



Investigation of the Effect of Dental Implant Screw Pitch on the Stress and Strain Distribution in the Mandibular Bone

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Dental implants have been increasingly used to restore the masticatory function after the loss of teeth. The success of dental implants is heavily dependent on their initial stability and on their long-term osseointegration, as these factors are associated with optimal stress and strain distribution in the surrounding mandibular bone. And these subject of action are affected by a number of biomechanical factors, such as its screw pitch. In this paper, the effect of the dental implant screw pitch size on the distribution of stress and strain in the mandibular bone, under a distributed load on the tooth, is investigated. The mandibular bone is constructed from two kind of cortical and cancellous bone and the distribution of stress and strain for some screw pitch size in each of these parts are calculated. The obtained results show that reducing screw pitch size makes stress and strain distribution better in the bone.