



DESIGN [applied] design thinking

M3 Design are Product Development experts serving companies in Enterprise, Healthcare, and Consumer markets. We collaborate with market leaders to maximize their profits by identifying the best path to success and creating the right product.



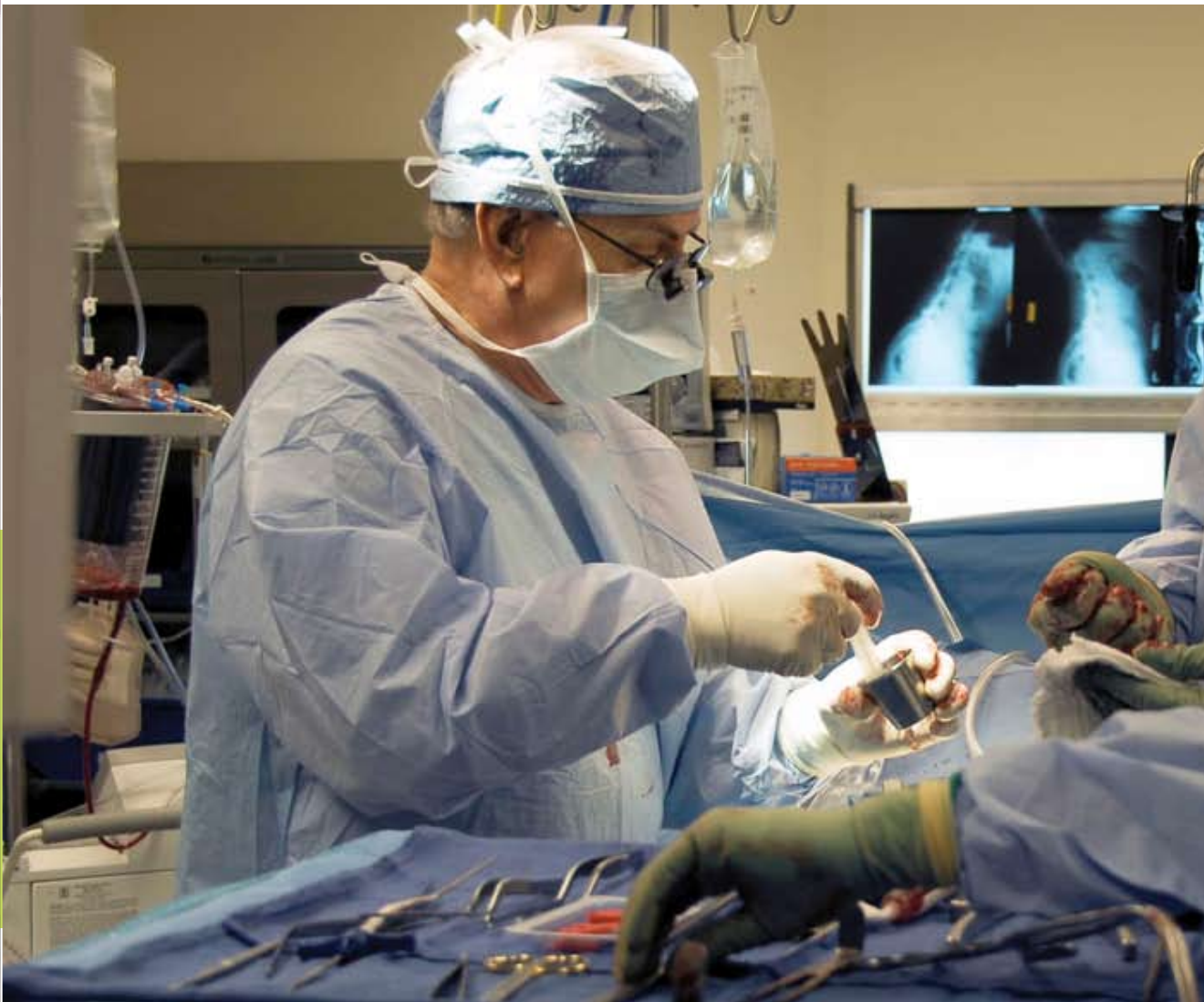
stryker

Cutting Edge Design Stryker Bone Mill

Solutions:

- Design Research
- Mechanical Design
- Industrial Design
- User Experience
- Manufacturing support
- Finite Element Analysis





01

Introduction / Background

Stryker Instruments offers a complete suite of powered instruments for surgeons' procedural needs. Consequently, new product segments are rare. In orthopedic surgeries where the process of harvesting bone from a region of the body, reducing it to a smaller and consistent size, and then reintroducing it to promote bone growth is manually done. Stryker identified this as a product opportunity where they could improve upon the painstaking manual method and replace it with a powered surgical solution.

Observational research

02

The Challenge

Stryker challenged M3 to design a “best in class bone mill” that gave surgeon and scrub nurses a product that met their needs and fit within their existing workflow. The critical challenge was to design a product that consistently milled the desired sized bone chips, ensured maximum cell viability, and integrated with Stryker’s capital equipment, while setting itself apart from the competition.



Narrowing the solution space through testing and reviews with stakeholders

03

M3's Solution

Utilizing observational research and speaking to a wide range of stakeholders, M3 uncovered product opportunities and user inter-action needs and translated these into design requirements. M3 researched various bone reducing techniques and product architectures with considerations to minimize the detrimental effects to the bone's integrity from the milling process.

In an extension to the product functionality, the human factor insights were incorporated to ensure the product's intuitive nature and ease of use were not compromised. Then a series of product concepts were designed, prototyped and tested in-house to understand their impact on the harvested bone. M3 refined the design and supported Stryker through customer preference trials and product verification.



Mechanical design exploration to discover and test alternate processes

04

The Success

The result was an M3 Design and Stryker developed a patent pending bone mill. M3's integrated approach and ability to uncover user needs, out of box thinking, and designed for production solution allowed Stryker to leapfrog its competition. As a testament to this, in one year the Bone Mill exceeded Stryker's original sales expectations by more than triple. Stryker not only provided scrub nurses and surgeons with a simple, repeatable and consistent bone milling product, they also shut the door on competitors who were utilizing this product gap as entry into Stryker accounts.

It is our ability to uncover real customer needs and to develop a product idea into reality that allows us to deliver real value to our clients. M3 marries creative problem solving with logical approaches to unify the user experience, business strategy and functional requirements. M3's goal is to make our clients successful, and this was evident once again with the Stryker Bone Mill solution.

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Cutting Edge Solution
Stryker Bone Mill