

Simpleware Software for Orthopedics & Medical Device Design

Key Benefits

- FDA 510(k) Cleared
- Intuitive, User-Friendly Interface
- Develop Automated Workflows
- Advanced 3D Image Processing
- Export to 3D Printing and 3D PDF
- Expert Technical Support

Key Features

- Import Clinical Images
- Co-Register Image Data Sets
- Multiplanar Reconstruction (MPR)
- Reslice Images Along Arbitrary Plane, Axis or Path
- Quick and Accurate Segmentation
- Integrate CAD Implants with Scan Data
- Measurements and Statistics

Why Simpleware Software?

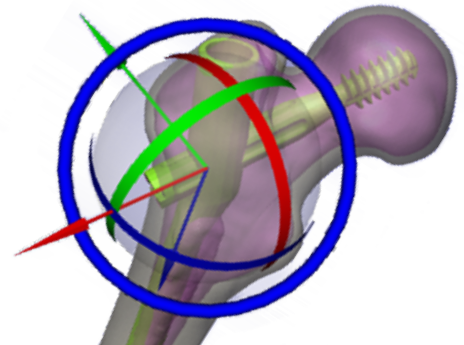
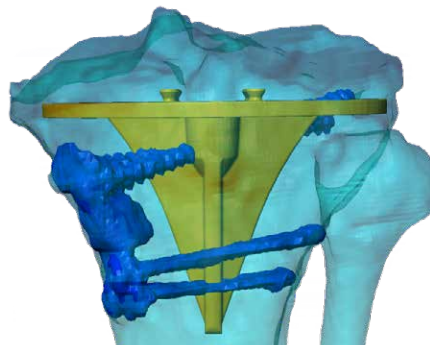
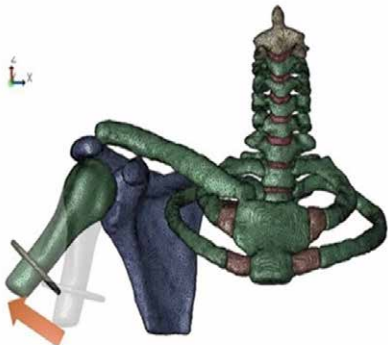
Simpleware™ software offers a certified, easy-to-use solution for processing medical image data into 3D models for orthopedics and medical device design applications. Get more from patient-specific images by combining image and CAD data for evaluating implant positions. Take advantage of tools for visualizing and measuring medical image data, as well as for exporting watertight meshes suitable for 3D printing and FE/CFD simulation.

Intuitive and Customizable

We pride ourselves on the ease-of-use of Simpleware software. Users new to the software can start processing medical images within a short time frame, and very quickly visualize and identify anatomical regions of interest. Our range of fully automated, semi-automated and interactive segmentation and measurement tools allow even the most challenging image datasets to be processed efficiently. Model generation exports link directly to CAD and FE/CFD packages, while scripting tools and plug-ins are available to customize the software to your needs.

Dedicated Support and Training

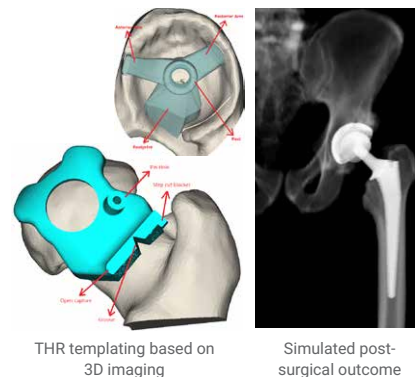
Our expert technical support team are here to help you get the most out of the software, including step-by-step guidance and personalized support. We also regularly offer classroom training courses at our offices, or you can arrange customized training sessions online or at your site.



Improving Patient Outcomes with 3D Surgical Planning

Corin OPS™ (Optimized Positioning System)

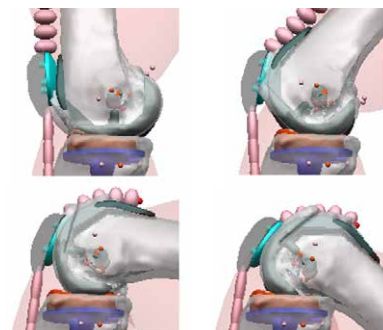
Corin's OPS™ technology now enables surgeons to understand the individual motion profile of each patient before surgery. This gives surgeons the information required to identify, customize and deliver a personalized total hip replacement, optimized for the patient's biomechanics and functional joint performance. This is driven by a simple imaging protocol, featuring Simpleware software, used to generate key inputs to simulate the unique way in which patients perform everyday activities. The system outputs provide the surgeon with an accurate laser-guided alignment system allowing the patient-specific implant orientation to be reliably achieved during surgery.



Total Knee Replacement Simulation

W. Theodore, 360 Knee Systems

360 Knee Systems specialize in delivering innovative technological solutions for TKR. Using Simpleware software, a system for patient-specific preoperative plans and guides for optimal placement of knee implants has been developed. This is achieved through virtual positioning of implants within patient geometries generated from CT, and precise landmarking to create axes and references within their simulations. Tailor-made scripts reduce the amount of manual work, ensuring repeatability and consistency. 360 Knee Systems works with orthopedic surgeons to provide dynamic, functional, and patient-specific planning and simulation solutions.

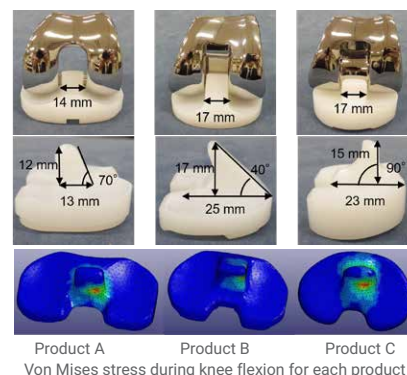


Preoperative planning of the optimal placement of knee implants

FEA of the Tibial Post of a Knee Prosthesis

K. Tanaka • R. Sakai • K. Mabuchi, Kitasato University, Japan

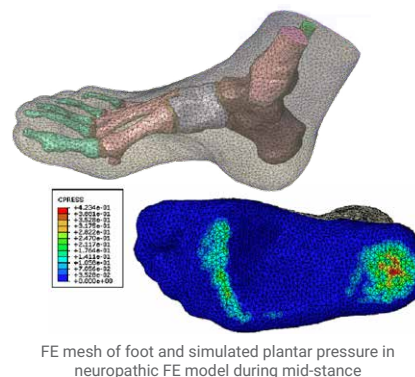
Tibial post failure in posterior-stabilized (PS) prostheses is believed to be caused by high stress-induced destruction (bending and tensile forces). In this study, Simpleware and LS-DYNA examined the mechanical forces in the tibial post in three different commercially available prostheses to find the safest tibial post design. Simulations indicated that larger tibial posts might be better at dispersing stress, despite relatively small contact area, and that the tibial post size is generally more important than its shape. FE modelling was effective in analyzing designs under a range of conditions, with results aiding understanding of the impact of design on failure risk.



3D FE Model of the Diabetic Neuropathic Foot

A. Guiotto • Z. Sawacha • G. Guarneri • A. Avogaro • C. Cobelli, University of Padova, Padova, Italy

Diabetic foot is a complication of diabetes that can lead to foot ulcers and other serious conditions. Simpleware software was used to develop subject-specific FE models of a diabetic neuropathic and a healthy subject's foot from MRI data, and to generate high-quality conforming meshes for simulation in Abaqus. Subject-specific kinematics and kinetics data acquired during gait analysis were used to drive the FE simulations to dynamically characterize the effects of different loads within the foot. Comparison of experimental and simulated results demonstrated the effectiveness of subject-specific FE models for obtaining reliable simulated plantar pressure during gait.



For more information on Simpleware Software Solutions go to www.synopsys.com/simpleware

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