



THE PROFESSIONAL DENTAL COLLEGIUM

NEWSLETTER

August 2023

Today we will be comparing whether a periodontal endoscope is needed to achieve better results with scaling root planing (SRP) based on a literature review.

Perioscope is a brand name for a periodontal endoscope. It gives the clinician direct, real-time visualization and magnification of the subgingival margin root surface, deposits on the root, soft tissue, including the gingival attachment, and sulcus contents. However, the image on the screen can appear disorienting to the clinician with all the sulcular fluid, blood, and water from the instrument, debris, plaque, and granulation tissue. There is a learning curve from 8 hours to achieve basic skills to 2-4 weeks before mastery. Rapid location and accurate assessment of subgingival deposits is the ultimate goal.

Pros of Perioscope:

1. *Improved visualization:* Dental endoscopy allows for direct visualization of subgingival structures, enabling better identification of calculus deposits, plaque, and other pathologies. This enhanced visualization can lead to more accurate diagnosis and treatment planning. Traditional SRP is an inherently blind technique. Calculus is generally missed in these following areas: line angles, furcation flutes, and cement-enamel junction.
2. *Enhanced treatment efficacy:* The use of dental endoscopy during subgingival debridement has shown to be effective in reducing probing depth (PD) and improving clinical attachment level (CAL). It has also been associated with a significant decrease in bleeding on probing (BOP) and plaque indices. These outcomes indicate improved treatment results.
3. *Non-invasive reduction in residual calculus:* Studies have demonstrated that dental endoscopy aids in the removal of calculus, resulting in a lower percentage of residual calculus compared to traditional SRP. This reduction in residual calculus can contribute to better periodontal health and reduced risk of disease progression. Done correctly, traditional SRP can be effective. Mechanically disrupting the bacterial is still the foundation for reducing probing depths and promoting healing.

4. *Targeted treatment:* With the direct visualization provided by dental endoscopy, clinicians can precisely target and remove calculus and plaque deposits from subgingival areas that may be difficult to access using conventional methods. This targeted treatment approach can lead to more thorough and effective debridement. Anatomical factors are a hindrance to traditional SRP. It is difficult to instrument around grooves, furcations, and anatomical anomalies. Calculus is generally missed due to the inaccuracy of tactile feel.

Cons of Perioscope:

1. *Increased treatment time:* Dental endoscopy may require more time compared to traditional SRP. Studies have shown that treatment time was significantly longer when using the endoscope, until mastery with the endoscope is achieved. This may be attributed to the additional steps involved in visualization and maneuvering the endoscope within the subgingival environment.

2. *Limited evidence on certain outcomes:* While there is evidence supporting the benefits of dental endoscopy in terms of reduced PD, improved CAL, and decreased BOP and plaque indices, some outcomes such as gingival inflammation (GI) did not show sufficient evidence of a difference compared to traditional SRP. Traditional SRP has a proven track record and has been at the foundation of all non-surgical therapy for periodontal disease. More research is needed to establish the full range of benefits and limitations of dental endoscope.

3. *Operator experience and learning curve:* The effectiveness of dental endoscopy may be influenced by the operator's experience and proficiency in using the equipment. Studies have shown that treatment time decreased with increased operator experience. However, no significant improvement in calculus removal was observed with greater experience, indicating that achieving optimal results may require both technical skills and experience.

4. *Cost and Availability:* Dental endoscopy equipment can be costly to acquire and maintain, and it may not be readily available in all dental practices. The initial investment and ongoing expenses associated with dental endoscopy may limit its widespread adoption. Traditional SRP has a low investment cost.

BOTTOM LINE: Overall, dental endoscopy has shown promise in enhancing periodontal treatment outcomes through improved visualization and targeted subgingival debridement. While it offers several advantages, including better calculus removal and improved periodontal parameters, there are considerations such as increased treatment time and the need for operator expertise. Further research is needed to evaluate its long-term efficacy and cost-effectiveness compared to traditional treatment method.

The Team

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