VALOC

Novaloc™ matrix system

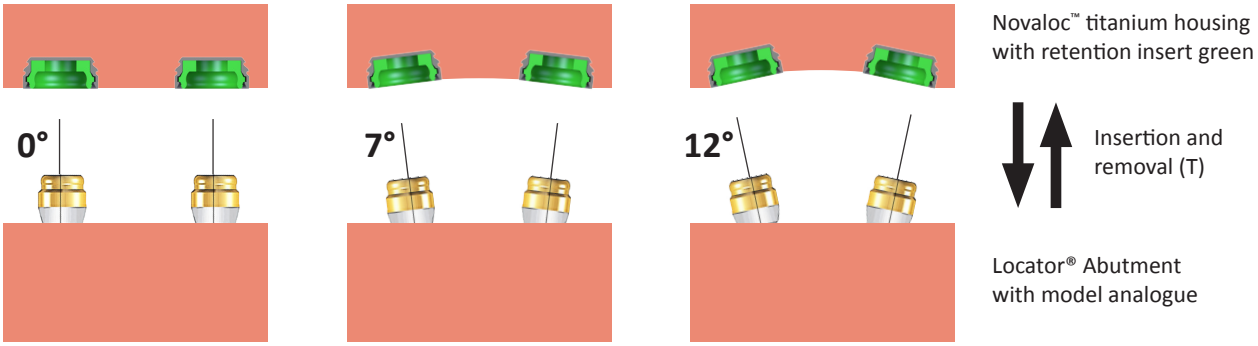
Outstanding performance in divergent situations

Removable dentures on implants in the edentulous mandible has become a widespread popular standard treatment for patients. In addition to significantly higher patient satisfaction there are also significant improvements in retention and stability of the overdenture.

As part of a study on the retention loss of matrix systems for overdenture at the Dutch University Medical Centre St Radboud, the performance of the Novaloc™ matrix system was tested. Focus of the in vitro study was the determination of wear and loss of retention of matrix systems in cyclic loading where the implants under divergent angles were placed. It was examined whether there comes a affect from the divergence on the retention of the matrix and the durability of the abutments.

Test setup

A total of 3 PMMA block were each equipped with two implants. In block 1, the implants were placed in parallel to 0° (control group). Implants in block 2 and 3 are placed with a divergent angle of 7 °, respectively 12 °. For each group, a total of five test objects, equipped with two Novaloc™ titanium matrices and green retention inserts (*strong*) were provided. All test objects per group were subjected to a cyclic vertical load (T) of 2880 insertions and removals.



control group

Measurement

The study is based on the assumption of an average four times daily vertical insertion and removal of the denture from the mouth. The test setup in the laboratory simulates a load over 2 years (2880 cycles) with intermediate measurements after 0.5 years (720 cycles) and 1 year (1440 cycles).

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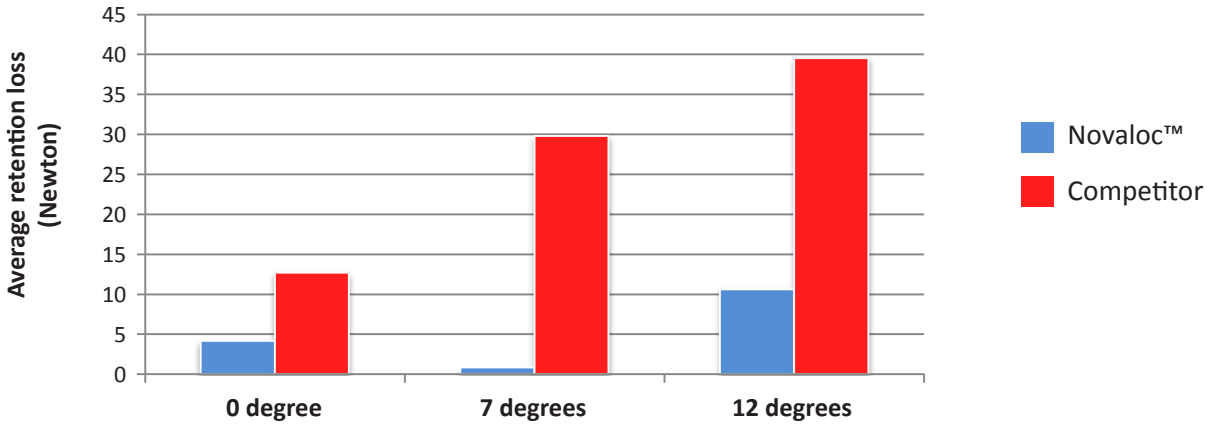
Test results - loss of retention

The determined average values of the retention loss after 2880 cycles (roughly equivalent to 2 years) of Novaloc™ retention inserts were compared to the results of a similar matrix system.



The test results and the comparison speak for themselves: The Novaloc™ retention inserts keep their retention force stable even after 2 years. The maximum loss of retention of Novaloc™ (24 %) compared to the competitors (47 %) is significantly lower.

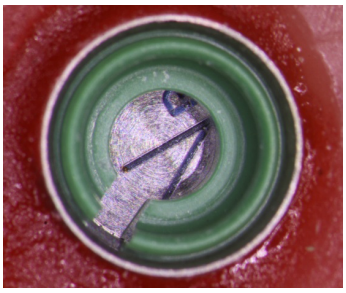
Conclusions

Within the limitations of this study, the following conclusions could be drawn:

Implant angulations have no significant negative affect on the decrease of retention of the Novaloc™ matrix system.

At the maximum number of loads, there is a significant difference in retention loss when the two matrix systems are compared with each other.

The author of the study also emphasizes the good wear resistance of the PEEK retention inserts, as evidenced by the following images after 2880 cycles:



0 degree / 2880 cycles

7 degrees / 2880 cycles

12 degrees / 2880 cycles

The Novaloc ™ matrix system impresses in this study with an excellent result in terms of retention and durability of the prosthesis under heavy load. The retention inserts convince with low wear even with strong tangential friction caused by the divergent arrangement of the abutments.

Reference:

Rianne Biemans (2013): Retentieverlies bij matrixsystemen voor de overkappingprothese. Nijmengen: Radboud University Nijmegen Medical Centre