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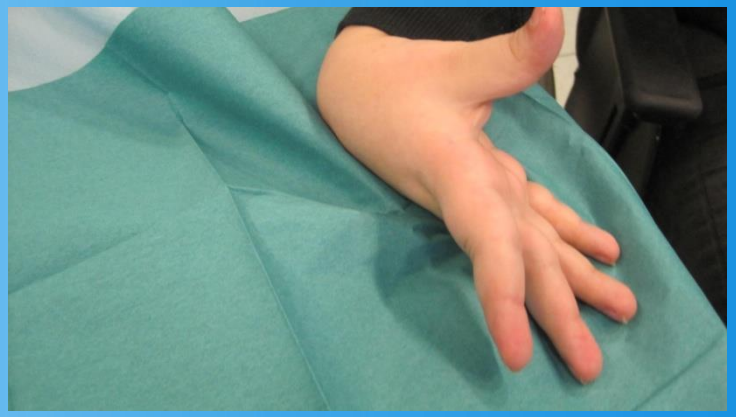
Handsurgery and treatment of Cerebral Palsy planning, Botulinum Toxin, surgery and postoperativ treatment

REGION



- *11.NORDISKE BANDAGIST KONGRES, KØBENHAVN 6.-8.SEPTEMBER 2018*
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- *Niels Søe MD ,Guðlaug Rósa Sigurðardóttir RN , Lisbeth Vesterløkke RN,*

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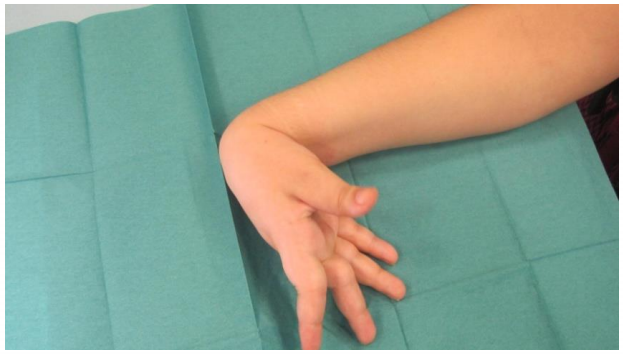
Definition

Tachdjian´s Pediatric Orthopaedics, Third Edition 2002
Mutch L,Albermann E,Hagberg B; Dev Med Child Neurol; 1992;34:547
Leclercq C; BMC Proc 2015; 9(suppl 3): A70

- Cerebral palsy is the result of a brain lesion.
- The brain lesion must be fixed and non progressive
- The abnormality of the brain results in motor impairment
- CP includes all the sequelae uccuring during the perinatal period



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Epidemiology

Bhushan V, Paneth N, Kiely JL: Pediatrics 1993;91:1094
National Clinical Guidelines for Physiotherapy and Occupational Therapy in DK, 2013

- The incidence of CP is increasing slightly
- Between 2.0 and 2.7 per 1.000 live births
- The risk of CP in a child born full-term is 2 in 1.000.
- 50 % of children with CP have low birth weight
- The incidense is higher in males than in females
- Between 2.000-2.500 children in DK (< 17 Years)

Subtypes and operative indications

Orthopaedic Clinics of North America; Vol 41, issue 4, 2010
Orthopade 2004 Oct:33(10):1163-72

- Spastic CP – 88% (possible surgery)
- Ataxic CP – 2 %
- Athetoid CP – 10 % (Severe)

- Diphlegia
- Hemiphlegia and CP
- Quadriphlegia and CP

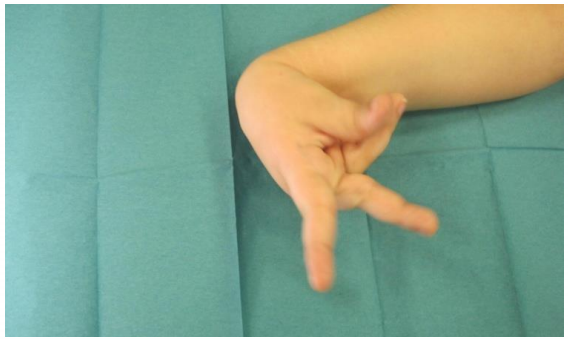
- Surgical interventions are applied in less than 20%, thats mean a limited place

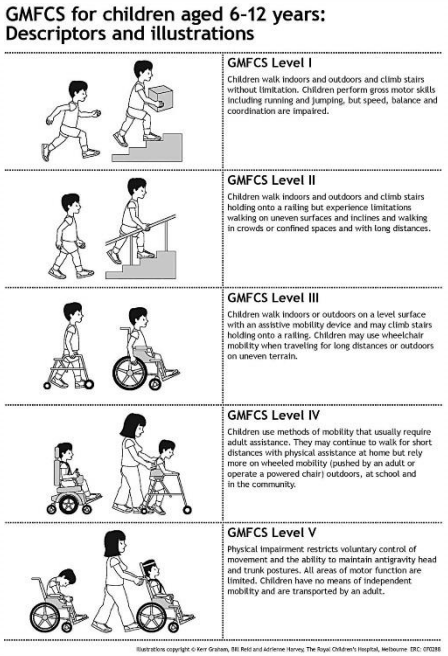
Indication and recommendations

Medical examination and strategy

- Gross Motor Function Classification Scale (GMFCS)
- 5 Groups – one to five. Group one is light and five is severe.

- 45 % Group 1
- 8 % Group 2
- 4 % Group 3
- 16 % Group 4
- 23 % Group 5





- 75 % has epilepsia and 40 % has an IQ > 70

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Strategy

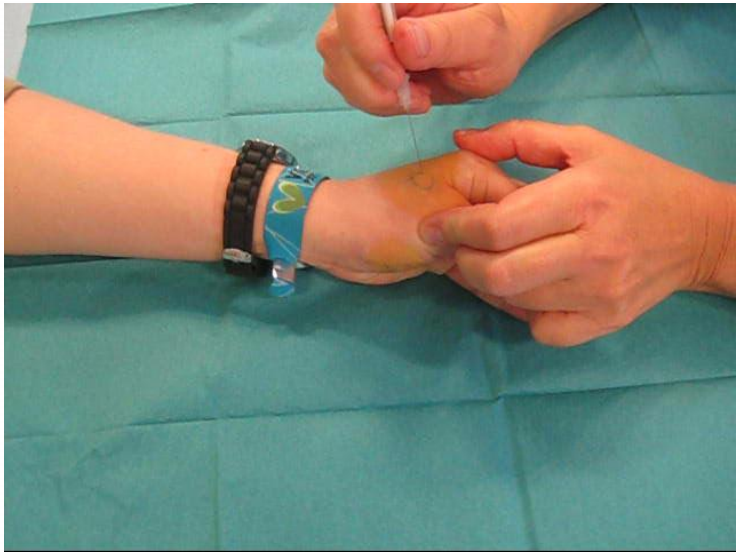
S. Sonne-Holm and H. Rasmussen ;Cerebral Palsy - Treatment and regime; KHH: 2009
S. Michelsen, E. Flachs, P. Due and P. Uldall; Children with CP in Dk; Syddansk Universitet: 2010

Team function

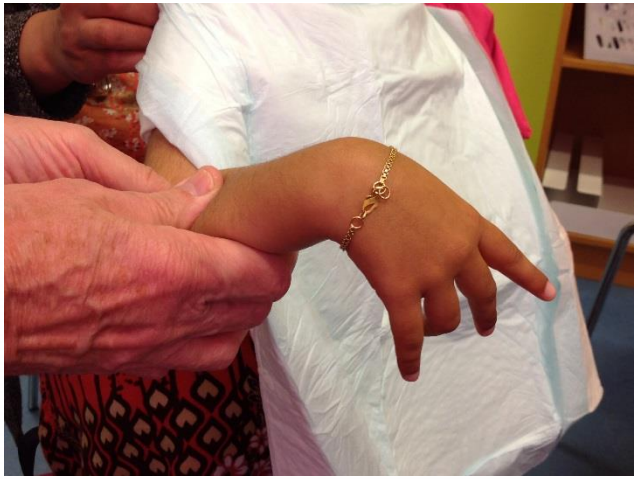
- Goals of surgical treatment must be clearly defined and accepted preoperatively
- Goals can be: Position change, improve appearence,facilitate hygiene and cosmetics
- All goals are clear indications and must be discussed with the patients and the family

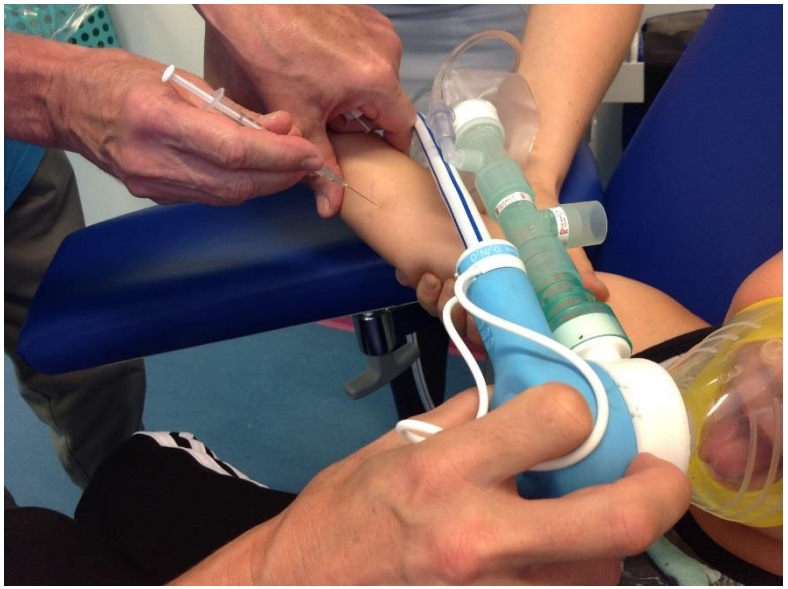
Preoperative strategy

- Evaluation
- Occupational therapy (Mirror treatment)
- Botulinum toxin
- Evaluation



Botulinum toxin in children (technique)

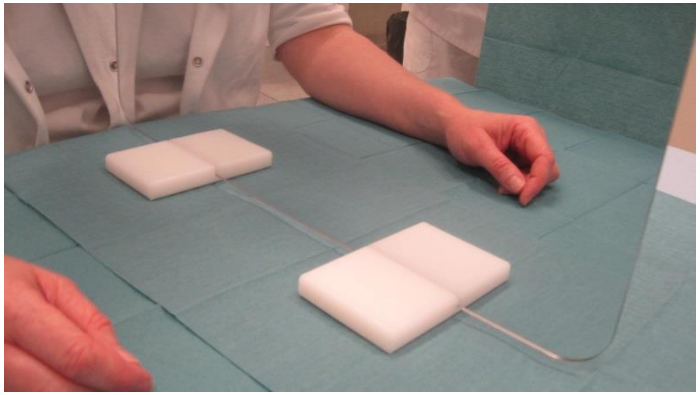


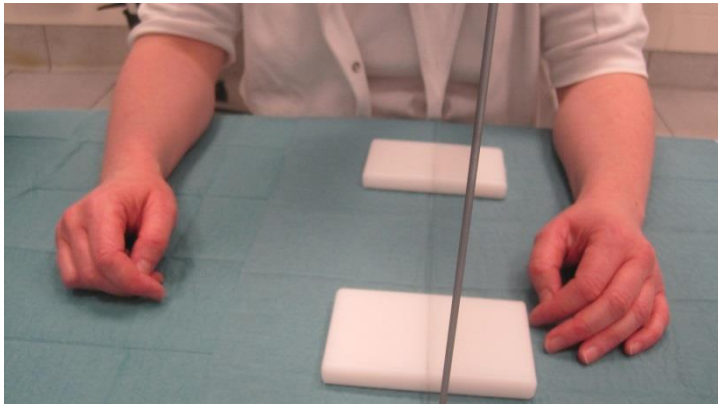


Mirror therapy

J.Phys.Ther.Sci 28:3227-3231, 2016 (Review Article)

- Mirror-mediated therapeutic intervention targeting CP was confirmed.





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The Classical arm position

Flexion of the elbow, pronation of the lower arm, flexion af the wrist and fingers and thumb in palm
Cerebral palsy. Freeman Miller.Springer 2004

- Greens transfer – balance the wrist (FCU to ECRL)
- M.pronator to supinator re-routing (supination)
- Proximal carpectomy and arthrodesis of the wrist
- M.extensor pollicis longus to m.abductor pollicis
- M.brachioradialis or m. palmaris longus to m.abductor pollicis – activating
- M. adductor pollicis gliding procedure

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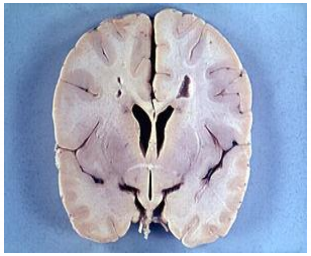
Surgery aims

Caroline Leclercq . Cerebral palsy: a comprehensive review
BMC Proc. 2015;9 (suppl 3): A70

- Reducing spasticity
- Relieving muscle/joint contracture
- Augmenting paralysed muscles, whenever possible by tendon transfer

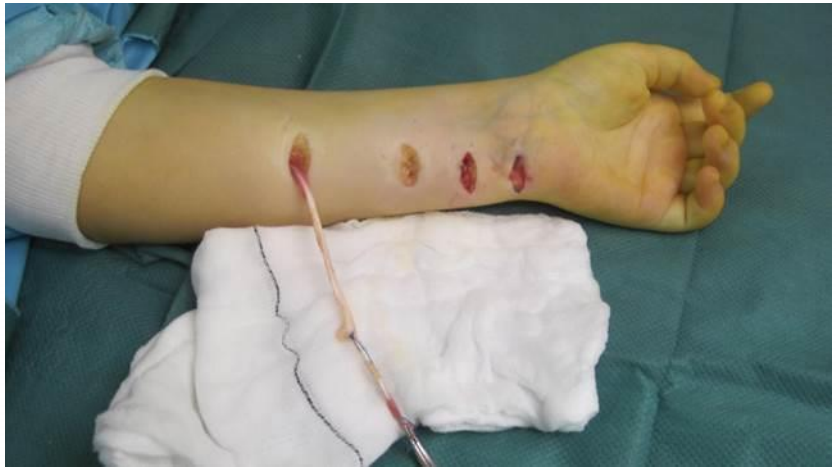
- Surgery seems more effective if performed earlier in the patient´s life

- Improve use of an extremity can improve cortical representationof the extremity and maybe decrease the development of neglect



Surgical treatment of the upper limb

- Restore balance
- Soft tissue release
- Tendon transfer
- Arthrodesis
- Neurectomy



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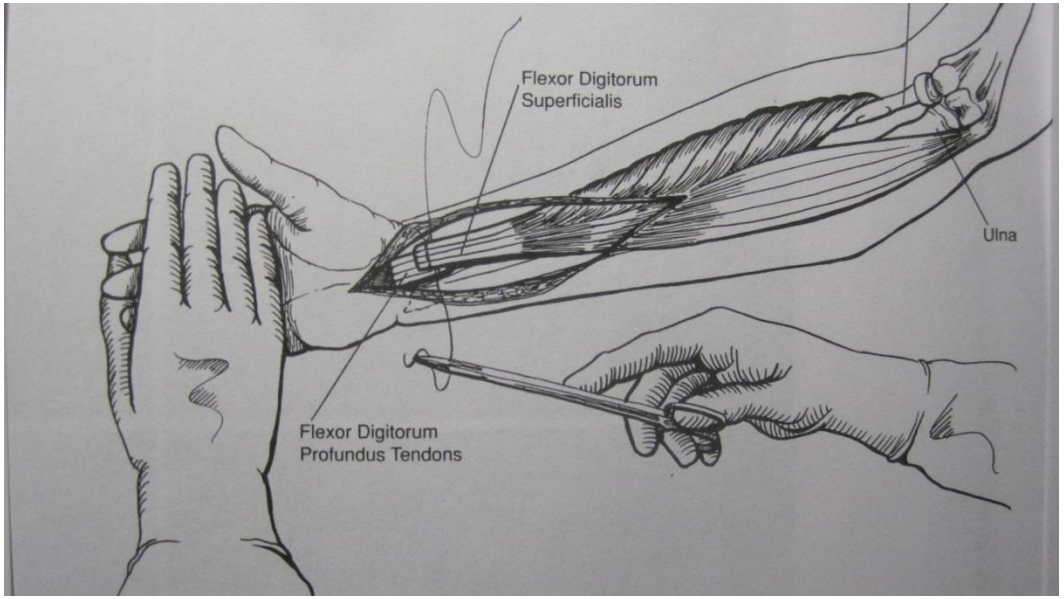
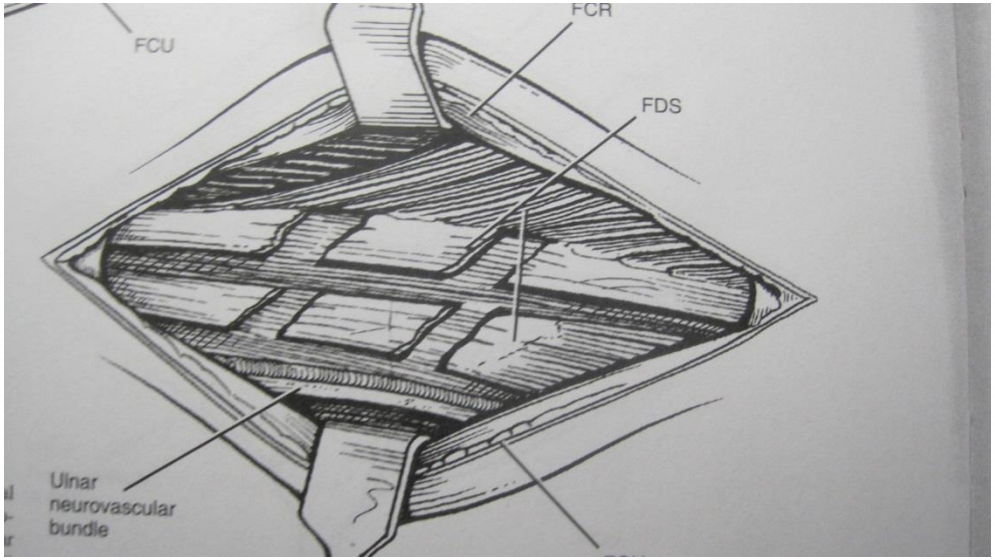
Superficialis to profundus (STP) procedure

Keenan MA et al.Manual of Orthopaedic Surgery for Spasticity. NewYork 1995



Fractional lengthening of the digital flexors

- Two oblique incisions in the tendinous portion



Postoperativ treatment

- BTX to the transposed muscles
- Plaster of Paris 5-8 weeks
- Occupational therapy and mirror treatment

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Thank You for your attension