Orthoalveolar Form: The Future State of Alveolar Tissue Engineering

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Editor

The current state-of-the-art and science for alveolar reconstruction remains tied to the biological principle of engraftment and subsequent maintenance remodeling within the mechanostat of function as it relates to dental implants. The use of titanium implant devices screwed into replacement hard tissue architecture defines successful outcome, but bone grafts in themselves do not. The current state-of-the-art is a mechanical paradigm that argues that a bone graft may well not matter, that osseointegration takes priority to success of a graft, and therefore, alveolar reconstruction. Seldom is recovery of orthoalveolar form, that is to say, establishment of anatomic alveolar bone mass that is in arch relation alignment, considered the ultimate measure of success in the literature. In fact, when success of a bone graft, as it might relate to alveolar form, is discussed, the context is one of “emergence profile” of the device, “ridge-lap” of the prosthesis, or implant-associated “papillary height.” Therefore, one could pose a question: How much longer will alveolar bone grafting serve an ancillary role while prosthetics, including the implant device componentry, play the primary role toward reconstructing a patient to function?

Imagine a future where titanium devices are not present at all, but that instead, alveolar reconstruction is the prima solution—the main event that is prescribed, engineered, and developmentally brought to pass, the prosthetic solution a priority no more.

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