

# Tecido Muscular e Tecido Nervoso

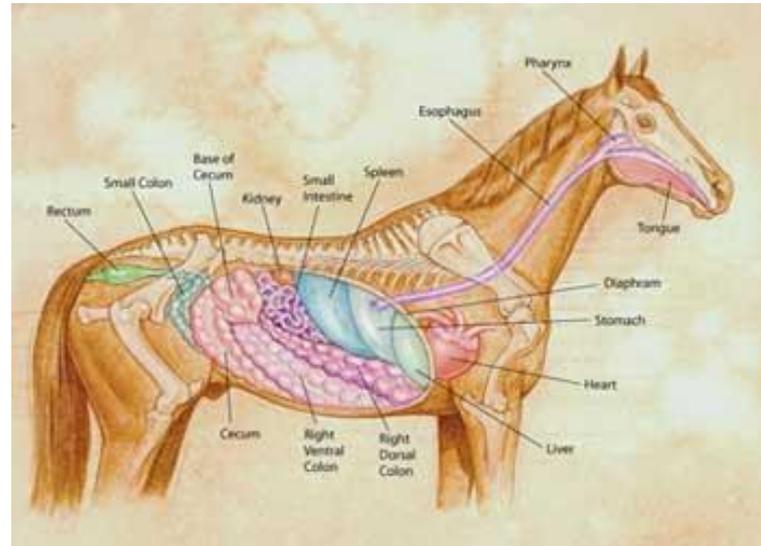
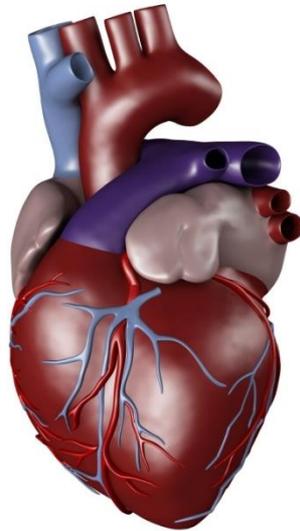
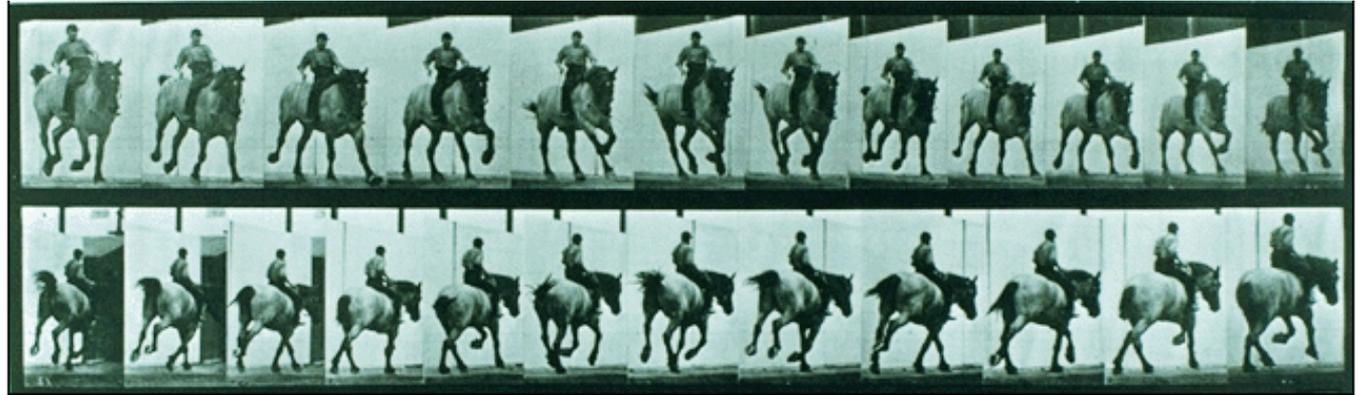
- **Objetivos da aula:** os estudantes deverão ser capazes de....
  - **descrever** a estrutura e função do tecido muscular
  - **comparar** e **distinguir** as características de contração e morfologia dos diferentes tipos de tecido muscular
  - **descrever** o mecanismo de contração muscular e **relacionar** com a estrutura da célula muscular (sarcômeros)
  - **descrever** a organização do músculo pelo tecido conjuntivo
  - **identificar** e **reconhecer** o tecido muscular e seus diferentes tipos
  - **relacionar** os constituintes e **descrever** a estrutura e função do tecido nervoso e sua organização
  - **descrever** a organização do nervo pelo tecido conjuntivo
  - **identificar** e **reconhecer** as diferentes estruturas do tecido nervoso

# Tecido Muscular

- **Funções gerais**

– **Contração**

para



# Tecido Muscular

- Funções gerais

  - Contração

- Constituintes

  - Células

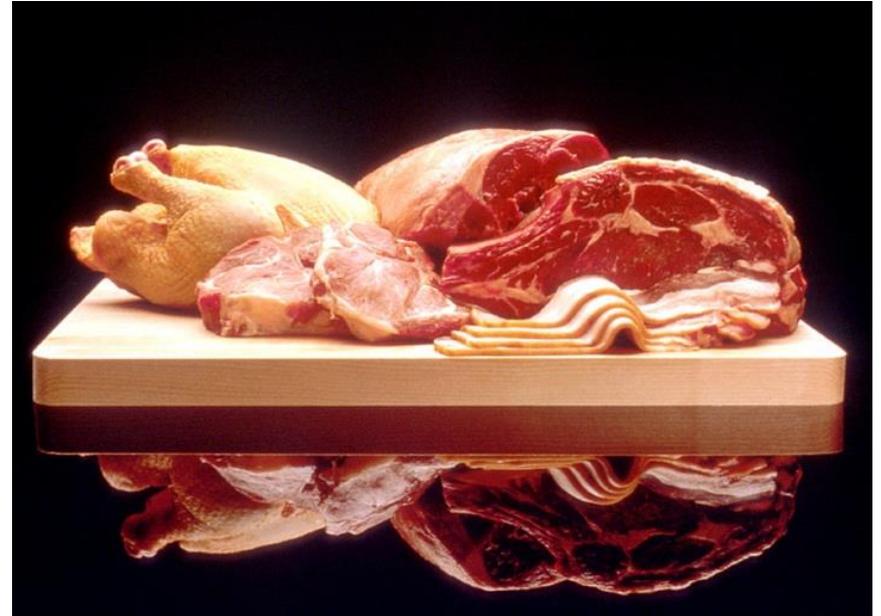
    - **mió**citoss

      - gr. sarcos

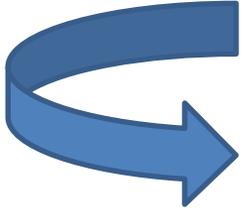
        - **sarco**lema

        - **sarco**plasma

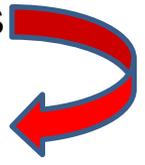
        - retículo **sarco**plasmático (liso) - RS



# • Classificação morfo-funcional

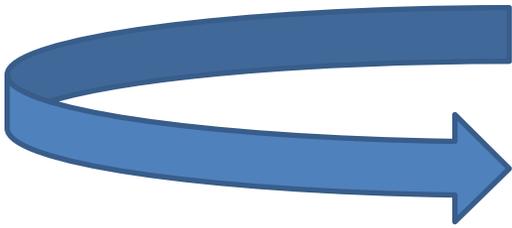


Critérios: { **morfologia** = características histológicas  
**função** = características de contração  
funções específicas



## - características morfológicas da célula muscular

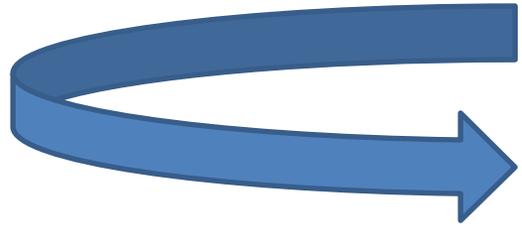
- **presença ou não de estrias transversais**



**não** = músculo **liso**  
**sim** = músculo **estriado**



- **forma celular e número / posição dos núcleos**



**ramificada, 1-2 núcleos centrais** = cardíaco  
**cilíndrica, multinucleada, periféricos** = esquelético

# Estriado Esquelético

- Função
- Distribuição



# Estriado Esquelético

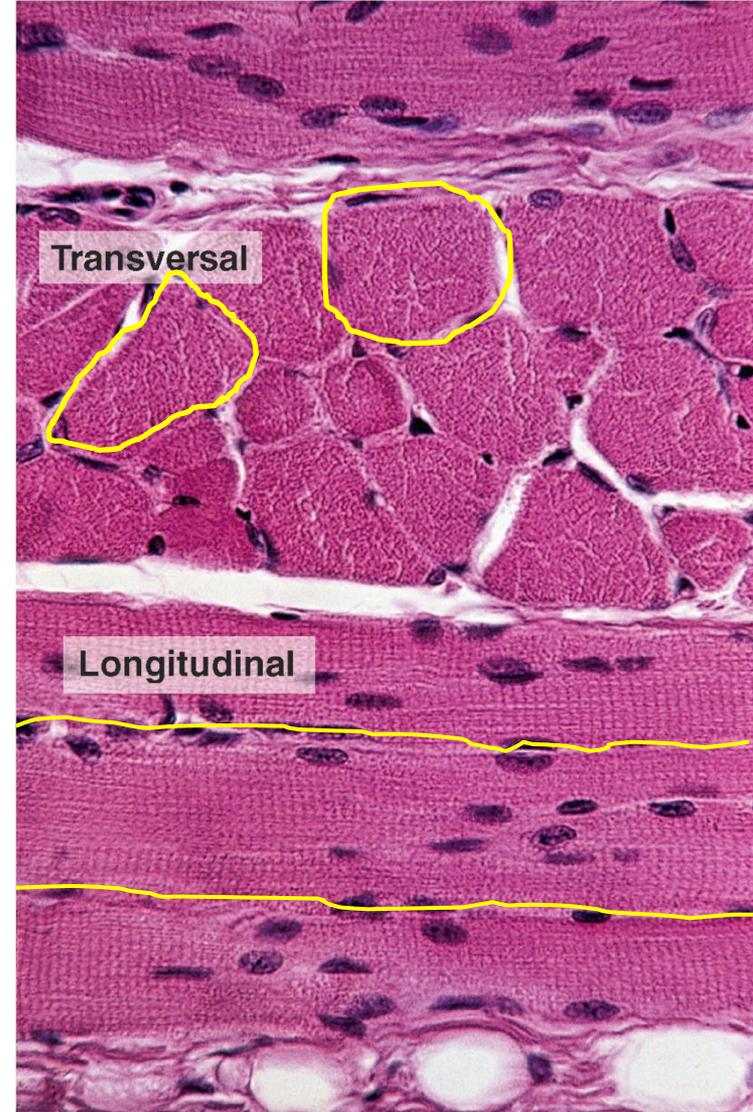
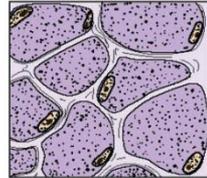
## • Morfologia

Tipos de músculo

Músculo esquelético



Cortes transversais



## • Características de contração

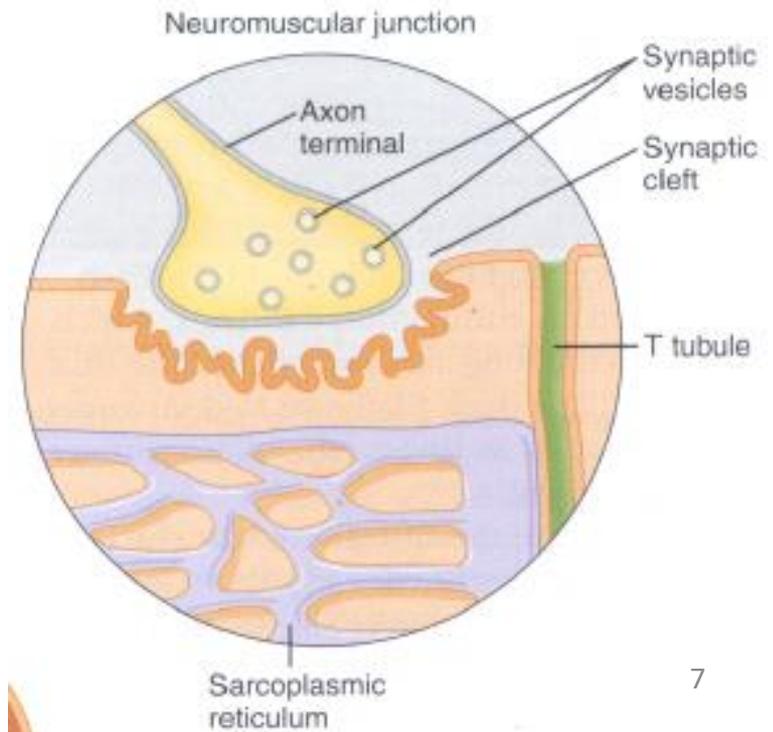
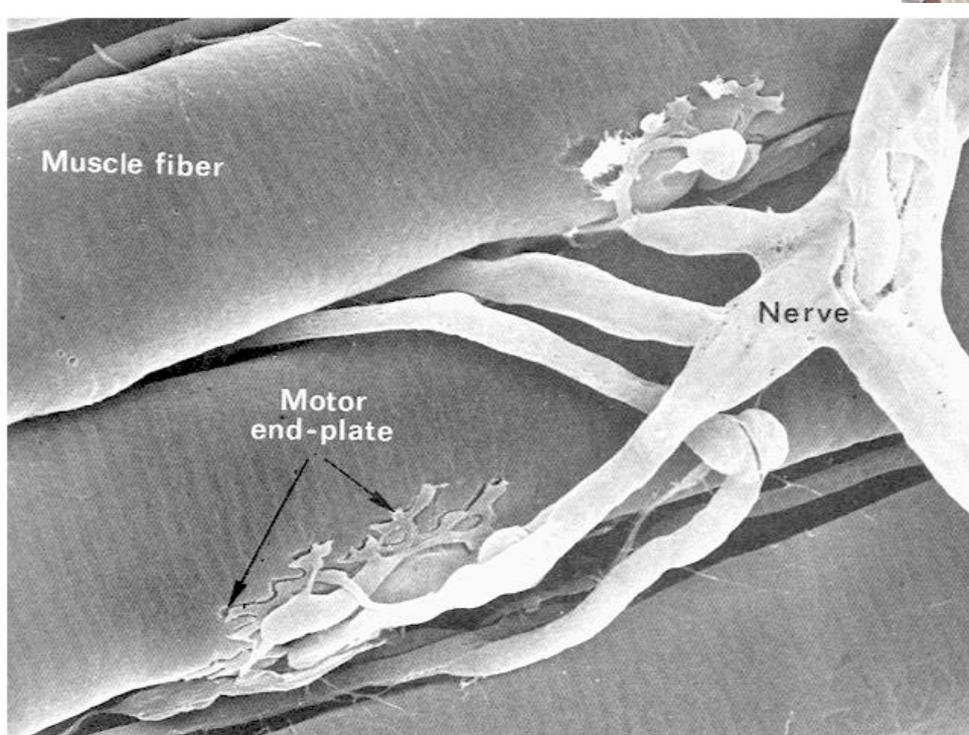
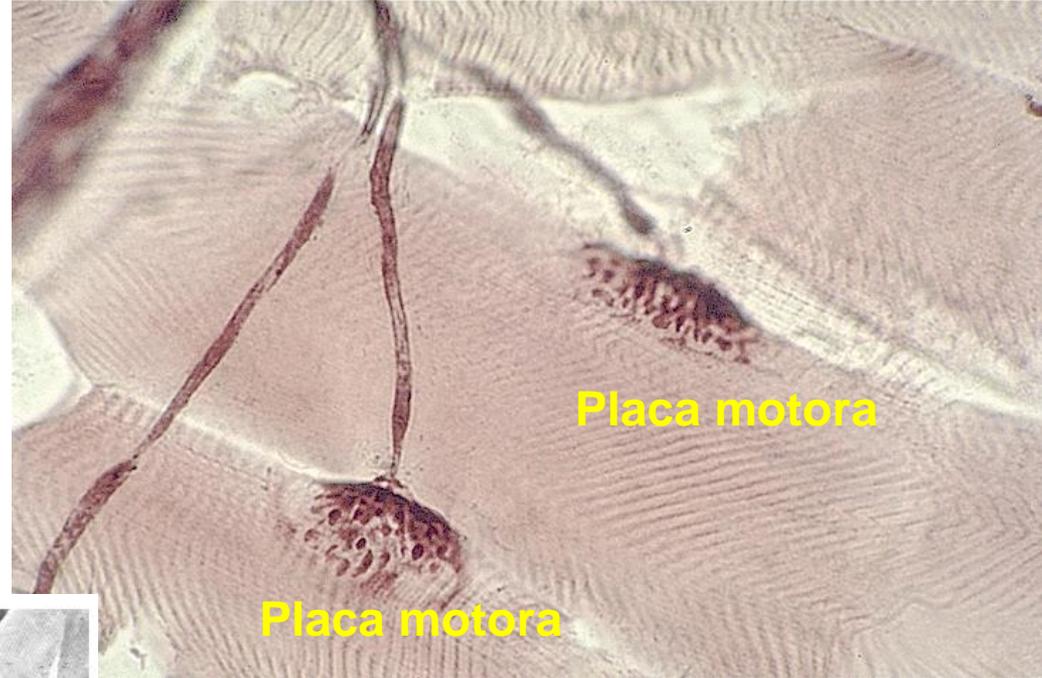
I like to move it  
move it!!



- voluntária
- forte
- rápida
- descontínua

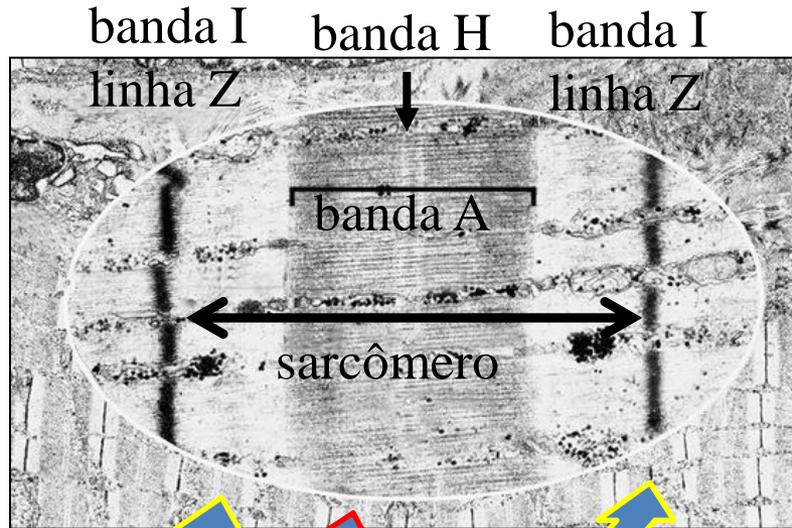
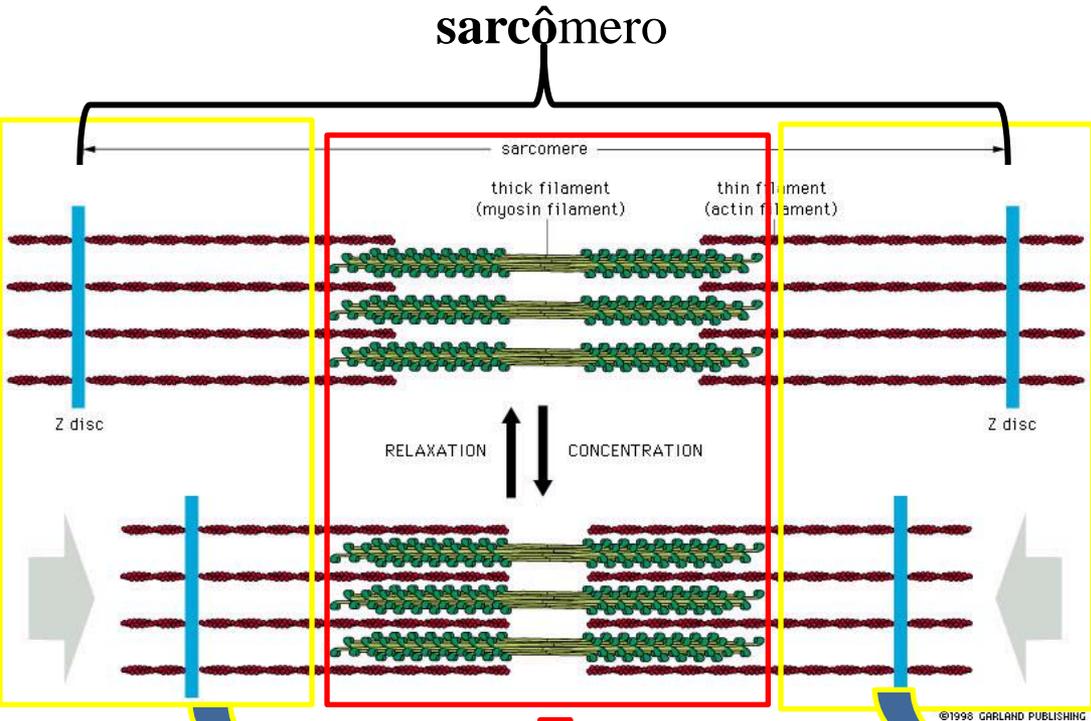
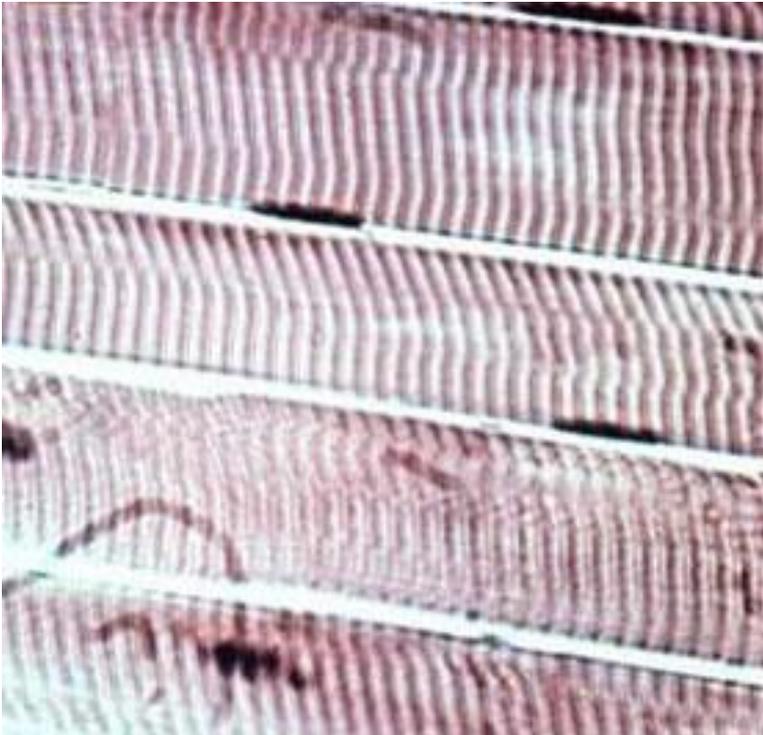
# Estriado Esquelético

- Estrutura do miócito
  - Placa motora
    - estímulo de contração



# Estriado Esquelético

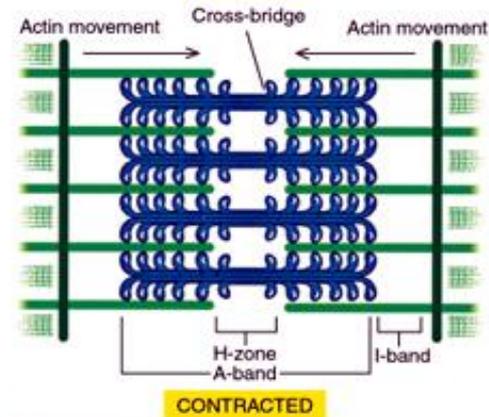
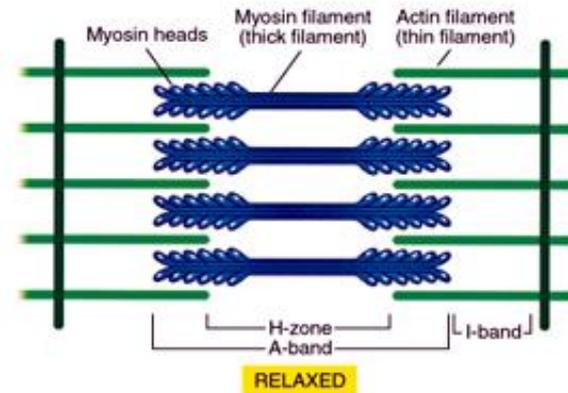
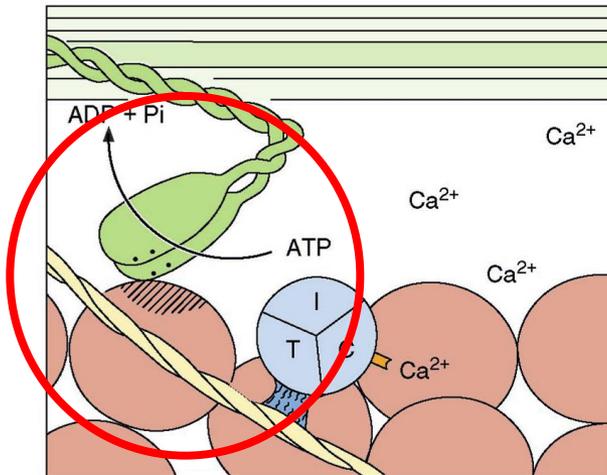
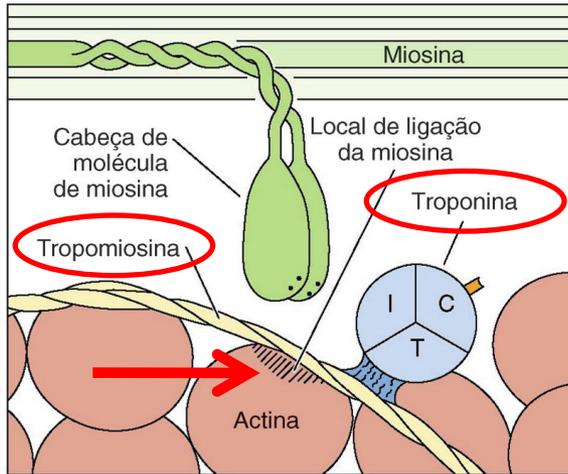
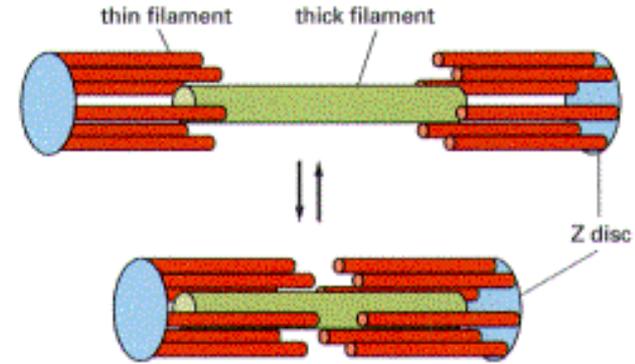
- Estrutura do miócito
  - sarcômeros
    - miofibrilas (actina+miosina)



# Mecanismo de contração

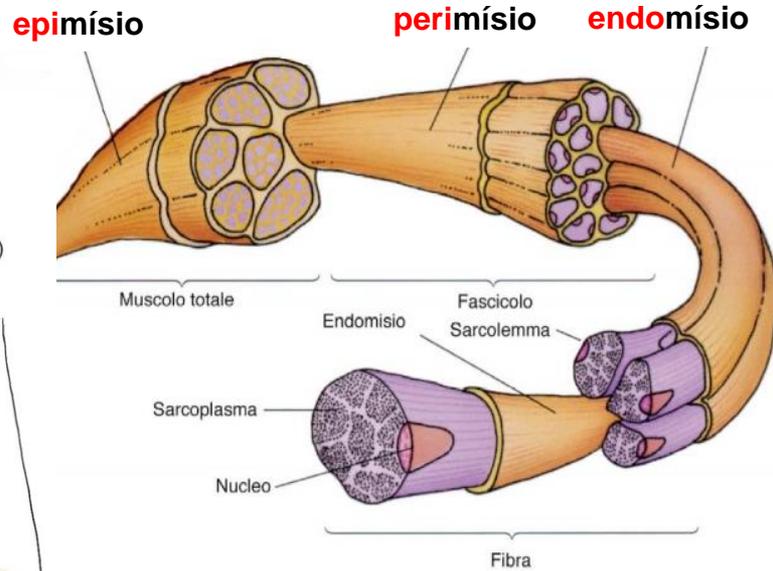
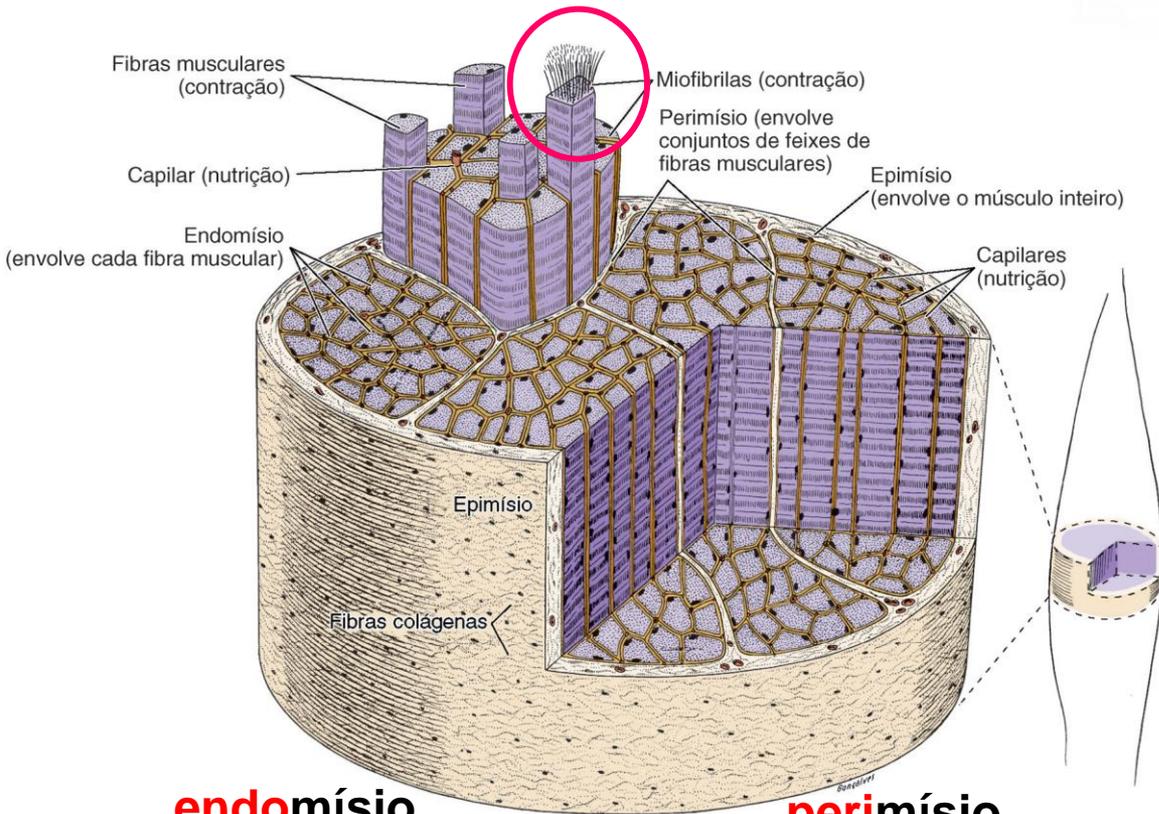
- **Estímulo nervoso** (voluntário)

– **placa motora** → **sarcolema** → **RS** →  $\text{Ca}^{2+}$



(a)

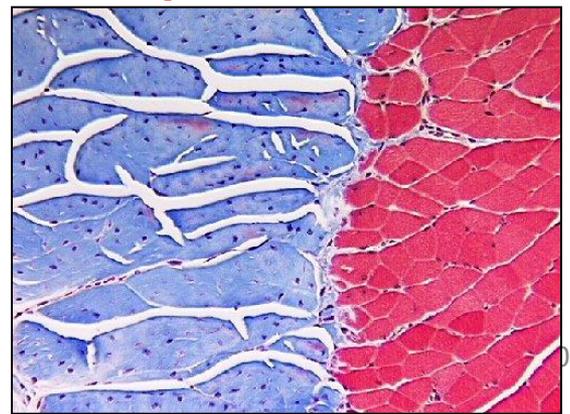
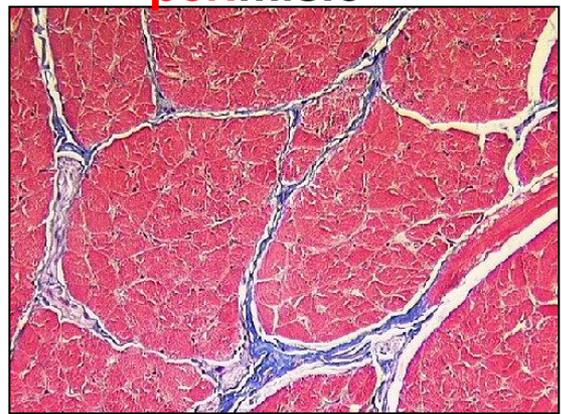
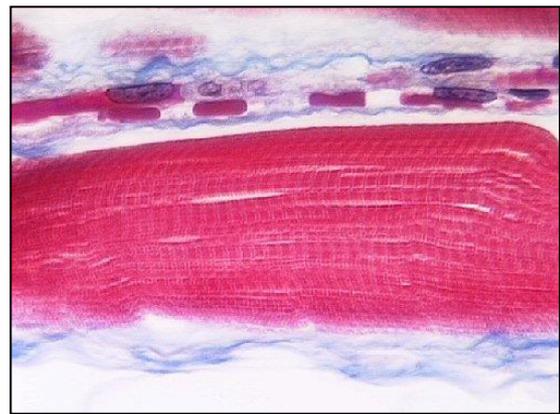
# Organização do tecido muscular em um músculo



**endomísio**

**perimísio**

**epimísio**

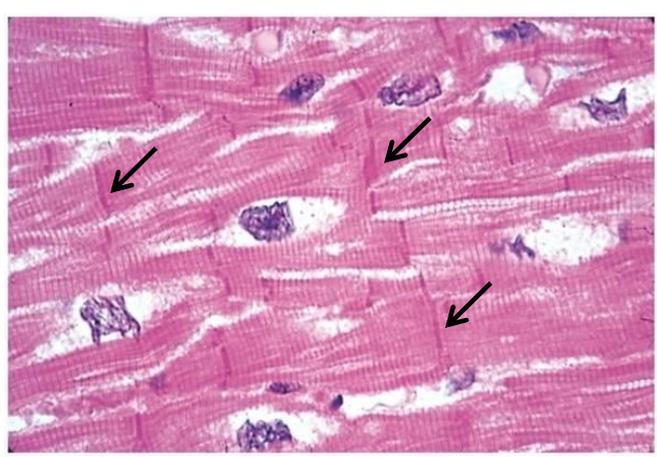
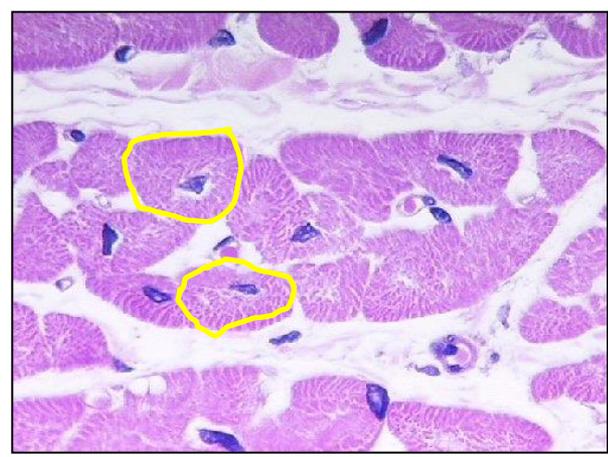
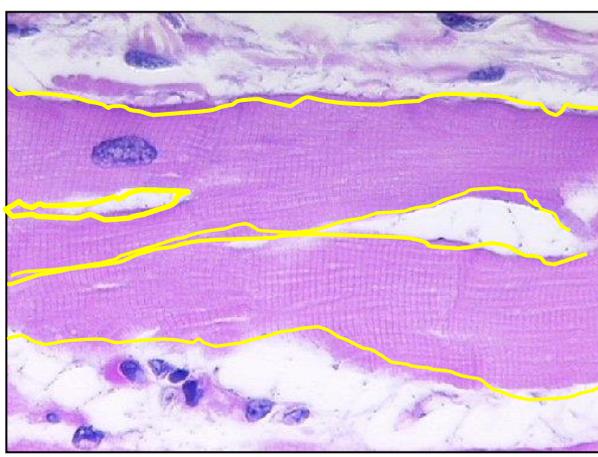
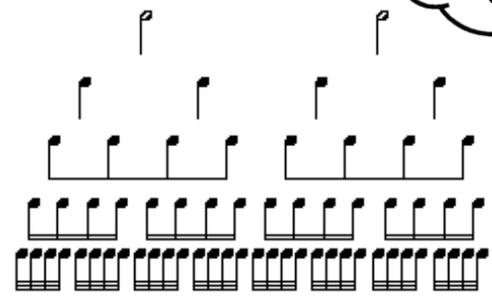


# Estriado Cardíaco

- Função
- Contração
- Morfologia

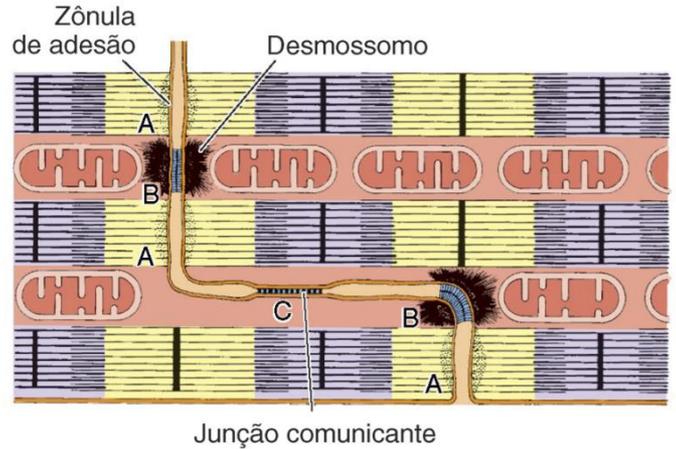


- involuntária
- forte
- rápida
- contínua
- rítmica



- não tem placa motora → gera o impulso localmente – fibras de Purkinje

- discos intercalados



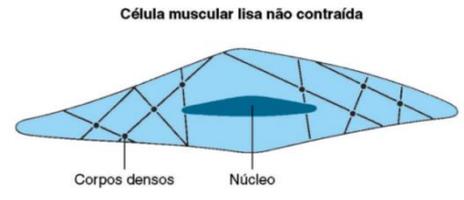
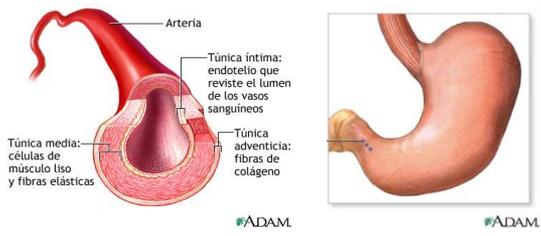
# Liso

- **Função**

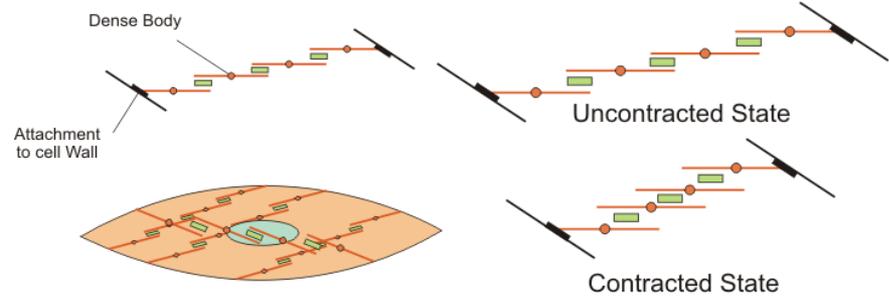
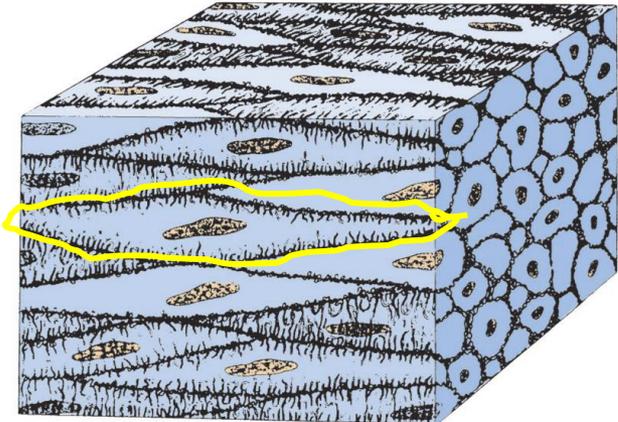
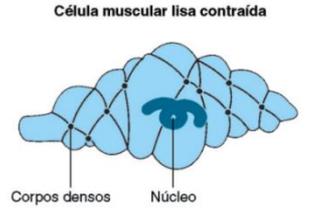
– vasos sanguíneos / vísceras

- **Contração**

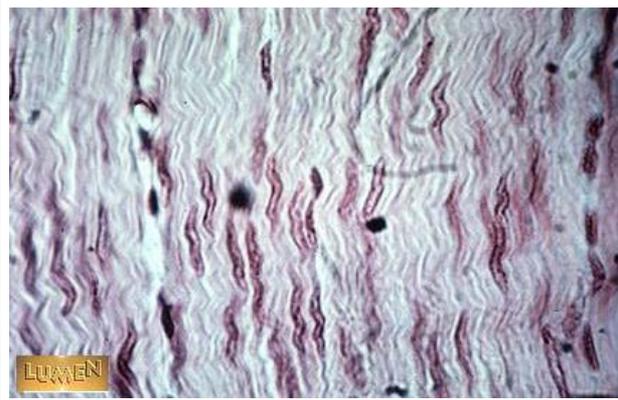
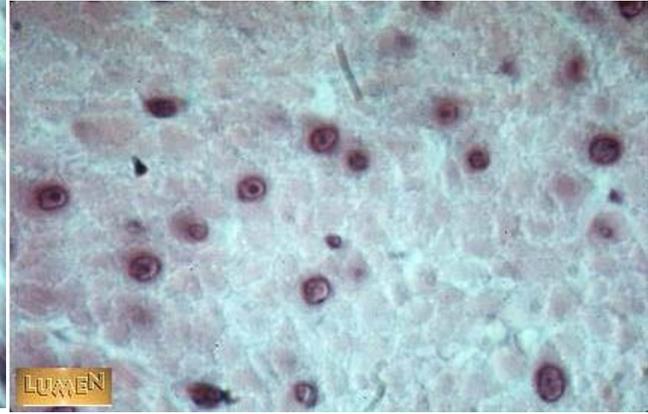
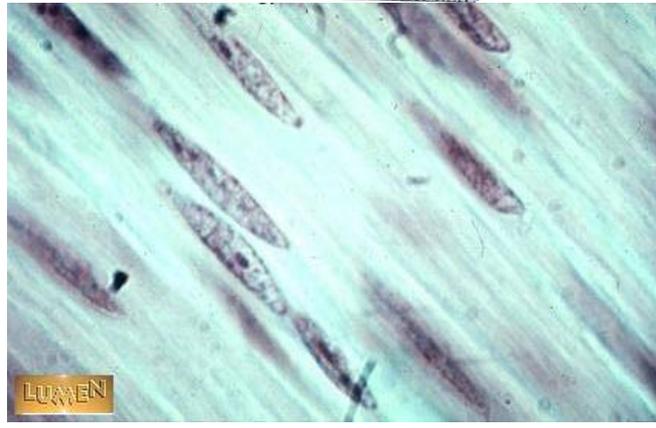
- **Morfologia**

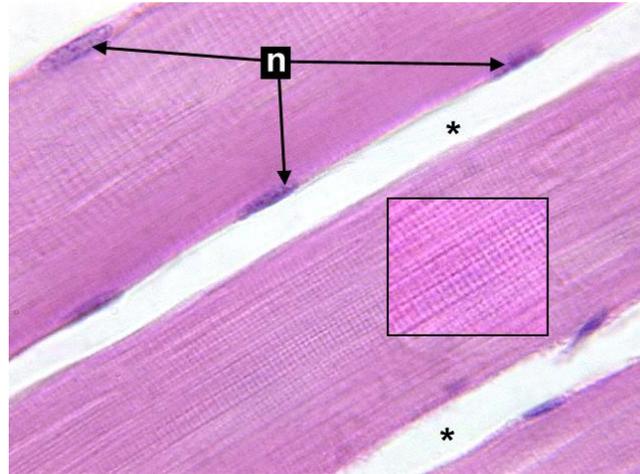
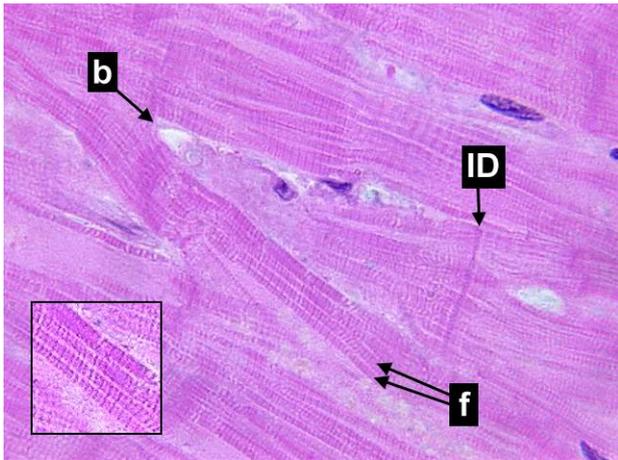
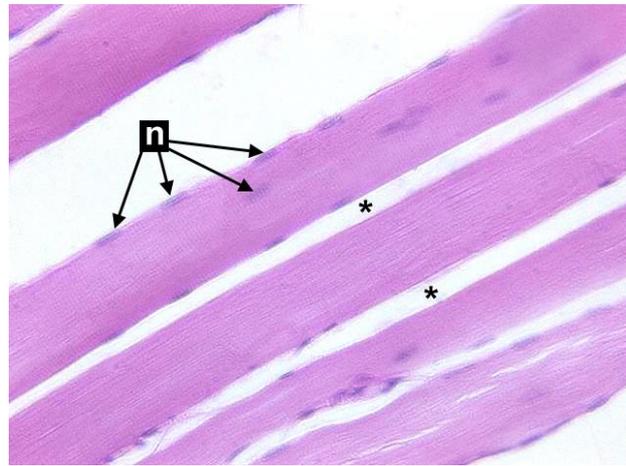
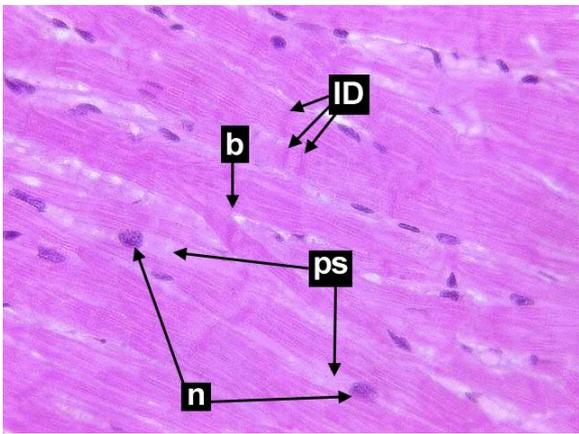
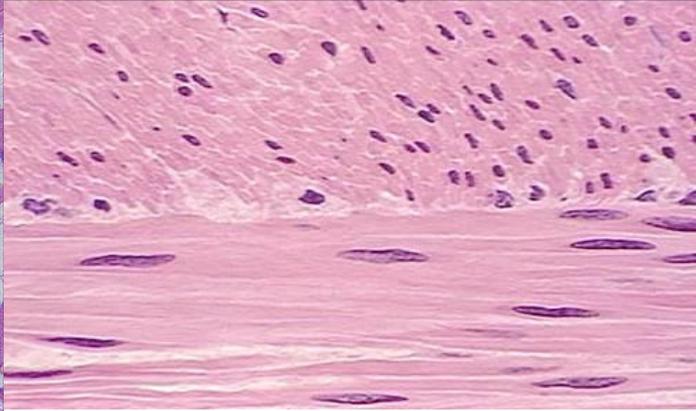
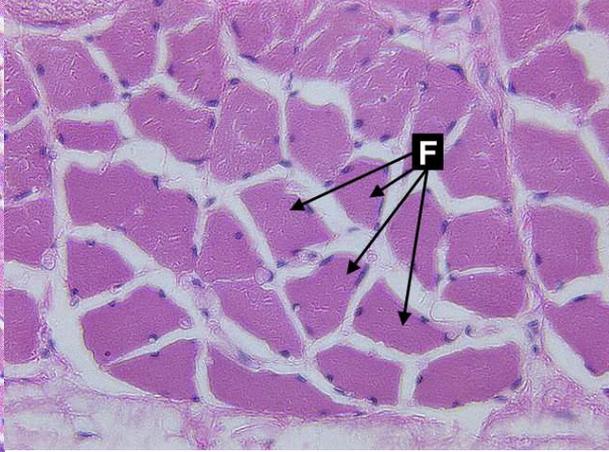
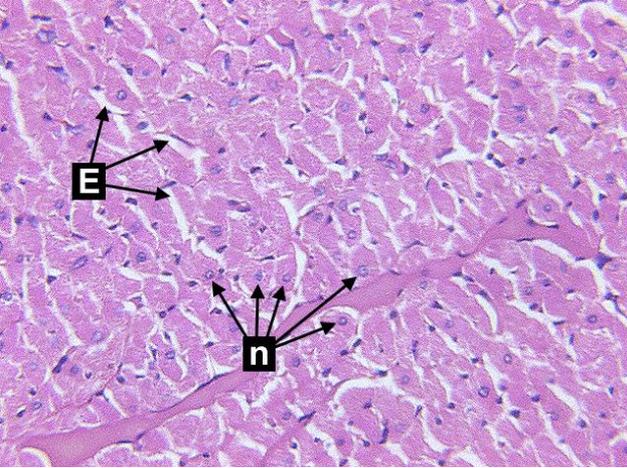


- **involuntária**
- **fraca**
- **lenta**
- **descontínua**

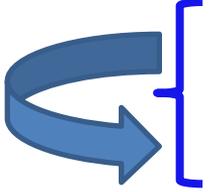


Actin-myosin filaments





# • Classificação morfo-funcional



## aspecto histológico

- presença ou não de estrias transversais
- quantidade e localização do(s) núcleo(s)
- tamanho e forma da célula

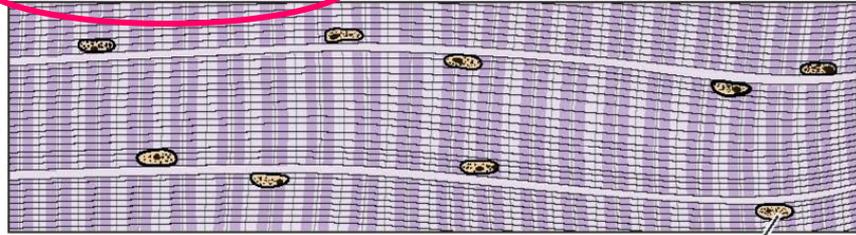
## função e localização

- locomoção / esqueleto
- movimentação do sangue / coração
- contração de vísceras e vasos

## CONTRAÇÃO

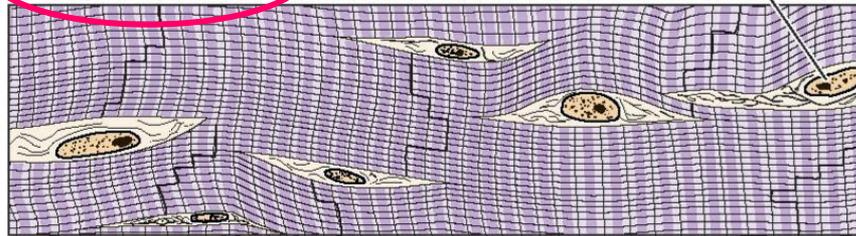
### Tipos de músculo

#### Músculo esquelético



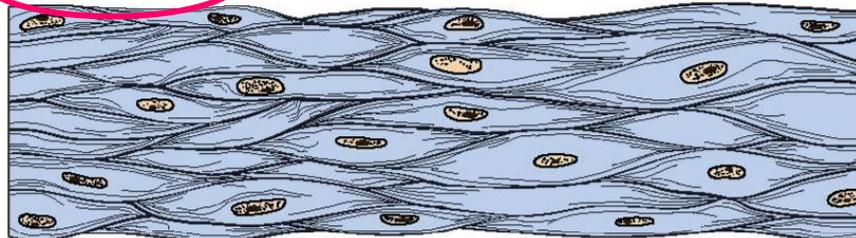
Núcleos

#### Músculo cardíaco



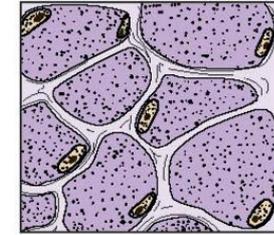
Discos intercalares

#### Músculo liso

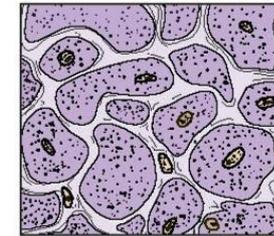


Estriado

### Cortes transversais

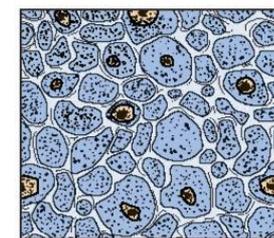


Contração forte, rápida, descontínua e voluntária



Contração forte, rápida, contínua e involuntária

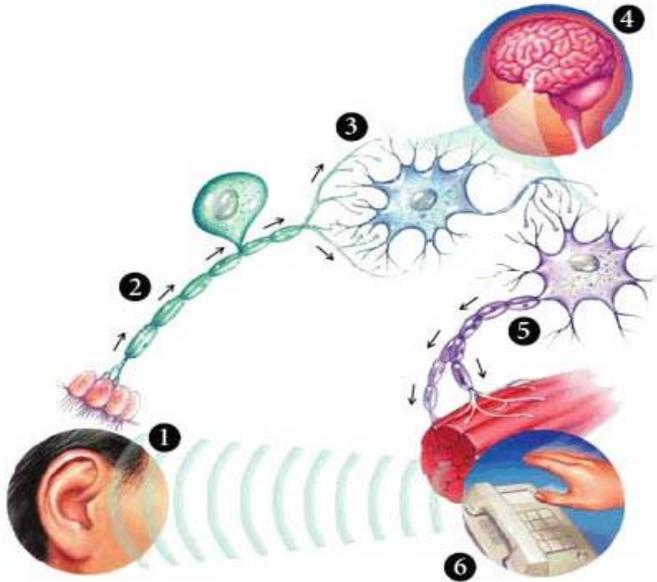
**autogeração rítmica**



Contração fraca, lenta e involuntária

# Tecido Nervoso

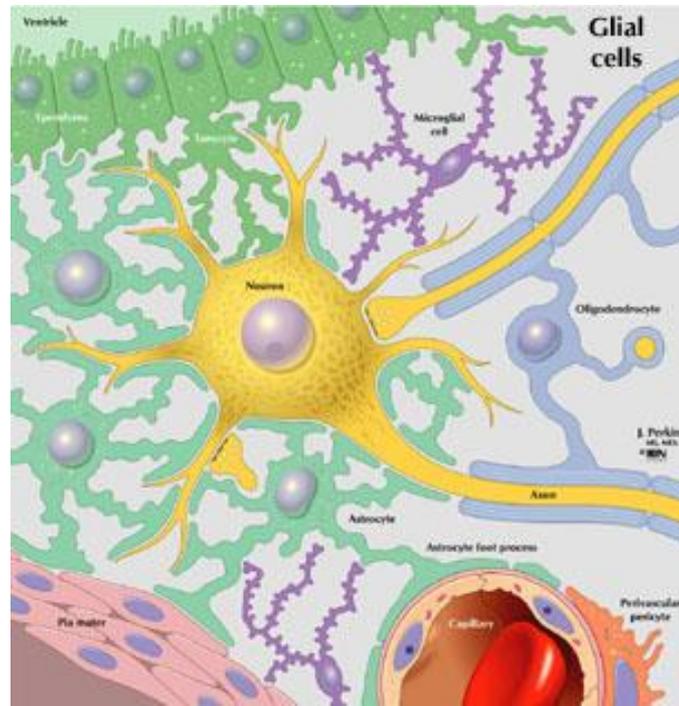
- **Funções**



- **Constituintes**

## Células

- neurônios
- neuroglia



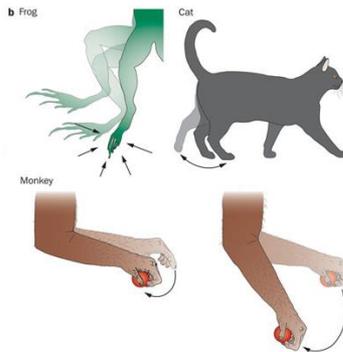
# Neurônio



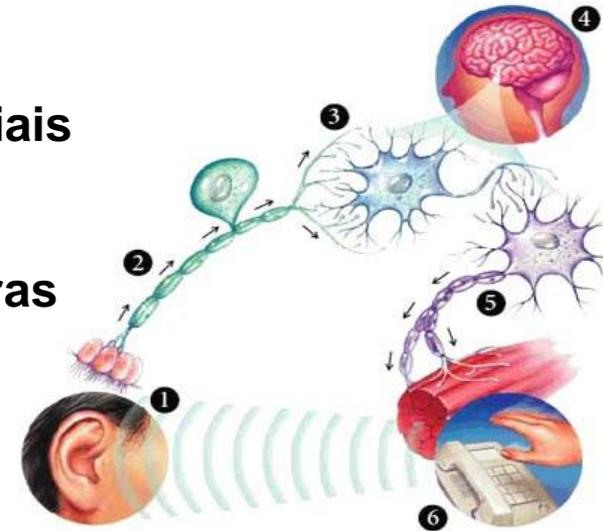
ambiente { externo  
interno

## – Funções

- detectar/receber estímulos → sensoriais
- conduzir, integrar e associar
- transmitir/enviar respostas → motoras

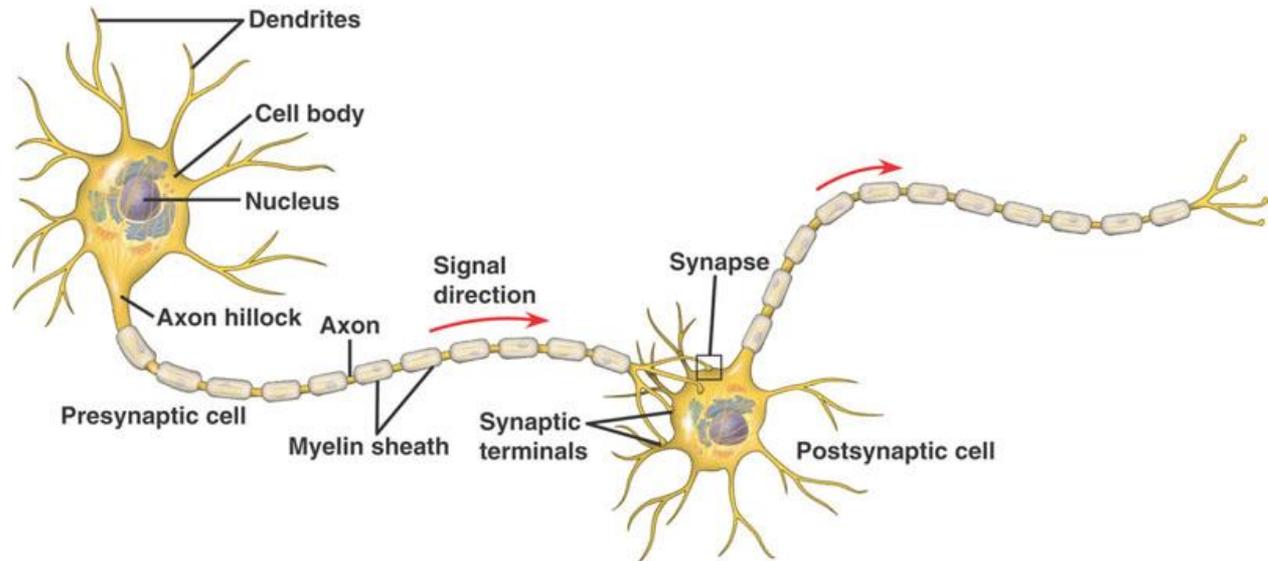
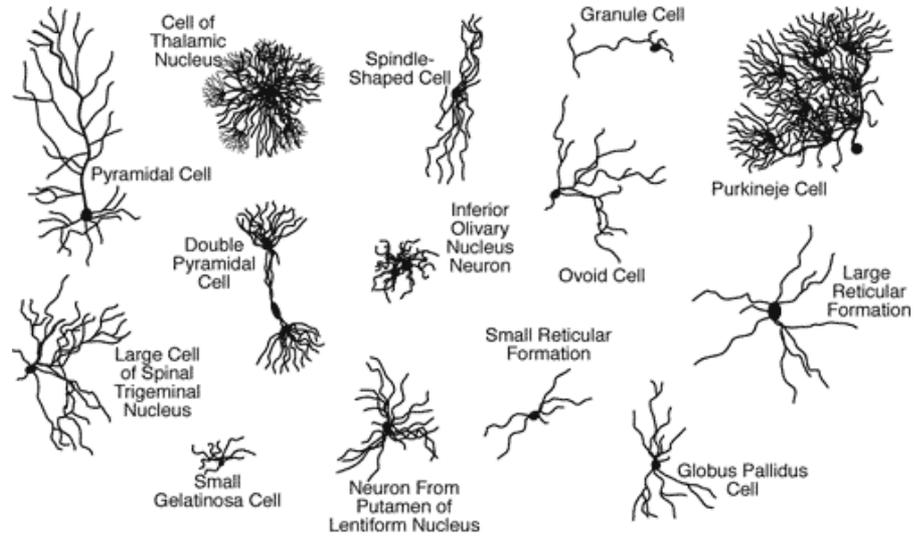
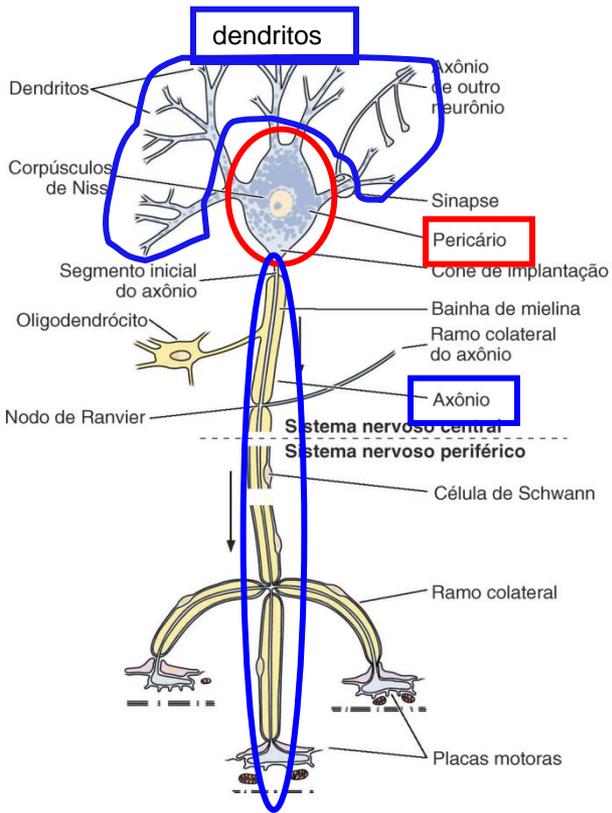


{ órgãos  
glândulas  
músculos



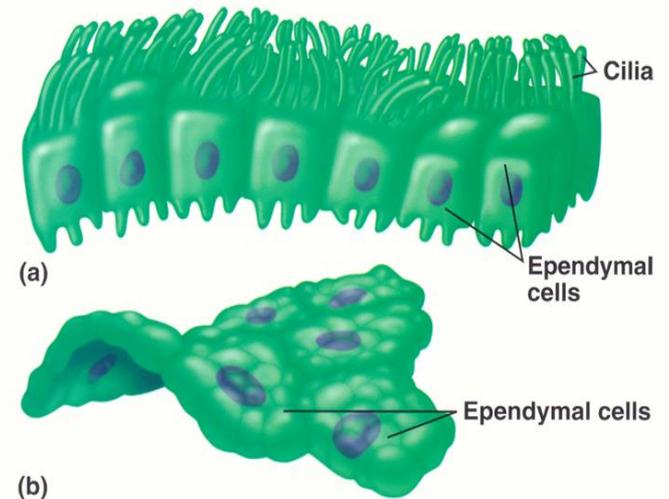
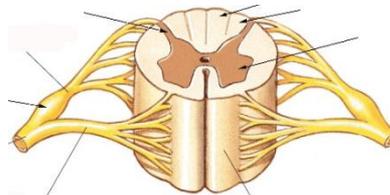
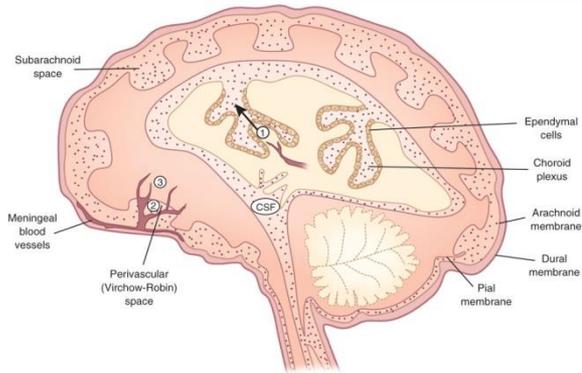
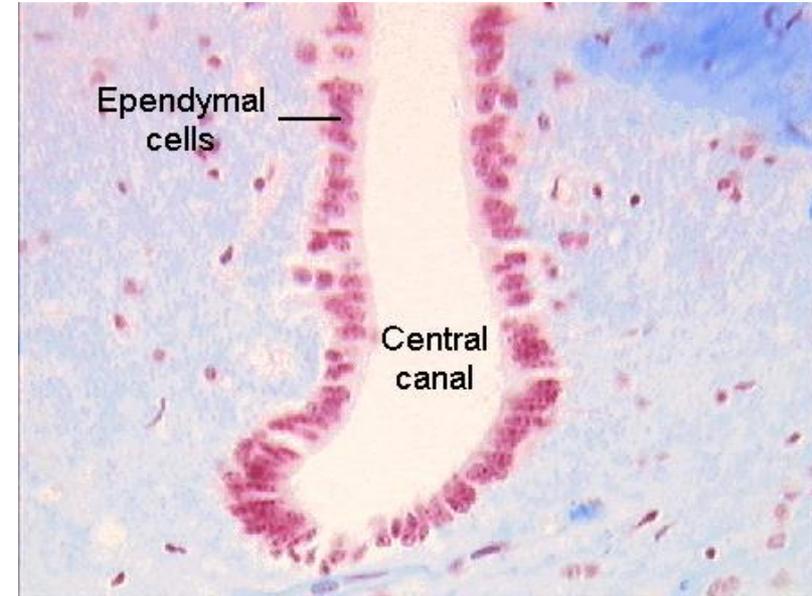
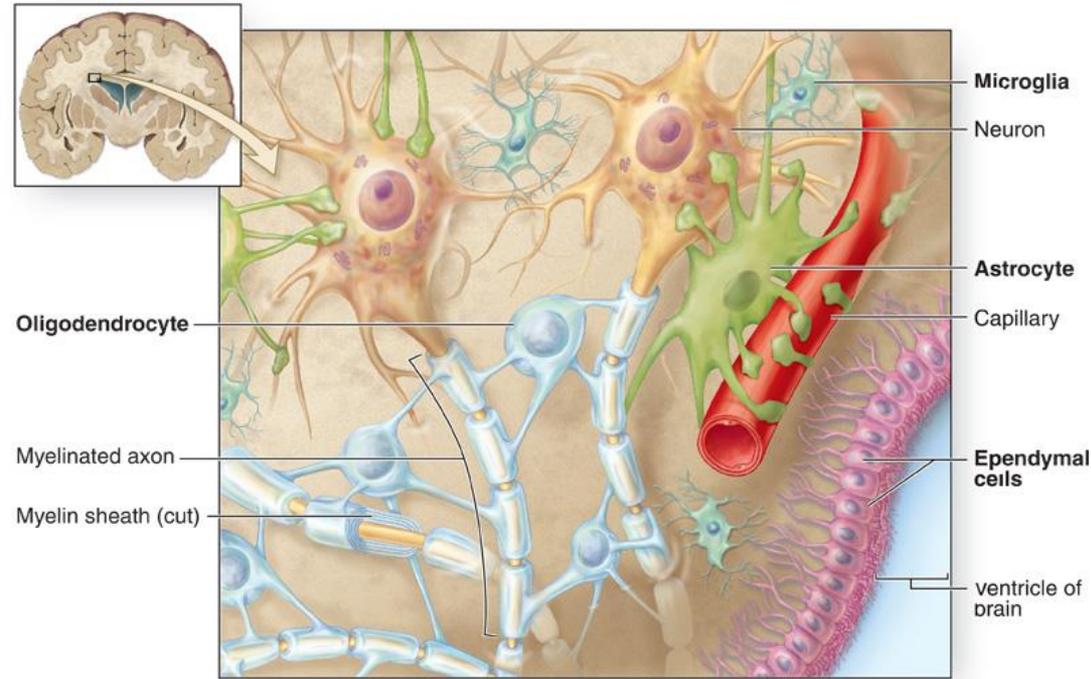
# Neurônio

## – Morfologia



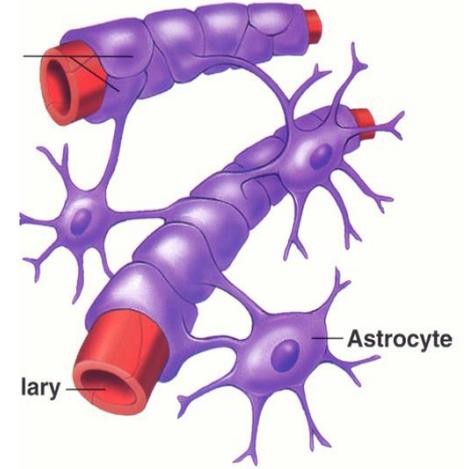
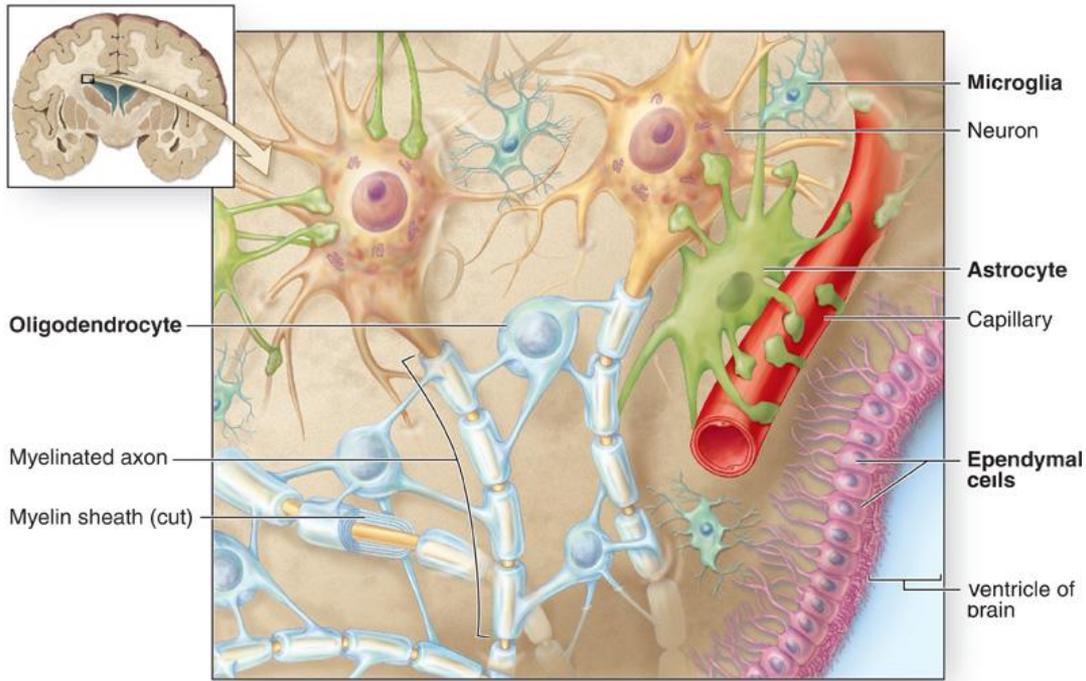
# Células da Glia (neuroglia)

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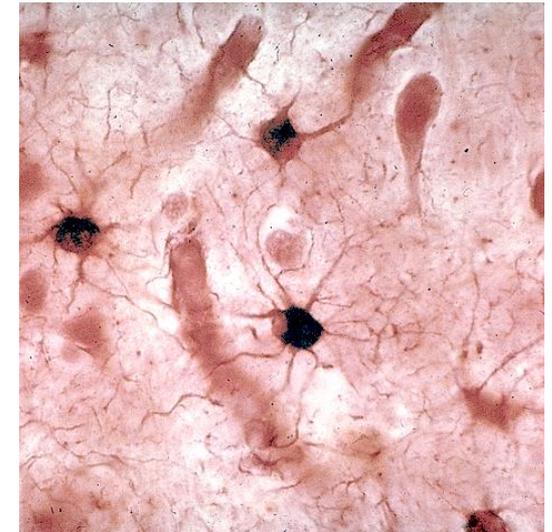
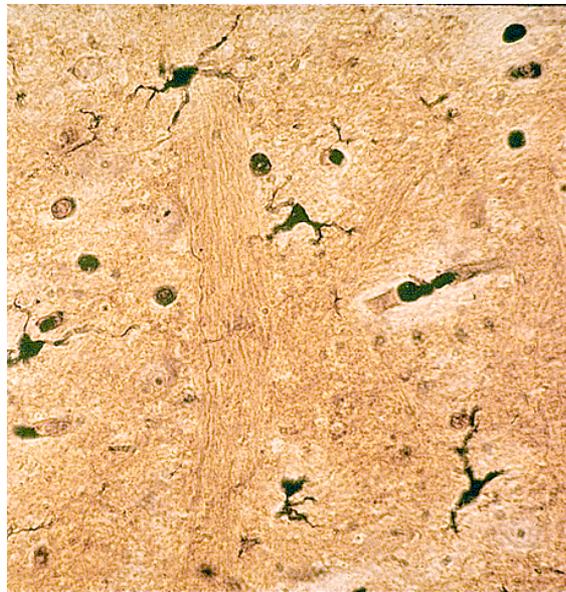
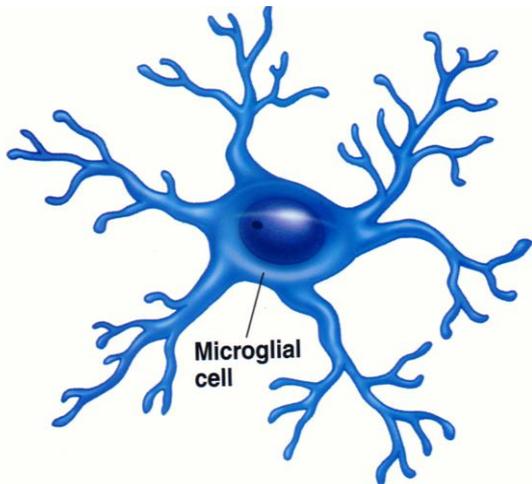


**Células do epêndima ou ependimárias**

# Células da Glia



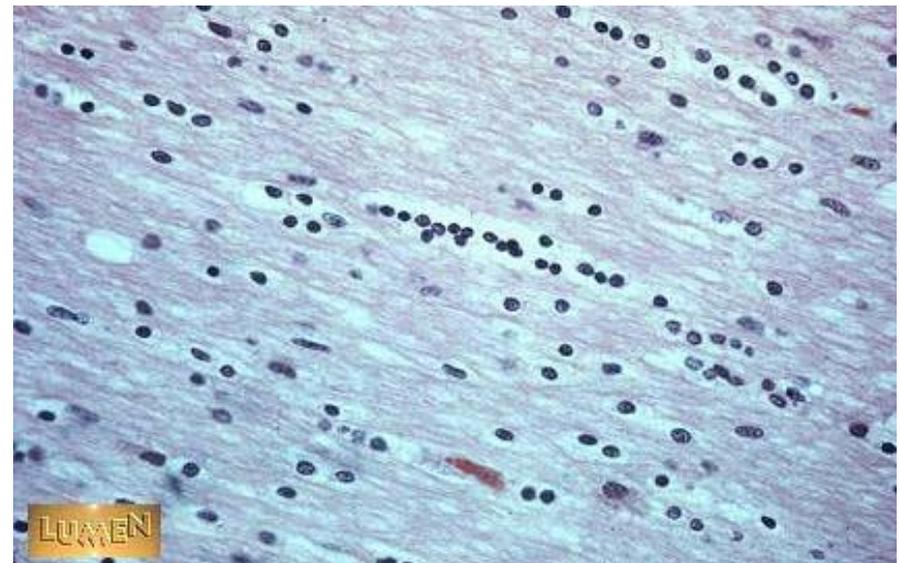
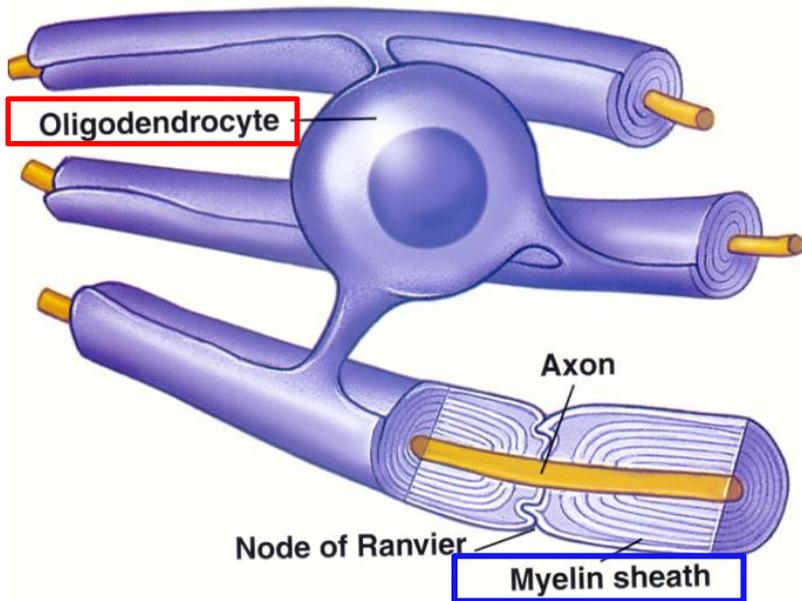
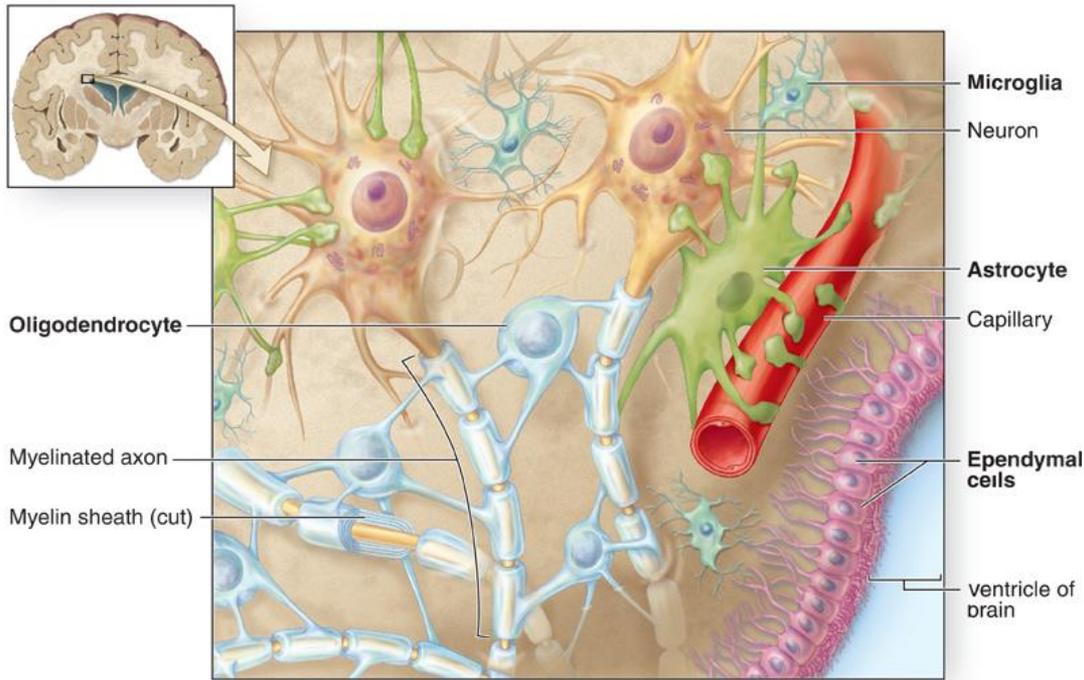
## Microglia



## Astrócitos

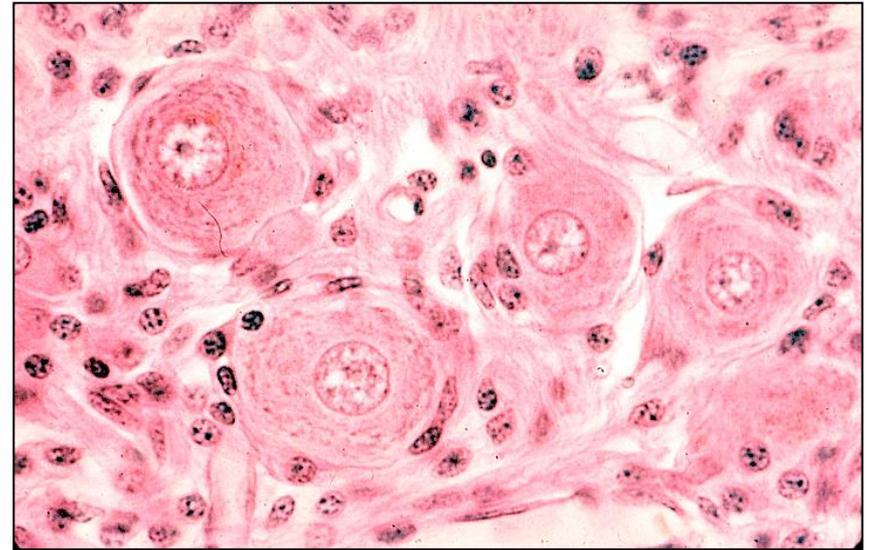
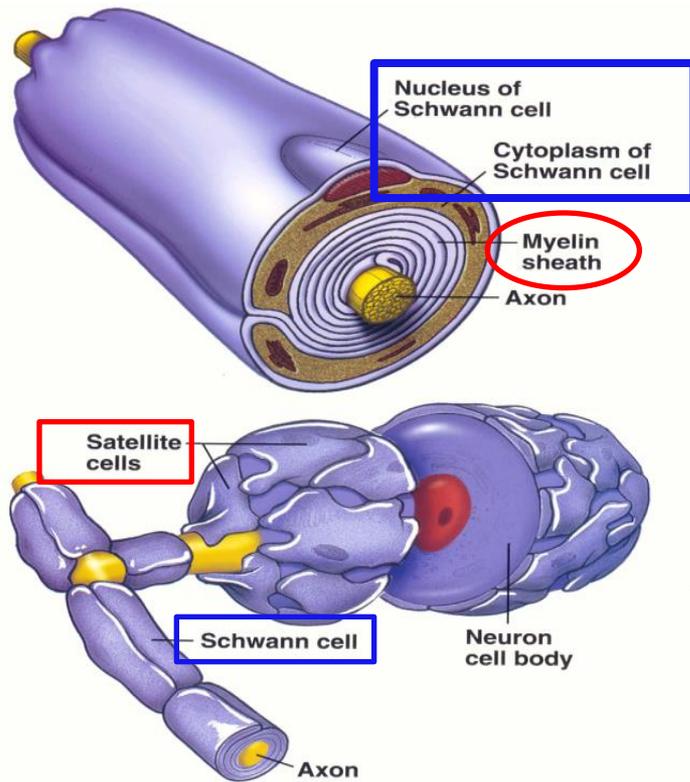
# Células da Glia

## Sistema Nervoso Central

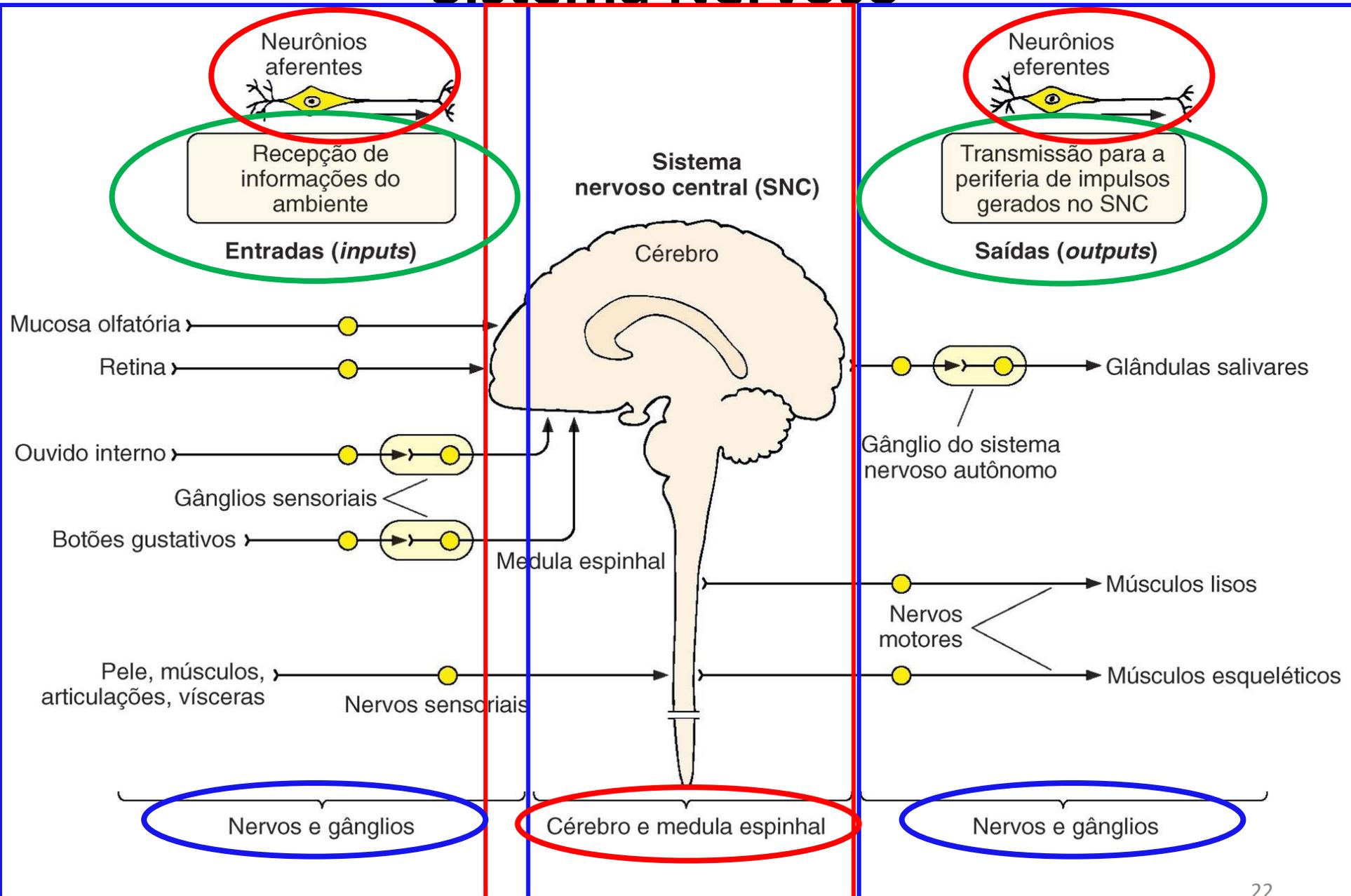


# Células da Glia

## Sistema Nervoso Periférico



# Sistema Nervoso



# SNC

- **Constituintes**
- **Organização**

**Neurônios**  
**Glia**

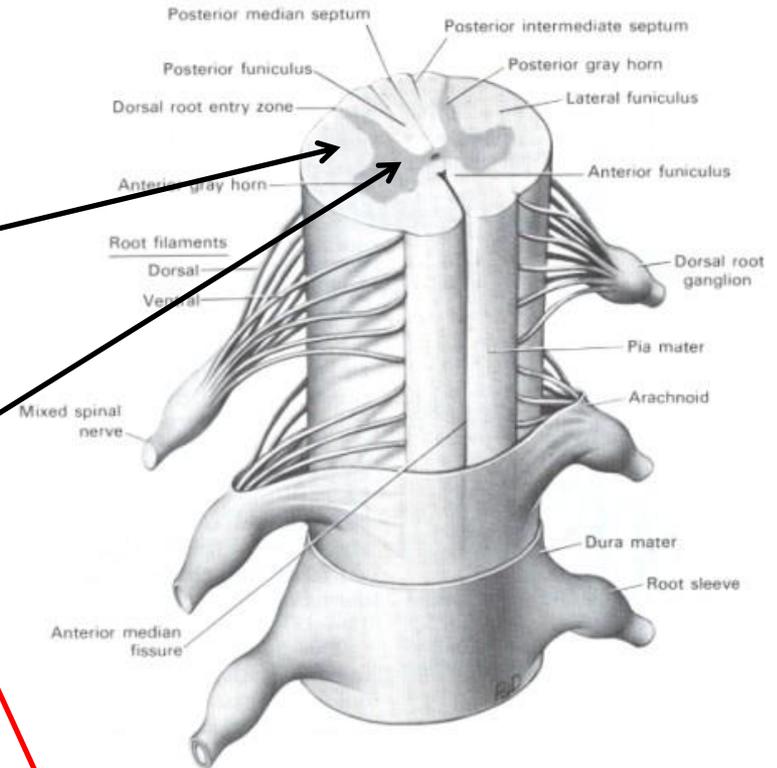
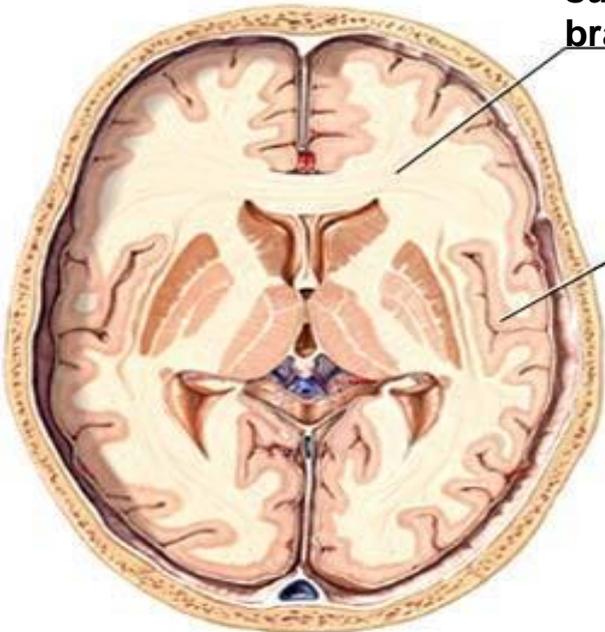
oligodendrócitos (mielina)  
astrócitos  
microglia  
epêndima

axônios + glia

substância  
branca

substância  
cinzenta

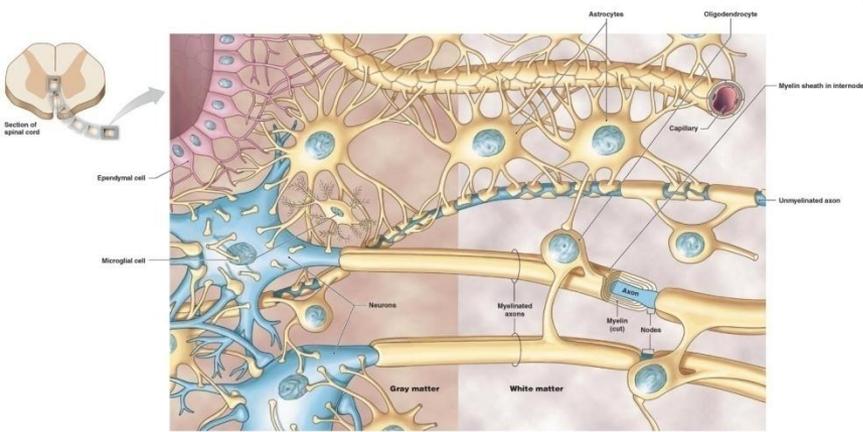
pericários + glia (astrócitos e microglia)



# Substância cinzenta



# Substância branca



# SNP

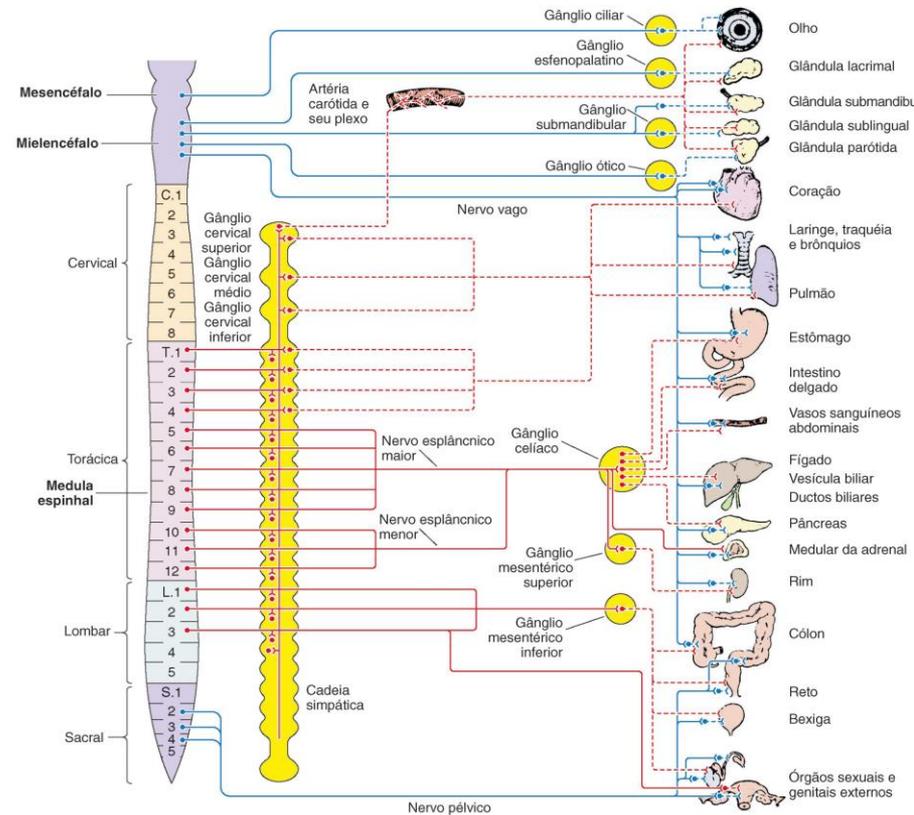
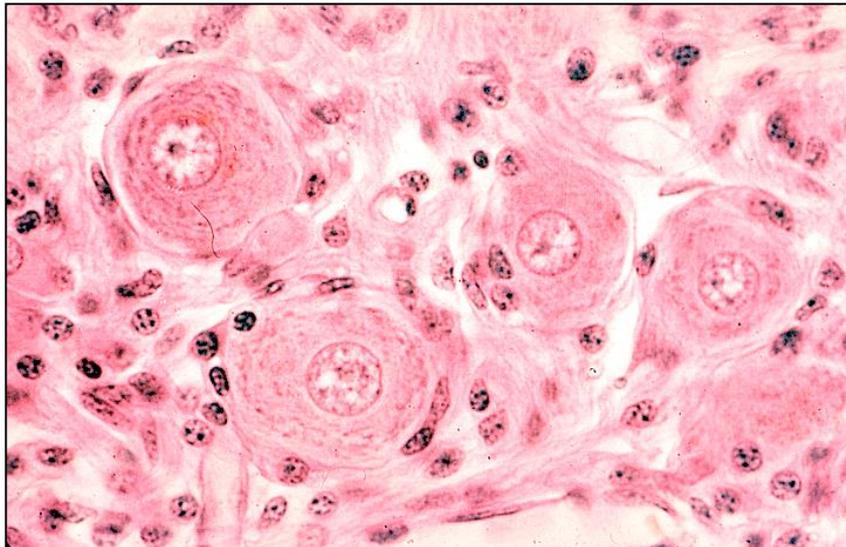
- **Constituintes** Neurônios  
Glia
- **Organização** Schwann (mielina)  
satélite

## – Gânglios

- pericários e satélites

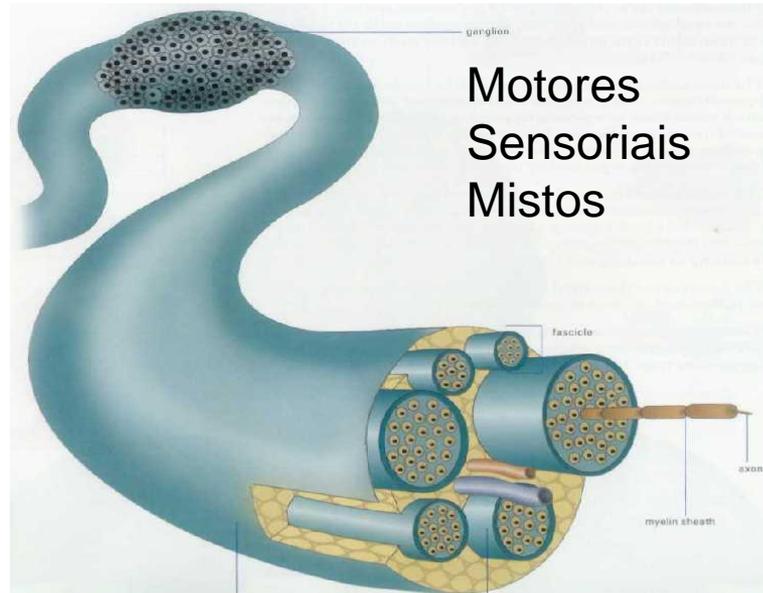
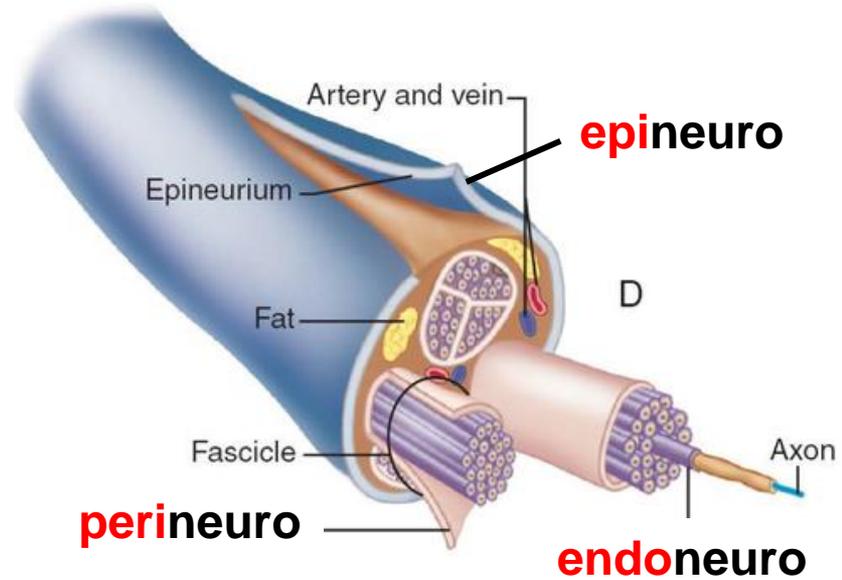
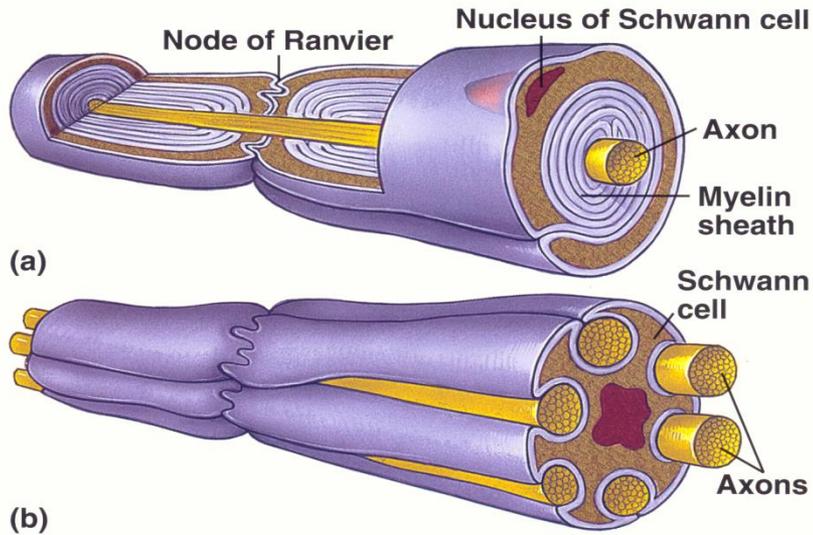
## – Nervos

- axônios e Schwann



# – Nervos

- fibras nervosas = axônio + Schwann



# Tarefas para 04/04

- Ler o capítulo referente ao Sistema Tegumentar (Tegumento / Pele e Anexos) com base nos objetivos da aula listados no Moodle
- Responder ao teste antes da aula