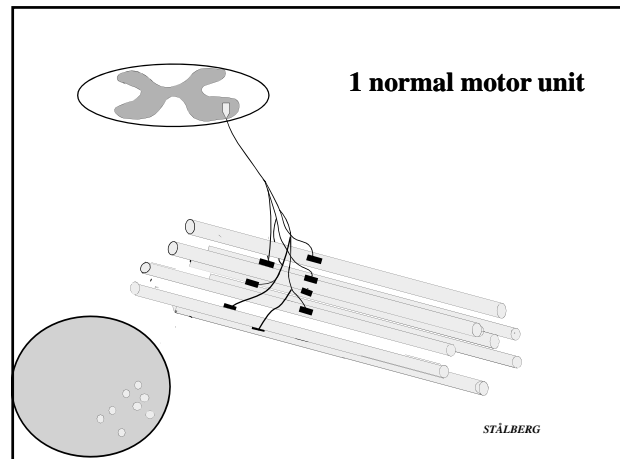


## Basic EMG

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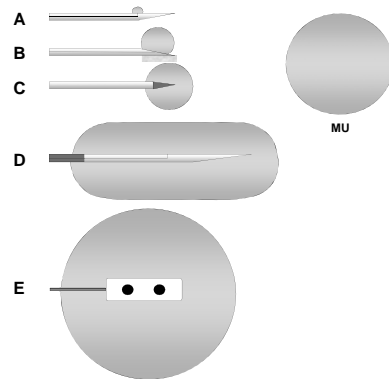


### What do we express with needle EMG?

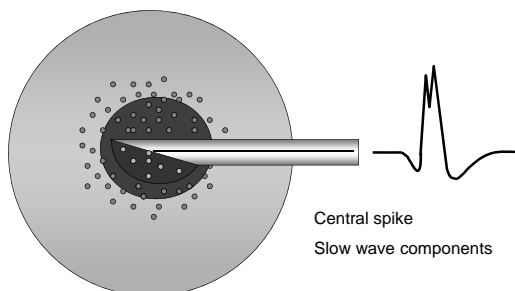
- Muscle membrane function - spontaneous
- Muscle fibre characteristics; diameter
- MU organisation
  - number of fibres
  - grouping
- N-M transmission
- # motor units
  - total
  - activation; pattern, fullness

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### Electrodes



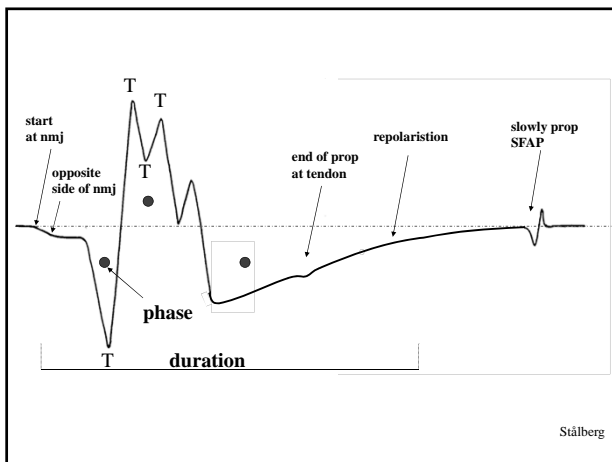
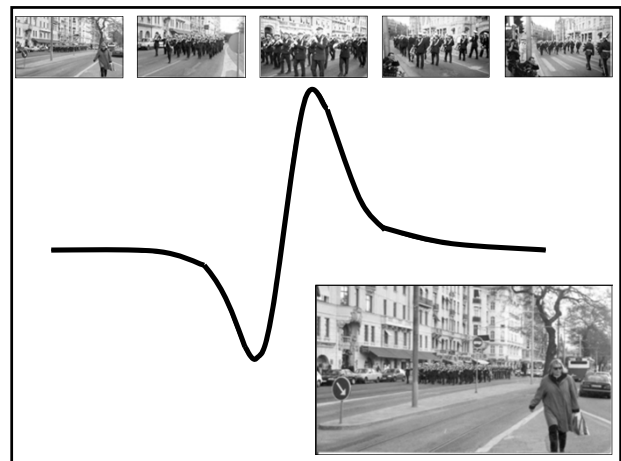
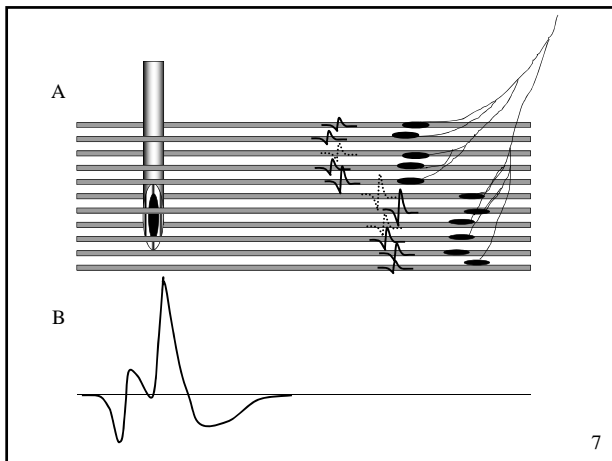
### Conc needle EMG, signals from 2 - 15 muscle fibres



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### Steps in EMG analysis

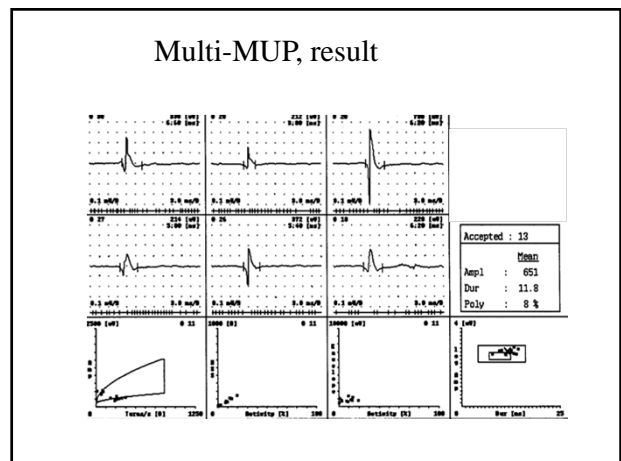
- **at rest** - spontaneous activity
  - fibs, psw, myotonia, complex rep discharges
  - fasciculations, myokymia
- **at slight voluntary contraction** - MUP
  - shape parameters, stability (jiggle), behaviour
- **at strong contraction** - interference pattern
  - recruitment, fullness, MUP parameters

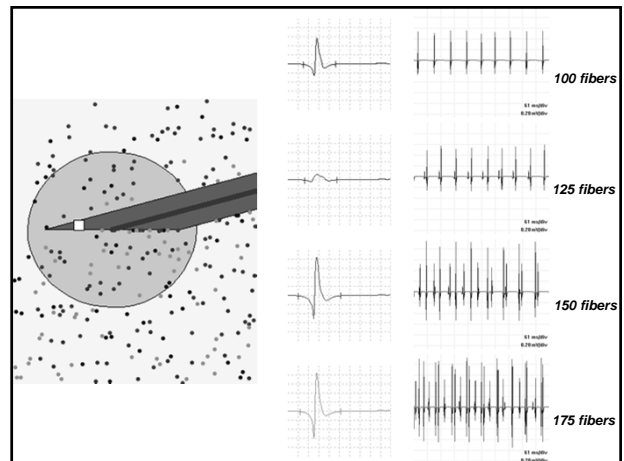
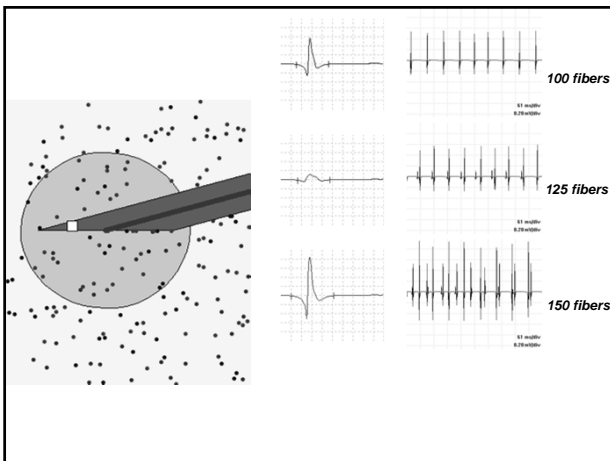
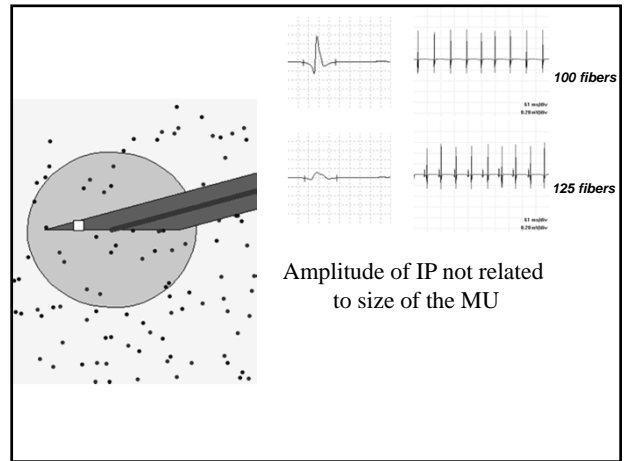
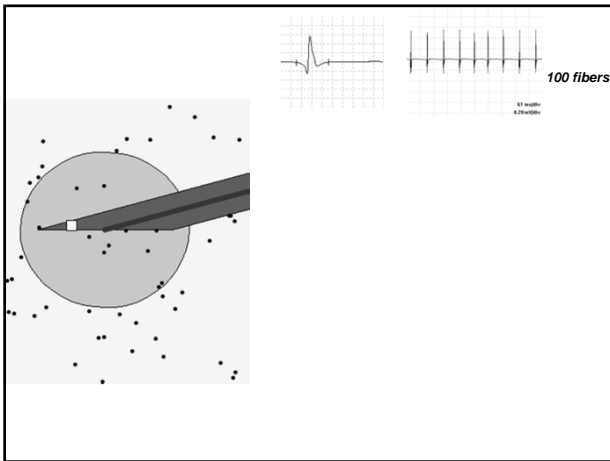
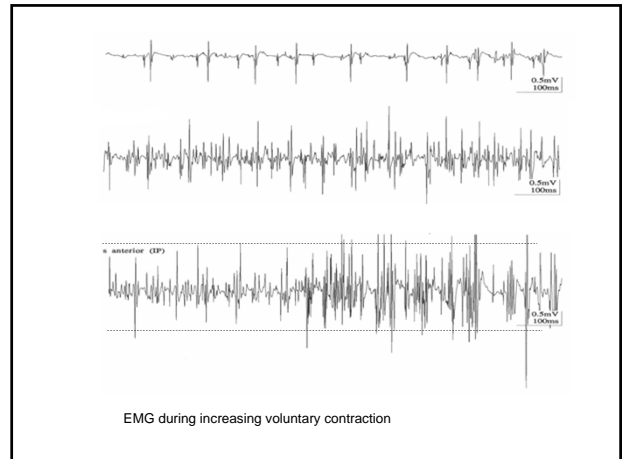
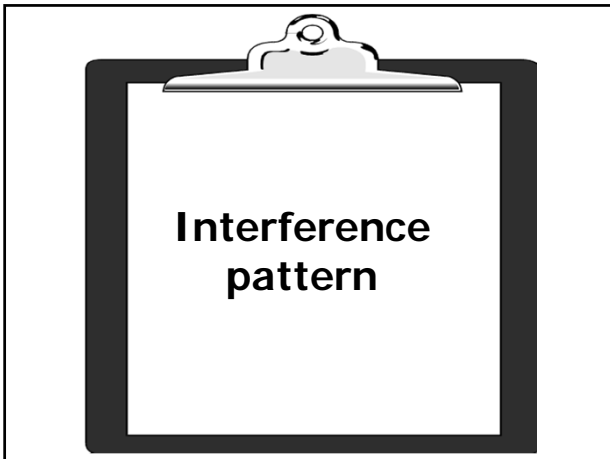


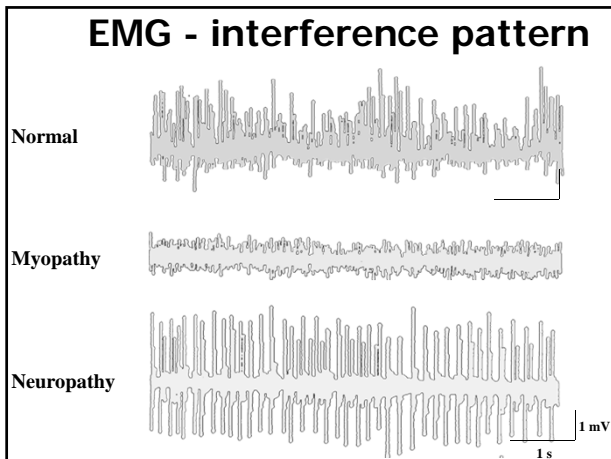
The EMG Simulator

**Parameters used in MUP analysis**

parameter	significance
• amplitude	# fibres/0.5mm
• area	# fibres/2 mm
• duration	# fibres in 2.5 mm
• phases	temp dispersion
• turns	“
• rise time	closeness to fibre
• satellites	extreme delay
• jiggle	n-m transm







- ### Indications for EMG
- Weakness/fatigue
    - central
    - motor neurone
    - peripheral nerve; pnp, focal
    - muscle (nm-j, myopathy, periodic weakness)
  - Numbness
  - Cramps
    - myotonia, ben. fasc. syn., neurotonia, stiff p. syn
  - Pain
  - ICU
    - Critical illness...