

# Transfer of Pedicled Latissimus Dorsi Musculocutaneous Flap to Restore Elbow Flexion.

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# Causes of active elbow flexion loss

- Brachial plexus injury
- Direct flexor muscle trauma
- Poliomyelitis
- Arthrogryposis
- Other neuromuscular disorders

# Elbow flexion restoration methods

- Steindler's flexorplasty
- Pectoralis Major transfer
- Triceps muscle transfer
- Latissimus Dorsi transfer

# Latissimus Dorsi

- Type V musculocutaneous flap

(Mathes & Nahai classification)

- One dominant pedicle
- Secondary segmentary pedicles

- Replaces the Biceps with preservation of its neurovascular pedicle

- Prerequisite for transfer :

Intact C7 Root !!!

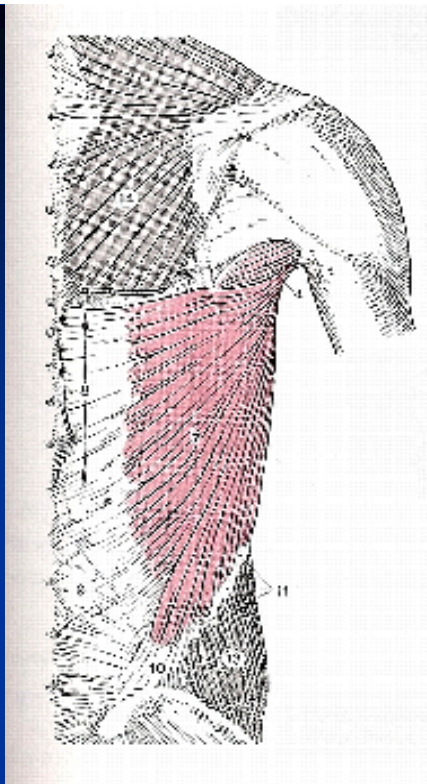


# Transfer of Pedicled Latissimus Dorsi Musculocutaneous Flap

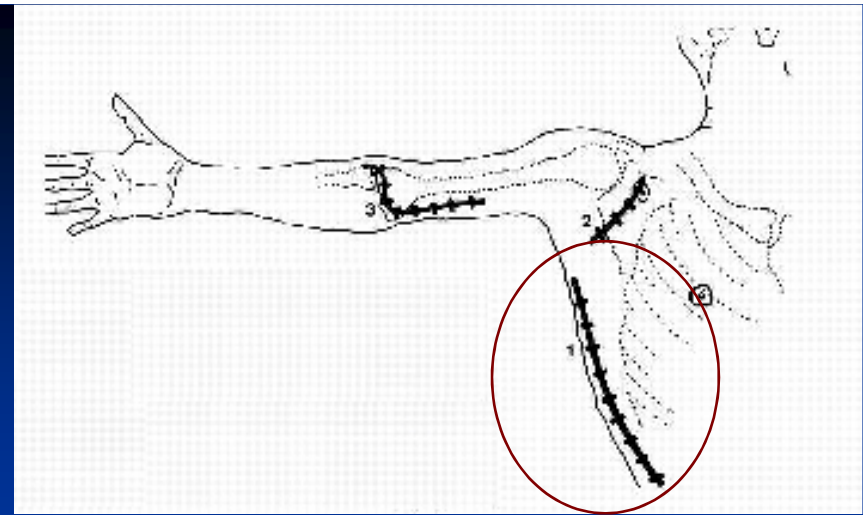
- Unipolar : Only one end of the muscle is transposed
- Bipolar : Both the proximal and distal ends of the muscle are transposed
- Method first presented by Schottstaedt and associates in 1955

## Material - Method

- Fifteen patients
- Period 1990-2003
- Failed surgical repair of upper brachial plexus injury (8 patients)
- Direct musculocutaneous nerve injury (7 patients)
- Bipolar transfer (13 patients)
- Unipolar transfer (2 patients)

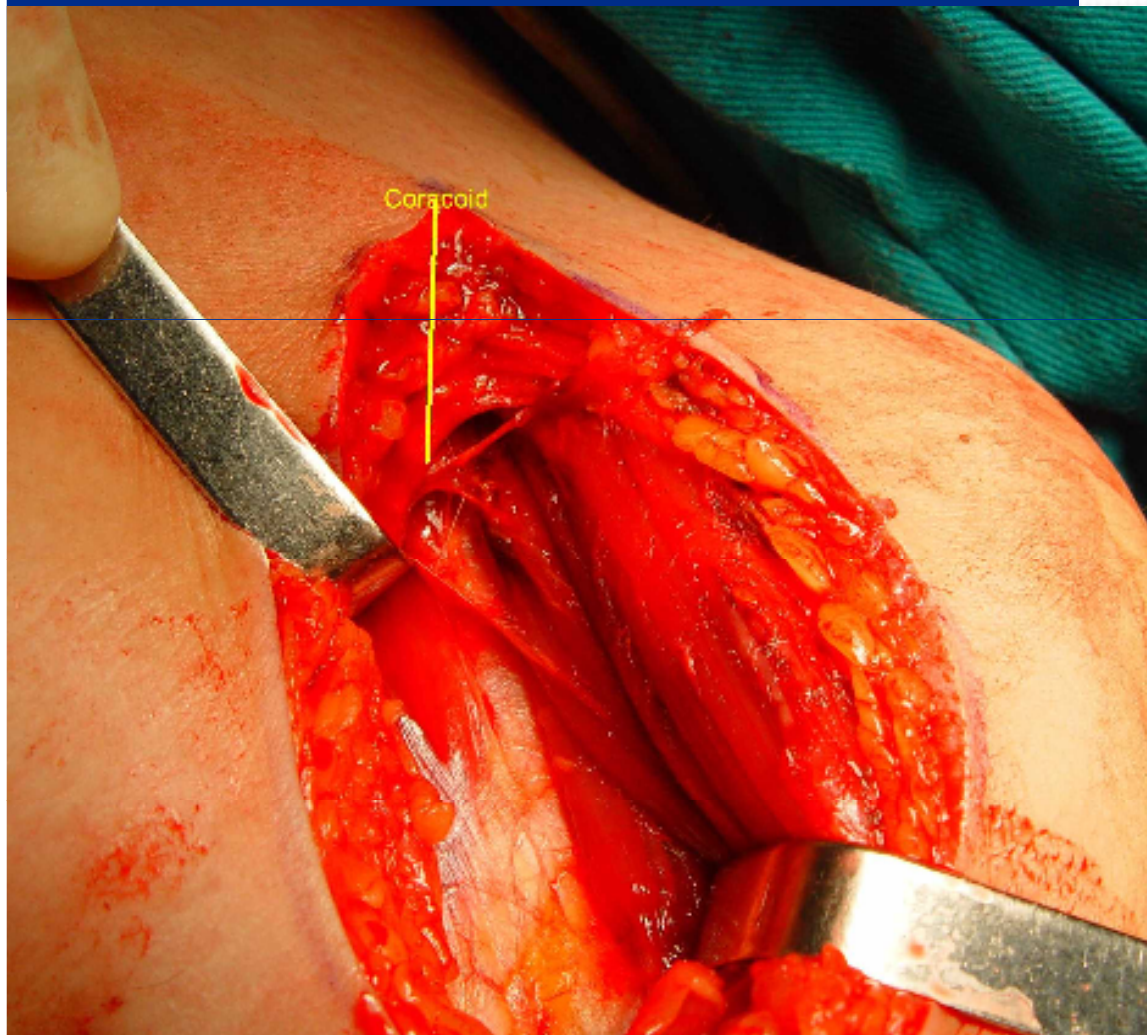
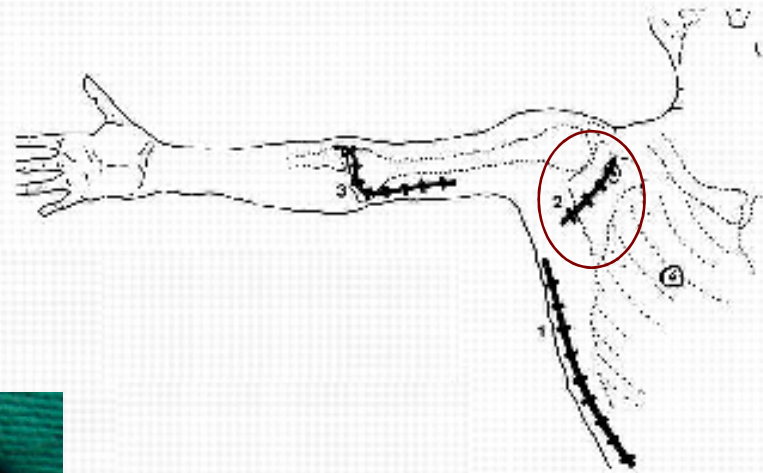


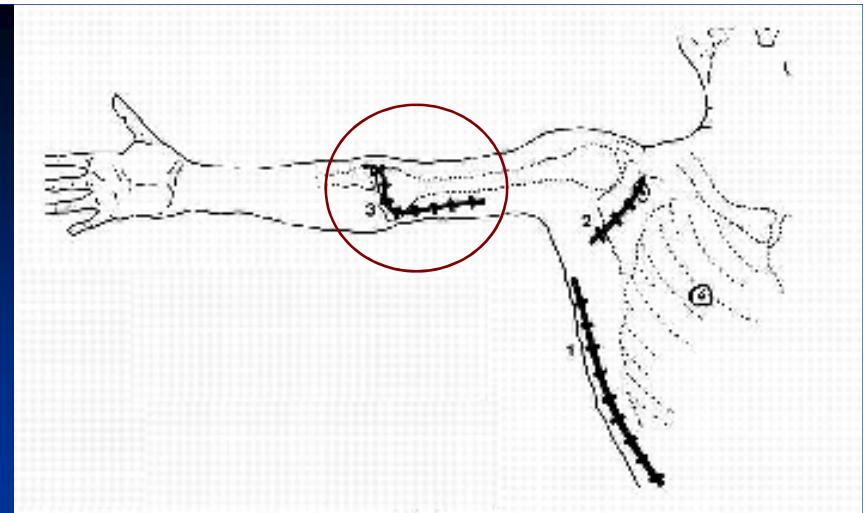
## Incision on the thorax





# Incision on the deltopectoral groove





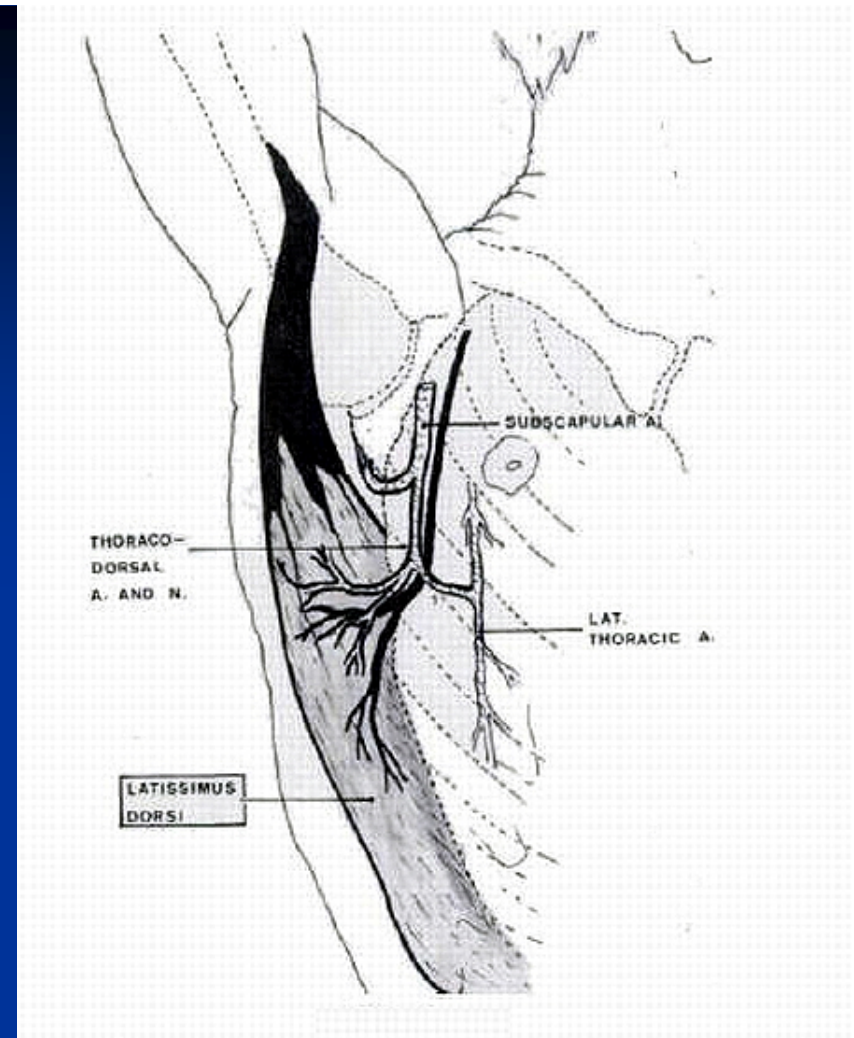
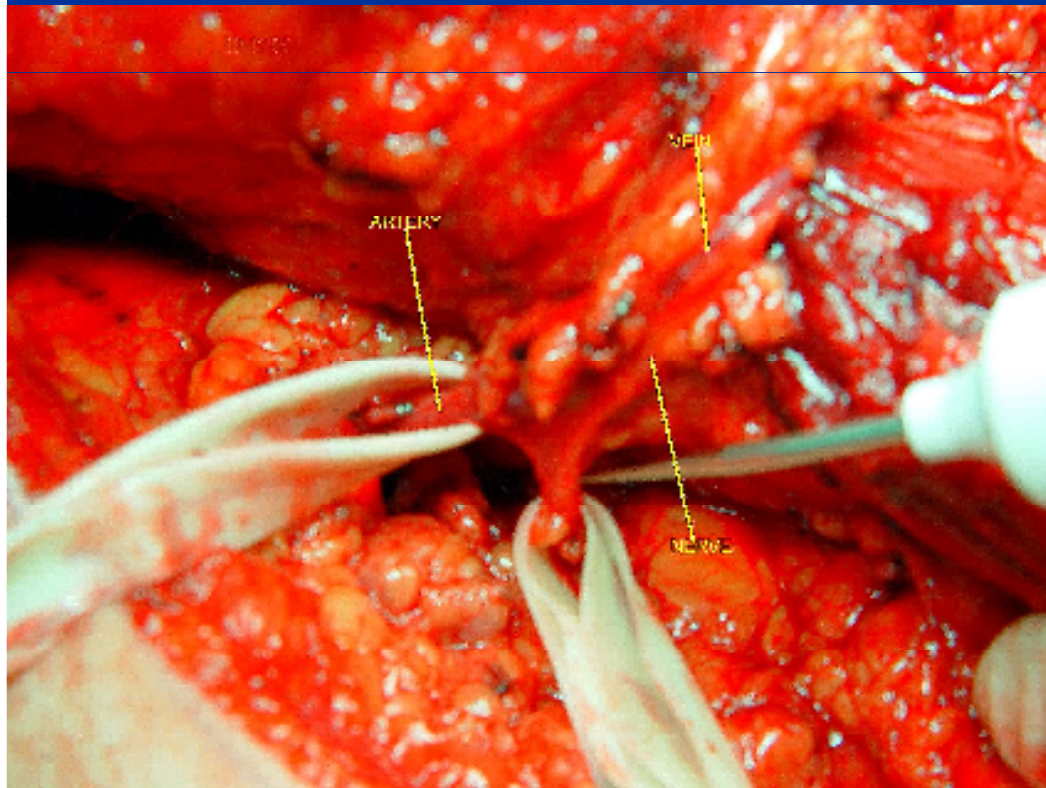
Incision  
on the  
elbow



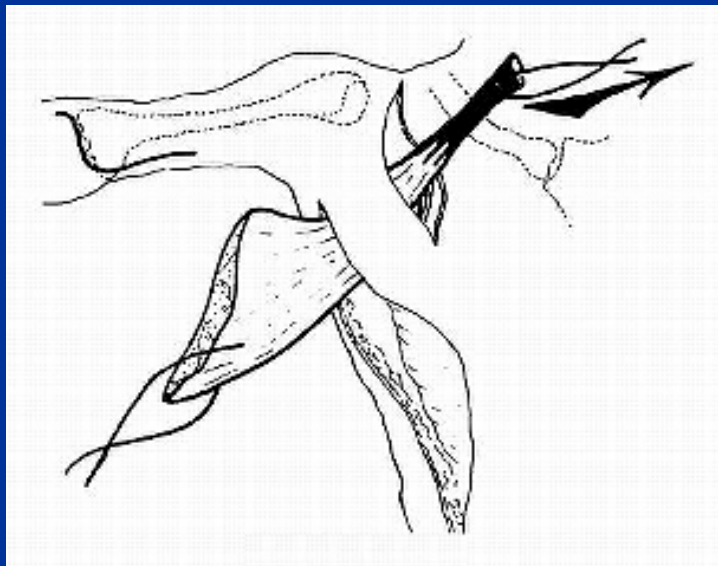
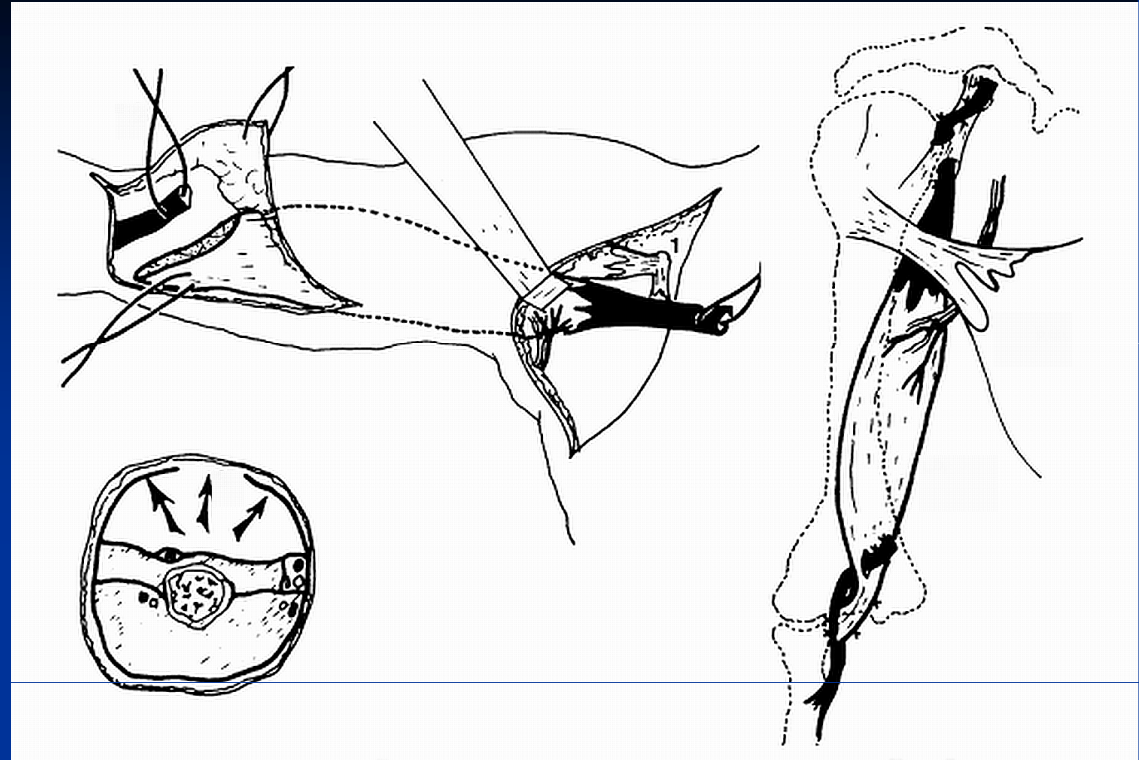
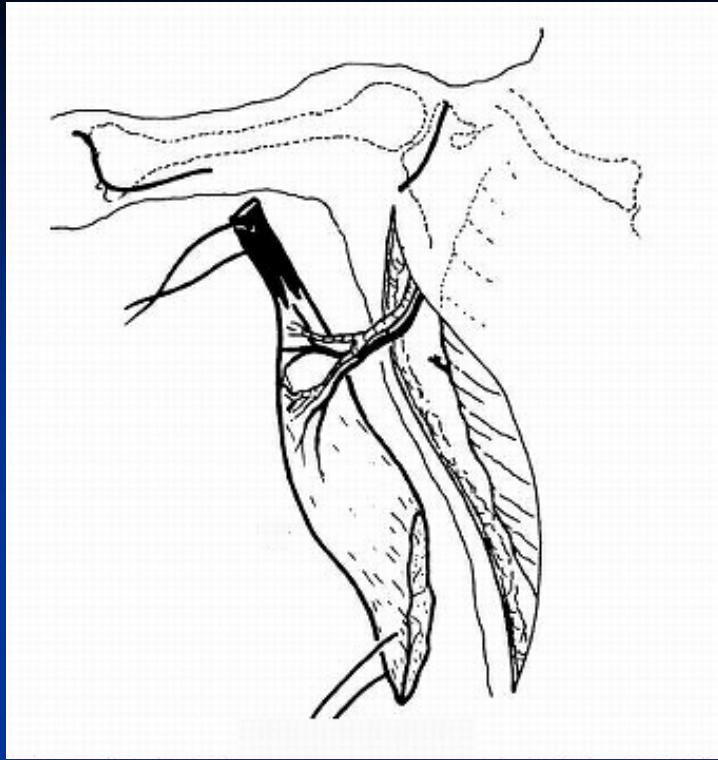
# Incisions



# Anatomy of the thoracodorsal vessels and nerve







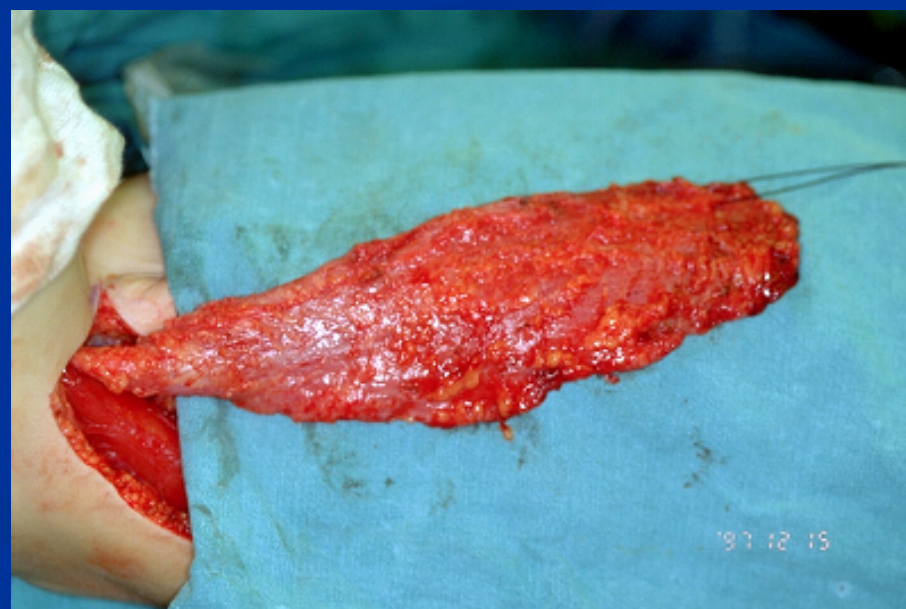
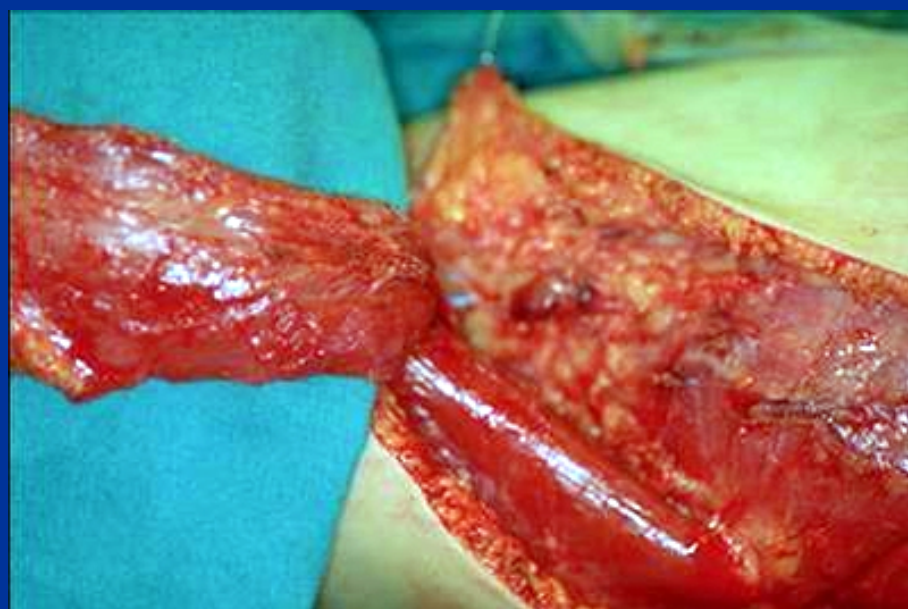
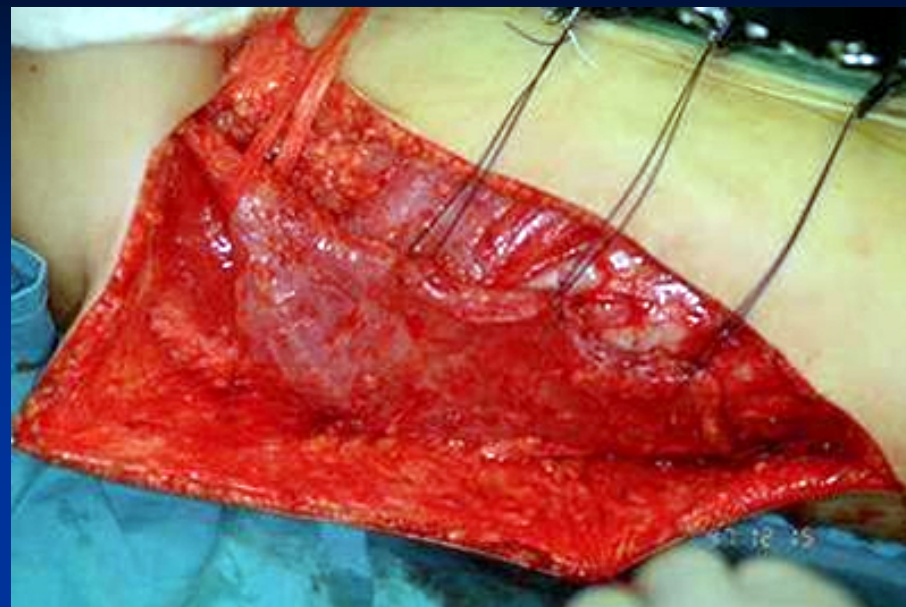
## Latissimus Dorsi

1. Freed at both ends with its neurovascular pedicle preserved
2. Passed under the skin of the axilla
3. Placed at the anterior compartment of the arm



6 years old girl ,  
direct musculocutaneous nerve injury







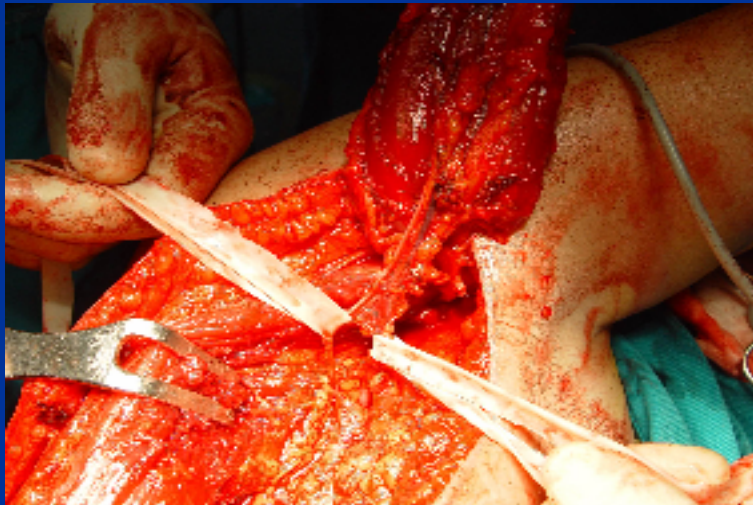
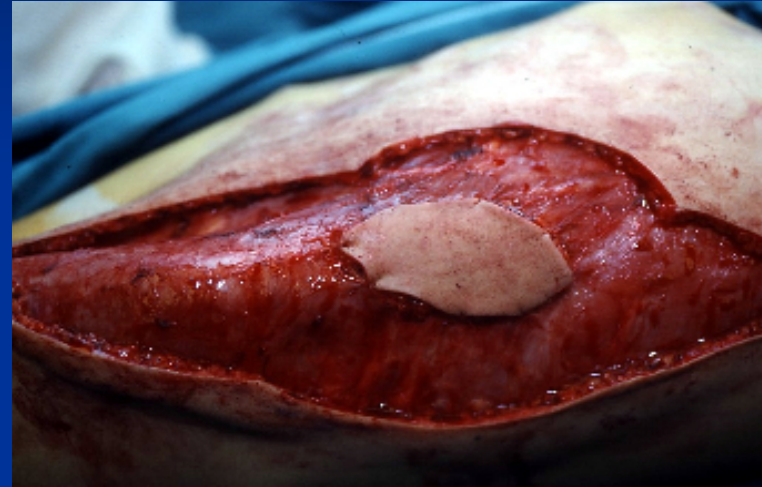
9 Months post-op



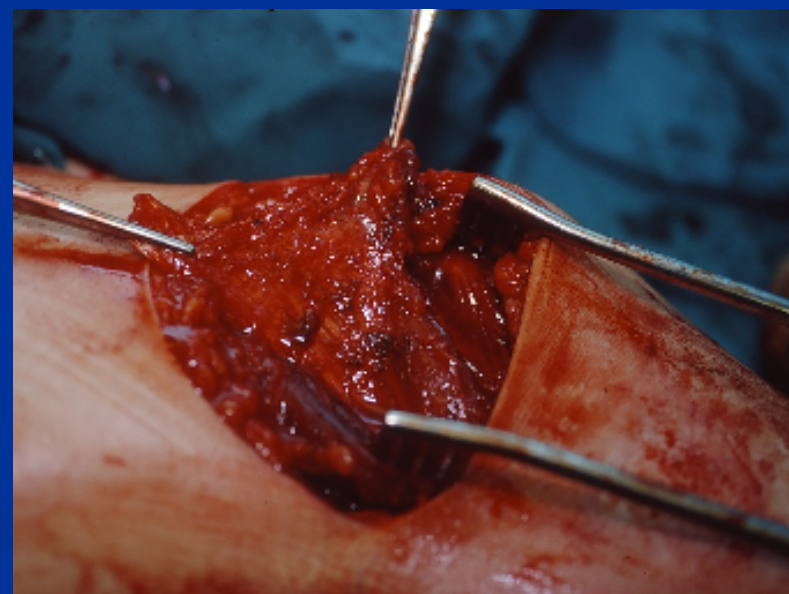
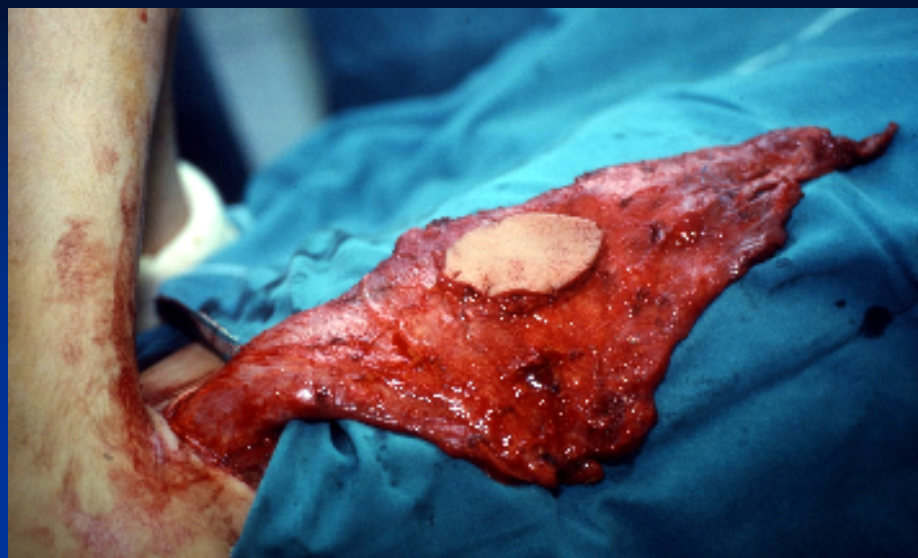
## 3 Years post-op



16 years old boy ,  
failed surgical repair of upper brachial plexus injury









# Results

- Arm was immobilized in a cast at 110° of elbow flexion & supination for six weeks
- Venous congestion was present in four cases, but flap necrosis was not observed
- No infection was developed in both areas
- No flexion contractures of the elbow occurred
- Active supination 20° - 50° regained in all, except for 2 patients
- Acquired ability to bring the hand to the mouth



# Results

- The mean follow up was 5.7 years

Elbow Flexion (pre-op/postop)	Motor function
10 → 0° / 0° - 125° 3 → 0° / 0° - 115° 2* → 0 / 0° - 90°	12 → Grade 4 3 → Grade 3 <sup>+</sup>
* Two patients were reoperated for muscle shortening	

# Conclusion

- Pedicled L.D musculocutaneous flap transfer, is a very good choice, for active elbow flexion restoration.
- This flexorplasty needs:
  - Good preoperative status of L.D.
  - Study of patient's needs & the condition of the affected arm
  - Properly measuring the tensile length of L.D.
  - Adequate exposure of the neurovascular bundle
- This flexorplasty gives:
  - Good motor result
  - Functional elbow flexion
  - No destabilization of donor
  - Satisfying aesthetical result
  - No complications worth mentioning

## ■ Reference

Latissimus Dorsi Transfer to Restore Elbow Flexion

AN APPRAISAL OF EIGHT CASES

BY EDUARDO ZANCOLLI, M.D.\*, AND HECTOR MITRE, M.D.t, BUENOS AIRES, ARGENTINA

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Kawamura T., Takahura R.

# Thank You !!!

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