

**Effect of chemical debridement and irrigant activation on Endodontic Treatment Outcomes: An updated overview****Nesreen Abdulrahman Tashkandi***King Abdulaziz University (KAU), Saudi Arabia*

Chemical debridement is achieved by effectively cleaning and disinfecting the root canal system using irrigants and appropriate techniques. It has an essential role in the success of root canal treatment. The complex anatomy of the root canal includes fins, isthmuses, lateral canals, accessory canals, and anastomosis, leading to considerable missed areas during mechanical instrumentation. Moreover, the bacterial biofilm, viruses, yeasts, archaea, and smear layer formed during instrumentation make the chemical debridement procedure more challenging and form a major obstacle to completely cleaning the root canal system. Irrigants used in chemical debridement should have the ability to penetrate dentinal tubules and offer a strong, long-term antibacterial effect. They must be biocompatible and remove the smear layer without adverse effects on dentin or the sealing ability. Furthermore, they should be low-cost, convenient to use, and not cause any tooth discoloration. They should preferably have the ability to dissolve organic components and inactivate bacterial endotoxins. However, the high properties of irrigating solutions are not enough to achieve desirable disinfection of the canal. Appropriate delivery systems and activation techniques are crucial to fulfilling the objective of chemical debridement. Many techniques and devices were introduced to the dental market but not all of them were effective. Therefore, this comprehensive review aims to summarize the effect of various irrigant activation and agitation techniques or devices on endodontic treatment outcomes.

**Biography**

Nesreen Abdulrahman Tashkandi is a master resident in Microscopic Endodontic at King Abdulaziz University (KAU). She had her bachelor degree in Dental Surgery and Medicine from King Abdulaziz University, Jeddah, Saudi Arabia, 2012. She also had Clinical Laser Dentistry Diploma from World Federation for Laser Dentistry, Bahrain, 2018. She has been working at University Dental Hospital since 2015 till present.