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.

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**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
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.

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**SP 055**

**A CLINICAL STUDY OF CONDYLAR POSITION
OF THREE BIOTYPOLICAL 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-

**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.

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**SP 056**

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

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