

side or the deflection side and condylar alteration could be determined. Sixty-nine patients showed chin deviation. In 18 per cent the severity of condylar alteration correlated with chin deviation to the left side and in 9 per cent to the right side. ADD was diagnosed in 59 TMJs but only six patients had clicking sounds during clinical examination.

**CONCLUSION:** The outcomes confirm previous results: the female gender and left condyles are more affected by TMJ arthritis. Clinical examinations without MRI are not conclusive in diagnosis of condylar alteration and ADD. Further investigations are required to resolve the risk of ADD in patients with JIA and in those with unimpaired TMJ, and the consequences for treatment procedures.

## SP 054

### COMPARATIVE STUDY OF IMAGE QUALITY AND DOSIMETRY OF CONE BEAM AND LOW-DOSE MULTISLICE COMPUTED TOMOGRAPHY

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**AIM:** To evaluate image quality of different cone-beam computed tomography (CBCT) and low-dose multislice spiral CT (MSCT) scanners in dental imaging. The amount of exposure was measured for all scanner systems.

**MATERIALS AND METHOD:** A human cadaver head was examined with three different MSCT and five CBCT scanners. The radiation dose was measured using a Rando-Alderson-Phantom. To obtain the CBCT data, standard protocols were used. For MSCT, tube voltage and tube current were modified to accomplish acceptable image quality while keeping the radiation dose as low as possible. The image quality of dental MSCT and CBCT was determined by examining a total of 22 teeth. The following structures were assessed using interactive multiplanar reformations: enamel-dentine and pulp interface, periodontal ligament space in the cervical, middle and apical root thirds.

**RESULTS:** Inter-observer agreement was different between the different groups of raters, group 1/group 2:  $\kappa = 0.684$  [0.530, 0.787]; group 1/group 3  $\kappa = 0.629$  [0.418, 0.757]. CBCT systems were rated superior to MSCT in terms of image quality for all dental structures. The differences in image quality were statistically significant for the CBCT and MSCT, but not within the CBCT and MSCT groups. Effective dose ranged from 0.05 to 0.12 mSv (MSCT) and 0.02 to 0.13 mSv (CBCT).

**CONCLUSION:** The examined devices showed significant differences regarding the effective dose. Especially in the CBCT, the variance was particularly distinct. With the same and/or a smaller effective dose the image quality for the MSCT was judged significantly poorer, however the differences did not seem clinically significant.

## SP 055

### A CLINICAL STUDY OF CONDYLAR POSITION OF THREE BIOTYPELOGICAL FACIAL GROUPS

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**AIM:** Orthodontic diagnosis and treatment related to the orthopaedic position of centric relation (CR) requires a comprehensive study of the condylar position (Roth, 1981; Cordray, 2006). According to the craniofacial architecture, a hyperdivergent facial type seems to be more prone to condyle displacement than other facial groups. Therefore, the hypothesis tested was that in hyperdivergent subjects the centric slide (CS) is more frequent and wider. This work intended to investigate and compare CS in a hyperdivergent, a hypodivergent and an intermediate group.

**MATERIALS AND METHOD:** The displacement from CR to centric occlusion, namely CS, was assessed in the vertical ( $\Delta Z$ ) and sagittal ( $\Delta X$ ) planes with a mandibular position indicator (MPI®) on mounted models in a semi-adjustable articulator (SAM® 2P). The cases were selected from a sample of 742 orthodontic patients submitted to sequential criteria that allowed identification of an asymptomatic orthodontic population that had surpassed the growth peak. They were divided into three groups of 36, according to cephalometric criteria (Girardot, 2001). The groups were studied and then compared statistically using a Student's *t*-test with a level of significance of 0.05.

**RESULTS:** CS was more common and generally wider in the hyperdivergent group, being likely to occur in a lower posterior aspect in the hyperdivergent and intermediate groups and lower anteriorly in the hypodivergent group. In all groups it was possible to verify that vertical displacement was wider than sagittal, with the vertical displacement being significantly higher in the hyperdivergent subjects ( $P = 0.003$ ).

**CONCLUSION:** Although condylar displacement is more frequent in hyperdivergent subjects, the findings reinforce the need for mounting the models on an articulator in CR and performing evaluation of condylar position as a protocol in any orthodontic case. These procedures supply relevant and mandatory information on the orthodontic decision.

## SP 056

### THE ELASTIC OPEN ACTIVATOR IN THE THREE-DIMENSIONAL MANAGEMENT OF LOWER JAW POSITION

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