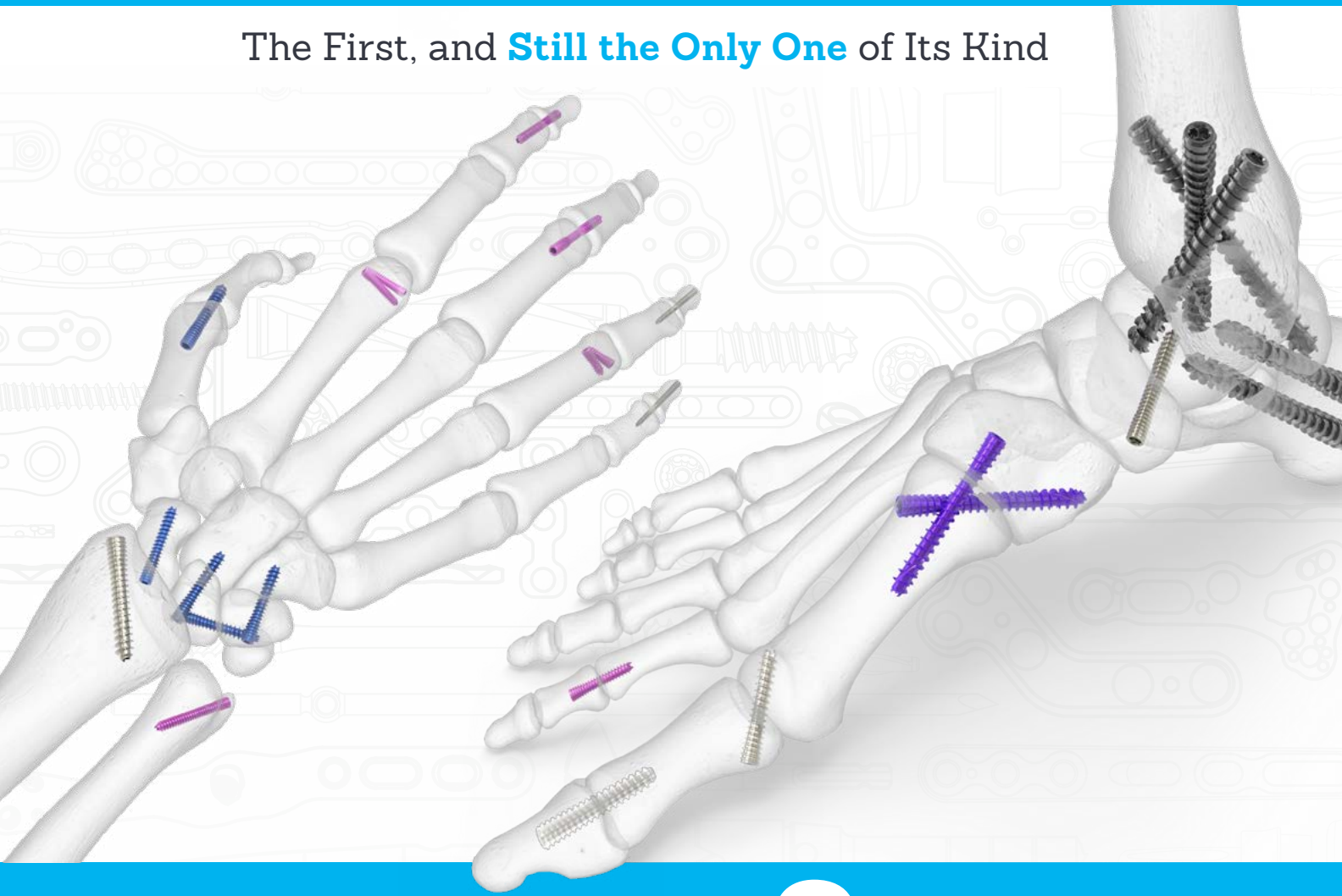
acumed®

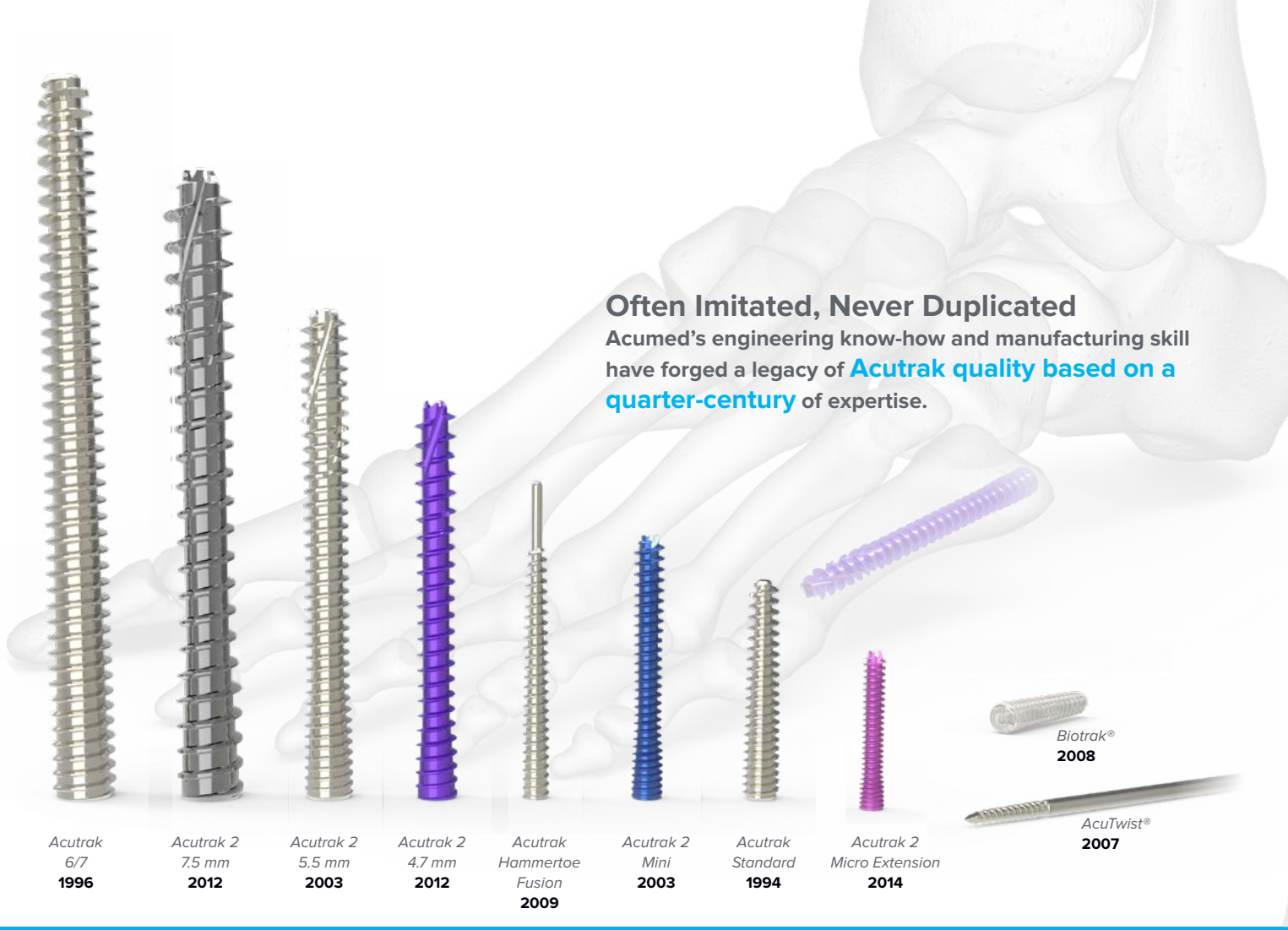
Acutrak® Headless Compression Screw Solutions

The First, and **Still the Only One** of Its Kind



2+ Million

Trusted Over 2 Million Times



Often Imitated, Never Duplicated

Acumed's engineering know-how and manufacturing skill have forged a legacy of Acutrak quality based on a quarter-century of expertise.

Acutrak 6/7 **1996**

Acutrak 2 7.5 mm **2012**

Acutrak 2 5.5 mm **2003**

Acutrak 2 4.7 mm **2012**

Acutrak Hammertoe Fusion **2009**

Acutrak 2 Mini **2003**

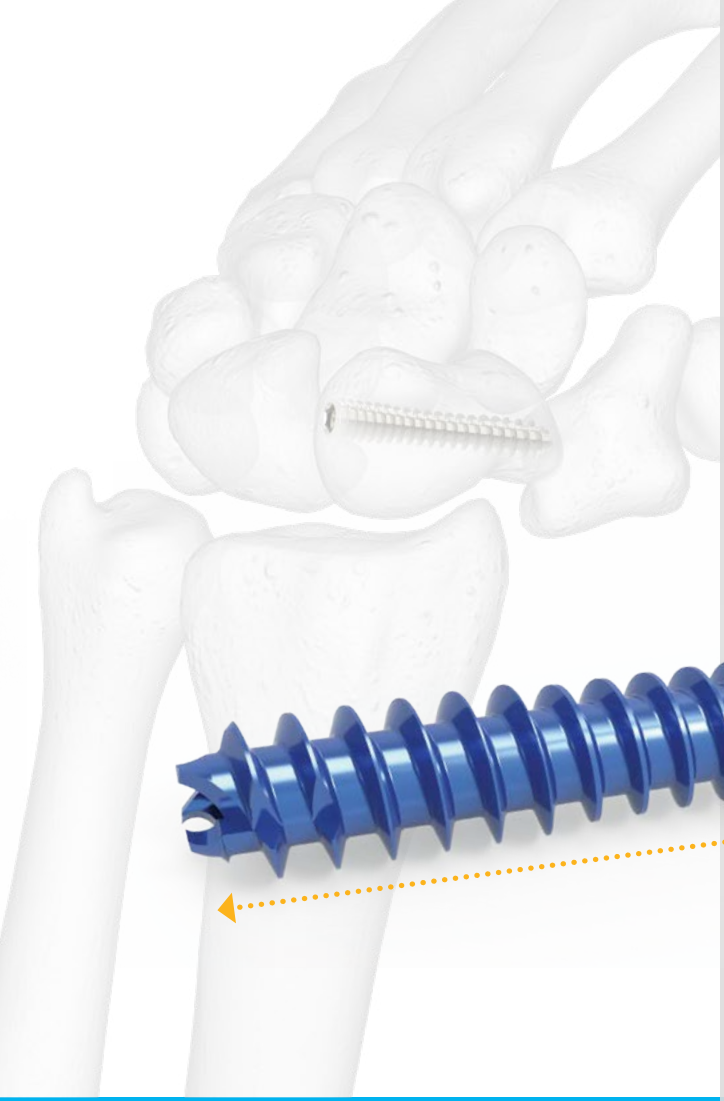
Acutrak Standard **1994**

Acutrak 2 Micro Extension **2014**

Biotrak® **2008**

AcuTwist® **2007**

Trusted 2 Million Times by Surgeons Worldwide



INDUSTRY 1st

The Acutrak Advantage

Acutrak technology produced the **first and still the only** continuously variable thread pitch headless compression screw on the market.

Excellence, Backed by Evidence

More than 2 million Acutrak family screws have been implanted since 1994, **supported by more than 100 publications,** including clinical and biomechanical studies.

For more information:
go.acumed.net/2Million
888.627.9957

Acutrak 2® Headless Compression Screw System

Continuously Variable Thread Pitch

The Acutrak fully threaded continuously variable thread pitch screw design provides greater compression and a larger window of compression compared to partially threaded Herbert-style screw designs.[1] This feature allows a fracture or osteotomy site to lie almost anywhere along the length of the screw.

Fully Threaded Length

Biomechanical studies have shown that fully threaded screws better handle cyclic loading compared to AO and Herbert screws in cadaveric and synthetic bone material.[1]

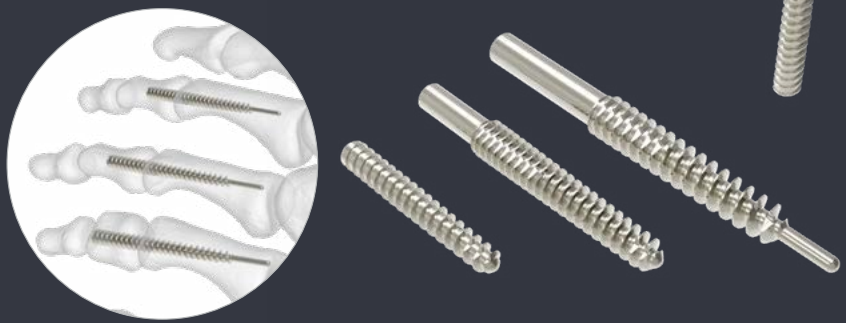
Cutting Flutes

At the screw's distal tip, these flutes are engineered to make the screw self-tapping and facilitate insertion into hard bone.

Acutrak® Headless Compression Screw System

Hammertoe Fusion

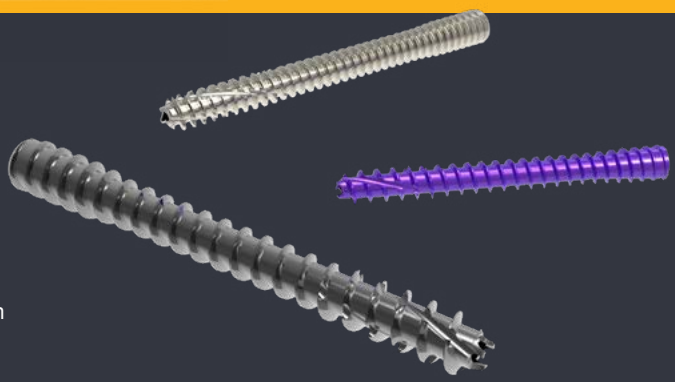
Fixation using the Acumed Hammertoe Fusion System



Acutrak Applications

- Upper Extremity Solutions
  - Radial Head Fixation
  - Capitellum Fixation
  - Olecranon Fracture
  - MCP Fusion
  - Scaphoid Fracture/Nonunion
  - DIP & PIP Fusion
  - Four-corner Fusion
  - Ulnar & Radial Styloid Fracture
- Lower Extremity Solutions
  - Femoral Condyle Fracture
  - Patella Fixation
  - Triple Arthrodesis
  - Ankle Arthrodesis
  - Calcaneal Osteotomy
  - MTP & TMT Fusion
  - Subtalar Fusion
  - Jones Fracture
  - DIP & PIP Fusion

An Industry First



Acutrak Headless Compression Screw System

Released in 1994, the original Acutrak Headless Compression Screw was the first fully threaded headless compression screw on the market with continuously variable thread pitch.

AcuTwist® Acutrak Compression Screw

The AcuTwist Acutrak Compression Screw is designed to provide compressive fixation for use in fractures, fusions, and osteotomies.

Fully Threaded Length

The fully threaded screw length has shown greater push-out strength when compared to differential pitch screws[1]

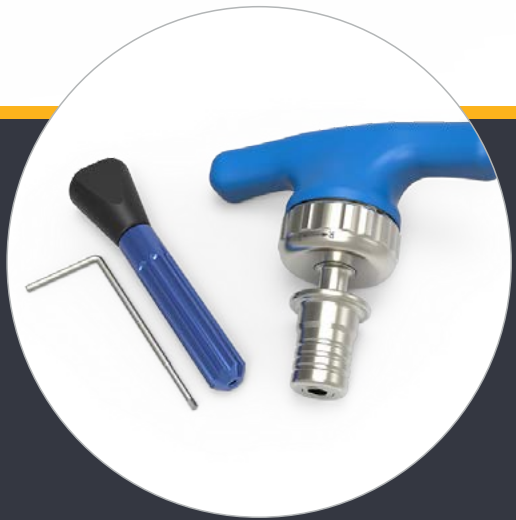
Headless Design

The screw's headless design is intended to minimize the risk of impingement or soft tissue irritation

Specialty Instrumentation

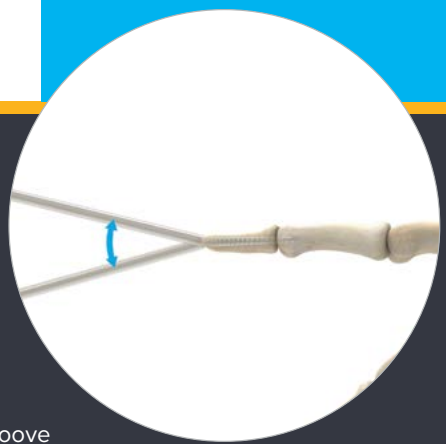
Optional Accessories

These include the 2.0 mm Hex Wrench, Ratchet T-Handle A/O Connection and Tri-Lobe Quick Release, and AcuTwist Screw Handle



AcuTwist Applications

- Upper Extremity Solutions
  - Radial and Ulnar Styloid Fractures
  - Radial Head Fractures
  - Periarticular Fractures
  - Fixation of Cortical Fracture Fragments
- Lower Extremity Solutions
  - Metatarsal Fractures
  - PIP & DIP Fusions
  - Phalangeal Fractures
  - Medial Mal Fractures
  - Bunionectomy
  - Chevron and Proximal Crescentic Osteotomies



Break-off Groove
When the screw is inserted, a gentle back-and-forth bend breaks off the excess at the groove

Biotrak® Headless Resorbable Compression Screw System

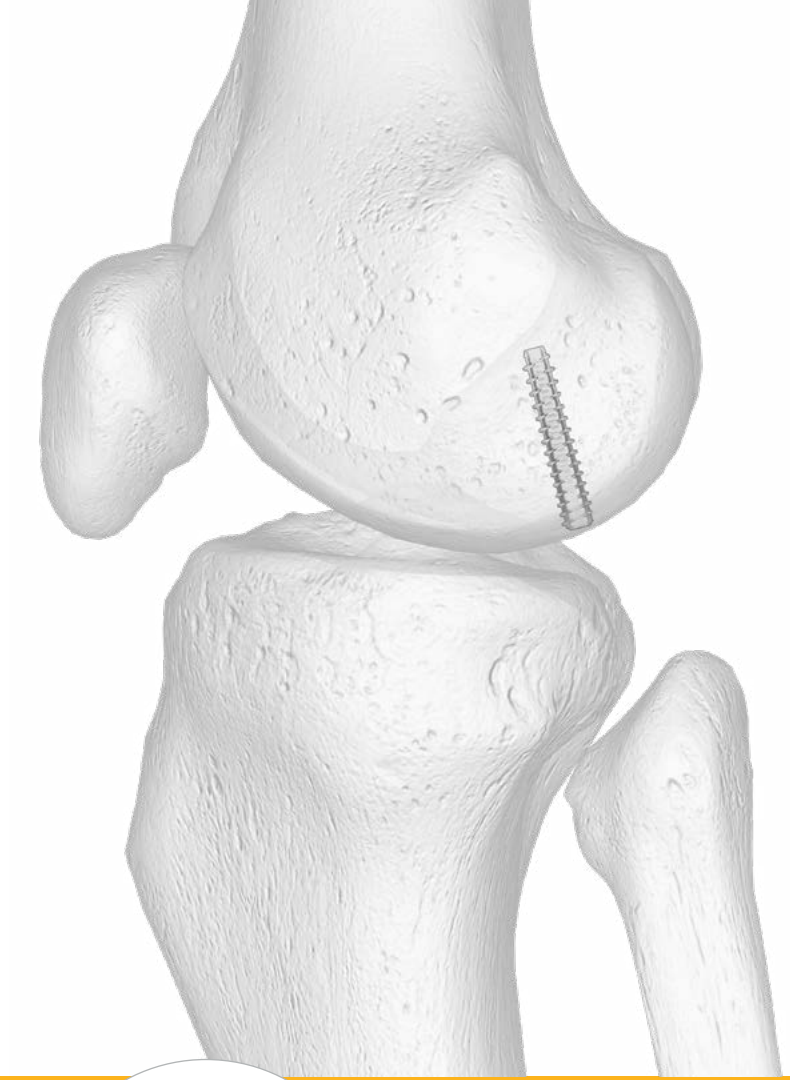
The system is designed for use in a wide variety of indications in the upper and lower extremities, including many fractures, fusions, and osteotomies.

Completely Resorbable
Biotrak fixation devices are made from 100% poly L-lactic acid (PLLA), allowing the implant to resorb as the bone heals

Minimized Image Interference
Composed of radiolucent PLLA, Biotrak devices are designed to reduce radiographic scatter/obstruction compared to metal bone fixation devices

Specialty Instrumentation

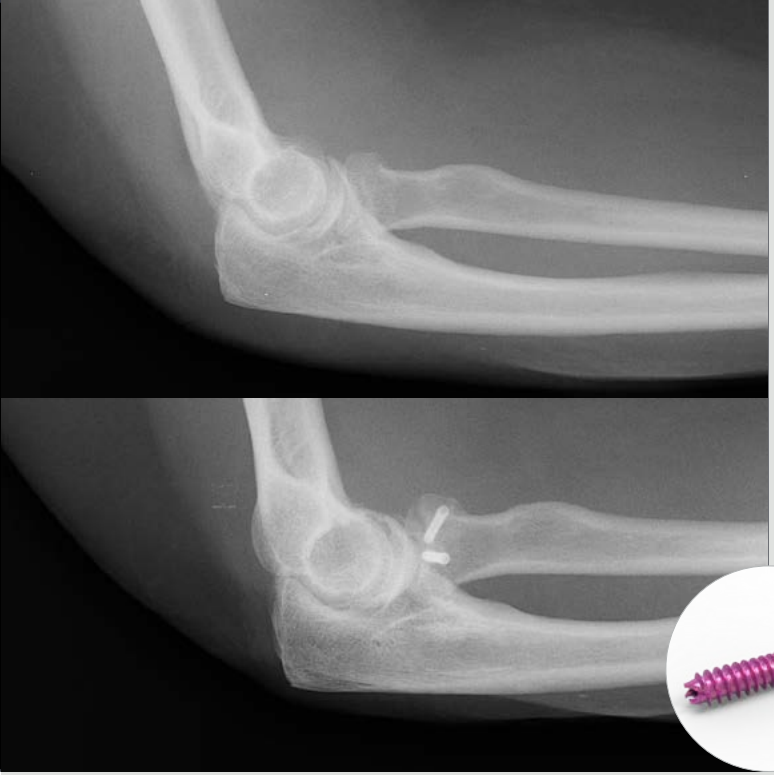
Minimally Invasive
The cannulated pin and system instrumentation—including the plunger, micro drill, cannula, and single and double trocar guide wires—facilitates insertion



Biotrak Applications

- Biotrak Screws
  - Femoral Condyle
  - Interphalangeal Fractures
  - Humeral Condyle Fractures
  - Radial Styloid Fractures
  - Patella
  - Radial Head Fractures
  - Hammertoes
  - Avulsion Fractures
  - Phalangeal Fractures
  - Small Bone Fragments
  - Small Bone Arthrodesis
  - Small Bone Osteotomies
- Biotrak Helical Nail
  - Osteochondral Defects
  - Radial Head Fractures
  - Bunions
  - Shear Capitellum
  - Radial Styloid Fractures
  - Ulnar Styloid Fractures
  - Small Bone Chevron Osteotomies
  - DIP & PIP Fusions
  - Hammertoes
- Biotrak Pin
  - Osteochondral Dissecans & Fragments
  - Radial Styloid Fractures
  - Ulnar Styloid Fracture
  - Chevron Osteotomies
  - DIP & PIP Fusions
  - Hammertoes

Ejector
The ejector releases the driver from the screw in a controlled manner. Laser marks on the ejector indicate the depth of the proximal end of the screw beneath the bone's surface



Case Studies

Acute Right Radial Head Fracture

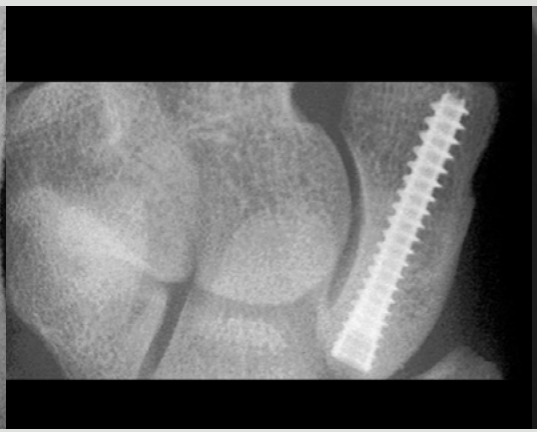
Richard S. Moore, MD

The surgeon used the Acutrak 2 Micro screws to treat an acute right radial head fracture in a 64-year-old female following a mechanical fall onto an outstretched hand.

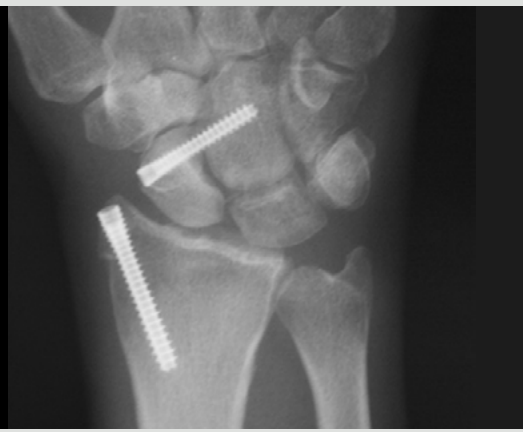
View Full Case Study

X-Rays

Biotrak Headless Resorbable Compression Screw System
MRI medial view of an OCD lesion fixated



Acutrak 2 Mini
Dorsal view of scaphoid fracture



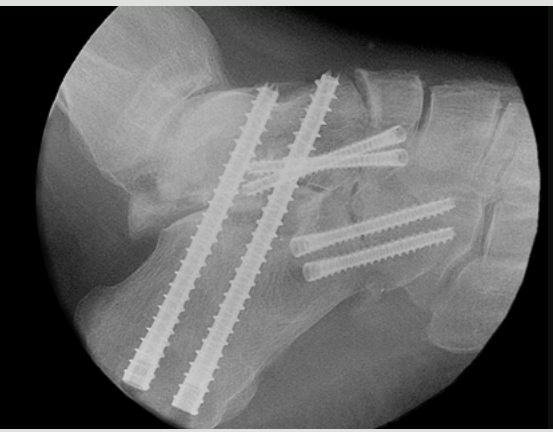
Acutrak 2 Standard and Mini
Dorsal view of a radial styloid fracture and scaphocapatate fusion

Bunion Deformity
Hammertoe Deformity

Brett R. Fink, MD

These two case studies show use of the Biotrak® Helical Nail to address a hammertoe in a 53-year-old male having presented with long-standing discomfort and a hallux valgus deformity in a 59-year-old female (shown right).

View Full Case Study



Acutrak 2 7.5 and Acutrak 2 4.7
Lateral view of a triple arthrodesis

Acutrak 2 5.5
Dorsal view of a Jones fracture

AcuTwist Acutrak Compression Screws
Dorsal view of MTP fusion

Acumed vs the Competition

Not All Headless Compression Screws are Alike

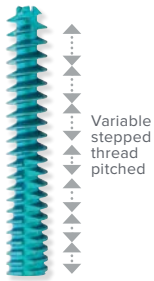
Acumed
Acutrak Headless Compression Screw

Continuously Variable Thread Pitch

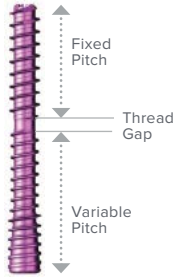
The **first and only continuously variable thread pitched** headless screw currently on the market

Variable Pitch (Noncontinuous)

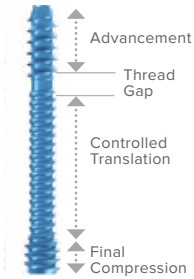
Noncontinuously variable thread pitched designs consist of variable stepped-pitch and fixed-pitch designs in specified zones. With each step or thread pitch change, compression also changes.



Arthrex
Compression FT Screw



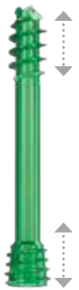
Zimmer Biomet
MAX VPC Screw System



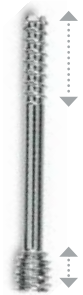
Skeletal Dynamics
REDUCT Headless Compression Screw

Differential Pitch

Differential, Herbert-style screws provide compression primarily when the proximal threads interact with the bone cortex.



DePuy Synthes
Cannulated Compression Headless Screw (CCHS) System



Stryker
AutoFix Cannulated Screw System

Smith & Nephew
Small Cannulated Screws

Wright Medical
DARCO Headless Screw

Medartis
APTUS Cannulated Compression Screws

Paragon 28
Monster Screw System

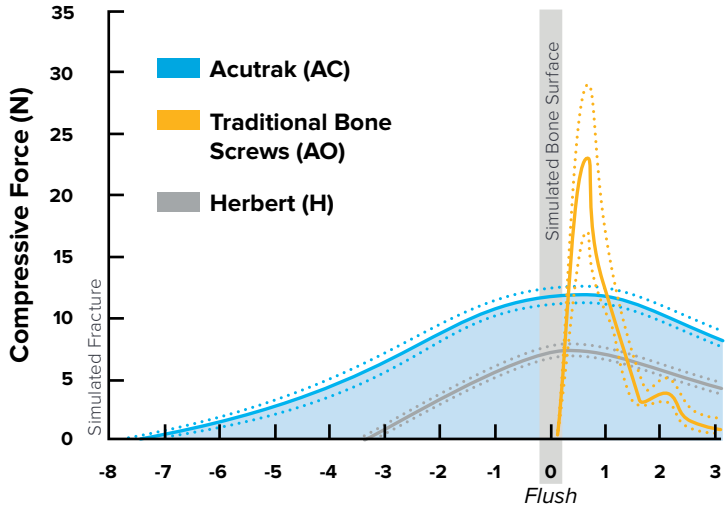
TriMed
Cannulated Screw System

		Acumed	DePuy Synthes	Stryker	Smith & Nephew	Zimmer Biomet	Wright Medical	Arthrex	Medartis	Paragon 28	TriMed	Skeletal Dynamics
Screws	Headless	Continuously Variable Thread Pitch	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Variable Pitched (Noncontinuous)	✗	✗	✗	✓	✗	✓	✗	✗	✗	✓
		Differential Pitch	✓	✓	✓	✗	✓	✗	✓	✓	✓	✗

✓ Product in Portfolio ✗ Product Not in Portfolio

A Larger Window of Compression

Acutrak technology has a wide window of compression that is less sensitive to loss of compression due to stripping the bone and is more flexible in its placement depth, enabling a maximum amount of compression.[1]



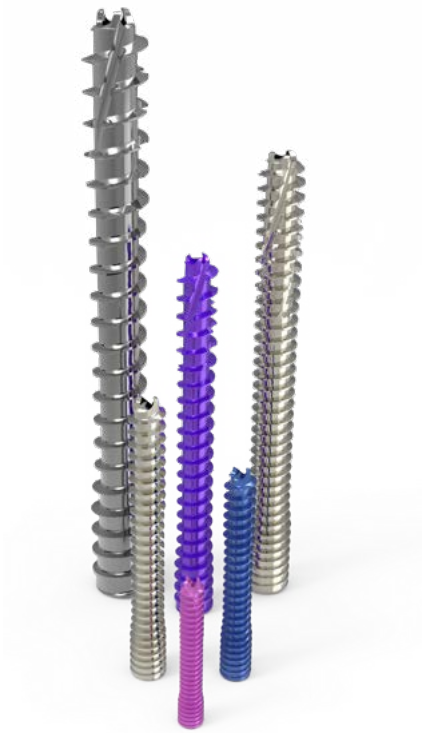
** In cadaveric and synthetic bone material*

Fracture Location Flexibility

The location and pitch and of each screw thread determines the rate of compression across a fracture site. As the pitch changes, the rate of compression changes, especially when screw pitch varies on either side of a fracture. Noncontinuously pitched screws, with **gaps** or **"steps"** between thread patterns, will not have continuous compression.

Some noncontinuous pitch screws can function like differential pitch screws. Compression only occurs when the tail of the screw enters the near cortex or when the variable pitched threads enter the fracture site. This presents the surgical challenge of **location sensitivity** in relation to the fracture site.

The continuously variable thread pitch design of the Acutrak screws allows for gradual, consistent compression along the entire length of the screw. This means the fracture can lie almost anywhere along the length of the screw. This unique feature directly addresses surgical challenges of location sensitivity, **allowing greater flexibility in relation to the fracture site.**



Acutrak 2® Headless Compression Screw System

A Comparison of Two Headless Compression Screws for Operative Treatment of Scaphoid Fractures

View Original Article

Featuring

Publication Excerpt

"Our study demonstrates that the Synthes headless compression screw experienced a greater loss of interfragmentary compressive force from the time of installation to the final steady state compression level. The higher post-installation compression of the Acutrak 2 Standard may be attributable to the greater number of threads throughout the entire length of the screw. The clinical significance of these results, are, at this point uncertain. We do demonstrate that a fully threaded design offers a more reliable compression that may translate to more predictable bony union."

Reference

Grewal R, Assini J, Sauder D, Ferreira L, Johnson J, Faber K. A comparison of two headless compression screws for operative treatment of scaphoid fractures. *J Orthop Surg Res*. 2011;6:27.

Acutrak vs Herbert Screw Fixation for Scaphoid Nonunion and Delayed Union

View Original Article

Featuring

Publication Excerpt

"The Acutrak screw enabled more accurate screw placement and achieved higher union rates and modified Mayo wrist scores than the Herbert screw did."

Reference

Oduwole KO, Cichy B, Dillon JP, Wilson J, O'Beirne J. Acutrak versus Herbert screw fixation for scaphoid non-union and delayed union. *J Orthop Surg* (Hong Kong). 2012;20(1):61-65.

Biomechanical Assessment of Compression Screws

View Original Article

Featuring

Publication Excerpt

"The Acutrak variable pitch, tapered, headless, compression screw performed significantly better than did the Herbert compression screw and often better than did the AO lag screw. These ex vivo biomechanical results indicate the Acutrak compression screw may perform better than other screws under dynamic loading conditions."

Reference

Wheeler DL, McLoughlin SW. Biomechanical assessment of compression screws. *Clin Orthop Relat Res*. 1998;(350):237-45.

Torsional Stiffness After Subtalar Arthrodesis Using Second Generation Headless Compression Screws: Biomechanical Comparison of 2-Screw and 3-Screw Fixation

View Original Article

Featuring

Publication Excerpt

"Performance of the tapered, fully threaded, variable pitch screws exceeded that of conventional lag screws regardless of whether two or three screws were used. Additional resistance to internal rotation afforded by a third screw placed anteriorly may offer some advantage in patients at risk for nonunion."

Reference

Riedl M, Glisson RR, Matsumoto T, Hofstaetter SG, Easley ME. Torsional stiffness after subtalar arthrodesis using second generation headless compression screws: Biomechanical comparison of 2-screw and 3-screw fixation. *Clin Biomech*. 2017;45:32–37.

Lateral Fixation of AO Type-B2 Ankle Fractures: the Acutrak Plus Compression Screw Technique

View Original Article

Featuring

Publication Excerpt

"Lateral fixation of AO type-B2 ankle fractures by the APCS (Acutrak Plus compression screw) is a safe and effective technique. It offers several advantages including stable fixation, a small surgical wound, less dissection of soft tissue, a headless device without palpable hardware, and easy applications with a short operating time."

Reference

Chen SH, Huang CR, Hsu TL, Lee YS. Lateral fixation of AO type-B2 ankle fractures: the Acutrak Plus compression screw technique. *Int Orthop.* 2010;34(6):903-907.

AcuTwist® Headless Compression Screw System

Arthrodesis of the Thumb IPJ and Finger DIPJ with a Headless Compression Screw

View Original Article

Featuring

Publication Excerpt

"Distal digital joint arthrodesis with the AcuTwist resulted in a fusion rate of 94% with a complication rate of 9%. Our rate of fusion compares favorably with prior series using other methods of fixation."

Reference

Cox C, Earp BE, Floyd WE, Blazar PE. Arthrodesis of the thumb interphalangeal joint and finger distal interphalangeal joints with a headless compression screw. *J Hand Surg Am*. 2014;39(1):24-28.

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***Competitive data on file with Acumed. GEN00-30-B; 2020 and GEN00-28-E; 2020**

References

1. Wheeler DL, McLoughlin SW. Biomechanical assessment of compression screws. *Clin Orthop Relat* Res. 1998;350:237-245.

Competitor Image Sources

DePuy Synthes Cannulated Compression Headless Screw (CCHS) System (120405-200407 DSUS) 4/20
Stryker www.stryker.com
Smith & Nephew Small Cannulated Screw System with QFX Screws Surgical Technique (7118-1405 REV0.2) 05/10
Zimmer Biomet MAX VPC Screw System Product Brochure (0925.1-GLBL-en-REV0916)
Wright Medical DARCO 3.2mm and 4.3mm Headless Compression Screw Surgical Technique (011183C_09-Jan-2017)
Arthrex Compression FT Screw System Hand, Wrist, and Elbow (LB1-00010-EN_D)
Medartis SpeedTip CCS 5.0, 7.0 Cannulated Compression Screws Product Information (APTUS-02000001_v2) 2019-06
Paragon 28 Monster Screw System Brochure (MCSS-01 RevB)
TriMed Large Headless Screw Surgical Technique (LC-72-0002-002 REV-A) 02-18
Skeletal Dynamics REDUCT-Sales-Sheet (MKT-00092-00RAB)