



All-on-4 versus Traditional Implants: Which Is Best for Full-Arch Restoration

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ABSTRACT

This paper compares traditional dental implants with the All-on-4 technique, two approaches to full-arch oral rehabilitation. All-on-4 uses four strategically placed implants for a graftless, same-day restoration, while traditional implants often require more implants, bone grafting, and longer treatment time. Both methods show similar long-term success rates, with All-on-4 offering faster recovery and high patient satisfaction. The study also reviews advancements like digital planning and 3D printing that improve outcomes in both systems

I. INTRODUCTION

The All-on-4 dental implant system is an innovative solution for patients who are fully edentulous or at risk of complete tooth loss. Developed to maximize support using only four implants per arch, the technique involves placing two vertical implants in the front and two angled implants in the back to avoid anatomical structures and eliminate the need for bone grafting. This approach allows for immediate function, reduced treatment time, and a fixed full-arch prosthesis—making it especially beneficial for patients with limited bone volume., allowing a full set of **10–12 teeth** to be fixed on those four implants without additional support Crucially, an immediate provisional prosthesis is typically placed on the day of surgery, providing patients with fixed teeth in one day. This immediate function approach stands in contrast to traditional protocols that might require healing periods of 3–6 months before the final teeth are attached.

Methods: Surgical and Prosthetic Protocols

Surgical Approaches – Traditional vs. All-on-4:

Traditional dental implant treatment for an edentulous jaw often involves placing a higher number of implants, sometimes in conjunction with bone augmentation procedures. In a conventional full-arch case, **6–8 implants** may be placed per arch (typically 6 in the maxilla and 4–6 in the mandible as per classic protocols to support a fixed prosthesis, especially if using a one-implant-per-tooth philosophy or aiming to eliminate any prosthetic cantilevers. These implants are usually

placed nearly parallel (axially) in the positions of previous teeth. If the patient has significant bone loss in certain areas (for example, the posterior upper jaw near the sinuses or the lower jaw near the nerve canal), bone grafting (such as sinus lifts or block grafts) is traditionally performed to enable implant placement in those sites. After implant surgery, a healing period (osseointegration phase) of a few months is often observed before loading the implants with a permanent restoration. During this time, patients might wear a removable denture. In summary, the traditional approach can involve multiple surgeries (for implants and any needed grafts) and a total treatment timeline that may stretch to **6–12 months** before final teeth are delivered .By contrast, the All-on-4 protocol streamlines full-arch rehabilitation into a single surgical procedure in most cases. Four implants are placed in strategic positions of the jaw: the front two are inserted vertically in the anterior region (usually around the positions of the lateral incisor or canine), and the back two implants are inserted in the premolar or molar region at an angle tilted distally (towards the back of the mouth). Angling the posterior implants (often up to 30–45 degrees) allows engagement of stronger anterior bone and avoids anatomical structures like the maxillary sinuses or mandibular nerve nobelbiocare.com. This often eliminates the need for bone grafting even in jaws with moderate resorption – hence All-on-4 is described as a **“graftless”** solution nobelbiocare.com. Immediately after implant placement, multi-unit abutments are attached (to correct the angle of the tilted implants and provide a uniform platform), and a provisional fixed full-arch prosthesis is secured, usually on the same day. This immediate loading is a hallmark of All-on-4; patients walk out with a new set of fixed teeth within 24 hours of surgery (often the very same day) joms.org. The procedure is thus significantly faster overall – often completed in a matter of days or weeks for the entire arch – as opposed to the months required for traditional staged implant therapy.

Prosthetic Rehabilitation Differences: Alongside the surgical distinctions, the prosthetic protocols



for traditional implants vs. All-on-4 have notable differences. With a conventional multi-implant approach, clinicians have flexibility in prosthetic design. For instance, if 6–8 implants are available in an arch, the restoration might be broken into smaller bridge segments (such as two 3-unit or 4-unit bridges, or a full-arch bridge supported by all implants). In some cases, a removable implant overdenture is chosen, which typically uses 2–4 implants with attachments (like locators or a bar); this is a more traditional solution especially when cost or anatomical limitations prevent a full fixed bridge. Generally, with many implants distributed across the arch, the prosthetic can include posterior molars without significant cantilevers, as the implants can be placed roughly under where each tooth will go. Traditional protocols also often delayed the final prosthetic fabrication until after osseointegration, so the initial prosthesis would be a removable denture or a provisional bridge used only after a suitable healing period.

In the All-on-4 concept, the prosthesis is typically a one-piece full-arch fixed bridge (sometimes called a hybrid denture when made of acrylic teeth on a metal framework) that spans from one side of the arch to the other. Because only four implants support the entire arch, the prosthetic design may incorporate a slight cantilever past the last implants to replace teeth further back (commonly extending to the second premolar or first molar position). The need to replace missing gum and bone for aesthetics is addressed by the prosthesis having a pink acrylic or ceramic flange that simulates gum tissue. This makes All-on-4 bridges a bit bulkier than natural teeth, as they restore not just teeth but also lost ridge volume. The bridge is almost always screw-retained via the multi-unit abutments – small screws accessible through the prosthetic teeth or gingiva portion allow the dentist to secure or remove the prosthesis as needed. Traditional multi-implant cases could be either screw-retained or cemented; however, modern practice prefers screw-retained for full arches to facilitate retrievability and avoid cement trapping under the gums.

Another difference is in the previsualization: for All-on-4, an **immediate provisional fixed denture** is delivered on the same day of surgery (or within 24–48 hours). This temporary prosthesis remains during the healing phase (3–6 months) and is later replaced by a definitive prosthesis once implants are fully integrated. In contrast, a traditional full-arch case might not have an immediate fixed provisional in all situations; patients could use a removable denture during healing or, if an immediate fixed

provisional is desired, it usually requires a greater number of implants or careful case selection to ensure stability (some practitioners do immediate loading on 6–8 implants as well, but it's less universally practiced than the standardized All-on-4 method).

To summarize the protocol differences clearly, we can contrast the key points of All-on-4 versus a conventional full-arch implant approach:

- **Number of Implants:** All-on-4 uses four implants per arch (two axial anterior implants and two tilted posterior implants), whereas traditional full-arch restorations often use 6–8 implants for a maxilla and 4–6 for a mandible to support a fixed bridge. The reduced implant count in All-on-4 is compensated by strategic angulation and positioning.
- **Bone Grafting:** All-on-4 is designed as a graftless solution – by tilting the back implants to use available native bone, it avoids the need for sinus lifts or major grafts in most cases. Traditional implant protocols frequently involve bone grafting if the patient's bone volume is inadequate at desired implant sites, which adds to treatment time and complexity.
- **Treatment Timeline:** All-on-4 provides an expedited treatment. The implants and a fixed provisional denture are placed in one appointment (often coined “teeth in a day”), with the final prosthesis after healing. Conventional methods may require multiple stages (graft healing, implant placement, implant healing) which can extend the total treatment duration to **several months up to a year** before definitive teeth are in place thepointdental.com.au.
- **Immediate Loading vs. Staged Loading:** In All-on-4, implants are immediately loaded with a fixed prosthesis (assuming each implant achieves high primary stability, typically insertion torque ≥ 35 Ncm). Traditional approaches historically used a delayed loading (no load during 3–6 month healing), although in contemporary practice, early or immediate loading is also employed with sufficient implants. Still, immediate full-arch fixed loading is a defining feature of All-on-4 protocols.
- **Prosthetic Design:** The All-on-4 typically yields a one-piece full-arch fixed bridge with a continuous acrylic or ceramic gingival portion (due to the need to restore lost bone/gum and connect all implants for cross-arch stability). Traditional implant restorations might be broken into multiple



sections or even incorporate removable overdentures; they may not always require extensive fake gum parts if the patient's bone and soft tissue are preserved by grafting or other means. Essentially, All-on-4 is a complete arch rehabilitation concept, whereas "traditional" implant treatment can range from single crowns to segmental bridges to overdentures depending on how many implants are placed.

- **Maintenance:** Both approaches require good oral hygiene, but the All-on-4 prosthesis (being a larger one-piece bridge) necessitates particular attention to cleaning beneath the bridge and around the implant posts (water flossers, special brushes, and regular professional cleanings are needed to prevent peri-implant issues). Traditional multi-implant cases, if done as separate crowns or bridges, might be easier to floss between like natural teeth, or if as an overdenture, the denture can be removed for cleaning. Maintenance is a consideration but not a fundamental difference in concept; however, the consequences of complications differ: for example, if one implant in an All-on-4 fails, the entire arch restoration is affected and must be addressed, whereas if one implant fails among 6–8, the others might still support a modified prosthesis (this is discussed further under **Limitations**).

In summary, the All-on-4 concept represents a streamlined, graft-avoiding, immediate-load methodology for full-arch implants, whereas traditional implant therapy for an edentulous patient can be more resource-intensive, involving more implants and often staged reconstruction including bone augmentation. Both approaches share the same end goal – a functional, fixed set of teeth supported by implants – but they differ greatly in execution and timeline. In the following sections, we explore how these differences impact clinical outcomes, what limitations exist for each method, and how new technologies are influencing both strategies.

Limitations and Variability

Each approach – conventional multi-implant rehabilitation and the All-on-4 concept – comes with its own set of limitations and is subject to variability based on patient factors and clinical technique. Understanding these constraints is crucial for case selection and risk management.

Risk of Implant Failure and Impact on Prosthesis:

One notable difference in limitation is the redundancy (or lack thereof) of implants. With only four implants carrying the load in All-on-4, each implant is crucial. If one implant were to fail (either by not integrating or by later loss), the entire prosthesis is destabilized; often the interim solution would be to insert a new implant if possible and remake or adapt the prosthesis. In contrast, if a patient has, say, 8 implants and one fails, the others might still be enough to support a modified full-arch bridge, potentially avoiding complete prosthetic failure. Thus, some clinicians consider All-on-4 **less forgiving** – it has "no backup" implants. This concern has led to variations like All-on-6 (placing six implants to support the arch). However, interestingly, clinical observations indicate that adding more implants does not guarantee better outcomes. As one experienced implant surgeon notes, "the current thinking is that 4 implants is enough... the success of All-on-4 [has been] found to be equal to that of All-on-5 or 6" – indeed, adding more implants can introduce more complexity or complications. Every additional implant is another surgical site (with its own risk of infection or failure) and adds difficulty in achieving passive fit of the prosthesis. Therefore, while All-on-4 has the limitation of relying on exactly four implants, this number has proven sufficient in well-selected cases.

Variability in All-on-4 Protocols:

Although "All-on-4" implies a fixed formula (four implants, immediate loading), in practice there is variation. As mentioned, some clinicians opt for All-on-5 or All-on-6 in certain cases – often termed **All-on-X**. The literature uses "All-on-4" broadly, but one review notes that providers have expanded on the concept by using more than four implants when possible joms.org. This doesn't fundamentally change the approach (still immediate full-arch), but slightly alters the risk-benefit calculus. Another area of variability is the **arch location**: All-on-4 in the maxilla vs. mandible. The maxilla (upper jaw) generally has softer bone and a more expansive arch, which sometimes leads to a preference for 5–6 implants if feasible, whereas the mandible's dense bone often allows All-on-4 with high success. Indeed, studies originally reported very high survival for All-on-4 in the lower jaw (mandible), and slightly lower but still excellent results in the upper jaw, owing to bone differences svetlanadental.com. Clinicians might modify their technique (longer implants, different angles) depending on the arch.



In summary, **All-on-4's limitations** include strict reliance on four implants (no redundancy), necessity for sufficient anterior bone, high technique sensitivity, and maintenance demands to prevent complications. **Traditional full-arch implant approaches** have limitations in terms of longer treatment time, possibly higher cost and patient commitment (due to multiple surgeries), and the morbidity of bone graft procedures when needed. Both approaches require careful case selection: a well-chosen All-on-4 case can avoid unnecessary grafting and yield fast, excellent results, whereas a poorly indicated All-on-4 (in a case that really needed more extensive reconstruction) could lead to failure. On the other hand, opting for a traditional graft-and-multiple-implant route in a patient who could have done All-on-4 means more invasive treatment than necessary. The variability in execution (All-on-4 vs All-on-X, immediate vs early loading, different materials) also underscores that these treatments are individualized. Experienced clinicians will weigh these factors – often, they will have both approaches in their armamentarium and choose the one that best fits the patient's anatomical condition, health status, and preferences. In the next section, we examine how these approaches compare in terms of **clinical outcomes** like success rates and patient satisfaction, which ultimately inform those decisions.

Clinical Outcomes

When comparing traditional implant protocols and the All-on-4 concept, key clinical outcome measures include implant survival/success rates, prosthesis success, peri-implant health, healing/recovery time, and patient satisfaction or quality of life outcomes. The evidence to date suggests that All-on-4 achieves outcomes largely comparable to conventional implant treatments on many of these metrics, despite the reduced number of implants and immediate loading. Below we review the findings in the literature:

Implant Survival and Success Rates: Early skepticism toward the All-on-4 concept centered on whether four implants could predictably carry the load of a full arch, especially under immediate function. However, numerous studies and systematic reviews have now documented high survival rates for All-on-4 implants. A systematic review by Soto-Penalzo et al. reported a cumulative implant survival rate of **99.8% at 24 months** for All-on-4 cases. Noting that short-term outcomes were excellent. Longer-term follow-ups also show favorable results: for example, Malo et

al. (the originator of All-on-4) reported approximately **95% survival at 5–10 years** in a cohort of All-on-4 patients. Generally, multiple studies have found 3- to 5-year survival rates in the high 90s (often 96–98%) and around 94–95% at 10 years for All-on-4 implants. These figures are **on par with traditional implant success rates**. Conventional implants, when used in greater number for full arches or in two-stage approaches, historically show long-term success in the 90–95% range over 10+ years as well. In fact, a recent retrospective review concluded that the All-on-4 treatment modality demonstrates “long-term comparable success” relative to traditional techniques that use more implants.

It is important to clarify that “implant survival” means the implant remains in the mouth and stable; “success” criteria often include factors like minimal bone loss and no complications. By these measures, All-on-4 holds up well. Studies comparing tilted implants (as used in All-on-4) with axial implants have found no significant difference in marginal bone loss or implant success – tilted implants show **bone stability and survival similar to straight implants**. For instance, one long-term study with follow-up up to 18 years reported **cumulative survival between 93% and 100%** for All-on-4 implants, with marginal bone loss in a low range (0.28–2.23 mm) over 1–15 years. These outcomes dispel the earlier concern that tilting implants or immediate loading would compromise integration. It's now well-accepted that immediate function is viable given proper case selection and protocol; as another review succinctly put it, the challenge in implant dentistry is no longer proving that immediate-loading works, but rather improving simplicity and cost-effectiveness.

Prosthetic Success and Longevity: The success of the prosthesis (the full arch bridge or denture) is equally important. Both traditional and All-on-4 approaches aim for a fixed prosthesis that lasts many years. Complications like prosthetic fracture, tooth wear, or screw loosening can occur in any full-arch reconstruction. The literature indicates that All-on-4 prostheses, when properly fabricated, can be very durable. Initially, many All-on-4 cases were restored with acrylic resin teeth on a metal framework (hybrid dentures). Over 5–10 years, these can incur wear or chipping of teeth – one study noted more frequent prosthetic repairs in acrylic-based prostheses compared to newer materials connect. In recent years, there has been a trend toward **monolithic zirconia bridges** as the definitive All-on-4 prosthesis, which dramatically



increases fracture resistance (zirconia is a strong ceramic). Clinical reports show high prosthesis survival rates; for example, a 5-year study might report nearly 100% prosthesis survival aside from minor events like replacing a loosening screw or repairing a porcelain veneer. Traditional implant cases, if restored with porcelain-fused-to-metal bridges or similar, also have high prosthetic survival, but segmental approaches could mean if one segment fails it doesn't affect the others. On the whole, with modern materials the **prosthetic outcome is very successful in both approaches**, and differences lie more in the type of complications. For All-on-4, common technical complications reported are things like acrylic tooth wear, or in some cases, loosening of multi-unit abutment screws. These are typically manageable issues. A meta-analysis by Patzelt et al. (though focusing on immediate loading protocols) found that the incidence of significant prosthetic complications was relatively low and did not affect implant survival. With careful design (adequate framework strength, proper occlusion to avoid excessive forces), All-on-4 prostheses can function for many years without major incident.

Healing Time and Recovery: One of the starkest outcome differences between the two approaches is the patient's experience of healing and functional recovery. All-on-4 provides immediate improvement in function – patients receive a fixed provisional bridge either on the day of surgery or within 24 hours. This means that within a day, the patient can speak, smile, and chew softly with their new teeth. The post-operative healing still involves typical surgical recovery (swelling, minor discomfort), but from a functional standpoint, the transformation is essentially immediate. By contrast, traditional full-arch implant treatments can involve a long transitional period. Patients might use a removable denture for several months while implants heal under the gums. They might undergo multiple surgeries (for example, a bone graft surgery, then months later implant placement, then later uncovering of implants). Each stage has its own healing. The overall time to full function with permanent teeth can be half a year or more. From the patient's perspective, All-on-4 offers a **much shorter downtime** – often within a few days they adapt to the fixed provisional and can resume a relatively normal diet (with some softness precaution initially). Traditional staged approaches delay gratification; some patients have difficulty coping with dentures during the interim and may experience frustration or decreased quality of life in those months. That said, once the final prosthesis is

delivered in a traditional case, the end result in terms of function (ability to chew a full diet, etc.) can be equally excellent. So, **both approaches restore mastication and speech effectively**, but All-on-4 does so far more rapidly. Studies consistently highlight this accelerated rehabilitation as a major advantage of All-on-4. For instance, an All-on-4 patient can often go from hopeless dentition or denture to fixed teeth in one day – something impossible with earlier protocols.

Patient Satisfaction and Quality of Life: Perhaps the most important outcome from the patient's perspective is satisfaction – both with the process and the final result. Implant-supported restorations in general have been shown to dramatically improve edentulous patients' oral health-related quality of life compared to conventional dentures. The All-on-4 concept, by providing a fixed solution without delay, tends to score exceptionally high on patient satisfaction. In surveys and studies, **All-on-4 patients report a high quality of life, with improvements in comfort, chewing ability, speech, esthetics, and self-confidence**. One crossover study evaluated patients who experienced conventional dentures versus an All-on-4 fixed prosthesis and found that the fixed implant prosthesis was rated significantly better on all counts of satisfaction (retention, stability, comfort, chewing ability, etc.). After getting All-on-4, patients often describe the improvement as "life-changing," not just because they have teeth, but because those teeth are stable and feel natural as part of them. In the same study, even a milled bar overdenture (an implant-retained removable option) improved satisfaction over regular dentures, but the fully fixed bridge was the best in terms of retention and chewing confidence. Traditional implant treatments, after completion, also garner high satisfaction – patients who receive a well-fitting full-arch implant bridge (even if it took a year to get there) will certainly be happier than they were with dentures. However, if we consider the journey, the All-on-4 patients are spared the lengthy period of insecurity or discomfort associated with healing under a denture. Satisfaction is multi-faceted: immediate gratification, lower overall discomfort (fewer surgeries), and of course the final functional result all contribute. All-on-4 tends to excel in immediate satisfaction. One could argue that a patient who undergoes bone grafting and multiple steps might appreciate the end result just as much in the long term, but studies suggest people value the shorter treatment and early improvement a great deal.



Oral Health and Peri-Implant Health: In terms of soft tissue outcomes, both approaches aim to maintain healthy peri-implant tissues. All-on-4 studies have reported healthy soft tissue indices in most patients, with only a minority showing signs of peri-implant inflammation after a few years. The incidence of **peri-implantitis** (a more serious inflammation with bone loss) in All-on-4 appears to be relatively low in short-to-mid term, but it is a concern that needs long-term observation. One reason peri-implantitis might develop is difficulty cleaning, as mentioned earlier. Traditional approaches could have an edge if the prosthetics are easier to maintain for the patient, but if a patient is diligent, All-on-4 tissue health can be just as good. Studies have not shown a significant difference in peri-implant bone levels between tilted (All-on-4) and upright implants – both types show **stable marginal bone levels** when properly loaded and maintained. For instance, a study comparing straight vs. tilted implants in full-arch cases found no difference in bone loss or implant survival between the two groups at 1-year and 3-year follow-ups.

In summary, **clinical outcomes for All-on-4 are highly favorable and essentially mirror those of well-executed traditional implant solutions.** The implants demonstrate excellent survival rates (mid- to high-90s percentage over long term) – multiple sources corroborate that the All-on-4 concept is as predictably successful as placing more implants, provided proper protocols are followed. The major advantages seen are in reduced healing time and very high patient satisfaction due to immediate improvement. Patients regain function and confidence faster with All-on-4, which likely contributes to the positive subjective outcomes reported. Traditional approaches yield similarly excellent final results in terms of function and implant longevity, but they do so with more time and possibly more procedures. Neither approach is immune to complications, but most studies indicate low incidence of serious issues. For both, careful maintenance is required to ensure those long-term success rates hold up, especially as peri-implant diseases can emerge over time if hygiene is neglected. Next, we will delve into the **challenges and considerations** that accompany these treatments, including the financial costs, accessibility, and technical factors that influence which approach is chosen for a given patient.

Challenges and Considerations

When deciding between a traditional implant approach and the All-on-4 concept for full-

arch rehabilitation, several practical challenges and considerations come into play. These include economic factors (cost to the patient and provider), the accessibility of the treatment (availability of skilled providers and necessary technology), and the technique sensitivity which impacts the risk profile of the procedure. We will also consider patient-centered factors such as comfort during treatment, and long-term maintenance obligations.

Cost and Affordability: Cost is often a decisive factor for patients seeking dental implant solutions. Traditional implant treatments for a full arch can be quite expensive – if a case requires bone grafting, say a sinus lift (~ and multiple implants (6–8 implants, plus multiple abutments and crowns or a custom bridge), the total fee can be substantial. The All-on-4 concept was partly driven by cost-efficiency: by using fewer implants and avoiding graft procedures, it reduces the number of components and surgical interventions, thus potentially lowering the overall cost [researchgate.net](https://www.researchgate.net). In fact, the All-on-4 is often marketed as a **cost-effective, graftless solution** that provides a fixed arch of teeth on the day of surgery. Fewer implants mean fewer materials (implants and multi-unit abutments are costly parts), and a single-stage surgery with immediate loading means fewer operative sessions – all contributing to cost savings. A study on cost-effectiveness (e.g., using an incremental cost analysis) found that an immediately loaded full-arch implant prosthesis like All-on-4 can indeed be more cost-effective in the long run compared to conventional dentures when factoring in quality of life and maintenance, and also cheaper than doing a greater number of implants with grafts. However, “cost-effective” does not equate to “cheap” – All-on-4 still involves four implants and a custom prosthesis, which represents a significant upfront expense for the patient. In many dental markets, All-on-4 treatment for one jaw can cost tens of thousands of dollars. Traditional approaches can sometimes be even more (particularly if multiple surgeries and 6+ implants are involved). There are also less expensive alternatives like overdentures on two implants, but those have lower patient satisfaction. So, one challenge is matching the patient’s budget to the ideal treatment. All-on-4 often hits a sweet spot of high satisfaction and function at a lower cost than a full-mouth 8-implant reconstruction, but it’s still out of reach for many patients without financing or insurance support (and most insurance plans have low caps that barely dent such costs). From a provider perspective, the All-on-4 may reduce chairtime



(thus cost) compared to doing multiple staged surgeries, but it requires an immediate prosthesis fabrication which can mean lab costs or in-house milling, etc. Many implant centers offer package pricing for All-on-4, which can be more straightforward than the itemized costs of traditional treatment.

Accessibility and Availability of Skilled Providers:

Another aspect of accessibility is the technology required. All-on-4 benefits greatly from tools like CBCT imaging, planning software, milling machines or 3D printers for guides/prosthetics – these are more likely to be found in specialized practices. Patients in rural areas or underserved communities might not have easy local access to an All-on-4 provider and would need to travel to a center. There's also the issue of training and experience: as discussed, experience correlates with success connect.aaid-implant.org. Not every implantologist has extensive experience with full-arch immediate load cases. The American Academy of Implant Dentistry and other organizations provide training, but ultimately, All-on-4 is a complex treatment that a dentist might do only occasionally if they are not focused on implants, whereas an implant center might do many per year. Therefore, patients who desire this treatment often seek out practices that specialize in it.

From a public health perspective, the cost and specialization means All-on-4 is not as widely accessible as less costly treatments (like dentures). There's a challenge in bridging that gap – some initiatives or insurance programs might help more edentulous patients get implant treatments, but currently, implant full-arch restorations are largely an out-of-pocket, elective procedure.

Patient Acceptance and Comfort: Another consideration is how the patient perceives the treatment process. Some patients may actually prefer a slower, staged approach if they are anxious about extensive procedures. An All-on-4 surgery is longer in a single day (often 2–3+ hours of surgery plus prosthesis fitting) and the patient must undergo extractions of any remaining teeth and implants all at once. That can be psychologically daunting, although most patients are very happy to get the teeth immediately afterward. Conversely, some patients strongly prefer to get everything done in one day rather than have multiple surgeries. So patient psychology and tolerance play a role. The immediate aftermath of All-on-4 surgery can involve swelling and a soft diet for a few weeks,

but because they have fixed teeth, many patients feel it's easier than dealing with a removable denture. With traditional methods, wearing a temporary denture during healing might be uncomfortable or embarrassing for some, negatively impacting them during those months. So, from a patient comfort standpoint, All-on-4 often wins out, but the **intensity of the surgery** (full-mouth extractions + implants in one go) requires that the patient be medically fit and prepared (often done under IV sedation or general anesthesia for comfort). Medically compromised patients might not be candidates for a long surgery; they might need to break treatment into segments (which aligns more with a traditional approach, e.g., treat one section at a time). Thus health conditions and comfort with surgery are considerations.

Maintenance and Long-Term Care: Regardless of approach, implant patients need lifelong maintenance – professional cleanings, examinations, and good home care. All-on-4 patients in particular should be on a rigorous follow-up schedule (e.g., 3-6 month recalls) to monitor implant health and to remove and professionally clean the prosthesis periodically (some recommend once a year removal for thorough cleaning and inspection of the abutment connections, etc.). This is an added maintenance step that denture patients, for example, wouldn't have (they can clean their denture themselves easily). Traditional implant prostheses might also need professional maintenance, but if they are in smaller sections it might be easier to manage repairs or replacements on a smaller scale. One challenge is that as implant patients age, their ability to maintain hygiene might diminish (e.g., due to dexterity issues). A fixed full-arch bridge can be harder for an elderly patient to clean than a removable denture. So ironically, a treatment like All-on-4 that is fantastic when the patient is, say, 60 might pose challenges if the patient lives to 85 and has cognitive or physical decline. Caregivers may not know how to help clean under a fixed bridge. Some clinicians consider a patient's age and overall prognosis – for an older patient, a removable solution might sometimes be recommended precisely because it can be taken out and cleaned easily. On the flip side, a fixed solution avoids the sores and discomfort that dentures can cause in elderly tissue. There is no one-size-fits-all; these considerations must be personalized.

Managing Expectations: A soft consideration but important one is expectation management. All-on-4



is often marketed with slogans like “teeth in a day” or “new smile in one visit,” which, while true in essence, can sometimes give patients unrealistic expectations of an effortless process. It’s crucial to communicate that although they get immediate teeth, they must be gentle with them initially (soft diet during initial healing), and that these are provisional teeth to be replaced with a final set after a few months.

II. CONCLUSION

Both traditional dental implant protocols and the All-on-4 treatment concept have transformed the lives of edentulous patients, each approach offering a pathway to a functional and fixed set of teeth. This comparative review highlights that while these approaches differ in execution, their ultimate clinical outcomes can be similarly excellent. Traditional full-arch implant restorations – characterized by a greater number of implants, possible bone grafting, and staged loading – have a long track record of success and remain a robust option, especially in cases where patient anatomy or preferences call for a more gradual rehabilitation. The All-on-4 concept, on the other hand, represents a paradigm shift toward simplification: using just four implants and immediate loading to restore an arch in a single stroke.

Surgical and Prosthetic Trade-offs: In comparing the two, we see clear trade-offs. Traditional implants might involve more upfront surgery (especially if grafting), more implants (with potential benefits of redundancy), and a longer healing, but they offer flexibility and familiarity; All-on-4 is a one-shot surgical solution, highly efficient, but concentrated in its reliance on four implants and requiring careful execution. Prosthetically, both yield a fixed arch of teeth – the difference is that All-on-4 usually has one continuous prosthesis with a pink flange, whereas traditional can sometimes allow segmental bridges or other configurations. The aesthetic and functional results for the patient, once final prostheses are in place, are largely indistinguishable – in other words, a well-done All-on-4 bridge and a well-done 6-implant bridge should both look and function like a set of natural teeth. Thus, the choice often comes down to patient-specific factors (bone availability, systemic health, time and budget constraints) and the treating team’s philosophy.

Patient-Centered Outcomes: Patients care about results and the journey to get there. All-on-4 offers

an undeniably attractive journey – immediate teeth and typically less overall treatment time – which translates to high patient satisfaction and improved quality of life early on. Traditional treatments demand patience from patients, but for those who undergo them, the end result is just as life-changing: the return of a stable, confident smile and the ability to enjoy foods they might have forsaken. In terms of quality of life scores, any fixed implant solution vastly outperforms a conventional denture. The All-on-4 just delivers those benefits sooner. From a clinician’s perspective, meeting patient expectations is a key to success; therefore, aligning the treatment choice with what the patient values (speed vs. staged approach, upfront cost vs. phased cost, etc.) is critical. It bears repeating that both paths, when done properly, lead to dramatically positive outcomes – edentulous patients often report the treatment as “the best investment” they made in themselves, regardless of method, because it restores dignity and daily comfort.

Challenges and Future Outlook: Each approach comes with challenges as discussed, but importantly, ongoing advancements are mitigating many of these challenges. The advent of digital planning and guided surgery is making outcomes more predictable and lowering the technique sensitivity barrier. High satisfaction rates and success in studies have solidified All-on-4 as a mainstream option rather than an experimental concept joms.org. At the same time, improvements in implant designs and biomaterials benefit all implant treatments – for example, a better implant surface that shortens healing time helps whether you place 4 implants or 8. The line between “traditional” and “All-on-4” is blurring as hybrids of approaches emerge (like All-on-X strategies, or staged-immediate combinations). In the future, we can expect full-arch rehabilitation to become even more streamlined, cost-effective, and widely available as technology reduces labor and error.

In conclusion, traditional dental implants and the All-on-4 concept should not be seen as adversarial or mutually exclusive; rather, they are complementary tools in the clinician’s toolkit. The evolution of implant protocols has reached a point where immediate, graftless solutions are proven and reliable, expanding our ability to treat patients who previously might not have pursued implants due to time or cost. Meanwhile, time-honored techniques still serve patients who need a more customized or staged approach. The **All-on-4 concept offers a predictable, simplified treatment for atrophic jaws** with minimal



surgeries and high success, and the **traditional approach offers versatility and a well-established path** especially in complex or segmented cases. The best choice in any given case will depend on a careful evaluation of the patient's anatomy, health, and preferences, as well as the clinician's expertise. Often, a thorough discussion with the patient about the pros and cons of each approach is warranted – such informed planning leads to higher satisfaction because the patient understands the rationale behind the treatment plan chosen for them.

Ultimately, both approaches share the same noble goal: to improve the patient's quality of life by providing a secure, functional, and natural-looking restoration of their missing teeth. As this review has shown, both traditional implants and All-on-4 can achieve that goal with high success. With continued advancements in technique and technology, the differences between them may further diminish, and patients will simply benefit from whichever tailored solution gives them their smile back in the best and most efficient way possible. Implant dentistry's future is bright, and whether it's four implants or eight, the focus remains on delivering **life-changing results** – a new smile, improved function, and enhanced confidence, fulfilling the promise that modern implantology holds.

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