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# How to Use Preexisting Implants in Redesigning a Full-Arch Reconstruction

By Ricardo Mitrani (/spear-review/author/ricardo-mitrani/) on April 26, 2021 | (/bookmarks/bookmark/39809) SHARE

The need to redesign a previous prosthetic reconstruction is a frequent task in contemporary restorative dentistry.

Osseointegrated implants have been around for more than four decades. This means it is common to see patients present with either single or multiple implant (https://www.speareducation.com/spear-review/category/implants)-supported restorations and yet depict such extensive breakdown of their remaining dentition that the treating team dooms their dentition as “terminal.” This leads us to deal with those preexisting implants and/or their restorations and decide if, and when, they can be serviceable for the forthcoming phase of treatment.

By the same token, there are patients who have lost all their teeth, who have an implant-supported solution and yet are seeking treatment since they are dissatisfied with the previous restorations.

In a previous Spear Digest article, “Terminal Dentition: Where Do We Draw the Line? (/spear-review/2019/06/terminal-dentition-where-do-we-draw-the-line),” I described a treatment planning algorithm that allows the treating team to systematically reach the decision to either keep remaining teeth vs. remove them and provide the patient with an implant- supported solution.

Having said that, to decide whether to keep existing implants and incorporate them into the new reconstructive design or to remove them and replace them with new implants, lends for yet additional scrutiny. Conceptually there would be nothing wrong with keeping and incorpor[illegible] Live Chat integrated implant into a newer design, but it requires a meticulous assessment

The treating team needs to articulate the following questions in order to elucidate if it is feasible to maintain preexisting implants:

1. Does the implant(s) in question assist in the treatment's process (provisionalization, additional support, etc.)?
2. Does it provide clear advantages overall or if the benefits of replacing them outweighs the potential risks of keeping them?

It is important to understand and to explain to the patient that the concepts of implant survival rate vs. implant success rates are both well documented in the scientific literature and have clear differences[2] that should be carefully considered into this equation.

So, for instance, an implant that has been in a patient’s mouth for some time and has experienced considerable bone loss, could still fit the "implant survival" criteria and yet would definitively not fit the success criteria. The last thing we would want to do is utilize an implant with extensive bone loss and active infection as an integral element of our new restorative design.

Just like we normally use an algorithm pertaining to either keep vs. remove teeth, we need to look at similar variables to decide between keeping vs. removing implants, which are:

1. Biologic status
    - Bone loss around them.
    - Presence of active infection/periimplantitis.
2. Structural status
    - Integrity of the implant’s platform.
    - Type of connection (internal vs. external hex).
    - Type of implant (some older implant systems are discontinued so availability of parts and pieces such as impression copings, analogs or abutments may be problematic).
3. 3D placement
    - Mesial-distal orientation.
    - Buccal-lingual orientation.
    - Apical-coronal orientation.
    - Angulation.

When dealing with full-arch reconstructions, we normally present patients with three different prosthetic solutions to choose from:

1. An ISFDP (implant supported fixed dental prosthesis). These are normally screw-retained either Zr layered or PFM reconstruction on six or more implants. This prosthesis could be either splinted or we could split the arch in multiple segments.
2. Fixed hybrid: Normally on four implants and materials here they typically a CAD-CAM generated titanium bar with denture teeth and acrylic wraparound.
3. Removable solution: Implant-retained overdenture either utilizing locators, telescopic crown or conus crowns or bar-and-clip type of retentive mechanisms.

The reason why highlighting the different generic prosthetic solutions is important at this point, is that they all present specific nuances regarding space requirements, three-dimensional implant position, therefore a previously placed implant intended for a different type of restorations may or may not be suitable or even detrimental for a new restorative design. In a previous Digest article, I outlined five factors we normally look into to recommend a given prosthetic solution (/spear-review/2019/04/5-attributes-to-consider-when-selecting-a-prosthetic-design-for-a-patient-with-terminal-dentition).

Consider an implant (either a bone level or a tissue level) that was functioning perfectly as a single-tooth implant in the position of a first bicuspid, but now the patient is losing all his remaining teeth either because of periodontal breakdown or because of structural breakdown and, after going through the different full-arch solutions with the treating team, it is decided to plan for a fixed-hybrid restoration.

A free-standing, single-tooth implant is normally placed at 3-4 mm apical to the proposed gingival margin. This depth typically allows to have an adequate emergence profile of the restoration while properly [2] supporting the soft tissues.

But when considering incorporating such implant into a fixed-hybrid design — and assuming the mesial-distal, and buccolingual position of the implant could be slightly off but would not become a big deal to overcome — could potentially represent a mayor liability in the design of the final product, and there are two main reasons behind this:

1. The space requirements allotted for a fixed hybrid range between 16-18 mm hence the preexisting implant would be at best 3 mm shallower than the recommended apical-coronal position, which could lead to having a flimsy framework in one area that could potentially be prone to fracturing.
2. Being that the fixed-hybrid design is conceived to have a transition line that should be concealed underneath the patient’s lip during full blown smile, leaving that previous implant in place and potentially connecting it to a fixed hybrid could potentially result in a severely aberrant and unacceptable esthetic (/spear-review/2013/08/evaluating-facial-esthetics-facial-profile) compromise, as the transitional prosthetic line would be revealed upon smiling.

Patient expectations, anxiety, and concerns about replacing a missing tooth with an implant vs. losing all their teeth and getting an implant supported reconstruction, are each quite different.

They are embarking in what could be a longer treatment with a more serious financial commitment. As such they want to make sure they are satisfied with the treatment outcome and “will be set” at least for a while (they want assurance of “bang for their buck”).

Therefore an integral part of part of our strategy is to ensure that if we are to maintain a previously placed implant into our new prosthetic design, it needs to meet our criteria regarding its biologic status and structural status, as well as the three-dimensional position — as previously stated, the benefits of incorporating it into the new restorative solution need to outweigh the risk of keeping it.

In my next two articles, I will show examples as well as workflows of different scenarios where we elected to either keep preexisting implants and incorporate them into a new full-arch design, remove and replace them, and also transition from one implant-assisted design (locator overdenture) to an implant-supported fixed dental prothesis.

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