

Ratio of non-extraction and extraction treatments for patients with class II malocclusion

Assoc. Prof. Dr. Greta Yordanova, PhD

Dr. Palmira Alagiozova, PhD

Faculty of Dental Medicine - Sofia

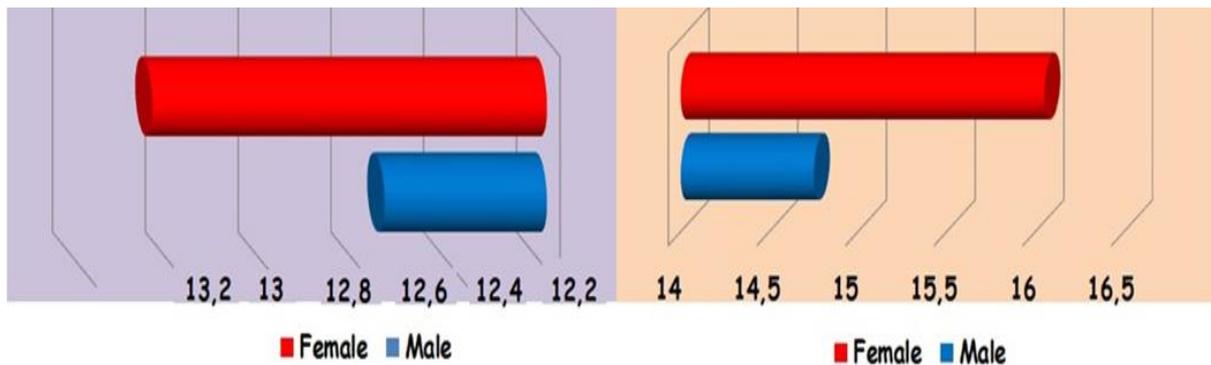
Orthodontic treatment with extraction is technically more complex due to a number of factors. Therefore, good finishing results can be more difficult to achieve. With the method of distalization of upper molars, we increase the dimensions of the tooth arch in the distal area, gaining space in the middle and frontal segment for the alignment of the teeth. This approach is appropriate alternative in borderline cases between treatment with extractions and non-extraction treatment of patients with class II malocclusion

Aim: To determine the ratio between the treated by us cases of class II malocclusion with extraction of two upper premolars and these with distalization of the first molars by the Pendulum appliance. To determine the average age at which these treatments start and the distribution by gender.

Material and methods: Our survey is based on 1460 patients treated by us for a period of 8 years, aged between 7 and 21 years. From these patients 230 were diagnosed with class II malocclusion related with a problem in the upper jaw. In Class II malocclusions where the problem is associated with the maxilla, the treatment plan may include distalization of the upper molars and gaining space in the middle and frontal segment or gaining space with extraction of premolars. Forty five of 230 patients (19.60%) were treated with extraction of the two upper first premolars and 185 of 230 (81.40%) with distalization of the upper molars. In this group of patients we treated the following problems: crowding in the upper front, protrusion, impacted canines and premolars.

Age of patients treated with Pendulum

Age of patients treated with extractions



Result: Every fifth patient was treated by an extraction. The average age of patients treated with Pendulum is 12.85 years (males - 12.55 and females - 13.05 years), while the average age of patients treated with extraction is 15.6– (males - 14.75 and females - 16.05 years).

Whether the treatment plan includes or doesn't include extractions there is a higher level of female patients rather than male patients. The female patients treated are 62% compared to the males - 38%. This is maybe caused by the reason that females seek orthodontic treatment more often, because of aesthetic problems.

Patient treated with extractions



Before treatment



After treatment

In 18 cases the treatment with the Pendulum appliance was related with the extraction of the upper third molars and in 13 patients the treatment was complicated by the impaction of the upper canine

When planning extractions, one should assess whether two or four premolars should be extracted. Treatment mechanics can also benefit from upper first premolars extraction. The longer the time elapsed after extraction, the worse the sequelae and orthodontists are advised to have caution.



Patient treated with Pendulum



Before treatment



After treatment

The major issue involved in the extraction vs. nonextraction decision is its effect on the softtissue profile. Nonextractionists claim that extractions “dish in” the face, while extractionists contend that without extractions in certain cases, the profile will be too full and periodontal health will be compromised. Therefore, clinicians who properly plan cases—including anchorage

requirements—should see no unfavorable profile effects due to over-retraction of the anterior segment. As we carry out treatments apply orthodontic appliances and techniques that do not change the profile of the patient.

A confounding factor could be that the profile tends to straighten with time irrespective of treatment modality, simply because the mandible grows more than the maxilla.



Before treatment



After treatment

Patient treated with
extractions



Before treatment



After treatment

Patient treated with
Pendulum

Some orthodontists believe buccal corridors should be considered in making the extraction decision—more specifically, that extraction of maxillary premolars narrows the dental arch, resulting in wider buccal corridors and thus an unattractive result.

Conclusion: With the technics of the contemporary orthodontics, non-extraction treatment is more preferred rather than extraction treatment. We prefer non-extraction treatment, because it doesn't change the transversal dimensions of the smile.

References:

1. Burrow, S.J., To extract or not to extract: A diagnostic decision, not a marketing decision, *Am. J. Orthod.* 2008; 133: 341-342
2. Rinchuse D., L. Busch, D. Dibango, M. Cozzani, Extraction Treatment: Part 1 The Extraction vs. Nonextraction Debate, *JCO*, 2014; 48(12):753-760
3. Grummous, D. Transverse dimension –Nonextraction emphasis. - In: Extraction versus novextraction. Editor: Bolender, C., G. Bounoure, Y. Barat. SID Publisher, 1995, p149-172
4. Papadopoulos MA., Orthodontic treatment for the Class II non-compliant patient: current principles and techniques. Mosby; 2006.
5. Hilgers, J.: The Pendulum appliance for Class II non-compliance therapy, *JCO*, 1992; 26: 706-714.
6. Yordanova G., Assessment of dentoalveolar changes on upper permanent molar distalization using the m-pendulum, *Eur. J. Orthod.*, 2012; 34, 5, e.296
7. Йорданова Гр., Предимства на методите на лечение с интраоралния фиксиран апарат М-Pendulum, *Проблеми на денталната медицина*, 2013, 39 (1); 24-29