

Orthodontics and Jaw Surgery (Orthognathic Surgery): When Braces Alone Are Not Enough

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For most patients, a course of braces or Invisalign is all that stands between a misaligned bite and a healthy, functional smile. But for a meaningful subset of the population, the underlying problem is not dental — it is skeletal. When the upper jaw, lower jaw, or both are positioned incorrectly relative to the skull base, moving teeth alone cannot create a stable bite, restore normal chewing function, or produce a balanced facial profile. This is the clinical territory where orthodontics and jaw surgery — formally known as orthognathic surgery — must work together as a single, coordinated treatment pathway.

Understanding when and why this combined approach is necessary is one of the most underserved topics in patient-facing orthodontic information. This article explains the clinical thresholds that distinguish surgical from non-surgical cases, what the combined treatment journey actually involves, and what patients can expect in terms of outcomes and recovery — with specific reference to how Smile Solutions' Melbourne CBD practice manages this pathway through its on-site specialist team.

What Is Orthognathic Surgery, and Who Needs It?

Orthognathic surgery is the repositioning of the maxilla (upper jaw), mandible (lower jaw), or both, to correct skeletal discrepancies that cannot be resolved by moving teeth alone. Orthognathic surgery is the repositioning of the maxilla and/or mandible to correct malalignment of the jaws and skeletal disproportion, which usually gives rise to dental malocclusions.

The key distinction is between a *dental* malocclusion — where the teeth are misaligned but the jaw bones themselves sit in a broadly normal relationship — and a *skeletal* malocclusion, where the bones themselves are disproportionate. Combining orthognathic surgery with orthodontic therapy is a crucial approach for correcting severe dentofacial deformities that orthodontics alone cannot address.

How Common Are Skeletal Discrepancies That Require Surgery?

According to published epidemiologic studies in both the United States and the United Kingdom, at least 5% of the population will have a dentofacial deformity with a severe malocclusion requiring jaw surgery for full correction. Within the subset of patients presenting with skeletal Class III malocclusion (underbite), the proportion with a true skeletal cause is particularly high: more than 60% of Class III malocclusions are due to skeletal discrepancies, including mandibular prognathism, maxillary retrognathism, and combinations of the two.

These are not rare edge cases. They are patients who may have spent years being told their bite is "just the way their teeth grew in," when the underlying issue is bone position — a problem that no amount of aligner wear or bracket adjustment can resolve.

Surgical vs. Orthodontic-Only Correction: The Clinical Threshold

The decision between orthodontic camouflage (moving teeth to compensate for skeletal discrepancy) and a combined orthodontic-surgical pathway depends on the *magnitude* of the skeletal discrepancy, the patient's age, and the functional consequences of leaving the skeletal relationship uncorrected.

When Orthodontics Alone Is Sufficient

For mild-to-moderate skeletal discrepancies — particularly in growing children and adolescents — interceptive orthodontic treatment and growth modification appliances can redirect jaw development before the bones fuse. (See our guide on *Children's Orthodontics at Smile Solutions: Early Intervention, Phase 1 Treatment, and the Right Age for a First Assessment* for a detailed discussion of this window.) In adults with mild skeletal Class II or Class III patterns, orthodontic camouflage — deliberately tipping the teeth to mask the underlying jaw discrepancy — can produce an acceptable functional and aesthetic result, though it involves compromise.

When Surgery Is the Only Viable Solution

For patients whose orthodontic problems are so severe that neither growth modification nor camouflage offers a solution, surgery to realign the jaws or reposition dentoalveolar segments is the only possible treatment option.

Specific clinical indications for the combined orthodontic-surgical pathway include:

- **Severe skeletal Class III malocclusion** (underbite with significant chin projection or maxillary deficiency) — adult skeletal Class III malocclusion involves multiple, complex, interrelated aspects such as cranial base abnormalities and maxillary and mandibular skeletal and dental components, which necessitate precise orthognathic surgical repositioning of the jaws in conjunction with extensive pre- and post-surgical orthodontic treatment to achieve functional occlusion and long-term stability.
- **Severe skeletal Class II malocclusion** (significant mandibular retrognathia or maxillary excess) — skeletal Class II mandibular retrognathia severely impacts patients' physical and mental health, and can only be effectively treated through combined orthodontic-surgical therapy.
- **Skeletal anterior open bite** — where the upper and lower front teeth do not meet vertically due to jaw geometry rather than tooth position. Research confirms that combined orthodontic and orthognathic surgery provides reliable functional and aesthetic improvement for skeletal anterior open bite, with skeletal anchorage representing a less invasive alternative only in carefully selected adult patients.
- **Significant facial asymmetry** caused by differential jaw growth or condylar abnormalities - **Severe transverse discrepancy** (crossbite) beyond the range correctable by palatal expansion alone in an adult

(For a full explanation of how these bite problems are diagnosed and triaged, see our guide on *How to Fix Bite Problems with Orthodontics: Overbite, Underbite, Crossbite, and Open Bite Explained*.)

The Combined Orthodontic-Surgical Pathway: A Step-by-Step Overview

Contemporary orthognathic surgery employs a multidisciplinary approach combining orthodontic treatment with surgical intervention. The conventional protocol consists of presurgical orthodontics lasting 12–24 months, followed by surgery and postsurgical orthodontic refinement.

Here is how that pathway unfolds in practice:

Stage 1: Comprehensive Diagnosis and Treatment Planning

Before any appliance is fitted or any surgical date is set, the specialist orthodontist and oral surgeon conduct a joint assessment using:

- **Lateral cephalometric radiographs** — to precisely measure jaw positions, skeletal angles (including the ANB angle that defines the antero-posterior relationship between the upper and lower jaws), and facial proportions
- **CBCT (cone beam CT) scanning** — providing three-dimensional skeletal imaging that allows virtual surgical planning
- **Digital dental models** — to simulate post-surgical occlusion before treatment begins
- **Clinical photographs and facial analysis** — to assess soft tissue profile changes that surgery will produce

This diagnostic phase is not optional — it is the foundation upon which the entire treatment sequence is built. At Smile Solutions, the co-location of specialist orthodontists and oral surgeons within the same practice means this joint planning occurs without the communication delays inherent in external referral networks.

Stage 2: Pre-Surgical Orthodontics (Decompensation)

This is the phase that surprises many patients: before surgery, the orthodontist will often make the bite **look worse**, not better. This process — called **decompensation** — involves removing the dental compensations that the teeth have naturally adopted to mask the underlying skeletal discrepancy.

For example, in a skeletal Class III patient, the upper front teeth typically flare forward and the lower front teeth tip back, as the dentition attempts to compensate for the jaw relationship. Pre-surgical orthodontics reverses this, aligning each arch of teeth over its own jaw bone so that when the surgeon repositions the jaws, the teeth will meet correctly.

In the conventional sequence, a period of pre-surgical orthodontics — typically 6–18 months — is needed to decompensate and align the teeth over their respective jaw bones, followed by 3–6 months of post-surgical finishing.

Fixed braces are the standard appliance for this phase, as they allow the precise three-dimensional tooth positioning that pre-surgical decompensation requires. (See our guide on **The Full Spectrum of Orthodontic Treatments Available at Smile Solutions** for details on the Empower self-ligating bracket system used at Smile Solutions.)

Stage 3: Orthognathic Surgery

The surgical procedure itself is performed under general anaesthesia by an oral and maxillofacial surgeon. The two most commonly performed osteotomies are:

- **Le Fort I osteotomy** — an incision made entirely inside the mouth to access, cut, and reposition the maxilla (upper jaw). This allows the upper jaw to be moved forward, backward, up, down, or rotated.
- **Bilateral sagittal split osteotomy (BSSO)** — a cut and split of the mandible (lower jaw) that allows it to be advanced or set back, performed in close proximity to the Inferior Alveolar Nerve, which is responsible for sensation in the lower lip and chin.

When both jaws require repositioning, a **bimaxillary osteotomy** is performed: bimaxillary surgery moves both jaws simultaneously, which allows more precise correction of complex skeletal relationships, better distributes the required movements between two bones, and is generally considered more stable long-term for severe discrepancies. In a large retrospective study of 291 patients at the University Hospital Frankfurt, a bimaxillary osteotomy was performed in 75.8% of cases to correct the dysgnathia.

A genioplasty (chin repositioning) may be added to optimise facial balance.

Hospital admission is typically brief: patients are admitted for 1–2 nights for a single-jaw osteotomy and 2–3 nights for a bimaxillary osteotomy.

Stage 4: Post-Surgical Recovery

The immediate post-operative period involves predictable swelling and temporary dietary restrictions. Swelling peaks after 2–3 days and can be dramatic, making it difficult to speak or drink normally, with most of the swelling resolving after approximately two weeks.

A common post-operative concern is temporary altered sensation: the lower lip may be numb on one or both sides of the face, though this is usually temporary and may take several weeks or months to resolve. Clinicians at Tokyo Dental College Ichikawa General Hospital conducted a retrospective analysis of 579 orthognathic surgery cases and confirmed that neurosensory disturbances remain a significant postoperative complication, and comprehensive assessment of sensory recovery and identification of risk factors are essential for optimising patient counselling and surgical planning.

Most patients return to work or study within 2–4 weeks, though full bony healing takes 6–12 weeks.

Stage 5: Post-Surgical Orthodontic Finishing

Once the jaws have healed in their new positions, the orthodontist resumes treatment to fine-tune the occlusion. Post-surgical orthodontics uses small elastic bands to precisely guide the teeth into their final position, and this stage usually lasts 6 to 9 months, culminating in the removal of braces.

Retention follows immediately after debanding — typically with both a bonded (fixed) retainer and removable Vivera retainers. (See our guide on [*Retainers After Orthodontic Treatment: How to Protect Your Results for Life*](#) for full retention protocols.)

Surgical Techniques at a Glance

Procedure	Jaw Addressed	Common Indication
Le Fort I osteotomy	Upper jaw (maxilla)	Maxillary retrusion, excess, or vertical discrepancy
BSSO (Bilateral Sagittal Split Osteotomy)	Lower jaw (mandible)	Mandibular retrognathia or prognathia
Bimaxillary osteotomy	Both jaws simultaneously	Complex Class II/III, asymmetry, open bite
Genioplasty	Chin only	Chin deficiency or excess, as an adjunct

What Outcomes Can Patients Expect?

The evidence for combined orthodontic-surgical treatment is robust. A landmark retrospective study of 100 patients treated at the Eastman Dental Hospital found that 99% of the sample showed an improvement in PAR (Peer Assessment Rating) score, with 82% being greatly improved; ICON scoring showed that 95% of the sample had an improvement of different degrees.

Skeletal stability is high when the surgical-orthodontic sequence is correctly executed. A 2026 systematic review published in **Frontiers in Oral Health**, encompassing 65 studies and 6,482 patients, found that mean ANB angle improvements were 6.8° for Class III corrections and 5.4° for Class II corrections, with 87.3% maintaining skeletal stability at one-year follow-up or beyond.

Patient satisfaction is consistently high. The same 2026 systematic review reported that patient satisfaction reached 87.6%, with higher ratings for aesthetic versus functional outcomes. A 2025 comprehensive systematic review of 29 studies following PRISMA guidelines confirmed that 25 out of 29 studies reported improved outcomes across OHIP, OQLQ, and SF-36 quality-of-life instruments, with orthognathic surgery positively impacting quality of life and emphasising its effectiveness in psychological well-being and aesthetic transformation.

The functional improvements are equally significant. Correctly repositioned jaws restore normal chewing efficiency, reduce TMJ strain caused by chronic bite compensation, improve airway dimensions in cases of mandibular deficiency, and eliminate the accelerated tooth wear that severe malocclusions cause.

The Role of On-Site Oral Surgeons at Smile Solutions

The combined orthodontic-surgical pathway demands seamless communication between the orthodontist and the oral surgeon throughout every stage — from joint diagnosis through pre-surgical planning, intraoperative coordination, and post-surgical finishing. When these specialists are separated across different practices, critical information can be delayed, misunderstood, or lost between appointments.

Smile Solutions' Melbourne CBD practice is one of the few dental facilities in Australia where specialist orthodontists and oral and maxillofacial surgeons work under the same roof. This co-location model means that:

- ****Joint treatment planning**** occurs in real time, with both specialists reviewing the same diagnostic records simultaneously
- ****Pre-surgical orthodontic milestones**** are confirmed by the surgeon before any surgical date is set
- ****Post-surgical complications**** can be assessed by the oral surgeon and communicated immediately to the treating orthodontist
- ****The patient navigates a single practice****, rather than coordinating between multiple external providers

This is not a logistical convenience — it is a clinical advantage that directly affects treatment precision and patient safety. The multidisciplinary infrastructure at Smile Solutions also means that patients requiring combined orthodontic-surgical-cosmetic outcomes (for example, jaw surgery followed by porcelain veneers or composite bonding) can have that entire treatment sequence planned cohesively from day one. (See our guide on **Combined Orthodontic and Cosmetic Smile Makeovers at Smile Solutions** for how this sequencing works.)

Timing Considerations: Adolescents vs. Adults

A common question is whether orthognathic surgery can be performed during adolescence. The answer depends on skeletal maturity: surgery is generally deferred until jaw growth is complete — typically age 17–18 for females and 18–21 for males — to prevent post-surgical relapse caused by continued growth. A 17-year-old female with a severe skeletal Class III malocclusion may require a delay in surgical treatment until cessation of growth, with pre-surgical orthodontics performed 12 months prior to surgery.

For adults, there is no upper age limit, provided general health permits a general anaesthetic and the periodontal tissues are healthy. Adults who underwent orthodontic treatment in their teens and experienced dental relapse — a common presentation at Smile Solutions — may find that what appeared to be a "teeth shifting" problem is actually an underlying skeletal discrepancy that was previously camouflaged. (See our guide on **Adult Orthodontics in Melbourne: Why More Adults Are Choosing Braces and Invisalign at Smile Solutions** for more on adult orthodontic presentations.)

Key Takeaways

- At least 5% of the population has a dentofacial deformity severe enough to require jaw surgery for full correction — these are patients for whom orthodontics alone cannot produce a stable, functional result.
- The conventional combined protocol consists of presurgical orthodontics lasting 12–24 months,

followed by surgery and postsurgical orthodontic refinement — a total treatment timeline of approximately 2–3 years. - Pre-surgical orthodontic decompensation intentionally worsens the apparent bite before surgery, aligning teeth over their respective jaw bones so the jaws can be repositioned into correct relationship. - Patient satisfaction following orthognathic surgery reaches 87.6% , with skeletal stability maintained in the large majority of patients at one-year follow-up and beyond. - The combined pathway requires genuine multidisciplinary coordination between orthodontist and oral surgeon — a requirement that Smile Solutions' on-site specialist model is uniquely positioned to fulfil within Melbourne CBD.

Conclusion

Orthognathic surgery is not a last resort — it is the **correct** treatment for patients whose bite problems originate in skeletal discrepancy rather than tooth position. Attempting to treat a true skeletal Class III or severe open bite with orthodontics alone produces a compromised result at best, and an unstable one that will relapse over time. The combined orthodontic-surgical pathway, when planned and executed by a coordinated specialist team, delivers measurable improvements in occlusal function, facial aesthetics, airway, and quality of life that orthodontics alone simply cannot achieve.

If you have been told your bite is "too severe for braces" or that jaw surgery might be needed, the most important first step is a joint consultation with a registered specialist orthodontist and an oral and maxillofacial surgeon — ideally within the same practice. At Smile Solutions Melbourne CBD, that assessment is available under one roof, with the diagnostic technology (including CBCT scanning and 3D digital models) to give you a precise, evidence-based treatment plan from day one.

To understand the full range of orthodontic options available before and after the surgical phase, see our guides on **The Full Spectrum of Orthodontic Treatments Available at Smile Solutions** and **Step-by-Step: What to Expect at Your Orthodontic Consultation and Treatment Journey at Smile Solutions**.

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