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How to succeed in aesthetic layering using the right instruments

Authors of the article:

***Walter Devoto**, DDS, Sestri Levante, Italy*
***Angelo Putignano**, MD, DDS, Ancona, Italiy*
***Monaldo Saracinelli**, DDS, Grosseto, Italy*
***Gianfranco Politano**, DDS, Modena, Italy*
***Jordi Manauta**, DDS, Barcelona, Spain*

Composite is one of the most common materials for daily use in restorative dentistry. However, the composite layering technique in aesthetic treatment is still considered a complex and difficult method to use.

In the following description of a clinical case, the authors give advice on how the use of the right materials and techniques will enable high-quality results in daily work, both aesthetically and clinically. The article particularly emphasizes the importance of using the right kinds of instruments at different stages of the procedure, as the quality of the work and chair-time can be greatly affected by the correct choice of instruments. With this in mind, a set of innovative instruments for aesthetic layering, LM-Arte instruments from Style Italiano, has been developed in cooperation with the Finnish instrument manufacturer LM-Instruments.

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Clinical case

A young male patient came to the practice for aesthetic restoration of an incisor (d. 22). The tooth had been treated endodontically which had caused it to become discoloured. A decision was made to whiten the darkened tooth. The incisal edge of the tooth was chipped (picture 1).

In addition, an examination revealed gingivitis and plaque throughout the dentition, due to the poor oral hygiene of the patient. Other periodontal problems were not observed. A restorative treatment was commenced after the successful whitening of the incisor. A rubber dam seal is necessary to ensure optimal bonding. The isolation was carried out carefully, especially at the gingival margin. A thin spatula *LM-Arte Applica* was used to push the rubber dam gently into the gingival sulcus, first with a soft vertical and then horizontal movement (picture 2). At the same time, air was blown towards the tip of the spatula. The area to be treated was rinsed with plenty of water, and then thoroughly dried to detect any leakage.

The lingual cavity was carefully cleaned before applying the bonding agent. The enamel was etched for 15 seconds, the bonding agent applied for 20 seconds, and then the excess blown off. The bonding agent was light cured for 60 seconds. The fine head of the *LM-Arte Fissura* instrument, which is so flexible that it does not damage the bonding layer during use, is ideal for detecting any excess resin. The Fissura instrument was also used to apply flowable composite into the floor of the cavity; its fine tip allowing precise placement of the flowable composite.

The Applica instrument was then used to add a layer of opaque composite (dentine A3.5) to fill the remainder of the access hole. This spatula is also suitable for transporting and shaping the composite. The Applica instrument is a flexible spatula that can be used to gently smooth the composite in the cavity (picture 3), or to shape rounded contours in cavities. The lingual surface of the incisor was duplicated in a silicone index, which was filled with a thin layer of enamel composite using the Applica spatula and Fissura instrument (picture 4).

With the help of this index the composite layer was accurately positioned in the mouth. The thin LM-Arte Applica spatula was then used to ensure complete adaptation. The interproximal contact points were reconstructed using small amounts of composite. The silicone index was removed, and the tooth was layered with the right colour of dentine composite to imitate the natural shape and characteristics of the mamelons. At this stage, the Fissura and *LM-Arte Condensa* instruments were used for creating the correct morphology of the mamelons (picture 5).

Before light curing the dentine layer, its thickness was measured to ensure sufficient space on the tooth would remain for the enamel layer. The *LM-Arte Misura* instrument has been designed for measuring this. The Misura instrument has a stop at 0.5 mm – this is normally sufficient thickness for the enamel composite (picture 6).

Finally the Applica instrument was used to apply and shape the enamel composite layer to achieve as perfect a surface as possible before curing. To eliminate the oxygen-inhibited layer, a layer of glycerin was applied before the final light-curing cycle is commenced.

After light curing, excess composite was removed from the interproximal spaces and cervical areas. A special instrument, called *LM-Arte Eccesso*, which is thin enough to fit into the interproximal spaces, has been designed for this purpose.

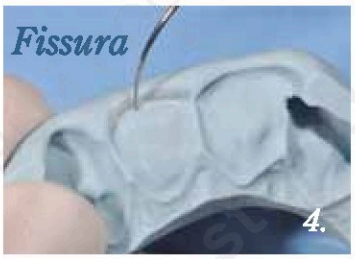
The finishing and polishing of the composite is another important part of the construction of an aesthetic, tooth-coloured and anatomically shaped restoration. Due to dehydration of the teeth, the restoration's colour was not optimal immediately after removal of the rubber dam. A week later a control picture was used to compare the restoration's colour in relation to the adjacent teeth (picture 8).

Colour-coded instruments help in repeating the steps of the layering technique in the same sequence. It is easier for dental nurses to identify the instruments when helping the dentist. Colour codes are also helpful in teaching situations.

















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LM-Arte Applica
Apply elastically
LM 46-49 XSi



LM-Arte Condensa
Push softly
LM 488-489 XSi



LM-Arte Fissura
Sculp delicately
LM 481-487 XSi



LM-Arte Misura
Measure precisely
LM 496-497 XSi



LM-Arte Eccesso
Finish neatly
LM 307-308 XSi



Style Italiano **is a group of Italian and Spanish dentists specialized in aesthetic dentistry. Group members give lectures around the world on aesthetic dentistry and the composite layering technique.**

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LM-Instruments Oy
PL 88 (Norrbyn rantatie 8)
FI-21601 Parainen
Tel. +358 2 4546 400
Fax +358 2 4546 444
info@lminstruments.com
www.lminstruments.com

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