

## CHANGES IN THE FACE AND JAW BEYOND ADOLESCENCE

A very interesting study was just published following lateral cephalograms of 21 Swedish patients at 4 time points: age 13 (T1), 16 (T2), 31 (T3), and 62 (T4). These patients were age 19-41 at the time of implant placement. A schematic of the changes over time is depicted below.

**Implant angles:** Relative to sella-nasion line and nasion line, angles changed in 81% and 57% of implants respectively, ranging from 3° counterclockwise to 4° clockwise, and were more prevalent and larger in males (100% vs. 58%) and patients under 30 at the time of surgery (85% vs. 63%)

**Jaw growth:** Significant anterior growth was noted from 13 (T1) to 16 (T2). Significant retrognathism was noted from 31 (T3) to 62 (T4). The anterior face height and jaw dimensions increased significantly until 31 (T3). Significant posterior rotation of the mandible and opening of the vertical jaw relation, in addition to significant retroclination of the incisors and straightening of the facial profile was evident from 31 (T3) to 62 (T4).

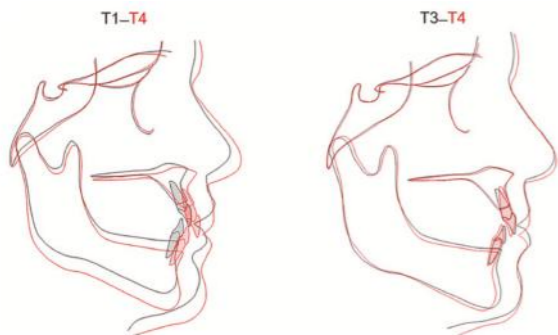


Figure 7. Superimposition-based cephalometric illustration of the craniofacial changes from T1-T4 and T3-T4.

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## CRANIOFACIAL GROWTH

We often think of implants as a life-long treatment that should stay fixed in the mouth ideally for the rest of one's life time. Particularly when placed later in life, as long as the implants are maintained just as teeth need to be maintained, this is a reasonable expectation.

We all know implants should not be placed in a growing individual because the face will continue to grow and tooth position will change, but the implant will not move causing severe periodontal defects. Because normal craniofacial growth generally occurs in a downward and forward direction, implants in the anterior maxilla will appear to move in a lingual and coronal direction. We traditionally have been trained that the end point of these facial changes would be age 16 for girls and age 18 for boys.

But with time, we have found that even patients having implants placed well beyond age 16 or 18, can still have a relative intrusion of an anterior implant over time. For posterior implants, continued growth can manifest as open contacts or adjacent natural tooth shifting or malposition. Although the total number of reported cases is small, we currently have no way of predicting who will be affected.

In most cases, the changes are small enough that replacing the restoration is all that is needed. In other situations, more may be needed.

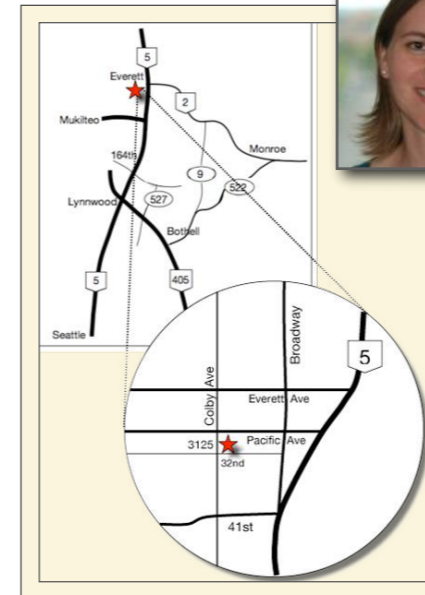
This issue of **ProbeTips** will explore our current knowledge of craniofacial growth into adulthood, and highlight a few of my own cases of patients experiencing such changes and how they were or might be managed.

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# PROBE TIPS

A QUARTERLY PERIODONTAL  
NEWSLETTER

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## Implant Intrusion



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# Implant Intrusion

## **CASE 1:** 8yr RC. Gender: Female. Age at placement: 19

This was my first case of an intruded implant in an adult. This female patient was referred to me for evaluation of existing implant #9 placed when the patient was 19 years old. The patient noticed around age 25 that the crown on the implant was no longer extending as far down as the incisal edge of the adjacent tooth #8, and a space had developed interproximally. I met her at age 27, about 8 years after the implant was placed. The implant was in good condition, so the crown was removed and a temporary crown was placed to help shape the gingival tissues which needed to be displaced more apically before being restored with a new crown by her dentist.



## **CASE 2:** 5yr RC. Gender: Female. Age at placement: 43

The case adjacent was a patient in whom I placed the implant at site #8 when the patient was 43 years old. At a 5 year follow up, it was noted that the incisal edge was shorter looking relative to the adjacent natural tooth, without significant change to the gingival margin at this time. The decision was made to leave the implant restoration alone for now, and to replace it with a new one at some point if the discrepancy becomes greater. A future new restoration may require a longer abutment to bring the gingival margin in line with #9, and potentially one with more or less facial prominence subgingivally if the implant is 'displaced'.



## **CASE 3:** 7yr RC. Gender: Female. Age at placement: 63

This case is particularly interesting as this patient was 63 years old when I placed her implant. Her medical history is significant for sarcoidosis, a chronic disorder resulting in enlarged lymph nodes and granuloma formation throughout the body. At the time of restoration, the gingival health around the implant was acceptable, although low grade inflammation was always present. I placed her on Periostat to improve implant longevity and better maintain soft and hard tissues. At 7 years, the tissues are significantly inflamed as she had not maintained regular care or use of Periostat. The implant is intruded significantly, but the patient does not want a new restoration. To correct the gingival discrepancy, crown removal with significant soft tissue grafting would be needed.



## **CASE 4:** 3yr RC. Gender: Male. Age at placement: 31

The last case is an asian American male with significant aggressive periodontitis. He had undergone four quadrants of flap surgery with loss of some molars and incisors, regular 3 month periodontal maintenance, and was practicing good oral hygiene when I placed implant #8. Interestingly, the restoration is still the temporary crown that I placed after integration to mould the tissues prior to final restoration, but because of COVID, he had postponed finalization. It is a significant amount of change in a relatively short period of time. I wonder if his periodontitis risk contributes to more pronounced tooth positional changes, and will be interesting to monitor with time.



## REFERENCES

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\*Complete References Available on Request.\*  
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