Bone Types

D4: A thin layer of cortical bone surrounds a core of low-density trabecular bone.

D3: A thin layer of cortical bone surrounds a core of dense trabecular bone.

D2: Almost the entire jaw is composed of homogenous compact/cortical bone.

D1: Almost the entire jaw is composed of a thin layer of cortical bone surrounding a core of trabecular bone.

Primary Stability

To achieve good primary stability, assess the underlying bone. Try using the blunt end of an endodontic explorer, even if it is thin, you may find your endodontic explorer nice and thick, you will get lots of resistance. If it is thin, you may find your endodontic explorer has pierced the outer cortical plate and you are allowing it to condense and compress the bone. If you encounter D2 or D3 trabecular bone is found and you feel ample resistance, then D1 bone is present. At that point, it may be prudent to increase the drilling depth, depending on the density of the mandibular cortical bone.

Maxillary Arch

Another way to achieve additional primary stability is to use the smaller diameter drill. To achieve good primary stability, assess the underlying bone. Try using the blunt end of an endodontic explorer, even if it is thin, you may find your endodontic explorer nice and thick, you will get lots of resistance. If it is thin, you may find your endodontic explorer has pierced the outer cortical plate and you are allowing it to condense and compress the bone. If you encounter D2 or D3 trabecular bone is found and you feel ample resistance, then D1 bone is present. At that point, it may be prudent to increase the drilling depth, depending on the density of the mandibular cortical bone.

Choosing the appropriate sized drill in combination with the correct drilling depth is key to ensuring good primary stability when placing implants in the maxillary arch. Site preparation in the maxillary arch might necessitate the use of an undersized osteotomy drill as well as decreased drilling depth, depending on the density of the mandibular cortical bone. Conversely, site preparation in the mandibular bone may require site preparation to osteotomy to the full length of the small-diameter implant. If you encounter D2 or D3 trabecular bone is found and you feel ample resistance, then D1 bone is present. At that point, it may be prudent to increase the drilling depth, depending on the density of the mandibular cortical bone.