

## Report from the European Orthodontic Teachers Forum 2024 held in Athens Greece 10<sup>th</sup> of June 2024

The topic of the EOTF meeting this year was **“Combining digital technologies with novel learning concepts in orthodontic postgraduate training”**. It was held by Dr Katarina Mücke, Düsseldorf and Professor Kathrin Becker, Berlin, they were both awarded the Bollender award 2024.

Professor Andreu Puigdollers, Chairman of NEBEOP welcomed the audience and introduced the lecturers. The workshop started with a theoretical presentation on where we are today in European orthodontic education regarding use of artificial intelligence (AI), online learning and technical development. It was followed by a section on differences between synchronous online learning with scheduled events and virtual classrooms (webinars) versus asynchronous online learning. The later is on demand learning with flexibility in place and time as well a possibility for an individual learning pace. The lecturers stated that the students needed to be activated and engaged. The lecturer should avoid too many animations and too minimalistic information. Learners loose attention after approximately 15 minutes. One way to get the students involved is to use audience response systems such as BYOD-ARS, Kahoot, Mentimeter, Wooclap, Slido, Poll Everywhere, Quizlet or others. The audience had different experiences in audience response systems. Some educators used them frequently and some had never used them themselves. According to the lecturers they can give a short break for active processing, it can be knowledge gain of group, a positive learning environment, it gives immediate feedback to the lecturer, it is reusable and scalable. The disadvantage is that it takes time both to get the audience to download the device and thereafter to get all to understand and press the correct button at the correct time.

The next part of the workshop was a presentation on blended learning in dental education. It was said to be an effective teaching method. When teaching face to face it is easy to focus in a clinical discussion with social interaction as well as engagement. As a complement one can have online learning, synchronous and/or asynchronous. All put together gives a student-centered learning environment. The lecturers presented a course based on blended learning in oral radiology. It had been developed from 2015 – 2020. This was very useful during the

pandemic when everything had to be taught online. They had compared the results pre-pandemic to during the pandemic and no differences in the results from the final exams could be found. This promising outcome resulted in a blended learning course in orthodontics. They had prepared video-based e-learning modules in orthodontic wires, dentition phases, increased overjet, negative overjet, open bite/deep bite and transversal deficit. They could see that the students performed statistically better in the questions made from the video-based e-learning modules than from the questions given from other pedagogic forms.

The two lecturers are part in the work of building a NEBEOP web academy and a learning platform for postgraduate students in orthodontics in NEBEOP. It will be based on the ERASMUS guidelines. Together with Professor Maria Cadenas de Llano Perula from the University of Leuven they presented a module that had been created on white spot lesions with help from Professor Nicoline Van der Kaaij from ACTA Amsterdam in the Netherlands. They made a poll on how many of the teachers in the room were willing to contribute with their expertise to fill the platform with interesting, updated subjects. A great majority was very interested to participate in the future.

The auditorium was divided in groups for workshops. On the tables a topic from the orthodontic curriculum was found with related questions.

### **Oral and maxillofacial radiology**

1. At which time point during orthodontic treatment are panoramic radiographs required (E.g. for diagnostics, 6 months after treatment start, thereafter every year, before debonding?)
2. Which imaging techniques must postgraduate students be familiar with?
3. Which pathological findings do postgraduate students need to know, and to what level of detail (recognition, description, knowledge of the disease and implication)?
4. Is it possible to omit panoramic x-rays prior to starting a specific treatment, e.g. early interceptive treatment or early class III treatment?
5. Is it possible to omit lateral cephalograms for specific treatments and if yes. Which and when?

## **Orthodontic materials**

1. What must orthodontic postgraduate students know regarding biocompatibility of different materials and allergies?
2. Is there a specific knowledge requirement for aligners?
3. Are there specific European legal considerations that should be known (e.g MDR)?
4. What should postgraduate students know about friction?

## **Orofacial clefts**

1. What should postgraduate students know about the ideal timing of the secondary osteoplastic?
2. How should palatal expansion in cleft patients be performed and retained?
3. How stable is palatal expansion in cleft patients?
4. Is maxillary protraction recommended in cleft patients and if yes, how should it be performed?

## **Model measurements**

1. Which measurements techniques for anterior and posterior regions should be known by postgraduate students to assess space requirements and space excess?
2. Which numerical values should postgraduate students learn regarding space requirements for the following tooth movements?
3. Which techniques should be known to assess tooth and arch length discrepancies?

## **Cephalometrics**

1. Which anatomical reference points must be known by postgraduate students?
2. Which angles/appraisals should postgraduate students be able to apply?
3. Should different references be taught for Western/Caucasian, Asian and African patients? Should different values be utilized with respect to age? What other factors should postgraduate students consider (gender, craniofacial anomaly)?

### **Iatrogenic effects of orthodontic treatment**

1. What should postgraduate students know about limiting the risk for:
  - a. Recession development
  - b. White spot lesion development
  - c. Root resorption

### **Orthodontic – periodontal treatment**

1. Should we follow the EFP guideline on stage IV periodontitis?
2. Should aligners be used in the treatment of PA/Perio-patients? If yes, what should postgraduate students take into account?
3. Which biomechanical considerations should be incorporated into the treatment of orthodontic patients with periodontal bone-loss?

### **Skeletal anchorage**

1. For which indications is skeletal anchorage superior in terms of treatment efficacy and/or reduction of side effects?
2. 2. What should postgraduate students need to know about skeletal anchorage?

### **Retention**

1. What retention protocol should postgraduate students know?
2. Which material should be used in the case of fixed retainers?
3. How long should retention last?
4. Should postgraduate students know something else about retention?

### **Craniomandibular disorders**

1. Which CMD screening methods must postgraduate students be able to apply?
2. Which set of appliances should postgraduate students know for pre-orthodontic treatment of CMD?

3. Please list possible malocclusions that postgraduate students should know and for which a relationship with CMD has been postulated.

One representative from each topic presented the answers from the groups, thereafter a vote was performed for each subject in wooclap.com. The votes are presented below.

**Oral and maxillofacial radiology – At which time point during orthodontic treatment are panoramic radiographs required (53/63 voted)**

Agree 55% n=29

Disagree 40% n=21

Abstained from voting 6% n=3

**Orthodontic materials - What must orthodontic postgraduate students know regarding biocompatibility of different materials and allergies? (51/58 voted)**

Agree 98% n=50

Disagree 2% n=1

Abstained from voting 0

**Orofacial clefts - What should postgraduate students know about the ideal timing of the secondary osteoplastic? (51/55 voted)**

Agree 76% n=39

Disagree 18% n=9

Abstained from voting 6% n=3

**Model measurements - Which measurements techniques for anterior and posterior regions should be known by postgraduate students to assess space requirements and space excess? (54/62 voted)**

Agree 44% n=24

Disagree 39% n=21

Abstained from voting 17% n=9

**Cephalometrics - Which anatomical reference points must be known by postgraduate students? (47/52 voted)**

Agree 70% n=33

Disagree 30% n=14

Abstained from voting 0

**Iatrogenic effects of orthodontic treatment (50/57 voted)**

Agree 94% n=47

Disagree 6% n=3

Abstained from voting 0

**Orthodontic – periodontal treatment (48/52 voted)**

Agree 67% n=32

Disagree 29% n=14

Abstained from voting 4% n=2

**Skeletal anchorage (48/52 voted)**

Agree 88% n=42

Disagree 13% n=6

Abstained from voting 0

**Retention (45/51 voted)**

Agree 69% n=31

Disagree 20% n=9

Abstained from voting 11% n=5

**Craniomandibular disorders** (51/57 voted)

Agree 92% n=47

Disagree 4% n=2

Abstained from voting 4% n=2

When there was disagreement, a discussion was held and, in some subjects, eg model measurements, it was obvious that the questions had to be rewritten to reach consensus. A conclusion was drawn that the statements have to be based on evidence based scientific results not on personal opinions.

The workshop had come to its end and the delegates were very pleased. The president of EFOSA Melissa Disse delivered the Bollender award 2024 to the two lecturers Dr. Katarina Mücke and Professor Kathrin Becker. Professor Agneta Karsten secretary of the NEBEOP Board, thanked the audience and the lecturers for an interesting, useful and fruitful workshop. We are all looking forward to the construction of the NEBEOP platform for postgraduate European education.