

Editorial

Biological Endodontics: New Strategies for Tooth Preservation

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Endodontics is undergoing a period of profound conceptual and technological evolution. For many years, the primary objectives of endodontic treatment have been the removal of compromised pulp tissue, the cleaning and disinfection of the root canal system and its subsequent three-dimensional sealing. This approach has contributed to achieve significant clinical success, enabling the long-term retention of many teeth that might otherwise have required extraction.

Nowadays, however, the field of endodontics adopts a broader perspective: rather than merely treating pulpal and periapical disease, it should aim, whenever biologically feasible, to preserve the structural integrity, vitality and reparative potential of the tooth.

It is within this new paradigm that some of the most interesting innovations in contemporary endodontics are emerging. Vital Pulp Therapy (VPT), minimally invasive procedures, new techniques for managing and sealing the endodontic space, innovative obturation methods, including the wallpaper technique*, and, above all, the use of increasingly advanced biomaterials represent key components of a therapeutic philosophy focused on biological preservation. While VPT seeks to preserve tissue that still retains its biological potential, regenerative endodontics opens an even more ambitious perspective: creating the conditions for biologically active tissues to reform within a previously compromised endodontic space. This is arguably one of the most exciting developments shaping the future of our discipline. Regenerative*

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endodontics is based on the principles of tissue engineering and on the interaction of three fundamental components: stem cells, scaffolds and growth factors. Its aim is to promote the colonization of the root canal space by cells capable of contributing to new tissue formation through appropriately modulated biological microenvironments. Regenerative procedures offer a different therapeutic approach: rather than simply achieving apical closure, they aim to promote continued root maturation, increase dentinal wall thickness, and improve the structural strength of the tooth. This is particularly important in young patients, for whom the long-term preservation of the natural tooth is a primary therapeutic goal. The future objective will be to overcome the limitations of current revitalization procedures and progressively move towards the possibility of reconstructing a true dentin-pulp complex, endowed not only with reparative capacity but also with sensory, vascular, and immunological functions.

The topics and perspectives outlined above are explored in greater scientific depth in the articles featured in this issue of the Giornale Italiano di Endodonzia*, which provide an up-to-date overview of the latest advances and innovations in the field of biological preservation and regeneration of the tooth.*

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