their edentulous patients. This remains our profession's primary social responsibility!

 So, the answer to the titular question is a resounding "yes!" There is clearly a huge need for complete denture therapy in all countries, more in some than in others. But the need persists and we must ensure that the necessary skill-sets are passed on to help these patients not only improve their quality of life, but also to help them maintain and improve their cognitive, physical, and social health.

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Shortened Dental Arch Research Considerations for Edentulous Patient Management

Drs Nico H.J. Creugers and Dick J. Witter College of Dental Science, Radboud University, The Netherlands

- · Published outcome studies on patients with shortened dental arches (SDAs) when compared with other patients with complete arches (CDAs) reveal similar vertical and horizontal teeth overlap and occlusal wear, more interdental spacing in the premolar regions, more anterior teeth in occlusal contact in intercuspal position, and lower alveolar bone scores. However, the SDA status did not change over the years and demonstrated long-term sustainability.1 Other studies reported minor reductions in masticatory efficiency that are compensated for by longer chewing; no increased risk for temporomandibular disorders and periodontal health compromise; and minor effects on tooth wear. Moreover, subjects with SDA reported only minor or no negative healthrelated quality of life (OHRQoL) impact scores.²
- The approximately 10 occluding pairs of natural teeth in SDAs are the incisors, canines, and premolars. Most early implant-supported fixed dental prostheses in edentulous patients simulate this situation; and it has been shown that a lower number of implants than the number of replaced teeth in these regions can readily withstand occlusal forces. It is also suggested that neuromuscular regulatory systems are controlling muscular forces depending on the reduction of the number of occluding teeth.

Hence, there are lingering queries as to whether these regulatory mechanisms that seem to exist in subjects with "natural" SDAs are also present in "implant-fixed" SDA versions.³ However, a study in subjects with unilaterally natural posterior teeth and unilaterally implant-supported fixed dental prostheses for replacement of posterior teeth showed that maximum bite forces on the implant-supported side were lower than on the natural teeth side, which suggests that osseoperception regulates maximum occlusal forces. Moreover, a recent review stated that, in spite of the fact that individuals with fixed dental prostheses (FDPs) on natural teeth have periodontal mechanoreceptors while those with implant-supported FDPs in both jaws do not, motor performance in both groups is impaired to a similar degree.⁴ While direct evidence is lacking, it seems plausible to conclude that implant-supported SDAs provide similar-albeit with a reduced feedback mechanism-functionality as natural SDAs.

The use of the minimum number of longer and tilted implants so as to avoid anatomically challenging structures, as well as to preclude invasive surgery, underscores the concept of the so-called all-onfour treatment protocol. Moreover, this strategy achieves a more favorable anteroposterior distribution of implant abutments. This approach can also minimize the length of cantilever extensions that are popularly regarded as compromising distal implants' longevity. Tilted implants are also reported to function just as well as axially loaded ones, and numerous midterm survival data already indicate sustainable performances for interforaminal and anterior-sinus implant-supported SDAs.⁵

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 It appears that edentulous patients prefer minimally invasive fixed implant treatment options as opposed to removable implant therapy. However, more patients appear to encounter speech and oral health maintenance problems when wearing fixed as opposed to removable implant-supported prostheses.

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On Parafunction, Degenerative Arthritis, and the Edentulous Patient

Dr David Bartlett

Kings College London Dental Institute, London, England

- Nonfunctional or parafunctional habits involving repeated or sustained occlusal contacts can be harmful to the teeth or their replacements, including other components of the masticatory system. The profession lacks compelling epidemiologic studies of the incidence of parafunctional occlusal stress in populations with both natural and artificial dentitions. Nevertheless, clinical experience indicates that tooth clenching is common.
- Parafunctional habits in the denture wearer may cause additional loading on the denture-bearing tissues with consequent complaints of soreness and perhaps even an increased vulnerability to residual ridge reduction.
- Parafunctional mandibular activity may be either a nocturnal or awake behavioral condition and may occur with other forms of parafunction. It is closely associated with stress when it occurs during the day or a central nervous pathway if at night. Bruxism and teeth attrition are also closely related. Attrition is the wear of teeth resulting from tooth-to-tooth contact and may be associated with a bruxing habit. The link between both conditions can cause confusion over their respective definitions.
- Whenever bruxism is clinically associated with tooth wear, the teeth have flat or faceting areas on the occlusal or incisal surfaces. Bruxing can lead to extreme pressures on the teeth and often manifests as fractured or perforated restorations. It is difficult to control, although nocturnal occlusal splints can

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reduce the impact of clenching; however, diurnal control is more difficult.

- Studies focused on bruxism show it is relatively common, but data varies, probably because of the variety of methods used to assess it and the difficulty in identifying the condition. The impact on teeth is easier to establish, but it is almost impossible to assess whether wear is associated singularly with bruxism or other wear mechanisms.
- The neurophysiologic basis underlying bruxism has been studied experimentally in animals and in human beings, and part of its mechanism can be explained by an increase in the tonic activity in the jaw muscles. It is a very complex area of research, since it has been shown to result from psychosocial factors (such as stress or anxiety) or to be a reaction to strong emotions (eg, anger, frustration). It may also be associated with specific medical conditions (eg, oral tardive dyskinesia, Parkinson's disease), sleep parasomnias, or sleep disorders (apnea).
- There are very few robust studies reporting the effect of bruxism on dentures and their supporting tissues. However, the presence of time-dependent and severely worn prosthetic teeth may suggest a contributory role to compromised occlusal and face height integrity, together with adverse morphologic changes in supporting tissues.
- Edentulism leads to a reduced capacity to apply pressure between denture teeth; therefore, the impact of bruxism on dentures is almost impossible to assess when the other well-established principles of denture construction are considered.
- The situation is easier to assess when implants are used to replace teeth as the pressure applied between the jaws increases. Numerous case reports and collective professional experiences suggest that bruxism continues in these situations and can result in an increased risk of damage to prosthetic and implant components.

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