



# Top tips for the immediate replacement of teeth

By Prashanti Eachempati<sup>1,2</sup> and Ewen McColl<sup>3</sup>

## Introduction

Loss of teeth can be an extremely upsetting event for patients, and concerns around immediate replacement of teeth for aesthetic and functional reasons can weigh heavily on patients' minds.<sup>1,2</sup> Replacing missing teeth immediately after extraction, without restrictions for future solutions is clearly attractive for both patients and dentists.<sup>3</sup> There are a wide range of options available for immediate placement of teeth (Fig. 1) and in this short article we discuss the options available with relevant advantages and disadvantages and tips on how to optimise outcomes in support of our patients.

## Immediate dentures

Immediate dentures, whether complete or partial, are those that are inserted on the same day as the removal of natural teeth.<sup>4</sup> This means that patients do not have to endure a waiting period of several weeks for their tissues to heal before receiving their dentures (Fig. 2). By offering immediate dentures to patients, we can swiftly reinstate both their aesthetic appearance and functional capabilities, thereby mitigating the potentially distressing experience of adjusting to tooth loss.

One of the significant advantages of immediate dentures is their ability to closely mimic the patient's natural dentition, including tooth shape, colour, position, arch form, and inter-occlusal relationship. This imitation helps maintain the existing occlusal vertical dimension when done optimally.<sup>4</sup> Research studies have also shown that wearing immediate dentures, whether for partial or complete tooth loss, can reduce the rate of alveolar resorption around extraction sites, preserving bone structure.<sup>5,6,7</sup>

Furthermore, immediate dentures act as a kind of protective 'plastic bandage'. They help minimise disturbances, trauma, or insults caused by factors like opposing teeth, oral fluids, and food debris, as they are inserted immediately after tooth extraction.<sup>8</sup> This approach can enhance the overall patient experience and facilitate a smoother transition to a denture-supported lifestyle.

While immediate dentures offer numerous advantages, it's important to acknowledge that some studies have raised concerns regarding the potential for more issues compared to conventionally constructed dentures, which are made after a healing period.<sup>9</sup> Without adequate patient education and information regarding the complex clinical and laboratory procedures, the need for multiple adjustments, and the financial considerations associated with immediate dentures, this facet of care may become a distressing experience for patients.<sup>10</sup>

**a. Unforeseen need for adjustments:** It's crucial to keep in mind that predicting the precise pattern of tissue changes following tooth extraction is challenging, and the fitting surfaces of dentures may inadvertently cause discomfort or trauma to healing sockets. However, it's reassuring to know that adjustments can be easily

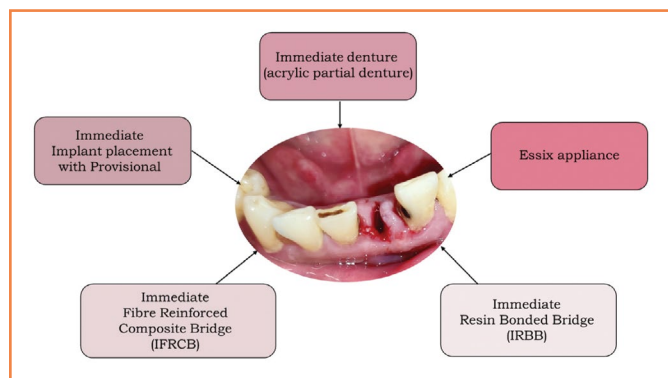


Fig. 1 Different options for immediate replacement of teeth

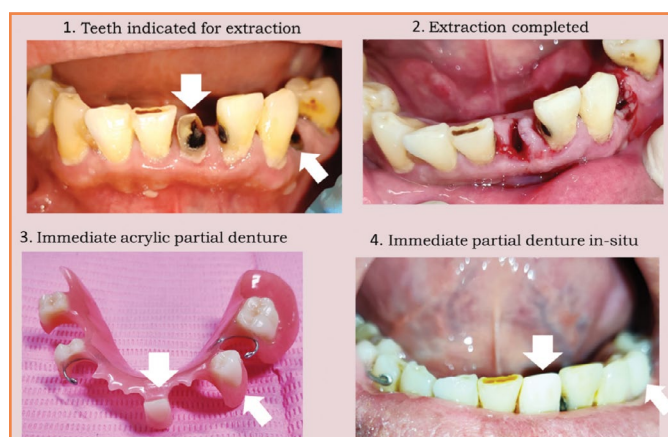


Fig. 2 Immediate acrylic partial denture case

made during follow-up visits.<sup>10</sup> Explaining this to patients before treatment can help alleviate unnecessary worry and anxiety.

- b. Increased cost and number of visits:** The construction of immediate dentures involves more extended periods of both laboratory work and chairside procedures, along with additional appointments for adjustments and relines. This is because both hard and soft tissues undergo changes after tooth loss. In the long run, a definitive denture will also need to be constructed, leading to increased costs for both the dentist and the patient. Informing patients about these stages can assist them in making appropriate financial preparations.<sup>10,11</sup>
- c. Inability to assess aesthetics during the try-in stage:** When teeth are extracted simultaneously with the insertion of dentures, there is no opportunity for a prior aesthetic assessment. Consequently, there is a potential risk that patients may not be entirely satisfied with their appearance after the denture placement.<sup>8</sup> At best, ➤

<sup>1</sup>Peninsula Dental School (University of Plymouth), Derriford Dental Education Facility, Plymouth Science Park, Research Way, Plymouth, PL6 8BT, UK; <sup>2</sup>Adjunct Professor in Prosthodontics, Manipal University College Malaysia, Melaka, 75150, Malaysia; <sup>3</sup>Director of Clinical Dentistry, Peninsula Dental School (University of Plymouth), Derriford Dental Education Facility, Plymouth Science Park, Research Way, Plymouth, PL6 8BT, UK.

◀ the aim is to replicate the existing natural tooth arrangement if it is deemed satisfactory.<sup>4</sup>

#### Clinical tips

**Managing challenges in impressions:** During the impression-making process, a common issue arises when dealing with highly mobile teeth, as impression material can become trapped in undercuts, potentially leading to unintended tooth extraction. To address this challenge, clinicians can employ a practical technique. They can block the undercuts temporarily with wax or temporary cement, which can be easily removed after completing the impressions. An alternative approach is to temporarily stabilise the mobile teeth using composite resin until the impressions are successfully completed.<sup>11</sup>

**Preventing seating issues:** Seating problems frequently occur in clinical practice because the denture's fitting surface is created on a cast that undergoes modifications by removing teeth slated for extraction. To avoid this issue, a surgical stent made of clear acrylic can be fabricated on the modified cast and utilised during the extraction procedure. This surgical stent helps compress interfering areas and highlights them as blanched areas through the clear acrylic. This technique aids in performing necessary bone contouring and addressing unwanted undercuts before the denture insertion process.<sup>11</sup>

**Post-insertion patient instructions:** It's essential to provide clear instructions to patients following denture insertion. Patients should be advised to wear the prosthesis continuously for the initial 24 to 48 hours, as most swelling occurs during this period. Additionally, patients should refrain from rinsing their mouth for several hours after extractions and avoid engaging in strenuous physical activities during this time.<sup>10,11</sup>

#### Essix type retainers with tooth

In certain situations, patients may seek a temporary yet immediate solution to address their missing teeth, with the intention of pursuing a permanent restoration later. For instance, individuals undergoing conventional implant treatment typically face a waiting period of 3–6 months before moving to the prosthetic phase. During this waiting period it is crucial to maintain the space and provide an aesthetically pleasing and functional interim solution. This is where a temporary immediate prosthesis, such as an Essix appliance, becomes a valuable consideration.<sup>12,13</sup>

The Essix appliance is crafted from a clear thermoplastic sheet, and it incorporates an acrylic tooth to effectively replace the missing tooth. One of the primary advantages of this appliance is that it relies on the existing teeth for support and exerts no pressure on the surgical site. It is particularly suitable for cases where there is limited interocclusal space or a deep anterior overbite.<sup>12</sup> However, it is important to note that this type of provisional restoration is not intended for prolonged use, as it may experience wear and could become uncomfortable for the patient due to its coverage of the remaining natural teeth (Fig. 3).

#### Clinical tips

**Maintenance:** Emphasising the importance of properly cleaning the appliance is important as the thermoplastic sheet can lodge bacteria and lead to malodour and discolouration.<sup>13</sup> Advise the patient to brush the retainer with a soft bristle brush and to use retainer cleaning tablets regularly.

#### Immediate resin-bonded bridge (IRBB)

Resin-retained bridges are now widely acknowledged as a practical alternative to conventional fixed partial dentures (FPD). An IRBB offers a minimally invasive solution for fixed tooth replacement while preserving the structural integrity of the abutment teeth<sup>14</sup> (Fig. 4). This option holds particular appeal for young patients grappling with early anterior tooth loss. In such cases, choosing a conventional FPD with extensive tooth preparation may introduce the risk of endodontic complications.<sup>14</sup> Without the IRBB alternative, patients might be faced with the prospect of wearing dentures for an extended period until they reach a stage where growth has ceased, making them eligible for implants or definitive bridges.<sup>15</sup>

Furthermore, IRBB can be an excellent choice for patients who are unable to commit to multiple appointments but still desire teeth replacement to avoid aesthetic concerns. It's important to acknowledge that the primary cause of failure in this type of prosthesis is typically debonding, often driven by complex multidirectional stresses among abutments, especially in the case of 3-unit IRBBs.<sup>16</sup> To tackle this issue, the utilisation of two-unit cantilever IRBB has gained popularity. This approach minimises the generation of complex forces on the prosthesis and reduces stress on the single abutment, thus lowering the likelihood of debonding.

#### Clinical tips

**Preventing debonding:** To prevent debonding, it is essential to secure extensive coverage of the lingual or palatal enamel with the retainer, incorporate a rigid connector with a minimum height of 4 mm, and adhere to a rigorous bonding protocol utilising a cement containing 10-MDP, such as Panavia V5.<sup>17,18</sup>

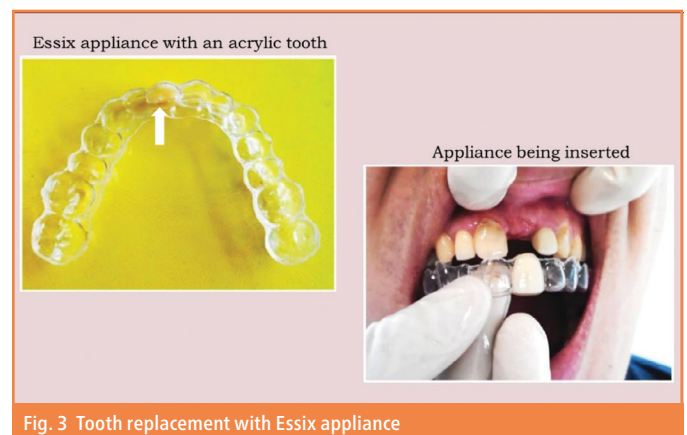


Fig. 3 Tooth replacement with Essix appliance



Fig. 4 Immediate resin-bonded fixed partial denture replacing mandibular central incisors

« **Occlusal considerations:** The effectiveness of this prosthesis hinges significantly on a thorough evaluation of both centric and eccentric occlusal relationships. It is imperative to consistently instruct the laboratory technician to utilise articulated casts and evaluate the palatal aspect to determine the interocclusal space available for the retainer wings and pontics. Ensuring that the pontic does not impede mandibular excursive movements is of utmost importance. If achieving this proves challenging, exploring the possibility of sharing guidance with adjacent natural teeth should be considered.<sup>17</sup>

**When to seek dental attention:** In cases where a fixed-fixed IRBB has been utilised, it's imperative to warn patients about the risk of one retainer debonding. They should be encouraged to report any looseness in the bridge immediately. Failure to do so may result in caries developing beneath the debonded retainer, which could jeopardise the prognosis of the abutment tooth.<sup>17</sup>

**Immediate fibre-reinforced composite bridge (IFRCB)**

The IFRCB represents a minimal-invasive and immediate solution for situations where one or more teeth require replacement. This prosthetic option is notably conservative, aesthetically pleasing, cost-effective, and offers a 'quick-fix' for tooth replacement, achievable in a single session using the chairside direct method.<sup>3</sup> It serves as an excellent alternative for emergency tooth replacements, temporary replacements following implant placement, and for patients with budget constraints who cannot afford a conventional fixed partial denture.<sup>3,19</sup>

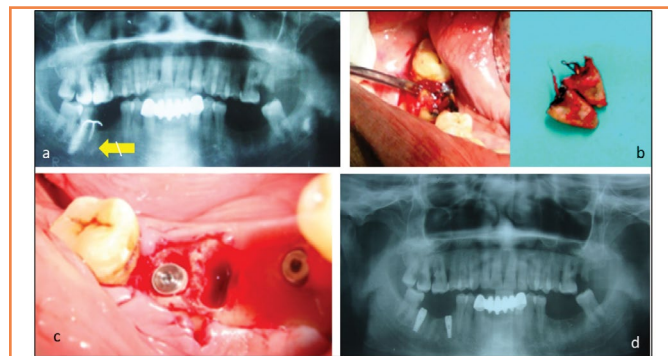


Fig. 5 A case of immediate implant placement a) Pre-operative orthopantomogram (OPG) with arrow showing 46 indicated for extraction. b) Extraction of the root stump. c) Immediate implant placement. d) Post-operative OPG showing implant placement

In IFRCBs, pontics can be crafted from natural extracted teeth, acrylic resin teeth, or composite resin. To secure the pontic to adjacent teeth, a bondable fibre-reinforced material is utilised. The success of IFRCBs hinges on good oral hygiene practices and maintaining a dry operating field.<sup>19</sup>

**Clinical tips**

**Bonding to metal or porcelain:** When bonding fibres to porcelain or metal, it's important to be mindful of the potential for debonding. The use of metal and porcelain primers can enhance bond strength and improve the reliability of the attachment.<sup>19</sup>

**Occlusal considerations:** Similar to IRBBs, occlusal considerations are of paramount importance for the success of IFRCBs. Ensuring adequate interocclusal space is essential prior to planning this prosthesis to guarantee its functionality and longevity.<sup>3</sup>

**Immediate implant placement**

In the field of dentistry, a notable trend has emerged wherein dentists increasingly opt for immediate implant placement immediately following the extraction of a compromised tooth.<sup>20,21</sup> This approach effectively bypasses the traditional waiting period of 4–6 months post-extraction, which is typically required for new bone formation. Moreover, immediate implant placement has demonstrated advantages, including reduced crestal bone loss compared to delayed implant procedures.<sup>21</sup>

Furthermore, this method offers the benefits of swifter and more predictable healing, as osseointegration aligns seamlessly with the natural healing process.<sup>20,21</sup> Importantly, the preserved anatomy of the extracted tooth socket necessitates minimal preparation during immediate implant placement, closely resembling the structure of root-form implants.

**Clinical tips**

**Patient selection:** Thoughtful treatment planning is essential when considering immediate implant placement. Careful case selection is paramount. Patients lacking sufficient bone apical to the socket, those in close proximity to critical structures like the mandibular neurovascular bundle, maxillary sinus, or nasal cavity, and those with unfavourable anatomical configurations of the remaining bone should be considered contraindications for immediate implant placement.<sup>20</sup>

**Extraction technique:** To ensure the success of immediate implant placement, the tooth must be extracted with utmost care and minimal trauma. This approach is vital for preserving the integrity of the buccal and lingual plates of the extraction socket.<sup>21</sup>

Advertisement placeholder

Hier steht eine Anzeige.

Hier staat een advertentie.

Advertisement placeholder

Hier steht eine Anzeige.

Hier staat een advertentie.

Advertisement placeholder

Hier steht eine Anzeige.

Hier staat een advertentie.

Advertisement placeholder

Hier steht eine Anzeige.

Hier staat een advertentie.



« **Osteotomy site preparation:** Optimal implant primary stability can be achieved by engaging the apical 3 mm of virgin bone beneath the extraction socket. In cases where radiographs reveal periapical infection, it is advisable to perform socket curettage followed by immediate implant placement.<sup>20</sup>

**Cost considerations:** Patients should be informed of potential additional costs associated with the possibility of requiring graft placement. Transparent communication about these potential expenses is crucial to ensure patients are well-informed when making decisions about their treatment.

See Figure 5.

## Conclusion

This article explores several options for the immediate replacement of missing teeth. Through comprehensive patient assessments, well-considered treatment planning, and precise clinical techniques, these prosthetic choices can offer immediate solutions to restore both aesthetics and functionality effectively. ■

*Top tips are intended as a series of experiential tips, rather than a compendium of the evidence.*

## References

- DDU. Guide to consent to dental treatment. September 2022. Available at: <https://www.theddu.com/guidance-and-advice/guides/quick-guide-to-consent> (accessed September 2023)
- General Dental Council. Standards for the dental team. Principle Three: Obtain valid consent. 2013. Available at: <https://standards.gdc-uk.org/pages/principle3/principle3.aspx> (accessed September 2023).
- Perrin P, Meyer-Lueckel H, Wierichs R J. Longevity of immediate rehabilitation with direct fiber reinforced composite fixed partial dentures after up to 9 years. *J Dent* 2020; doi: 10.1016/j.jdent.2020.103438.
- St George G, Hussain S, Welfare R. Immediate dentures: 1. Treatment planning. *Dent Update* 2010; **37**: 82–91.
- Johnson K. A three year study of the dimensional changes occurring in the maxilla following immediate denture treatment. *Aust Dent J* 1967; **12**: 152–159.
- Johnson K. A study of the dimensional changes occurring in the maxilla following closed face immediate denture treatment. *Aust Dent J* 1977; **22**: 393–396.
- Johnson K. A study of the dimensional changes occurring in the maxilla following open face immediate denture treatment. *Aust Dent J* 1977; **22**: 451–454.
- Haerberle C B. Clinical considerations for delivery of immediate dentures. *Decisions in Dentistry* 2019; **5**: 36–41.
- Beck C B, Bates J F, Basker R M, Gutteridge D L, Harrison A. A survey of the dissatisfied denture patient. *Eur J Prosthodont Restor Dent* 1993; **2**: 73–78.
- Seals R R Jr, Kuebker W A, Stewart K L. Immediate complete dentures. *Dent Clin North Am* 1996; **40**: 151–167.
- St George G, Lewis N J, Malton C, Welfare R. Immediate dentures: 2. Clinical stages of construction. *Dent Update* 2010; **37**: 154–160.
- Patel A, Prajapati P, Sethuraman R, Patel J R. Essix restoration: a novel approach for transitional teeth replacement. *BMJ Case Rep* 2014; doi: 10.1136/bcr-2013-200422
- Lally U. A simple technique for replacing extracted anterior teeth using a vacuum formed retainer. *J Ir De Assoc* 2013; **59**: 258–260
- Darbar U R, Hemmings K W, King P A. An immediate resin-bonded bridge using the natural tooth. *Dent Update* 1995; **22**: 288–290.
- Al-Wahadni A M, Al-Omari W M. Immediate resin-bonded bridgework: results of a medium-term clinical follow-up study. *J Oral Rehabil* 2004; **31**: 90–94.
- Prashanti E, Sajjan S, Kumar M. Comparison of stress patterns and displacement in conventional cantilever fixed partial denture with resin bonded cantilever fixed partial denture: a finite element analysis. *Indian J Dent Res* 2010; **21**: 59–62.
- Durey K A, Nixon P J, Robinson S, Chan M F. Resin bonded bridges: techniques for success. *Br Dent J* 2011; **211**: 113–118.
- Carrilho E, Cardoso M, Marques Ferreira M, Marto C M, Paula A, Coelho A S. 10-MDP based dental adhesives: adhesive interface characterization and adhesive stability – a systematic review. *Materials (Basel)* 2019; doi: 10.3390/ma12050790.
- Van Rensburg J J. Fibre-reinforced composite (FRC) bridge – a minimally destructive approach. *Dent Update* 2015; **42**: 360–366.
- Ebenezer V, Balakrishnan K, Asir R V, Sragun B. Immediate placement of endosseous implants into the extraction sockets. *J Pharm Bioallied Sci* 2015; doi: 10.4103/0975-7406.155926.
- Lazzara R J. Immediate implant placement into extraction sites: surgical and restorative advantages. *Int J Periodontics Restorative Dent* 1989; **9**: 332–343. ✦

# Women must grit their teeth and bear it when it comes to oral health

Women face heightened oral health risks compared to men, thanks to the hormonal fluctuations associated with menstruation, birth control, and menopause.<sup>1</sup>

Now, newly released data from the Wrigley Oral Healthcare Programme's 'Oral Health Index', a survey of 6,000 national representatives, has shown that more women (48%) believe there has been no improvement to accessing dental services since the pandemic, compared to men (32%).

The Index also found that nearly a third (32%) of women report they are less likely to visit a dentist due to the cost-of-living crisis.

The findings precede the publication of the Government's Dental Recovery Plan, which is due to be released ahead of the new year in an effort to tackle the UK's NHS dental crisis.

Unaffordable dentistry is also hitting young people hard. Fifty-six percent of people aged 25 to 34 years old believe their dental health will suffer amidst soaring living costs, and one in three would consider exploring overseas treatment options for affordability.

Separate research from Frontier Economics has shown the value preventative oral health measures could deliver, by avoiding the need for urgent treatments and making the need for check-ups less frequent.<sup>2</sup>

Introducing supervised toothbrushing programmes for children, expanding water fluoridation schemes, and encouraging the public to chew sugar-free gum could together save the NHS over £50 million per year, and save NHS dental patients £95.9 million.<sup>2</sup>

British Dental Association Chair Eddie Crouch said: 'Cost of living and access crises are creating a perfect storm. Millions are thinking twice about needed care if they're lucky enough to find an appointment, while others are looking abroad.'

'Every day that passes our patients are making choices that put their oral health at risk. The government cannot remain asleep at the wheel.'

Michael Dodds BDS PhD, Senior Principal Scientist with the Wrigley Oral Healthcare Programme said: 'The Oral Health Index's worrying findings show us that people risk missing out on much-needed dental treatment, due to pressures on services and the rising cost of living. Maintaining good oral health should not be a luxury – it is an essential part of our overall wellbeing. It helps people to boost their self-confidence and enables them to carry out day-to-day activities like eating and speaking without discomfort or pain.'

## References

- Benscosme J. Sex-based differences in oral health. 2016. Available at: <https://dimensionsofdentalhygiene.com/article/sex-based-differences-in-oral-health/> (accessed September 2023).
- Woolley N, Camplejohn A. The economic value of good oral health. 2023. Available at: <https://www.frontier-economics.com/uk/en/news-and-articles/news/news-article-i10334-the-economic-value-of-good-oral-health/#> (accessed November 2023).