Denture wearers, as a population group, are the people that can benefit the most from dental implants. As dentists we are only too aware that the wearing of dentures can be a crippling experience for many of our patients. Alveolar bone is unique in that it is gener- ally only present to support teeth within the jawbone. The loss of teeth triggers the physiological resorption of the alveolar bone and wearing of a hard acrylic denture hastens the resorption process.

With the slow progressive loss of alveolar bone, ridge height reduces, attached gingiva gradually decreases and muscle attachments are moved closer to the crest of the ridge. This combi- nation of loss of alveolar ridge height and movement of the soft tissues resulting from the under- lying muscle pull tends to in- crease the instability of the den- tures.

Denture instability

This denture instability is most evident in the lower jaw. More often than not, most den- ture wearers have learned to tol- erate an upper denture, but it is usually the lower denture that tends to cause the most grief. An upper denture has a propensity to be tolerated more readily be- cause there is a larger surface area for the denture base to cover, which enables the “suc- tion” effect, and the upper front teeth are key for smiling and talk- ing when facing the general pub- lic. The lower denture on the other hand, has a much smaller surface area and the muscles of the tongue (on the inside), and lips and cheeks (on the outside) tend to dislodge the denture each time the patient tries to talk, chew or swallow. Once the alve-olar bone is completely lost, the only way a denture can be re- tained is by careful muscle con- trol between the lips, cheeks and tongue.

As patients get older, their muscle tonicity decreases and it becomes increasingly more diffi- cult to stabilise dentures. All the early implant studies were de- voted to the placement of dental implants in the lower jaw, be- tween the mental foramina, thereby providing an anchor to enable full lower denture wear- ers to overcome these problems.

Implants not only help to pro- vide increased retention and sta- bility for unstable dentures, but they also help to protect and re- tain the alveolar bone, (and in some instances actually help to promote bone formation) from the continuous hammering that it receives from wearing dentures.

Improving denture wellbeing

In the lower jaw, the place- ment of two well-placed im- plants can dramatically improve the general wellbeing of a den- ture cripple. Although the over- denture on two implants is still predominantly mucosa-borne, it no longer floats around during function. In the more discerning patient, the placement of addi- tional implants enables the den- ture to be less mucosa-borne and more implant-borne. Depending on the system that is used, as few as three to four implants can be used to support a fixed bridge. However, it is generally agreed that five strategically placed im- plants are required to support a fixed implant supported bridge. More than five implants in the lower jaw will enable a longer bridge to be constructed and pro- vide back up should any of the implants fail. The number of im- plants placed should be deter- mined by the type of restoration that will be placed; the quality and quantity of available bone height and the dentition in the opposing arch.

The number and placement of implants in the upper jaw is de- termined by the fact that the bone is of poorer quality than in the lower jaw. On average, a mini- mum of four implants are re- quired for an implant supported overdenture and six to eight im- plants are required for a fixed im- plant supported prosthetics.

Cost-effective solution

A technically simple and cost- effective solution has been intro- duced by BioHorizons to improve the stability of the lower denture. The BioHorizons OS System can provide your patient with four implants to improve the stability of an unstable lower denture. For £99 (excluding VAT), the 5mm implant comes as a once-piece, transmucosal implant with the ball attachment already at- tached. The procedure is usually performed under local anaesthe- sia with a flapless approach, thereby minimising postopera- tive discomfort. Unlike mini-im- plants, which are only licensed as a transitional implant, this sys- tem has FDA approval for “per- manent” usage in the lower jaw.

At the time of placement, the patient’s existing denture can be adjusted to accommodate the im- plants, thereby immediately loading the implants. As this is a one-piece ball attachment im- plant, it cannot be “upgraded” to a fixed bridge in the future. How- ever, it will provide the simplest and most cost-effective solution to a patient that will gain the greatest benefit.

About the author

Dr Stephen Salt, BDS MDent (Rand) specialises in prosthodontics and has 16 years of dental implantol- ogy experience. He is the principal of Century Dental Clinic, a state- of-the-art private dental practice situated in Putney. Dr Salt also teaches restorative dentistry at Guy’s Hospital and St Thomas’s School of Dentistry.