

## OPTIMIZATION OF IMPLANT-ABUTMENT CONNECTION IN ELECTRO-WELDED IMPLANTOLOGY: STUDY AND MECHANICAL CHARACTERIZATION

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The aim of this study is to compare *in vitro* the mechanical resistance of 7 different implant-abutment connections and determine which of them has the best mechanical performances (both statically and when subjected to dynamic loads) and which of them can guarantee the best level of tenacity during the clinical use of the intraoral electro-welded implantology with the bi-phase implants. All the implants were machined by Falappa Medical Devices – Rome. Two types of tests have been performed: static tests and fatigue tests. The static tests were performed on four specimens for each typology of connection, the fatigue tests on three specimens for each typology of connection. Configuration followed ISO 14801 standard.. The static tests were performed until rupture while the fatigue tests were performed applying a 108-1080 N load until either break was detected or 5 Mcycles were reached. Results showed that good static behavior does not involve automatically that the connection has also good long-term performances. Statistically significant differences were noted among the configurations: in particular internal connectors showed better results in comparison to external ones and among internal connectors the hexagonal one turned out to be the best one even if almost all the connectors had sufficient resistance to withstand normal masticatory loads.

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