Surgically Facilitated Orthodontic Therapy (SFOT)

Advanced Orthodontic Treatment Through Periodontal Regeneration and Bone Augmentation

Modern advancements in dentistry have transformed the way complex orthodontic problems are diagnosed and treated. Rather than focusing solely on straightening teeth, contemporary interdisciplinary treatment considers the underlying bone structure, periodontal health, facial aesthetics, and long-term stability of the results.

Surgically Facilitated Orthodontic Therapy (SFOT) is an advanced treatment approach that combines periodontal surgery, bone augmentation, and orthodontic tooth movement to address anatomical limitations that may prevent teeth from being positioned ideally.

Traditional orthodontic treatment is often limited by the amount and thickness of bone surrounding the teeth. When the supporting alveolar bone is insufficient, moving teeth beyond their natural bony boundaries may increase the risk of gum recession, bone loss, and compromised periodontal support.

SFOT aims to overcome some of these limitations by enhancing the supporting bone and periodontal tissues, creating a more favorable environment for orthodontic tooth movement.

This approach can expand treatment possibilities for selected patients, particularly those with narrow dental arches, thin supporting bone, complex malocclusions, or significant restorative needs.

Understanding the Limitations of Traditional Orthodontics

Successful orthodontic treatment involves more than achieving straight teeth. The position of each tooth must be compatible with its surrounding bone, gum tissue, bite relationship, and overall facial structure.

The alveolar bone is the portion of the jawbone that surrounds and supports the teeth. Its outer boundaries, known as the cortical plates, establish important anatomical limits for orthodontic tooth movement.

When teeth are moved beyond these boundaries, patients may experience complications such as:

- Gingival recession and root exposure

- Loss of supporting alveolar bone
- Increased risk of periodontal defects
- Unfavorable tooth positioning
- Reduced long-term stability
- Compromised restorative or aesthetic outcomes

In patients with narrow dental arches or inadequate alveolar bone, conventional orthodontic treatment may require compromises in tooth positioning or, in certain cases, extraction of permanent teeth to create sufficient space.

SFOT provides an additional treatment option by addressing the supporting bone and periodontal tissues rather than relying exclusively on tooth movement within existing anatomical limitations.

What Is Surgically Facilitated Orthodontic Therapy?

SFOT is a collaborative treatment approach involving a periodontist and orthodontist.

The procedure typically combines selective alveolar bone surgery with bone grafting to support orthodontic tooth movement and improve the surrounding periodontal architecture.

Depending on the patient's individual needs, treatment may include corticotomy or other bone-modifying techniques, alveolar augmentation, and soft tissue grafting.

These procedures are designed to stimulate localized bone remodeling while improving the anatomical environment in which teeth are moved.

By modifying and augmenting the supporting tissues, SFOT may allow orthodontists to achieve tooth positions that would otherwise be difficult or potentially unfavorable using conventional orthodontics alone.

For appropriately selected patients, SFOT can facilitate more comprehensive treatment while supporting periodontal health and functional and aesthetic goals.

Benefits of Surgically Facilitated Orthodontic Therapy

1. Expands Orthodontic Treatment Possibilities

SFOT may increase the range of safe orthodontic tooth movement by addressing limitations associated with thin or deficient alveolar bone.

2. Enhances Alveolar Bone Support

Bone augmentation can increase the volume of supporting tissue around selected teeth, potentially reducing the risk of periodontal complications associated with certain orthodontic movements.

3. May Reduce the Need for Tooth Extractions

In some patients with dental crowding or constricted arches, SFOT may support non-extraction orthodontic treatment by creating more favorable conditions for dental arch development.

However, extractions may still be necessary depending on the skeletal relationship, degree of crowding, and overall treatment objectives.

4. Facilitates More Ideal Tooth Positioning

By addressing anatomical limitations, SFOT may allow teeth to be positioned more favorably for bite function, smile aesthetics, and long-term restorative treatment.

5. May Accelerate Orthodontic Treatment

Selective bone surgery can stimulate a temporary period of increased bone remodeling, sometimes referred to as the regional acceleratory phenomenon (RAP).

When coordinated appropriately with orthodontic treatment, this biological response may facilitate faster tooth movement and shorten certain phases of treatment.

6. Supports Periodontal Health

Combining orthodontic therapy with appropriate hard and soft tissue augmentation may help improve the periodontal environment surrounding teeth that are vulnerable to recession or bone deficiencies.

7. Enhances Smile Aesthetics

Improved tooth positioning and dental arch relationships can contribute to a more harmonious smile, better dental proportions, and improved support of the surrounding soft tissues.

8. Supports Comprehensive Restorative Planning

SFOT can be incorporated into interdisciplinary treatment plans involving dental implants, crowns, veneers, or full-mouth rehabilitation, helping establish more favorable tooth positions before restorative procedures.

Combining Multiple Procedures for Comprehensive Treatment

One of the advantages of SFOT is the opportunity to coordinate several periodontal and surgical procedures within a comprehensive treatment plan.

When clinically appropriate, treatment may incorporate:

- **Bone augmentation:** Increasing alveolar bone volume to support planned orthodontic movement.

- **Soft tissue grafting:** Improving gingival thickness or addressing areas susceptible to recession.
- **Aesthetic crown lengthening:** Correcting altered passive eruption or improving gum and tooth proportions.
- **Orthodontic anchorage placement:** Supporting controlled tooth movement through temporary anchorage devices.
- **Periodontal defect correction:** Addressing selected bone or soft tissue deficiencies.
- **Removal of tori or exostoses:** Correcting localized bony prominences when indicated.
- **Tooth extractions:** Removing retained primary teeth or permanent teeth when necessary.
- **Dental implant site development:** Coordinating bone augmentation and orthodontic movement to prepare for future implant placement.

Combining appropriate procedures may reduce the need for separate surgical appointments and improve coordination among dental specialists.

SFOT and Clear Aligner Therapy

Advancements in digital orthodontics have made it possible to integrate SFOT with clear aligner treatment in selected cases.

Through digital treatment planning, orthodontists and periodontists can collaborate to evaluate tooth movement, alveolar bone limitations, and the need for surgical augmentation before treatment begins.

Combining SFOT with clear aligners may offer patients the benefits of advanced periodontal support and discreet orthodontic treatment.

Depending on the complexity of the case, clear aligners or conventional braces may be recommended to achieve the desired tooth movements.

The selection of orthodontic appliances is individualized to ensure appropriate control, efficiency, and treatment outcomes.

Who Is a Good Candidate for SFOT?

SFOT may be considered for patients with:

- Thin or deficient alveolar bone surrounding the teeth
- Narrow dental arches or significant dental crowding
- Gingival recession or increased susceptibility to periodontal tissue loss
- Complex orthodontic movements that approach existing bone boundaries
- Teeth requiring repositioning before restorative or implant treatment
- Orthodontic treatment plans that may benefit from alveolar augmentation

- A desire to explore alternatives to extraction-based orthodontic treatment when clinically appropriate

A comprehensive examination, periodontal assessment, and appropriate diagnostic imaging are necessary to determine whether SFOT would provide meaningful benefits.

A Collaborative Approach to Advanced Orthodontic Care

SFOT requires careful coordination between the periodontist, orthodontist, and, when necessary, restorative dentist.

Using clinical examinations, digital imaging, and comprehensive treatment planning, the dental team evaluates the relationship between tooth position, supporting bone, periodontal tissues, and the overall bite.

The goal is not simply to straighten teeth, but to establish a healthy and functional relationship between the teeth and their supporting structures.

While SFOT can offer important advantages in selected cases, it is not necessary for every orthodontic patient. As with any surgical procedure, potential risks, healing requirements, treatment costs, and expected benefits must be carefully considered.

Building a Stronger Foundation for a Healthier Smile

A beautiful smile begins with a healthy foundation.

Surgically Facilitated Orthodontic Therapy represents an advanced interdisciplinary approach that integrates periodontal regeneration with modern orthodontic treatment.

By addressing deficiencies in the supporting bone and periodontal tissues, SFOT may expand orthodontic treatment options, improve the conditions for tooth movement, and help achieve more comprehensive functional and aesthetic outcomes.

Schedule a consultation to learn whether Surgically Facilitated Orthodontic Therapy can help you achieve a healthier, more balanced, and beautifully aligned smile.