

# Reading the Face



Indicator line  
about 41

Lines under eyes

Crowded Lower  
incisors

**Miss World 2003**

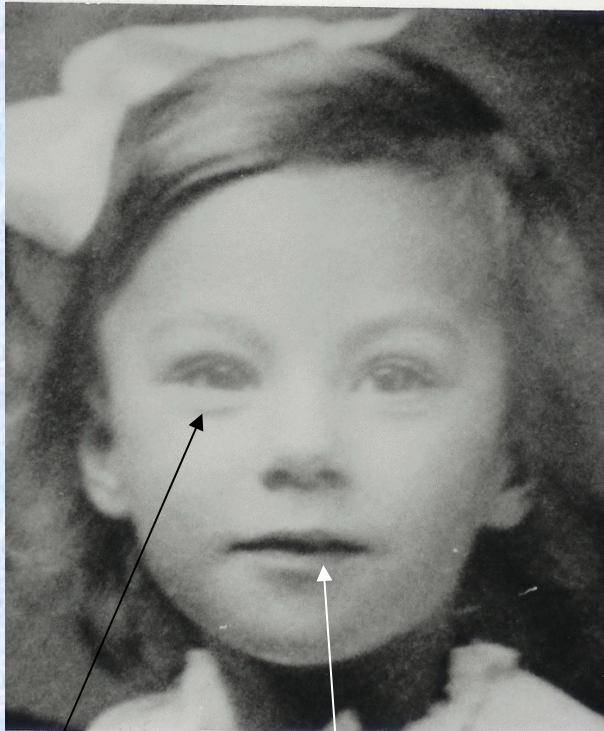
# **AESTHETIC AND FUNCTIONAL INDICATORS.**

We use several factors to Guide us in reading the face

1/ The Forehead

# Surface Anatomy

Age 5



Lower  
palpebral  
tarsus.

Lips 4 mm  
apart at rest

Curved neck

Age 63



Sloping  
forehead

Flat  
cheek

Apparently  
Large nose

High  
Nasio-  
Labial  
angle

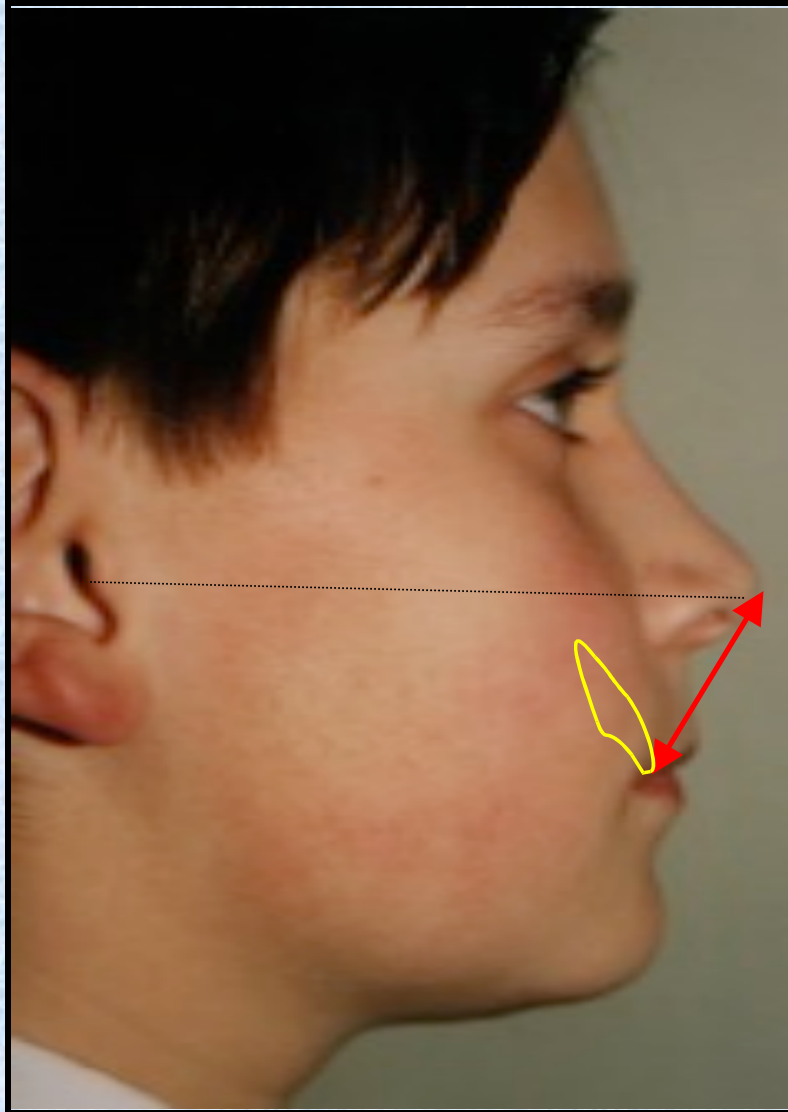
Firm chin

# **AESTHETIC AND FUNCTIONAL INDICATORS.**

1/ The Forehead

2/ The Indicator Line

# Figure III/3



## **The Indicator Line (Mew 1971)**

- This represents the distance between the tip of the nose and the upper (left) central incisor. The tip of the nose is assessed as the furthest point from the Tragus of the ear.
- It gives an indication of the position of the maxilla and warns if there is excessive vertical growth.

# **Using the Indicator Line to assess where the teeth Should Be**

Ideally it should be 28 mm at the age of 5 and increase 1 mm each year until puberty, when it should be 38 mm for an average sized boy and 36 mm for an average sized girl (as a quick guide add 23 to their age for a boy and 21 for a girl).

# Using the Indicator Line to assess the direction of growth

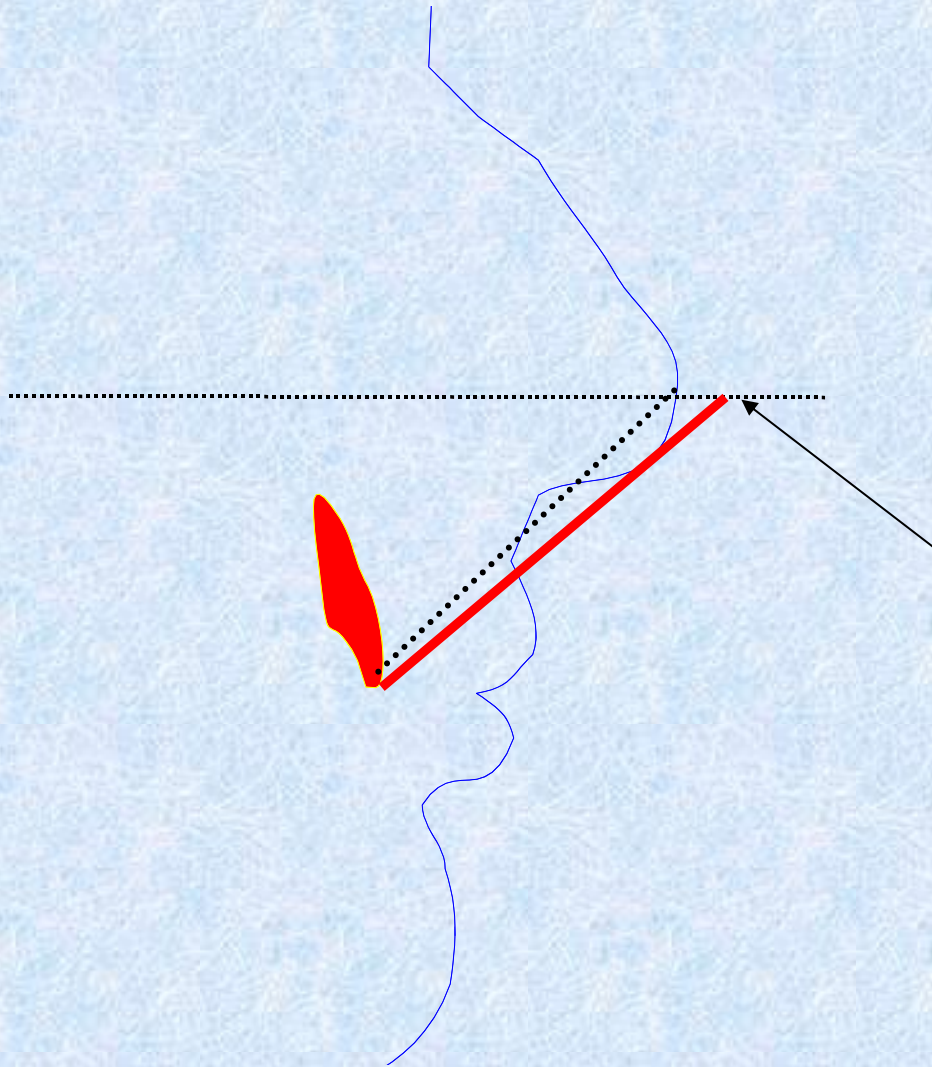
The Indicator Line will give you a rough guide of the direction of growth of very young children. The following guide is approximate but it will help your forecast in the absence of serial Xrays.

Age	Ideal indicator line mm.	Actual indicator line
5	28	
6	29	
7	30	
8	31	
9	32	
10	33	
11	34	
12	35	
13	36	
14	37	
15	38	

## APPROXIMATE GROWTH DIRECTION

Millimetres over ideal	Approximate Direction of growth	Appearance
0	40°	Outstanding
1	43	Very Attractive
2	45	Attractive
3	49	Attractive
4	50	Attractive
5	52	Attractive
6	55	Nice
7	57	Nice
8	60	Satisfactory
9	70	Satisfactory
10	80	Satisfactory
11	85	Ordinary
12	90	Ordinary
13	100	Ordinary
14	110	Plane
15	120	Very Plane

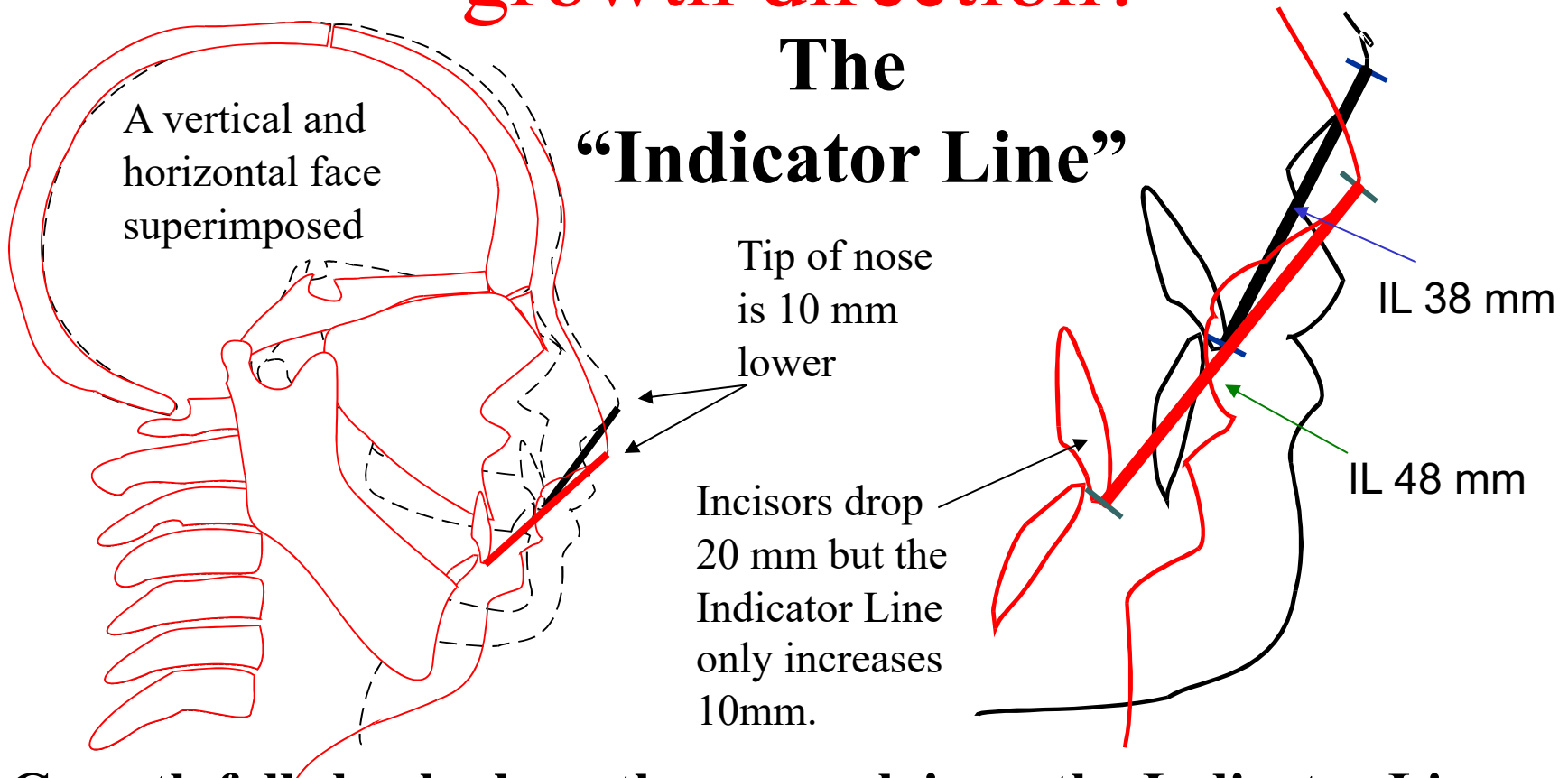
# How to measure retruded teeth.



If the upper teeth are retruded, do not cut across the nose but extend Indicator Line to here.

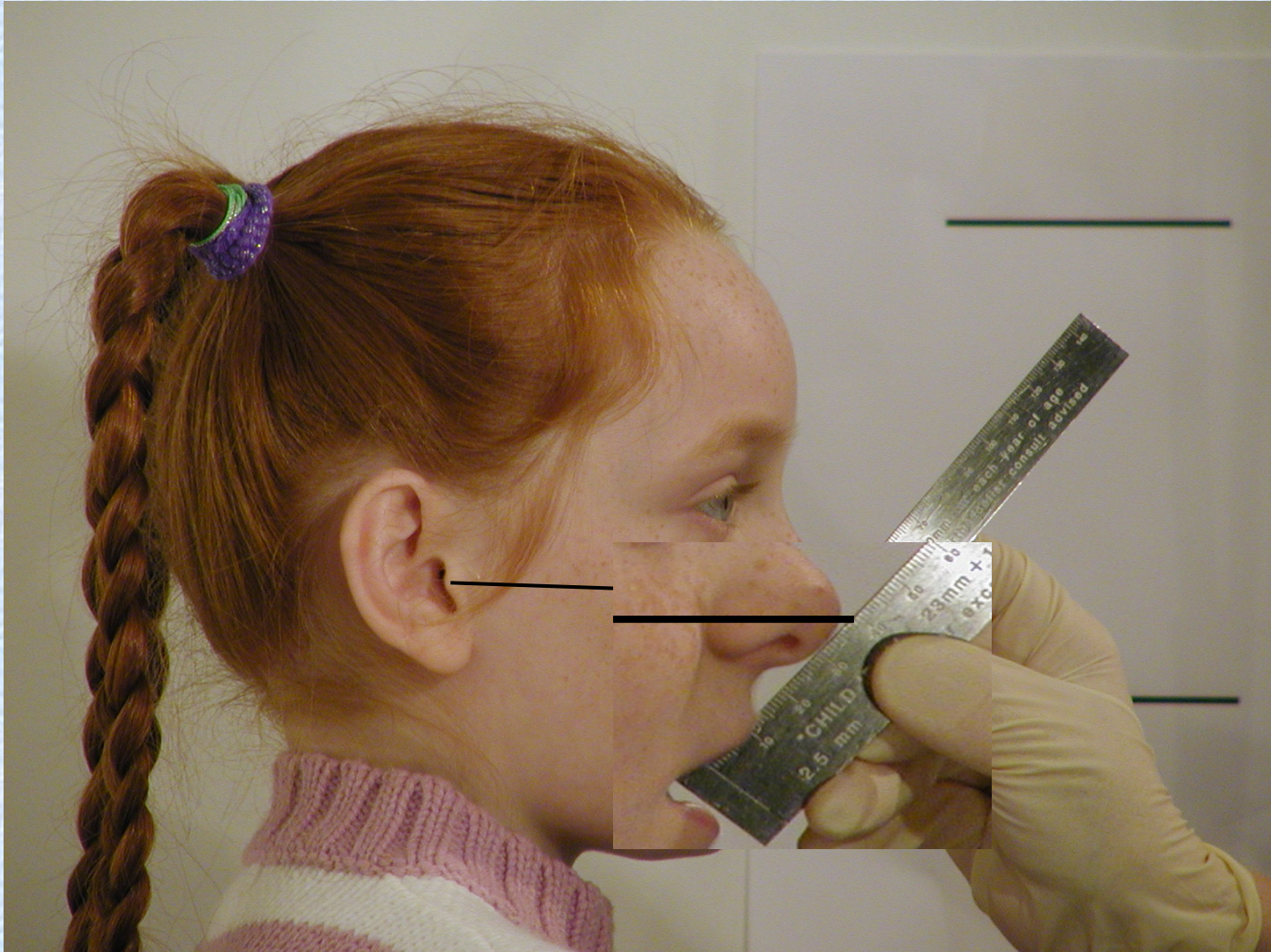
# How can a single line establish growth direction?

## The “Indicator Line”



**Growth falls back along the same plain as the Indicator Line. Note that the nose drops less than the Maxilla so that the ‘Indicator’ line represents about half of the total increase in Vertical growth, which doubles its sensitivity. (Bushgang 1993)**

# Using the Indicator Line Ruler



This nine year old girl measured 48 indicating an excess of 13mm.

# Using the Indicator Line Ruler

Aged 8



Indicator Line was 48 which is 13 too high.

Four months later

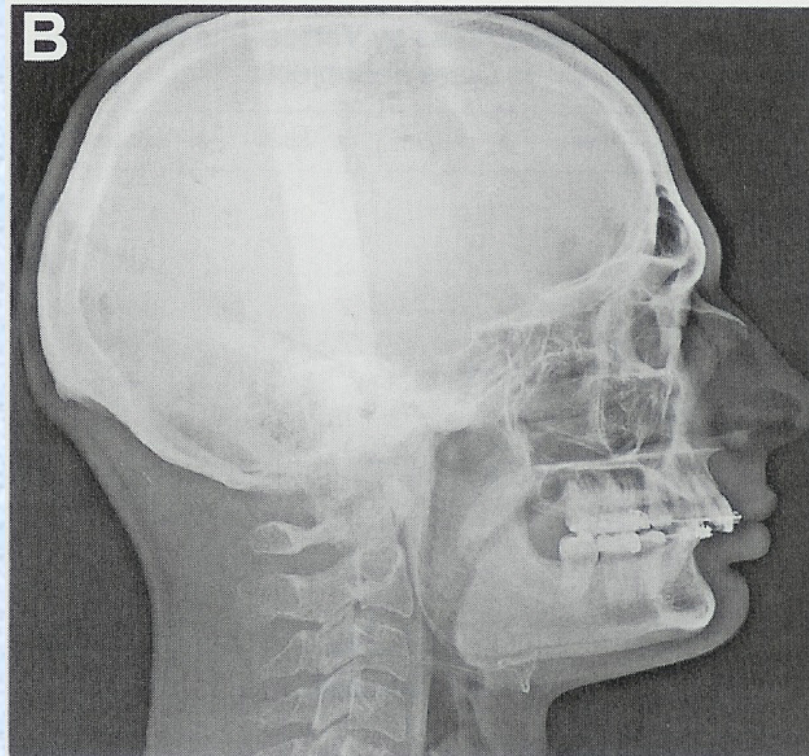


Now it is 39

# Effect of a Retruded Maxilla

Many people think that closed bites are the opposite of vertical growth and try to increase facial height.

Is this face  
growing  
Vertically or  
Horizontally?



This case also  
shows how the  
hinging down  
of the nose  
affects the  
Indicator Line.

The maxilla is retruded and his Indicator Line is 54!

# Forecasting Vertical Growth



Louisa Age 6. Indicator Line 38



Louisa age 9. Indicator Line 42

# Forecasting Vertical Growth



Age 5



Age 17



Age 17

Fifteen years ago I saw this boy in a restaurant. He was then three years old. I was rude enough to suggest to his mother that he would benefit from some postural training.





An attractive girl



Her sister Sienna Miller

# Forecasting Vertical Growth

**A**



Age 6

Mouth closed  
good facial  
form.

**B**



Age 9

Mouth open  
face getting  
longer

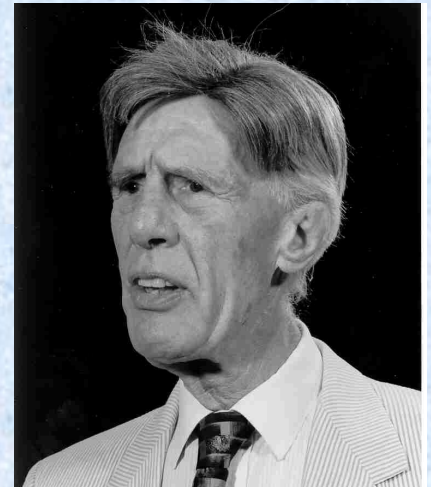
**C**



Age 16

Making effort  
to close  
mouth.

**D**



Age 65

Long –term  
lengthening and  
flattening of face.

# INHERITANCE



Michael was crowded in his deciduous dentition.

Rosie's upper first molars were impacted under the deciduous molars.

William had an inter-molar width of 23mm.

All three children were treated by the age of six and their molar width is now over 40mm. My molar width is 33mm and my wife's 31mm.

**EARLY TREATMENT WILL BE THE RULE WITHIN A DECADE OR TWO**

# **AESTHETIC AND FUNCTIONAL INDICATORS.**

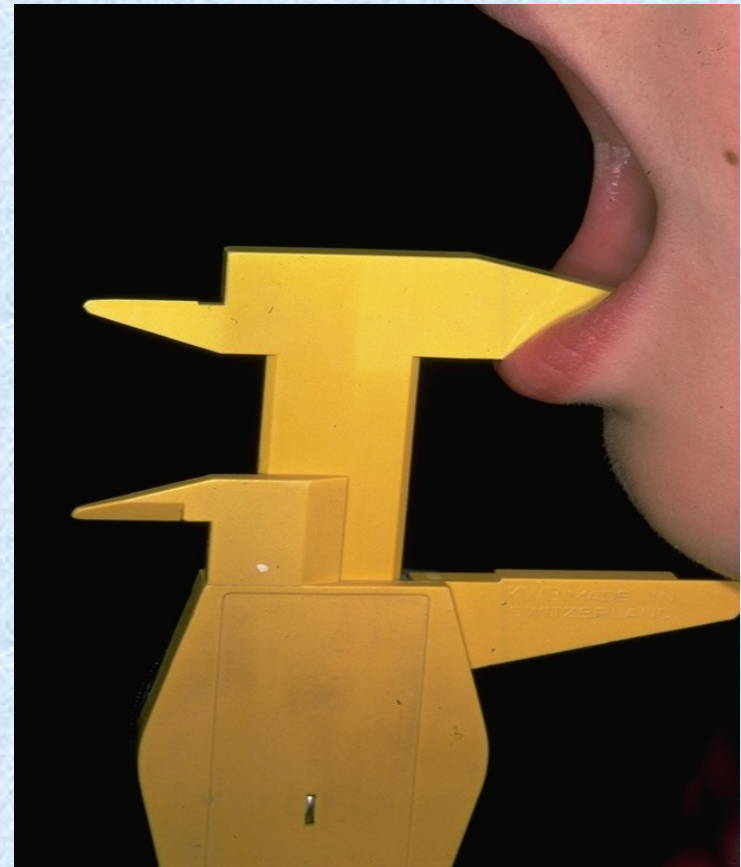
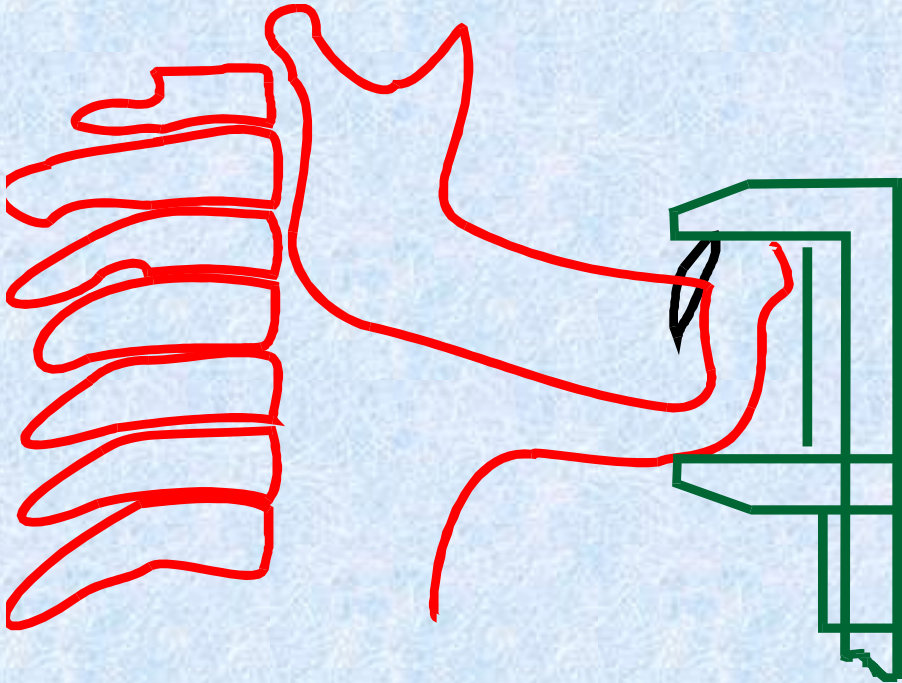
1/ The Forehead

2/ The Indicator Line

3/ The lower Indicator Line.

## Figure III/9

The Lower Indicator Line, is normally two mm less than the Upper Indicator Line



# Correcting Mandibula Form



Age 8



Age 11

He had a class III. The maxilla was moved forward and the lower incisors proclined to reduce the Lower Indicator line.

# **AESTHETIC AND FUNCTIONAL INDICATORS.**

1/ The Forehead

2/ The Indicator Line

3/ The lower Indicator Line.

4/ The Cheek Line

# **AESTHETIC AND FUNCTIONAL INDICATORS.**

## **THE CHEEK LINE**

**This line runs from the centre of the lower eye lid sagittally down the cheek at a tangent to the soft tissue.**

Ideally it should be parallel to the bridge of the nose but if the maxilla is set back the angle between them may be as high as thirty degrees

# THE CHEEK LINE



Ideal, Cheek Line  
parallel to bridge of  
nose



Cheek Line 15°  
to bridge of nose

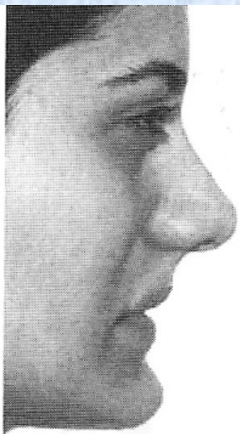


Cheek Line 30° to  
bridge of nose.  
Note hooked nose.

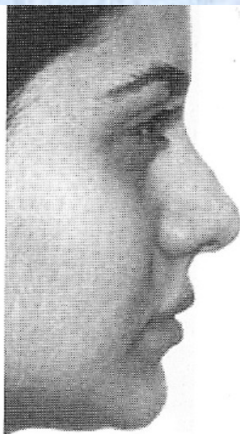
# Changing the Cheek Line



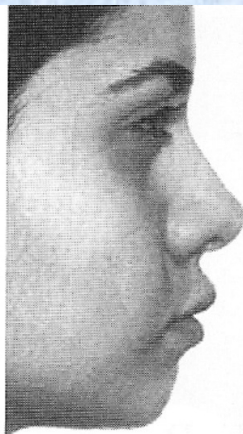
**It is the same girl before and after her maxilla was brought forward**



Bimax dent  
retrusion



Straight  
profile



Bimax dent  
protrusion

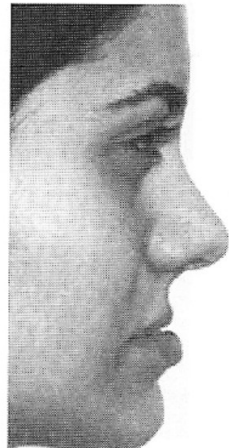


Retrognathic  
mandible

## Understanding Facial change



Prognathic  
maxilla and  
retrognathic  
mandible



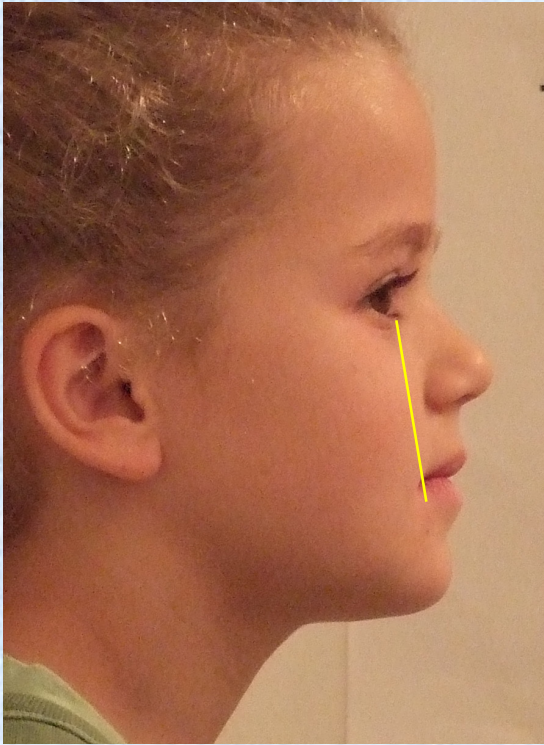
Retrognathic  
maxilla and  
prognathic  
mandible



Retrognathic  
maxilla, prognathic  
mandible with deep  
bite

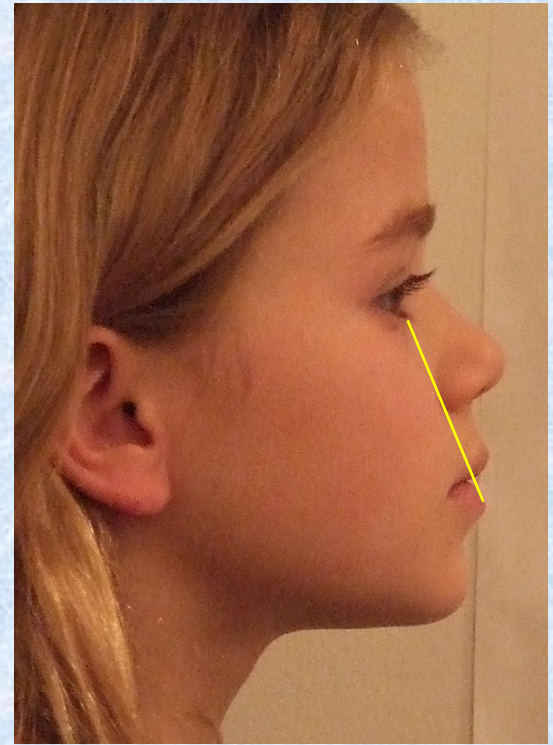


Prognathic  
mandible with  
AOB.



Kate Boswell age 8

Four months later, after Forward pull Head-gear and Stage 1. Note full cross bite.



Ten months later still, after Stage 3



# WHAT IS NORMAL AND WHAT IS IDEAL?



Eastman Steiner 'normal'

SNA 81° SNB 78 °

Most orthodontist see the 'Straight' profile as close to the ideal.

Johnston et al 2005 tried moving the mandible back and forward to see if this face could be improved.

They found that the public preferred the Eastman normal to either of the ten degree extremes. QED.



Eastman class III

SNA 81° SNB 88 °



Eastman class II

SNA 81° SNB 68 °

However they did not try to change the maxillary position.

If the maxilla of the extreme class III case is brought forward, he almost looks like the late Paul Newman.



SNA 91° SNB 88 °

# Figure III/15



Cartoonists know that a forward placed Maxilla is the key to a good looking face.

Note that the Cheek Line is parallel to her nose. Also the nose is petite giving her a small Indicator Line and the upper lip is slightly in front of the lower with a raised vermilion border all round.

# Figure III/16

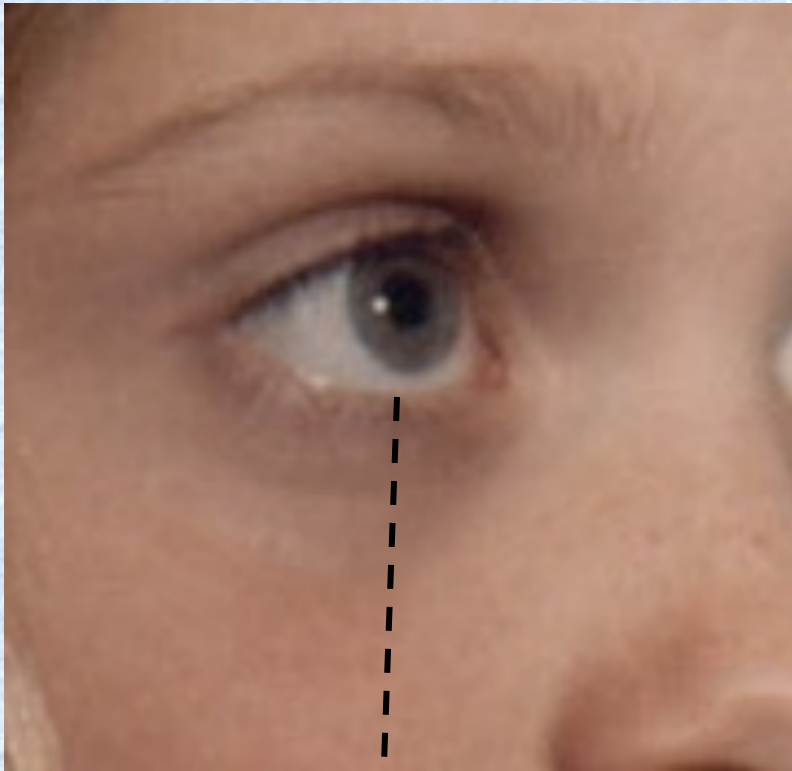
An evil face is drawn with the maxilla back, the outer cantous of the eye dropping, a hump on the bridge of the nose, the lower lip in front of the upper and a sloping forehead.

If he had been weak, the chin would have been placed back, but determined people are drawn with prominent chins.

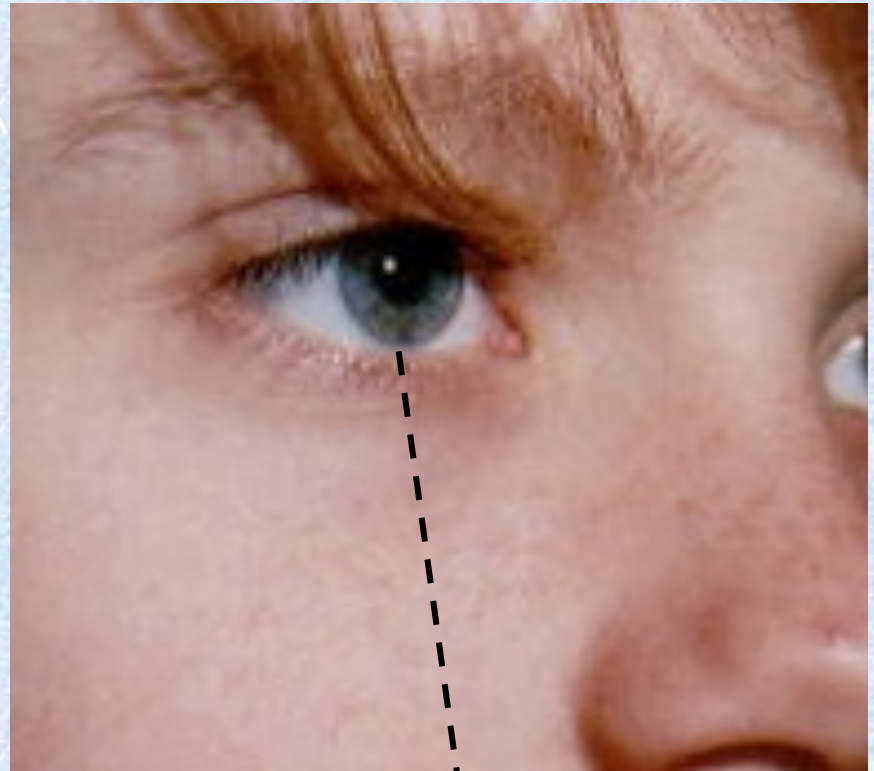


## THE CHEEK LINE

The effect of orthotropic forward movement of the maxilla on the Cheek Line and Eyes



Before treatment . Note sclera showing under Iris,



Four months later. Note reduced sclera under Iris.

# The Eyes are Supported by the Maxilla



Nicholas aged 9.  
Note the dropped outer  
canthous of the eye.



Two years later, after his  
maxilla had been brought  
forward by Orthotropics.

# **AESTHETIC AND FUNCTIONAL INDICATORS.**

1/ The Forehead

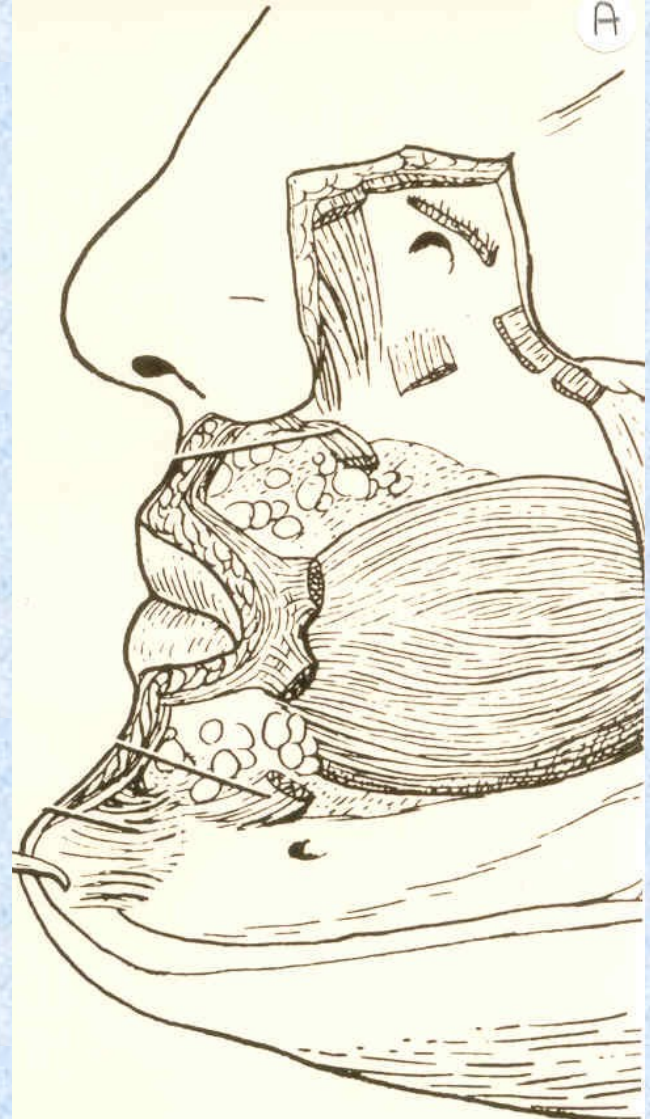
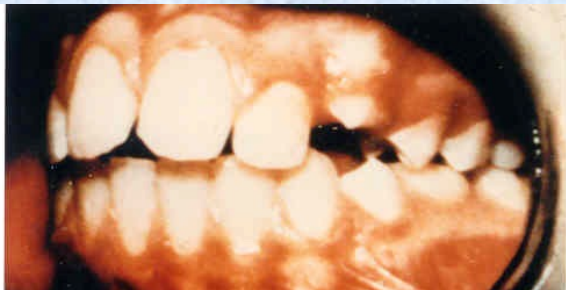
2/ The Indicator Line

3/ The lower Indicator Line.

4/ The Cheek Line

5/ Muscle Bulges.

# Muscle Bulges





# **AESTHETIC AND FUNCTIONAL INDICATORS.**

1/ The Forehead

2/ The Indicator Line

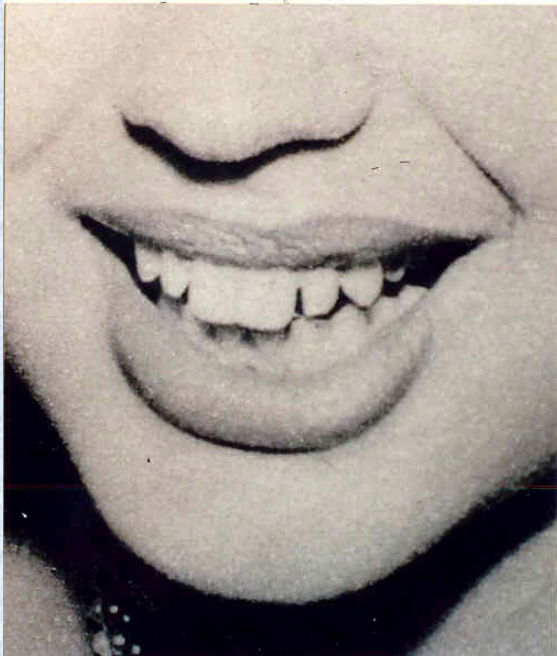
3/ The lower Indicator Line.

4/ The Cheek Line

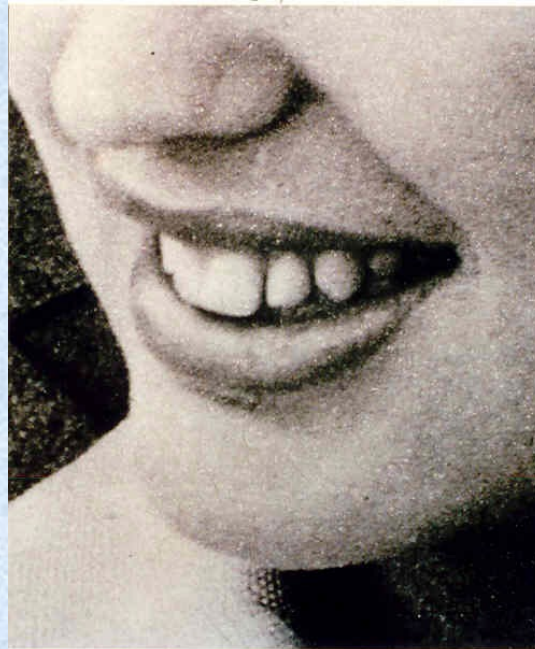
5/ Muscle Bulges.

6. Lip Seal

# Muscle Form



Age 13



Age 23



Age 33

Illustrating how the lips will change shape if a lip seal can be developed. Note also the thinning of the buccinator.

# Figure III/22

Two sisters who had  
the same Orthotropic  
treatment

**Sam** was unable to  
learn to keep her  
mouth closed

Her sister **Kelly**  
made a big effort to  
keep her mouth  
closed.

Note the establishment  
of the raised vermillion  
boarder.



Age  
8



Age  
15



Age  
7



Age  
11

# ORTHOTROPICS

## The Importance of Lip Seal.

This young lady has an excellent forward growing face with a low Indicator Line and all 32 teeth in occlusion.

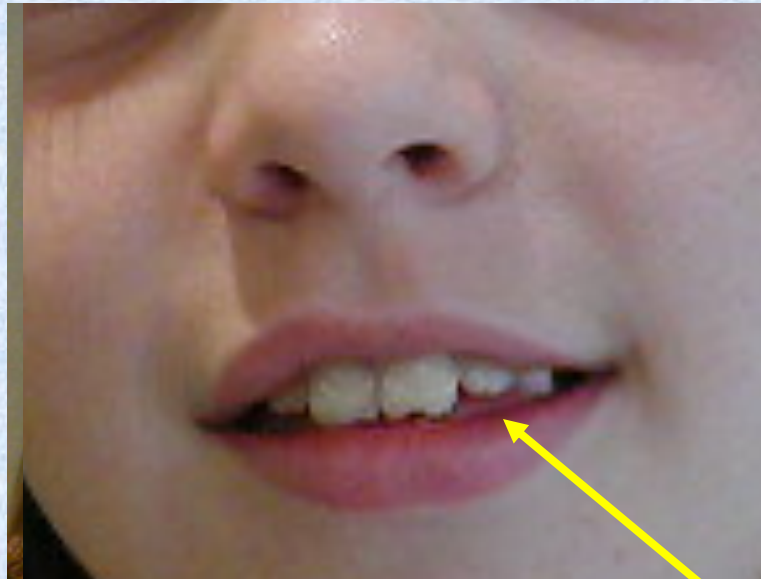


She brings her lips into contact at rest and  
Watch her speak  
between most syllables

# ORTHOTROPICS

## The Importance of Lip Seal.

This girl tends to leave her lips apart most of the time



She starts with her lips together for 'M' but doesn't close them again for several syllables.

Note that her tongue is between her teeth for the final 'S'

# **AESTHETIC AND FUNCTIONAL INDICATORS.**

1/ The Forehead

2/ The Indicator Line

3/ The lower Indicator Line.

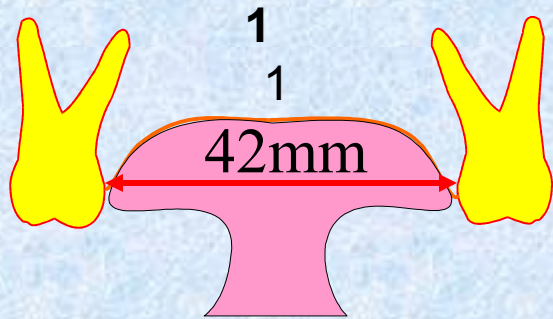
4/ The Cheek Line

5. Muscle Bulges.

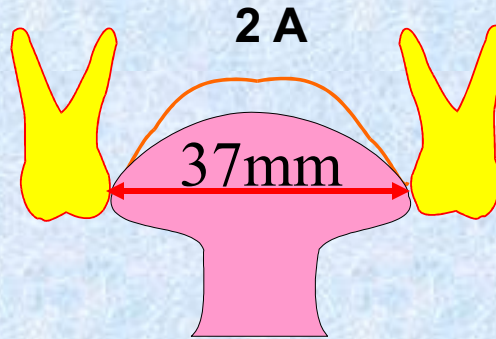
6/ Lip Seal

7. Tongue Posture

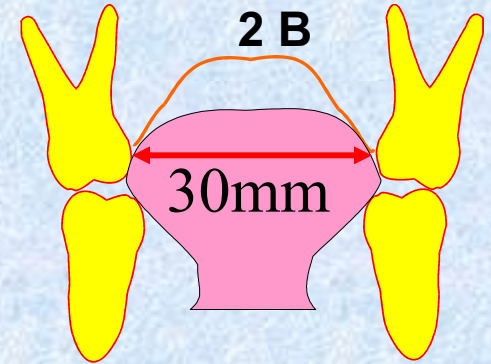
# Tongue Posture



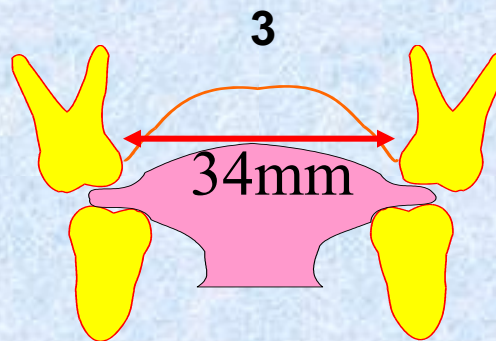
Against palate.  
'Ideal occlusion'



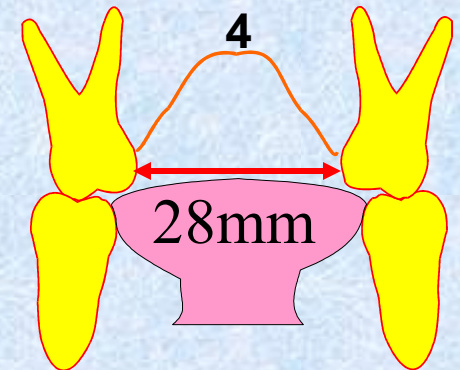
Touching upper teeth.  
'Crowded wisdoms'.



Upper and lower teeth.  
'Progressive Crowding'



Between buccal and/or anterior  
teeth, Deep or Open Bite.



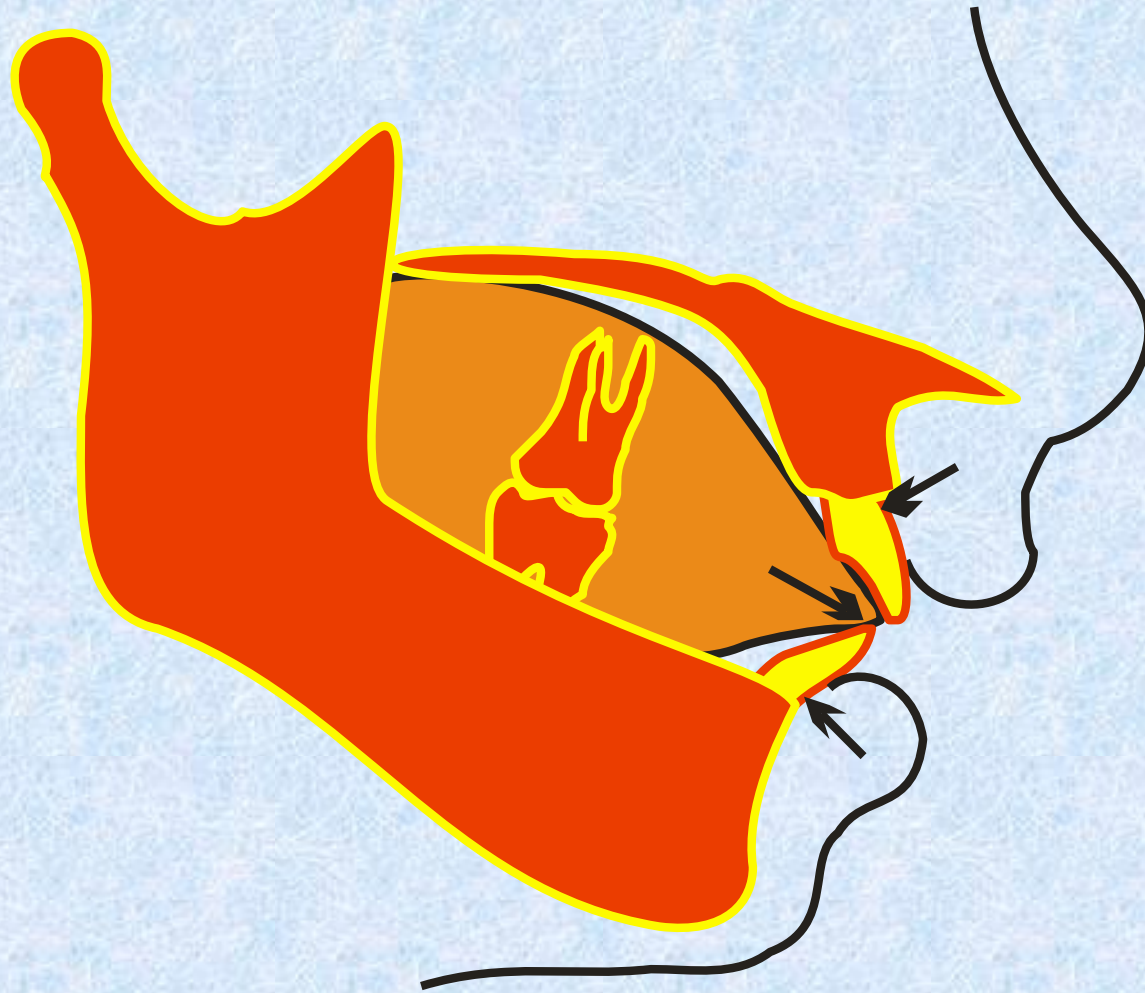
Lower teeth only.  
'Class III'.

Different  
tongue  
positions  
and their  
malocclusions

# Tongue Posture

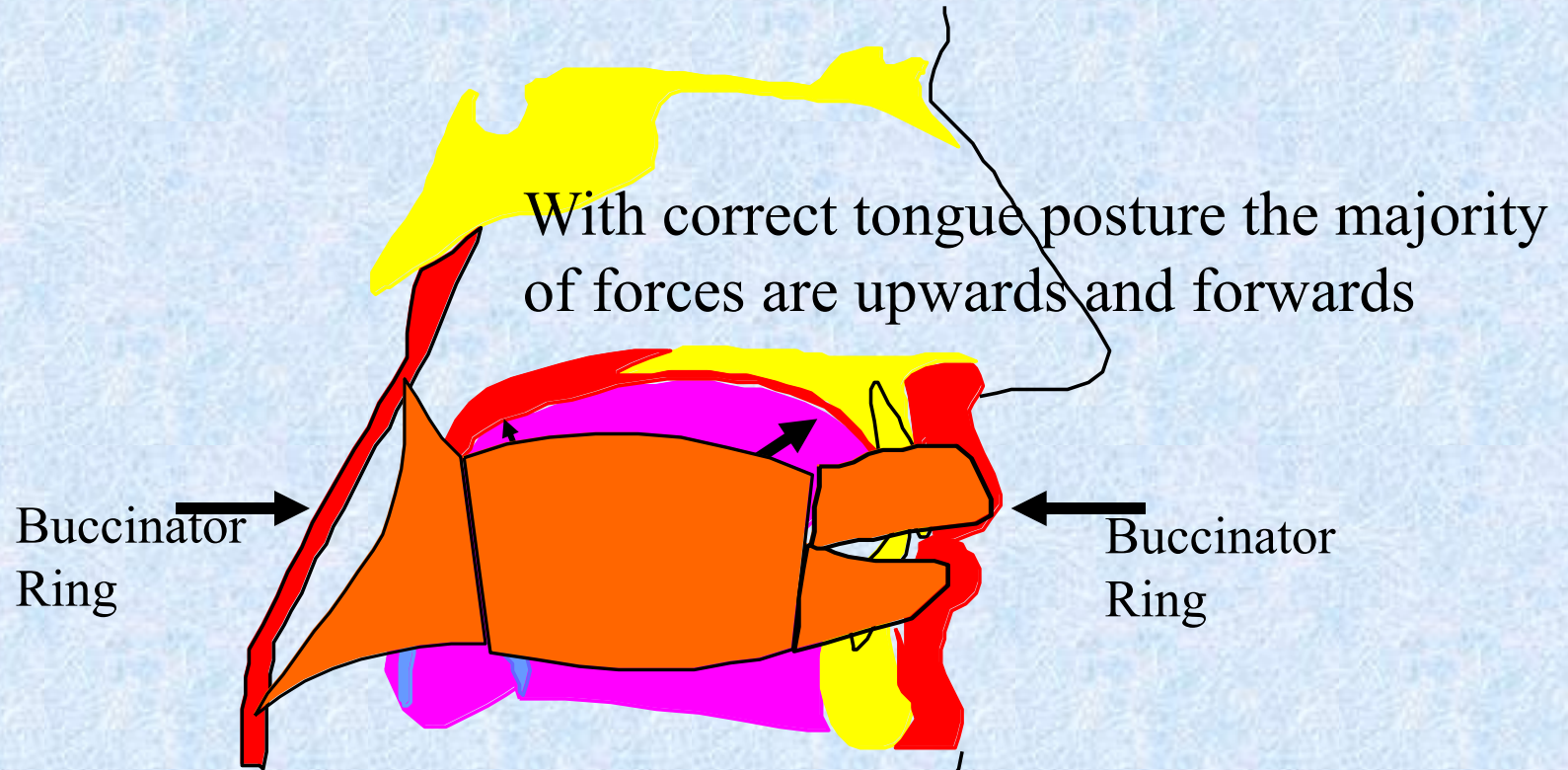
Harvold,s work showed that the tongue can change in both size and shape.

Para-function of the tongue leads to a reduction in forward forces.



The Aetiology of Bi-maxillary protrusion

# Tongue Posture



With para-function the majority of forces are distal

# Tongue Posture



The palates of both these patients were painted with indicator past and they were asked to swallow three times. The difference in the area of contact between the broad and narrow palate is obvious.

# ORTHOTROPICS

## The Importance of Lip Seal.



Ben age 8/5  
Lips and jaws  
open.



Ben age 10/5 after  
Biobloc expansion  
and stage 3



Ben age 11/3  
Following lip  
training.

This demonstrates the advantage of wearing the stage 3 for some time after treatment has been completed.

# Reading the Face



Emily is eight years old and has a class II/1 malocclusion with an overjet of 14mm and a complete overbite.

Despite her convex profile her Indicator Line is several millimetres too high.

It was decided to enlarge her maxilla and move it forward.

# Vertical Growth



Emily age 8, overjet 14mm  
complete overbite.

The maxilla was expanded  
and moved forward.



Four months later.

Overjet 17mm

She was then taught to keep her mouth closed.



Aged 12. After treatment. No  
fixed appliances, the lip seal  
has up-righted the incisors.

# Vertical Growth



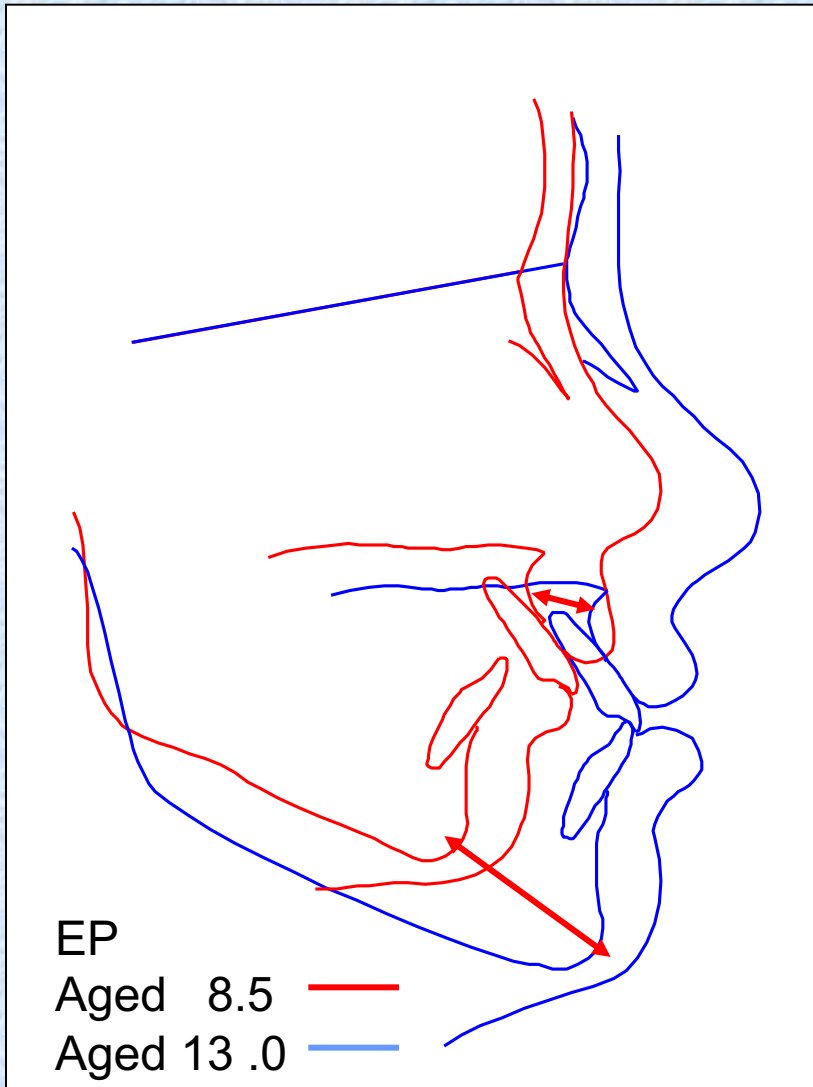
Age 8



Age 12

Emily before and after her treatment Try to visualize the changing relationships of the facial bones.

# Vertical Growth



Downs point 'A' moved forward **11mm**, while Gnathion grew forward **27mm** at with a growth direction of **37 degrees**.

The untreated patients in the 'Bolton' group had a mean growth direction of 54 degrees

Note the antgonial notch has disappeared.

