Tendon Transfers

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Principles of Tendon Transfer

- Supple - address contracture
- Satisfactory bed
- Sensibility

- Strength - of donor must be adequate
- Size (or amplitude) of motion
- Straight line of pull
- Single tendon, single function
- Synergism
- Sacrifice (is the donor expendable)
Assessment and Treatment

- What is missing?

- What function needs to be restored?

- What is available?
Low Median Nerve Palsy

What is Missing?
- APB
- OppP
- FPB
Low Median Nerve Palsy

What function needs to be restored?

Thumb Opposition
Low Median Nerve Palsy

Transfer Options:

- FDS opponensplasty
- EIP opponensplasty
- ADM (Huber) transfer
- Palmaris longus (Camitz) transfer
High Median Nerve Palsy

What additional loss is there?

- PT
- FCR
- FDS all digits
- FDP to index and middle
- FPL
- PQ
High Median Nerve Palsy

What function needs to be restored?
- Opposition
- Flexion of index finger and thumb
High Median Nerve Palsy

Transfer Options?

- only BR, ECRL and ECU available
- ECU may be needed for opponensplasty

therefore:
- BR to FPL
- ECRL to index FDP
Low Ulnar Nerve Palsy

What is missing?

- Intrinsic muscles

Hypothenar muscles may be spared depending on level
Low Ulnar Nerve Palsy

What function needs to be restored?

- Thumb power pinch
- Roll-up function - correction of clawing
- Little finger adduction
Low Ulnar Nerve Palsy

Transfer options

✔ Thumb key pinch -
  ✔ ECRB between 3rd and 4th MC to adductor tubercle with free graft

✔ Clawing -
  ✔ ECRL with 4 tail graft to A2 pulley
  ✔ or Zancolli lasso - FDS around A1 to itself

✔ Little finger adduction and Metacarpal arch
  ✔ EDM tendon split and ulnar half passed palmar to deep transverse ligament and attach to radial collateral ligament
High Ulnar Nerve Palsy

What additional loss is there?

- FDP ring and little finger
- FCU
What additional functional loss is there?

- Active finger flexion

- Restoration may result in clawing so low nerve lesion transfers may be required
High Ulnar Nerve Palsy

Transfer options

- Side to Side Ring and Little FDP to Middle FDP
Radial Nerve Palsy

What is missing?

- BR and ECRL may be intact depending on level
- ECRB
- EDC
- ECU
- EDM
- APL
- EPL
- EPB
- EIP
Radial Nerve Palsy

What function do we need to restore?

- Wrist Extension
- Finger Extension
Radial Nerve Palsy

Transfer Options

- **FCR or FCU transfer**
  - PT to ECRB
  - FCR or FCU to EDC
  - PL to rerouted EPL

- **Superficialis transfer**
  - PT to ECRL and ECRB
  - FDS III to EDC
  - FDS IV to EIP and EPL
  - FCR to APL and EPB