Teaching basic surgical skills to medical students

- Reznick et al
  - Halsted: Graded responsibility
    - Over 100 years
    - Sheer volume of exposure
      - Technical skill derived from extensive practice in the OR
      - Judgment develops after thousands of patient exposures
  - Challenges that diminish teaching time
    - OR efficiency
    - Shorter trainee workweek
    - Litigation
  - Advances in educational theory
Teaching basic surgical skills to medical students

- Specifically designed curricula
- Laboratories
  - Animal and cadaver labs
  - High fidelity, virtual reality simulation
  - “Low fidelity,” mechanical simulation
Didactic session

- Biology of wounds
- Wound preparation
  - Hair removal
  - Irrigation
  - Debridement
- Timing of closure
- Complications
- Adjuncts
Goal

- Don’t make their wound your pain
Choice of suture

Braided

Monofilament
Choice of Needle
Practical session

- Tying knots
- Making and closing wounds
- Treatment of tissues
  - Evert Skin Edges
  - Approximate - don’t strangulate
  - Timely suture removal
Fitts and Posner 1967

- Stages of motor skills acquisition
  - Cognitive
  - Integrative
  - Autonomous
Stage I: Cognition

- Understanding the task
  - Performance is erratic
  - Distinct steps
    - How to hold the tie
    - How to place the throws
    - How to move the hands
    - How to hold the instruments
- Feedback
Stage II: Integration

- Knowledge is translated into appropriate motor behavior (deliberate practice)
  - Still requires conscious effort
  - More fluidity, fewer interruptions
  - Feedback
Pig’s foot model
Fig. 3  Interrupted sutures
Vertical Mattress Sutures
Horizontal Mattress Sutures
Corner Stitch
Stage III: Autonomous

- Practice results in smooth performance
  - Less thought to individual tasks
  - More focus on other aspects of the greater procedure
- Feedback