Motivation:
To produce a solution for acromioclavicular (AC) joint injury that allows DePuy Mitek to gain a foothold in the AC joint market.

Acromioclavicular Joint:
- Facilitates overhead movement of shoulder
- Connects clavicle and acromion with the AC ligament (Figure 1).
- AC ligament provides horizontal stability
- Coracoclavicular (CC) ligaments provide vertical stability

AC Joint Injuries:
- Grades I and II
  - Sprains
  - Treated non-operatively (physical therapy, sling, etc.)
- Grades III through VI (Figure 2)
  - Team’s focus
  - AC and CC ligaments torn
  - Requires surgery
  - Clavicle displacement

Anatomical Coracoclavicular Reconstruction:
- ACCR
- Recreates conoid and trapezoid ligaments with graft
- Wrapped around coracoid process and secured to clavicle with 2 screws (Figure 3)
- Passed over AC joint space and secured

Surgeon Visits
- Personal anecdotes about issues
- Gained insights about surgical approaches and outcomes

Surgery Observation:
- Understanding environment and timing
- Experience surgeon perspective

Survey
63 Orthopedic surgeons
- National conference
- Better understanding of frequency of methods used
- Explored common problems with joint repair
- Validated team’s areas of opportunity

Market
- Researched the market viability for the AC joint repair

Laboratory
- Became familiar with AC joint space
- Gained hands-on experience with ACCR

Results:
The team delivered to DePuy Mitek two concepts aimed to improve patients’ and surgeons’ experiences regarding AC joint repair.

User Needs & Values

Areas of Opportunity

Concept Development

Prototyping
- Tested prototypes in lab
- Received feedback from DePuy Mitek liaisons

Co-Design
- Took prototype to surgeons
- Received feedback and advice
- Validated concept ideas

Redesign
- Using surgeons’ advice, improved prototypes
- Tested prototypes in the lab to ensure competence

Results:
The team delivered to DePuy Mitek two concepts aimed to improve patients’ and surgeons’ experiences regarding AC joint repair.

Sources: