



0251

Success Rates of a CAD-CAM NiTi Orthodontic Fixed Retainer

C. Durgnat, L. Huanca Ghislazoni, G. S. Antonarakis
Orthodontics, University of Geneva, Geneva, Switzerland

Objectives This study aims to assess the success rate of a CAD-CAM nickel titanium wire (Memotain®) used as a fixed orthodontic retainer, over a one-year period.

Methods A retrospective study was conducted on 338 CAD-CAM nickel titanium (Memotain®) fixed retention wires in 205 patients, bonded by a single experienced operator between January 2017 and December 2020. Follow-up visits were scheduled at 6- and 12-months post-bonding. At each follow-up visit, events (defined as debonding, breakage, retainer loss, or tooth displacement) were classified by tooth, and success or failure of the retainer was determined based on the presence or absence of these events.

Results For the mandibular arch at 6 months, the success rate was 85%, with debonding (n=46) being the only event observed. At 12 months, the success rate was 77%, with debonding (n=30), wire breakage (n=5) and retainer loss (n=18) having occurred. For the maxillary arch, the overall success rate was 83% at 6 months and 78% at 12 months. Debonding was the most common event observed over the 12-month observation period (n=29), followed by retainer loss (n=20) and wire breakage (n=3). The overall success rates per type of tooth in the upper arch were 86% for the premolars, 96% for the canines, 95% for the lateral incisors and 93% for the central incisors. For the lower arch the success rates were 92% for the premolars, 97% for the canines, 96% for the lateral incisors and 94% for the central incisors.

Conclusions CAD-CAM nickel titanium wires (Memotain®) showed promising results with lower failure rates for the mandibular arch compared to success rates reported in the literature for conventional fixed retention, indicating their potential for enhancing retainer reliability.