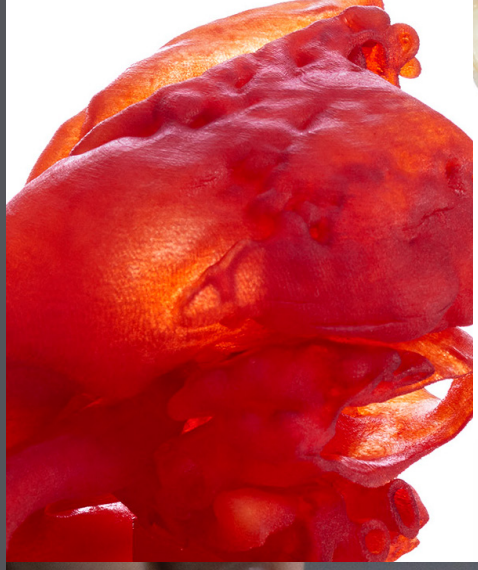

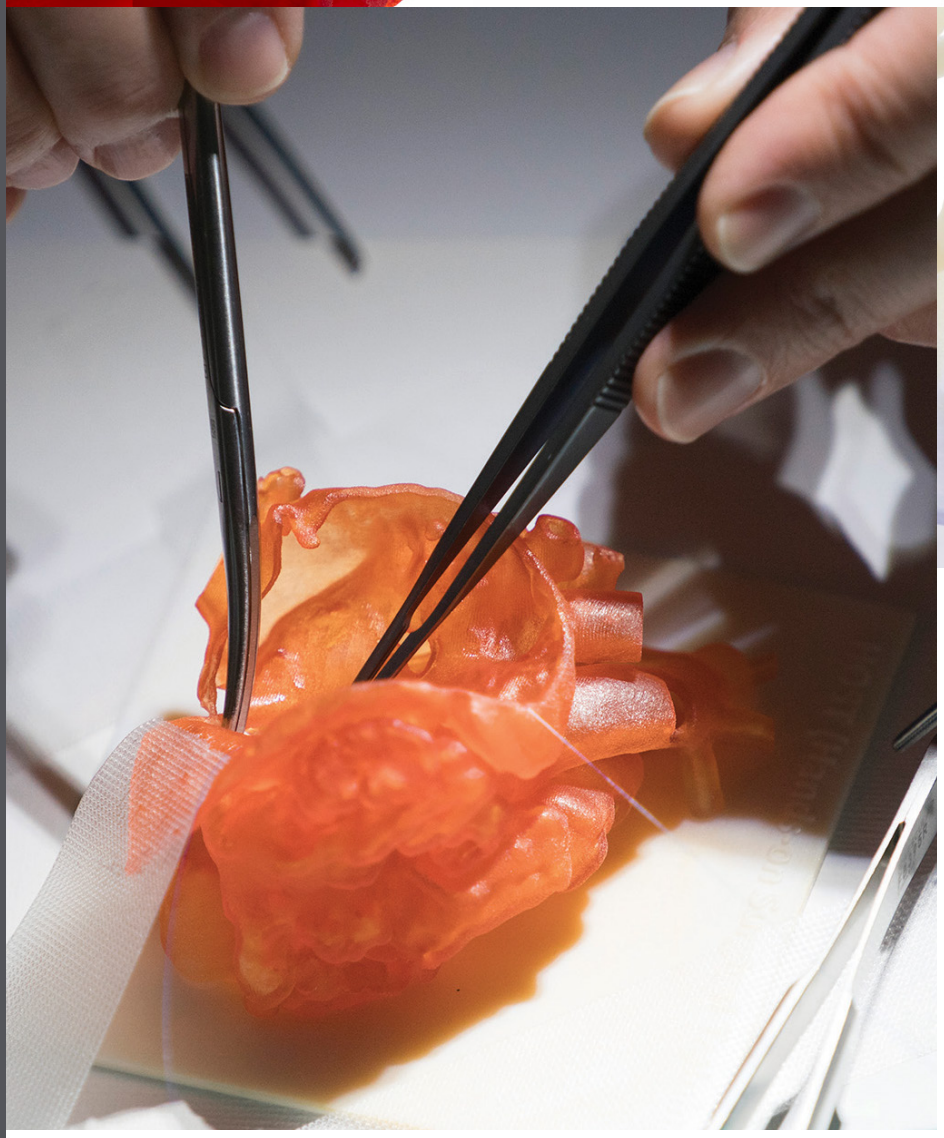

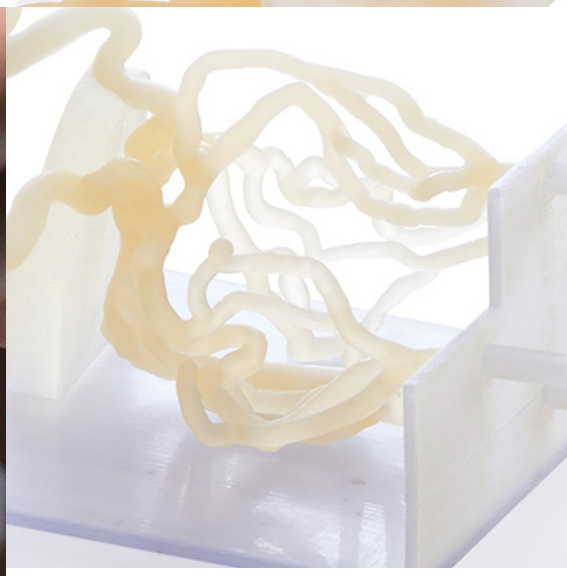

Stratasys advanced medical models

Accurate, Realistic, Functional

stratasys

For more than 25 years, Stratasys has been a leader in 3D printed medical innovation. We've helped medical device manufacturers speed their products to market with rapid prototyping, elevated hospital staff preparedness and training, and enabled physicians to anticipate complications, before stepping into an operating room.

But in an industry where innovation literally saves lives, our push to continue 3D printing advancements has brought us to a new level of service. Stratasys introduces a breakthrough in realistic medical models that mimic real human anatomy.

Stratasys Advanced Medical Models

Stratasys introduces the advanced medical models medical service. Anatomically accurate, biomechanically realistic, highly functional medical models that help surgeons assess complex pathologies, physicians train, and medical device developers test and validate new devices.

Advanced medical models recreates complex anatomy, pathology and variability in rich detail, providing realistic models for a broad range of clinical scenarios.

Accurate, realistic, functional medical models reduce the need for animal and cadaver labs. Plan, test, practice, repeat, all on models that mimic a variety of patient-specific pathologies with realistic feel and haptic feedback that simulate real tissue and bone.

The Next Phase of Medical Modeling

Choose from a wide array of complex, anatomical, pathology-specific models including bone, spine, heart and vascular models. Stratasys advanced medical models materials and solutions can be applied to models derived from patient CT and MRI scans or created by a medical model designer. Stratasys experts can integrate the material selection and design elements to meet your clinical requirements. Advanced medical models can replicate a variety of anatomies, from soft tissue to bone. Different materials can be used together to produce complex combination models, such as a spine with vertebras, discs, and nerve roots. Integrate heterogeneous structures, such as trabecula, within bone, varying compliance of different blood vessels and rigid calcifications on a heart valve. Models provide realistic feedback from procedural steps such as drilling, cutting, suturing and endovascular device deployment.

Enhanced Physician Training Programs For Teaching Hospitals and Medical OEMs

Physicians and teaching hospitals now have a realistic tool that mimics challenging and abnormal anatomy. With advanced medical models, training physicians can practice, train and repeat on accurate medical models in a no-risk environment that replicates the clinical challenges of precise anatomy and pathology. Elevate staff preparedness and training. Reduce dependence on costly cadavers and animals. Ensure physicians are trained in a full range of real-world clinical scenarios.

A Functional Tool for Testing New Medical Devices

Testing new medical devices on biomechanically realistic 3D printed models provides quantitative, objectively measurable performance feedback. Validate and verify new devices to achieve their intended objectives, faster and cheaper. Simulate clinical environments in a range of specialties including orthopedics, endovascular, and surgery. Whether the goal is clinical trial evaluation, initial product commercialization, or the manufacturing of low-volume, high-value parts, the advanced medical models Service speeds your verification and validation.

Use Case	Unique Capabilities	Functionality	Available Options	Improvements
Bones	Mimic the internal structure of the bone: • Cortical bone • Trabecular bone • Bone marrow	Device interaction: • Tapping • Reaming • Pedicle screw insertion • Sawing • Plate attachment	• Mimic bone densities: - Healthy - Osteoporotic • Mimic fractures • Encapsulation of soft tissue	• Complex internal structure vs. a monolithic model • Device-specific features – e.g., strain relief regions for pedicle screw insertion • Complex models that include both bones and soft tissues – e.g., ligaments and nerve roots
Hearts	Recreate the feel of heart tissue using a very soft material	• Cutting • Suturing • Patching	• Variable thickness and properties can be applied to all heart tissues, using a variety of digital material options • Calcifications • Functioning cords and annulus	Soft material – Shore AA 5
Blood Vessels	Ability to clean fine structure down to 1mm internal diameter	• Guide wire and catheter insertion • Functional under fluoroscopy	• Calcifications, visible under fluoroscopy • Varying wall thicknesses of blood vessels to mimic different compliance values	Enable effective and easy cleaning of narrow blood vasculature using unique support material

The Stratasys advanced medical models service. Accurate, realistic, functional 3D printed medical models for physicians, training hospitals and medical OEMs.

Anatomically accurate

- Models mimic heart, blood vessels and bone, with combination materials capable of simulating bone structure, variable compliance cardiac tissue and spinal discs.
- Models based on patient-specific CT and MRI scans include disease pathology to accurately replicate human anatomy in a range of pathology.
- Models validated by expert surgeons.

Biomechanically realistic

- Replicate multiple textures including soft tissue and bone.
- Tissue mimics feel and responsiveness of real tissue.
- Modify anatomical structures like bone density and vessel wall thickness to mimic patients with different stages of disease.

Highly Functional

- Functional models allow for real-life scenarios that enhance physician training and education.
- Recreate clinical scenarios to assist in medical device development.
- Enable medical device OEMs access to patient anatomy for testing, expediting and validating product development.
- Physicians can learn, make mistakes, and repeat, to develop skills on clinically relevant models.

Innovation to Outpace Disease

- Industry leader in image-based models that mimic soft tissue, blood vessels and bone.
- The ability to 3D print clinically relevant patient and pathology-specific models.
- A liquid support material that enables creation of very narrow tubular models, i.e., blood vessels.
- Software algorithms enable automated design of complex anatomical structure, such as the internal structure of a bone.

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