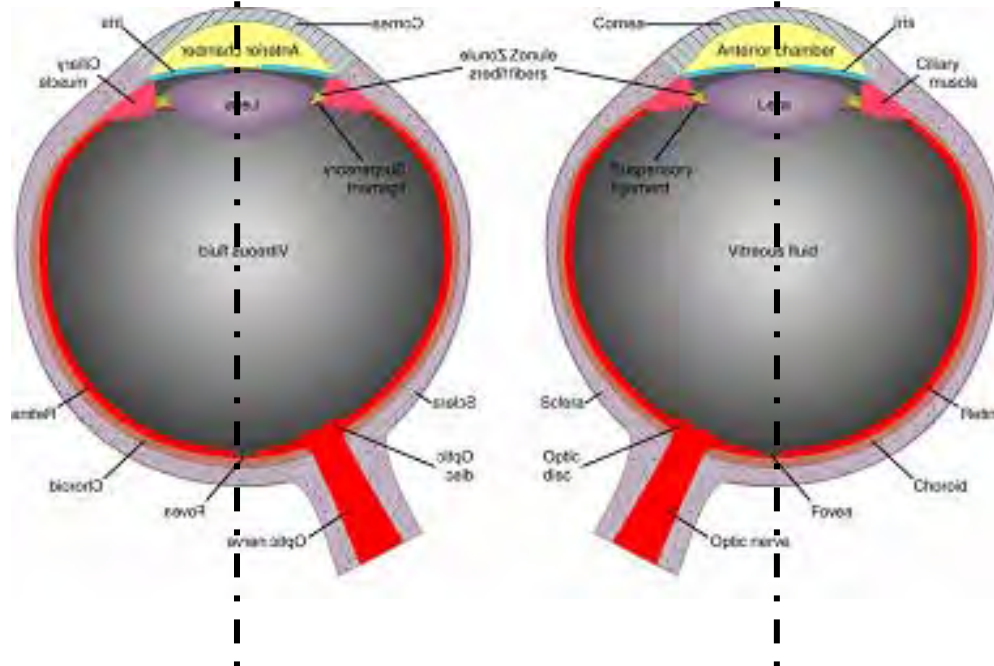


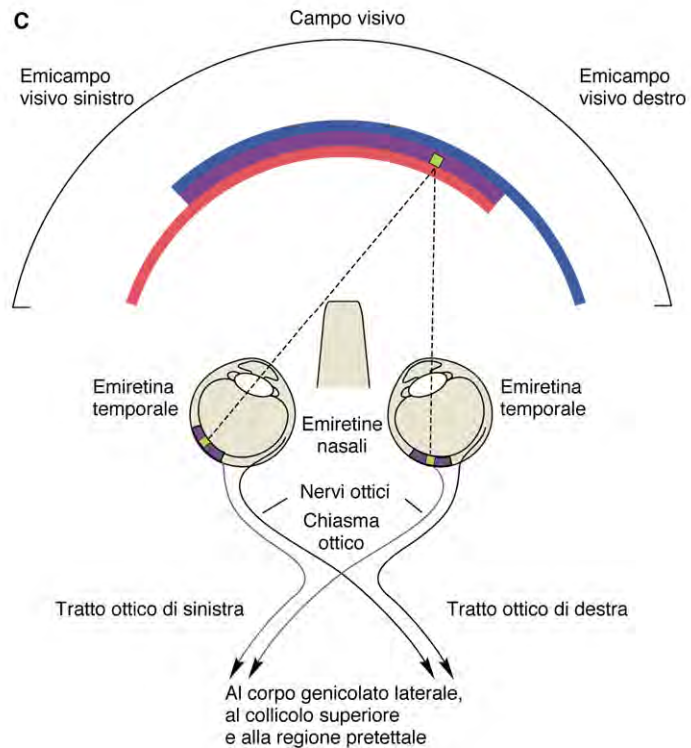
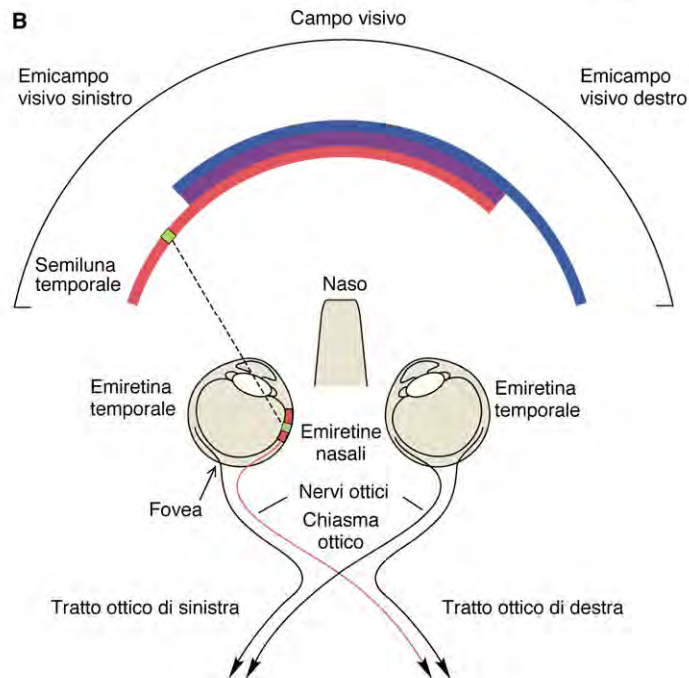
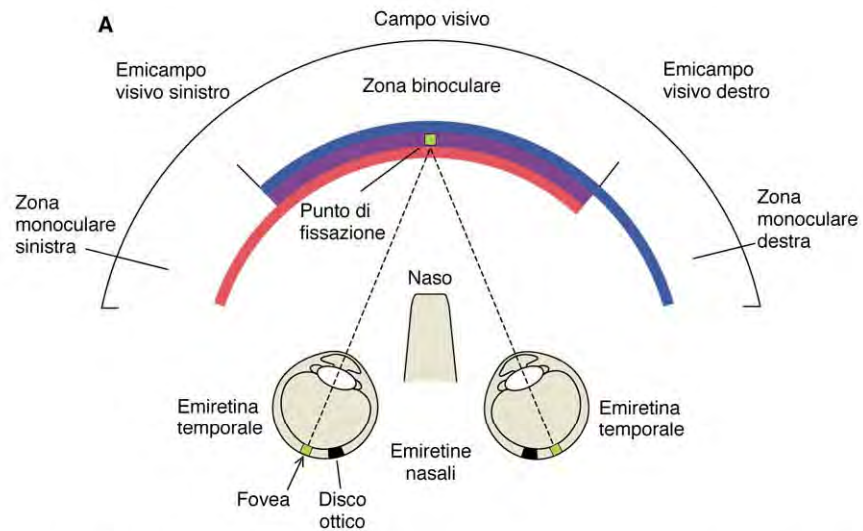
**Emiretina  
nasale**

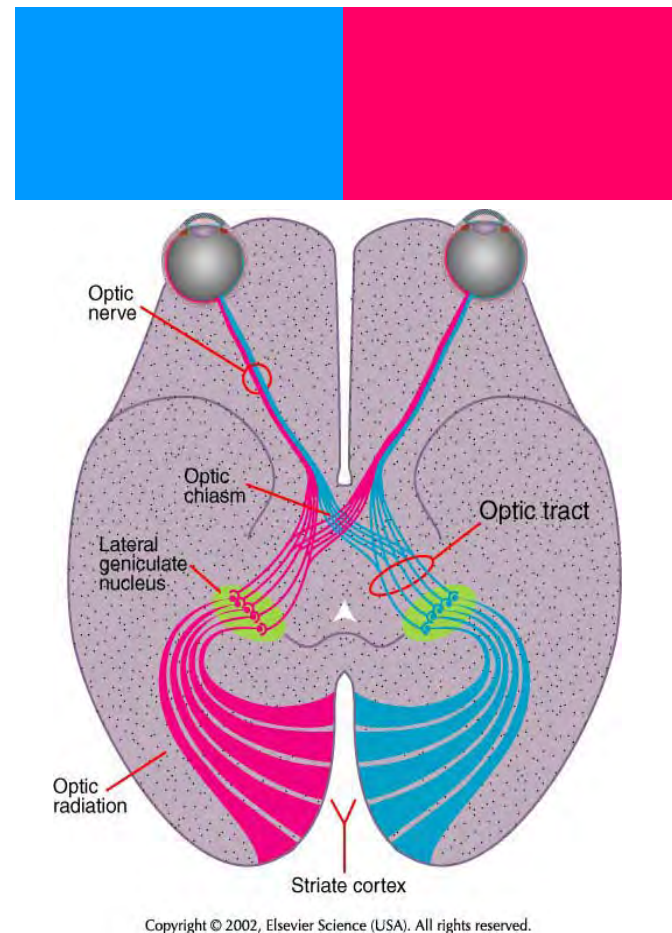
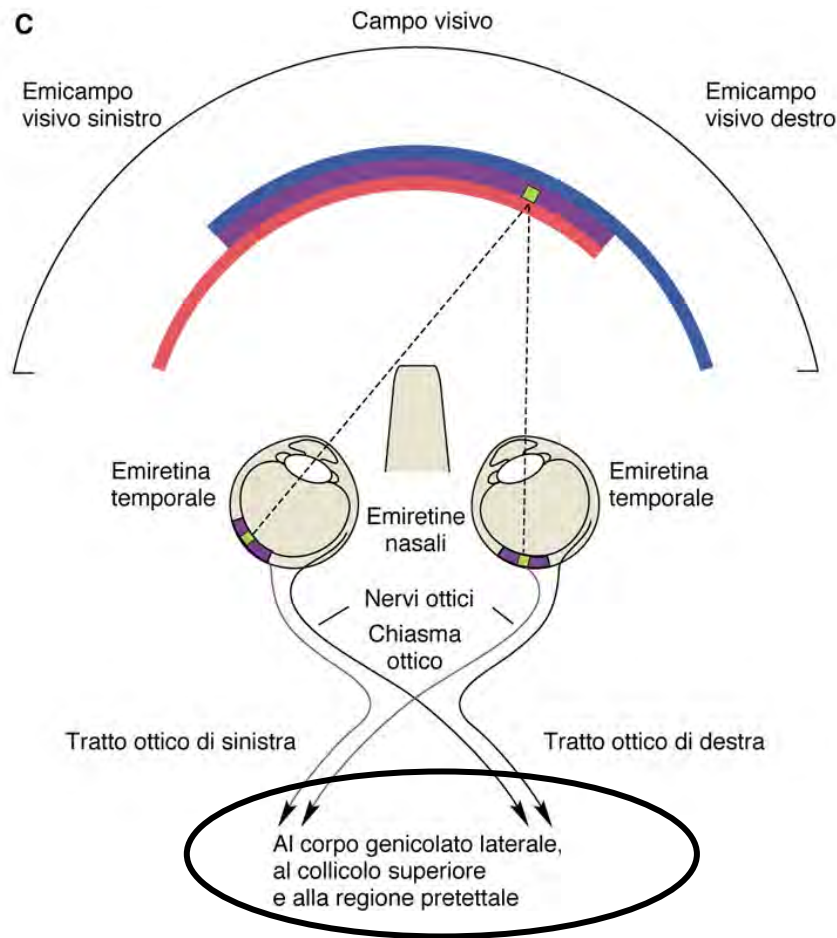
**Emiretina  
nasale**

**Emiretina  
temporale**

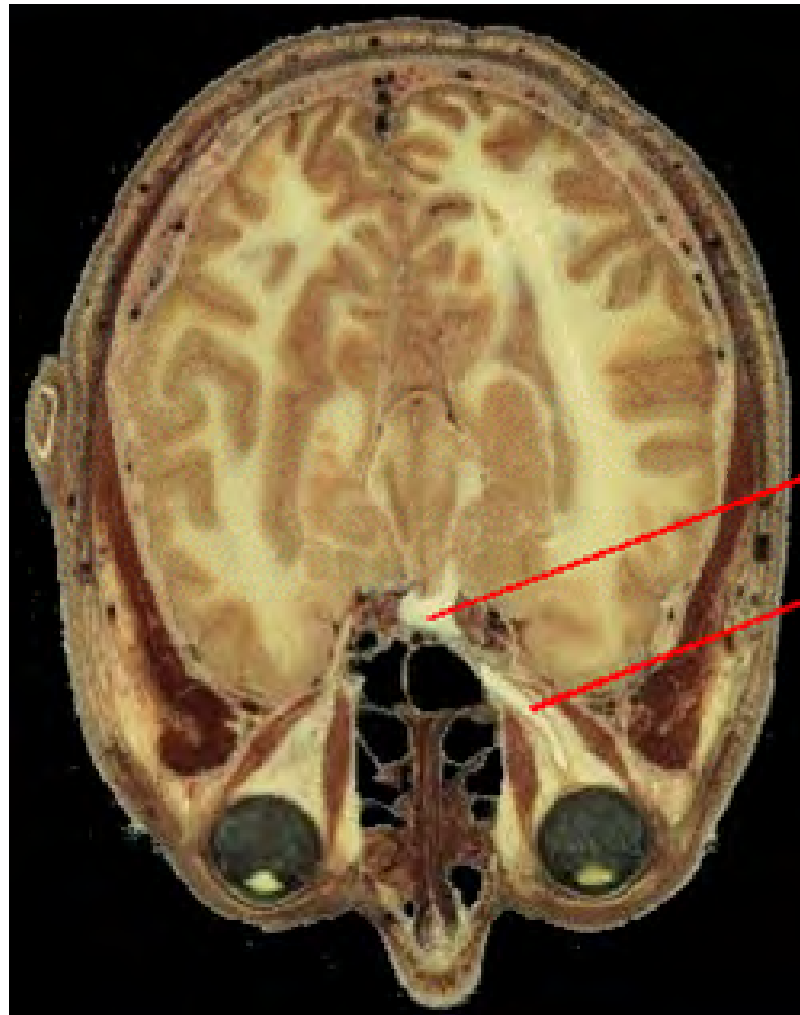
**Emiretina  
temporale**







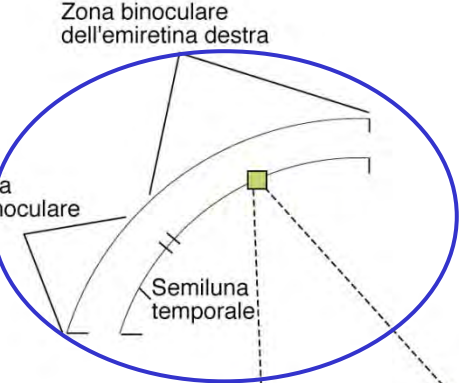
Gli assoni derivanti dalle due **emiretine nasali incrociano a livello del chiasma ottico**  
 Gli assoni derivanti dalle due **emiretine temporali NON incrociano mai**



Optic chiasm

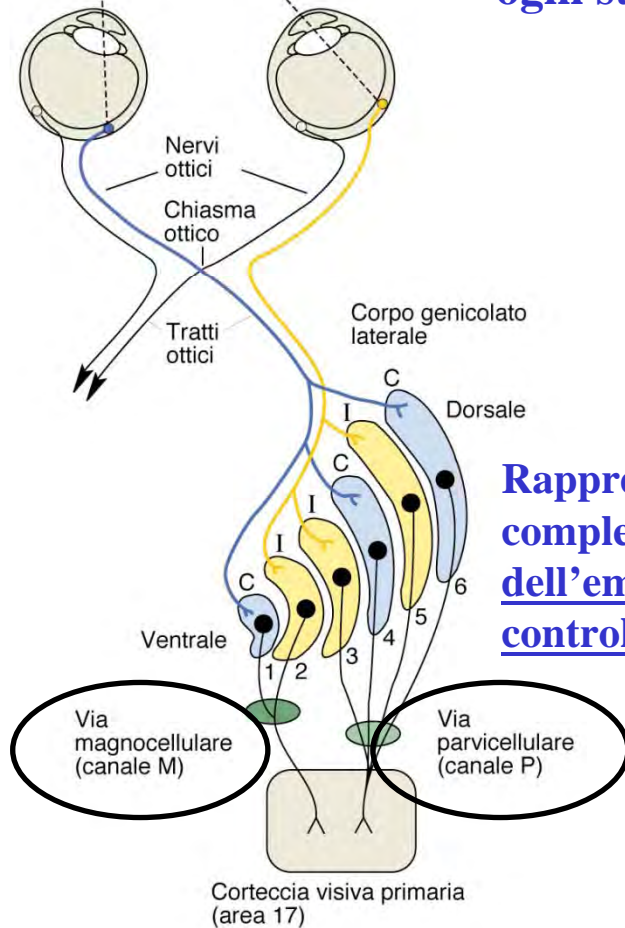
Optic nerve



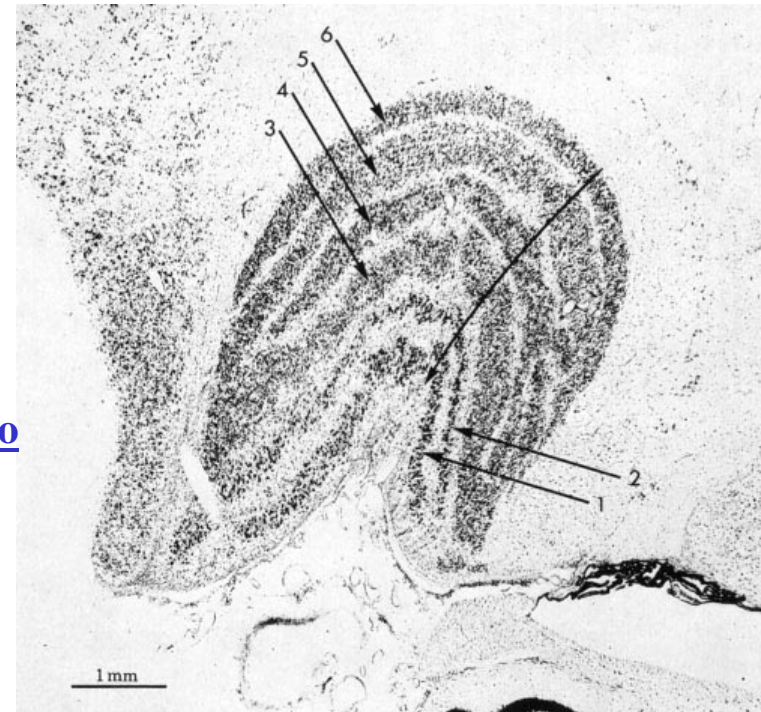


## Talamo: nucleo genicolato laterale:

- cellule centro on e centro off
- suddiviso in 6 strati
- ogni strato riceve da un occhio solo
- ogni strato ha una mappa retinotopica

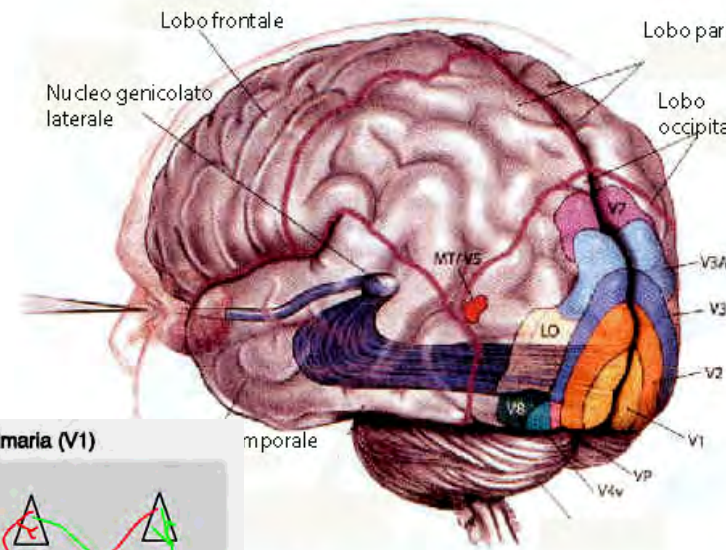
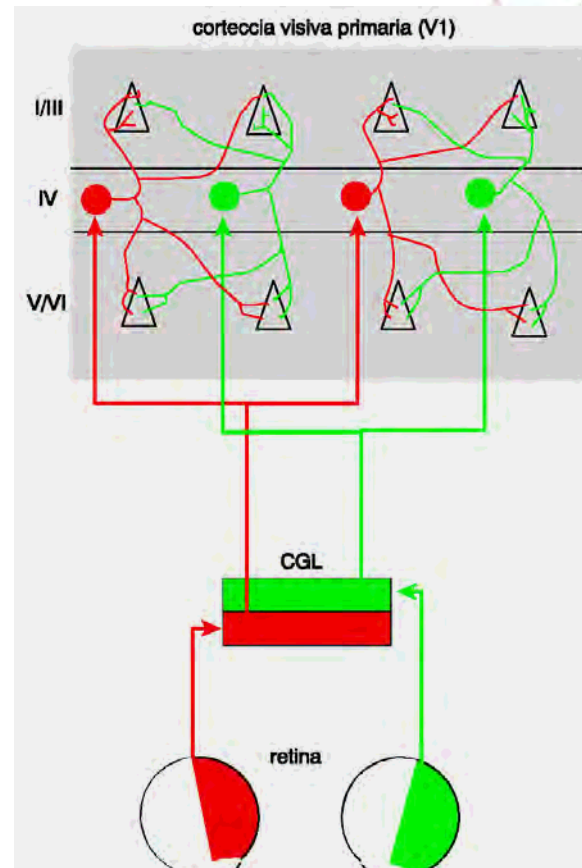
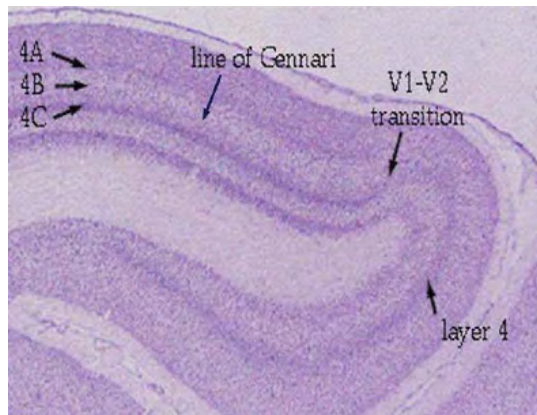


## Rappresentazione completa dell'emicampo visivo controlaterale



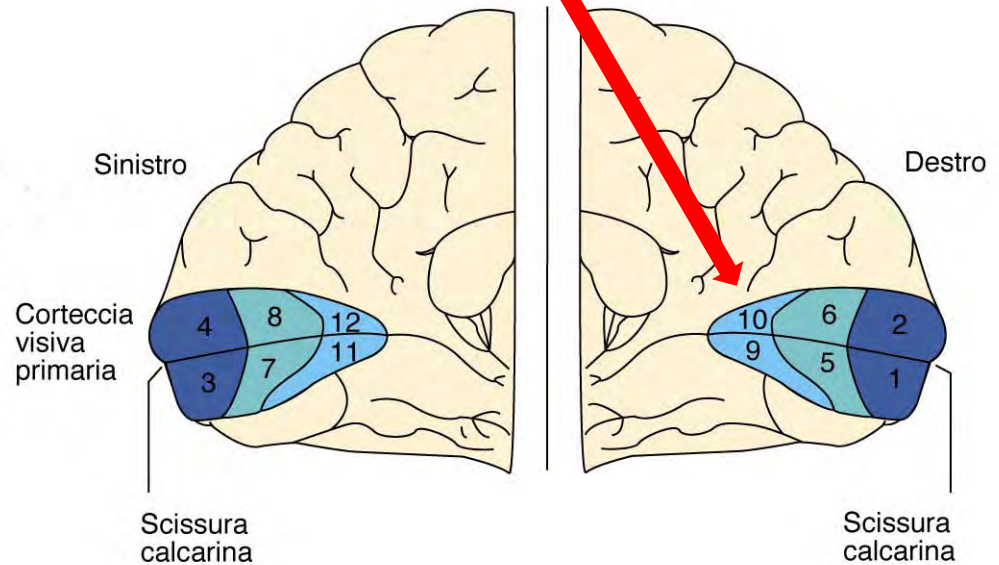
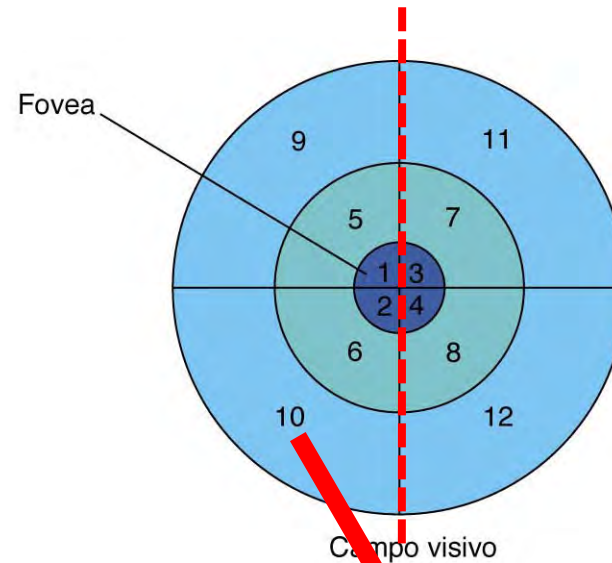
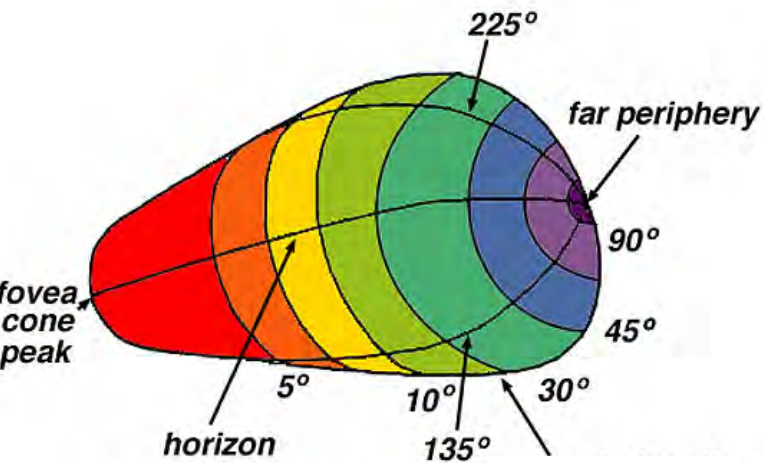
# Dal talamo alla corteccia visiva primaria (V1):

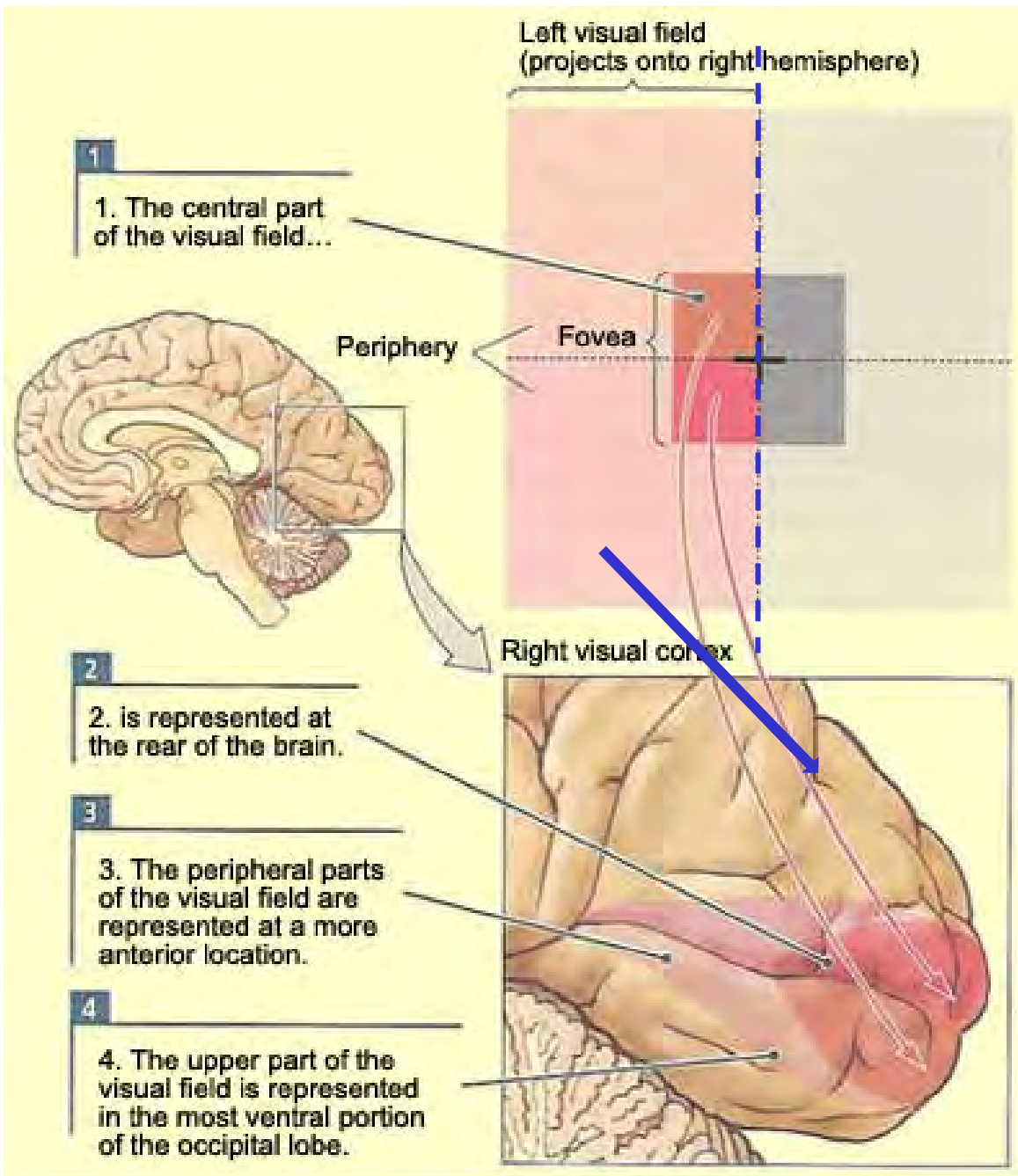
- in lobo occipitale
- neocorteccia: 6 strati di cellule
- dal talamo: al IV strato
- nel IV strato: stria di fibre mieliniche: *corteccia striata*



# Organizzazione retinotopica della corteccia visiva:

**Fovea:  
più rappresentata**



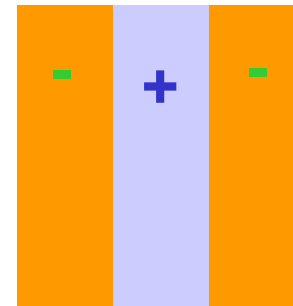
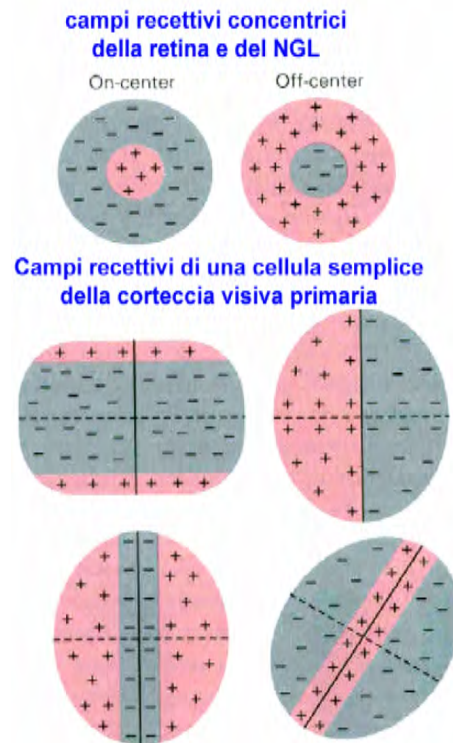


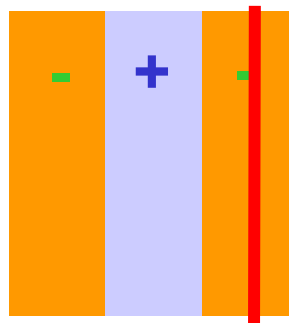
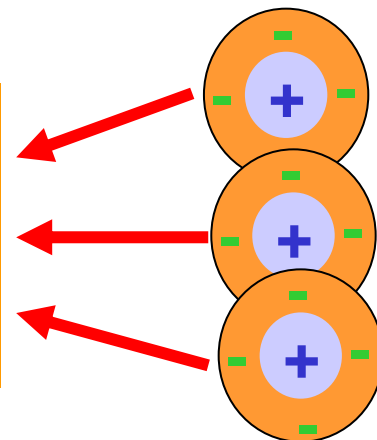
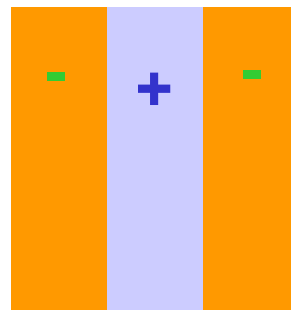
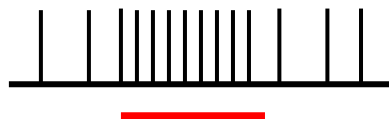
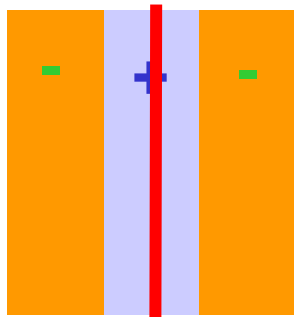
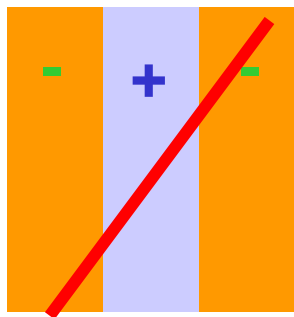
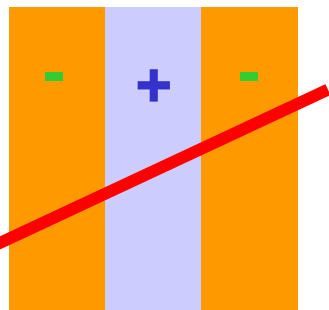
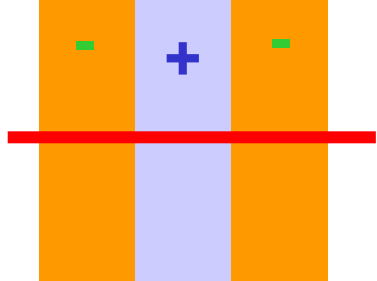


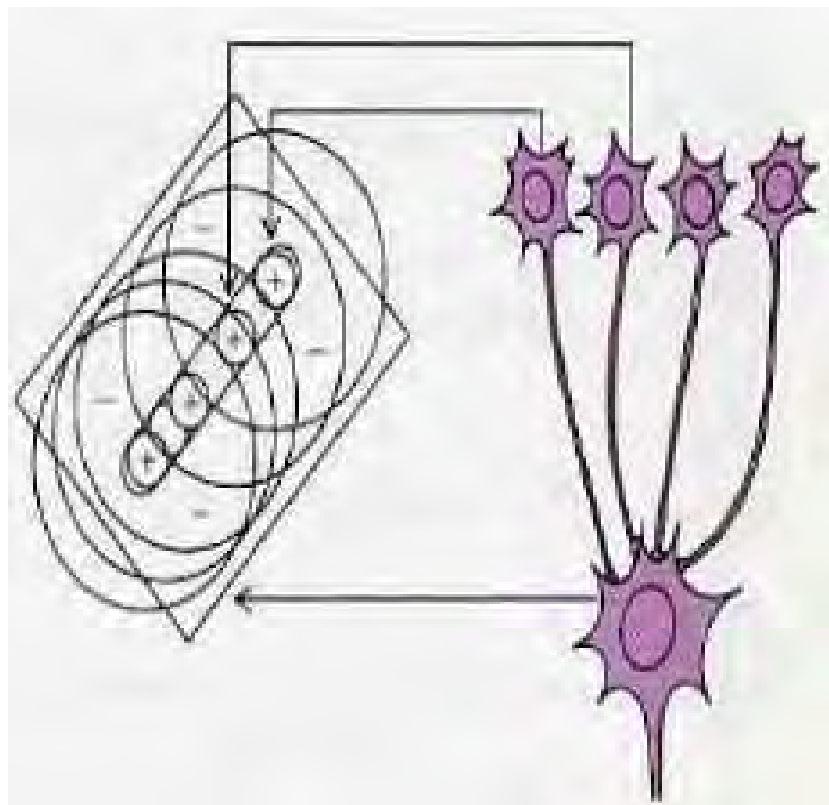
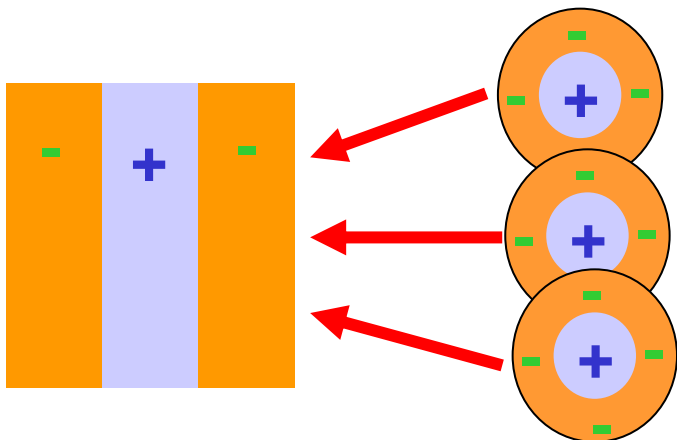
# Neuroni della corteccia visiva primaria:

## “Cellule semplici”

- campi recettivi più grandi delle cellule ganglionari e talamiche
- campi recettivi non più sferici, ma di diversa forma, spesso rettangolari
- zone “on” e “off” alternate
- rispondono poco a macchie di luce
- rispondono a stimoli rettilinei con un preciso orientamento spaziale

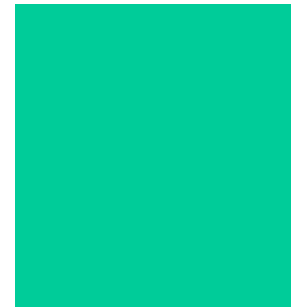
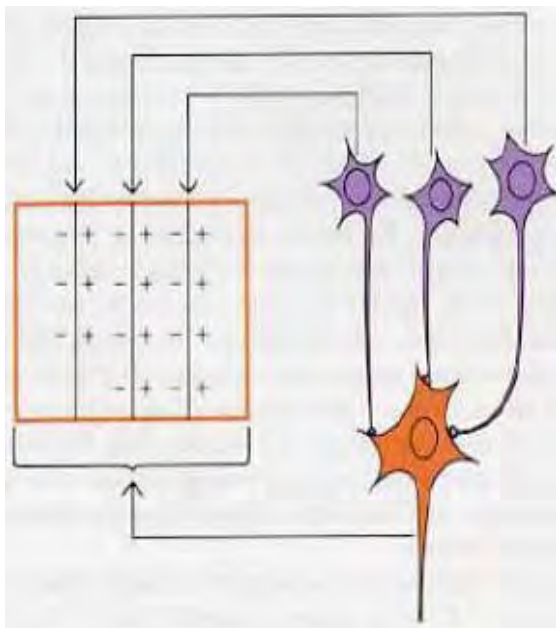




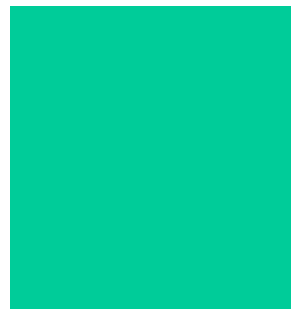
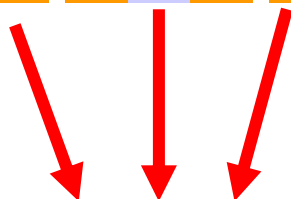
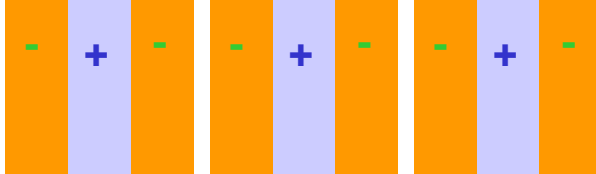
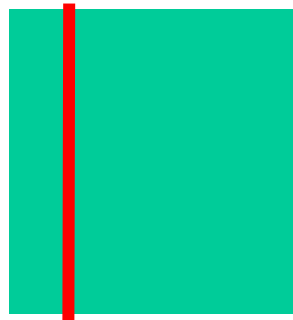
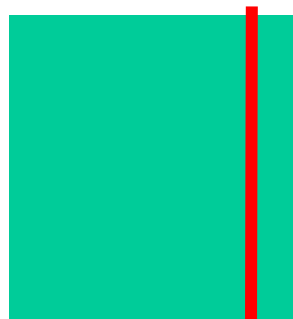
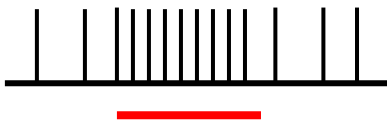
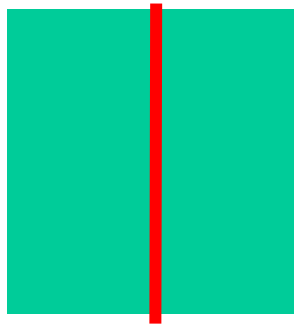
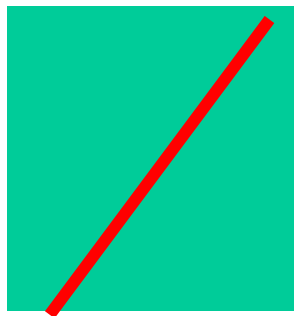
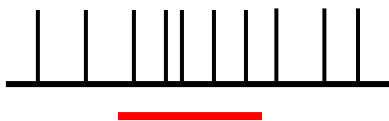
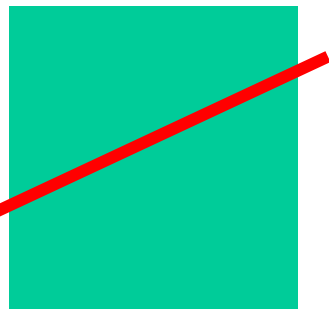
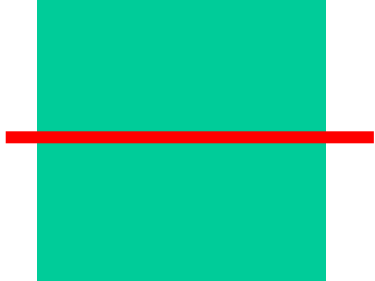


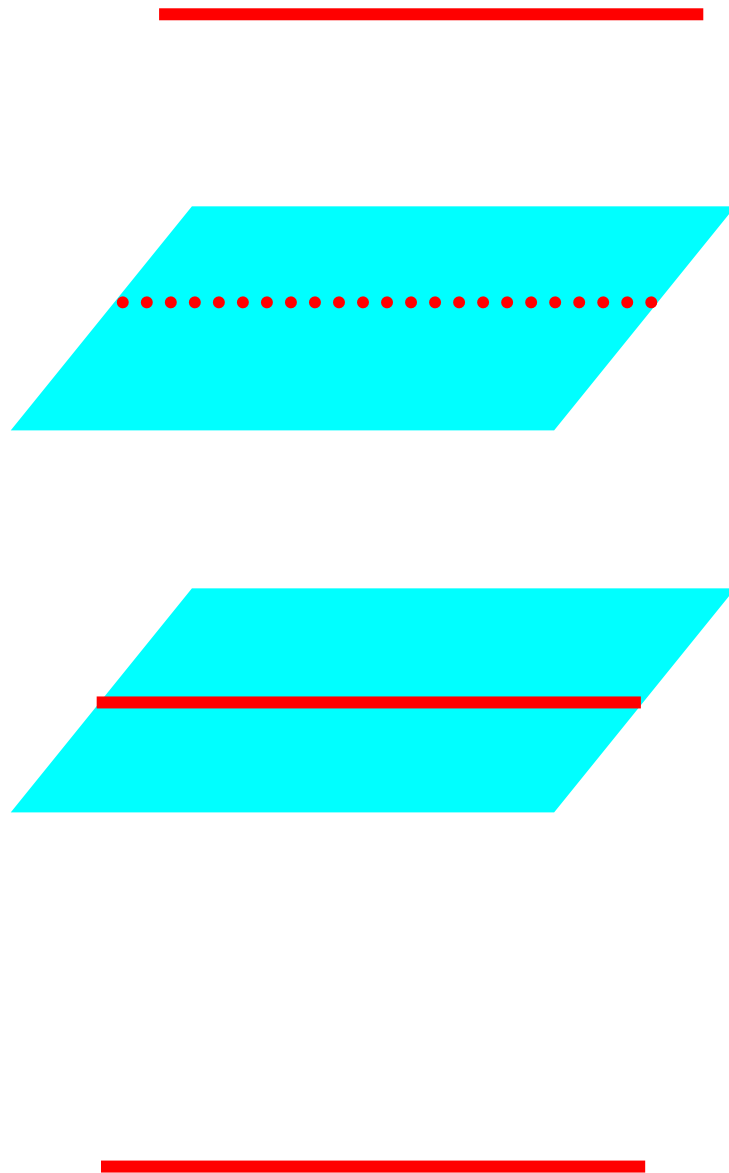
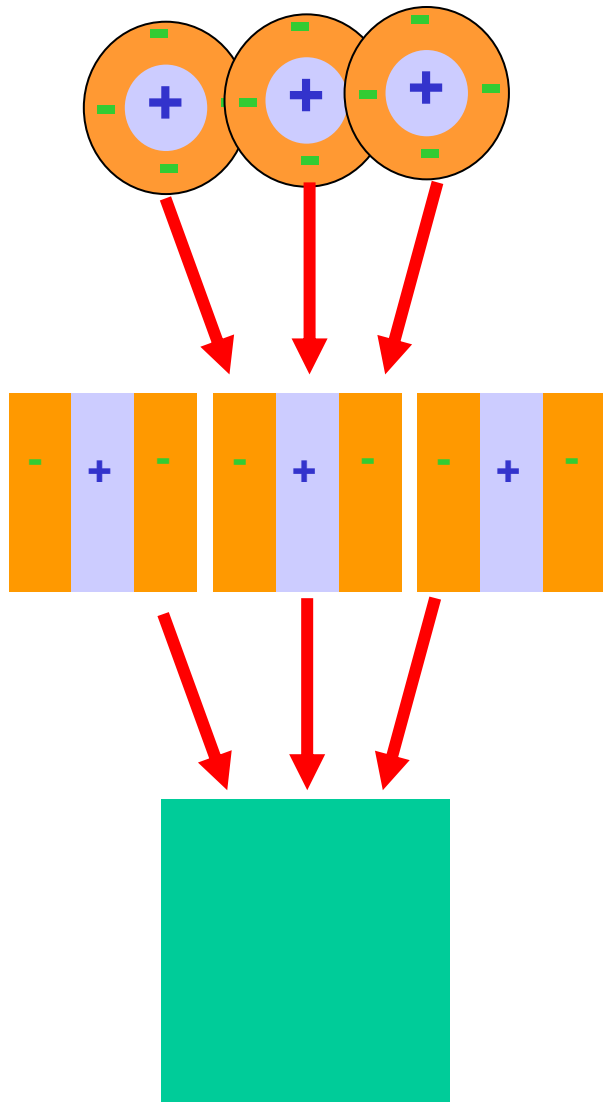
## Cellule complesse:

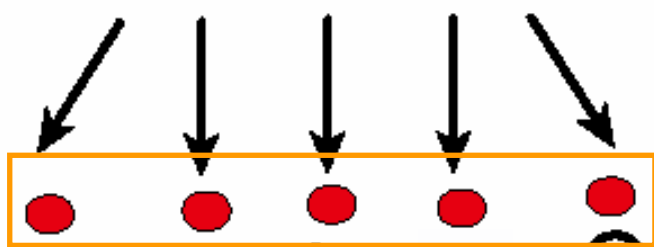
- campo recettivo più grande delle cellule semplici
- non esistono aree “on” e “off” ben delimitate: non è importante la posizione dell’oggetto all’interno del campo recettivo
- ciascuna risponde a uno specifico orientamento dell’oggetto ( | / )
- integrano informazioni da più cellule semplici
- analisi delle sagome degli oggetti (della forma)



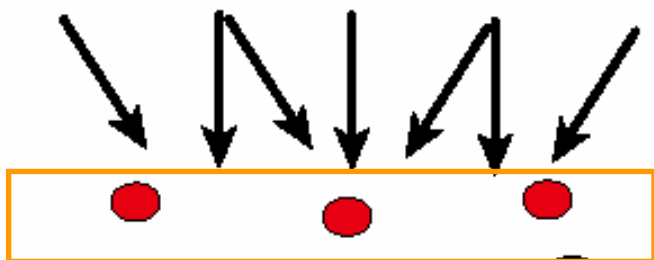




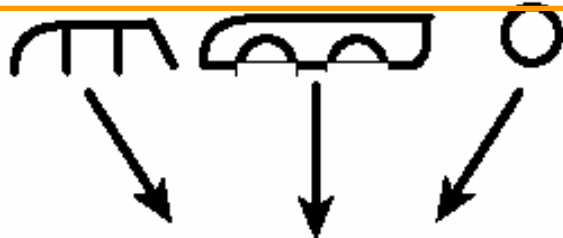




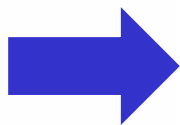
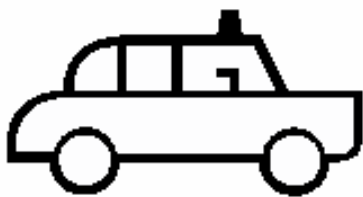
**Cellule bipolari, ganglionari, talamiche**



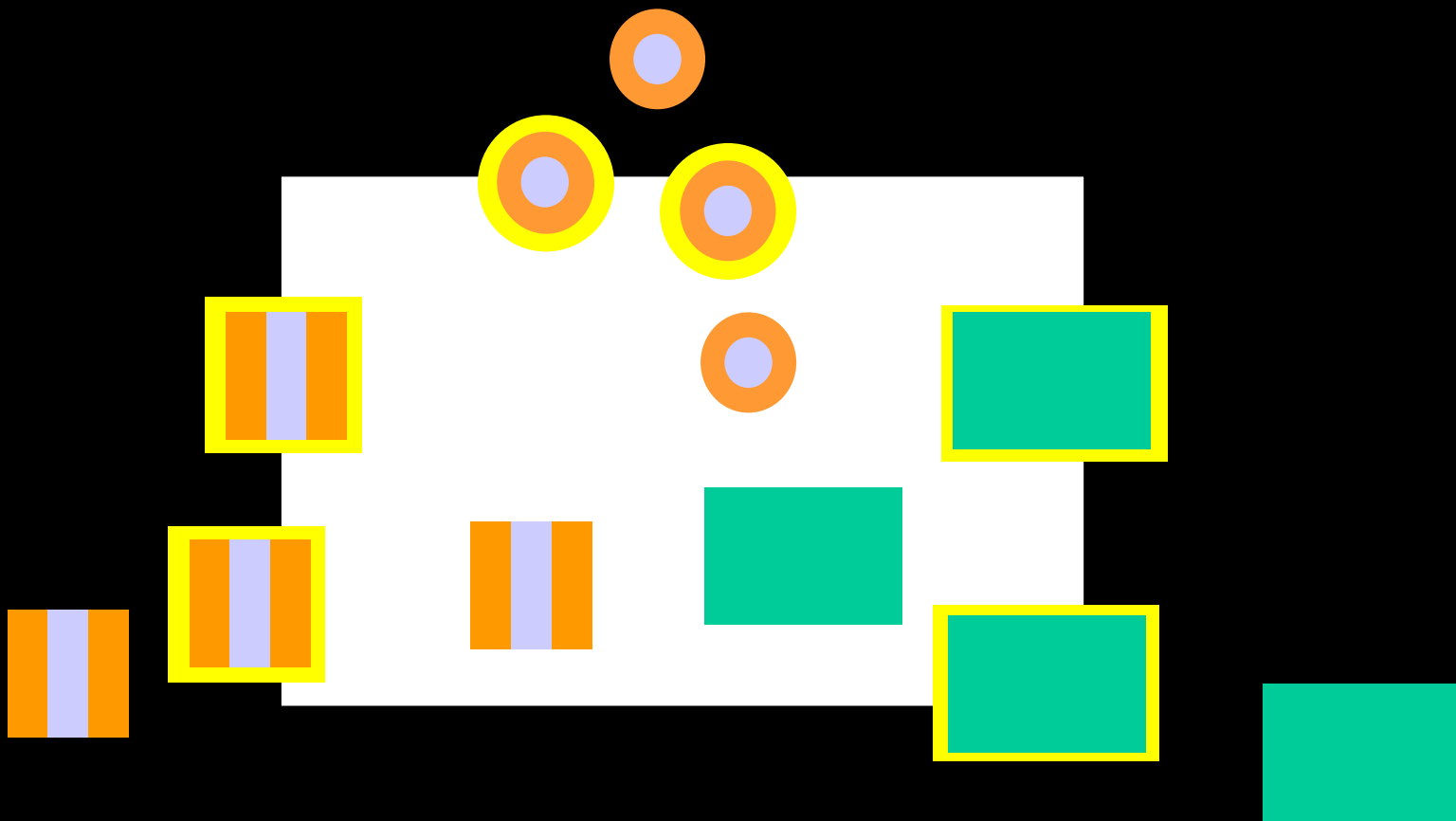
**Cellule semplici**



**Cellule complesse**



**Riconosciamo oggetti in base alla loro sagoma,  
la parte interna ed uniforme degli oggetti  
e lo sfondo uniforme esterno non eccitano le cellule**

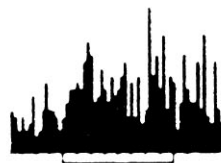
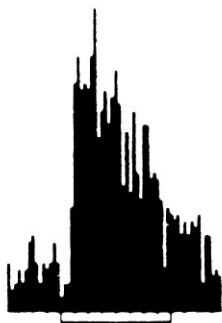




Moltissima gente, me compreso, fa fatica ad accettare l'idea che l'interno di un oggetto .  
non sia in grado di eccitare i neuroni cerebrali ... **che la nostra percezione dell'interno di  
un oggetto come nero o bianco ... dipenda solamente dalle sensibilità delle cellule verso la  
sua sagoma. ...** Il concetto che sta alla base di questa affermazione consiste nel fatto che  
la percezione dell'interno di un oggetto illuminato in maniera uniforme dipende  
dall'attivazione di cellule i cui campi recettivi ricevono informazioni dai **margini** di  
quell'oggetto, nonché dall'assenza di attivazione delle cellule i cui campi recettivi stanno  
all'interno dell'oggetto stesso. ... **Le sole informazioni necessarie sono quelle che ci dicono  
che cosa accade a livello dei margini di un oggetto; il suo interno è soltanto stucchevole.**

**D. Hubel**



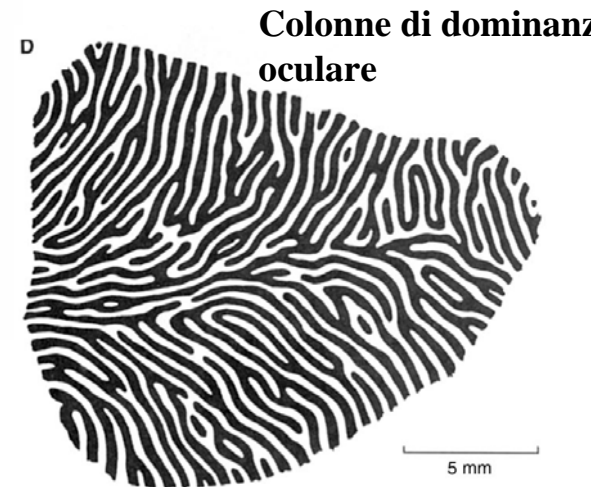
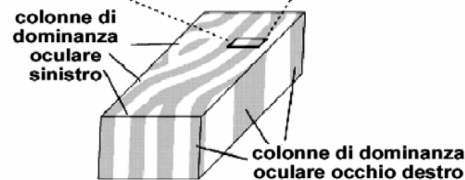
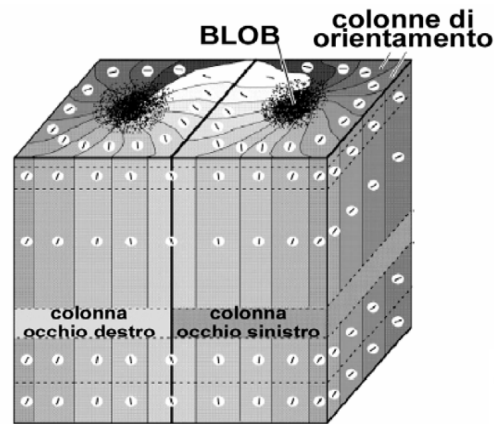
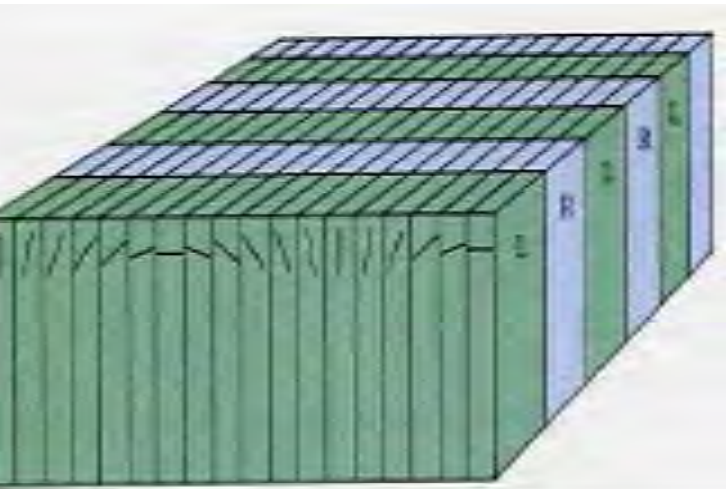


# Organizzazione colonnare della corteccia visiva V1:

- la corteccia visiva è suddivisa in due tipi diversi di **colonne**:

**Colonne per l'occhio destro o sinistro** ("colonne di dominanza oculare")

**Colonne per l'orientamento** ("colonne di orientamento")







stimolo



forma



colore

movimento .....>



percezione