Historical survey of orthodontics

Classification of orthodontic appliances
The earliest mention of anomalies of the jaw is found in *Hippocrates*
The first orthodontic advice is to be read in the Roman *Celsus*, around the time of Christ.

1. extraction of persistent deciduous teeth
2. permanent teeth which erupt in the wrong direction ought to be corrected by finger pressure
Development of appliances 1.  
Old school of orthodontics  
(1728-1890)

- 18th c. Fauchard
- big forces
- with extractions
- narrow age limit
- individual, bulky, removable appliances
First orthodontic appliance

(flatt strip of metal, pierced with holes)

Pierre Fauchard

1728
There were hundreds of different ways to treat patients.

Treatment was awkward, fragmentary, time-consuming, empirical and, in a word, chaotic.
Bite block for crossbite

Fox
London, 1803

Serial extraction of primary teeth for prevention
Gold spring as an inclined plane

Kneisel
Berlin, 1836
Jack-screw

Dwinelle
New York, 1849
Intermaxillary anchorage

Baker

(Tuker: rubber elastic
Boston, 1846)
The Coffin spring
(expansion appliance)

Coffin
London, 1861

He vulcanized a spring-action piano wire, bent into the shape of a “W” into a hard rubber plate.
First orthodontic paper in which he investigated the physiological and pathological tissue alterations which take place in regulating the teeth.

Farrar
New York, 1875
The practice of orthodontics was altered forever in 1870 with an invention that most orthodontists have not seriously associated with treatment.

It was the invention of dental cement by Magill of Erie, Pennsylvania.
Bite plane for „jumping the bite”

Kingsley
New York, 1880
“Crib”
round spring-action platinum-iridium wire was fastened with wire clasps

Jackson
New York, 1887
Development of appliances 2. Angle’s school /19th century/

- functional considerations
- line of occlusion
- line of harmony
- expand the tooth arches without extractions
- Angle’s expansion arch
Angle’s jack-screw
Angle’s jack-screw
Angle’s appliance (clamp bands, retraction screws, cemented bands, soldered attachment: screw, tubes)
Angle’s expansion arch
Development of appliances 3.
New Angle’s school /20th century/ 1910-1928

- functional-biological considerations
- treatment: *with* extractions
- pin and tube appliance
- ribbon arch appliance
Angle’s pin and tube appliance, 1913
(first appl. for bodily movement)
Angle’s ribbon arch appliance, 1915
Removable labio-lingual wire appliance

Crozat
New Orleans, 1920
Angle’s edgewise appliance, 1928
Development of appliances 4. Modern orthodontics /before World War II./

- bone-biological considerations
- removable appliances: functional activator /Andresen Häupl, Fränkel/
- fixed appliances:
  edgewise archmechanism; Angle, Tweed, Begg, Jarabak, Andrews
- Cephalometric radiography: Simon, Hofrath (Europe)
  Broadbent (USA)
- After Angle’s death: Tweed, Margolis, Bolton
Modern orthodontics 1928-

Removable appliances

Fixed appliances
Classification of appliances I.

- **Removable**
  - activ plates
  - passiv plates
  - functional appliances

- **Fixed**
  - Simon arch
  - quad helix
  - Hyrax
  - multiband-multibond
Classification of appliances I.

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Multiband-multibond technics

- Edgewise-system /Angle/
- Light-wire /Begg, Jarabak/
- Bioprogress technics - „utility wire” /Riketts/
- Twin wire /Johnson/
- Straight-wire technics /Andrews, Roth, Alexander/
- Twist-flex
Elements of multiband-multibond appl.
Edgewise-system /Angle/
Light-wire /Begg, Jarabak/
Bioprogress technic = „utility” /Riketts/
Twin wire /Johnson/
Twist-flex /for complement/
Classification of appliances on the basis of anchorage and direction of forces II.

- **Intraoral appliances**
  - intramaxillary, intramandibular plates and arches
  - intermaxillary appliances /bimaxillary or functional appliances); fixed appliances with intermaxillary rubber anchorage/

- **Extraoral appliances**
  - Occipitomental appl.: chin-cap

- **Intra-extraoral appliances**
  - headgear
  - face-mask (Delaire)
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Classification of appliances III. Removable appliances

- Attached removable appliances
  - Active appliances
  - Passive appliances
- Loose removable appliances
Attached removable appliances

1. Active appliances

- Extra-oral traction devices:
  - head-gear, face mask, chin cup
- Lip bumpers /’plumpers’/
- Active plates /Schwarz appl., space-regaining appl., anterior spring aligners/
Attached removable appliances

2. Passive appliances

- Bite planes
- Occlusal splints
- Multiple space maintainers
- Retainers
Loose removable appliances

- Vestibular appliances
- Functional jaw orthopedic appl. /Fränkel, Bimler/
- Repositioning splints
- Tooth positioners
- Herbst appliance
Fixed appliances

- Lingual archwire
- Fixed space maintainers
- Palate-separating devices
- Edgewise mechanisms
- Light-wire appliances
- Other fixed appliances (Twin-wire appl., Universal appl.)
Fixed appliances

1. Direct action appliances

The movement is effected by means of mechanical forces
e.g. labial and lingual arches
2. Indirect action appliances

The appliances serve to transmit the forces to the teeth

e.g. inclined plane
3. Appliances for maintaining the position of teeth

e.g. retention arch
Thank you for your attention!