

## **S4-1.12**

# **Assessing the Biological and Mechanical Quality of the Implant Bone Complex Using Medical Micro Technologies.**

V. Palarie, V. Nacu

*State University of Medicine and Pharmacy "N. Testemitanu", Chisinau, Republic of Moldova*

Reconstruction of bone atrophies and rehabilitation using dental implants are often evaluated based on biologic aspects. As reconstructed jaw also has to ensure primary implant stability, the goals of this study were to determine the mechanical quality of regenerated bone and to investigate potential correlations of intraoperative bone density testing with morphological variables of stability of implants inserted in non-augmented bone.

Ten minipigs were allocated for experiments. After extractions of mandibular premolars, four implants each were placed in a total of four minipigs. Bone density was determined by applying compressive tests using the BoneProbe. Implant insertion torque and resonance frequency analysis were used to evaluate implant stability. Morphological parameters were quantified after harvesting bone sections. Other six minipigs were distributed with four lower jaw experimental sites each following teeth extractions. Xenograft substitutes as well as autogenously bone were used for augmenting three-walled defects, while native tissue served as the control. During implant placement procedures bone quality was determined using intraoperative compressive testing, insertion torque, and resonance frequency analysis. Histologically was determined bone mineral density and bone-implant contact.

Assuming that the weak correlations observed were due to the limited sample size, studies at a much greater scale involving various implant systems would however be required.