# AS EASY AS

by Dr. Robert ("Tito") Norris

**Dr. Robert ("Tito") Norris** is a 1992 graduate of the University of Texas Health Science Center at San Antonio Dental School. He completed a general practice residency at the VA Hospital in Washington, D.C., followed by orthodontic specialty training at Howard University, graduating as valedictorian with the highest GPA in the program's 25-year history. After serving as a U.S. Air Force orthodontist in Misawa, Japan, he returned to San Antonio in 1998 and opened a private orthodontic practice.

Norris holds several patents and trademarks, and is the inventor of the Norris 20/26 Passive Self-Ligating Bracket System. He is board-certified by the American Board of Orthodontics, and is a member of 10 dental organizations and study clubs. He lectures nationally and internationally on topics including aesthetics, efficiency, sustainability, customer service, accelerated treatment and aligner treatment. He has created and manages several other companies pertaining to real estate investments, marketing, retail sales, and a nonprofit providing complimentary orthodontic care to children in need.

AN ELEGANTLY SIMPLE PROCESS FOR THE DIAGNOSIS AND TREATMENT OF INTERDISCIPLINARY PATIENTS

As a University of Texas mechanical engineering student, I spent one semester doing a research internship in Austin, and I hated it—I was so bored that I often fell asleep on the job. Yet, for the first time in my life, I had a real job with decent pay and dental insurance, and I'd always wanted orthodontic treatment. So as I sat in the orthodontist's chair, I had an epiphany: *This doctor has a really cool job! He works with forces, movements, vectors … and people.*

I quickly did the math, multiplying my monthly payment times two patients per hour per chair, times six chairs, and a smile spread across my face. *This doctor gets to set his own hours, own his business, hire who he wants, three-day weekends, and gets to do mechanical engineering … in the mouth. I'm in!*

Eighteen months later, I started dental school in San Antonio with the hopes of being an orthodontist, and I knew right away I'd made the right decision. Studying was no longer a chore; it was now a labor of love. I had found my passion.

The following summer, I started working as an orthodontic assistant, and although I barely knew my mesial from my distal, there was something about the mechanics of orthodontics that really bothered me.

You see, I grew up fixing things. Whether it was repairing lens edging equipment in my father's optometry lab or fences, gates, bicycles, cars or anything mechanical around our property, I learned to use the correct tool for the job. So, when I learned that the largest wire in the .022-inch slot practice was a .019-by-.025-inch one, it bothered me; to me, that was the equivalent of grabbing a 22-millimeter wrench to tighten a 19mm nut. It just didn't make any sense.

So I had the audacity to ask the question: "Why don't we fully engage the slot of these .022-inch brackets with a full-sized wire?" Of course, the answer was that a .021-by-.025-inch wire is just too heavy; it breaks brackets and hurts patients.

OK, then— next question: "Why don't they just make a bracket that fits the .019-by-.025 wires we like to use?"

My orthodontist employer didn't have an answer, nor did any of my professors in my dental school or in my orthodontic residency. It seems that this archaic .022-inch slot bracket system had just been passed down from generation to generation with no one considering updating it or changing it to accommodate today's modern wire materials.

## Developing a new

When I completed my orthodontic residency and began working as a U.S. Air Force orthodontist in Misawa, Japan, I began using an .018-inch slot bracket system. I enjoyed excellent torque control, using a .017-by-.025-inch wire for most of my working and finishing stages of treatment, but as an orthodontist in the military, I was tasked with treating only the most challenging cases: surgical cases, interdisciplinary cases and impinging deep bites.

For some of these adult cases, I felt that the .018-inch slot system simply didn't have quite enough force to overcome these challenging malocclusions.

1997 was a pivotal year for me. In the spring I met Dr. Dwight Damon and became an early adopter of the Damon PSL system. With my background in mechanical engineering, it made sense to me to engage an orthodontic wire with four rigid walls and eliminate the variability of different sizes and strengths of O-rings, as well as different assistants tying in wires in various manners, leaving the pigtail of a steel ligature tie mesially or distally, occlusally or gingivally, tight or loose. All of these variables influenced the manner in which a tooth would respond and introduced inconsistencies into orthodontic results. PSL brackets made sense to me from a *systems* approach. Two choices: door open or door closed (and wire fully engaged). I haven't looked back.

Later that same year, I met Dr. Vince Kokich Sr. and had a unique opportunity to spend a week with him in Fiji at the New Zealand Society of Orthodontists meeting. Kokich's series of articles published that year in *Seminars in Orthodontics* was seminal work in the field of adult orthodontics, and I was so blessed to have read those articles as well as spent so much time with him early in my career.

Other great teachers I have learned from include Drs. David Sarver, John Kois, Frank Spear, Gregg Kinzer, Won Moon, Stanley Yiu, Jeff Rouse and Audrey Yoon. However, the mentor who has had the biggest influence on me over the years is Dr. Bill Robbins. More than 20 years ago, Robbins and Rouse developed the 4–5–6 Global Diagnosis Process for treating interdisciplinary patients, and I hope to demonstrate the elegant simplicity of this process in the case presented herein.

## Studying the numbers

The first premise of the 4–5–6 Global Diagnosis Process is that there are but four areas of diagnosis that need to be considered:

1. Lip.
2. Clinical crowns.
3. Alveolar bone.
4. Skeleton.

The second premise of the process is that there are five questions that need to be answered in order to diagnose a case, and normal values are demonstrated in Fig. 1.

1. Facial height.
2. Upper lip length and mobility.
3. Gingival architecture.
4. Tooth length.
5. Palpability of the cementoenamel junction (CEJ) in the sulcus with an explorer.

The third premise of the process is that there are six tools we have at our disposal to create the proper landscape in which ideal dentistry can be performed:

1. Soft-tissue grafting.
2. Crown lengthening.
3. Orthodontic intrusion.
4. Orthodontic extrusion.
5. Surgery: orthognathic, extractions, implants, etc.
6. Plastics: Botox, fillers, plastic surgery, etc.

Fig. 1

**5 CORE QUESTIONS**

1. Face Height: **1:1 middle third/lower third**
2. Lip Length/Mobility: **20–24mm/6–8mm**
3. Gingival Line: **Level with horizon**
4. Tooth Length: **10–11mm**
5. Feel CEJ: **Yes**

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## *Dr. Tito Norris*

In conjunction with DynaFlex®, Dr. Robert "Tito" Norris has developed the Norris 20/26™ Bracket System. His unique background in mechanical engineering provides him with a distinct advantage in mastering the forces, vectors, and movements inherent in performing orthodontic treatment. Dr. Norris is devoted to creating smiles for a lifetime.

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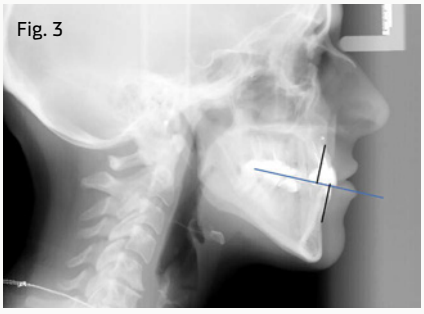
## Case presentation

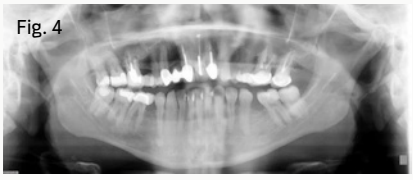
Mariola (Fig. 2) is a 41-year-old woman of Eastern European heritage. She was missing multiple teeth and had undergone extensive dental care that was not of the highest quality. Her chief complaint was, "I don't like my smile. It's very narrow and uneven." Her cephalometric radiograph (Fig. 3) revealed a negative Wits appraisal, indicating a Class 3 skeletal pattern, mostly due to a deficient maxilla. Her panoramic radiograph (Fig. 4) revealed missing teeth #4, #7, #19 and #29, with a nonsalvageable #3, which was slated for eventual extraction.

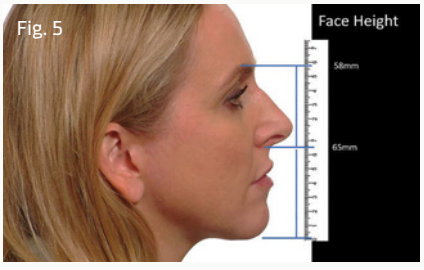
**Step 1** in the Global Diagnostic Process is to evaluate facial height and facial proportions (Fig. 5), and in doing so find that the lower third of her face is longer than the middle third. As we look closer at the lower facial height (Fig. 6), ideally we would like the length of the upper lip to encompass one-third of that height, and the remainder of the lower facial height, from the commissure of the lips to soft-tissue menton, should be two-thirds of the lower facial. In this case, we find that her upper lip (18mm) is slightly short and that the anterior portion of her mandible (43mm) is relatively long. A short upper lip is often the result of a mouth breathing habit, and therefore a potential sign of nasal obstruction.

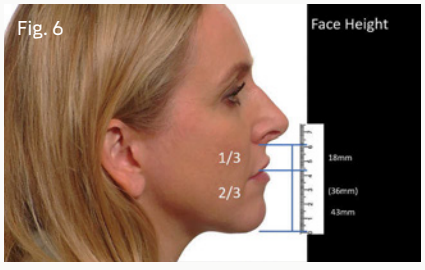
**Step 2** in the process is to verify upper lip length and mobility. To achieve this, we routinely remeasure the upper lip from the frontal view (Fig. 7) with the patient in repose, asking them to say the word *Emma* and then keep their lips apart. We then look at lip mobility (Fig. 8) and ask the patient to give us their biggest laugh. The difference between the lip length in repose and the fully animated smile should be 6–8mm. A measurement more than this is the result of hyperactivity of the levator labii muscles, and can contribute to a gummy smile. However, in this case her measurement was 5mm, which we often see in patients who have guarded smiles or who've had Botox or other neurotoxin injections to their upper lip for wrinkle control. This patient had both.

**Step 3** is to determine whether the gingival architecture is level with the horizon





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**International Orthodontics**
*Guest: Dr. Miguel Hirschhaut*

Dr. Hirschhaut has given courses and lectures on surgical orthodontics, interdisciplinary treatment, and management of impacted teeth in 10 different countries. He has taught classes at 6 US universities, 1 Canadian university and 9 Latin-American universities.

(Fig. 9). In her case, it was not.

**Step 4** is to determine the length of the central incisor (Fig. 10), because it is the central focal point of the smile and when doing comprehensive dentistry, all other tooth lengths and proportions should be based off the size and shape of the central incisors. In this case, her left central incisor measured 10mm (normal) and her right central incisor was 9mm (short).

**Step 5** is to determine whether the CEJ is palpable within the sulcus with an explorer (Fig. 11). If the CEJ is not palpable, then by definition the patient has altered passive eruption,[1] the incomplete apical migration of the dento-gingival complex, and will require aesthetic crown lengthening with ostectomy to establish proper tooth height.


Fig. 9

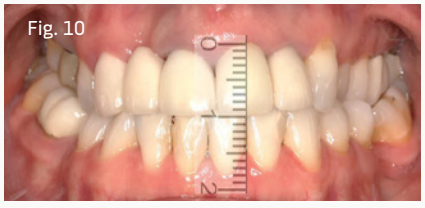
Fig. 10


Fig. 11

Fig. 12

## 5 CORE QUESTIONS

1. Face Height: **58.65 (1:1.2)**
2. Lip Length/Mobility: **18mm/5mm**
3. Gingival Line: **Not Level**
4. Tooth Length: **9–11mm**
5. Feel CEJ: **Yes**

## Reviewing the findings (Fig. 12)

- The patient's lower facial height was longer than her middle facial height. This can be an indicator of vertical maxillary excess or just a "tall" mandible. To make this determination, we look at the amount of incisal display in repose and in full smile. If both are excessive, the patient probably has vertical maxillary excess. In this particular patient, the upper lip was short due to a history of chronic nasal obstruction and mouth breathing. She also had a tall anterior mandible.
- As previously mentioned, her upper lip was slightly short and hypomobile due to her guarded smile and recent history of receiving Botox injections in her upper lip.
- Her gingival line was not level, so orthodontic treatment was indicated.
- Her left central incisor was a normal length (10mm); however, her right central incisor (9mm) would need to be crown-lengthened or orthodontically intruded to provide gingival symmetry.
- Her CEJ was detectable within the sulcus, so she did not have altered passive eruption.

## Diagnosis

- Class III skeletal pattern.
- Maxillary AP deficiency.
- Maxillary transverse deficiency.
- Bilateral posterior crossbite.
- Multiple missing teeth.
- Multiple questionable restorations.
- Short upper lip.
- Hypomobile upper lip.
- Long anterior mandibular height.

## Original treatment plan

- Dentist to remove old restorations, refresh preparations and provisionalize with lab-fabricated temporary restorations and permanent cement.
- Orthodontic appliances to prepare patient for orthognathic surgery.
- Surgical maxillary expansion and advancement with vertical chin reduction.
- Complete orthodontic treatment.
- Extract UR6. Implants UR6, UR5, LL6, LR5.
- Final restorations.

Unfortunately, the patient was vehemently opposed to any orthognathic surgery, so a revised treatment plan, using surgically facilitated orthodontic treatment (SFOT) to add facial bone to the maxilla and attempt as much alveolar expansion as possible, was devised.

## Revised treatment plan

- Dentist to remove old restorations, refresh preparations and provisionalize with lab-fabricated temporary restorations and permanent cement.
- Orthodontic appliances to prepare patient for SFOT.
- SFOT with periodontist.
- Complete orthodontic treatment.

- Extract UR6. Implants UR6, UR5, LL6, LR5.
- Final restorations.

The patient accepted this revised treatment plan and underwent provisionalization with her dentist (Fig. 13).

## Treatment steps

Norris 20/26 brackets were bonded to the teeth in accordance with the bracket placement guide (dynaflex.com/norris2026), and the patient underwent SFOT the next day (Fig. 14). The following week, the patient returned for placement of .014-inch Norris Extra Broad NiTi arch wires (Fig. 15). The patient returned for subsequent appointments, during which our normal archwire progression of .018-by-.018-inch and .019-by-.025-inch Norris Extra Broad NiTi wires were placed and lingual buttons were bonded to the lingual of maxillary molars so that crossbite elastics could be worn (Fig. 16).

At nine months of treatment (Fig. 17), the bilateral posterior crossbite showed significant improvement, although much of this improvement came at the cost of buccal tipping of the maxillary arch and lingual tipping of the mandibular arch. At this point, I had just returned from a MARPE (microimplant-assisted rapid palatal expansion) course given by its creator, Dr. Won Moon, and offered this new procedure to the patient. Our treatment goals were to get more skeletal expansion of the maxilla, hopefully improve the nasal airway, and allow orthodontic uprighting of the mandibular arch. She agreed, and her MARPE appliance was delivered (Fig. 18).


Fig. 13


Fig. 14

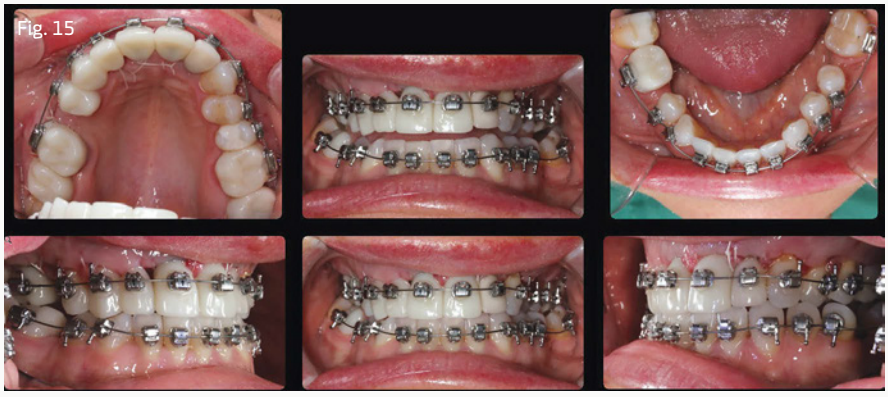
Fig. 15


Fig. 16


Fig. 17


Fig. 18

Within three weeks, a midline split was achieved (Figs. 19 and 20) and within two months, 10mm of skeletal expansion was achieved (Fig. 21).

During the expansion process, the patient developed an anterior open bite, mostly due to posterior interferences, so a multiloop edgewise arch wire (MEAW) was delivered (Fig. 22), and vertical elastics were worn from the maxillary canine hooks to the most anterior mandibular MEAW hook.

Within 9 weeks, the open bite had been closed and the 12-week retention period of the MARPE was complete (Fig. 23), so the MARPE was removed and the patient was scheduled for removal of her braces. Treatment time was 18 months.

Comparing the arch forms from start to finish (Figs. 24a and 24b), one can appreciate the combination of MARPE and Norris Extra Broad wires in developing broad, airway-friendly arches. Note that in the mandibular arch, no expander was used—only Norris Extra Broad wires and one MEAW wire.

Final records (Fig. 25–27), taken when the patient received updated provisional restorations, reveal a fuller smile and elimination of dark buccal corridors. Tooth #3 (UR6) was extracted as planned, and the patient was undergoing grafting procedures in preparation for her dental implants.

CBCT imaging taken at the time of MARPE insertion (Fig. 28a) demonstrates the critical bicortical engagement of the microimplants through the palate as well as the nasal floor. CBCT imaging taken upon MARPE removal (Fig. 28b) reveals new bone forming in the maxillary midline, as well as dramatically improved airway spaces surrounding the inferior and middle turbinates.

A comparison of initial and final facial photographs (Fig. 29) demonstrates a wider alar base, fuller cheeks, broader smile, and a dramatic improvement in her dark buccal corridors and overall facial aesthetics. ■


Fig. 19


Fig. 20


Fig. 21


Fig. 22


Fig. 23


*Reference*

1. *Dolt, AH 3rd, and Robbins, JW. "Altered passive eruption: an etiology of short clinical crowns." Quintessence Int. 1997 Jun; 28(6): 363–72.*


Fig. 24a


Fig. 24b


Fig. 25


Fig. 26


Fig. 27

Fig. 28a

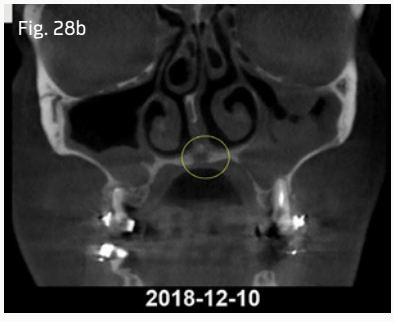

Fig. 28b


Fig. 29

Dentistry work by Dr. Brad Beckel.