

# Emg in pediatria

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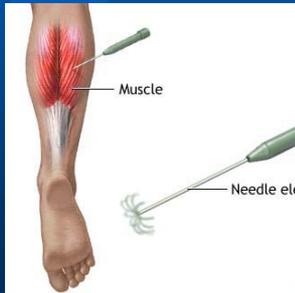
Appunti



Materiale particolare :  
Elettrodi e stimolatri



**Pianificare l'esame:  
Prima la neurografia**



**Poi emg ad ago,  
se indispensabile**

ADAM

Infant will probably  
cry regardless of  
test or procedure



**Impossibile la cooperazione  
nei bambini piccoli**

Toddler will probably  
cry regardless of  
test or procedure



**Prepararsi a farsi aiutare  
da genitori e nurses**

**Far velocemente**

**Programmare bene**

ADAM

100, 99, 98,  
97, 96, 95,

Maintain control  
by counting,  
deep breathing,  
and/or relaxing

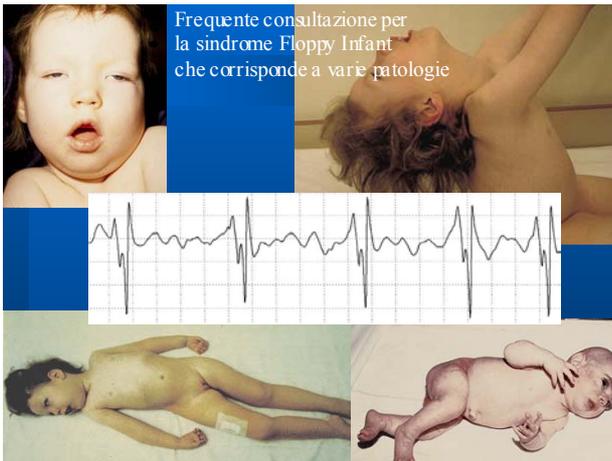


ADAM

**Tecniche di coping nei bambini più grandicelli**



Patologie particolari ed  
esame neuromuscolare  
peculiare delle varie età



Frequente consultazione per la sindrome Floppy Infant che corrisponde a varie patologie

Some illnesses that present as an acute floppy infant are not found in the differential diagnosis of motor unit disorders in the older child or adult.

These include spinal muscular atrophy, postvaccine poliomyelitis, infantile botulism, and severe myopathies, such as myotonia dystrophy, and some glycogen storage diseases. An appreciation of the neuromuscular maturational norms is essential to an effective pediatric EMG consultation for children ages 0-3 years. Additionally, the neuromuscular complications of extended intubation and sepsis in children are gaining broader recognition. An increased dialogue between clinical neurophysiologists and pediatric neurologists and intensivists in both neonatal and pediatric intensive care units is essential.

Neuromuscular

Front. Search, Index, Links, Pathology, Molecules, Syndromes, Muscle, NMJ, Nerve, Spinal, Ataxia, Antibody & Biopsy, Patient Info

### CHILDHOOD ONSET POLYNEUROPATHIES

See storage inclusion

Hereditary	
Axonal or Neuronal	Myelin disorders
<ul style="list-style-type: none"> <li>A-beta-1-glycoproteinemia</li> <li>Adrenoleukodystrophy</li> <li>Aut-beta-glycoproteinemia (Tangier)</li> <li>Andersen's Syndrome</li> <li>Ataxia telangiectasia</li> <li>Autonomic Ataxia</li> <li>Brachial Plexopathy</li> <li>Cerebroretinoid degeneration</li> <li>Chediak-Higashi</li> <li>Fabry</li> <li>Friedreich Ataxia</li> <li>Giant Axonal Neuropathy</li> <li>Glycogenosis, Type 3</li> <li>HMSN II &amp; 6</li> <li>Infantile neuronal respiratory failure</li> <li>Infantile Onset Spino-cerebellar Ataxia (IOSCA)</li> <li>TCHADT</li> </ul>	<ul style="list-style-type: none"> <li>Carbohydrate-deficient glycoprotein</li> <li>Cataracts &amp; Facial Dysmorphism (CCFDN)</li> <li>Cockayne's syndrome</li> <li>Congenital muscular dystrophy</li> <li>Merosin deficient</li> <li>Congenital hypomyelinating</li> <li>Fabry's lipoparalipomatosis</li> <li>HMSN               <ul style="list-style-type: none"> <li>Dominant                   <ul style="list-style-type: none"> <li>CMT IA, IB, III, EGR2</li> <li>HNPP, Thermosensitive</li> </ul> </li> <li>Recessive                   <ul style="list-style-type: none"> <li>CMT III, 4A, 4B, 2AC, 4D, LOM, 4E, 4F</li> <li>HMSN-B, CNS</li> </ul> </li> <li>X-linked                   <ul style="list-style-type: none"> <li>HNPP</li> </ul> </li> </ul> </li> </ul>

## Carpal Tunnel in Childhood

A number of conditions predispose children to developing CTS. These conditions include the lysosomal storage diseases, a multigenerational history of CTS, and macrodactyly.

### EMG Evaluation of Suspected Cases of Infant Botulism

#### EMG standard battery

Motor and sensory nerve conduction velocity in one arm and one leg  
Two-Hz nerve stimulation to two distal muscles  
Supramaximal single nerve stimulation, followed by 50-Hz tetanization for 10 seconds and immediately thereafter by single nerve stimuli at 30-second intervals until amplitude of compound muscle potentials return to baseline

#### Diagnostic triad for infant botulism

Compound muscle action potentials of decreased amplitude in at least two muscle groups  
Tetanic and post-tetanic facilitation defined by an amplitude of more than 120 percent of baseline  
Prolonged post-tetanic facilitation of more than 120 seconds and absence of post-tetanic exhaustion

## Neonatal Brachial Plexopathy

- Incidence
- 0.4 to 1 per 1,000 live births
- Lower with Cesarean section

#### • Distribution

- Erb's Palsy (C5, C6 ± C7): 80% to 90%
- Total plexus: 6% to 10%
- Klumpke's palsy (C8 & T1): 1%
- Diaphragm (Phrenic): 1% to 5%
- Homer's: 5% to 30%
- Right slightly more common than left
- Bilateral: 10% to 20%

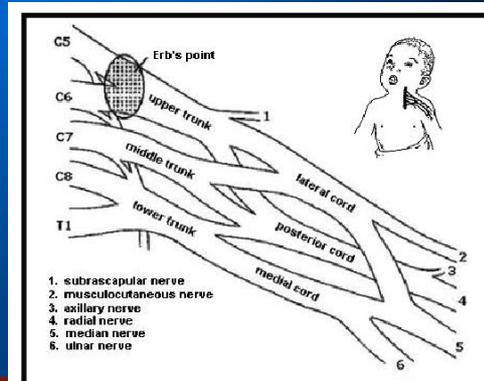


EMG studies have indicated an *in utero* cause in some cases.

### Associated features

- Fractures: Clavicle (10%); Humerus (10%)
- Cervical spine subluxation or cord injury: 5% to 10%
- Other nerve palsies
  - Facial palsy: 3% to 20%
- Fetal
  - High birth weight (> 90th centile)
  - Prolonged delivery & fetal distress
  - Abnormal presentation: Breech; Shoulder dystocia (60%)
- Increased risk of 2nd event with succeeding births
- No associated feature: 6%
  - Prognosis
    - Spontaneous recovery
      - 50% at 6 months
      - ~ 90% of upper plexus palsies at 1 year
      - Less with extensive lesions
      - More with neurapraxia on nerve conduction studies
  - Pathogenesis
    - Stretching brachial plexus by lateral traction
  - Management
    - Prevent contractures
    - ?? Surgery in patients with poor recovery
  - Variant
    - Prenatal weakness: 1 patient described

Upper root palsies are the most common type of brachial plexus birth injury and occur in 73% -86% of the cases.



### Alcuni consigli utili

- Usare uno stimolatore pediatrico più stretto
- Usare un elettrodo ad anello per riferimento
- Usare il tibiale posteriore per primo nervo
- Se non si registra un SAP provare un NAP
  
- prima dell'emg ad ago puoi usare crema di lidocaina con bendaggio compressivo per raggiungere una ipoestesia della cute