

# Immediate Placement and Immediate Loading Surgical Technique and Clinical Pearls



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## KEYWORDS

• Immediate implants • Provisionalization • Abutment

## KEY POINTS

- Immediate placement and immediate loading of dental implants is a safe and successful option for replacement of teeth in newly edentulous areas.
- There are specific conditions in which immediate placement and immediate loading are not recommended, including bony wall defects, poor bone quality, and acute infection.
- There are multiple techniques that practitioners can choose from when deciding to place immediate implants with immediate loading, all of which can provide more convenience for the patient and practitioner.
- Immediate implants can be performed for single-unit restorations in partial edentulism, or for fixed prostheses in complete edentulism.

Dental implants are the preferable method of rehabilitation of partially or completely edentulous patients.<sup>1,2</sup> Traditionally, implant placement follows a nonloading period of 3 to 6 months for osseointegration.<sup>3,4</sup> However, in recent years, the viability of immediate implant loading has been researched in an attempt to shorten the waiting period for osseointegration.

Immediate loading is defined as a restoration placed on the endosseous implant structure within 72 hours of placement.<sup>5</sup> Multiple prospective studies and systematic reviews have shown that immediately loaded implants successfully integrate at least 95% of the time.<sup>6–8</sup> This integration depends on several factors: surgical technique, primary stability of the implant, quality and quantity of available bone, minimal post-operative occlusal loading, and patient selection. Patients with comorbidities, such as uncontrolled diabetes, osteoporosis, heavy smoking, immunocompromise, and malnutrition, may experience delayed healing or poorer outcomes.<sup>9,10</sup>

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Immediate-loading implants are generally versatile and can be used in various locations and conditions, such as a healed edentulous area, a fresh extraction socket, posterior maxilla in the area of the maxillary sinus, and a narrow-ridge anterior mandible. To maximize the potential for success, multiple factors must be considered when treatment planning. In an ideal situation, an implant would be placed into a well-healed ridge with sufficient bone quantity and quality, in a healthy, nonsmoking patient. This, unfortunately, is not always the case, and preoperative planning is paramount for optimizing the outcome. There are specific indications (**Box 1**) and contraindications (**Box 2**) for immediate implant placement.

## IMMEDIATE PLACEMENT OF IMPLANTS INTO EXTRACTION SITES

The optimal treatment consists of tooth extraction, immediate implant placement, and immediate loading. This is ideal because it eliminates the need for a period of edentulism and reduces the steps required to reach the final result. In addition, placement of an immediate implant allows for preservation of associated hard and soft tissues and minimizes ridge resorption.<sup>11,12</sup> Typically, resorption is more pronounced on the buccal aspect than the lingual/palatal aspects, resulting in a bony crest that is no longer on the same level of adjacent teeth. This complicates subsequent implant placement and restoration and may lead to future bone grafts.<sup>13</sup>

There are bone preservation and augmentation techniques associated with immediate implant placement: bone grafts using autogenous bone,<sup>14</sup> bone substitutes,<sup>15–18</sup> or platelet concentrates,<sup>19</sup> and guided bone regeneration with membrane placement.<sup>20–23</sup> There are several factors that influence postsurgical hard and soft tissue remodeling, such as initial reason for extraction (eg, periodontal disease, endoperio lesion, root fracture), position of implant within the socket,<sup>24</sup> and thickness of alveolar bone on the facial aspect of the socket.<sup>25–28</sup>

The timing of placement of implants in extraction sockets is the basis for the current classification system (**Table 1**).<sup>13</sup> From a patient convenience perspective, type I immediate implant placement and loading is most desirable. However, studies show that single implants placed into extraction sockets and loaded immediately have higher failure rates than those placed into healed extraction sites, particularly in the maxilla.<sup>29,30</sup> Nevertheless, success rates often still exceed 95%.<sup>13</sup>

## SURGICAL TECHNIQUE

Implant placement cannot take place in a sterile environment, but is considered a clean contaminated procedure. When extracting teeth with the intention of immediately placing an implant, it is important to extract the tooth as atraumatically as feasible. The goals of this method are to retain as much bone and adjacent soft tissue as possible. If the tooth is extracted because of an infection, thorough curettage and

### Box 1

#### Indications for immediate implant placement

1. Traumatic avulsion, reimplantation not possible
2. Nonrestorability of tooth because of caries
3. Tooth malposition
4. Failed endodontic therapy
5. External or internal root resorption

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