

THIRD-GENERATION FRACTURE PRODUCTS

Only the Beginning for Smith & Nephew Orthopaedics

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Memphis' history is dotted with momentous creative breakthroughs. In addition to rock 'n roll, enterprising Memphians have recognized and leveraged global demand for such diverse concepts as supermarkets, family-friendly motels, and overnight package delivery.

Within the health sciences field, this city has also witnessed numerous breakthroughs in the evolution of orthopaedic medical devices, thanks to Smith & Nephew Orthopaedics, Medtronic Sofamor-Danek and Wright Medical.

Founded in 1934 as Richards Manufacturing Company and merged into London-based Smith & Nephew plc in 1986, Smith & Nephew Orthopaedics is a leading provider of joint reconstruction, trauma and clinical therapy products. The company has built a reputation on delivering simpler, less invasive and more cost-effective procedures to the orthopaedic community, with a long history in trauma.

"Speaking for many who came before me, we were undoubtedly on the forefront of the orthopaedic trauma industry," explains Senior Vice President Scott Flora, who leads the company's Trauma Division, which produces fracture-healing internal and external fixation systems. Flora credits the company's legacy of innovations to a culture of responsiveness, creativity and affiliation with the world's leading orthopaedic surgeons.

Smith & Nephew's breakthroughs in intramedullary (IM) nails, culminating in its newly extended TriGen system, offers the most illustrative example of its leadership in innovation.

Developed over the past 40 years, stainless steel (now titanium) IM nails have been used to align and stabilize fractures. They are inserted into the bone marrow canal in the center of the long bones of the extremities.

The nails work wonders, but getting them inside the patient was historically a biomechanical puzzle, forcing surgeons to adopt unfamiliar or difficult techniques and requiring hospitals to keep on hand many cases of costly instruments for a single procedure. The earliest IM nails were also only applicable to a limited number of fracture cases.

In 1984, Smith & Nephew (then Richards Medical) and its Russell-Taylor IM nail revolutionized treatment of these fractures and moved treatment from traction and extended bed rest to early ambulation, rapid recovery, and significantly fewer complications.

Today, a third-generation system, appropriately dubbed the TriGen IM Nail, comprises surgeon-friendly instrumentation and supplementary implants that streamline surgeries.

"TriGen built on the foundation of the Russell-Taylor nail—not by changing the general gains that had been made in treatment of fractures, but by making it easier for surgeons to treat the wide range of fractures seen," explains Anthony James, Vice President—Trauma Product Development. "The TriGen experience yielded a nail system that was comprehensive—but not complex, and included the instruments and tools to allow surgeons to get the nails in and out with minimal disruption to the patient's soft tissue, thus improving healing."

Both innovations, released 20 years apart, have dramatically changed the competitive landscape in the industry.

"When Russell-Taylor was released, the Howmedica G-K nail owned more than 80 percent of the IM nail market," explains Mark Augusti, Vice President—Trauma Marketing. "Within three years, we had the market leader and never gave up that lead. Now TriGen is the market leader and the competition is still chasing us."

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"Seeing the competitors copy what you have done is both flattering and motivating, since I know we are moving on to better designs – like our new TriGen Humeral Nail – while they are still catching up," James added. "From a business process perspective, we're already building clearer linkages between product development, product management and research to determine uses of emerging technologies."

The heat of competition is a motivator for James and his product development team, but Smith & Nephew's Trauma Division's overarching goal of improving the patient's life is what really makes it all worthwhile.

"It's the fact that we are developing products that are used in the human body and significantly improve the quality of life of thousands of people," said James. "Let's face it. You [the patient] don't want anything we, or our competitors, sell if you can help it – especially trauma products. But, if you have the misfortune of being injured, our products are second to none in restoring limb function and quality of life." ●

Inset: A TriGen Trochanteric Antegrade Nail is implanted into the femur's intramedullary (IM) canal.

Doc Parson, a finisher on Smith & Nephew Orthopaedics' IM Nail production line, and Anthony James, Vice President—Trauma Product Development, inspect a batch of TriGen Humeral IM Nails, the company's latest trauma innovation.

