

## Introduction

Cumulative trauma disorders (CTDs), also known as repetitive strain injuries (RSIs), consist of a variety of musculoskeletal and nerve disorders that are related to overuse of the upper limb.<sup>1</sup> One of the most common RSIs is carpal tunnel syndrome (CTS); however, the list also includes nerve entrapments of the ulnar and radial nerves; tendonitis of the shoulder, elbow, wrists, or hand; localized muscle pain and cramping; and some vascular disorders.<sup>1</sup> Dental hygiene practice is physically demanding and requires the dental hygienist to perform highly repetitive movements in a patient's mouth for an extended period of time. The repetitive use of handheld instruments for the removal of plaque biofilm and calculus causes extreme fatigue in the practitioner's hands, arms, and shoulders during the process of care. The prevalence of upper extremity tendonitis attests to the trauma exerted on hygienists' hands, arms, and shoulders.<sup>1</sup> Therefore, the use of mechanized instruments has been recommended to minimize risk of RSIs in practicing dental hygienists.<sup>2-5</sup> Dental manufacturing companies are continually developing new instruments to address the ergonomics of scaling and root planing procedures and to decrease repetitive strain injuries in working dental hygienists. In 2001, Hu-Friedy® began marketing a new ultrasonic insert, the Satin Swivel™, designed to rotate inside the handpiece of the ultrasonic unit, with the intention of improving ergonomics of practice as well as increasing operator ease and comfort during ultrasonic scaling. This new insert design may be more ergonomic and improve the dental hygienists' periodontal debridement efficiency with less risk of RSI; however, the value of the Satin Swivel™ in terms of wrist movement and scaling time efficiency has not been tested.