

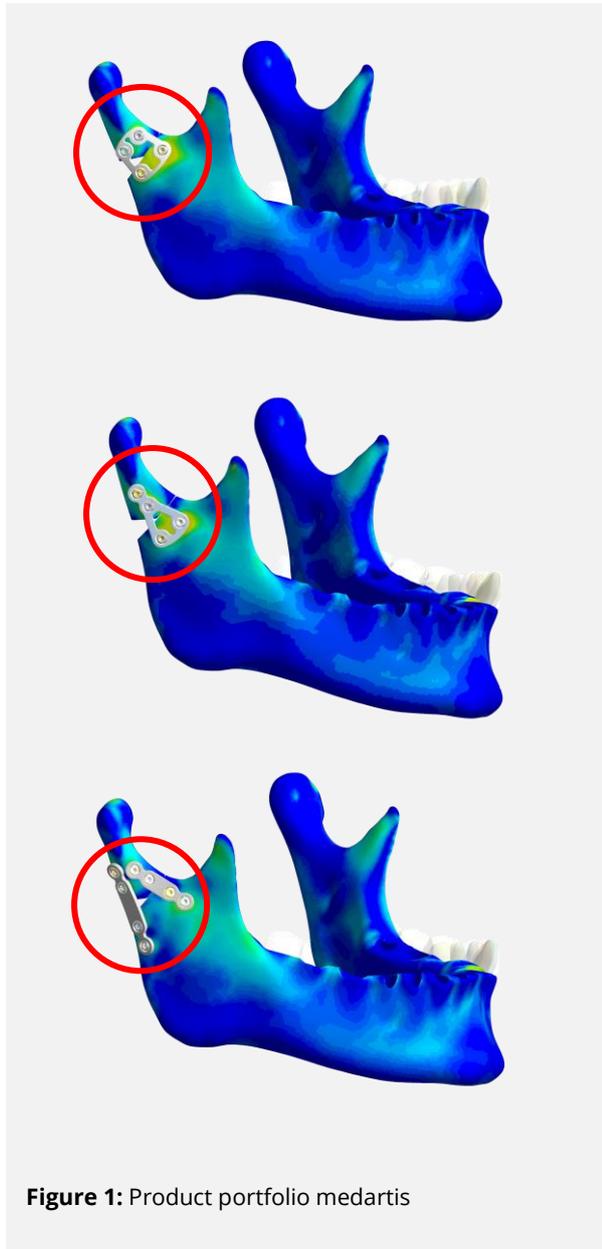
Success Story / **Post-market Surveillance with simulation**

Finite element analysis of different osteosyntheses on the mandible

The objective of the analysis is the finite element analysis of different osteosyntheses on the mandible. The clinical results of different implant systems are to be analyzed and compared with each other by means of FE simulations. In this way, selected clinical findings can also be objectively substantiated by means of FE analysis.

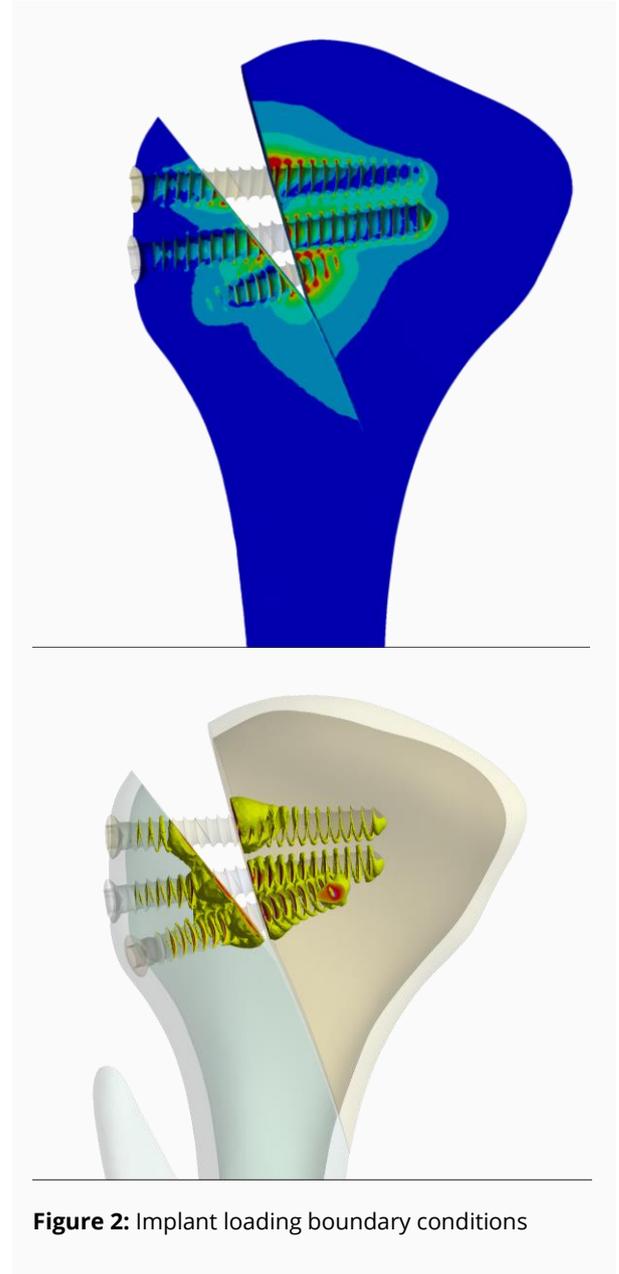
The task

For a medical technology manufacturer, the safety of its products is paramount. This also includes their continuous monitoring after they have been placed on the market, as they are only then used practically over an adequate period and in a larger number of users or patients. Against this background, we were able to simulatively test an existing product portfolio in patient-specific situations for our customer medartis. **(Figure 1)**



The solution

The docq VIT (VIT = Virtual Implant Testing) software developed by Simq allows physiological load boundary conditions to be applied to the implant particularly easy and flexible to simulate the loading of the products in the body after implantation **(Figure 2)**.



The data previously collected in the post-market clinical follow-up and its observations could be reproduced and substantiated in silico in this way.

The results collected in the simulation study could be used to produce a scientific publication and to expand the technical file. This example impressively shows that simulation can be used to improve the continuous post-market surveillance of medical devices and to objectify and evaluate clinical findings.

The result

For our customer medartis, we used the possibilities of simulation with our docq VIT software for the confirmation of clinical results in cooperation with the University Hospital of Marburg and Prof. Neff. This allowed us to prove the clinical performance and safety of special osteosynthesis implants in the context of Post Market Surveillance (PMS) and to identify potential risks in practical use.

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About the customer

As a leader in innovation, medartis is advancing technologies and solutions for osteosynthesis in the fields of oral and maxillofacial (OMF) surgery, as well as upper and lower extremities.

medartis®

About Simq

The company was founded in 2014 and is part of the CADFEM Group. Simq's products and services enable medical device manufacturers, clinicians and medical staff to practically apply numerical simulation and use it for more effective and safer patient care.

Simq is committed to the standardization and broader application of in silico medicine as part of the Avicenna Alliance, thereby ensuring safe, affordable and cost-effective healthcare.



Simq is a certified simulation service provider and software manufacturer in the field of medicine and medical technology and is one of the pioneers of in silico medicine.