

Orthodontic products and appliances during magnetic resonance imaging and computer tomography

We are often asked by patients if orthodontic products and appliances interfere with magnetic resonance imaging and computer tomographies.

The following is a statement on this subject by Dr Christoph Schippers:

Magnetic resonance imaging (MRI) is a medical examination technique that operates using magnetic fields and radio waves, unlike computer tomography (CT) which uses X-rays.

While products used for orthodontic treatment, e.g. brackets, tubes and bands, do not affect the CT examination, patient or CT images, the effect of orthodontic appliances on the MRI should be carefully monitored.

During MRI the magnetic field can have a considerable effect on magnetizable materials used in or on the body of a patient. This can include orthodontic appliances or components.

The orthodontic metal products manufactured by Dentaaurum are made of non-magnetizable or minimally magnetizable metals such as austenitic stainless steel, chromium cobalt alloys, titanium or titanium alloys. There is, however, a difference between removable and fixed appliances (multibracket appliances). All removable appliances or easy-to-remove components, e.g. Herbst hinge, SUS² spring or orthodontic archwire, should be removed from the patient's mouth (e.g. unscrewed) before an MRI. All fixed components, e.g. brackets, bands or tubes, can remain in the patient's mouth. As our self-ligating discovery[®] sl brackets consist of the material 1.4542, which is a minimally magnetizable metal, we recommend removing the brackets prior to an MRI. Our Ultratrimm and Minitrim brackets can slightly interfere with the MRI during head examinations. This is due to the amount of martensite contained in the structure of the austenitic steel (Material no. 1.4305) used for the brackets. No significant interference of the MRI examination or discomfort for the patient is to be expected from any other products.

Dentaaurum's Medical Products Safety Officer

See also:

"Fortschritte der Kieferorthopädie" – 4.05
pages 279 ff Arndt Klocke
and also www.dentaaurum.de