



# Key Nutrients for Repairing the Oral Mucosa

Mouth ulcers, also known as oral ulcers or canker sores, are small wounds or ulcerations that form when cells in the oral mucosa become damaged. They are among the most common oral health problems. Studies indicate that the lifetime prevalence of oral ulcers exceeds one-third of the population, and nearly 80% of people experience at least one episode before the age of 30. Although most oral ulcers are benign and heal on their own, the associated pain and discomfort can interfere with eating, drinking, brushing teeth, and even speaking, thereby affecting quality of life. However, if a mouth ulcer persists for more than two weeks, repeatedly occurs in the same location, or is accompanied by a lump, white patch, difficulty opening the mouth, or other unusual symptoms, it may be a warning sign of oral cancer and should be evaluated by a healthcare professional promptly. So, how can we prevent recurrent mouth ulcers and promote oral health? Let's take a closer look.

## Common Causes of Mouth Ulcers

**Physical damage:** Accidental biting of the cheek or tongue, irritation from dentures or orthodontic appliances

**Food-related irritation:** Hard, excessively hot, spicy, or abrasive foods

**Nutrient deficiencies:** Long-term deficiencies of B-vitamins, vitamin C, zinc, and other nutrients

**Bacterial, fungal, or viral infections:** Bacterial stomatitis, herpes simplex virus infection, or oral candidiasis (yeast infection)

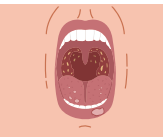
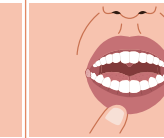
**Underlying medical conditions:** Autoimmune diseases and oral cancer

**Hormonal changes:** Menstruation, pregnancy, or other hormonal fluctuations

**Medication side effects:** Chemotherapy drugs, NSAIDs, and immunosuppressive medications

**Lifestyle factors:** Sleep deprivation, chronic stress, and irregular daily routines

## Differences Between Canker Sores, Cold Sores, and Angular Cheilitis

|                                       | Canker Sore<br>(Mouth Ulcers)                                                       | Cold Sores (Herpes<br>Labialis,<br>[cold sores, fever blisters])                    | Angular Cheilitis<br>(inflamed / infected lips)                                                         |
|---------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|                                       |  |  |                      |
| Location                              | Inside the mouth<br>(tongue, oral mucosa,<br>inner lips)                            | Outside the lips and around<br>the lip border                                       | Corners of the mouth                                                                                    |
| Cause                                 | Physical trauma, immune<br>dysfunction, underlying<br>conditions                    | Infection with Herpes Simplex<br>Virus Type 1 (HSV-1)                               | Immune dysfunction,<br>nutritional deficiencies, saliva<br>irritation, bacterial or fungal<br>infection |
| Appearance<br>&<br>Symptoms           | White or yellow round<br>ulcers with surrounding<br>redness                         | Clusters of small blisters,<br>itching, burning, crusting                           | Cracking, peeling, redness,<br>swelling, and possible<br>bleeding                                       |
| Duration                              | Approximately<br>7-14 days                                                          | Approximately<br>7-21 days                                                          | May persist if underlying<br>causes are not addressed                                                   |
| Contagious?                           | No                                                                                  | Yes; spread through direct<br>contact with lesions, saliva, or<br>shared utensils   | No                                                                                                      |
| Warning<br>Signs Before<br>Appearance | Usually none                                                                        | Tingling, itching, or burning<br>1-2 days before onset                              | Usually none                                                                                            |
| Recurrence                            | Common                                                                              | Frequently recurrent due to<br>viral latency                                        | May reoccur                                                                                             |

## Essential Nutrients for Oral Mucosal Repair

**Vitamin B complex:** A deficiency in vitamin B-complex, or an increased demand resulting from chronic stress, sleep deprivation, or other lifestyle factors, may contribute to the development of recurrent mouth ulcers. The B-vitamin family plays a critical role in maintaining oral mucosal integrity and supporting tissue repair. Vitamin B1 is essential for cellular energy production required during the healing process, while vitamin B2 helps maintain healthy oral mucosa and may reduce the risk of angular cheilitis and mouth ulcers. Vitamin B3 supports the repair of skin and mucosal tissues, and vitamin B6 helps regulate immune function and modulate inflammatory responses. In addition, folate promotes the regeneration of mucosal cells, whereas vitamin B12 supports red blood cell formation and mucosal repair, helping to reduce the recurrence of oral ulcers. Research has demonstrated that the use of a B-complex vitamin supplement alongside conventional treatment may enhance mucosal regeneration, shorten healing time, and decrease recurrence rates.

**High-Quality Protein:** Protein is a fundamental nutrient required for the construction, maintenance, and repair of all body tissues, including the oral mucosa. When ulcers or inflammation develop within the oral cavity, the body requires an adequate supply of amino acids to support cellular repair, tissue regeneration, and wound healing. Insufficient protein intake may impair these processes, resulting in delayed healing, prolonged discomfort, and an increased likelihood of recurrent ulcer formation. Protein deficiency may also contribute to salivary gland atrophy, which can further compromise oral health. Therefore, ensuring adequate intake of high-quality protein is essential for promoting oral mucosal recovery and maintaining overall oral health.

**Vitamin C:** Vitamin C plays a pivotal role in wound healing and tissue repair. As a key co-factor in collagen synthesis, it supports the formation and maintenance of connective tissues that are necessary for the regeneration of damaged oral mucosa. In addition to its structural role, vitamin C functions as a potent antioxidant, helping to reduce oxidative stress and protect cells from free radical damage. These actions contribute to faster tissue repair and improved wound healing. Furthermore, vitamin C possesses immune-modulating properties that may help reduce the risk of infection and other complications associated with oral ulcers.

**Selenium:** Selenium is an essential trace mineral that serves as a critical component of glutathione peroxidase (GPx), one of the body's most important antioxidant enzymes. GPx helps neutralize free radicals and peroxides, thereby protecting oral mucosal cells from oxidative damage. During episodes of oral ulcers, tissue injury, gingivitis, or periodontal inflammation, oxidative stress and inflammatory activity increase significantly, often slowing the healing process. Adequate selenium intake may help strengthen the body's antioxidant defense system, reduce inflammatory mediators, and support tissue repair and recovery, ultimately facilitating oral mucosal healing.

**Fish Oil (Omega-3 Fatty Acids):** Fish oil is a rich source of the omega-3 fatty acids EPA and DHA, both of which are well known for their anti-inflammatory properties. Omega-3 fatty acids help regulate inflammatory pathways by reducing the production of pro-inflammatory mediators and modulating immune responses. Through these mechanisms, they may promote tissue healing and support the repair of damaged oral mucosa. Clinical studies have shown that in individuals with recurrent aphthous stomatitis (canker sores), supplementation with omega-3 fatty acids at a dose of 1 gram, three times daily for six months significantly reduced the frequency of ulcer episodes, shortened ulcer duration, and alleviated pain severity.

**Probiotics and Prebiotics:** Probiotics and prebiotics play an important role in maintaining a healthy oral microbiome and supporting mucosal health. Emerging research suggests that probiotic supplementation may help reduce the severity of oral mucositis associated with concurrent chemoradiotherapy (CCRT) and contribute to a more balanced immune response during treatment. Beyond their effects on microbial balance, probiotics and prebiotics have been shown to enhance the secretion of immunoglobulin A (IgA), strengthen epithelial barrier function, and improve the body's natural mucosal defense mechanisms. Together, these actions help support oral mucosal healing, maintain tissue integrity, and promote overall oral health.