



**Dr. John Lupovici**  
Shares His Opinions  
And Clinical Experiences  
With Bone Regeneration

**Q: In which clinical situations do you choose to perform regenerative procedures?**

A: Historically, evaluations of implant success focused exclusively on the ability of the implant to osseointegrate and maintain a functional prosthesis. However, as implant technology and understanding of the biology underlying osseointegration have both evolved, the goal of contemporary implant dentistry has shifted. Today the faithful re-creation of what nature originally provided, both in terms of function and aesthetics, has become the paramount objective. Both the scientific literature and the consensus on the podium agree that in order to obtain optimal results, you must have adequate bone volume. Therefore, I use bone augmentation procedures both to help maintain existing bone and regenerate deficient areas.

**Q: What is new in the area of bone regeneration materials?**

A: Several new regenerative materials have recently been introduced to the dental profession from other surgical markets, primarily orthopedics. The implant surgeon can now incorporate these well-documented orthopedic materials into established oral regenerative techniques. The ability to obtain verifiable osteoinductive allograft as well as recombinant growth factors may create a dynamic shift in the way we approach regeneration.

**Q: How do you choose the type of graft material you use for a given regenerative procedure?**

A. A number of variables influence my graft material selection. First I evaluate the defect morphology. What is the shape of the defect? How many walls are present? Is the lesion within the skeletal envelope or outside it? Is this information crucial in determining if the graft material will be contained during the healing process or will be maintained within the lesion itself, confined by a membrane? Will the properties of the graft material itself be sufficient to maintain the space? If relying on the graft material for support, I am more likely to choose a mineralized allograft or xenograft because these both have a slower resorptive profile.

**Q: When performing grafting procedures in combination with implant placement, what type of graft material do you choose and why?**

A. Once again, the answer to that question is both site-specific and case-dependent. As a general rule, when grafting within the skeletal envelope or correcting minor facial dehiscences, I am a proponent of augmenting with mineralized allograft in conjunction with a cross-linked membrane. However within these types of lesions I have also had great success with RegenerOss® Allograft Putty as well as Endobon® Xenograft Granules.

For regeneration outside the skeletal envelope, such as a buccal ridge augmentation, I have recently had quite a bit of success by combining the putty and xenograft. This combination allows me to capitalize on the native benefits of each — the verified osteoinductivity of the putty; as well as the osseoconductive properties of the xenograft.

**Q: In which regenerative procedures do you choose to place a membrane?**

A: Following the principles of Guided Bone Regeneration (GBR) and the use of a barrier membrane can enhance the likelihood of obtaining optimal results with virtually any graft material. The barrier membrane excludes unwanted epithelial cells and maintains a space for appropriate cells to repopulate the wounded area such as periodontal ligament cells, bone cells and cementoblasts. The imperative role of a membrane has been cited numerous times in the literature to enhance the likelihood of obtaining optimal regenerative results. I prefer collagen cross-linked membranes. For example, an OsseoGuard® Resorbable Collagen Membrane offers the benefits of a resorbable barrier while gaining the extended resorption profile.

**Q: Do you typically choose resorbable membranes as compared to non-resorbable membranes? If so, why?**

A: Although non-resorbable membranes have yielded successful results, these have notable drawbacks, including that these require a second surgical entry and entail increased patient costs, discomfort and psychological stress. Increased tissue trauma and wound-healing complications such as membrane exposures, infection, and bacterial contamination have also been associated with poor regenerative outcomes. In contrast, resorbable membranes may avoid the negative sequelae of non-resorbable membranes, while maintaining barrier function to obtain optimal results.

**Q: What is new on the horizon in regenerative materials or regenerative therapy?**

A: Recombinant growth factors are very interesting. The animal studies have been positive. Although the human studies have not precisely correlated with the animal results, recent publications in the dental literature have presented favorable results for rhBMP2 in intraosseous human defects such as extraction sockets. In the area of onlay grafts, more research needs to be done. While the research is being carried out to improve the structural properties of growth factor carriers, I am relying on the established regenerative techniques that have been supported by the literature and have been clinically successful in my practice.

**John Lupovici, DDS** received his dental degree and certificate in Periodontology from New York University. While at NYU, he participated in numerous research studies, which resulted in his being awarded three Dean's Student Research Awards and he received first place in the American Dental Association / NYU Research Day Competition for his work. He is a Diplomate of the American Board of Periodontology and holds a faculty position at NYU in the Department of Periodontics and Implant Dentistry. His clinical research includes such topics as bone regeneration and implant dentistry, subjects on which he has published and lectured nationally and internationally. Dr. Lupovici maintains a private periodontal practice in New York City and Commack, New York.