



Introduction

To

Orthodontics

Orthodontics





# WHAT IS ORTHODONTIC ?

Orthodontics (from Greek orthos "straight or proper"; and odons "tooth") is the specialty of dentistry that is concerned with the study and treatment of malocclusions

- 1) tooth irregularity
- 2) disproportionate jaw relationships
- 3) or both.

Orthodontic treatment can focus on

- 1) dental displacement. orthodontics
- 2) control and modification of facial growth. "Dentofacial orthopedics".





# The Goals of Orthodontic treatment

*Aesthetic*

*improving the appearance*

*Functional*

*improving bite (occlusion)*

*Balance*

*as long as the human life*





# Orthodontic Prevention

- Interceptive Orthodontics
  - Advice on extraction of teeth to relieve crowding or allow eruption of certain teeth
  - Advice on extraction of certain teeth with poor prognosis to allow for spontaneous alignment





# Orthodontic Treatment

- Skeletal discrepancy
- Dentoalveolar disproportion (Space / crowding)
- Missing teeth / Small teeth
- Trauma





# Skeletal Discrepancy

- Facial Proportion (Vertical)
- Increased / decreased Over jet (AP)
- Increased / decreased Overbite (Vertical)
- Cant of Occlusal plane (Transverse)





# Missing teeth

- Impacted / Embedded
- Congenital missing
- Syndrome
- Extracted (Decay / Perio)





# Dento-alveolar disproportion

- Spacing
- crowding





# Trauma

- Splint
- Extraction and space closure
- Prepare space for Prosthesis  
(Transplant / Implant)



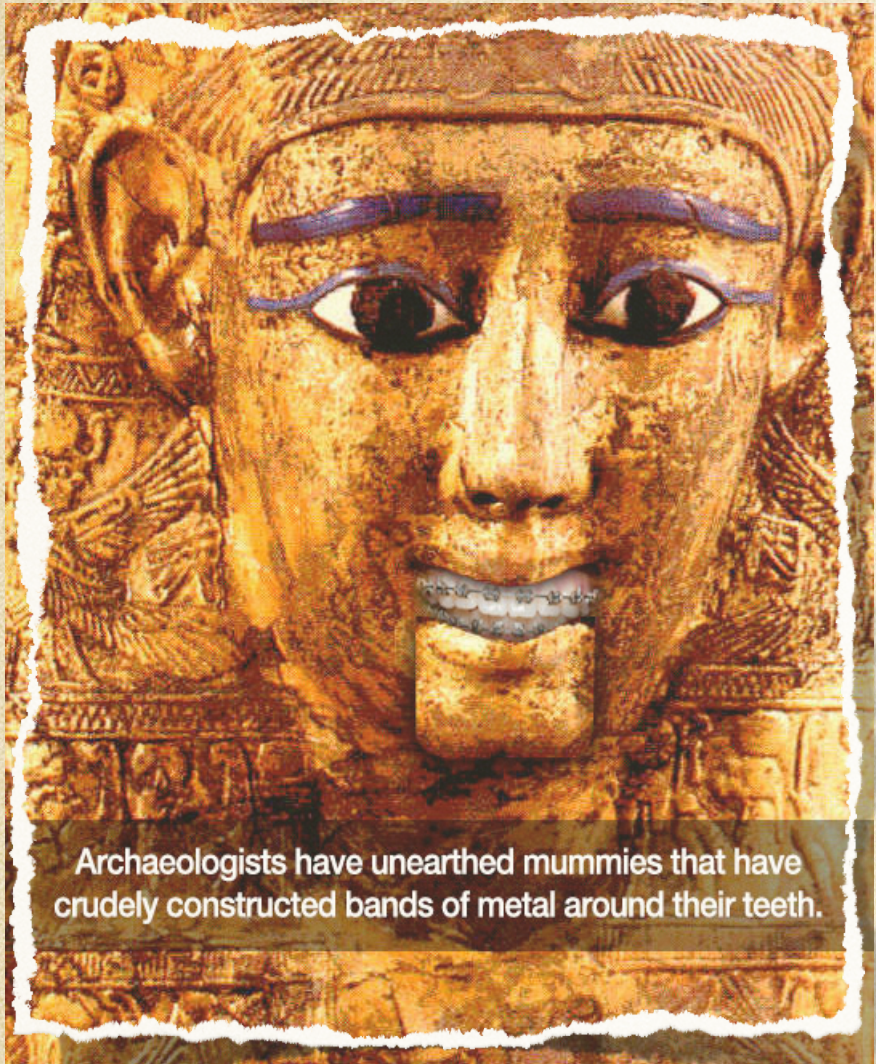


# Orthodontic Treatment

- Orthodontics only
  - Removable appliances
  - Fixed appliances
- Growth modification
  - Functional appliances
  - Headgear
- Orthognathic surgery







Archaeologists have unearthed mummies that have crudely constructed bands of metal around their teeth.

# Orthodontic history & its development

-1800s Align teeth by ignoring occlusion







# Norman Kingsley

## 1850

-1850 Kingsley - Kingsley's Oral Deformities

Extraoral force to correct protruding teeth, Cleft palate

Extraction- Decay, Crowding, Perio

No concern about occlusal relationship





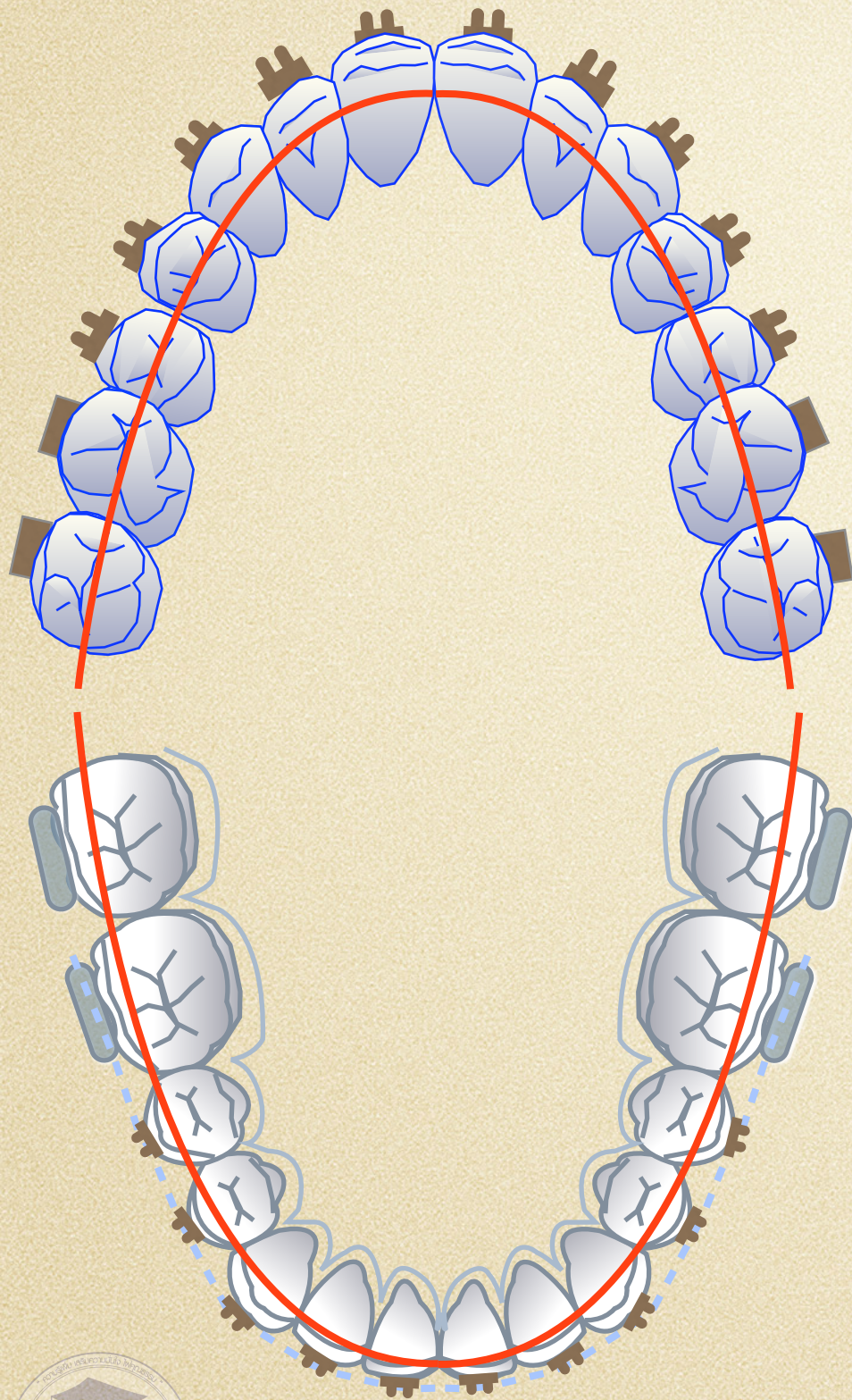


# Edward H Angle 1890

Farther of modern orthodontic



# Line of Occlusion



The line of occlusion is a smooth (catenary) curve passing through the central fossa of each upper molar and across the **cingulum** of the upper canine and incisor teeth. The same line runs along the buccal cusps and **incisal edges** of the lower teeth



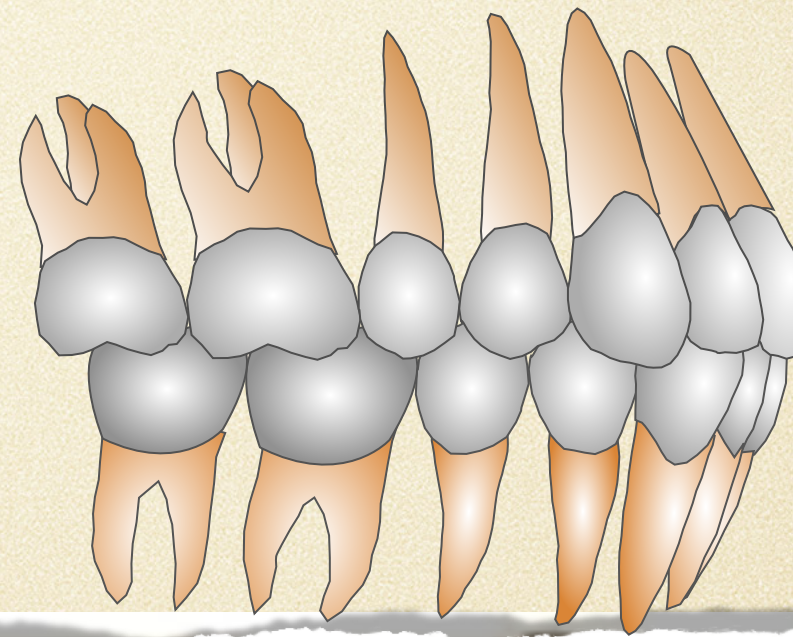
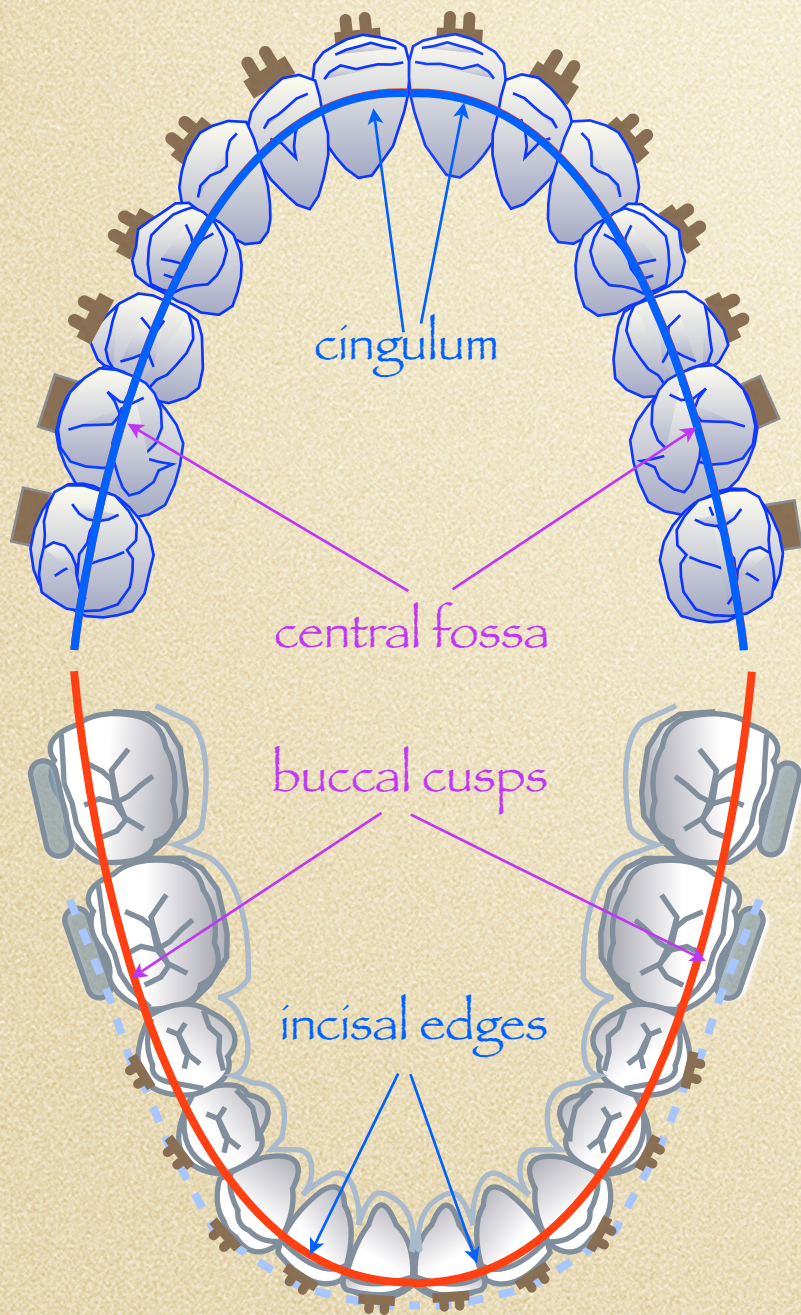
# Line of Occlusion





Edward H Angle

# Class I Normal Occlusion



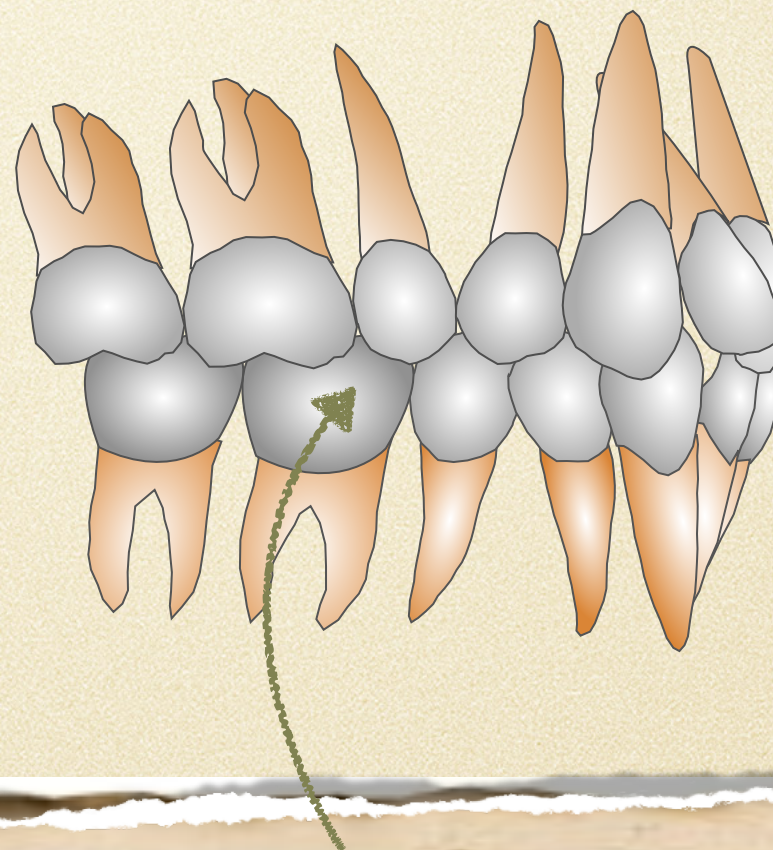
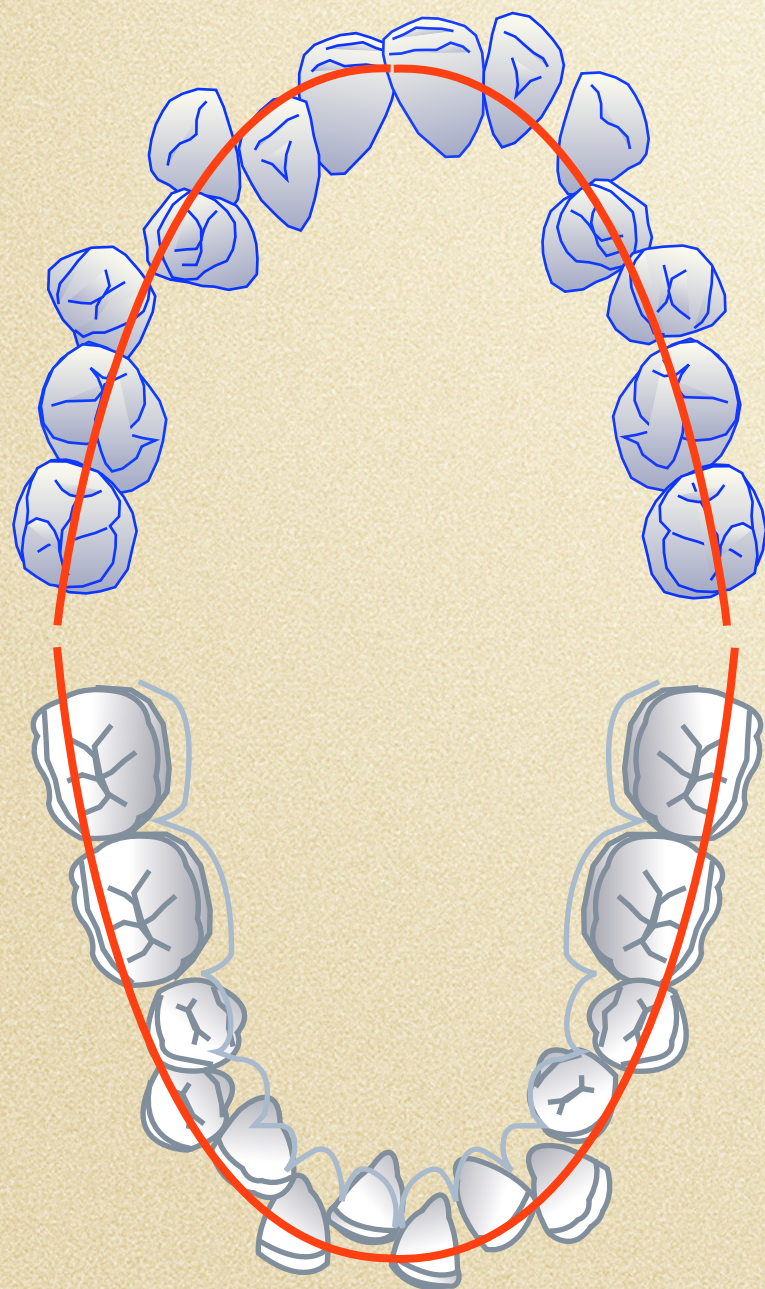
**Class I:** Normal relationship of the molars, line of occlusion is a smooth (catenary) curve passing through the **central fossa** of each upper molar and across the **cingulum** of the upper canine and incisor teeth.

The same line runs along the **buccal cusps** and **incisal edges** of the lower teeth



Edward H Angle

# Class I malocclusion

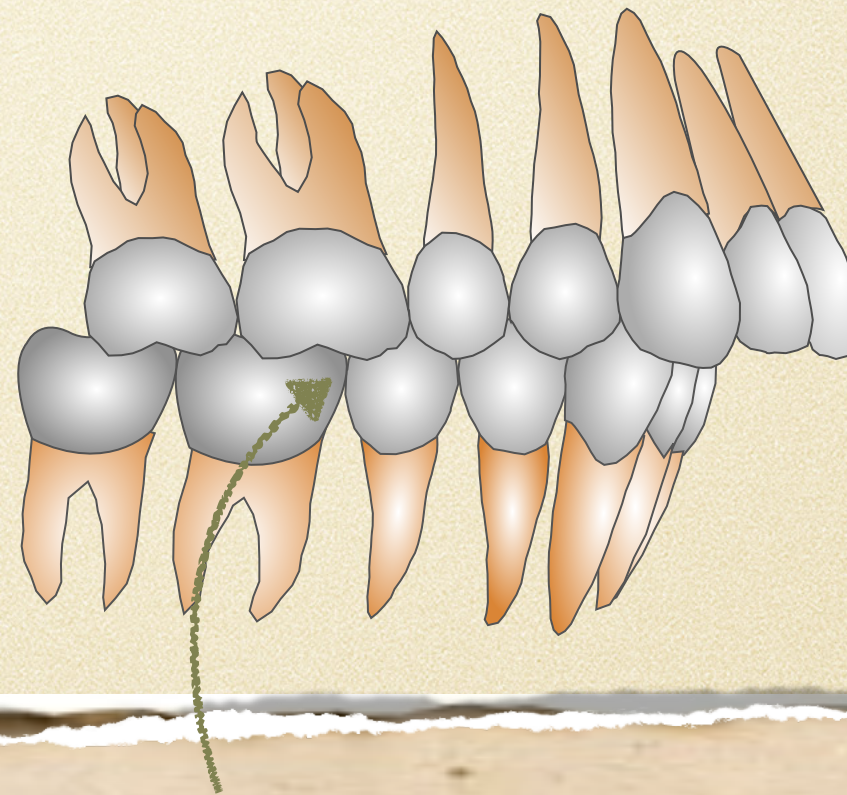
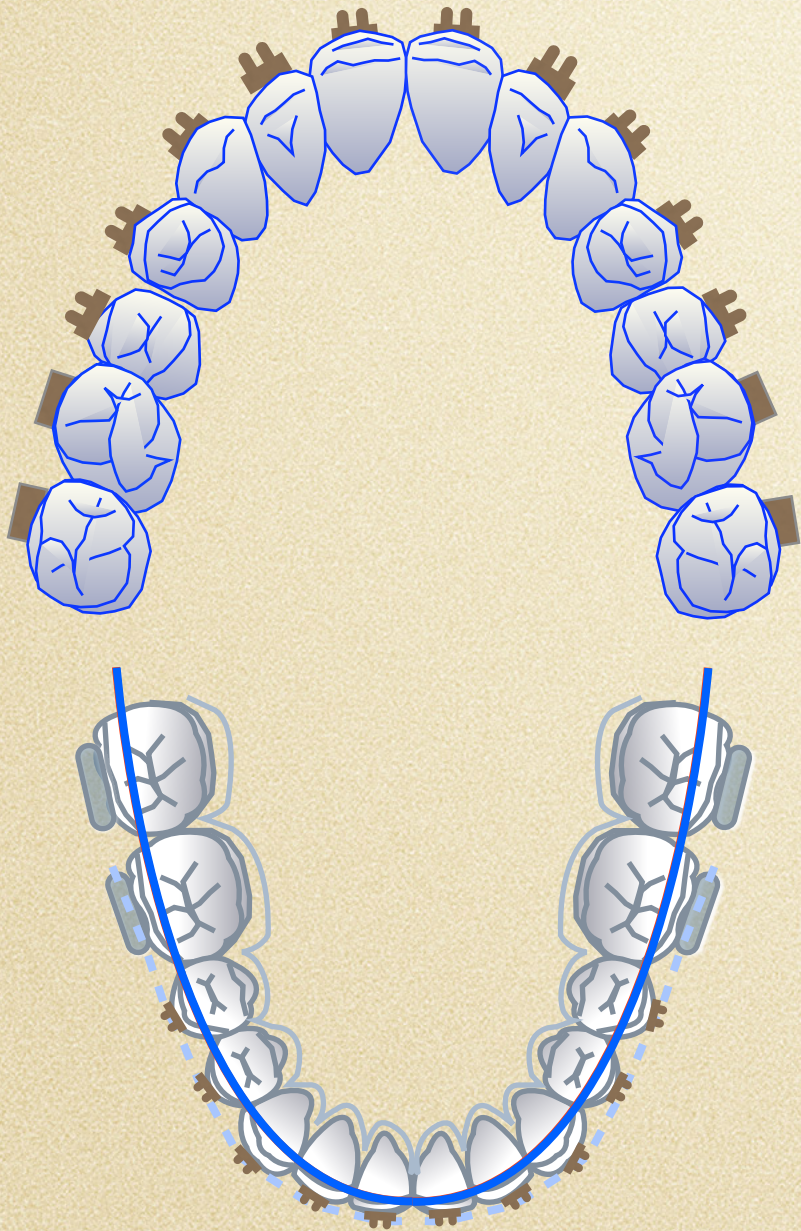


**Class I:** Normal relationship of the molars, but line of occlusion incorrect because of malposed teeth, rotations, or other causes



Edward H Angle

# Cl. II malocclusion

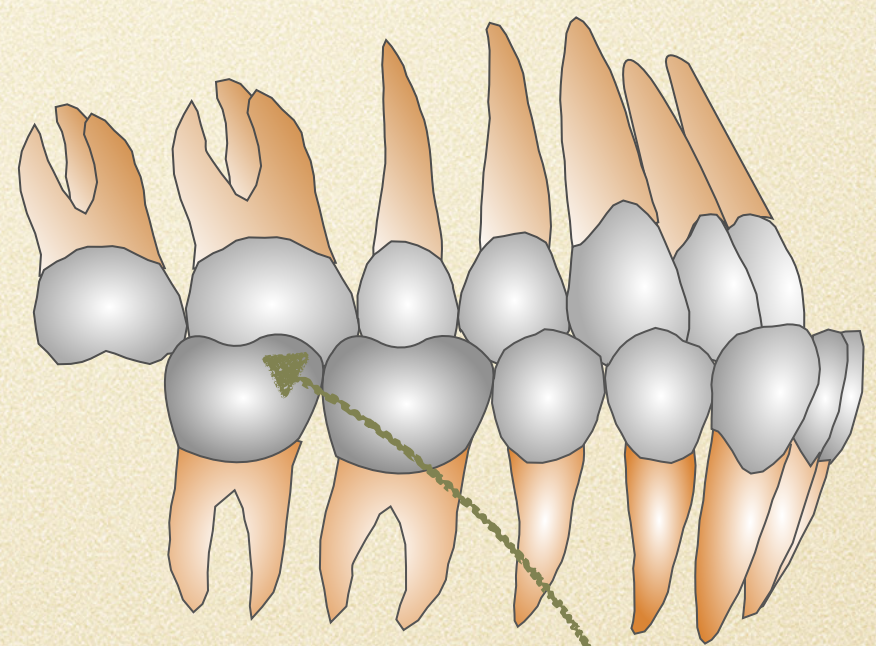
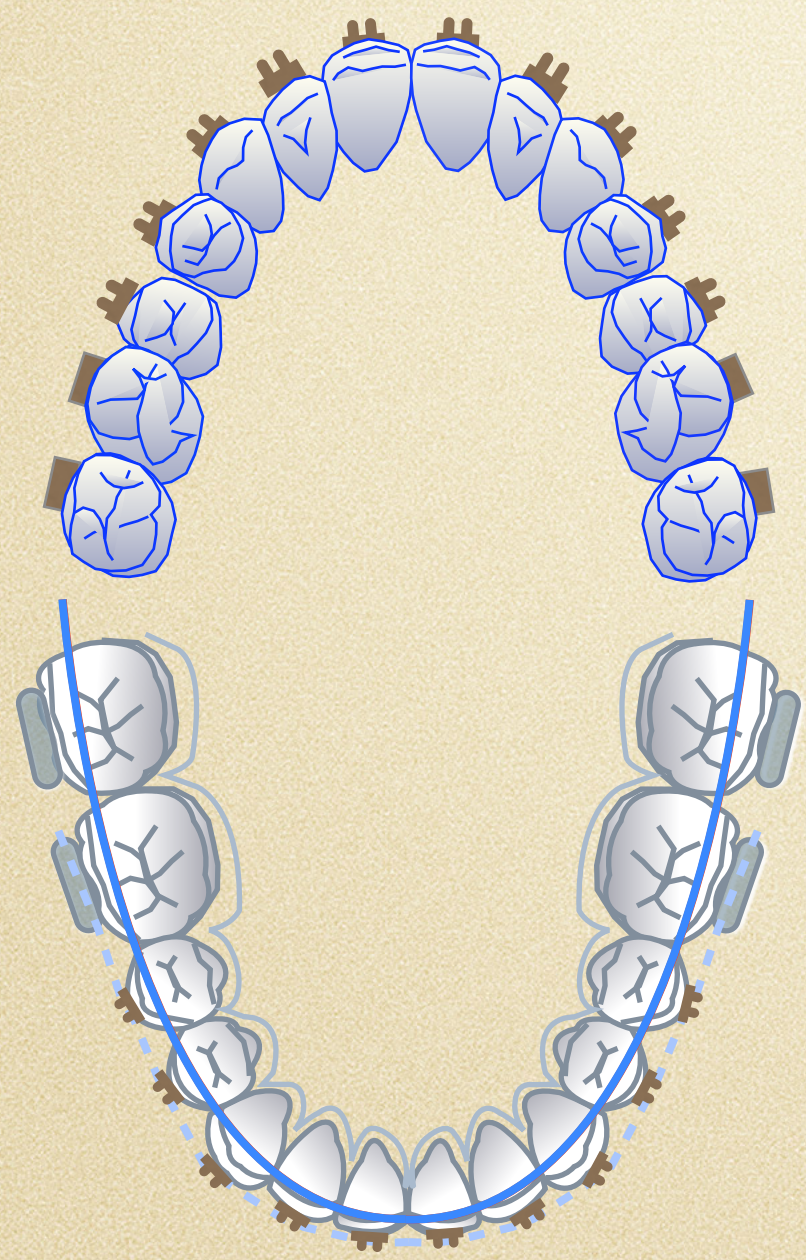


Class II: Lower molar distally positioned relative to upper molar, **line of occlusion not specified**



Edward H Angle

# Cl. III malocclusion

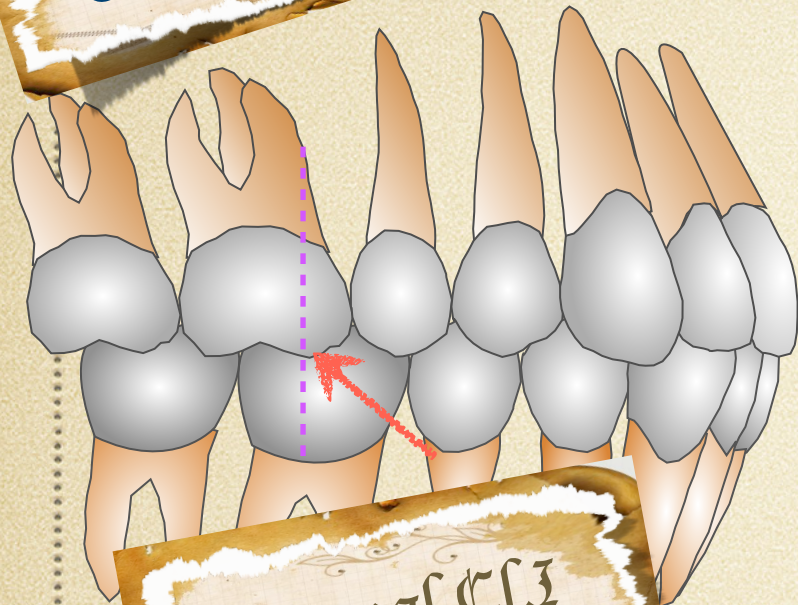


Class III: Lower molar mesially positioned relative to upper molar, line of occlusion not specified

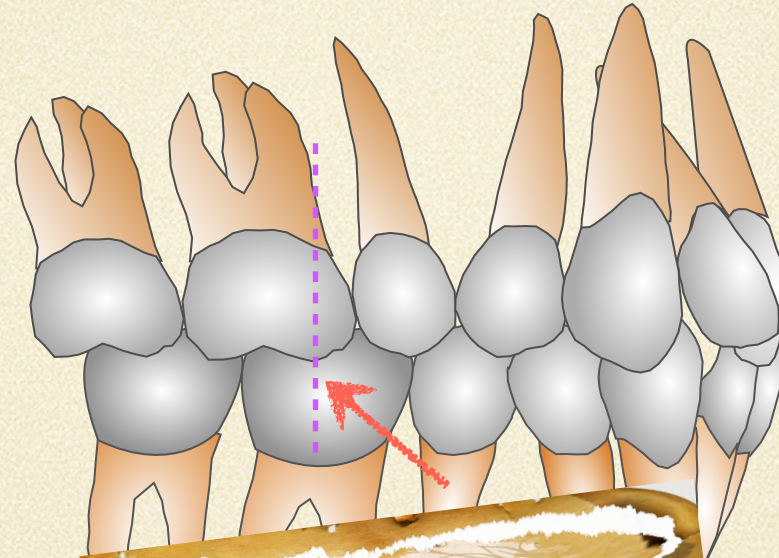


# Angle Classification

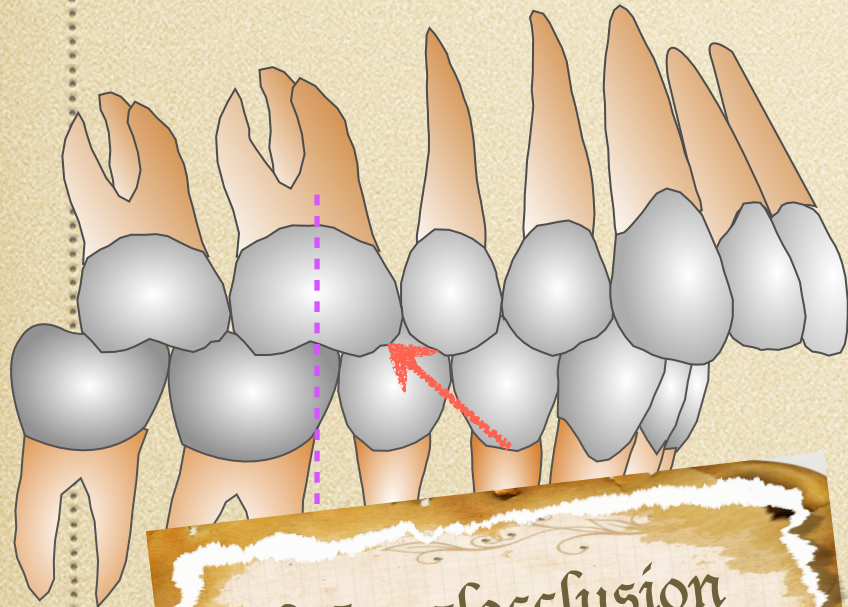
Edward H Angle



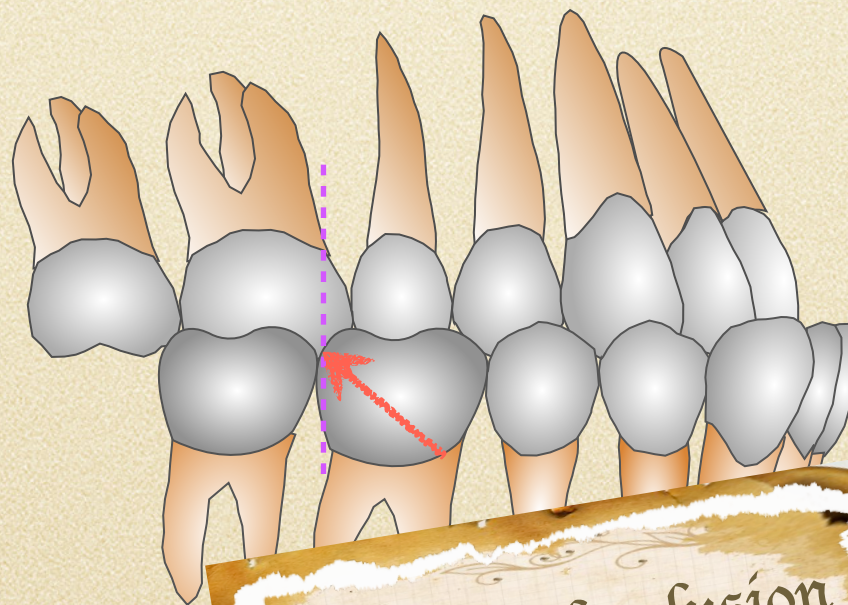
Normal Cl.I



Cl.I malocclusion



Cl.II malocclusion



Cl.III malocclusion



# 1890s Edward H Angle

Angle Classification of Malocclusion (A-P)

- Cl. I (Crowding, Spacing)
- Cl. II Malocclusion
- Cl. III Malocclusion

Development of a concept of occlusion

Non-extraction Tx. + prolonged use of heavy elastics





1930s

unsatisfactory excellent occlusion

Extraction Tx.

- Enhance facial esthetic
- Stability of Occlusion

After WWII

Cephalometric x-ray introduction

- Skeletal Problems (Faulty jaw/jaws relationship)
- Non-skeletal Problems (Malposed teeth)

Skeletal Problems (Faulty jaw/jaws relationship)

- USA-Extra oral force (Head gear)
- Europe- Functional jaw orthopedic (Twin block)







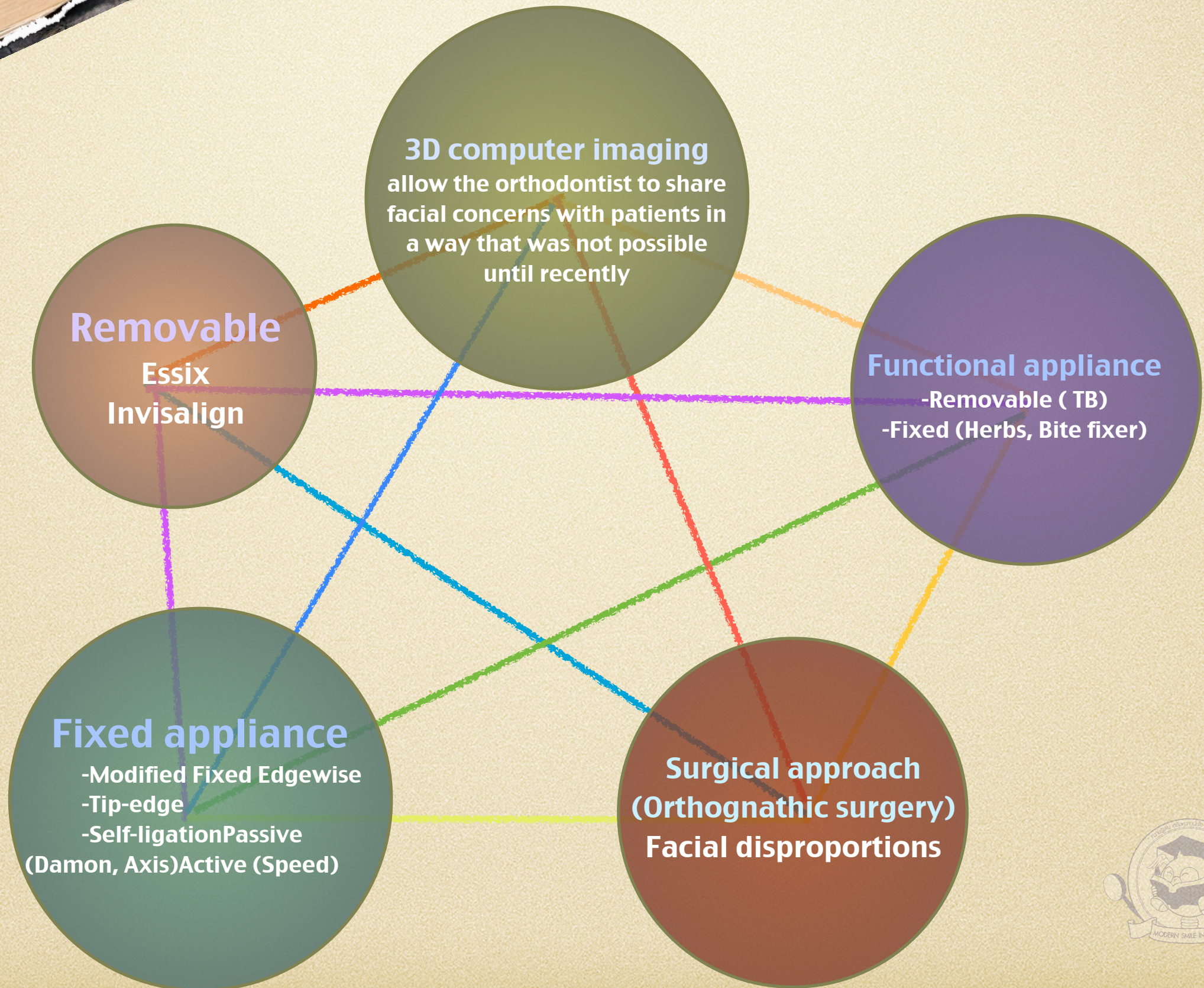
the early 21<sup>st</sup> century,

- dental and facial appearance.
- psychosocial problems related to appearance
- involvement Of appearance in planning treatment
  - Treatment options selection facilitated by computer imaging methods
  - Treatment coordinated with other dentists





# Combination FA and H/G- Control and Modify growth and form





New Trend

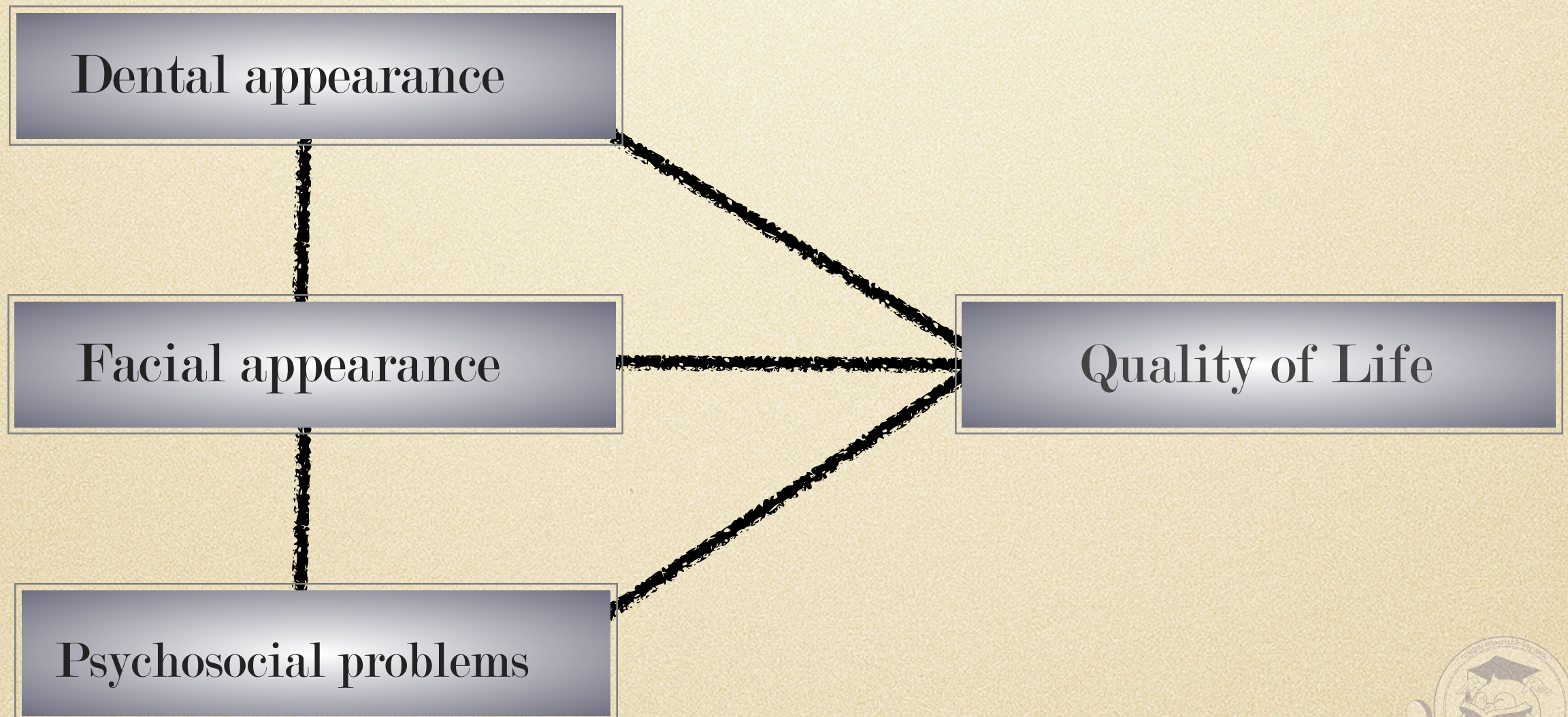
in

ORTHODONTIC TX





# PURPOSES AND GOALS OF ORTHODONTIC TREATMENT





**FACIAL DISTORTION**



**ORTHODONTISTS**



**PHYSICAL  
WELLNESS**

**MENTAL  
WELLNESS**





maxillofacial  
surgeon

plastic  
surgeon

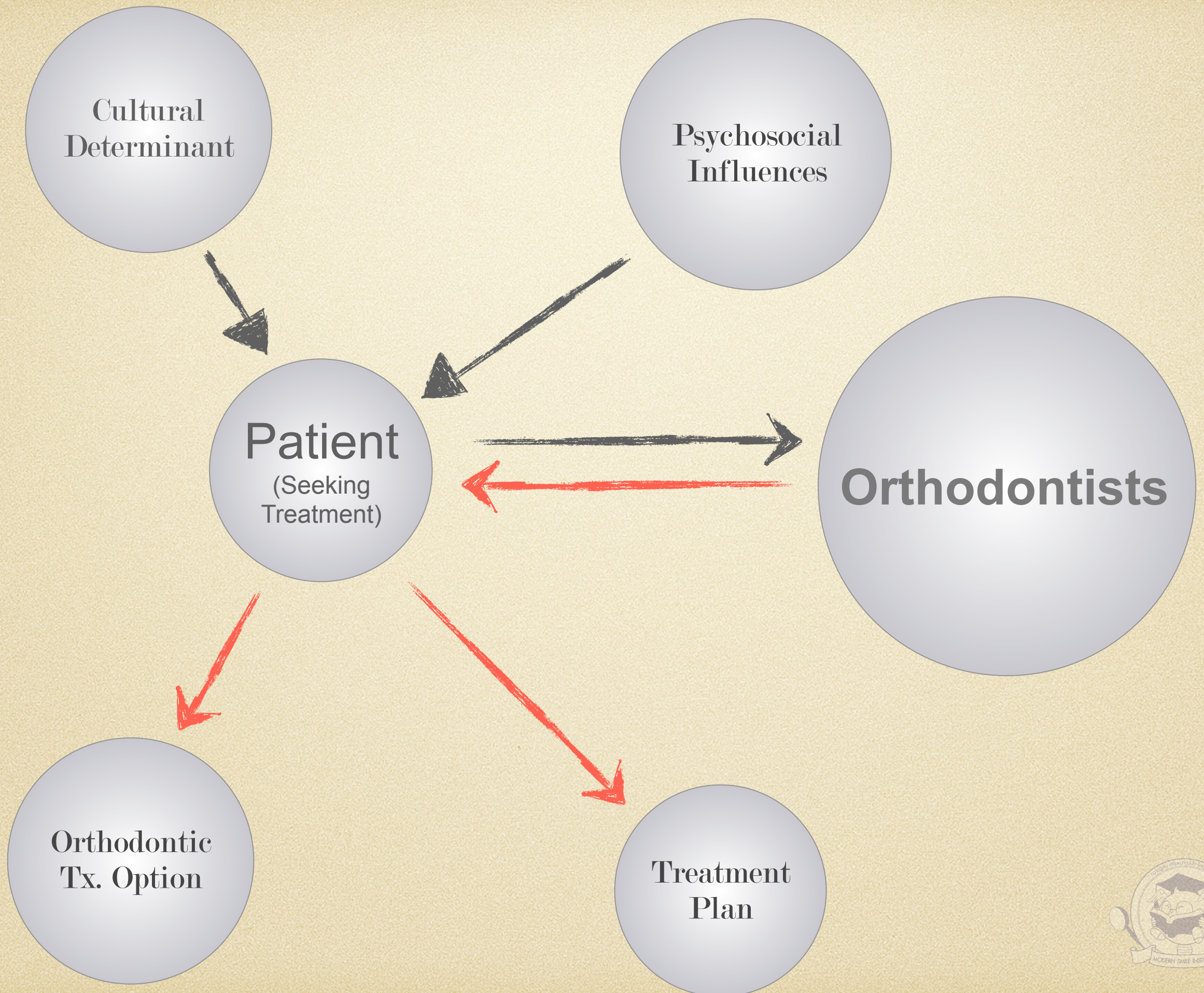
**ORTHODONTISTS**

Other  
Dental Field

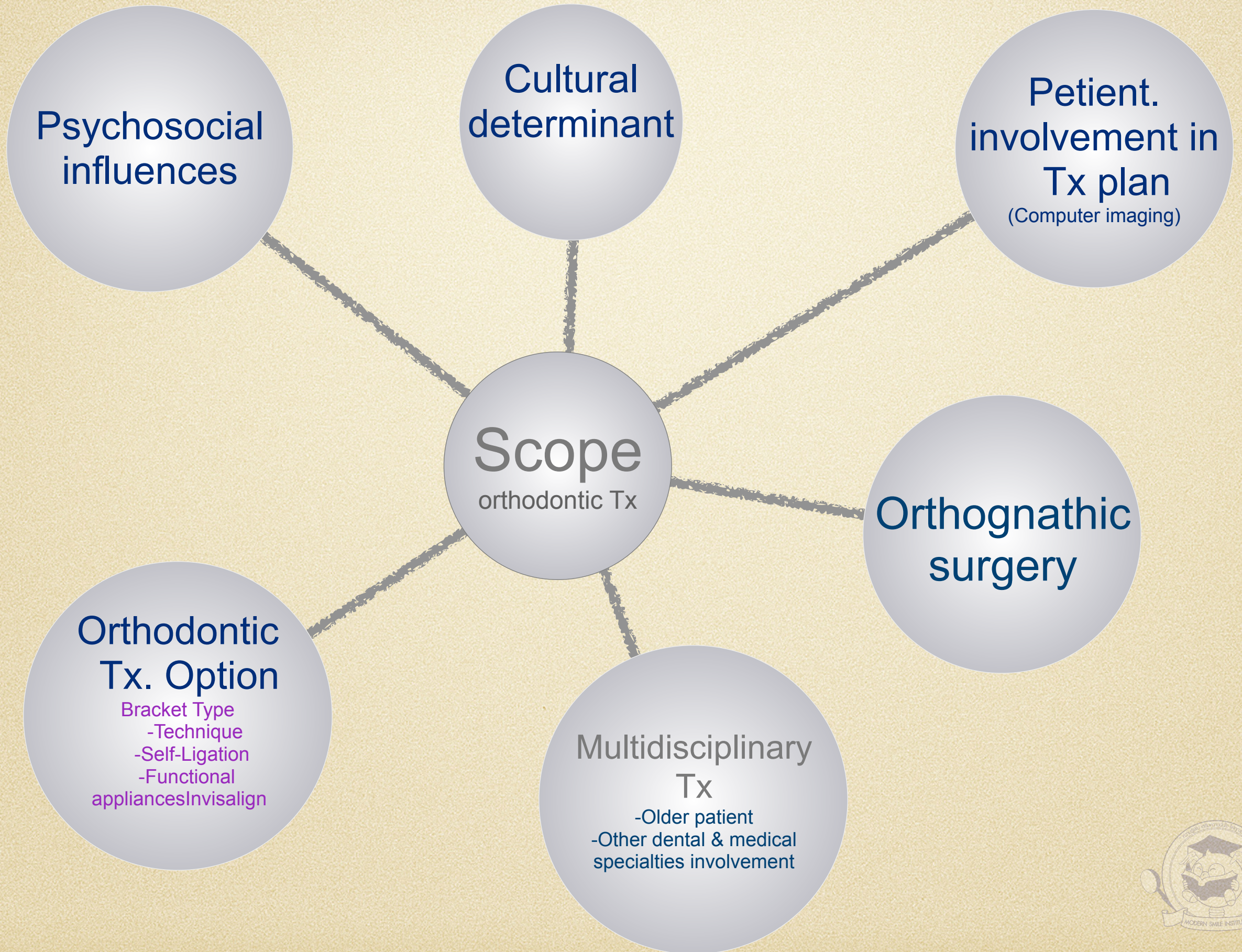
Psychologist









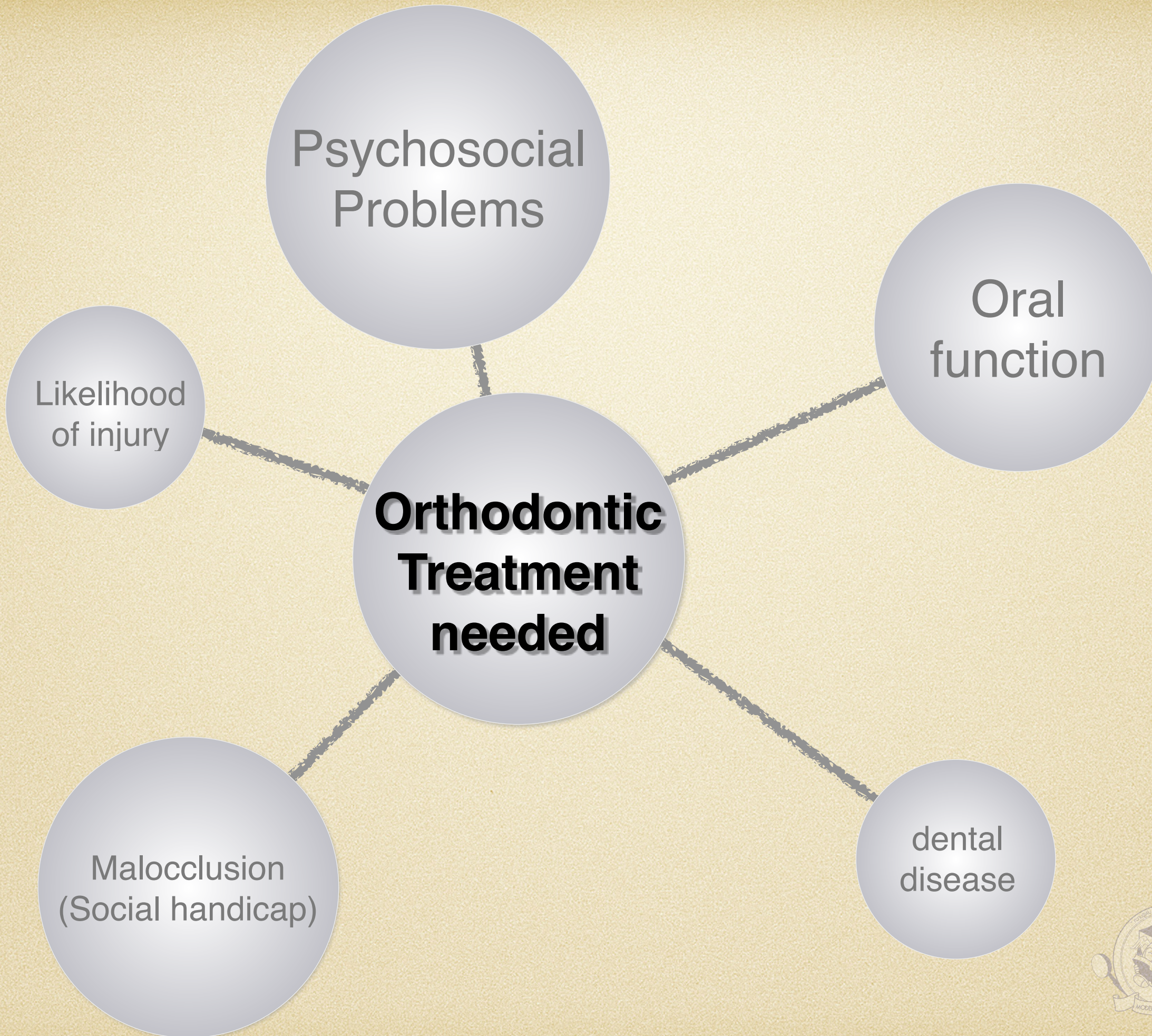




# Who needs orthodontic Tx







Psychosocial Problems

Oral function

**Orthodontic Treatment needed**

dental disease

Malocclusion (Social handicap)

Likelihood of injury





# Psychosocial Problems

## หล่อ vs ขี้เหล่

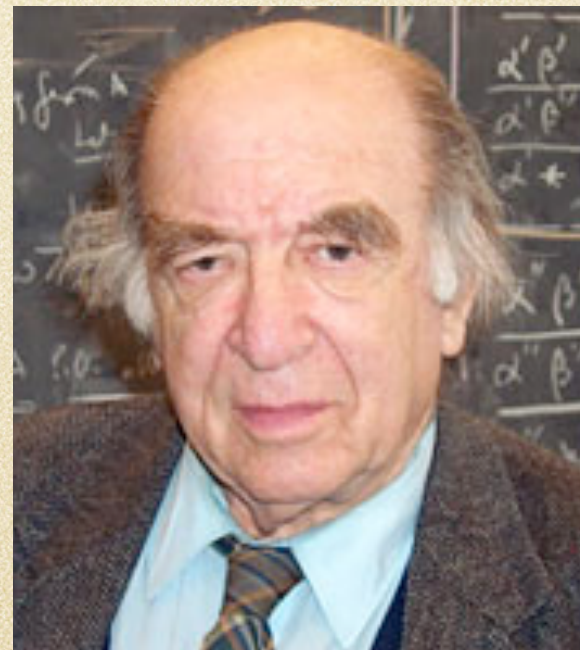
### ละคร ภาพยนตร์ และ วัฒนธรรม

พระเอก- ลูกครึ่งตะวันตก- เกาหลี ◌  
ผู้ร้าย- คางแหลม ฟันหลอ  
แม่มด-คางแหลม  
ตัวตลก – จมูกแบน ฟันหลอ ตาเหล่

ฟันเก มีเขี้ยว  
ฟันกระต่าย  
ตา สองชั้น- ชั้นเดียว  
จมูก โด่ง Hump nose  
ผิวขาว-แทน  
ริมฝีปาก บาง หนา









# Malocclusion- Social handicap?

Block out canine

Rabbit teeth

Diastema

Peg shape

Crowding

Spacing

Protruding

Retruding

Bottom teeth cover top teeth





# Oral function

- Chewing
- Speed
- TMD (Ant x-bite with sliding)
- Bruxism
- Impacted tooth
- Space closure of extraction site substitute to prosthesis





# Likelihood of injury and dental disease

- Protruding teeth( Excessive OJ)  
(prone to trauma)
- Excessive OB- Impinge to palate,  
extreme wear of incisors
- Periodontal disease
- Tooth decay
- Block out Canine





# Paradigms shift in Orthodontic

Soft Tissue

Angle  
Classification

A NEW WAY OF LOOKING AT  
TREATMENT GOALS





# Paradigms shift in Orthodontic



Parameter	Angle paradigm	Soft tissue paradigm
Primary treatment goal	Ideal dental occlusion	Normal soft tissue proportions and adaptations
Secondary goal	Ideal jaw relationships	Functional occlusion
Hard/soft tissue relationships	Ideal <b>hard tissue</b> proportions produce <b>ideal soft tissues</b>	Ideal <b>soft tissue</b> proportion define ideal <b>hard tissue</b>
Diagnosis emphasis	Dental casts cephalometric radiographs	Clinical examination of intra-oral and facial soft tissue
Treatment approach	Obtain ideal dental and skeletal relationships, assume the soft tissue will be OK	Plan ideal soft tissue relationship and then place teeth and jaws as needed to achieve this
Function emphasis	TM joint in relation to dental occlusion	Soft tissue movement in relation to display of teeth
Stability of result	Related primarily to dental occlusion	Related primarily to soft tissue pressure/equilibrium effects



# Muscle Win

## PHILOSOPHY



T.M. Graber

*It is a fundamental to all phase of mechano-therapy, making sure that the orthodontic results achieved in balance with the neuromuscular forces exerted by contagious **soft tissues**, functional forces and **respiratory activity**.*







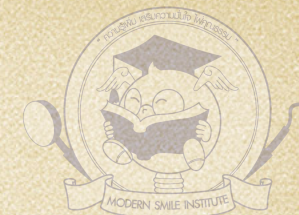
Dr. Etsuko Kondo

*Restore function at the early stage, the teeth can be properly positioned to favourably affect subsequent growth and development and allow the formation of a functionally and aesthetically balanced maxillofacial skeleton.*

*After orthodontic treatment, the teeth will find their own places for stability by accommodating to changes due to growth and jaws movement until functional occlusion is established with proper anterior guidance, posterior guidance and condylar guidance.*







*The failure to respect basic physiologic functions such as swallowing, respiration, perioral muscle function would give rise to not only the problem of relapse but also adverse effects on pos-treatment growth and jaws function.*

*Treatment modality: probing the cause of functional abnormalities and treat the problems by focusing on functional recovery while using of mechanotherapy.*

Etsuko Kondo



# The Tip of the Iceberg



Seen Orthodontic Problem

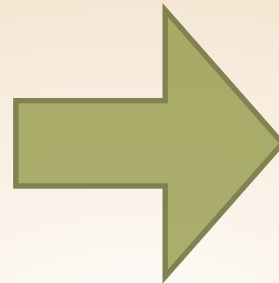
Unseen OMD

เป็นแค่จุดเล็กๆ ส่วนเล็กๆ ของสิ่งที่ใหญ่มาก ประมาณว่านัยปัญหา ร่องรอยเล็กๆของประเด็นหรือปัญหาที่เราดูเราเห็นเพียงแค่ผิวเผิน จริงๆแล้ว ยังมีปัญหาที่ใหญ่กว่าแฝงอยู่

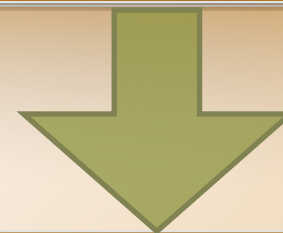


# ALL PHASE OF MECHANOTHERAPY

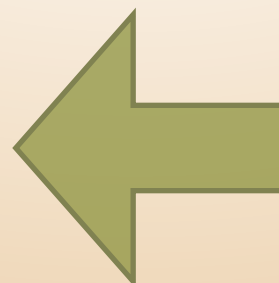
Probing the cause of functional abnormalities  
(physiologic functions such as swallowing, respiration, perioral muscle)



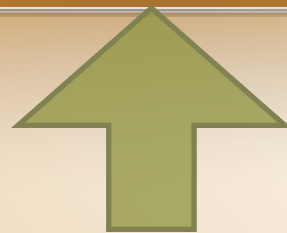
Neuromuscular balance  
(forces exerted by contiguous soft tissues, functional forces and respiratory activity)



Functional recovery



Correct alignment of the teeth and jaws



**Long term stability**





# New Trend of Orthodontic Treatment Goal

The skeletal and dental relationship

changed

The oral and facial soft tissue

limitation on orthodontic treatment  
successful treatment





Any Question ?



# WIRE BENDING & MECHANICAL PRINCIPLE

