

# **Motor neuron disease**

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# What I will talk about

- General facts about motor neuron disease (MND)
- Explaining symptoms and signs of motor neuron disease
- Multidisciplinary management of motor neuron disease

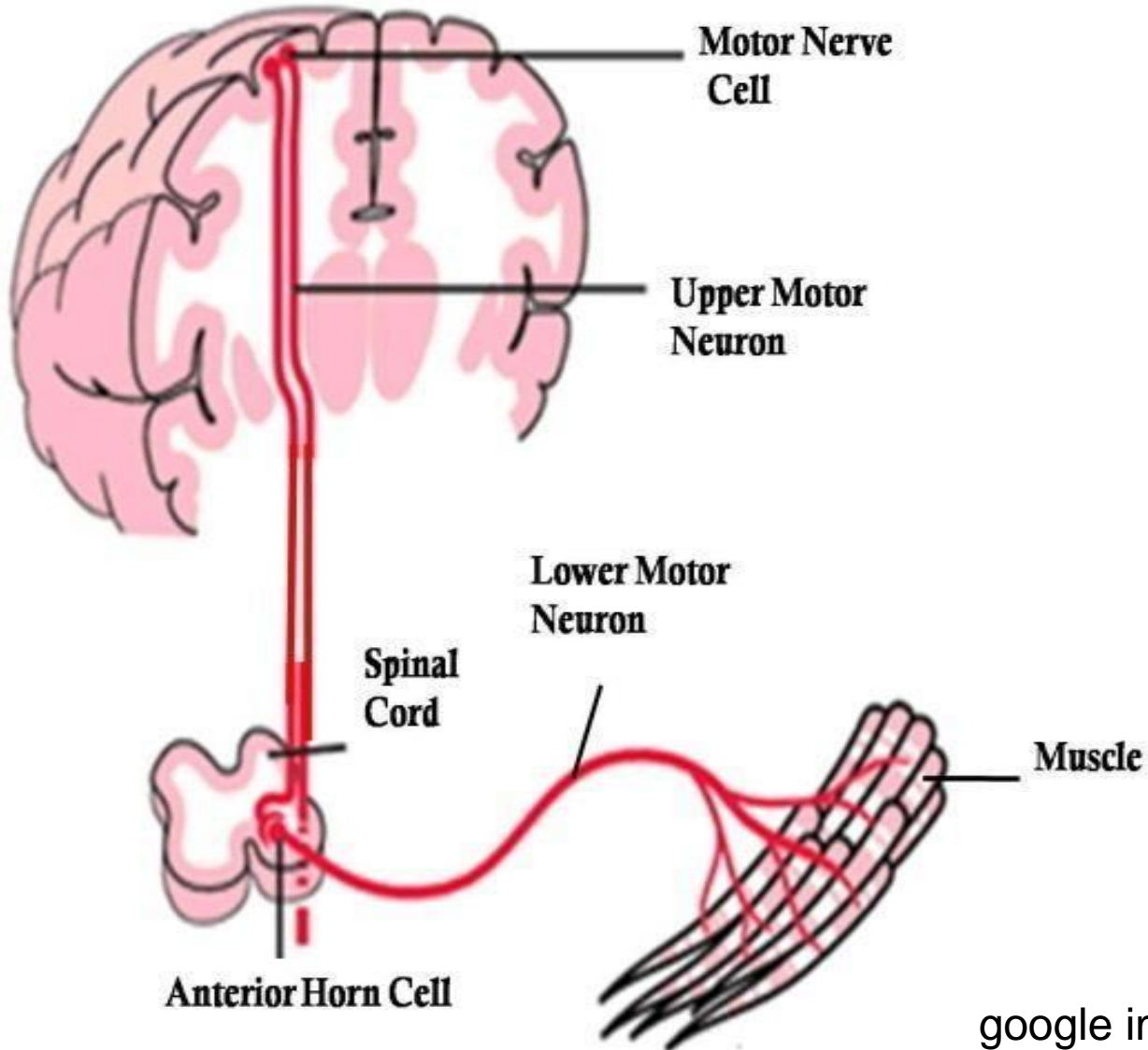
# General facts

- Uncommon condition mainly occurring in middle and later life (6<sup>th</sup> to 7<sup>th</sup> decades)
  - 2 new cases per 100,000 population per year
  - 5-7 cases per 100,000 population at any time
- Degenerative, largely sporadic, neurological condition affecting motor nerves

# Symptoms of MND

- Symptoms of MND and signs depend on:
  - main type of motor nerve damage
  - the location of motor nerve damage

# 2 types of motor nerves



# Upper motor nerve damage

- Upper motor neuron damage causes
  - muscle stiffness
  - muscle weakness
  - brisk tendon reflexes

# Lower motor nerve damage

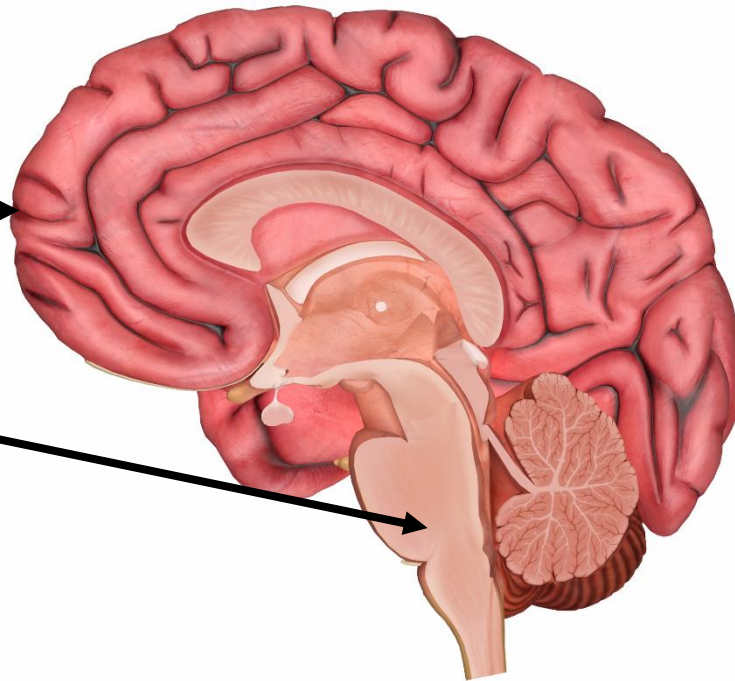
- Lower motor neuron damage causes
  - muscle wasting
  - muscle weakness
  - muscle twitches (fasciculations)
  - loss of tendon reflexes

# Location of motor nerve damage

- Brain

- motor cortex →

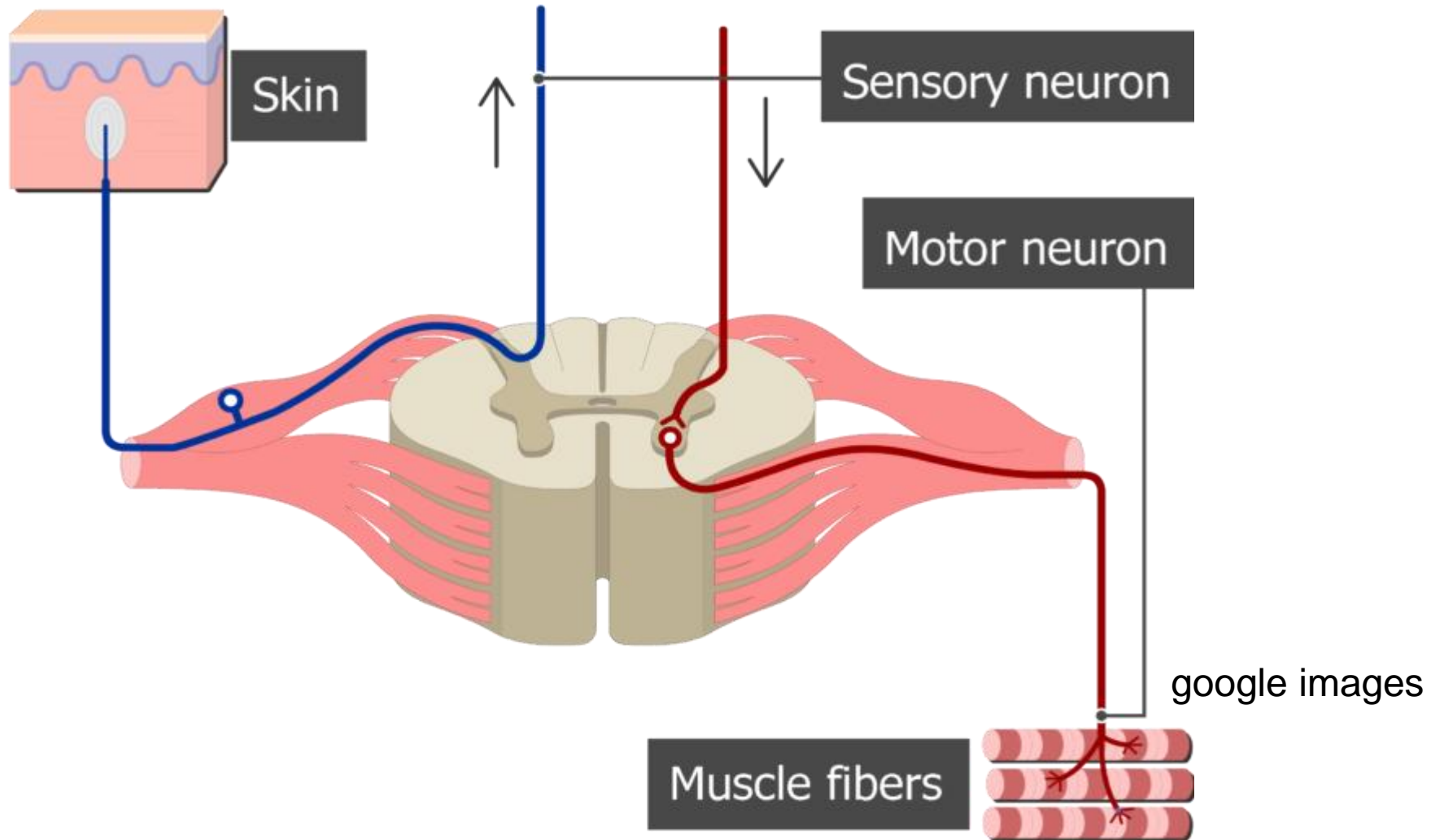
- brain stem →





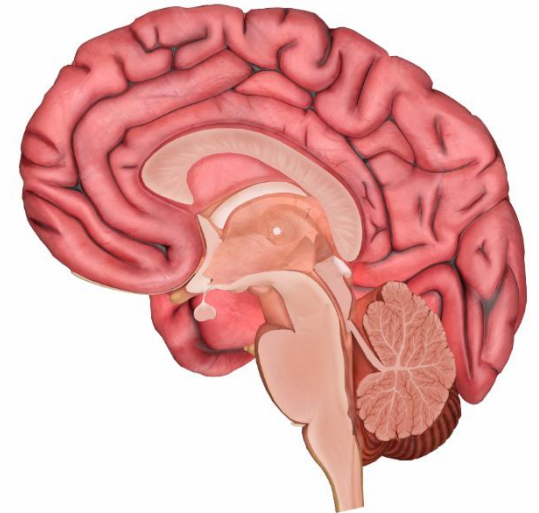
# Location of motor nerve damage

- Spinal cord



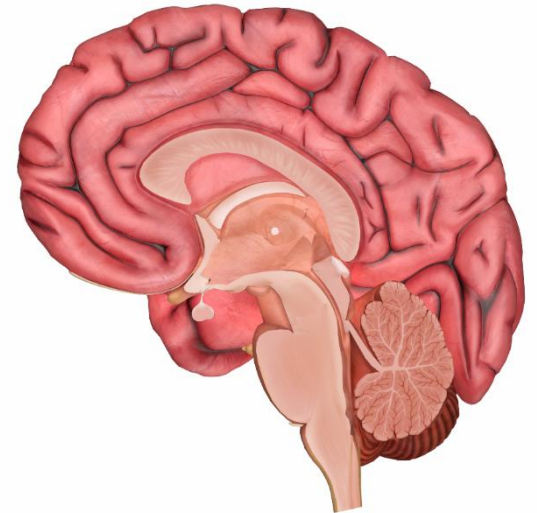
# Location and symptoms of MND

- Brainstem symptoms and signs
  - slurred speech
  - ± tongue wasting and twitches
  - swallowing impairment



# Location and symptoms of MND

- Brain cortex symptoms and signs
    - emotional lability
      - inappropriate laughter and crying
    - changes in thinking and behaviour
- in 1 in 6 to 10 people affected



# Location and symptoms of MND

- Cervical spinal cord symptoms
  - hand (or arm) weakness, causing reduced manual dexterity
  - hand (or arm) muscle wasting
  - visible upper limb muscle twitches
  - less commonly, breathing problems

# Location and symptoms of MND

- Lumbar spinal cord symptoms
  - foot drop, causing a tendency to trip
  - sensation of heaviness and weakness of one or both legs
  - difficulty in rising from low chairs and climbing stairs or excessive fatigue when walking
  - muscle wasting

# Nature of symptoms at onset

- Limb symptoms and signs are the commonest at onset
- Onset with speech slurring in 1 in 5
- Onset with breathing difficulties is the least common

# Forms of MND

- Amyotrophic lateral sclerosis (ALS)
  - Commonest form
  - Symptoms and signs of upper and lower motor neuron damage
- Progressive muscular atrophy
  - rarer form caused by lower motor neuron damage
- Primary lateral sclerosis
  - rarer form caused by upper motor neuron damage

# Treatments for any condition

- Disease modifying treatments
- Symptomatic treatments



# Treatments in MND

- Disease modifying treatments
  - Riluzole
- Symptomatic treatments
  - Depend on the specific symptom

# A multidisciplinary approach to care

