Dental development & orthodontic treatment in DMD

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Objective

• how to evaluate a malocclusion in boys with DMD
• prevention of overtreatment of these children
Incidence of malocclusion

• 75% of the youths in the USA have some form of occlusal disharmony
• facial appearance is the main reason for parents to seek treatment
• orthodontists/dentists will emphasize on the functional problem
Treatment

Why?
• aesthetics - “good looks”
• function - “good bite”

How?
• fixed /removable appliances
• 2 years active treatment, followed by a retention period
How can functional problems cause malocclusion?

Form follows function

- thumb sucking
- mouth breathing
- swallowing habits
skeleton

dentition

function
Form of dental arches is influenced by the function of

- the lips/ perioral muscles
- the cheeks/masticatory muscles
- the tongue/size and function
If a malfunction/habit cannot be changed the treatment result is unstable
Scientific studies
L. Eckhardt en W. Harzer

facial structure and functional findings
in patients with Duchenne

American J Orthod Dentofacial Orthop 1996 (Aug;11092);185-90
Study of dental and cranial development of 15 dmd patients compared with controls
Significant differences

- transversal over-development of the dental arches
- sagittal shortening of the dental arches
- sagittal under-development of the cranial, maxillary and mandibular base
- reduction of overbite and overjet
- retrusion of incisors
- concave profile
- increase in bizygomatic width
The previous deviations are caused by

- activity of masticatory muscles which starts to decrease 2 yrs earlier than the perioral muscles

- enlarged hypotonic tongue
Furthermore

- expansion strongly pronounced in lower jaw through low tongue position
- posterior crossbites and open bites
S. Kiliaridis and C. Katsaros

Acta odontol Scand
1998 Dec; 56(6): 369-74
Posterior crossbites and open bites

• Caused by...

• decreased tonus of the masseter muscle near the molars
• enlarged hypotonic tongue
• predominance of less affected orbicularis oris muscle
Conclusion

Crossbites and open bites in the molar region are part of the condition. As the condition cannot be changed, there is no use to treat these malocclusions.
However

Other orthodontic disorders can be treated as in any other orthodontic patient, depending on the individual wishes............
For example

- eruption problems
- crowding
- space closure
- rotations
Recommendations

- treatment should be performed with fixed appliances
- teeth should be held in their corrected positions with bonded retainers
What can parents do?

- no pacifier
- food (chewing)
- be aware of the tongue position
- simple exercises and reminders
- try to avoid mouth breathing
Dental hygiene in DMD

- mouth breathing
- larger tongue
- food?
- arm function
Dental characteristics of patients with Duchenne Muscular Dystrophy

Symons A.L., Townsend G.C., Hughes T.E.

Journal of dentistry for Children 2002
Results

• poor maintenance of plaque control
• *gingival inflammation, heavy plaque accumulation and calculus deposits around the lower anterior teeth*
• oral hygiene standards deteriorate as the disease progresses
Prevention

- increase frequency of dental prophylaxis
- topical fluoride application
- fissure sealant
- oral hygiene instruction to patients and/or carers
What can parents do?

- supply good tools
- assist if needed
- food & drinks
- try to avoid mouth breathing
Practical tools

- tooth brush
- tongue cleaner
- flosser
Questions?

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