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The PUBLIC HEALTH

Oral Health and Whole Body
Connection

Oral Health and Whole Body
Longevity

Oral Health is Total Health

Women's Health, Pregnancy,
and Oral Health

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LETTER

from the

EDITOR

*Connecting the Dots in Children's
Health: Why Whole-Child
Medicine Can't Wait*

Dear Readers,

When we talk about public health and disease prevention, discussions typically focus on routine blood work, cardiovascular screenings, nutrition, and exercise. Yet, one fundamental system continues to be treated as entirely separate from the rest of the body: our oral health. Welcome to the September issue of Public HealthEd! This month, our editorial team turns its lens toward one of the most critical frontiers in modern medicine: Integrative Pediatric Health.

Mounting medical evidence demonstrates that the mouth is not an isolated ecosystem, but rather a primary window into overall systemic health. Periodontal (gum) disease is a chronic inflammatory condition that creates a direct entryway for bacteria to enter the bloodstream. Research consistently links untreated oral inflammation to a heightened risk of serious conditions, including cardiovascular disease, poor glycemic control in individuals with diabetes, respiratory infections, and adverse pregnancy outcomes such as preterm birth.

Despite these clear medical links, oral healthcare remains largely siloed—both in public health policy and in standard medical practice. Medical doctors and dental professionals rarely have integrated systems to cross-refer patients or share diagnostic data, and dental coverage is frequently treated as an optional luxury rather than an essential component of healthcare.

Integrating oral health screenings into routine medical checkups—and making preventive dental care accessible to all communities—is one of the most cost-effective ways to reduce the burden of chronic illness nationwide. It is time for healthcare providers, policymakers, and the public to recognize a simple truth: we cannot achieve total body health without a healthy mouth.



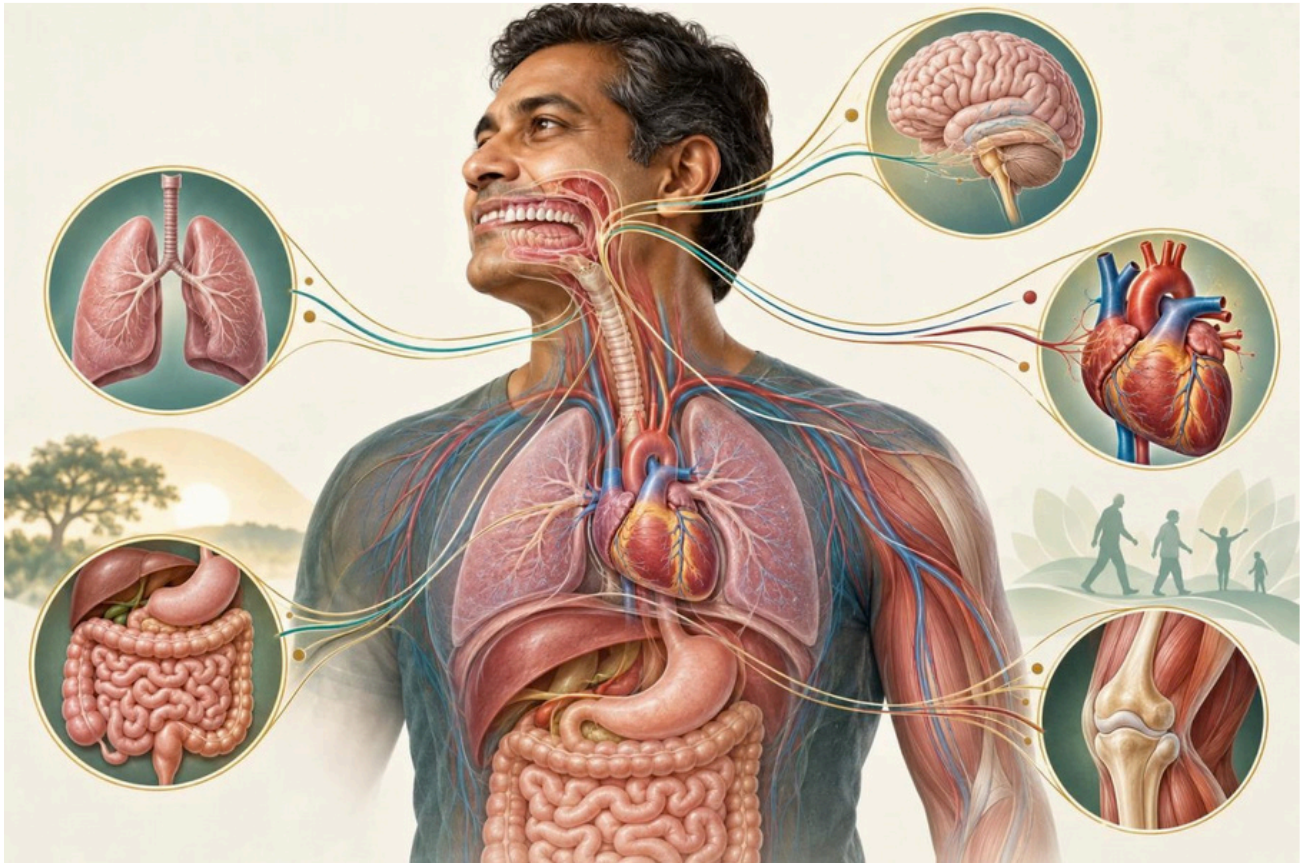
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Oral Health and Whole Body Longevity

How the mouth influences inflammation, digestion, nutrition, recovery, movement, and healthy ageing

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The mouth participates in inflammation, breathing, nutrition, sleep and movement throughout life.

There is no health without oral health

Four signs your dentist may recognise before you realise that something is wrong

We have made a dangerous separation in healthcare: we treat the mouth as though it ends at the teeth and the rest of the body begins somewhere below the neck.

It does not.

Your mouth is the beginning of the digestive tract, an important gateway to the respiratory system and home to a complex community of microorganisms. Its gums are richly supplied with blood vessels. Its bones respond to hormones, nutrition, ageing and disease. Its teeth record years of acid exposure, grinding, disturbed function and lifestyle. Saliva reflects hydration, medication use, immunity and microbial activity.

This is why oral health is not merely about having a good smile. **Disease in the mouth can add to the inflammatory and infectious burden carried by the body, interfere with nutrition and sleep, complicate diabetes, and diminish quality of life. At the same time, changes in general health may first become visible inside the mouth.**

The scale of neglect is staggering. The World Health Organization estimates that oral diseases affect nearly **3.7 billion people**. Severe periodontal disease alone affects more than **one billion** people. In 2022, cancers of the lip and oral cavity caused approximately **389,846 new cases and 188,438 deaths worldwide**.^[1]

Most importantly, many oral diseases can be prevented or controlled when identified early. Yet we continue to wait for pain—often one of the last warnings, not the first.

Here are four important signs that a comprehensive dental examination may reveal.

1. Bleeding gums are an open warning—not a harmless inconvenience

Healthy gums should not bleed repeatedly during ordinary brushing or eating. Persistent bleeding is usually a sign of inflammation.

The process often begins when microbial plaque accumulates around the gum margin. Gingivitis may then progress to periodontitis, in which inflammation damages the ligament and bone supporting the teeth. The gums may recede, pockets may deepen, bad breath may develop and teeth may eventually loosen—even when there has been little or no pain.^[1,2]

But this is not only a tooth problem.

Inflamed periodontal tissues create a biologically active surface through which bacteria, bacterial products and inflammatory mediators can interact with the circulation. Periodontitis shares a particularly important two-way relationship with diabetes: poorly controlled diabetes increases the risk and severity of periodontal disease, while untreated periodontal inflammation can make glycaemic control more difficult.^[1]

The clinical evidence is meaningful. A 2022 Cochrane review of people with diabetes found that treating periodontitis produced an average **0.43 percentage-point reduction in HbA1c after three to four**

months. This does not replace diabetes medication, nutrition or physician-led care—but it demonstrates that treating oral inflammation can contribute to better overall disease management.[3]

Periodontitis is also associated with cardiovascular disease and other inflammatory conditions. Not every association proves direct causation, but that is no justification for ignoring a common, chronic and treatable source of inflammation.

What should you do? If your gums bleed repeatedly, arrange a periodontal assessment. A proper evaluation should include plaque and bleeding scores, gum-pocket measurements, tooth mobility, bone levels and relevant medical risk factors—not merely a quick cleaning.

2. Your dental radiograph may reveal a warning about bone health

The jaw is skeletal bone. It is affected by ageing, hormonal changes, nutrition, certain medicines and systemic bone disorders.

On dental radiographs, a dentist may notice thinning or altered architecture of the mandibular cortex. Studies have shown that features on panoramic dental radiographs can help identify people—particularly postmenopausal women—who may have low skeletal bone mineral density and should be considered for formal osteoporosis assessment.[4]

This can matter greatly because osteoporosis often remains silent until a fracture occurs. A dentist who recognises a suspicious pattern can ask about previous fractures, menopause, long-term steroid therapy, cancer treatment, family history and other risks, and recommend medical evaluation where necessary.

A dental image is not a substitute for a DXA/DEXA scan, and additional imaging should never be ordered without clinical justification. But an image already taken for appropriate dental reasons should not be viewed only for teeth. **Every visible structure deserves attention.**

Oral bone health also affects treatment planning. Undiagnosed osteoporosis, medications affecting bone metabolism, smoking, diabetes and untreated periodontal disease may influence decisions about extractions, implants and healing.

What should you do? Give your dentist a complete medical and medication history. If the jawbone looks unexpectedly thin or altered, do not dismiss the observation—discuss whether your physician should evaluate your skeletal health.

3. Your saliva and oral microbiome carry biologically important information

Saliva is one of the body's most underestimated protective fluids. It lubricates tissues, begins digestion, buffers acids, helps remineralise enamel, controls microbial balance and supports immune defence. When salivary flow falls—as it may with dehydration, ageing, autoimmune disease, cancer therapy or many common medications—the effects can be rapid: burning, difficulty swallowing, altered taste, bad breath, rampant decay and oral infections.

The mouth also contains a complex microbiome. In health, many organisms coexist in balance. When the environment changes because of poor plaque control, frequent sugar exposure, smoking, dry mouth, uncontrolled diabetes or other factors, this community can shift towards dysbiosis and disease.

One extensively studied periodontal organism is *Porphyromonas gingivalis*. Oral bacterial DNA, bacterial components and inflammatory responses have been investigated in relation to tissues beyond the mouth, including vascular and neurological disease. The exact causal pathways are still being studied, but one fact is already clear: **a chronically infected mouth should not be considered biologically isolated from the rest of the body.**

Salivary and microbial tests are emerging tools that may assist risk assessment and treatment planning in selected patients. They are most useful when combined with a thorough history and clinical periodontal examination; they should not be used as stand-alone predictions of distant disease.[5]

What should you do? Take dry mouth, persistent bad breath, recurrent decay and gum inflammation seriously. Ask about salivary function and your individual disease risk. Testing may be helpful in selected cases, but the foundation remains removal of disease-causing biofilm, professional treatment and consistent home care.

Oral health, digestion, nutrition and recovery

Digestion begins in the mouth. Teeth cut and grind food into smaller particles, while saliva moistens it, begins the breakdown of starch and helps create a bolus that can be swallowed safely. When chewing is painful or inefficient because of decay, missing teeth, loose teeth, poorly fitting dentures, dry mouth or jaw dysfunction, people naturally change what and how they eat.

The change is not always obvious. A person may gradually avoid raw vegetables, fruit, nuts, pulses, whole grains and firmer protein-rich foods, replacing them with softer, highly processed options. They may still consume enough calories while losing dietary variety, fibre, protein and micronutrients.

Research in older adults consistently connects impaired chewing and poor oral status with poorer diet quality, malnutrition risk, sarcopenia and frailty.[10,11] The relationship can run both ways: oral disease can restrict intake, while undernutrition can weaken immunity, muscle strength and tissue maintenance, making oral disease and functional decline harder to overcome.

This becomes especially important during recovery from surgery, infection, cancer treatment, fractures or prolonged illness. Healing requires sufficient energy, protein, vitamins, minerals and hydration. Clinical nutrition guidelines recognise that malnutrition and underfeeding increase postoperative complications and that protein needs rise during illness, injury, tissue regeneration and wound healing.[12] A person who cannot chew comfortably, swallow safely or keep the mouth free from painful infection may struggle to meet those needs precisely when the body requires them most.

What should you do? Before major surgery or medical treatment, include an oral-health review when clinically appropriate. Treat dental pain and infection, restore comfortable chewing, assess swallowing or dry mouth when indicated, and coordinate with the physician and dietitian. Good oral function helps turn a prescribed diet into nutrients the patient can actually consume.



Preserving comfortable chewing helps people maintain dietary variety and obtain the energy and protein needed for strength and recovery.

4. Worn enamel may be documenting reflux, grinding or disturbed sleep

Flattened molars, shortened front teeth, cracks, exposed dentine and cupped-out chewing surfaces are not “just ageing.” They are evidence of an active or previous destructive process.

That process may include:

- grinding or clenching;
- repeated exposure to dietary acids;
- gastro-oesophageal reflux or recurrent vomiting;
- reduced protective saliva;
- an unstable or overloaded bite; or
- a combination of chemical erosion and mechanical wear.

Research has found associations between tooth wear and gastro-oesophageal reflux, sleep bruxism, dry mouth and orofacial pain.[6] A grinding pattern may also prompt a dentist to ask about snoring, pauses in breathing, morning headaches, unrefreshing sleep and daytime fatigue—features that may justify a sleep assessment.

This matters because simply placing crowns or veneers over worn teeth without understanding the cause may allow the destructive forces to continue. The patient may repeatedly fracture restorations while an underlying airway, reflux, muscular or functional problem remains unaddressed.

What should you do? If your teeth are becoming shorter, flatter, sensitive or repeatedly chipped, seek a comprehensive wear and bite assessment. The cause must be investigated before—or at least alongside—repairing the damage.

The jaw is part of the musculoskeletal system

The temporomandibular joints do not work alone. Jaw movement depends on the coordinated activity of the chewing muscles, tongue, hyoid region, neck and upper cervical structures. This is why temporomandibular disorders can coexist with facial pain, headaches, restricted mouth opening, ear- region discomfort and neck disability.

A systematic review found moderate-to-strong evidence that people with temporomandibular disorders may have reduced endurance of the neck-extensor muscles, reduced cervical mobility and greater self- reported neck disability.[13] This does not mean that every back, shoulder or postural problem begins with the bite. It means that persistent jaw symptoms deserve a musculoskeletal assessment that looks beyond a single tooth and, when necessary, involves physiotherapy, pain medicine, sleep care or other disciplines.

Clenching and grinding may overload teeth, restorations, jaw joints and muscles. Conversely, pain, poor sleep and stress can increase muscle guarding and parafunctional activity. Treating only the damaged tooth without examining function can leave the wider pain cycle undisturbed.

What should you do? Seek assessment for persistent jaw pain, locking, restricted opening, recurrent morning headaches, painful chewing or unexplained tooth fractures. Effective care begins with a diagnosis and may require conservative dental, behavioural, physical and sleep-related approaches—not irreversible bite changes without clear indication.

The mouth can also protect life through early cancer detection

A comprehensive dental visit includes examination of the tongue, cheeks, lips, floor of the mouth, palate and throat—not only the teeth.

This is especially important in India and other regions with substantial exposure to smoked and smokeless tobacco, areca nut and alcohol. Oral cancer and potentially malignant disorders can initially appear as a persistent ulcer, red or white patch, unexplained thickening, restricted tongue movement or difficulty swallowing. Early lesions may be painless.

Any unexplained ulcer, patch or swelling persisting for **more than two weeks** deserves professional evaluation. Waiting for pain can lose valuable time.

In frail older adults, oral care can influence respiratory risk

For older or dependent individuals—particularly those with impaired swallowing—the mouth may become a reservoir for organisms that can be aspirated into the lungs. Clinical trials and systematic reviews have found that structured mechanical and professional oral care can reduce pneumonia-related risk in institutionalised older people, although the size of the benefit varies across studies.[7]

This makes oral care an essential part of nursing, hospital and home care—not a cosmetic extra. Dentures, tongue, gums and natural teeth all require daily cleaning and periodic professional review.

Oral health and longevity

No dental treatment can promise a longer life. But preserving oral health protects several foundations of healthy longevity: lower untreated inflammatory and infectious burden, safer and more varied nutrition, clearer speech, social confidence, restorative sleep, muscle maintenance and the ability to remain independent.

The emerging concept of **oral frailty** describes the combined decline of tooth count, chewing, swallowing, tongue function and oral hygiene. It is more than a dental score. In older adults, oral frailty has been associated with malnutrition, sarcopenia, physical frailty, falls, disability and cognitive decline. A 2024 longitudinal study found that oral frailty was associated with mortality even after accounting for physical and psychological frailty.[14]

This does not prove that repairing teeth by itself adds a specific number of years to life. It tells us something more useful: declining oral function can be an early and modifiable part of the pathway towards loss of resilience and independence.

Longevity should not mean merely surviving with pain, infection, poor chewing and social withdrawal. It should mean preserving **healthspan**—the years during which a person can eat comfortably, communicate, sleep, move, recover and participate in life.

What should you do? Do not accept tooth loss and loss of chewing as inevitable features of ageing. Prevent disease early, maintain natural teeth wherever predictably possible, keep dentures and implants professionally reviewed, protect salivary health and include oral function in every older adult's health plan.



Healthy longevity includes the ability to eat, speak, sleep, move and participate in life with comfort and dignity.

Do not wait for pain

Pain is a poor screening programme.

- Early gum disease may bleed without hurting.
- Bone loss around teeth can progress silently.
- Low salivary flow may cause widespread damage before it is recognised.
- Tooth wear may continue for years before sensitivity begins.
- Early oral cancer may be painless.

A preventive dental appointment should therefore be a structured health review. Depending on individual need, it should assess the teeth, gums, bone, soft tissues, saliva, bite, jaw joints, muscles, habits, diet, tobacco or areca-nut exposure, medications, medical history, sleep and breathing-related warning signs. There is no single recall interval suitable for everybody. Reviews should be risk-based: people with active gum disease, high decay risk, diabetes, dry mouth, tobacco exposure, extensive restorations, tooth wear, implants or complex medical conditions may require more frequent monitoring.[8]

Make oral care part of healthcare

The cost of neglect is far greater than the cost of prevention. WHO estimates that oral diseases accounted for approximately **US\$387 billion in direct global treatment costs** and around **US\$323 billion in productivity losses in 2019**. [9]

The response begins with simple but deliberate action:

- Clean your teeth effectively twice every day using products appropriate for your individual needs.
- Clean between the teeth daily.
- Reduce how frequently you consume free sugars and acidic drinks.
- Avoid tobacco and areca nut in every form.
- Do not ignore bleeding, dryness, ulcers, tooth wear, mobility or persistent bad breath.
- Maintain periodic professional examinations even when nothing hurts.
- Ensure that children, older adults and people with disabilities receive the support they need for daily oral care.

Your dentist is not merely repairing teeth. A careful dentist is monitoring inflammation, infection, function, tissue change, bone, behaviour and risk.

Your mouth is not separate from your body. It is often where health problems begin, where other illnesses leave clues and where prevention can start early.

Do not wait for a dental emergency to discover what a preventive examination could have shown much earlier.

There is no health without oral health.

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Founder, Vats & Param – The Dentists

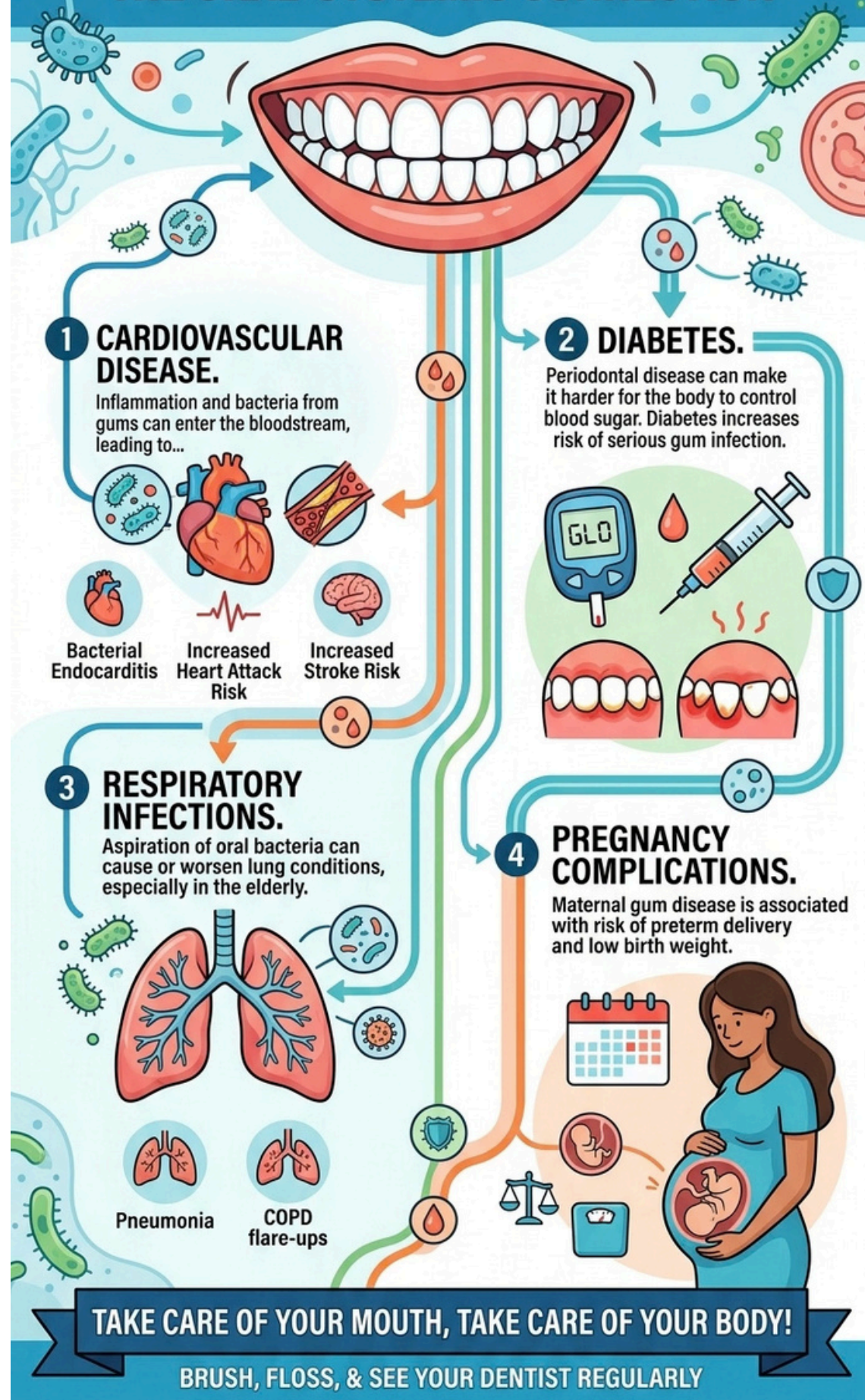
Founder, Vatsalya Oral Health Foundation

This article is intended for public education and does not replace individual dental or medical assessment.

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ORAL HEALTH IS TOTAL HEALTH: THE ORAL-SYSTEMIC CONNECTION



Women's Health Spotlight: *Women's Health, Pregnancy, and Oral Health*

When discussing women's health, conversations typically center around cardiovascular health, bone density, hormonal balance, and reproductive wellness. However, one vital system is frequently overlooked: oral health. Research consistently highlights a direct, two-way connection between a woman's oral health and her systemic well-being—a relationship that becomes particularly critical during pregnancy.



The Biological Connection: Hormones and the Mouth

A woman's body undergoes unique hormonal shifts throughout life—during puberty, menstruation, pregnancy, and menopause. Fluctuating levels of estrogen and progesterone alter how the body responds to bacterial plaque:

- **Increased Blood Flow:** Hormonal surges increase vascular flow to the gums, making them softer, more tender, and prone to inflammation.
- **Altered Immune Response:** Surging hormones can alter the body's local immune defense, making tissue more susceptible to common oral bacteria.

During pregnancy, up to 60% to 75% of women experience some form of **pregnancy gingivitis**, typically beginning in the first or second trimester. If left unmanaged, this mild inflammation can progress to periodontitis, a severe, destructive infection of the gums and supporting bone structure.

1. The Oral-Systemic Route to Birth Complications

The connection between periodontitis and adverse pregnancy outcomes centers on systemic inflammation and bacterial translocation:

1. **Bacterial Travel:** Anaerobic bacteria (such as *P. gingivalis* or *F. nucleatum*) originating in inflamed gum tissue can enter the maternal bloodstream.
2. **Inflammatory Cascade:** These bacteria—and the inflammatory cytokines the body produces to fight them—travel to the placenta and uterus.
3. **Triggering Labor:** The accumulation of inflammatory markers in the reproductive tissues can trigger labor pathways prematurely, increasing the risk of preterm birth (delivery before 37 weeks), low birth weight, and pregnancy complications like preeclampsia.



2. Morning Sickness and Enamel Erosion

Beyond gum health, frequent morning sickness exposes teeth to harsh stomach acids. Without immediate care, acid exposure can erode tooth enamel, leading to sensitivity and increased vulnerability to tooth decay.

Actionable Steps for Expectant and Planning Mothers

Maintaining optimal oral hygiene is one of the simplest yet most effective ways to safeguard both maternal and fetal health:

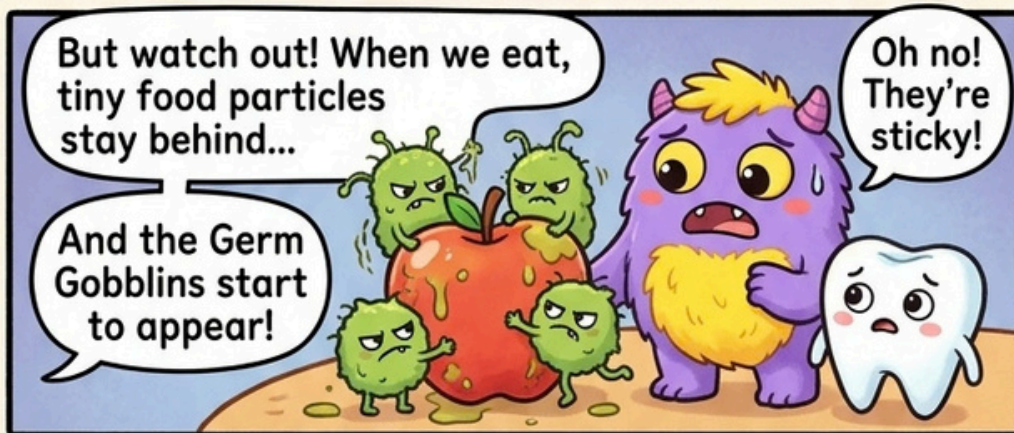
- **Schedule a Pre-Conception or Early Prenatal Dental Checkup:** Routine dental examinations, cleanings, and necessary local treatments (such as fillings) are completely safe during pregnancy and actively encouraged by organizations like the American College of Obstetricians and Gynecologists (ACOG) and the American Dental Association (ADA).
- **Adopt a Thorough Daily Routine:** Brush twice daily with fluoridated toothpaste using a soft-bristled brush, and floss daily to remove plaque from beneath the gumline.
- **Manage Acid Exposure:** If experiencing morning sickness, rinse the mouth immediately with a solution of water and a teaspoon of baking soda to neutralize acid before brushing. Brushing immediately after vomiting can abrade acid-softened enamel.
- **Inform Your Dental Team:** Always notify your dentist if you are pregnant or trying to conceive so they can tailor care and avoid unnecessary imaging or contra-indicated medications.

By prioritizing oral health as a fundamental pillar of prenatal care, women can protect their own systemic well-being while giving their babies the best possible start to life



SUPER BRUSHERS!

with Sparky and friends



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