

Case Study:

Use of the INnate™ Intramedullary Threaded Nail for
Oblique Fractures of the 3rd and 4th Metacarpals



David Shenassa, MD

Sports Medicine Associates of South Florida
Fort Lauderdale, FL

Pre-op



Case Presentation

Patient was an 18-year-old high school senior who was actively being recruited by Division I colleges for their swim teams. He sustained two metacarpal fractures when he hit the wall during a swim flip that occurred while training. Patient had midshaft oblique fractures to his 3rd and 4th metacarpals. As the U.S. Nationals were a month away, the patient could not afford to be in a cast and needed to get back to training as soon as possible to practice and compete for these career-defining championship races.



Pre-op Plan

Dr. Shenassa chose closed reduction intramedullary fixation (CRIF) with INnate because the nails were long and wide enough in diameter to fill the canal, providing stable fixation for early range of motion. Alternative implants would not have allowed immediate mobility, thereby preventing a quick recovery and return to training.

Post-op



Operative Findings and Approach

Dr. Shenassa first performed longitudinal traction in the operating room to restore alignment. After he reduced both fractures, he made a 2mm incision on the dorsal third of the metacarpal head and inserted the provided K-wire across the fracture site under fluoroscope. Dr. Shenassa then used the INnate depth gauge to determine that a 4.5mm diameter threaded nail was needed for the 3rd metacarpal and a 3.6mm diameter threaded nail was needed for the 4th metacarpal (due to a narrower isthmus). He again used the INnate depth gauge to determine that a 55mm length nail was needed for the 3rd metacarpal and a 45mm length nail was needed for the 4th metacarpal. Dr. Shenassa proceeded to use the cannulated drill to drill over the guidewire and threaded the cannulated INnate nail until the head was beneath the articular cartilage, to achieve distal purchase



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in the subchondral bone. Proximal purchase was achieved at the isthmic level within each intramedullary canal, with a total surgery time of 25 minutes.

Follow-up

In just 3 days, the patient was right back in the pool training for his U.S. Nationals. At his 2-week post-op follow up, he achieved full ROM and excellent outcomes, which would have been difficult to replicate with other fixation techniques or implants.



Discussion

INnate allowed Dr. Shenassa to address spiral fractures while maintaining height and providing rotational stability. INnate has various lengths and diameters that allow canal-fill and affords excellent fixation and rotational stability. The implant does not require additional resources, and follow-ups are typically easy and straight-forward because patients often do not need formal therapy, as mobilization is immediate. This allows patients to minimize their downtime and return to work or daily activities faster than other implants and surgical approaches.

Two Weeks Post-op

