Metals that Move Inside the Body
Or
Why All Those Proposals (and a Few Grants) Paid off...

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Ankle Arthritis
Your options in 2005

• Total ankle replacement
  – Many people not a candidate (50%)
  – If it fails you lose your foot (amputation)

• Ankle fusion
  – High failure rate (85%)
  – If it fails you lose your foot (amputation)

• Amputation
The “End” of the Movie in 2015

This patient has 8 failed fusion surgeries – here is one example

Successful Fusion First try (500 cases, 95% success)
The “End” of the Movie – Part 2

31 yo man, charcot ankle, cystic fibrosis, DM, lung and kidney transplants

DynaNail: Successful fusion in 3 months
How it Works

A shape memory alloy in center of the device senses bone resorption and automatically adjusts itself to a gap (nonunion) forming.
The Rest of the Two Decade Movie
Early grants set the stage

3 failed NSF CAREER Awards
DOE PECASE Award
2 Failed NIH Grants, 1 failed NSF Grant
First Use in Humans

1995
2000
2005
2010
2015

NSF Grant (U of I)

DynaNail Conceived
MedShape Founded

Foundation Grant and
FDA Clearance Of DynaNail

Duke Clinical Study
Without the grants and the support structure to obtain them....

...none of this would have been possible