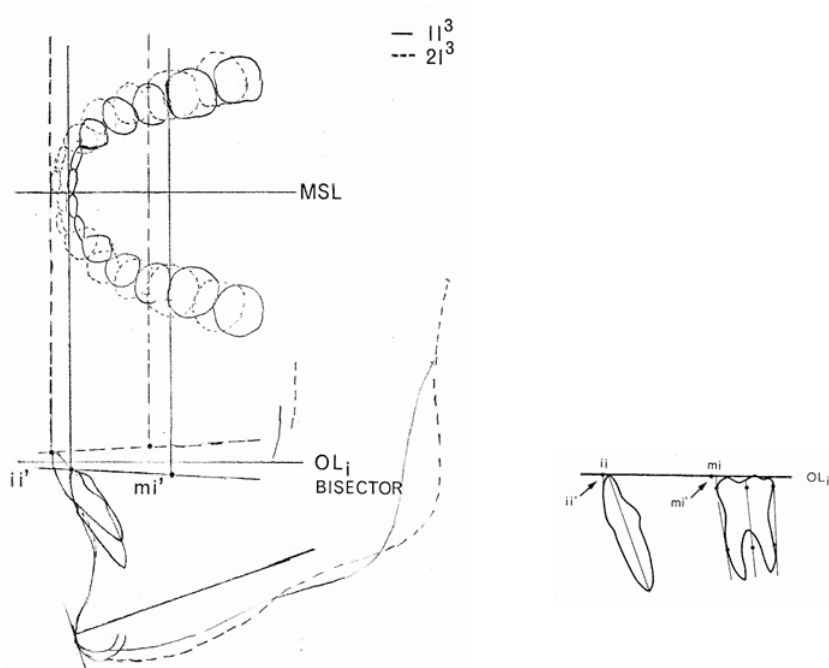


Some thoughts on the benefits of including Occlusograms in the Cephalometric analysis of Growth and Treatment.

The original decision to include Occlusograms in the Tiops program was inspired by the ideas of Professor Björk in connection with 'Cephalometric Analysis of Growth and Treatment', and are described in:

<http://tiops.com/downloads/Articles/BjorkCephalometricGrowthAnalysis.pdf>.

from where this illustration originates:



What can we learn by including the occlusogram?

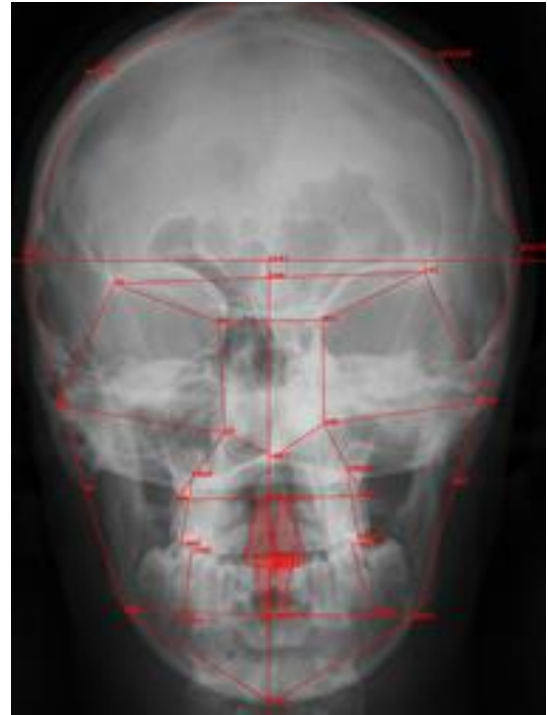
1. The most important benefits of including occlusograms of the study casts are that we now can study the occlusal changes in all three dimensions. Information about the sagittal (horizontal) and vertical changes of the dentition, we can get from the lateral headfilm, but the transverse changes only from the occlusogram.
2. By including the occlusograms in the cephalometric analysis, we can get a more precise idea of the transverse changes of both the posterior and the anterior teeth. Expansion of the posterior teeth and midline changes of the anterior teeth can also now be more precisely determined.



About midlines

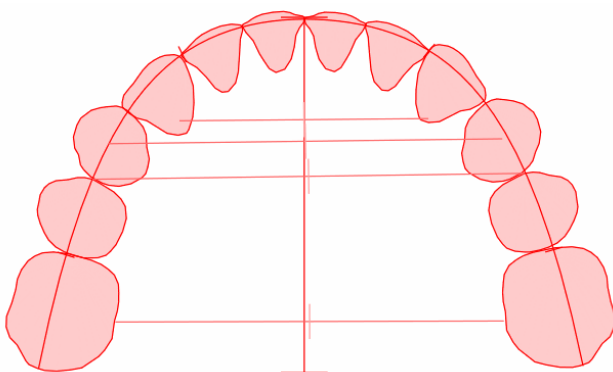
To what degree the clinician will incorporate correction of the midline in the treatment plan is a personal choice. Anyhow it is important to analyze the conditions to be able to make this decision. It is important to distinguish between the Facial and Dental midlines in the Frontal Aspect and the Dental Arch Midline or Symmetry Axis.

The **Midlines** in the **Frontal Aspect** is best diagnosed using a Frontal Photo or a Frontal Cephalometric Analysis.

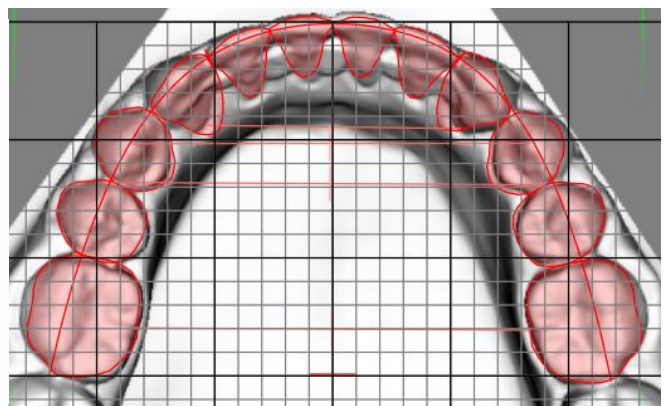


About Arch Analysis Midline Corrections

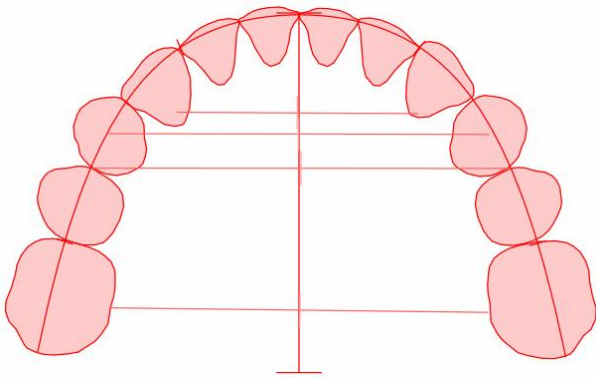
In relation to performing an Arch Analysis It is usually a good idea to check the **Arch Midline or Symmetry Axis** placement before making any corrections to the molar position (as any "wrong" molar position may be due to an incorrect midline). Do not spend too much energy on precisely defining the midline at the beginning of the registration procedure as it is easier to correct the midline after all teeth have been registered. To make a necessary correction of the midline placement, use the function **View/Show Symmetry Guides**, and open the Points list under Upper/Lower Arch and scroll down to the landmark ref1



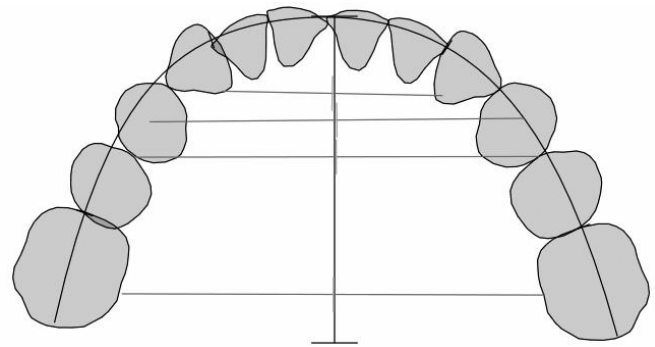
Before correction



During correction



After correction

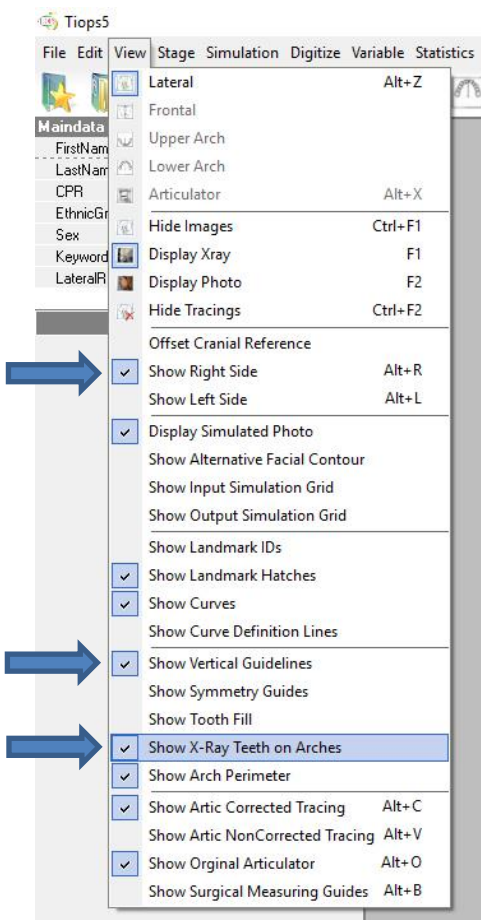


Example showing the incisal midline not coinciding with the symmetry axis

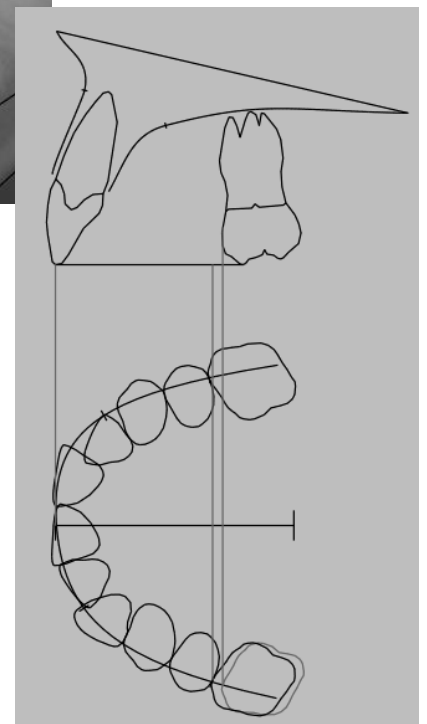
About Coordination of the Molars in the Cephalogram and the Arch

If the initially digitized molar position on the Lateral Analysis does not match the position on the occlusogram, it can be corrected using the following procedure.

When selecting the function **View/Show X-Ray Teeth on Arches**, guide Lines showing the mesial aspects of the Upper and Lower **Arch Analysis Molars** will now automatically appear in the **Lateral Analysis** displayed in the Main Window. This is in addition to the shaded Lateral Analysis Molars, that appear in the Jaw View Window. This function works in combination with the function **View/Show Right/Left Side** that make separate corrections of either side possible. This function works even when only the molars on one side are registered, but also when both the Right and Left Molars are included in the Lateral Analysis.



Before correction:
The Cephalometric Upper Right Molar is placed too far distally in relation to the Right Molar at the Arch Analysis



To make the correction then open the **Points** list under Xray and scroll down to the landmark **msm**.

Stage1	
Xray	
Filename	C:\TIOPS\Analy4\Xray\
Mirror	False
ResolutionX	203
ResolutionY	203
Enlargement	5.6
Filters	
Invert	False
Brightness	1
Contrast	-53
SharpenPercent	0
Photo	
Points	
re1	[-9489,15049]
re2	[-9114,-13385]

isi	[-4631,-7626]
asi	[-4617,-5198]
msm	[-2657,-6701]
rsm	[-2560,-5274]

To maneuver the tooth:
A. MouseMove to rotate
B. Shift+MouseMove to translate

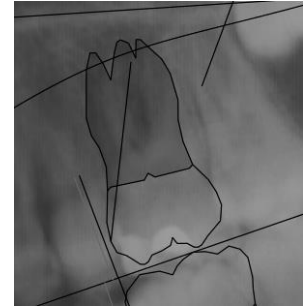
Procedure:

1. Place the tooth correctly using A and B
2. LeftClick to lock in position

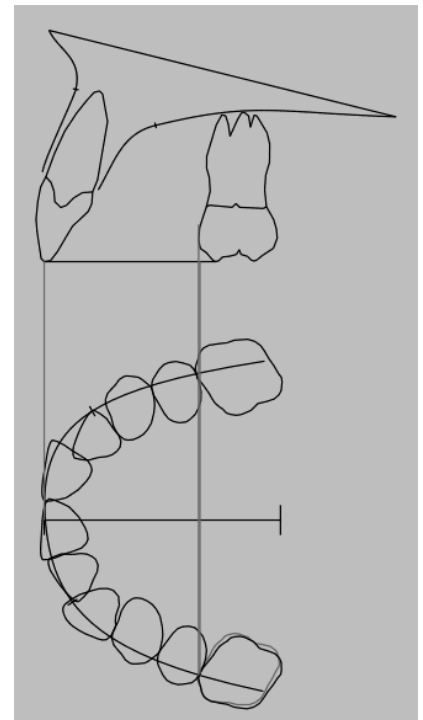
The tooth will always be registered in the equal size irrespective of the cursor position along the tooth axis

msm
rsm

Tooth Positioning Procedure
Upper Molar



When the molar is corrected in the **Main Window**, it is automatically updated in the **Jaw View** window.



About Printouts

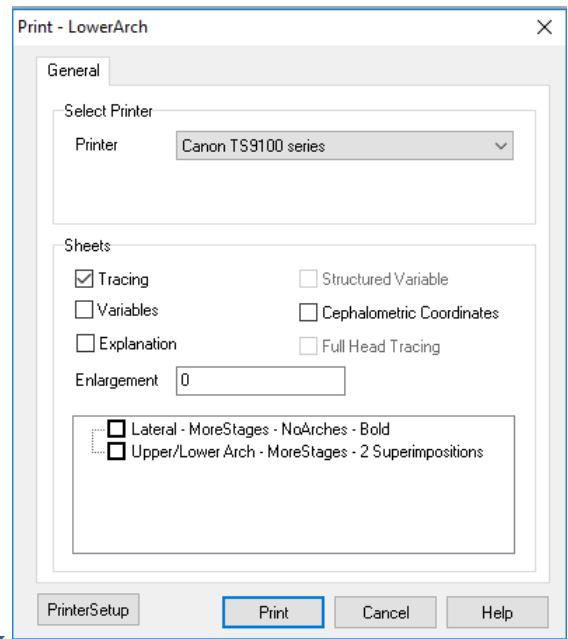
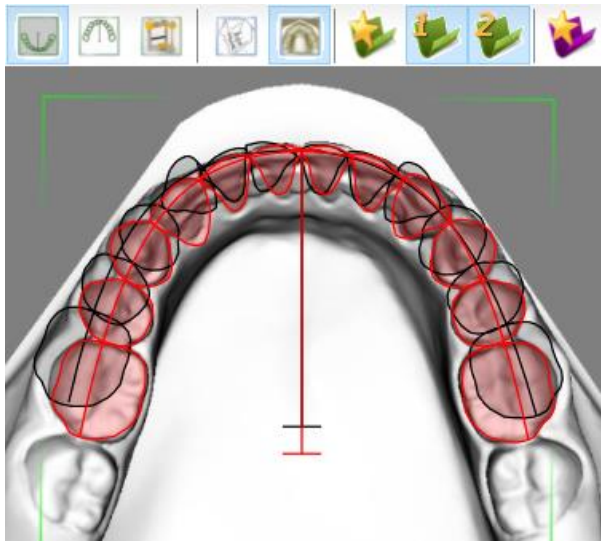
The Tiops Program offers four different printouts of the Arch Analysis.

1. The printout of the **Upper or Lower Arch** with one or more Stages.
2. The printout of **Upper/Lower Arch – OneStage** sheet.
3. The printout of occlusograms superimposed on different reference landmarks called the **Upper/Lower Arch – MoreStages – 2 Superimpositions** sheet.
4. The Printout of the Variables

To print the appropriate sheet(s) just select the wanted stages and open the actual analysis in the Main window.

Note: Any Enlargement factor can be selected.

1. Printout of the **Upper or Lower Arch** with one or more Stages.



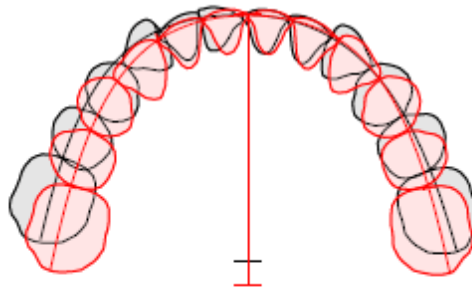
Enlargement: 0%

Stage 1 (MA)

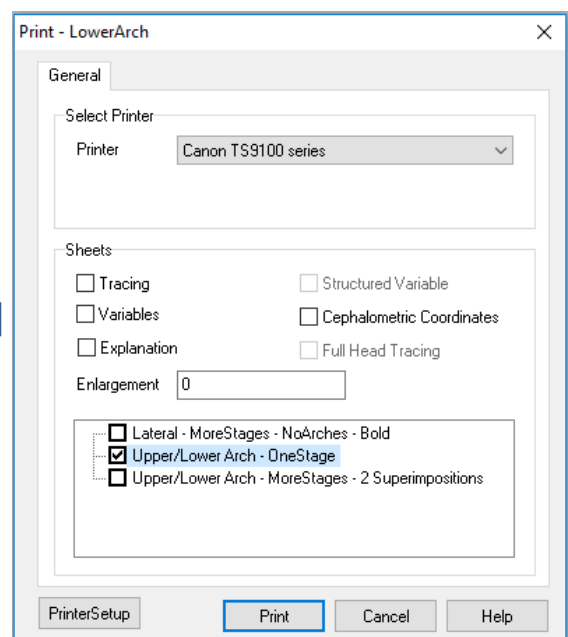
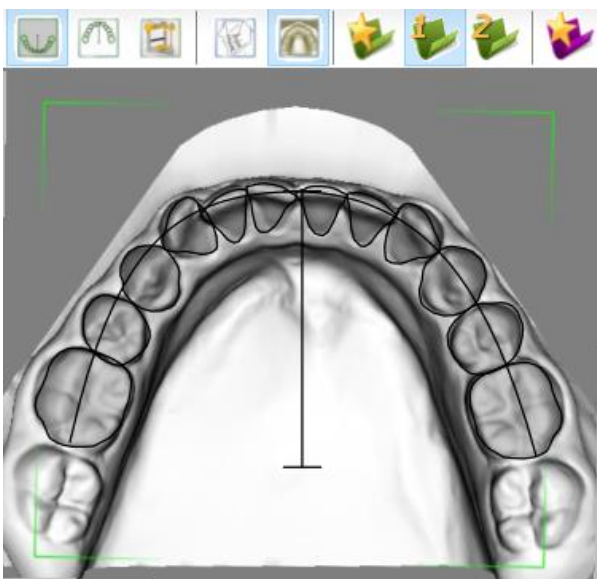
- 07-12-2007 SkelAge 14:3

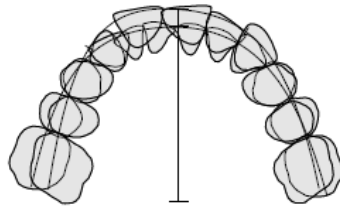
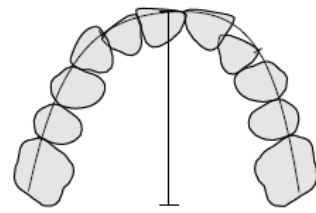
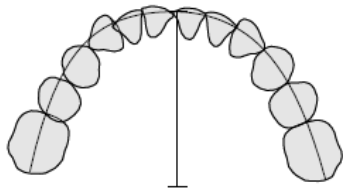
Stage 2 (TA)

- 09-04-2010 SkelAge 16:8



2. Printout of **Upper/Lower Arch – OneStage**





Note: Upper and Lower Arch superimposition using the cephalometric relations

r6 MesDis	mm	10.0	10.3	-0.4
r5 MesDis	mm	7.1	7.1	-0.1
r4 MesDis	mm	6.9	6.8	0.1
r3 MesDis	mm	6.2	6.6	-1.5
r2 MesDis	mm	5.6	5.9	-0.9
r1 MesDis	mm	5.4	5.5	-0.3
l1 MesDis	mm	5.4	5.5	-0.4
l2 MesDis	mm	5.5	5.9	-1.2
l3 MesDis	mm	6.0	6.6	-2.0
l4 MesDis	mm	6.5	6.6	-0.5
l5 MesDis	mm	6.5	7.1	-1.3
l6 MesDis	mm	10.3	10.3	0.1

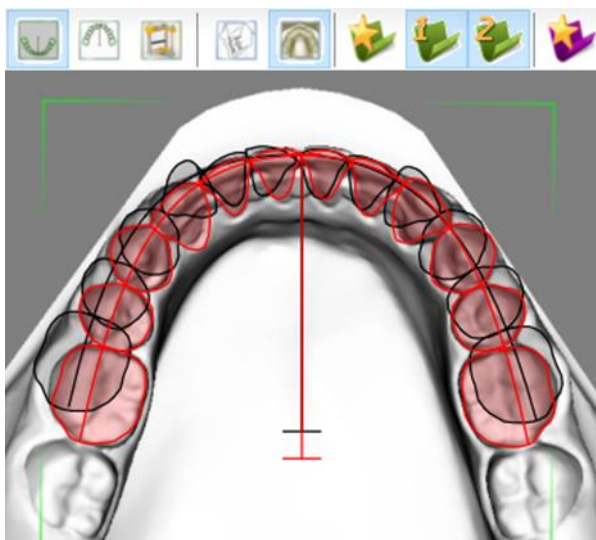
r6 MesDis	mm	9.2	10.2	-1.7
r5 MesDis	mm	6.2	6.5	-0.6
r4 MesDis	mm	6.8	6.6	0.4
r3 MesDis	mm	7.5	7.5	-0.1
r2 MesDis	mm	7.0	6.8	0.4
r1 MesDis	mm	8.3	8.7	-0.6
l1 MesDis	mm	8.3	8.7	-0.6
l2 MesDis	mm	7.0	6.8	0.3
l4 MesDis	mm	6.6	6.6	0.0
l5 MesDis	mm	6.4	6.5	-0.1
l6 MesDis	mm	9.7	10.2	-0.8

LoAntDepth	mm	9.0	13.0	-3.1
LoAntWidth	mm	32.5	31.5	0.6
LoPostWidth	mm	50.0	44.8	2.1
Space1To5R	mm	-1.2	0.0	-0.6
Space1To5L	mm	0.1	0.0	0.1
Pred Space1To5R	mm	-1.6	0.0	-0.8
Pred Space1To5L	mm	-1.4	0.0	-0.7

LoAntDepthDiscr	mm	2.2	0.0	1.2
LoAntWidthDiscr	mm	2.7	0.0	0.9
LoPostWidthDiscr	mm	6.1	0.0	2.0

UpAntDepth	mm	9.8	16.0	-4.5
UpAntWidth	mm	29.8	31.5	-1.2
UpPostWidth	mm	44.0	44.8	-0.3
Space1To5R	mm	-3.9	0.0	-1.9
PredSpace1To5R	mm	-4.4	0.0	-2.2
PredSpace1To5L	mm	-4.5	0.0	-2.2

3. Printout of occlusograms superimposed on different reference landmarks called the **Upper/Lower Arch – MoreStages – 2 Superimpositions** sheet.



Print - LowerArch [X]

General

Select Printer
Printer: Canon TS9100 series

Sheets

Tracing Structured Variable
 Variables Cephalometric Coordinates
 Explanation Full Head Tracing

Enlargement: 0

Lateral - MoreStages - NoArches - Bold
 Upper/Lower Arch - MoreStages - 2 Superimpositions

PrinterSetup Print Cancel Help

Enlargement: 5.6%

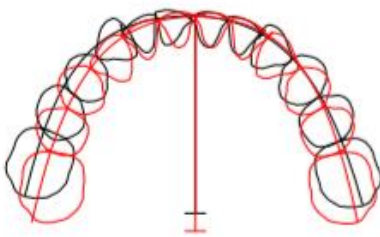
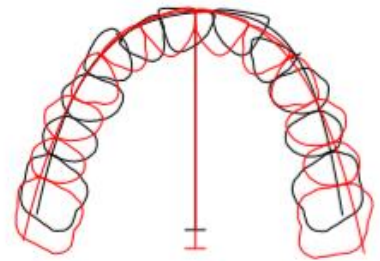
Stage 1 (MA)

- 07-12-2007 SkelAge 14:3

Stage 2 (TA)

- 09-04-2010 SkelAge 16:8

Overlay at Model Incisor



Overlay at Cephalometric Incisor

