

# MOUTHFUL of BUGS

Pathogenic bacteria are a way of life. So, too, must be brushing and flossing. | BY ROBERT H. KAGAN

THE MOUTH IS A CAULDRON OF BUGS.

On average, some 500 species sit in the oral cavity going about their daily business as their hosts sleep, talk, chew and swallow. “Bacteria are lurking in the tongue, nasal cavity, tonsil area, gingival pockets [and] floating in saliva,” explains John C. Gunsolley, a professor in the department of periodontics at Virginia Commonwealth University in Richmond. “Our skin has bacteria on it, we’re never completely sterile. Swab any external portion of the body, you will find bacteria. It’s nothing to be alarmed at. It’s what nature is.”

The body is constantly fighting these bacteria, and healthy bodies are able to keep them at bay. When our immune systems stop responding, however, our bodies become bacterial buffets. Within a day or two of dying, bodies start to smell, Gunsolley says. That’s the bacteria taking over. But we don’t have to

die for bacteria to find inroads: diseases, such as diabetes, can decrease the ability of the immune system to respond effectively to bacteria, and this can tilt the balance toward the latter, triggering the beginnings of oral disease. Localized neglect—not taking adequate care inside the mouth—can also lead to pathogenic bacterial overgrowth. This can occur when periodontal pathogens such as *Actinobacillus actinomycetemcomitans*, *Prophyromonas gingivalis* or *Tannerella forsythia* begin to increase their presence in the mouth and overcolonize soft tissue. When these bacteria expand in the pockets of the gums, they can trigger redness and inflammation from gingivitis, a warning sign for possible progression to periodontitis and the destruction of gum tissue and bone that can result.

Eliminating pathogenic bacteria completely might make the mouth safe from periodontal disease, Gunsolley explains. Experiments



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# FEELIN' & HEALTH





# BATTLING BACTERIA AND INFLAMMATION

## Home Care

- Brushing & Flossing

## Professional Care

- Scaling and root planing
- Flap surgery
- Grafts (BONE, SOFT TISSUE)
- Tissue regeneration surgery
- Bone (OSSEOUS) surgery

## Chemotherapeutic

- Chlorhexidine
- Stannous flouride
- Cetylpyridium chloride
- Essential oils
- Triclosan
- Antimicrobial inserts into pockets
- Systemic antibiotics



**ORAL ARSENAL:** A variety of interventions are available to combat infection and inflammation in the mouth.

have been done with rats where periodontal pathogens were eliminated from parts of the mouth, and the rats resisted attempts to induce periodontitis as long as the areas stayed bacteria-free. But eventually, bacteria find their way back into the mouth, as humans (and rats) have bacterial reservoirs that make it impossible to completely eliminate the microbes for extended periods of time. The practical issue, then, is one of balance: oral disease can often be avoided or kept at bay if the number of bad bacteria are kept in check, Gunsolley says.

## ZEN AND THE ART OF MOUTH MAINTENANCE

KEEPING MICROBES IN CHECK is an ongoing practice, and a goal met by two main approaches: mechanically sweeping away bacteria so they cannot take root in the mouth, and reducing their numbers through chemical means. The level of bacteria in a mouth will determine the types of tools to use under each approach.

A first step in addressing oral hygiene is to determine the amount of

pathogenic bacteria that populate a patient's mouth and how much damage they might do. Gunsolley points out that although there are no good metrics or devices to measure a mouth's bacterial load, the body's response to bacteria is effective in determining treatments. If a mouth appears healthy, with no inflammation or redness, then the main indication is mechanical: brushing and flossing. Both brushing, whether with a manual or electronic toothbrush, and flossing break up plaque—the mass of bacteria and food that forms a biofilm, which coats tooth and gum surfaces. The goal is break up biofilm on a daily basis before it adheres, Gunsolley says.

The next level of treatment is often chemotherapeutic, where chemicals in mouthwashes or antiplaque agents in some toothpastes are used to nonselectively combat bacteria in the mouth. This decreases the number of pathogenic bacteria and thus reduces inflammation. If there is serious gingivitis or periodontal disease, then other treatments are generally added, including scaling

and root planing as well as placing antimicrobial inserts into gum pockets, or additional interventions [see box above]. But first and foremost, Gunsolley emphasizes, is good mechanical oral hygiene: brushing and flossing. This, ultimately, is the ideal way to disrupt plaque, especially at the gum line.

Traci Portnoff, D.M.D., in private practice in Westborough, Mass., and a former instructor in oral medicine at the Harvard School of Dental Medicine, agrees: “The bottom line is if [someone is] not brushing, they are not doing anything. You need physical stimulation.” While Portnoff certainly employs advanced technologies to deal with indications of gingivitis or periodontal disease from pathogenic bacteria, her first line of defense and most important battle cry to patients remains the same. “Our main focus is hygiene instruction,” she emphasizes. “There’s no substitute for the brushing and flossing.” ●

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