ABSTRACT. Objectives. The aim of this study was to determine and compare the frequency of bacterial leakage of Streptococcus sanguinis biotype II along the implant-abutment interface between two systems of Morse taper dental implants. Different methods of activation of the taper abutments were used: tapped-in (Bicon) and screwed-in (Ankylos).

Materials and Methods. Twenty sterile assemblies were used and attached, 10 Bicon and 10 Ankylos implants, according to manufacturers’ specifications. They were then totally immersed within 20 test tubes containing a sterile nutrient solution brain-heart infusion (BHI). The internal part of the 20 implants was previously inoculated with 0.1 microl of S. sanguinis II (ATCC 10557) and then connected to the respective abutments. The assemblies were incubated under anaerobic conditions for 14 days in an autoclave at 37 degrees C. They were monitored daily for solution cloudiness resultant from microbial leakage on the interface of the assemblies. For statistical analysis, the Fisher test was applied and significance was assigned at the 5% level.

Results. There was solution cloudiness, indicating the finding of bacterial growth inside two Bicon assemblies and two Ankylos assemblies 48 h after incubation. Microbial leakage was further substantiated by testing the suspension for the presence of Streptococcus sp. None of the sterility controls were contaminated. The frequency of bacterial leakage along the implant-abutment interface, with the two different Morse taper implant systems, was 20% of the assemblies of each system. There were no statistical differences between them.

Conclusion. Irrespective of which of the two Morse taper implant connection systems of activation was analyzed, tapped-in (Bicon) or screwed-in (Ankylos), this in vitro experiment showed bacterial leakage along the implant-abutment interface.