

## The Basic and Clinical Research of Magnetic Retentive Technique in China



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The basic and clinical researches of magnetic retentive technique have been doing deeply in China since 1987.

Magbiological experiments showed: the weak magnetic field of closed magnetic attachment didn't bring influence to human fibroblasts in number and morphology; the DNA content of the cells was increased in a time-dependant manner when cultured under 0.025 T. The distribution of stress of the overdenture retained by magnetic attachments (MA) and other types mechanical attachments was analyzed with photoelastic analysis and finite elements method. The results showed that, under the same occlusal force, the stress around the roots with MA was smaller than that with mechanical attachments. The real retentive force of complete overdenture was measured in patients' oral cavity for the evaluation of the real retentive effect of MA. 14.7 N average real retentive force was increased for a set of complete overdenture (upper or low) with two Z-1 type MAs. The real retentive force of a Z-1 type MA in patient's oral cavity was 79% of that in extraoral measurement. The influence of wet angle and direction of MA to retentive force of prosthesis was studied with unloading method. The result showed that the position and wet angle and direction of MA bring big influence to retentive force of prosthesis. The masticatory efficiency of the patients who wearing complete overdenture was measured at pre- and post- installation of MA. The result showed: the masticatory efficiency was 1/3 higher after installation than before, and the fitting time of the patients denture was shortened obviously by using the overdenture with MA.

Z-1 type MA have been successfully applied in complete overdentures, removable partial overdenture, sectional dentures, implant overdentures, and maxillofacial prostheses in China and the oral and maxillofacial defects of more 10,000 patients have been restored by the prosthesis retained with MA since 1988.