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## Enhancement of orthodontic anchorage and retention by the local injection of strontium: An experimental study in rats

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**Objectives:** To examine the clinical and histological effects of locally injected strontium on the anchoring unit of a rat model of an experimental relapsed tooth movement.

**Materials & Methods:** Thirty-six 10-week-old male Wister rats were randomly divided into two groups of 18 animals that were then randomly divided into three sub groups of six animals corresponding to three observation periods: T1=1 week, T2=2 weeks, and T3=3 weeks. In the first experiment, both the right and left maxillary first molars were moved buccally with a standardized expansive spring. Strontium chloride solution was injected every 2 days into the subperiosteal area buccal to the left maxillary first molar (the experimental side). The right-sided first molar was injected with distilled water as a control. In the second experiment, maxillary first molars were moved buccally with the spring. After 3 weeks, the spring was removed. Two days before the spring removal, strontium chloride was injected into the palatal side of left-sided maxillary first molar and distilled water was injected into the palatal side of the right-sided maxillary first molar as in experiment.

**Results:** At the end of the experimental period, significant levels of inhibition were noted in terms of both tooth movement and relapse movement in strontium-injected sides. Histological examinations showed that strontium enhanced the number of osteoblasts and reduced the number of osteoclasts.

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