

Title: What Is the Most Effective Frictionless Method for Retracting Anterior Teeth When Using Buccal Fixed-Appliance Therapy? A Systematic Review

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Abstract: There are various techniques and designs for springs used in orthodontic treatment, including frictionless methods for closing spaces. However, there is limited explicit evidence to support the superiority of one method over another. This review aims to investigate the available evidence and highlight the advantages of these different methods. This review contained six papers, and information such as study design, spring design, applied force systems, variables studied, follow-up period, and records were extracted. All of the studies focused on canine retraction with the Ladanyi spring showing the highest rate of movement (1.8 mm per month) among all springs for upper canine retraction. The Gjessing and T-loop springs outperformed the Reverse Closing Loop and Ricketts spring, respectively, substantially. In terms of tip control, the T-loop spring showed a clear advantage over the modified Marcotte spring with a difference of 1.2° vs. 6.6° per 3 months. Additionally, it was observed that the Reverse Closing Loop caused a significant loss of anchorage during canine retraction with a medial movement of 2.4 mm. When comparing wire types, no significant differences were found between TMA and Nitinol, while stainless steel was found to be less effective in terms of movement rate and tip control. However, the results indicated that there was no clear evidence that one specific technique was definitively preferable to another; therefore, there is an urgent need for more studies with proper study designs to produce more robust conclusions.

Keywords: adult; anterior teeth retraction; frictionless techniques; retraction springs.

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