JULY 2020

Dr. Petros Kokkinos

Age: 37 YO

Occupation:

Date of the first visit: JULY 2020

Chief Complaint: PAIN IN LEFT JOINT

Findings Initial-Diagnostics

OLGA ALKHINA 9/9/1992
Patient date of birth

Special Medical Analysis

Do you have or did you ever have an illness with regard to points 1-12?

	yes	no		yes	no
1. Infections		X	7. Urogenital problems		X
2. Cardio-vascular systems		X	8. Central nervous systems		X
3. Respiratory systems		X	9. Psychological problems (theraphy)		X
4. Digestive systems		X	10. Rheumatic disease		X
5. Metabolic systems		X	11. Hormonal disease		X
6. Allergies	X		12. Special problems		X

Main concern PAIN IN LEFT JOINT

Dental History Analysis

		valuation	yes	no
1.	Do you have problems when you chew?			X
2.	Do you have problems when you are talking?			X
3.	Do you have problems in closing your teeth properly?			X
4.	Are any of your teeth especially sensitive?	1	X	
5.	Do you have a problem when you open your mouth very wide?			X
6.	Do your jaw joints make noise and if so, on what side?	1	X	
7.	Do you have pain in the area of your jaw joints? RIGHT	1	X	
8.	Do you suffer from headaches?	1	X	
9.	Do you suffer from cramps or spasm in your head, neck or throat?	1	X	
10.	Do you have in general problems with your posture?			X
	Occlusal Index	1.00		

		yes	no
11.	Have you ever had a serious accident?		X
12.	Did you have one or more oral intubations?	X	
13.	Have you ever had orthodontic treatment or... 11YO	X	
14.	Have you had a treatment with a splint?		X
15.	Are you grinding or pressing with your teeth?		X
16.	Do you think that treatment is necessary?	X	
17.	Do you think that there is a serious disorder or illness?		X

18. When was the last time you had dental treatment and what was done?
30 MIN FOR CLEANING

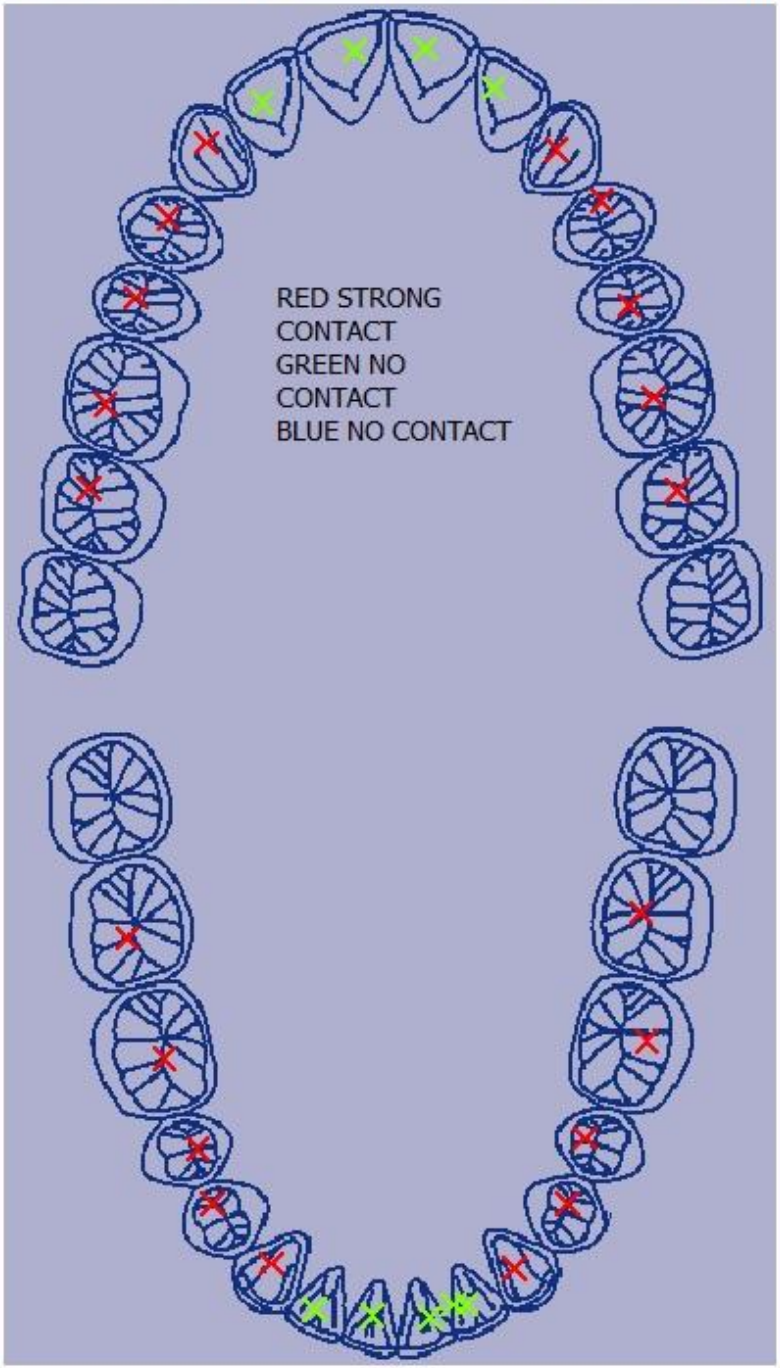
19. How would you describe your psychic behaviour?
[X] happy [ ] sad [ ] calm [ ] excited [ ] self-controlled [ ] lack of self control

Muscle Diagnosis

		right		left	
		+	++	+	++
1.	shoulders and neck				
2.	atlanto-occipital region				
3.a	M.temporalis ant. IO L/R				
3.b	M.temporalis med.				
3.c	M.temporalis post.				
4.a	M.masseter (superficial)				
4.b	M.masseter (deep)				
5.	Tuber maxillae	X			X
6.	M.pterygoideus medialis				
7.	M.mylohyoideus				
8.	M.digastricus	X			
9.	suprahyoidale M.				
10.	infrahyoidale M.				
11.	Larynx	X		X	
12.	M.sterno-cleido-mastoideus				
13.	M.omohyoideus				
14.	Tongue				

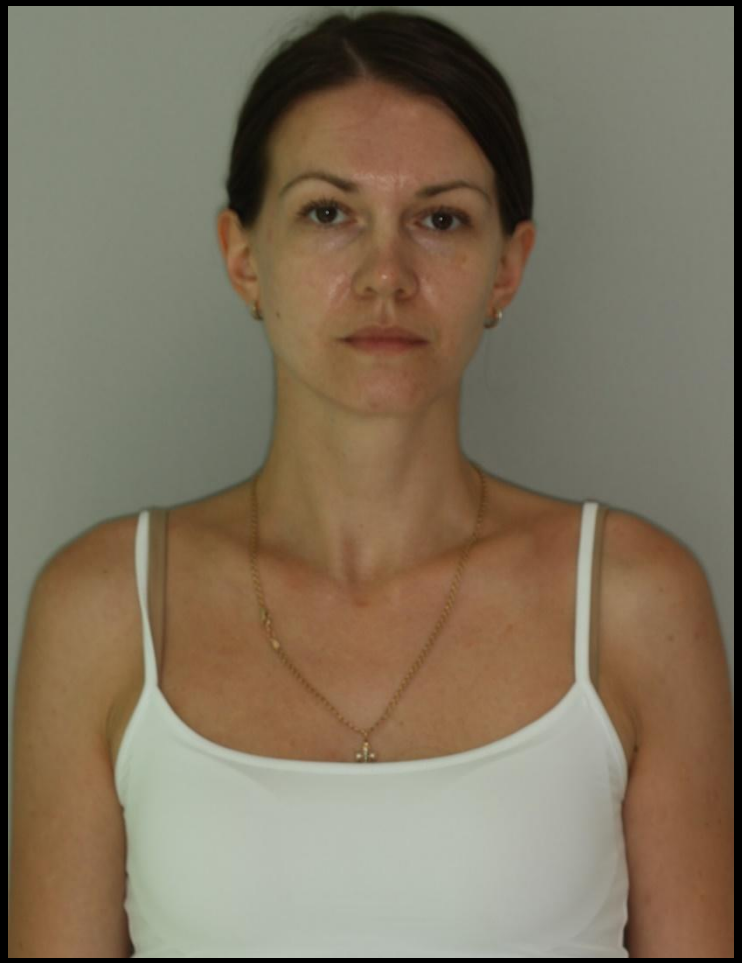
		right		left	
		+	++	+	++
15.	comparative palpation of jaw joints				
	a) lateral poles, statically				
	b) lateral poles, in rotation				
	c) retral joint space			X	
	d) Lig.temporo-mandibulare				

Tooth Status - Periodontal Status - Occlusogram



Occlusogram

Frontal View



Patient's picture,
with/without smile

45˚ View

Patient's picture,
with/without smile

Profile

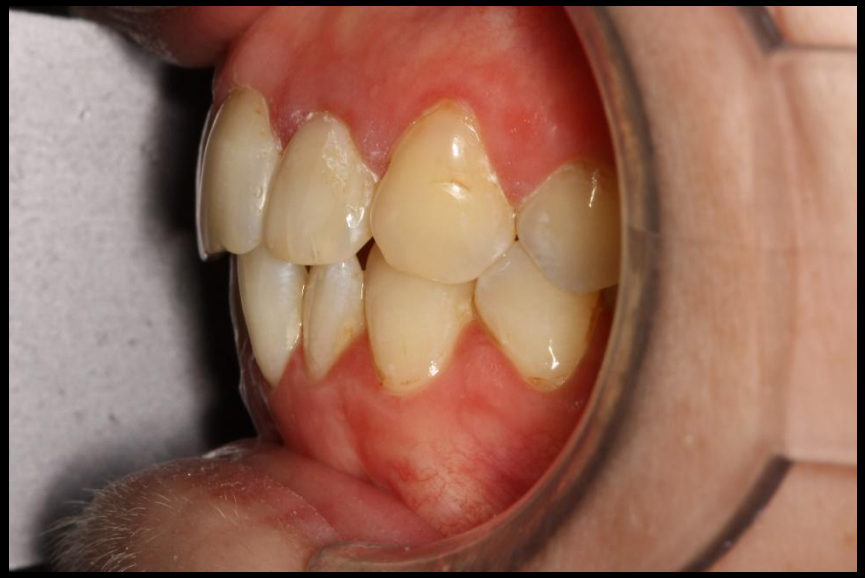
Frontal View Intraoral

Lateral View

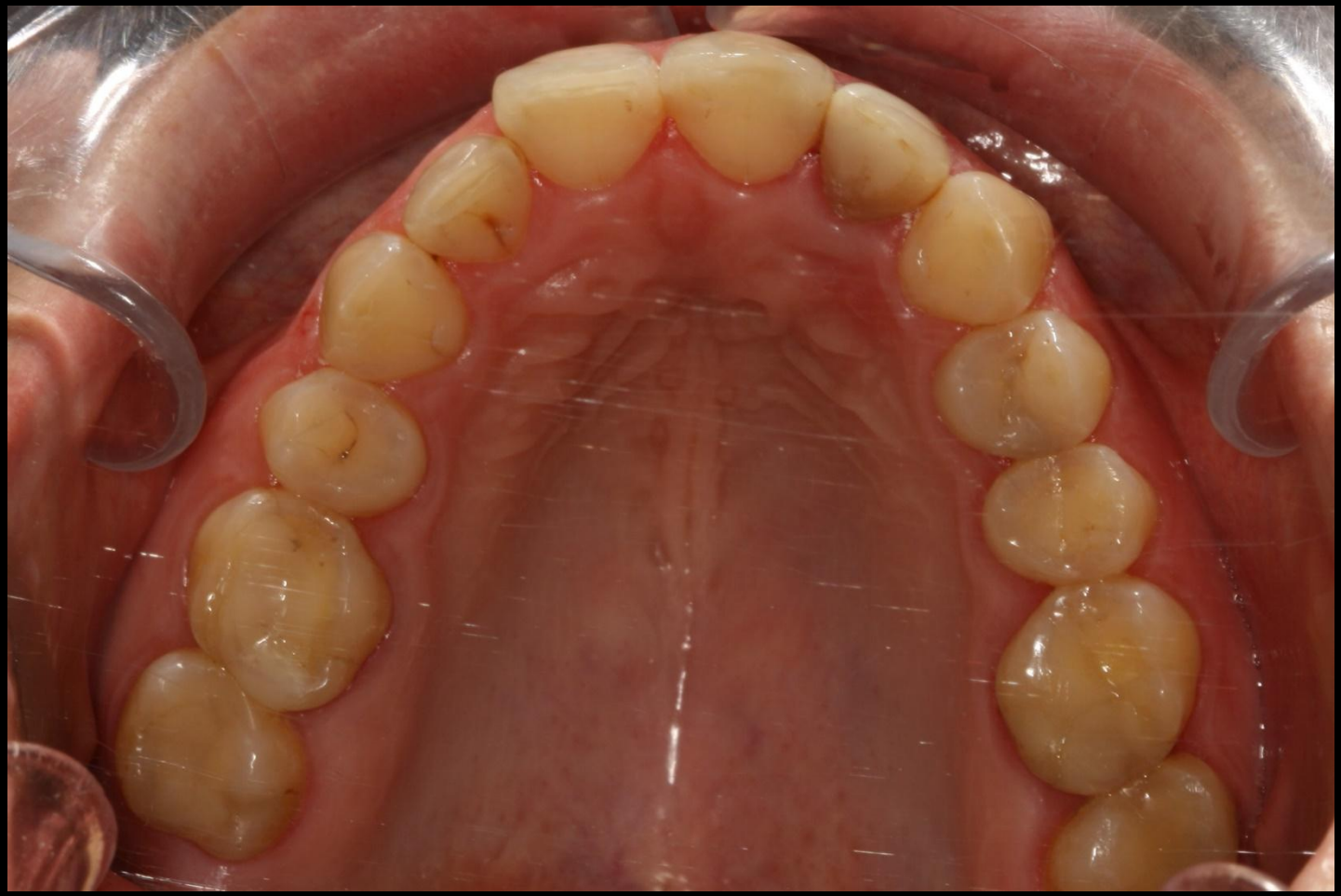
right

left

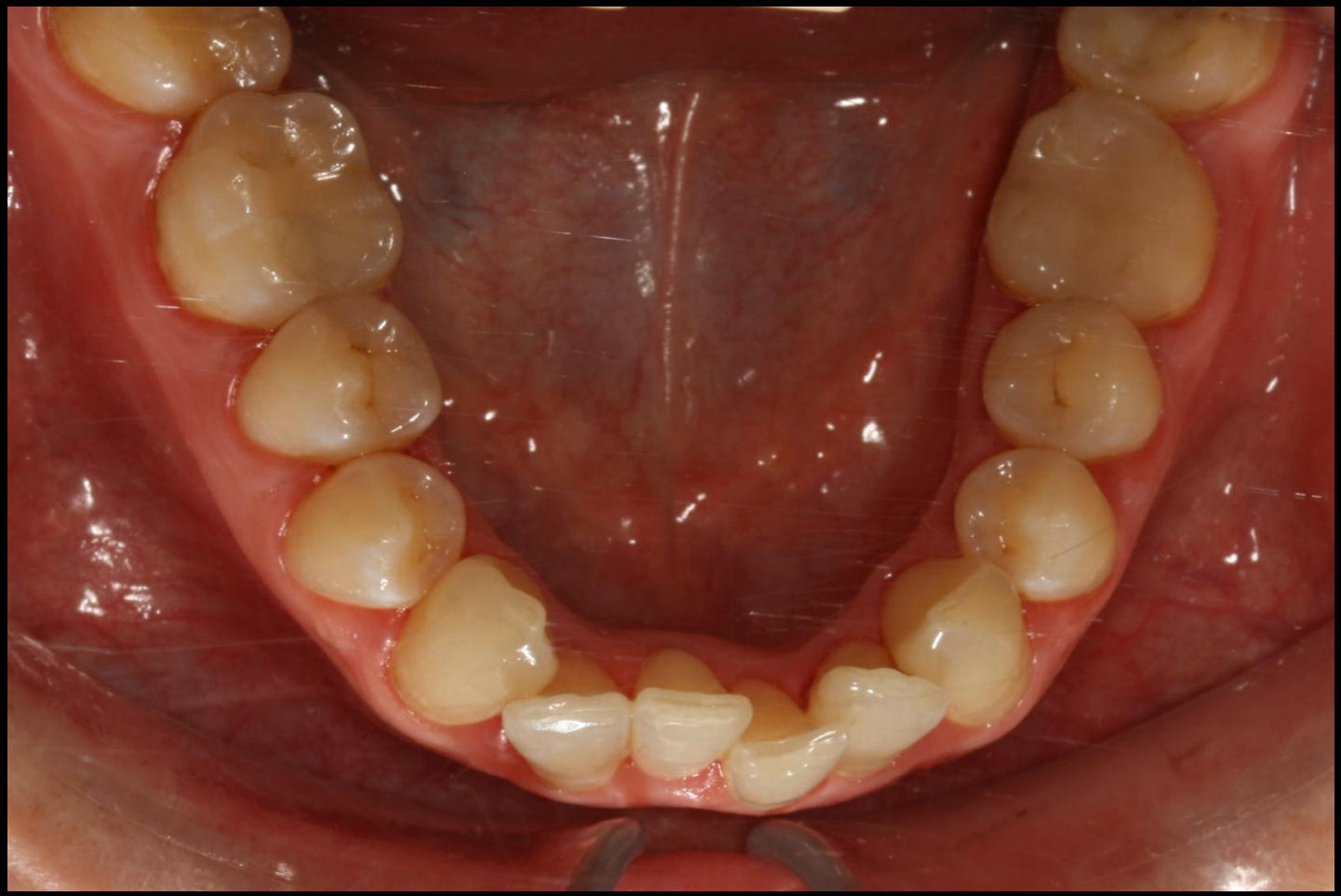
Overjet and Overbite



Occlusal View of the Upper Arch



Occlusal View of the Lower Arch



Panoramic X-Ray – Pre tx

351494 : Alkhina Olga

7/16/20 66.0kV 8.0mA 15.8s 101.1mGy×cm²

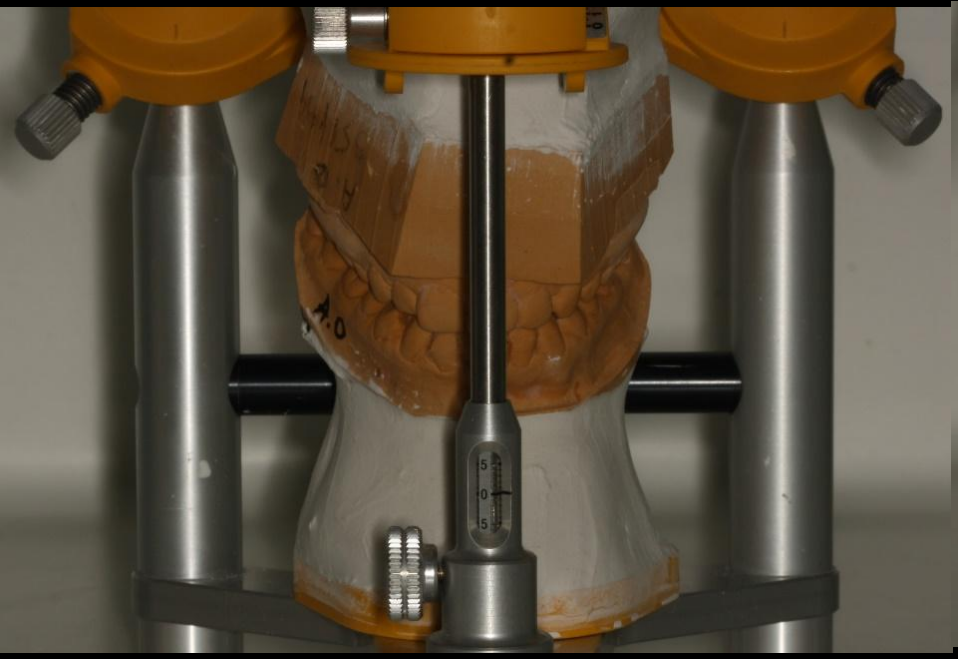
Provider Default

Right and Left Joints

Upper Cast, Occlusal View

Lower cast, occlusal view

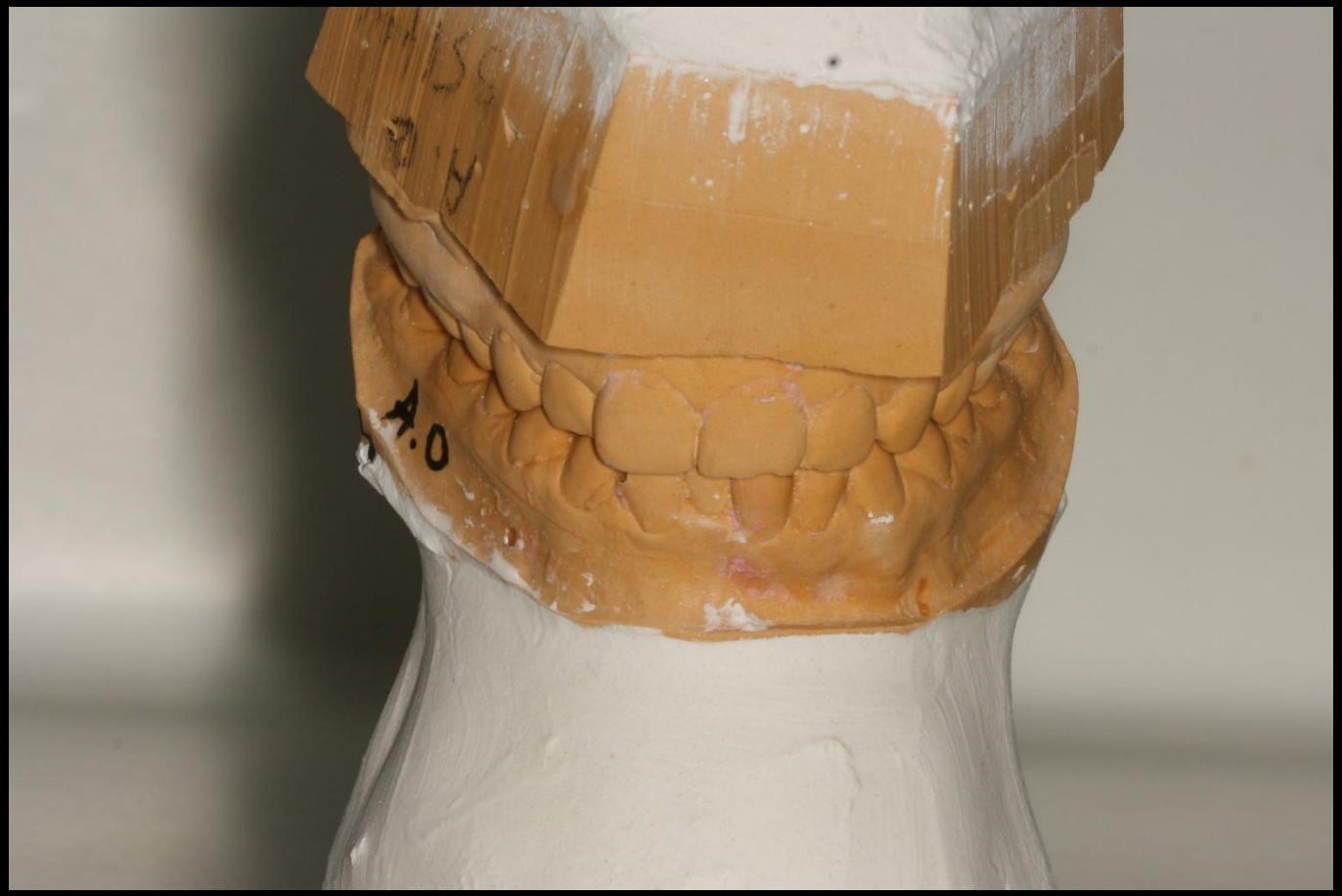
RP mounted casts, frontal view



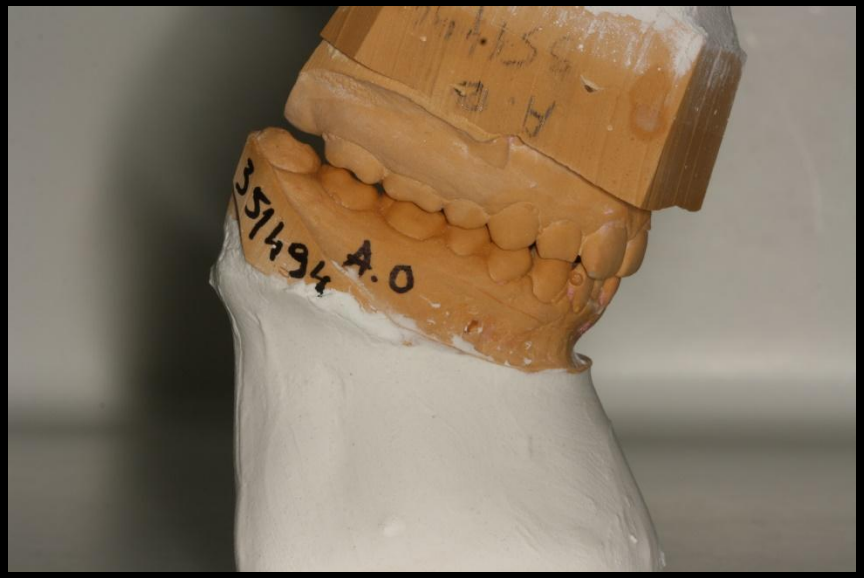
RP mounted casts, lateral view

RP mounted casts, posterior view

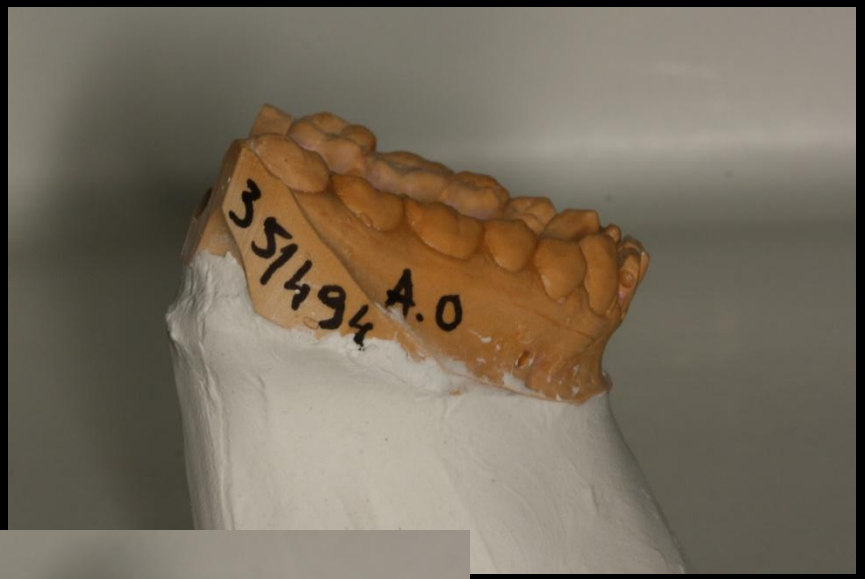
ICP Mounted casts, frontal view

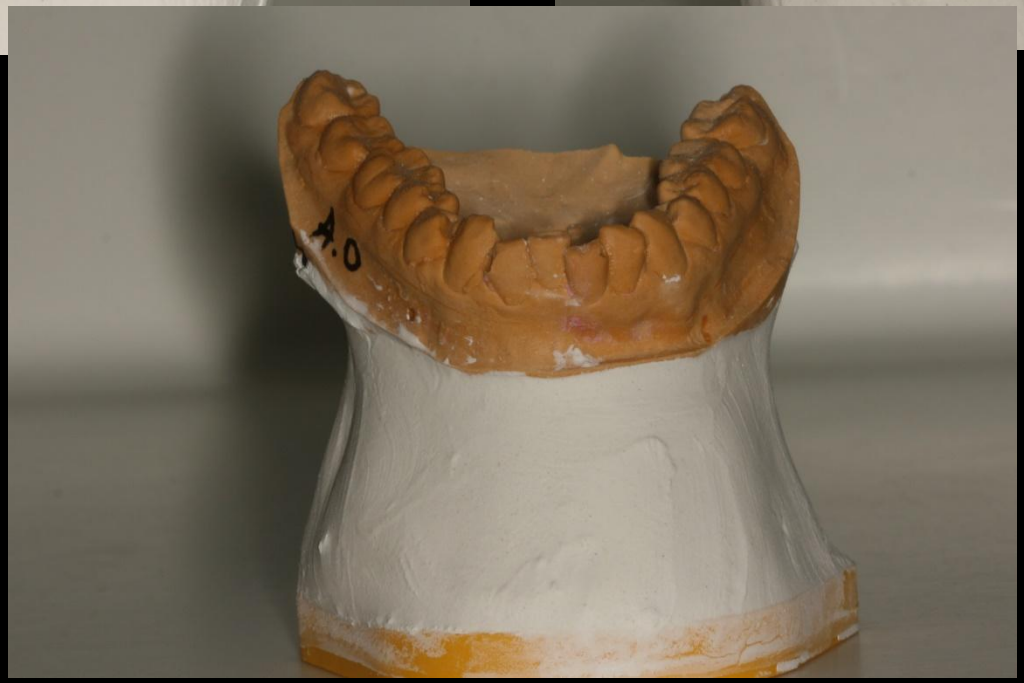


ICP Mounted casts, lateral view

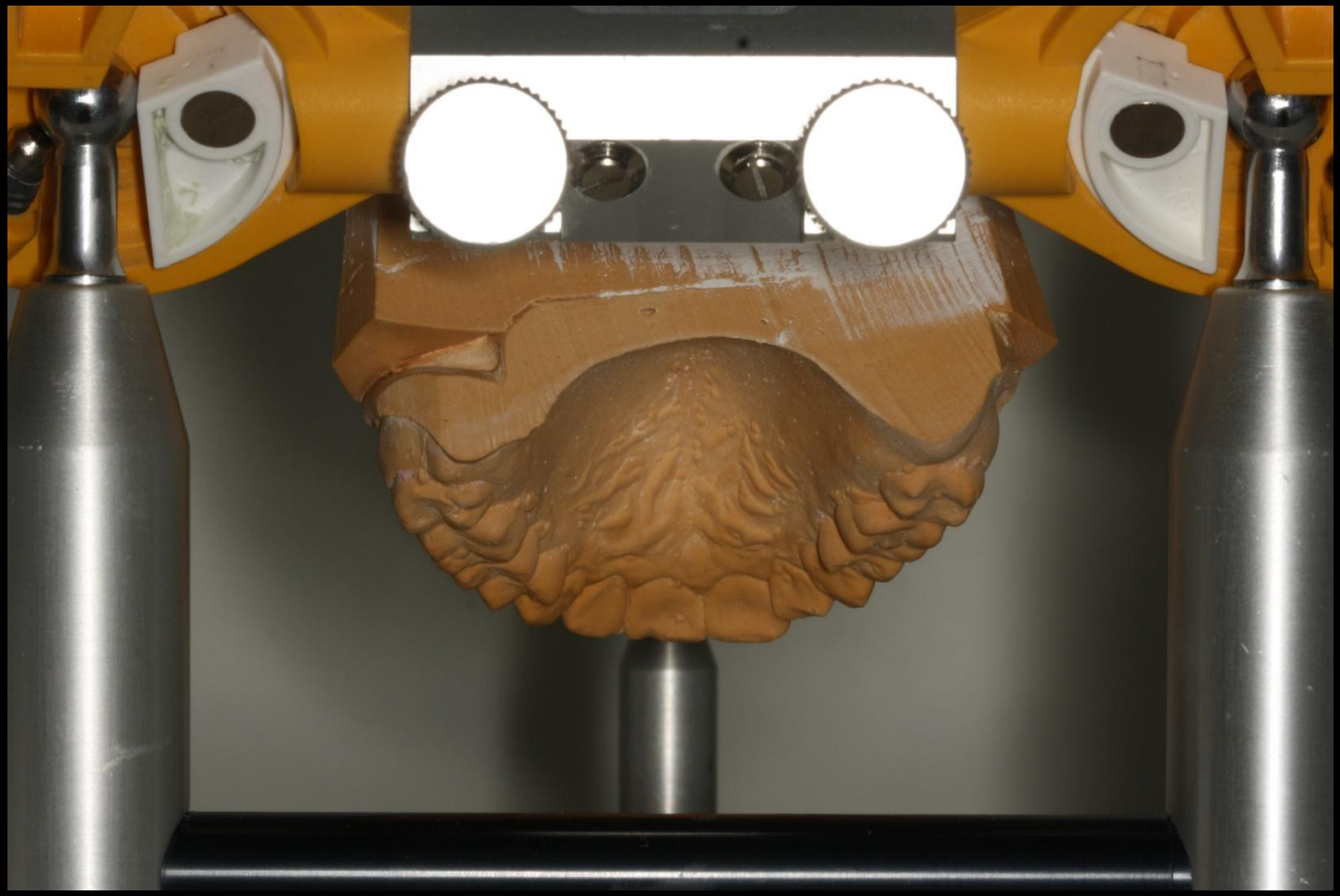


Curve of Spee

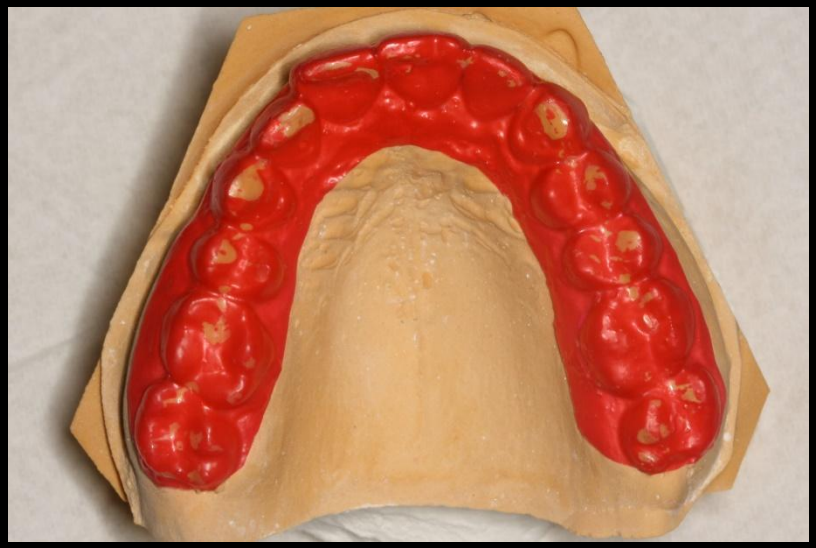




Curve of Wilson

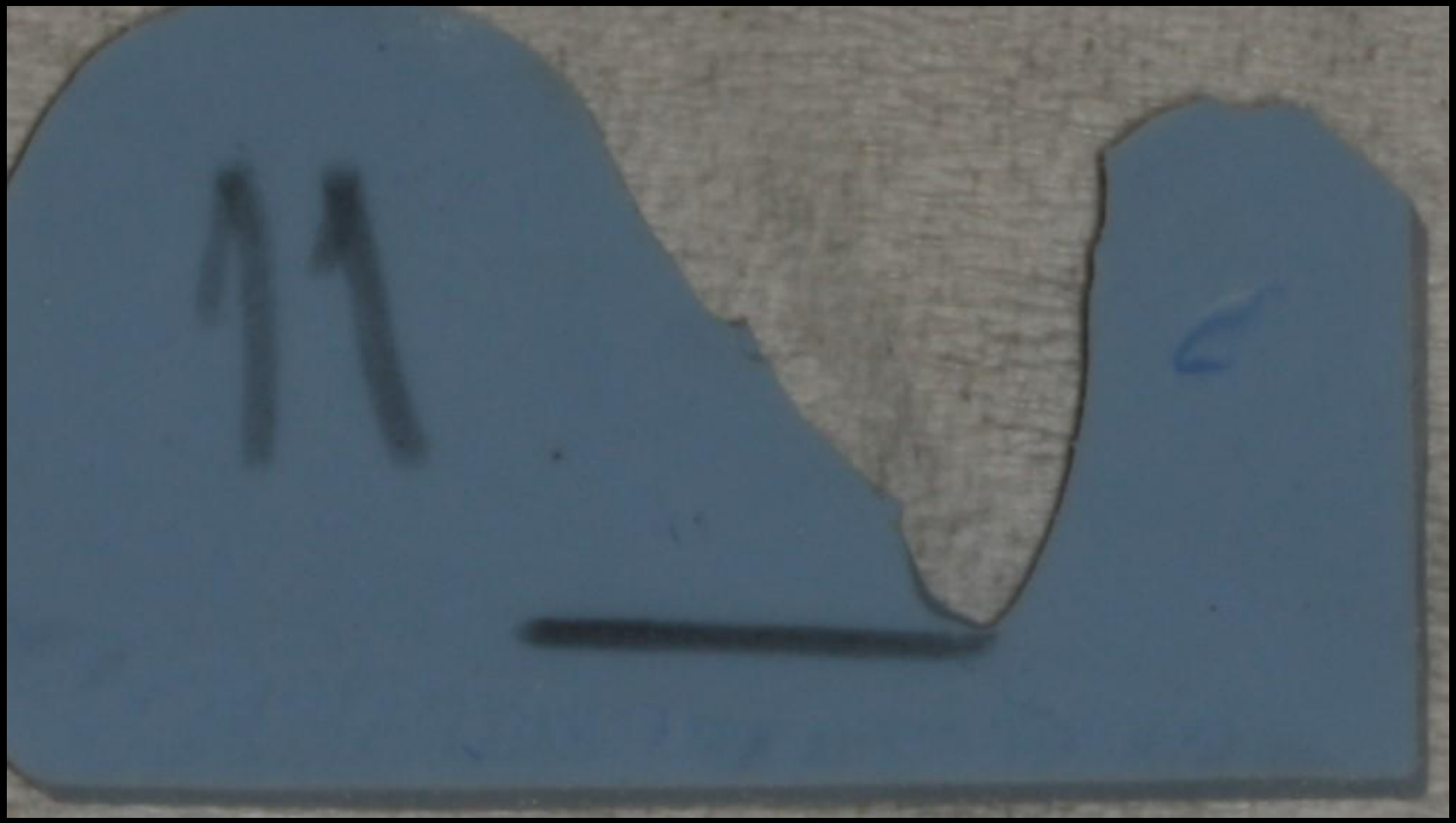


Bruxcheckers Upper



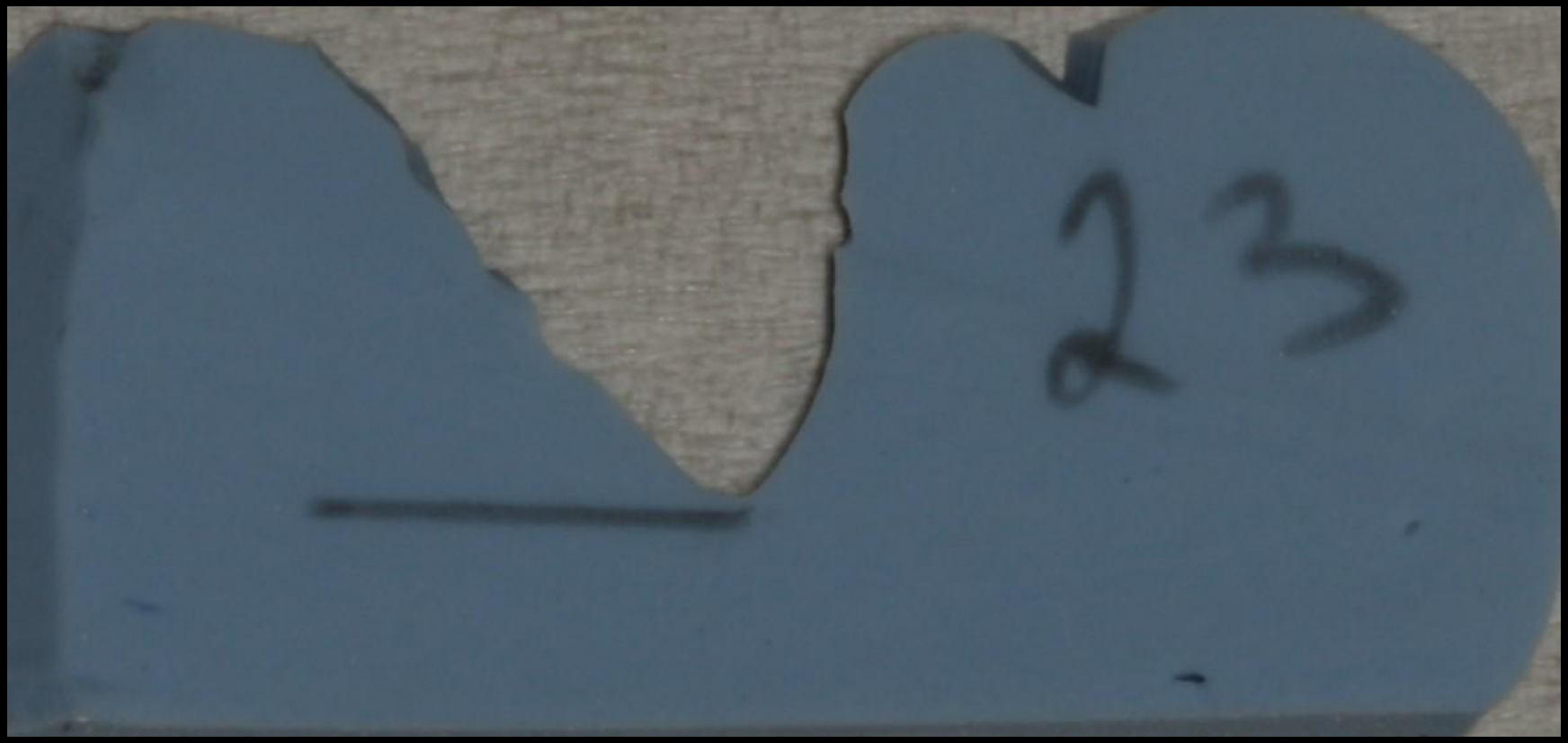
Bruxcheckers Lower

Anterior control

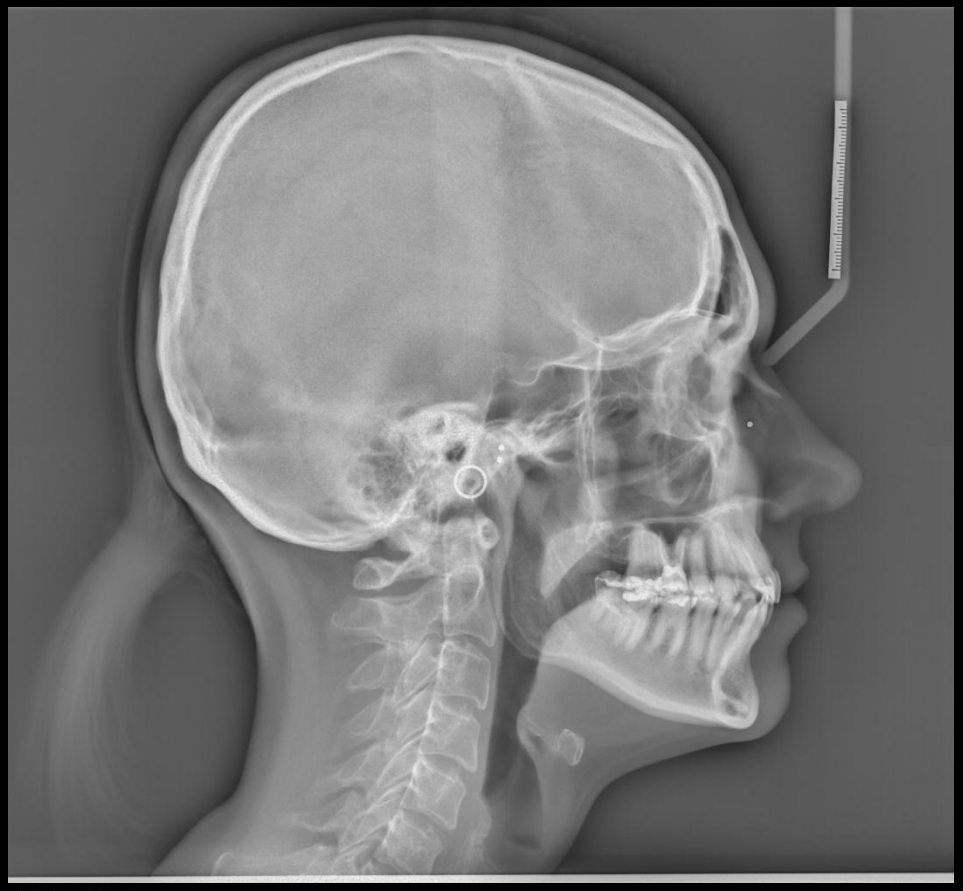


CANINE GUIDANCE=49.2°

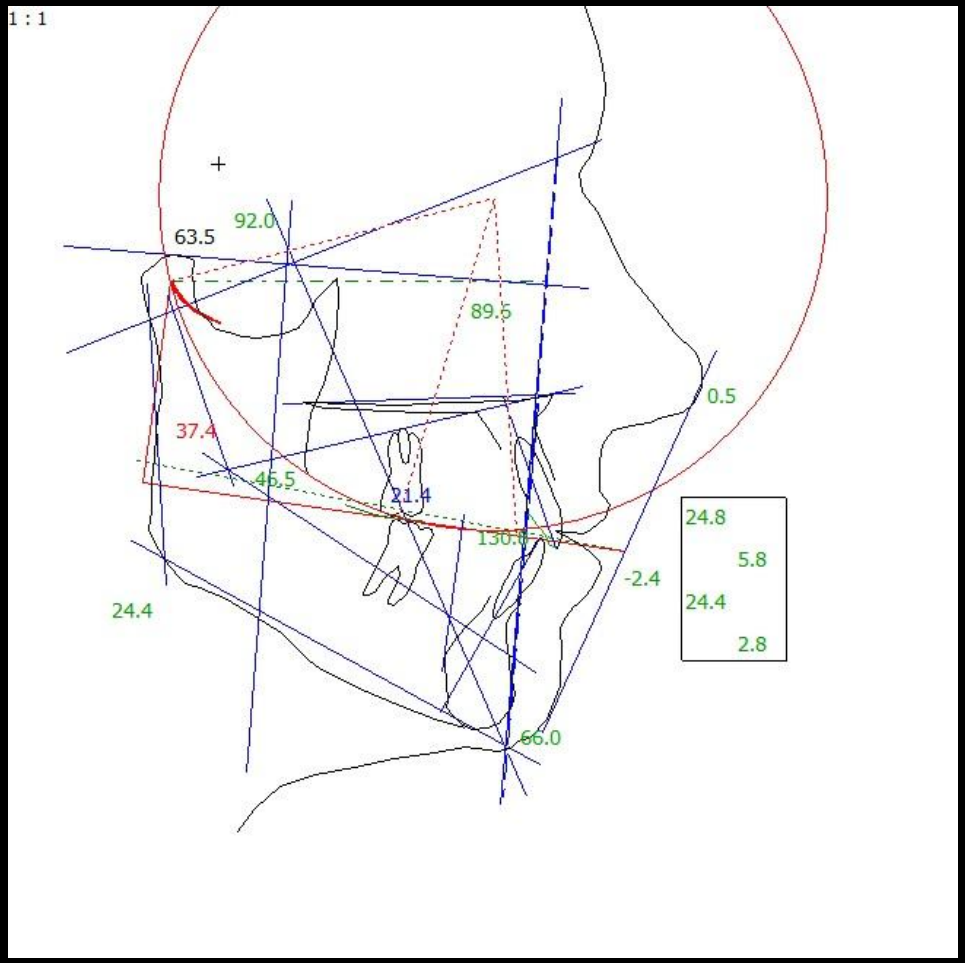
CANINE GUIDANCE=47.8°

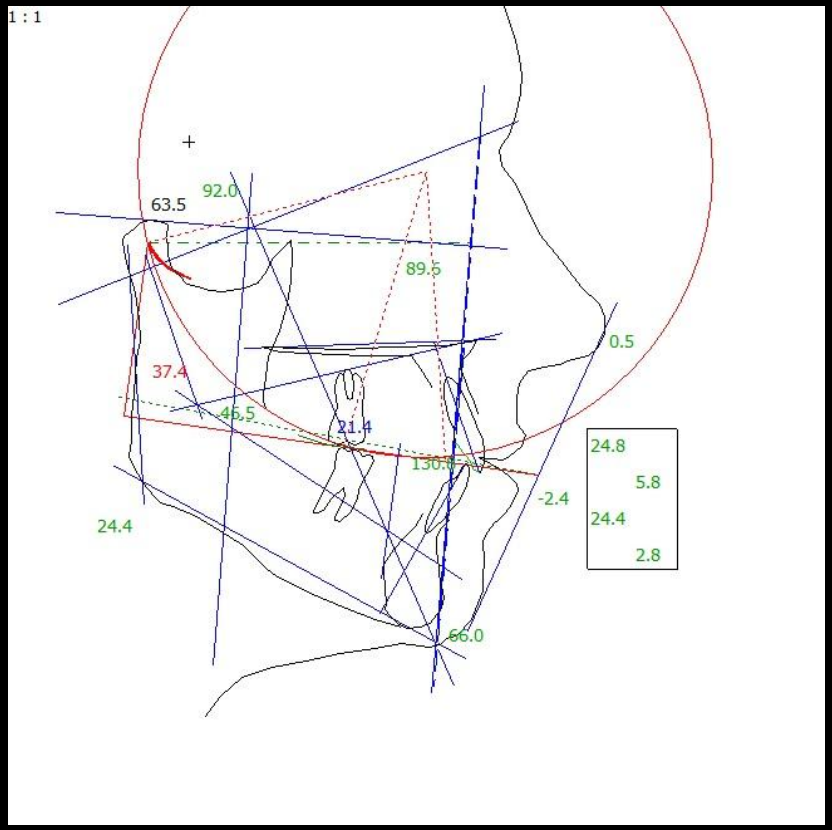


Lateral cephalometric X- Ray



Cadias tracing

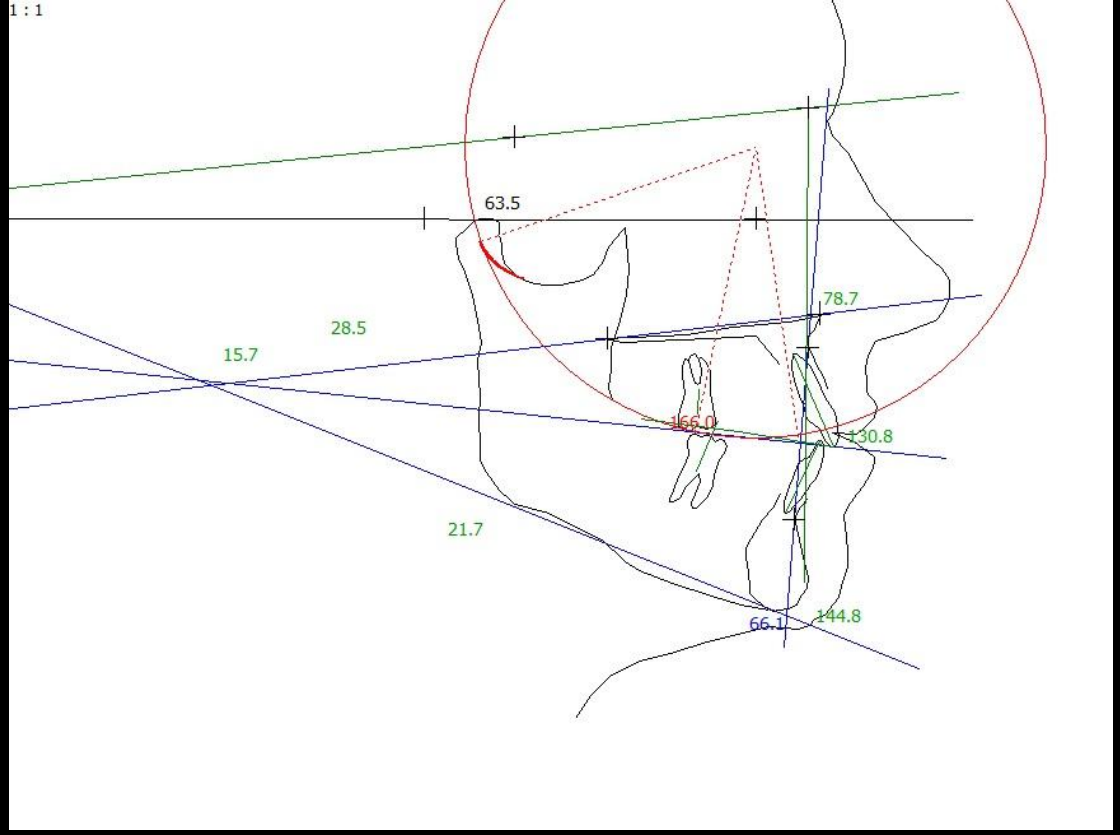




SCI = 52.3
OP = 8.1
RCI =44.1 R =42.9 Left =45.4
AOD =44.1 -30 =14.1
AOD R =12.9 , L =15.4
S-AOP =54.1
RAG = 46.0
LFH =46.4

Slavicek Analysis

Skeletal Measurement	Norm	Value	Trend
Facial Axis	90.0 °	92.0	
Facial Depth	89.0 °	89.5	
Mandibular Plane	24.0 °	24.3	
Facial Taper	68.0 °	66.0	
Mandibular Arc	29.0 °	37.3	2B**
Maxillary Position	65.0 °	66.8	
Convexity	0.0 mm	0.5	
Lower Facial Height (by R.Slavicek)	43.2 °	46.4	
Lower Facial Height to Point D	50.3 °	54.3	
Dental Measurement	**Norm**	**Value**	**Trend**
Interincisal Angle	132.8 °	130.8	
Upper Incisor Protrusion	4.3 mm	5.8	
Upper Incisor Inclination	23.1 °	24.8	
Upper Incisor Vertical	mm	1.1	
Lower Incisor Protrusion	1.2 mm	2.7	
Lower Incisor Inclination	24.1 °	24.3	
Upper Molar Position	18.0 mm	21.4	1+*
Occlusal plane	**Norm**	**Value**	**Trend**
Occlusal Plane - Axis Orbital Plane (Slavicek)	----- °	8.1	
Idealized Occlusal Plane - Axis Orbital Plane	----- °	11.7	
Distance: Occlusal plane - Axis (DPO)	40.9 mm	38.5	
Radius of Curve of Spee	----- mm	63.4	
Lip Embrasure	0.0 mm	-0.2	
Occlusal Plane Xi Distance	-1.4 mm	-4.6	
Functional Measurement	**Norm**	**Value**	**Trend**
Sagittal Condylar Inclination (right)	----- °	51.0	
Sagittal Condylar Inclination (left)	----- °	53.5	
Sagittal Condylar Inclination	----- °	52.3	
Relative Condylar Inclination	----- °	44.1	
Relative Condylar Inclination 6	----- °	45.8	
Relative Condylar Inclination 7	----- °	34.0	
Relative Condylar Inclination 8	°		
Anterior Guidance (S-AOP)	----- °	54.1	
Relative Anterior Guidance	----- °	46.0	
Esthetic Measurement (Lip Relation)	**Norm**	**Value**	**Trend**
Esthetic Plane	-2.3 mm	-2.4	



ODI: 66.1 (Open bite)
APDI:78.6 (Class I, tend II)
FH-MP:21.7 (Low angle)
LFH:46.4 (Slightly increased)

Sato Analysis

Denture frame analysis	Norm	Value	Trend
FH - MP	25.9 °	21.7	
PP - MP	24.6 °	28.4	
OP - MP	13.2 °	15.7	
OP - MP / PP - MP	54.0 %	55.1	
AB - MP	71.3 °	72.8	
A'-P'	50.0 mm	43.9	1+*
A'-6'	23.0 mm	21.5	
A'-6' / A'-P'	50.0 %	49.0	
U1 - AB (degree)	31.7 °	28.4	
U1 - AB (mm)	9.5 mm	7.1	1–*
L1 - AB (degree)	25.4 °	20.7	1–*
L1 - AB (mm)	6.2 mm	4.0	1–*
Inter molar angle	174.0 °	165.9	2+**
FH - PP	1.3 °	–6.7	8–***>
Upper occlusal plane	Norm	Value	Trend
Mx - OP(A)	80.2 °	74.3	1–*
Mx - OP(P)	76.6 °	75.2	
FH - OP(A)	7.7 °	8.8	
FH - OP(P)	11.3 °	8.0	1–*
Kim analysis	Norm	Value	Trend
ODI	72.0 °	66.1	1+*
APDI	81.0 °	78.6	
Combination factor	153.0 °	144.7	
Downs-Graber analysis	Norm	Value	Trend
Facial angle	84.9 °	89.5	1D*
Convexity	–7.6 °	–1.1	1+*
AB - Facial plane angle	–4.8 °	–4.1	
FH - MP	25.9 °	21.7	
Y Axis	65.4 °	58.5	1+*
FH - OP	11.4 °	6.0	1+*
Interincisal angle	124.1 °	130.8	
L1 - OP	66.2 °	68.0	
L1 - MP	96.3 °	93.6	
U1 - A.POG	8.9 mm	5.8	1–*
FH - SN	6.2 °	5.7	
SNA Angle	83.3 °	84.4	
SNB Angle	78.9 °	82.4	1D*
ANB Angle	3.4 °	1.9	
U1 - Facial Plane (mm)	11.7 mm	6.1	2–**
U1 - FH (degree)	111.1 °	113.8	
U1 - SN (degree)	104.5 °	108.0	
Gonial angle	122.2 °	116.3	1–*
Ramus Inclination	2.9 °	4.5	

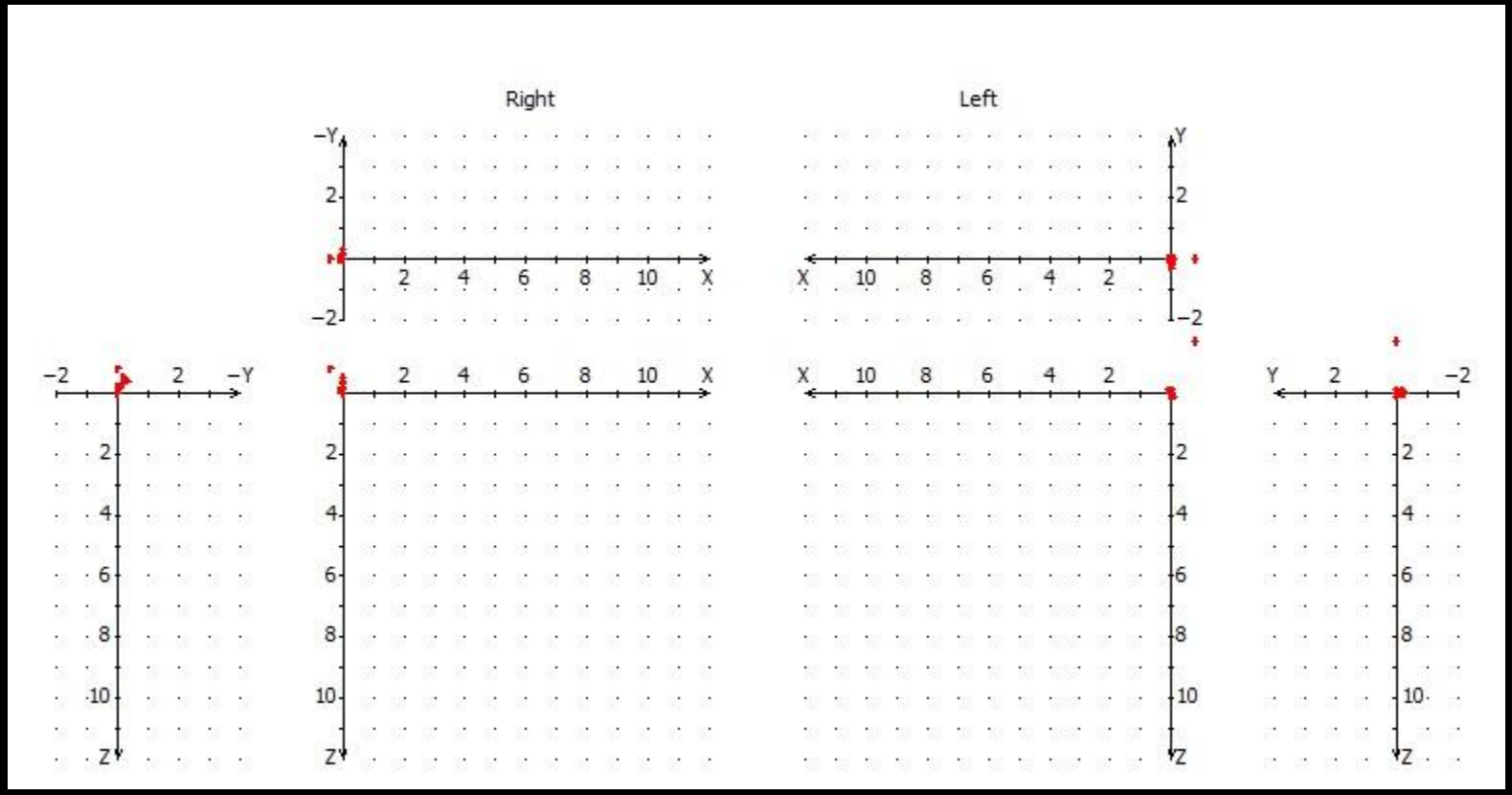
Slavicek Interactive Verbal Analysis

The skeletal trend of the skull is mesiofacial
The skeletal trend of the mandible is strongly brachyfacial
Skeletal class is I
The maxilla is positioned prognatic, with tendency to neutral
The mandible is positioned prognatic, with tendency to neutral
The lower facial height is normal
Dental class unknown
The protrusion of the upper incisor is normal
The inclination of the upper incisor is normal
The protrusion of the lower incisor is normal
The inclination of the lower incisor is normal
The interincisal angle is normal
Occlusal concept: Tendency to group function

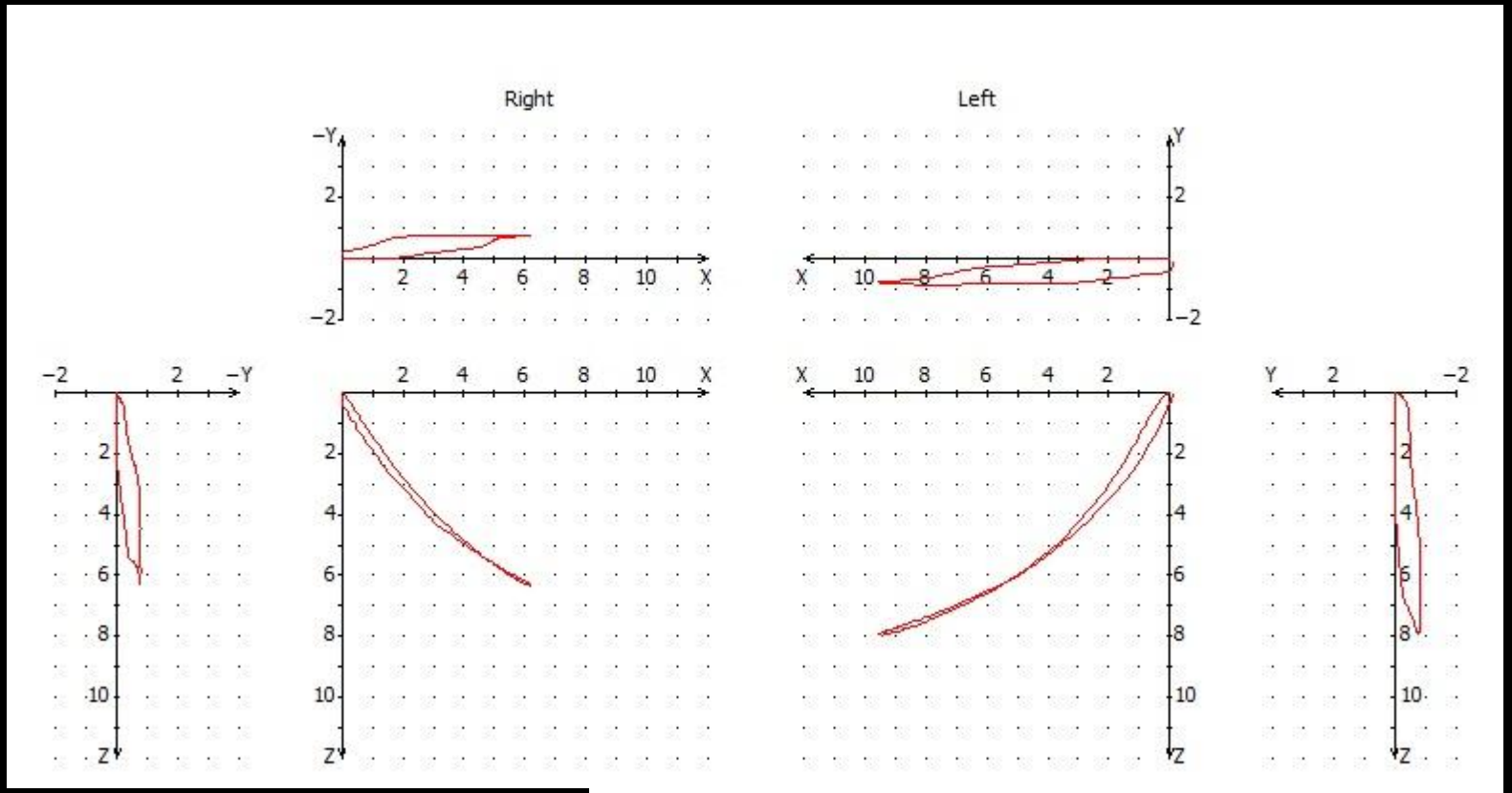
Explanation

Determinants	Norm	Value	Trend
Facial Axis	90.0 °	92.0	
Facial Depth	89.0 °	89.5	
Facial Taper	68.0 °	66.0	
Mandibular Plane	24.0 °	24.3	
Related Values	Norm	Value	Trend
Bjoerk Sum	396.0 °	387.4	3−***
Facial Length Ratio	63.5 %	69.5	3+***
Y Axis to S N	67.0 °	64.8	
Y Axis (Downs)	61.2 °	59.0	
S N to Gonion Gnathion Angle	32.6 °	27.4	1−*

CPM

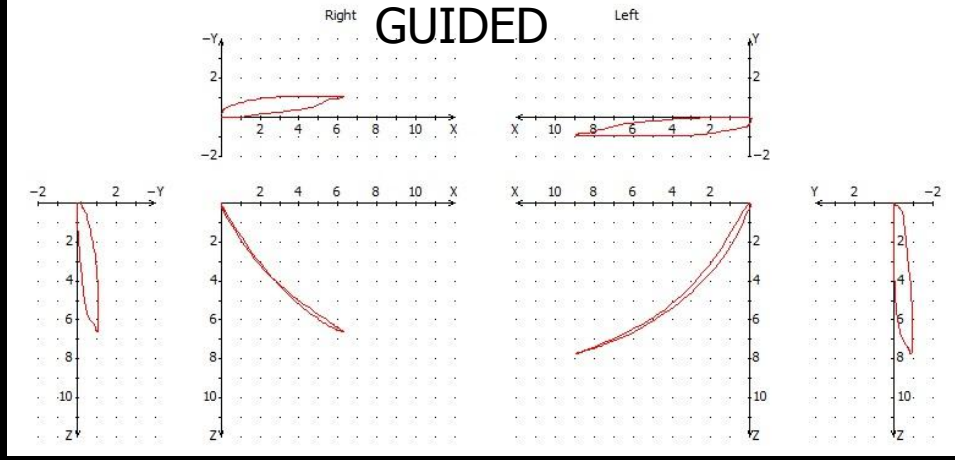


Pro/Re

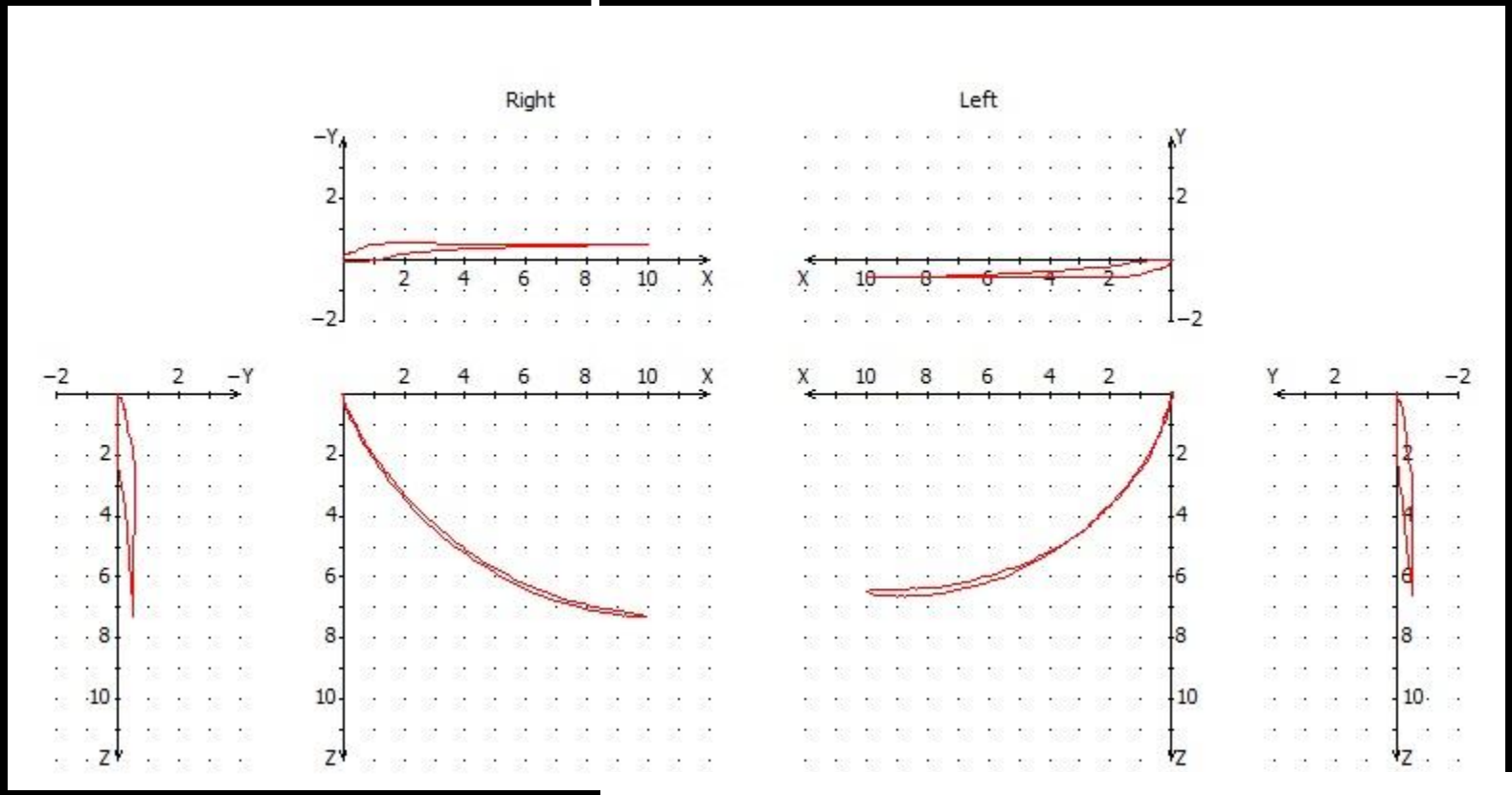


Protrusion # 2 8-12 mm average	Right	Left
Quanity	8.91mm	12.48mm
Quality	Average	Average
Characteristic	Concave	Concave
Symmetry	Asymmetric	

GUIDED

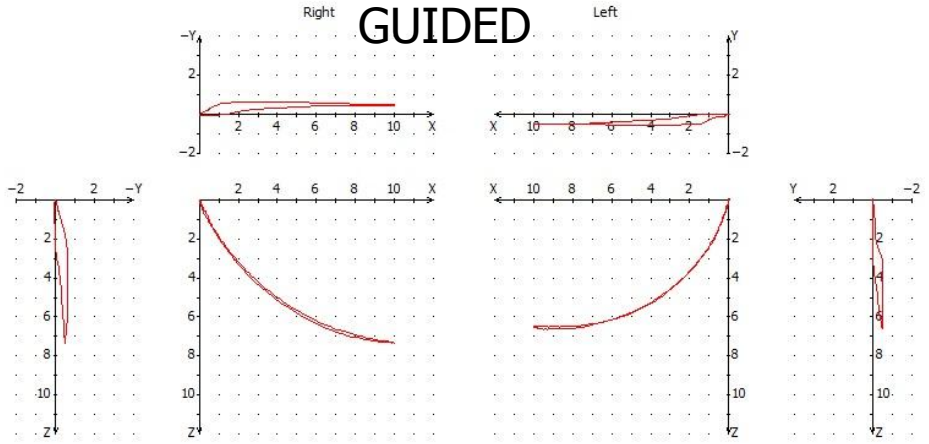


Open/Close

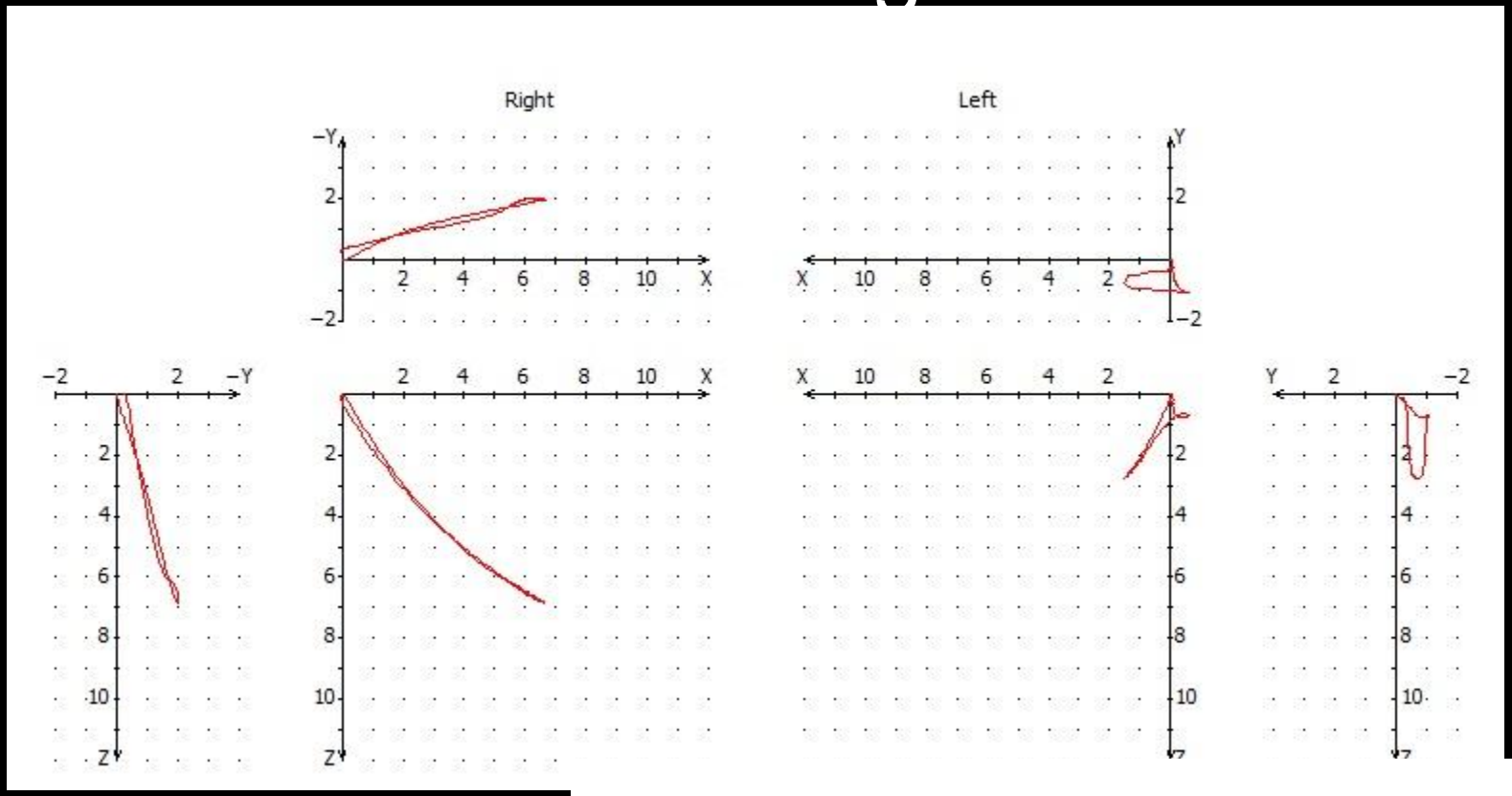


Open Close # 10-16mm average	Right	Left
Quantity	12.39 mm	11.95mm
Quality	Average	Average
Characteristic	Concave	Concave
Symmetry	Assymetric	

GUIDED

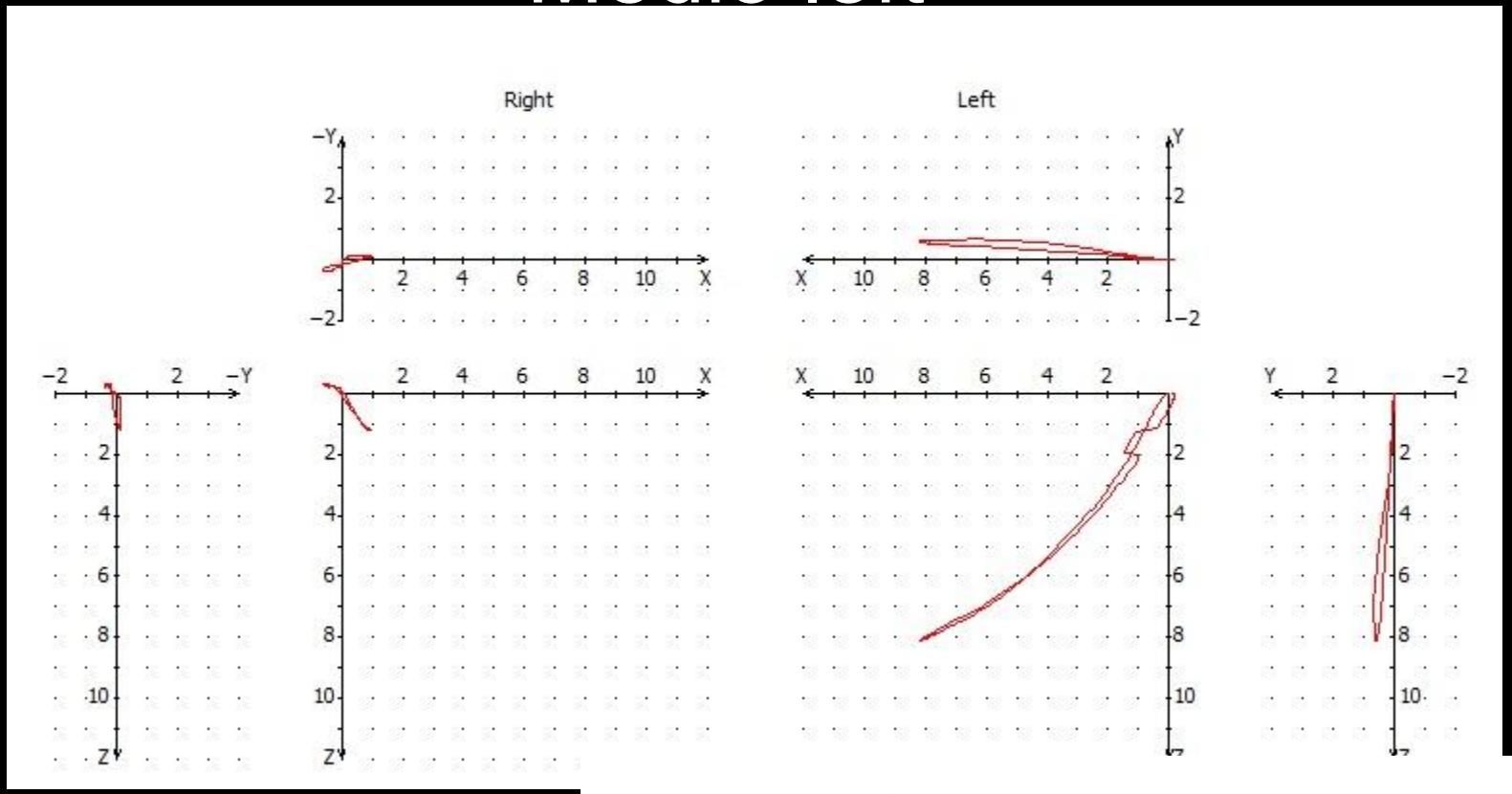


Medio right

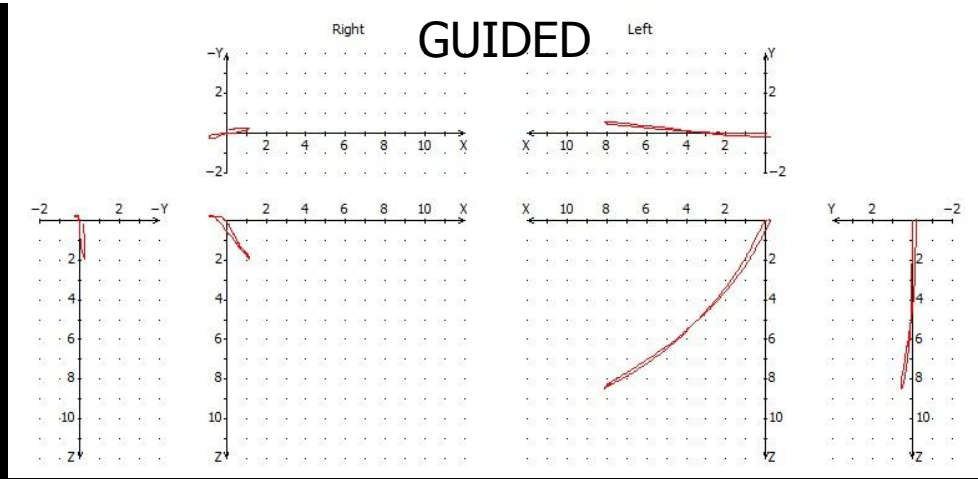


Medio right	9-14 mm average
Quantity	9.75mm
Quality	Average
Characteristic	Concave
Symmetry	

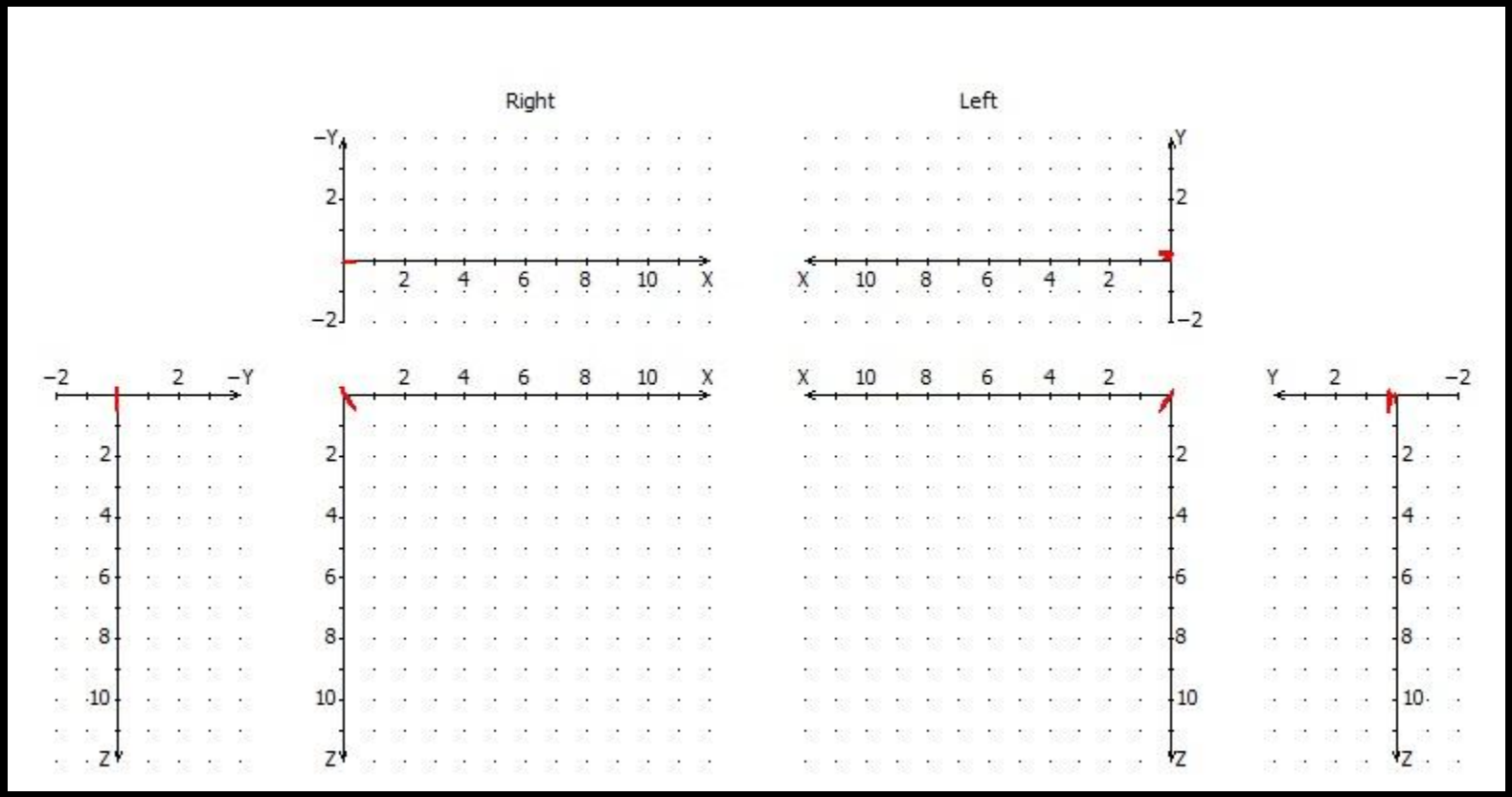
Medio left



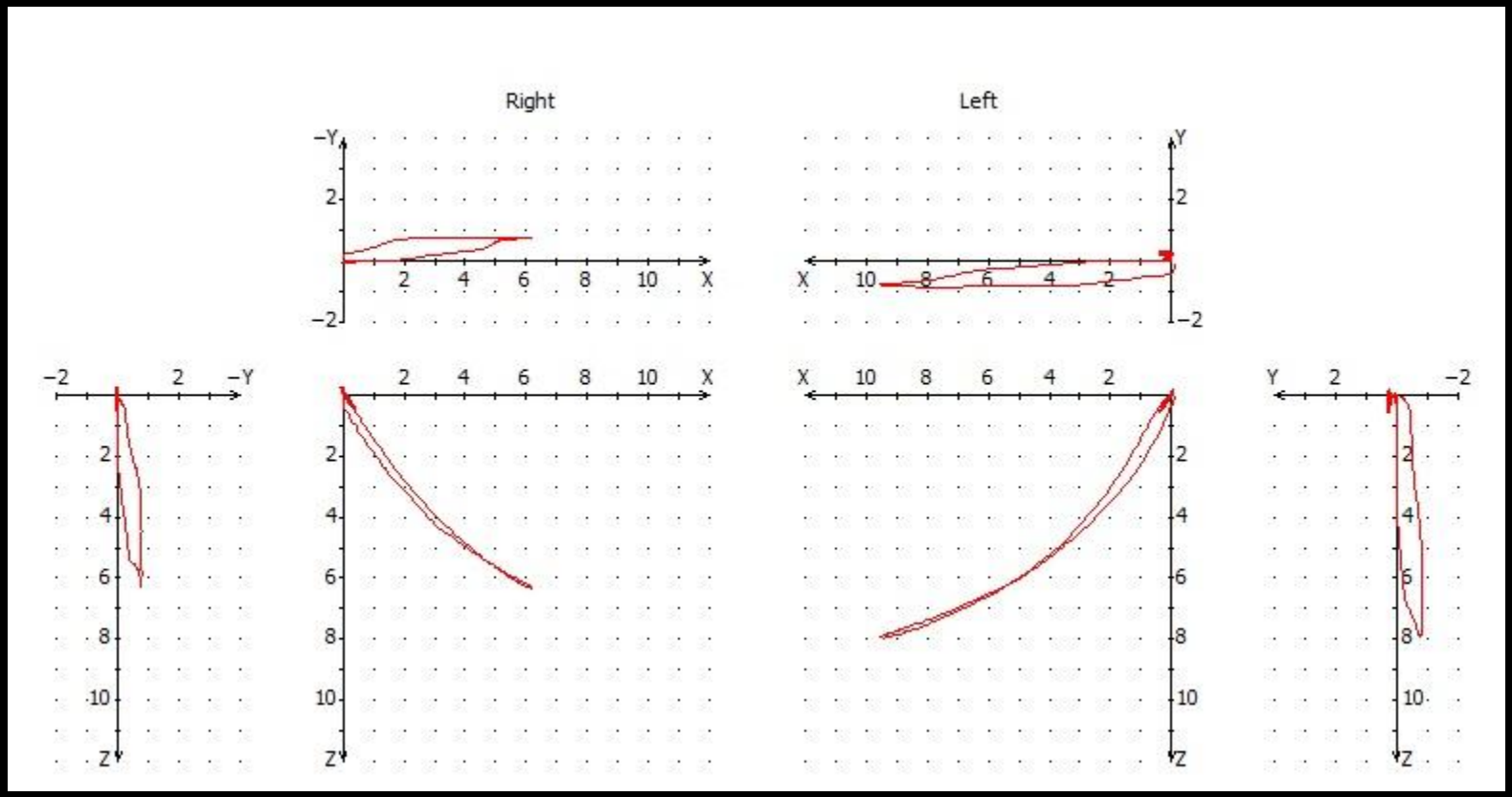
Medio left	9-14mm average
Quantity	11.56mm
Quality	Poor
Characteristic	Concave
Symmetry	



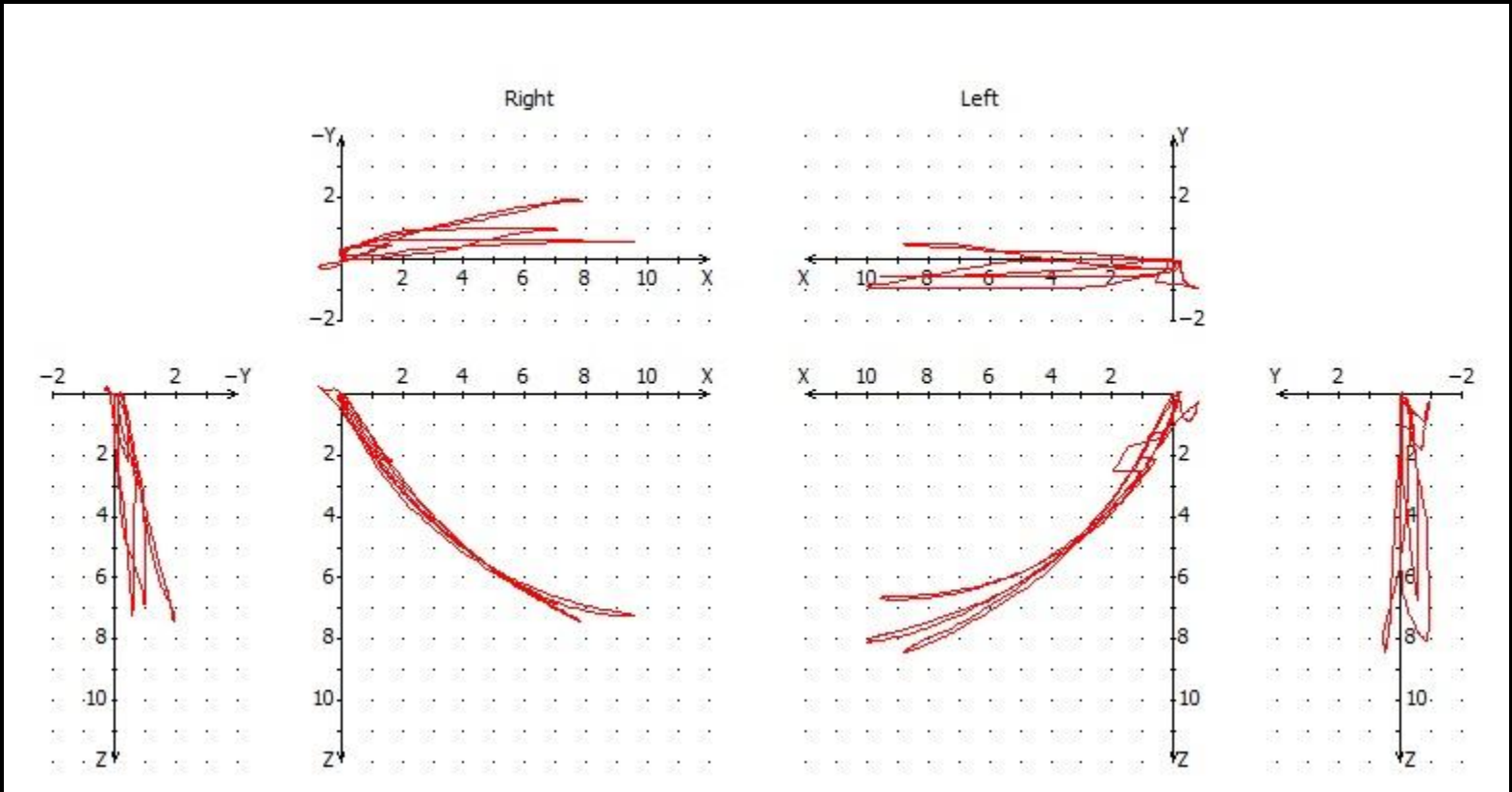
Bruxism



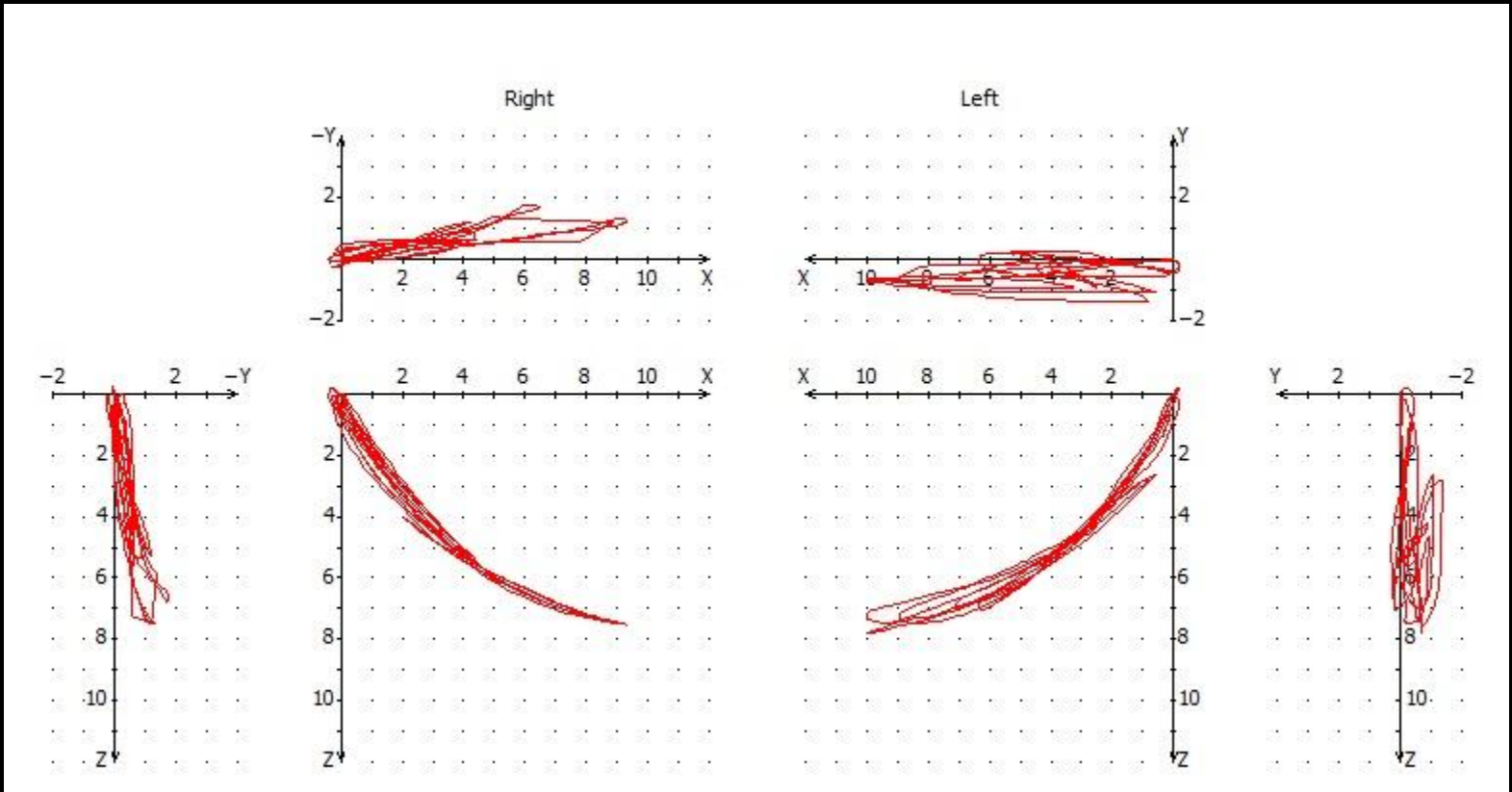
Overlay Pro/Brux



Retral Stability

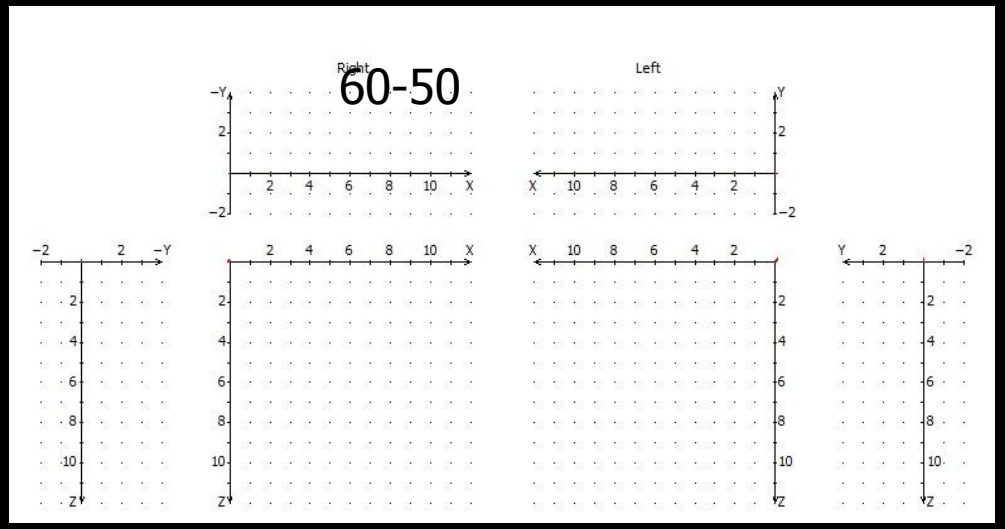


Free movements

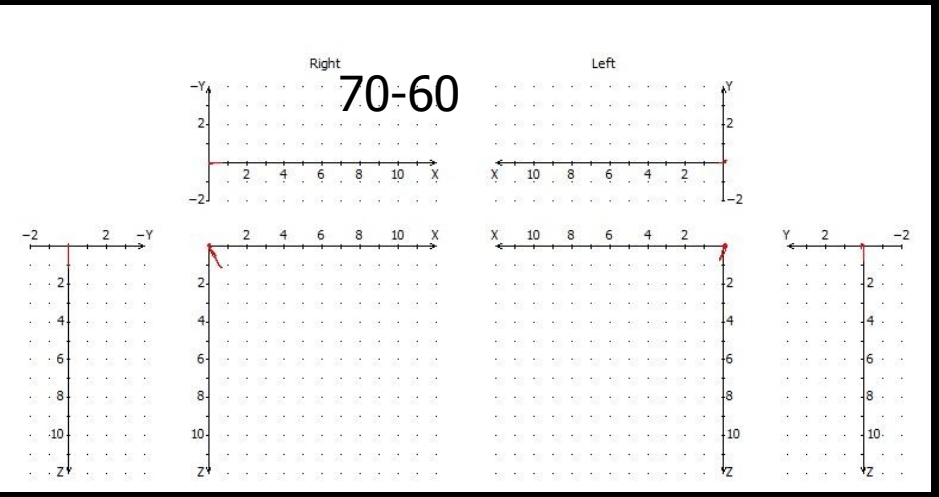


Phonetics

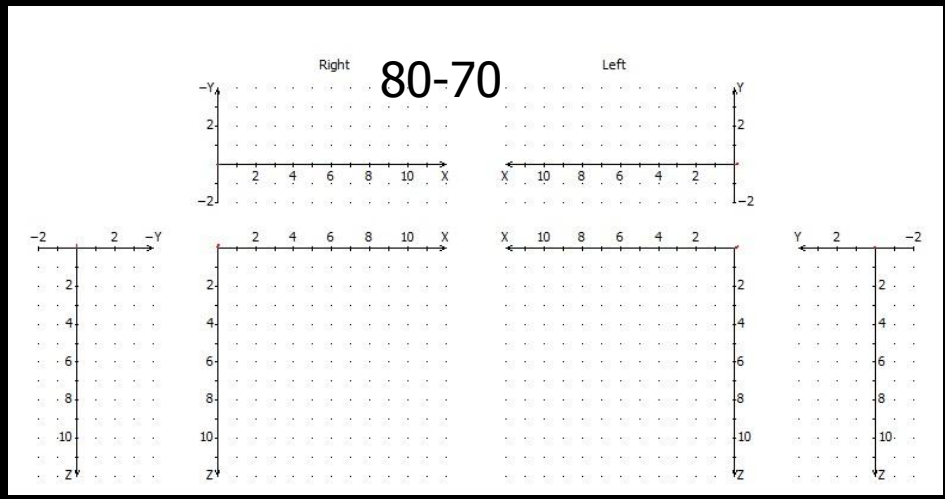
60-50



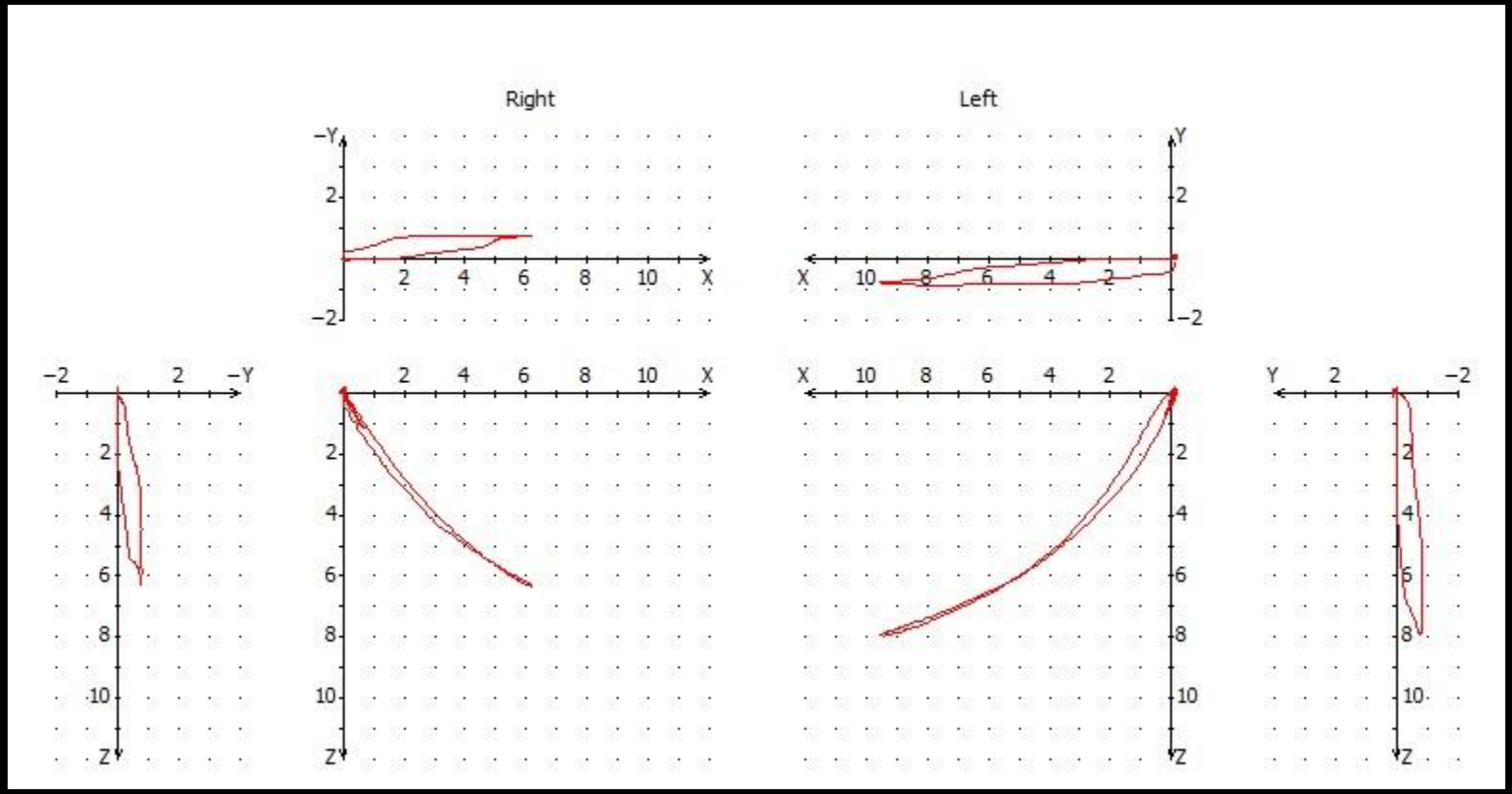
70-60



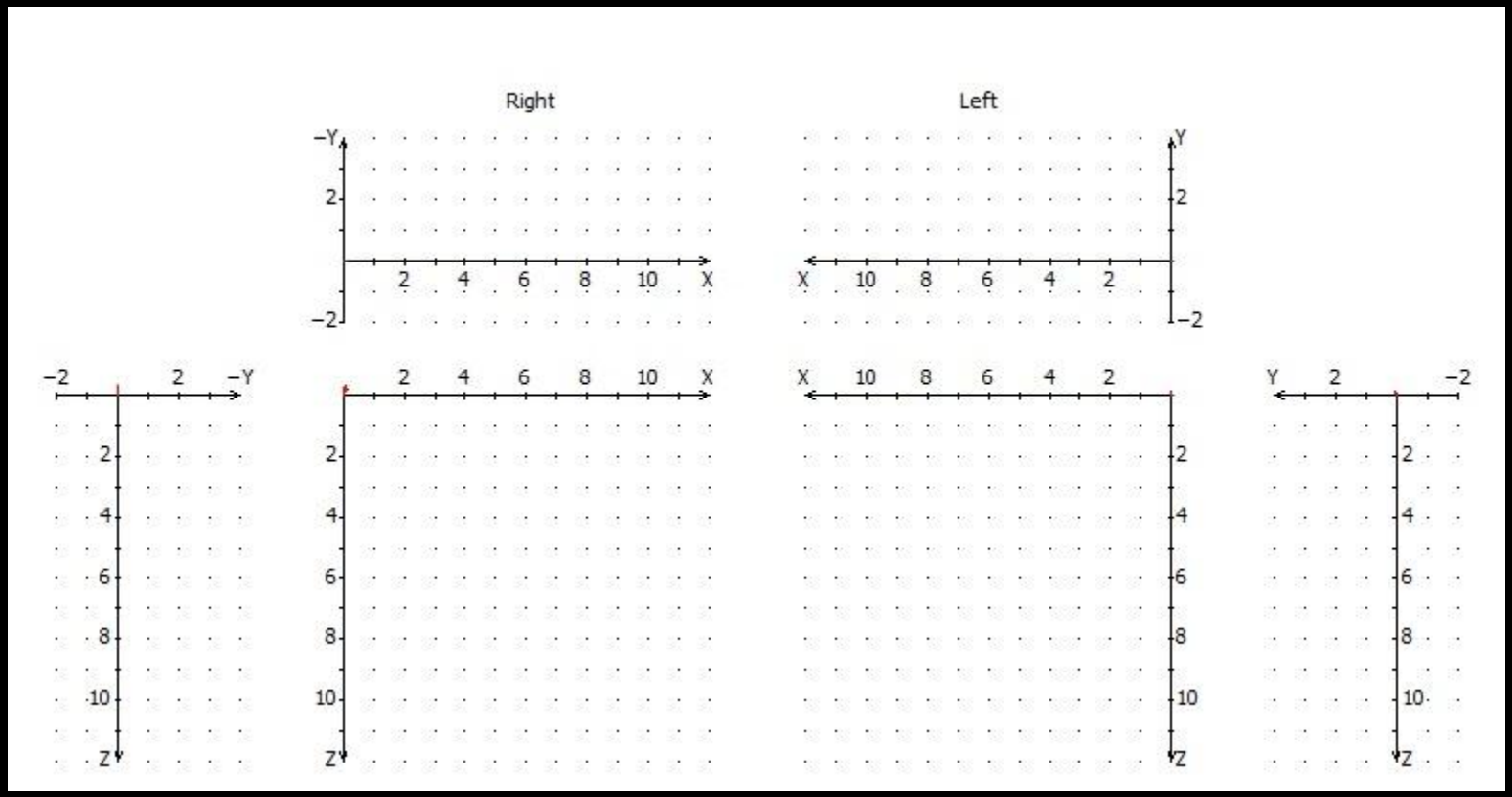
80-70



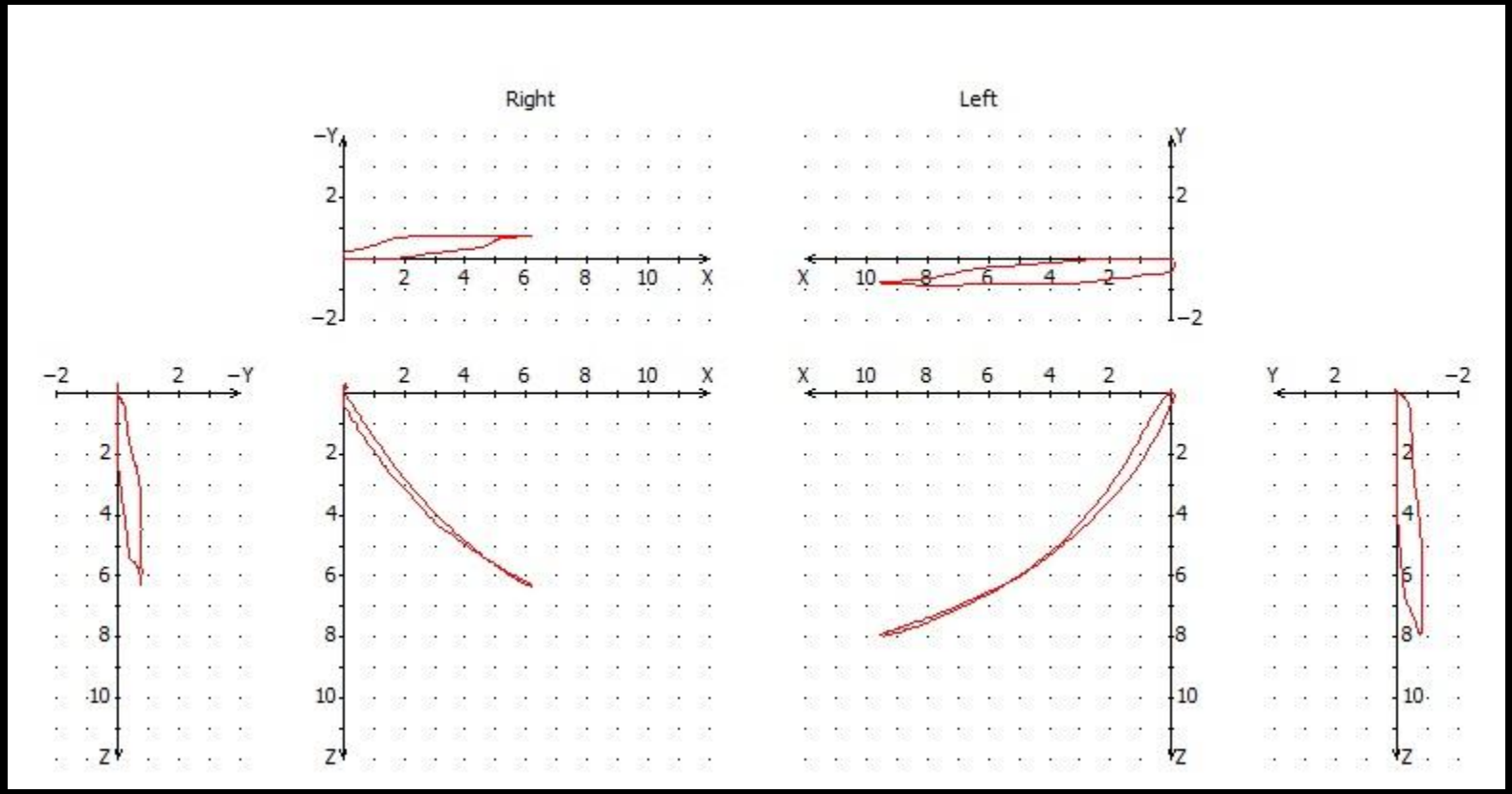
Overlay Pro/ Phonetics



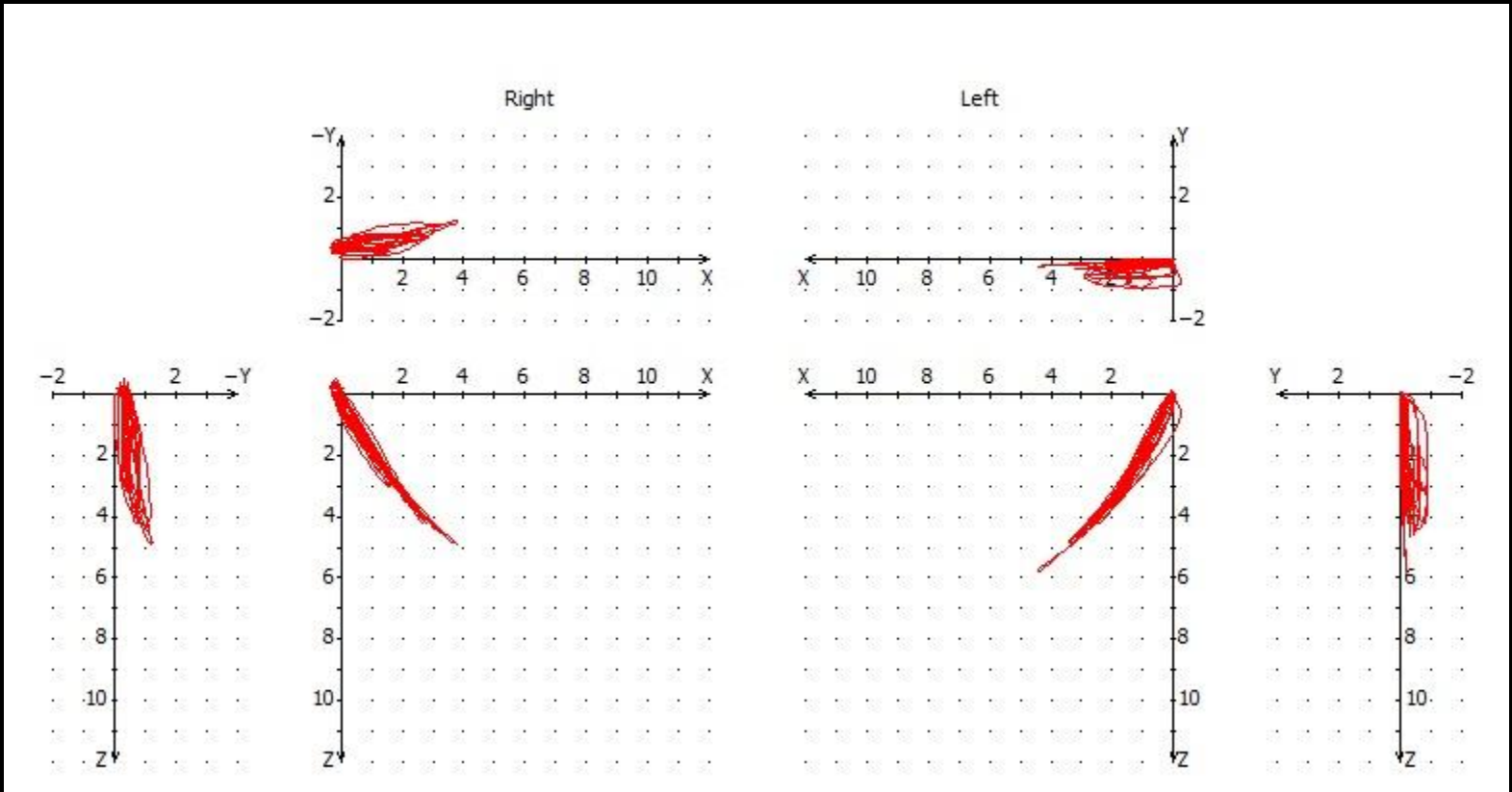
Deglutition



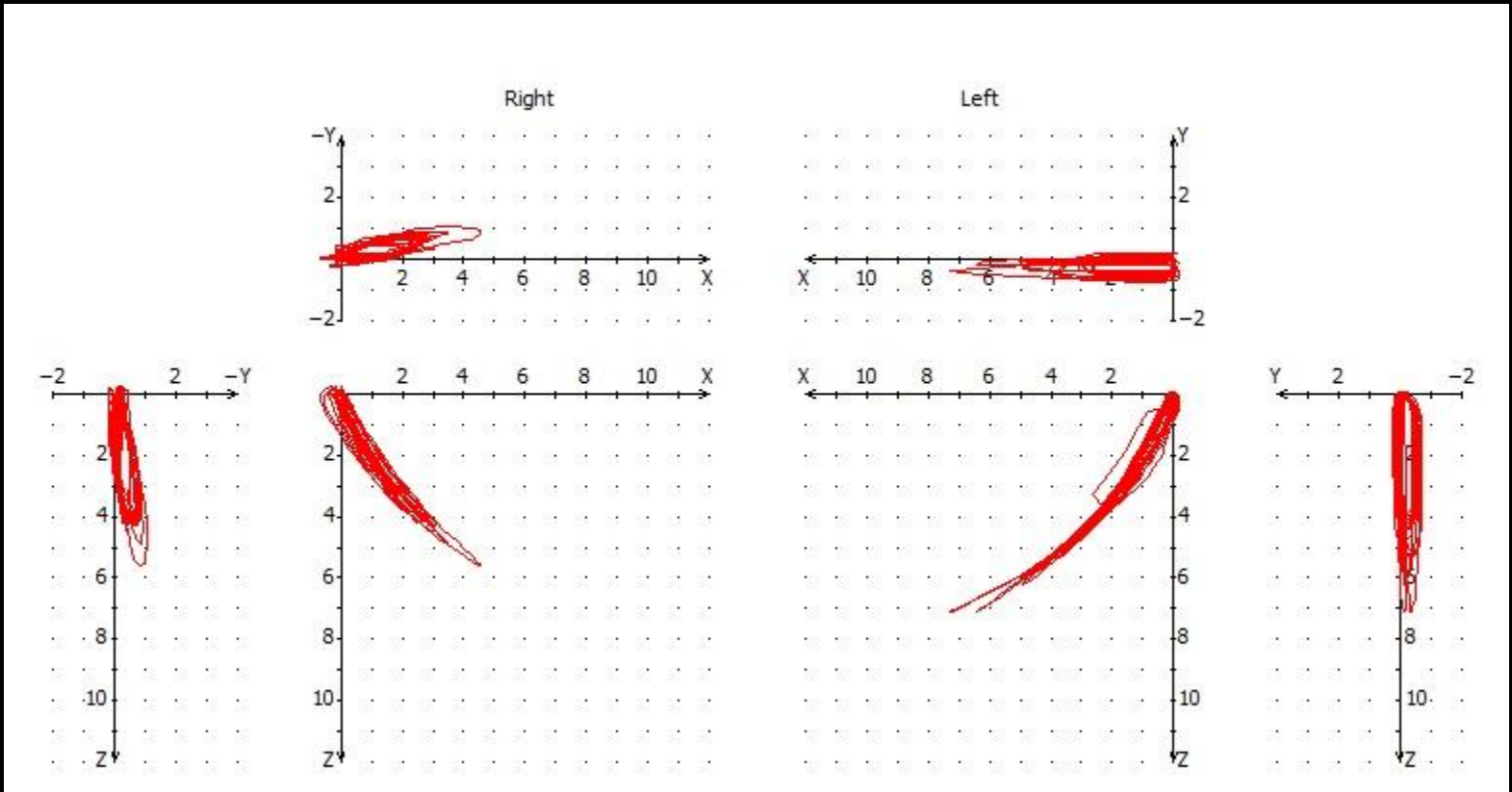
Overlay Pro/Deglutition



Mastication right



Mastication left



Articulator settings

CADIAX® Curves

	Protrusion		Mediotrusion right		Mediotrusion left	
	SCI right	SCI left	S C I	T C I	S C I	T C I
1st	63,3°	61,5°				
2nd	61,0°	63,7°				
3rd	59,4°	61,1°				
4th	56,7°	59,0°				
5th	54,8°	56,7°				
6th	52,9°	54,4°				
8th	48,5°	49,4°				
10th	43,9°	44,4°				
14th						

	Retrusion	
-1.		
-2.		

Sagittal Condylar Guidance SAM®

Fossa	Right			Left		
	3rd mm	5th mm	10th mm	3rd mm	5th mm	10th mm
Fossa 1	56°	53°	48°	58°	55°	49°
Fossa 2	**•49°**	**•49°**	**•46°**	**•52°**	**•51°**	**•48°**
Fossa 3	36°	37°	42°	38°	39°	43°

Transversal Condylar Guidance SAM®

	Right			Left		
	3rd mm	5th mm	10th mm	3rd mm	5th mm	10th mm
WHITE						
GREEN						
BLUE						
RED						

Incisal pin table

Incisal Pin Table

Incisal Pin Height	0.0	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0
Lower Facial Height	46.5	46.9	47.3	47.7	48.1	48.5	48.9	49.6	50.3	51.0	51.6	52.3	53.5
LFH. (Norm)	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2
LFH. (Variation)	0.0	0.4	0.8	1.2	1.6	2.0	2.4	3.1	3.8	4.5	5.2	5.8	7.0
Menton Vertical	0.0	0.4	0.8	1.3	1.7	2.1	2.4	3.2	3.9	4.6	5.2	5.8	7.0
Pogonion Sagittal	0.0	−0.8	−1.6	−2.3	−3.1	−3.9	−4.7	−6.3	−7.9	−9.6	−11.2	−12.8	−16.1
Incision Inf. Vertical	0.0	0.5	1.1	1.6	2.1	2.6	3.1	4.0	4.9	5.8	6.7	7.5	9.1
Incision Inf. Sagittal	0.0	−0.5	−1.1	−1.7	−2.2	−2.8	−3.4	−4.5	−5.7	−7.0	−8.2	−9.4	−12.0

Incisal Pin Height	0.0	−1.0	−2.0	−3.0	−4.0	−5.0	−6.0	−8.0	−10.0	−12.0	−14.0	−16.0	−20.0
Lower Facial Height	46.5	46.1	45.6	45.2	44.7	44.3	43.8	42.8	41.8	40.7	39.6	38.4	35.8
LFH. (Norm)	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2
LFH. (Variation)	0.0	−0.4	−0.9	−1.3	−1.8	−2.2	−2.7	−3.7	−4.7	−5.8	−6.9	−8.1	−10.7
Menton Vertical	0.0	−0.4	−0.9	−1.4	−1.8	−2.3	−2.8	−3.8	−4.9	−6.0	−7.2	−8.5	−11.1
Pogonion Sagittal	0.0	0.8	1.5	2.3	3.1	3.8	4.6	6.0	7.5	8.9	10.3	11.6	14.1
Incision Inf. Vertical	0.0	−0.5	−1.1	−1.6	−2.2	−2.8	−3.4	−4.6	−5.8	−7.1	−8.5	−9.9	−12.9
Incision Inf. Sagittal	0.0	0.5	1.1	1.6	2.1	2.6	3.1	4.1	5.0	5.8	6.7	7.4	8.7

Extraoral findings:

1. Neck tilts to the left.
2. Straight profile.

Intraoral Findings:

1. Upper midline is 3mm to the right.
2. 14 is missing (extracted).
3. Left side: Class I molar, Class III canine relationship, Right side : Class I molar and canine relationship.
4. Enamel wear on U/L anterior teeth and at the buccal surface of the lower premolars and molars.
5. Crowding in the LA.

Model Findings:

1. In RP: Same as intraoral.
2. No intercoronal space.
3. Upper midline 3mm to the right.
4. Poor posterior occlusal support.
5. Flat curve of Spee.
6. Negative Wilson curve.

Bruxchecker Findings:

1. Strong anterior interference between 12-43.
2. A contact interference on premolars and molars (negative Wilson curve)
3. Tip- tip bruxism pattern on canines (Steep canines)

Radiographic findings:

1. Mesially inclined psterior teeth.
2. 48 is present .
3. Rc Tx on 16, 22.

Condylographic Findings:

1. CPM: RCP-ICP, RP-Forced bite : Compression in the right joint, RP- Resiliency : Reduced in the left joint
2. ΔY to the left.
3. Increased Bennett angle in the right joint (Loose joint)
4. No resurtrusive movement in both joints during mediotrusive movements (after correction of the intercondylar distance 95mm) and mastication (posteriorly displaced condyles).
5. Poor retral stability.
6. Compression in the right joint during bruxism and deglutition.

Cephalometric findings:

1. SCI 52.3 (R:51.0 , L: 53.5 0
2. OP 8.1
3. Average AOD 14.1 (R:12.9, L:15.4)
4. Average anterior guidance S-AOP 54.1
5. Slightly increased LFH 46.4 (43.2), reduced mandibular plane FH-MP 21.7
6. ODI 66.1 (Open bite), APDI 78.6 (Class I , tendency Class II)

Subjective Problem List:

1. Pain in the left joint

Objective Problem List:

1. 14 is missing , upper midline is shifted 3mm to the right.
2. Right side : Class I molar, Class III canine relationship, Left side : Class I molar and canine relationship.
3. No intercoronal space, poor posterior occlusal support, negative Wilson curve
4. ΔY to the right.
5. Compresion in the right joint.
6. Increased Bennett angle in the right joint(loose joint).
7. Lack of resurtrusive movement of both condyles during mediotrusive movements and mastication (posteriorly displaced condyles)
8. Poor retral stability.

Treatment objectives

- RP is DRP. Define TRP.
- Unload both joints.
- Bring anteriorly both condyles.
- Correct upper midline.
- Open space for an implant to restore missing 14.
- Make POP steeper (Reduce AOD) to allow posterior adaptation of the mandible(In TRP mandible comes forward in a Class III relationship)
- Provide Class I sequential occlusion with good posterior occlusal support, proper intercoronal space, proper anterior guidance.

TRP

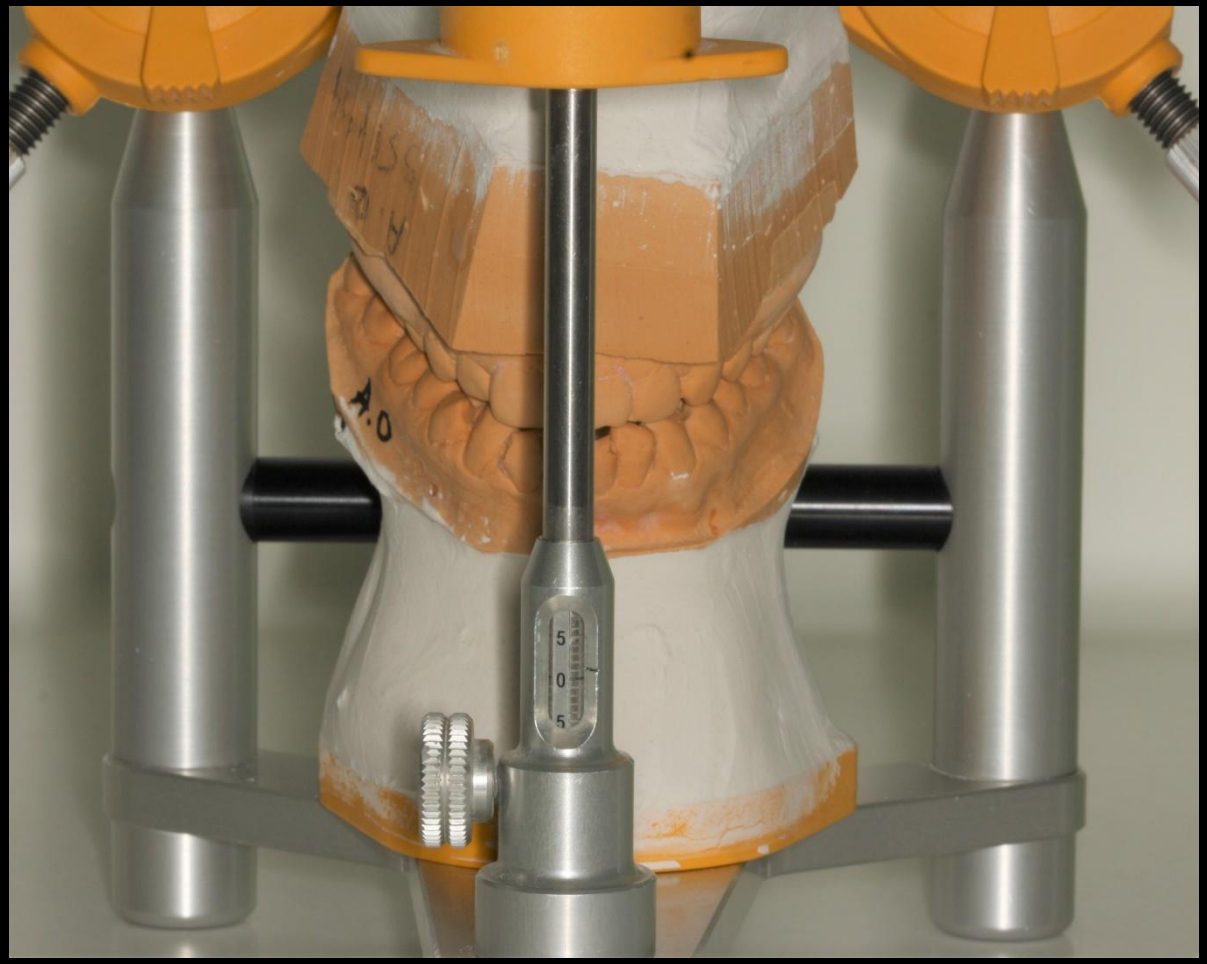
R (O/C 3)

- S: 2.24mm, SCI: 63.32
- X: 1.01mm
- -Y: 0.53mm
- Z: 2.01mm

L (O/C 3)

- S: 3.13mm, SCI: 65.72
- X: 1.24mm
- Y: -0.51mm
- Z: 2.86mm

TRP



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Treatment

- Refer patient to GP to extract 48.
- Bond U/LA.
- Level- Align. Insert 1 TAD between 13-15, use sliding hook and OCS on 13, bypass 15, 16 and activate OCS from the TAD to protract right anterior teeth and open space for implant restoration of 14.
- Use MEAW in both arches with strong tip back bends in the LAW , moderate in the UAW + short Class III elastics + Mullingan overlay enlargement AW in the UAW . This approach will upright the lower teeth and facilitate the forward adaptation of the mandible.
- At the final stages of the treatment flatten the UAW and make step up bends posteriorly in the LAW + anterior and posterior vertical elastics to steepen the POP (mandible adapts in a clockwise pattern)
- Coordinate both arches . Detailing.
- Retention: U/L Hawleys.