR for GSH reductase activity coefficient (indicative of riboflavin deficiency) was 1.6 (95% CI = 1.3-3.7). These findings suggest that mild iron deficiency and low GSH levels, which are associated with increased oxidative stress, increase the risk of oral cavity cancer.

