

## Changing in Dental Setting and Postural Analysis -A Case Report

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### ABSTRACT

**Background:** Dental structure and posture is now well known to be closely linked to each other. This work is not intended to be the definitive proof of this link, but rather the exposure of a case that presents the particularity of an absolute procedural asepsis as the operator was not aware of the change in the dental setting of the subject examined.

**Material sand Methods:** The study began in 2020 and ended in 2021. The subject involved was a young woman of about 37 years old, weighing 52Kg and 1.58m tall, at the first postural analysis performed on 2020 January the third. Subsequently, two other postural analysis were performed, 13 months and 22 months after the first respectively. For the postural analysis, an identical protocol was followed in the three analyzes Performed.

**Results:** Observing the results obtained in the three analysis, it can be deduced that approximately 63% of the controlled parameters (12 out of 19) underwent modifications, even if not all of them could be related to the variation of the dental setting.

**Conclusion:** The study, even within the limits of its design, highlights how the different systems that make up the human body are interdependent and an action performed on one of them can be found as a modification of the initial state of others.

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### Background

The relationship between dental structure and posture is well known and documented, as evidenced by recent and less recent articles in literature, especially when it comes to surgical interventions or bracing [1-11]. However, it is perhaps less known how even minimal interventions or changes in the dental setting, e.g. the extraction of a tooth, can directly affect the posture of the person involved.

The aim of this study is not to constitute the definitive proof of this statement, but rather to describe a particular case, characterized by a peculiar occasional situation of procedural asepsis.

### Materials and Methods

The study began in 2020 and ended in 2021. The subject involved was a young woman, aged 37 years and 10 months, weight of 52Kg and height of 1.58m, for a BMI of 21, at the first postural analysis performed on 2020 January the third.

The subject requested this analysis for herself personal knowledge only, free from particular specific situations or suggesting clinical one or symptoms.

From the findings of the first analysis, a second analysis was agreed after about one year. The outbreak of the SARS-COV2

pandemic event, made the second analysis possible only on 2021 February the third.

Some unexpected finding in this second analysis, moved operator to discuss with subject. This brought the subject to inform the operator on the extraction of 3.6, occurred more or less one month after the first analysis, as pathological. Then another analysis was agreed when 3.6 would be restored, since was still missing at the moment, waiting for the optimal condition of restoration of the mandibular bone.

3.6 was restored in 2021 April and the third agreed analysis was performed on 2021 November 10th For each of the three postural analysis performed, a postural analysis system described in literature was used [12]. It should be noted that in the first postural analysis the objectification system of the coronal and sagittal rotations of the pelvis was not available, instead present in the second and third. The indications given in this regard in the first analysis are therefore those found by the operator.

### Results

The results of the three postural analysis performed, relative to the considered items, together with the specific and general conditions concerning each postural analysis itself, are reported in Table 1.

**Table 1**

	CONDITIONS		
SPECIFIC	February 2020: 3.6 extraction	February 2021: the operator performs the postural analysis without being aware of the 3.6 extraction	April 2021: 3.6 restoration with artificial tooth implant
GENERAL	October 2020: yoga practice begins	June 2021: end of yoga practice October 2021: yoga practice resumed training in the gym 2 times a week	practice yoga workout in the gym
	POSTURAL ANALYSIS		
	2020-01-03	2021-02-03	2021-11-10
OVERALL OBSERVATION			
TMJ	COR: slight clockwise rotation AX: clockwise rotation	normal	normal
dental implications (Meersseman)	negative	positive	negative
dominance	left	right	right
CPP	does not double	Breaking: 60, Reactivation: 90	Breaking: 60. Reactivation: 150
pursuit	normal	normal	normal
cover test	normal	normal	normal
head rotation (AX)	max right	max right	max left
scapulo-humeral girdle rotation (AX – COR)	absent	absent	absent
pelvic rotation (AX – COR – SAG)	AX: slight clockwise rotation COR: absent SAG: normal	AX: absent COR: anticlockwise rotation 6mm slanting SAG: normal	AX, COR: absent. SAG: normal
femuro-tibial joint	SN: slightly flexed, slightly medialized patella DX: normal	SN: hyperextended, medialized and movable patella. DX: normal	SN: extended, rigid patella DX: flexed, movable patella
feet stand	BI: bilateral valgus max right MONO: valgus left, varus right	BI: bilateral valgus max right MONO: valgus left, varus right	BI: bilateral valgus MONO: bilateral varus
TEST			
postural cone	not performed	Oscillations > 4° both in AP and in LL where it touches the fall	Oscillations > 4° in both AP and LL, without falling. Regular recovery
Autet	descending	descending	descending
Bassani	hypertonus right	hypertonus right	negative
De Cyon	negative	slight hypertonus left	slight hypertonus left
Fukuda	+85°	+45°	+5°
visceral	positive: cervical ROM increased, but without complete recovery	positive: recovery and cervical ROM symmetry, Fukuda 0°, recovery of coronal rotation of the pelvis	positive: recovery and cervical ROM symmetry, Fukuda -5°
forward bending	negative	negative	negative
taperulé	bilateral tenderness in the paravertebral area at the level of D5-D7	pleasant	discomfort in the right paravertebral area at the level of C7-D2.

Comparing the results of the individual items in the three analysis, it can be noted that the slight disharmony of the temporo-mandibular axis is normalized after the extraction of 3.6. while it is overall highlighted that the Meersseman test was positive in correspondence with the lack of 3.6.

Also changing in dominance and changing in CPP can be observed contextually to the extraction of 3.6, passing, for CPP, from a situation of high capacity (first analysis) to a paraphysiological situation (second analysis), which is accentuated in the third.

Always from Table 1 it is possible to observe how there was a change in the cervical ROM with an increase in the rotation range on the left side.

Furthermore, a clear asymmetry of the iliac crests in the coronal plane is observed in particular, as shown in Figure 1:



**Figure 1:** Pelvic Rotation In Coronal Plane: absent in first analysis (left), present in second analysis (middle), absent in third analysis (right)

The analysis of the femoral-tibial joint and of the feet standing also show differences among the three analysis carried out.

Looking at Bassani test and De Cyon test results, changing among the three analysis could be found and the Fukuda test shows a progressive decrease in the angle of rotation during them.

Finally Taperulè test shows modifications in results across the analysis performed.

### Discussion

An analysis of the differences highlighted in the comparison of the three postural analysis performed, leads to objectively suppose that not all of them are attributable to the absence and reinstatement of 3.6.

Indeed, e.g., the cervical ROM changes only from the second to the third analysis, it remains unchanged between the first and the second therefore both in the presence and absence of 3.6. Similarly, the condition of the femoro-tibial joint presents variations that can be logically related more to physical activity and body re-harmonization path chosen by the subject, rather than to the intervention on 3.6, especially in a lack of support by recent available literature about.

A completely similar argument can be made for feet standing.

Bassani test and De Cyon test results, present same value both in presence and absence of 3.6, so is not easy to argue a possible dependence on it, even more so in the analogue lack of support by recent available literature about, noticed above.

Fukuda test results show the angle of rotation decreasing progressively over the three analysis performed, drawing attention rather to physical activity and re-harmonization practiced and increased by the subject, instead of the presence or the absence of 3.6, as previously highlighted.

Something similar happens to Taperulè test results, where each analysis gives a different one with no reasonable link with 3.6 presence or absence.

On the other hand, different considerations concern the result of the Meersseman test, that is reasonably correlated to the history of 3.6 as well as the variation in improvement of the position of the temporomandibular axis from the first to the second analysis.

Regarding the changing in dominant eye and the worsening variation in the values of the CPP, although changes in the stomatognathic system may be responsible in visual system changes and some article in literature reported diplopia after dental anesthesia, there seems to be no sufficient reasons to support a relationship between 3.6 extraction / restoring and changing in dominant eye or worsening variation in the values of the CPP [13-14].

Instead pelvic rotations seems to be well related to 3.6 since the appearance of rotation on the coronal plane is inserted in the absence period of 3.6, preceded by a situation of absence of and followed by the restoration of this condition after the replacement of 3.6.

### Conclusion

Undoubtedly, the case reported does not constitute inferential proof, but nevertheless highlights the interdependence of the different systems that make up the human body. More studies are also need to fill the lack in literature about this specific topic.

### Abbreviations

CPP

Convergence Proximate Point

### Declarations

### Conflict of interest

The author declare to have conflict of interest

### Authorization

The subject kindly voluntarily agrees to the study and verbally authorized to publish this article and figure, concealing her face and keep her anonymous, as we done.

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