

# Understanding sonic-powered irrigation

An interview with Dr Vittorio Franco



Dr Vittorio Franco

**Thoroughly irrigating** the entire root canal system—including isthmi and lateral canals—is important for success of endodontic treatment. Research has shown that sonic activation of irrigants offers significant improvement in cleaning efficacy, since it removes considerably more debris and smear layer than needle irrigation. Besides cleaner root canals, it increases the effectiveness of disinfectant solutions to support long-term success. We spoke with leading Italian endodontist Dr Vittorio Franco about his daily irrigation protocol, passion for endodontics and experience with EDDY, a sonic-powered irrigation tip.

## What do you like most about endodontics?

Nothing is clearly visible in endodontics, so one has to constantly adapt one's strategy. In the end, one must discover the anatomy, understand the difference between one's imagination and reality, and find a good treatment solution. Many recent dental studies have confirmed the importance of retaining the natural dentition and thus of endodontics as opposed to implantology. Now is the right time to be an endodontist. We now have more possibilities for preserving natural teeth and that is a wonderful thing.

## Why is proper rinsing so important, and how can one see when the canal has been cleaned properly?

I think that the cleaning of the canal is the most important aspect of an endodontic procedure. Of the three major steps, shaping and obturation are less important than eliminating bacteria from the root canal. The main purpose of endodontic treatment is to clean the canal. Otherwise, root canals can become a good environment for bacteria to grow in. If the dentist retains vital tissue that will then become necrotic, it will facilitate bacterial growth. The main reason for re-treatment is the presence of an infection due to poor cleaning in the first place.

There are many published studies on the time required for proper irrigation. We have many variables to consider—contact time, refreshment of the solu-

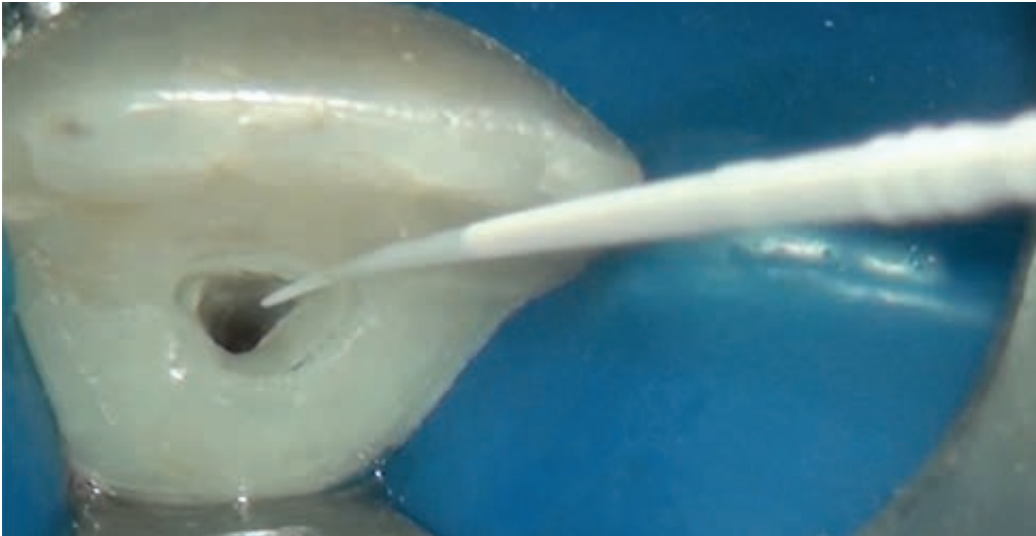
tion, amount of tissue/bacteria, volume, temperature, shear stress and so on—so we cannot standardise this process and final result. There are studies that say one needs 30 minutes to achieve the complete elimination of bacteria, but they did not consider activation possibilities. If you ask me how I decide when irrigation has been sufficient, from my point of view, the only clinical way to determine whether the irrigating solution is working is from seeing bubbles in the solution. That means that the solution is reacting with something inside the root canal system—obviously if there is no communication like a large foramen or perforation.

**“If bubbles stop being produced, the clinician can stop cleaning the canal because the sodium hypochlorite is probably no longer reacting.”**

If bubbles stop being produced, the clinician can stop cleaning the canal because the sodium hypochlorite is probably no longer reacting. There may still be something inside the canal, but the solution has achieved its best result. That would be my only suggestion.

## What is your irrigation protocol?

I start with 5 per cent sodium hypochlorite, which I use for the entire shaping procedure. At the end, I use 17 per cent EDTA, activate it and remove it quickly. Then I use sodium hypochlorite again and activate it up to four times depending on the case. For necrotic cases, I wait until I see the reaction of the irrigant and the substrate. After removal of the sodium hypo-



EDDY, a sonic tip produced by VDW.

chlorite, I use 95 per cent ethanol to dry the canal. I do not use citric acid and chlorhexidine, but prefer EDTA to remove the smear layer.

**How did you activate the irrigant before you began using EDDY?**

I tried all activation tools before EDDY, as irrigation activation has been one of my favourite methods ever since I was introduced to it. Before EDDY, I used passive ultrasonic activation and still use it sometimes in my Italian practice. Now, I use EDDY for most of my cases.

**How important is it to have a flexible tip?**

EDDY is quite different from passive ultrasonic tips. With EDDY, one can combine two different things. First, one has an activation protocol that some studies have shown is at least as good as passive ultrasonic activation. Second, one has a gentle mechanical action on the canal walls. This is why I love EDDY. One can work on the wall and the shear stress seems to be impressive when using it. It is also very safe.

**What do you think about the polyamide material from which EDDY is made?**

It works very well. It is a very good material for working after shaping, as one cannot damage the canal wall. Also, the possibility of tip fracture is low if one works inside the canal.

**How did you learn about EDDY?**

I tried everything in terms of activation. The manufacturer asked me to test it before its impending launch in Italy and I was happy to do so. At first, I tried it with great care—and it instantly proved to be effective. I inspected the walls of the canal and was impressed by the level of the cleanness of the walls.

With EDDY, one can work in all canals, and sometimes I like to work only with the tip in large and wide

canals. I do not use a shaping instrument, but just one file for length determination and then continue with EDDY. One can also remove debris and the smear layer easily by activating the solution through the device. Every dentist will appreciate how EDDY works under the microscope.

**How does EDDY work, and how long does the activation need?**

I use EDDY in the same way as passive ultrasonic irrigation, applying three to four cycles of 30 seconds for each canal. I help the EDTA to contact the dental surface with EDDY for 15–20 seconds. After this, I activate every sodium hypochlorite rinse for 30 seconds. The number of cycles depends on the kind of canal. If I think that there is some necrotic tissue or a complicated anatomy, I use more than three cycles. If it is an easy case, I still use three cycles of activation.

**Would you recommend EDDY?**

Absolutely. It is a great solution, being inexpensive, easy to use and effective. One can effectively promote the contact of the irrigant with the dental tissue. This is one of the main ways in which the irrigating solution should work. One can achieve a very impressive shear stress so that is one of the best ways to activate the solution and clean the canal.

**EDDY requires an air scaler. Should this be an obstacle to making the switch to this device?**

Honestly, buying an air scaler is not a high-cost investment. As a general practitioner, one can use an air scaler for a number of applications, including prophylaxis, endodontics, periodontics and minimally invasive therapy. Personally, I use it for bone surgery. It is not as expensive as a piezoelectric surgery unit or a laser. I think that the cost benefits of EDDY and an air scaler are fantastic.

**Thank you very much for the interview.**