

## **Relation between the Primary Implant Stability of the Dental Implant and Bone to Implant Contact Percentage**

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### **ABSTRACT**

Primary stability of the dental implant is a important factor for the survival rate. The primary stability is a function of the mechanical stability immediately after inserting the implant into the bone, while the secondary stability is formed by osseointegration, which is the bone ingrowth into the implant surface. The present study aimed to determine the relation between the 3D bone to implant contact percentage (BIC%), measured using high-resolution micro-computed tomography images, and the primary stability, as quantified by implant stability quotient (ISQ) and Periotest value (PTV). The experimental results indicated that enhanced the material property of the artificial foam bone increased the primary stability of the dental implant. The Pearson's correlation coefficient between the BIC% and the two approaches (ISQ and PTV) were 0.652 and 0.745. For the both measured approach of the primary stability of the dental implant, ISQ and PTV, showed strongly positive correlated with the BIC%.

**Keyword:** Dental implant, primary stability, bone to implant contact percentage