

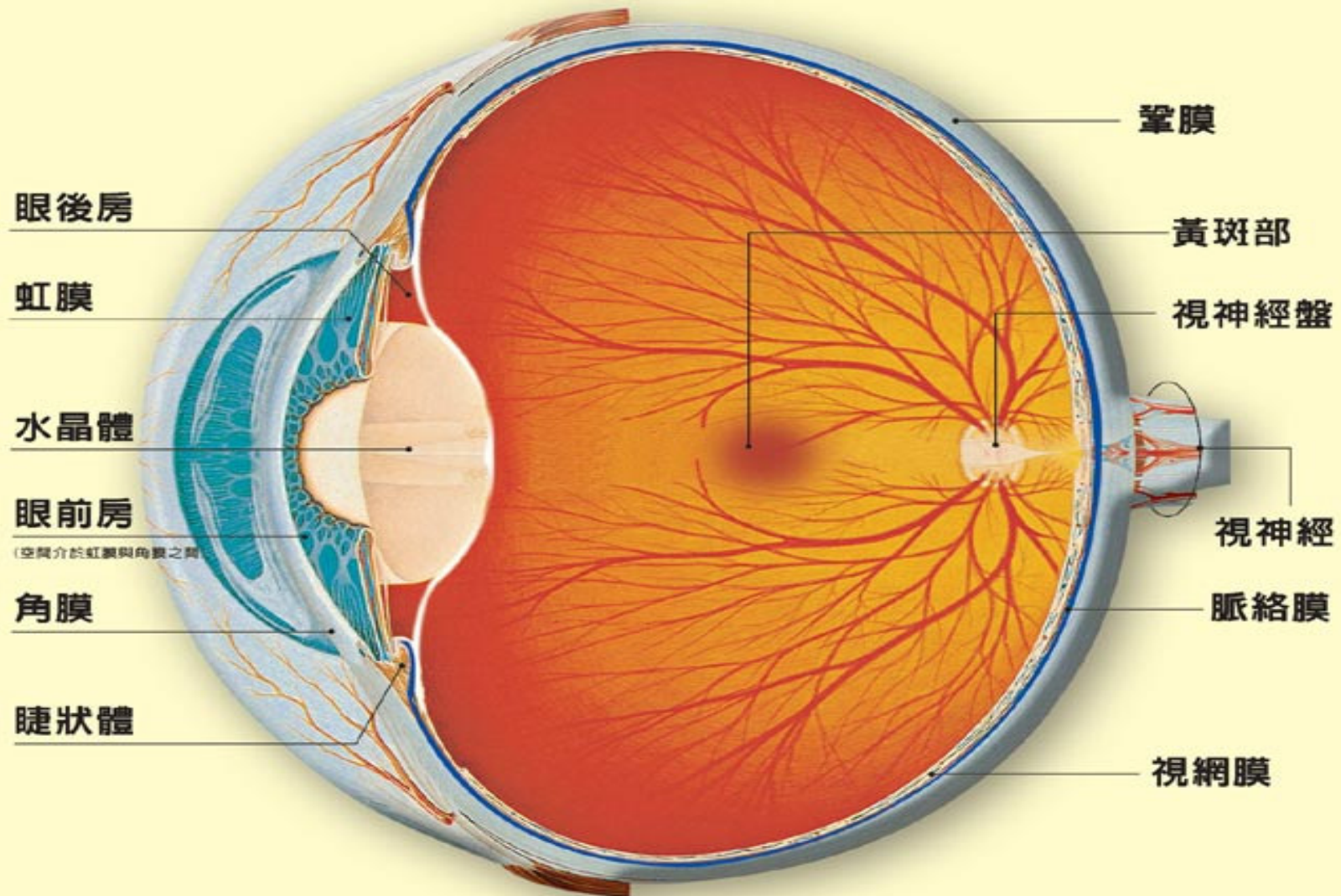
## ***Exercise and ocular health***



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# 眼球結構圖



# Physical Exercise

- Improve cardiovascular function
- Weight reduction
  - Obesity > increased risk of DM, HT, IHD, stroke, gout ...
- fitness

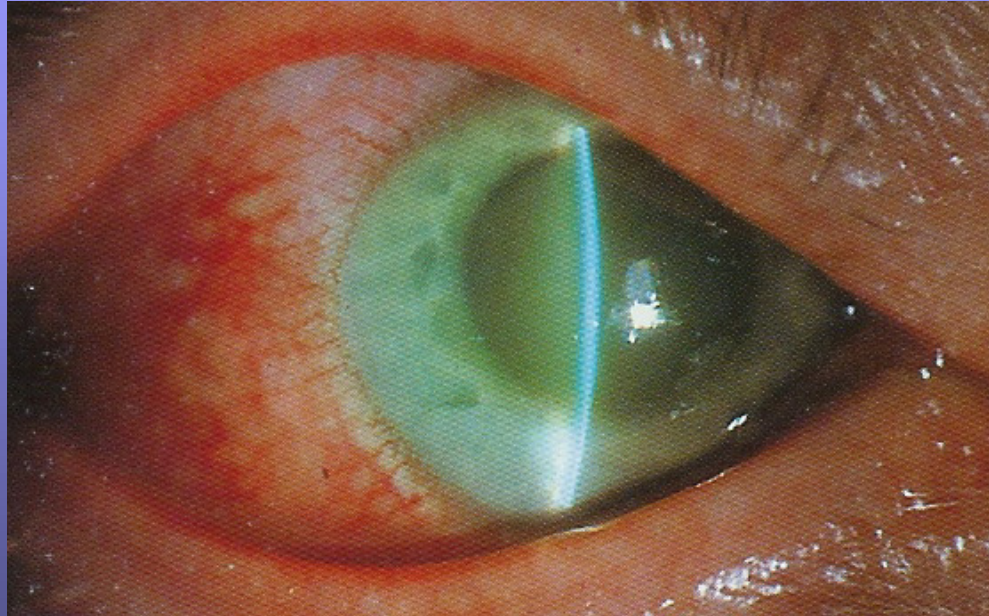
# Physical exercise and glaucoma

- Evidence that exercise reduced IOP
- Mean IOP drop 4.6mmHg after aerobic training
- Physical fit laborers have 1.9mmHg lower than sedentary workers.
- Exact mechanism unclear
- Short term reduction only

# Obesity and glaucoma

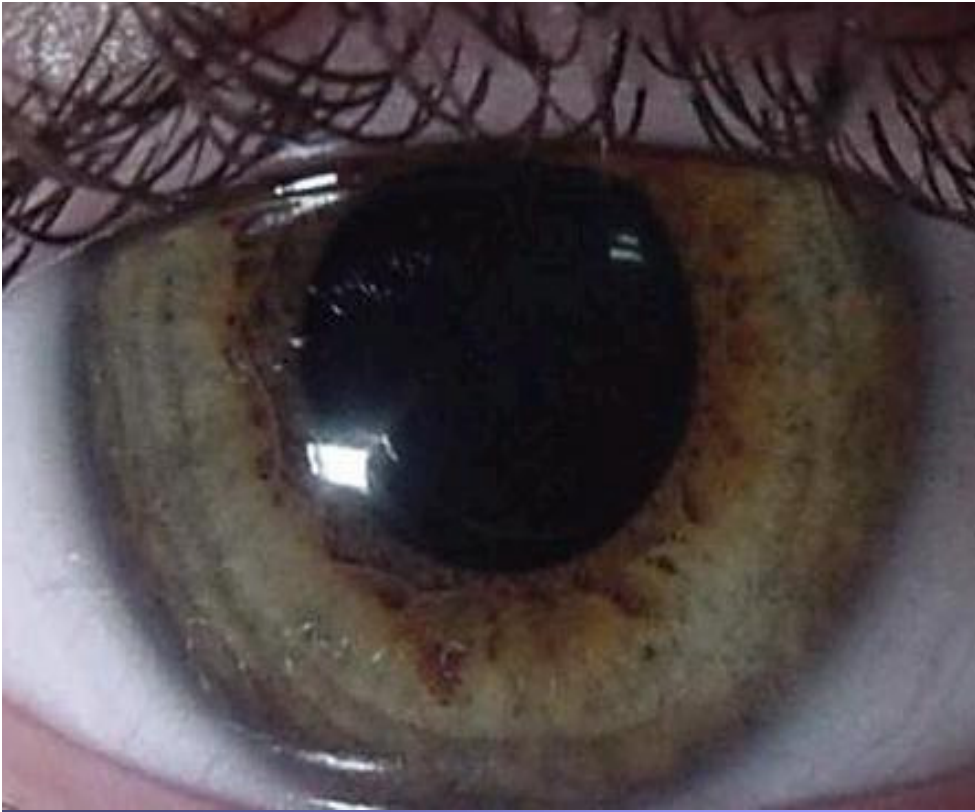
- Obesity (BMI index) >
- Directly related to IOP, but may be inversely related to glaucoma

# glaucoma



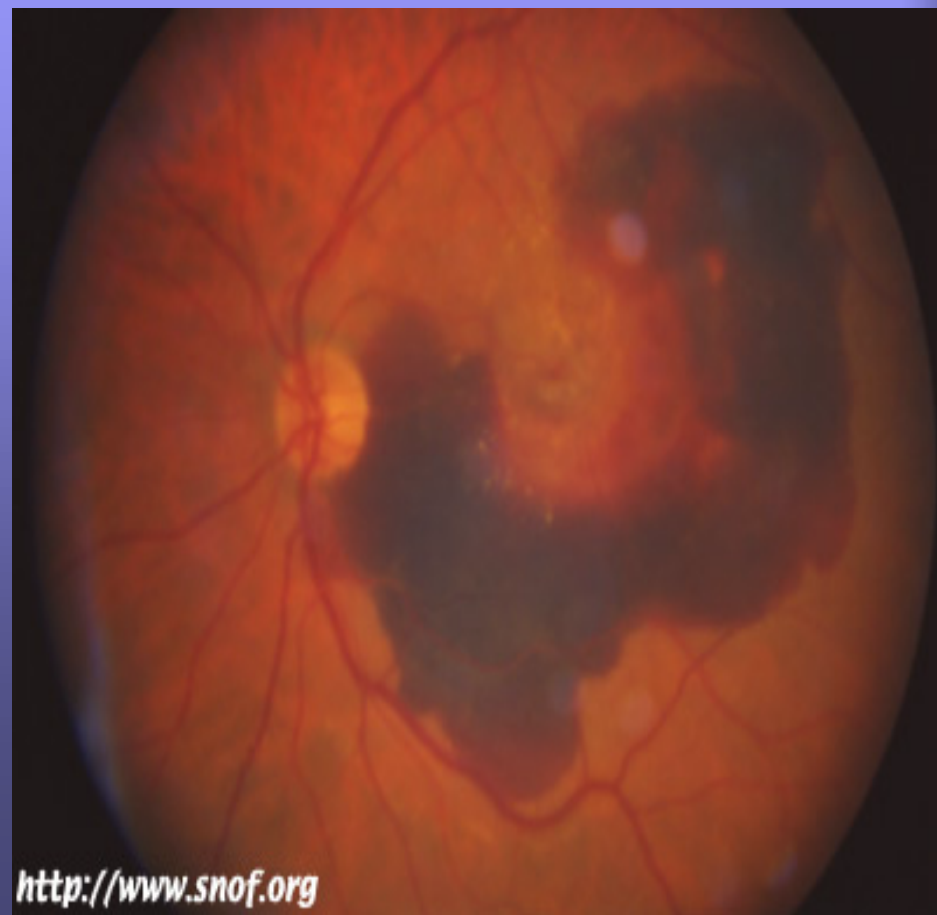
# Physical exercise with other eye diseases

- Relation to eye health less well studied
- Evidence that it can improve eye health
- Reducing incidence of cataract and age related macular degeneration
- Obesity > increased risk of ARMD and cataract
- Lipid > ARMD





# 乾性/濕性



## 晚期病徵

# 老年黃斑病

視力中心出現黑影



# Physical exercise and ocular health

- Prolonged UV exposure outdoors
- Exercised related trauma

# Physical exercise and eye injury

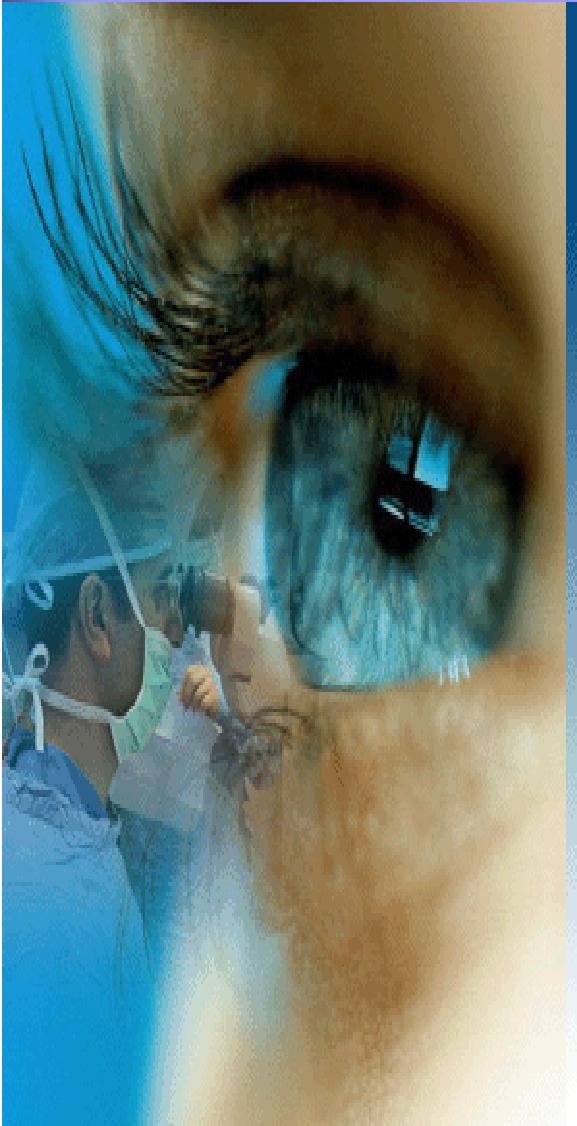
- Sports related eye injury ~100000 visits / year,
  - In USA, overall cost spent in those injury reached 175 million
  - In USA, the most “dangerous” sports are baseball, ice hockey and racquet sports
- 
- Napier SM et al. Eye injuries in athletics and recreation. *Surv Ophthalmol.* 1996 Nov-Dec;41(3):229-44.

# Physical exercise and eye injury

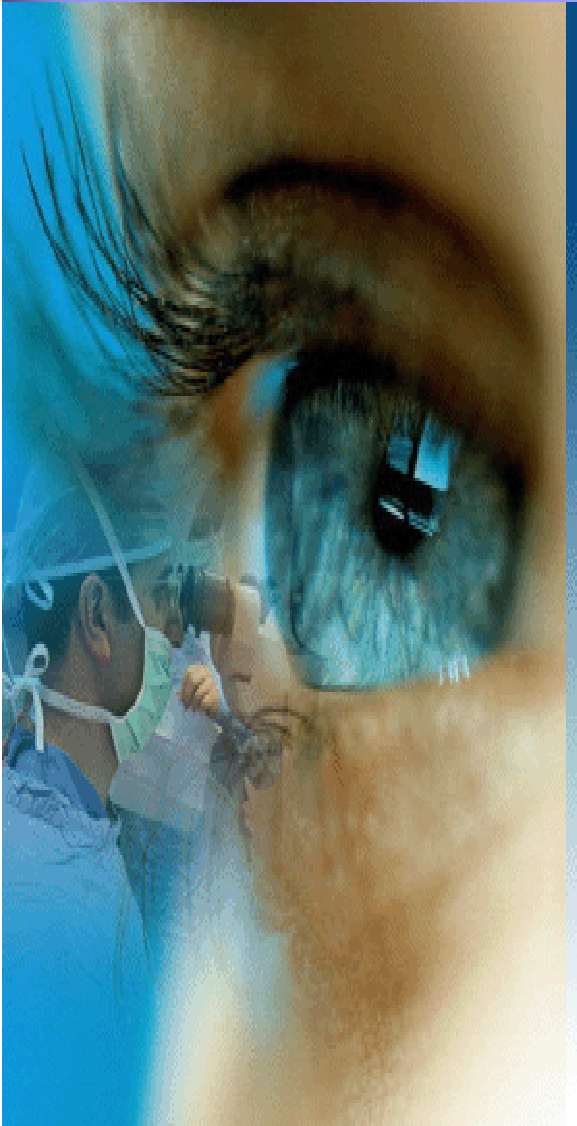
1. Foreign body injury
2. Sharp injury
3. Blunt injury
4. Chemical injury
5. Repetitive injury (diving)

# 眼睛創傷 - *principles*

- Very common
- Need to be alarm for even minor injury

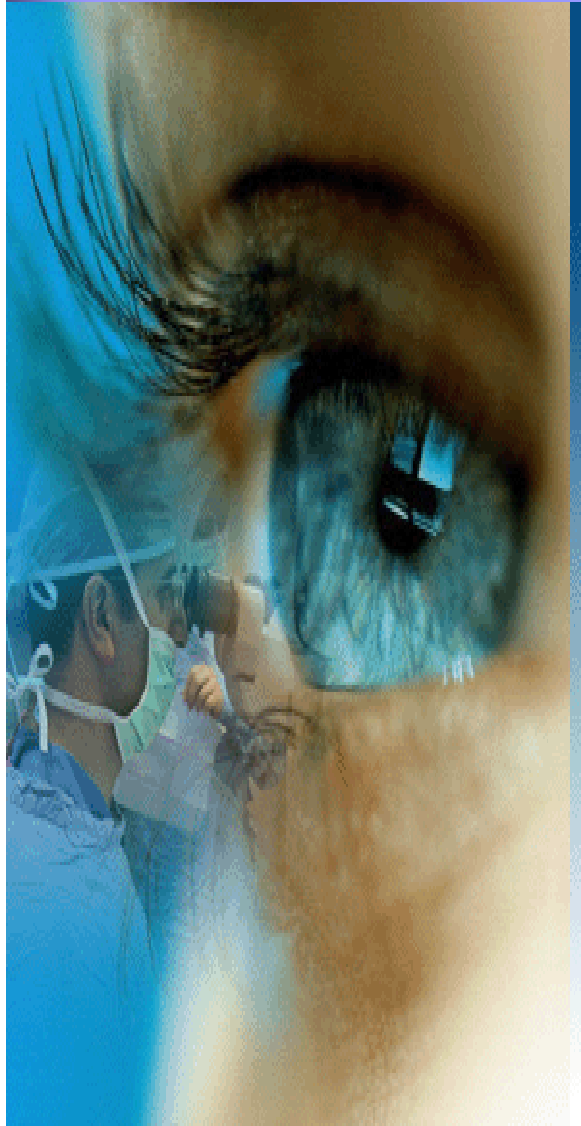


# 眼睛創傷 *history*



- Definite injury documented
  - When and where and what happen
- Nature of injury important
- Any loose/ broken pieces

# 眼睛創傷 **symptoms**

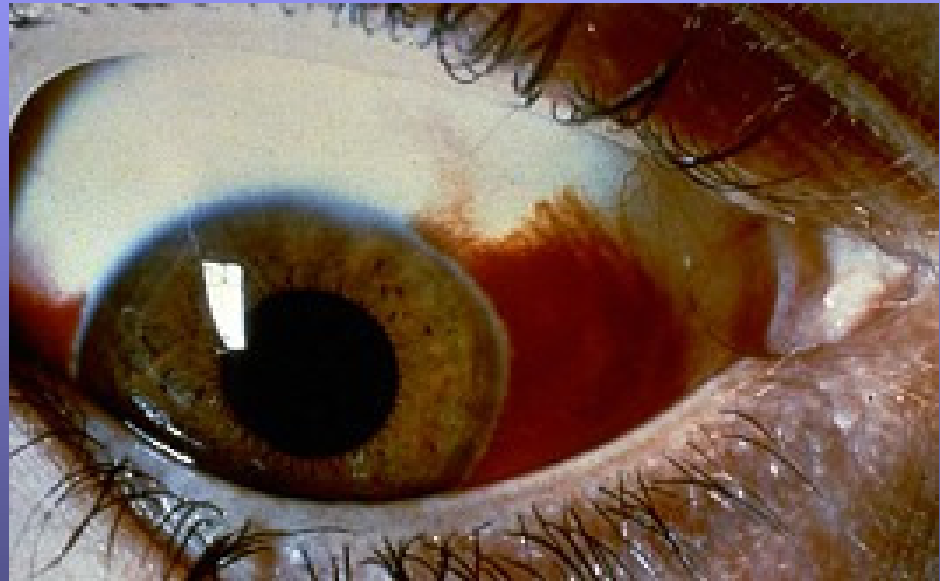


- Red eye
- Pain or discomfort
- tearing
- Discharge
- Photophobia
- Swollen eye
- Tissue on surface



# 眼睛創傷 **signs**

- Subconjunctival haemorrhage



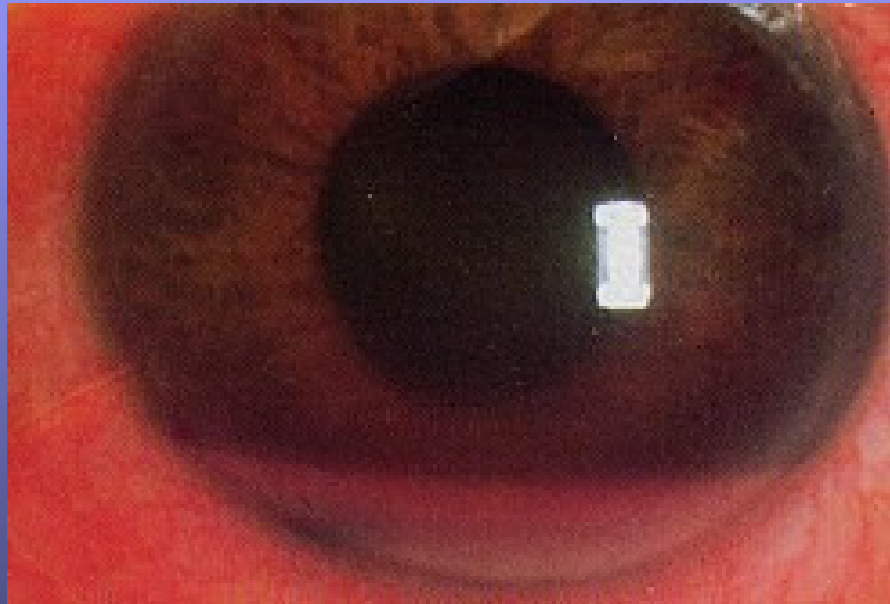
# 眼睛創傷 **signs**

- Lid trauma  
/laceration



# 眼睛創傷 **signs**

- Blood in eye  
(hyphema)



# 眼睛創傷 **signs**

- Pupil not round



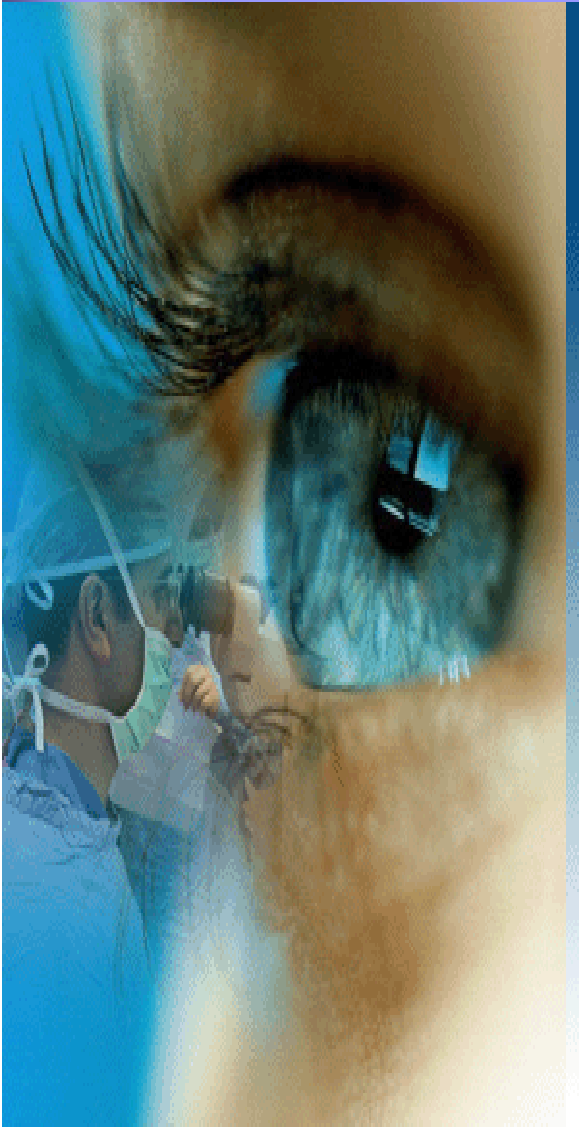
# 眼睛創傷 **signs**

- Tissue sticking on the surface



# OCULAR EMERGENCY

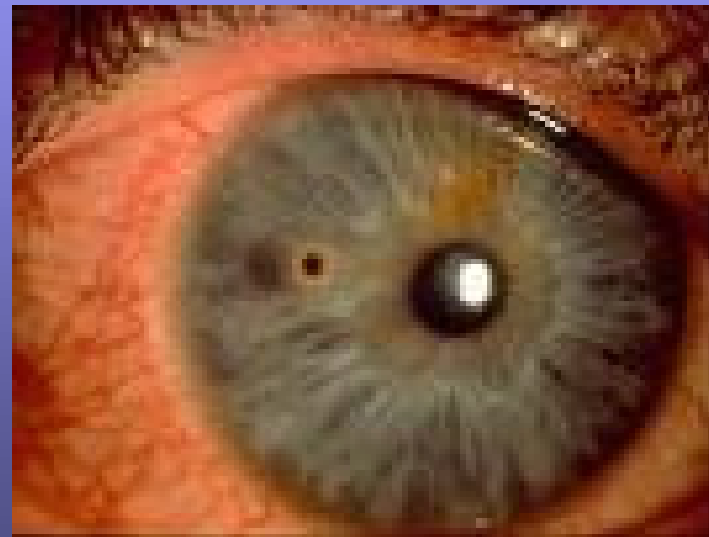
# 眼睛創傷



1. Foreign body 外物入眼
2. Blunt trauma 鈍性創傷
3. Sharp trauma 尖銳性創傷
4. Chemical injury 化學性創傷
5. Other injury 其他創傷

# **1. Foreign body** 外物入眼

- Plant materials
- glasses
- Metals
- others



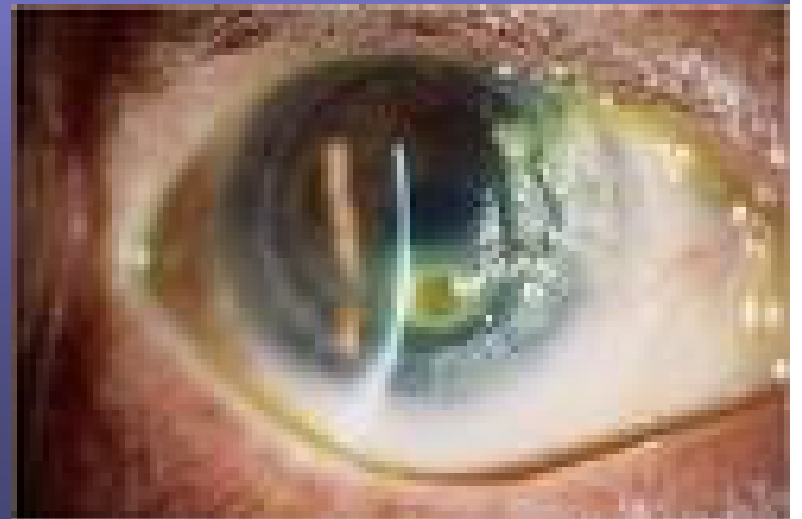


## ***Foreign body*** 外物入眼

- Rinsed with plenty of normal saline
- Don't try to remove by patient
- Avoid using hands or other materials to remove
- Wear protective eye shield
- Avoid rubbing eyes and pressure dressing

# ***Foreign body***外物入眼

- Usually need surgical removal
- Cornea: use 30 G needle/ drill to remove the foreign body or surrounding rust ring
- Intraocular: need exploration



# ***Foreign body***外物入眼



## ***2. Blunt trauma*** 鈍性創傷

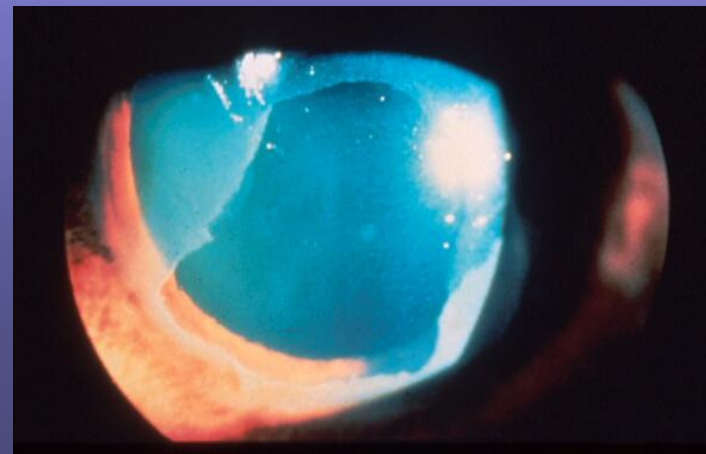
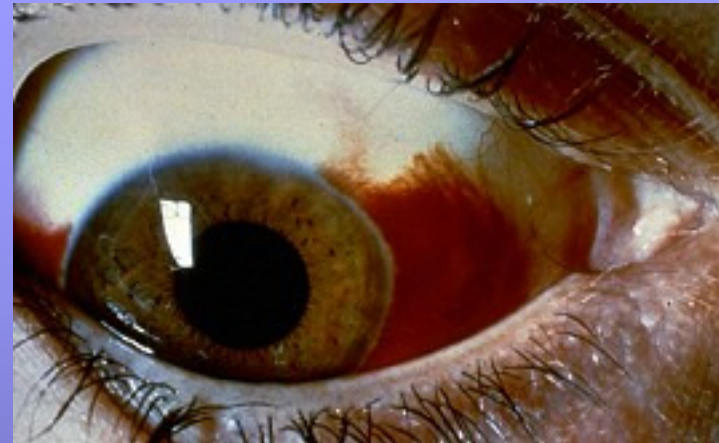
- Injury by fist, elbow
- Slipped and fell
- Sports injury : by soccer, tennis, squash etc

# ***Blunt trauma***鈍性創傷

- Usually no external wound
- Swollen eye
- Bruises+
- Blurred vision
- Double vision

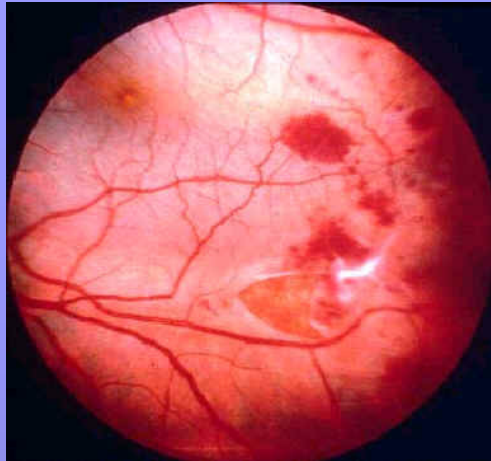
# ***Blunt trauma*** 鈍性創傷

- Subconjunctival haemorrhage
- Swollen and bruises
- Corneal abrasion
- Hyphema
- Retinal detachment

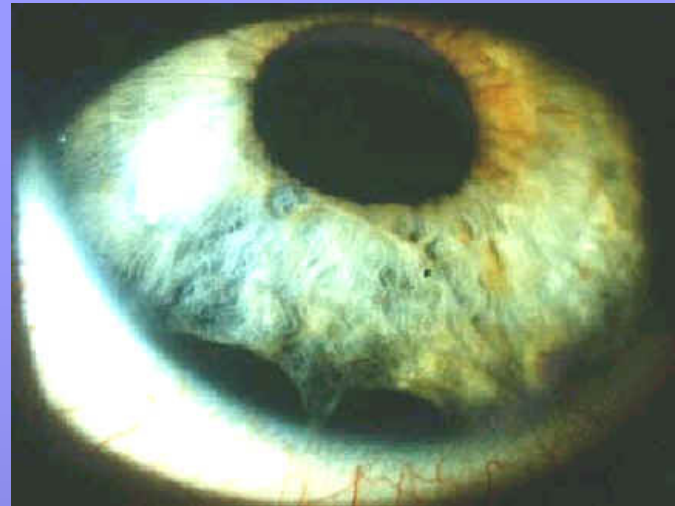


# ***Blunt trauma*** 鈍性創傷

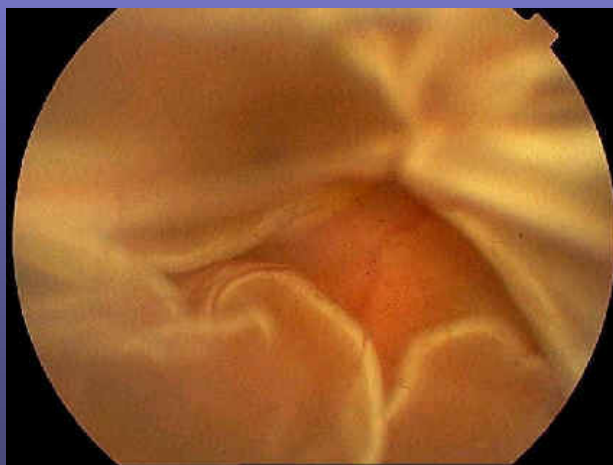
- Management:
  - Avoid further trauma
  - Stop all sports activities
  - Dressed all external wound
  - Ice pack
  - Eye shield
  - See eye doctor immediately



**Retinal breaks**



**iridodialysis**



**Retinal detachment**



### **3. *Sharp trauma*** 尖銳性創傷

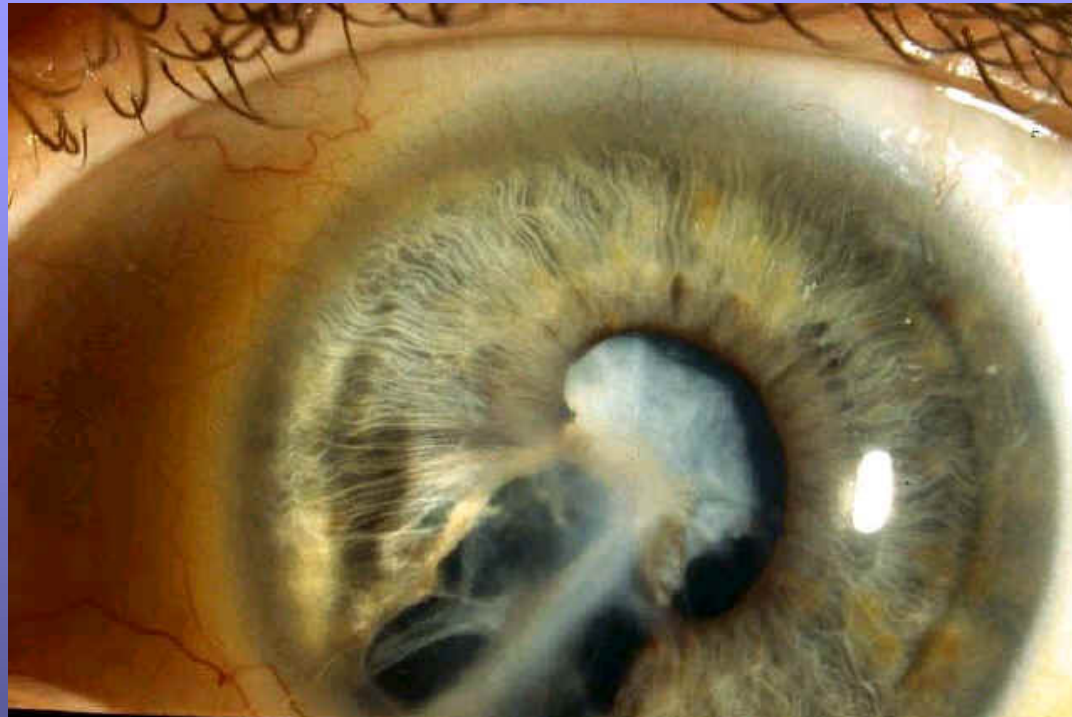
- Mechanism:
  - Usually by sharp objects
  - Penetrating or perforating
  - Need immediate medical attention



# ***Sharp trauma*** 尖銳性創傷



# ***Sharp trauma*** 尖銳性創傷



# ***Sharp trauma*** 尖銳性創傷



# ***Sharp trauma*** 尖銳性創傷



# ***Sharp trauma*** 尖銳性創傷

- Usually need operation
- Corneal laceration: need repair
- Iris : need repair
- Lens : removal
- Sclera: repair
- Vitreous prolapse: removal
- Retina: surgery to flatten retina

## **4 .Chemical injury**化學性創傷

- Severe ocular emergency
- Acid vs alkali
- Alkali more damaging

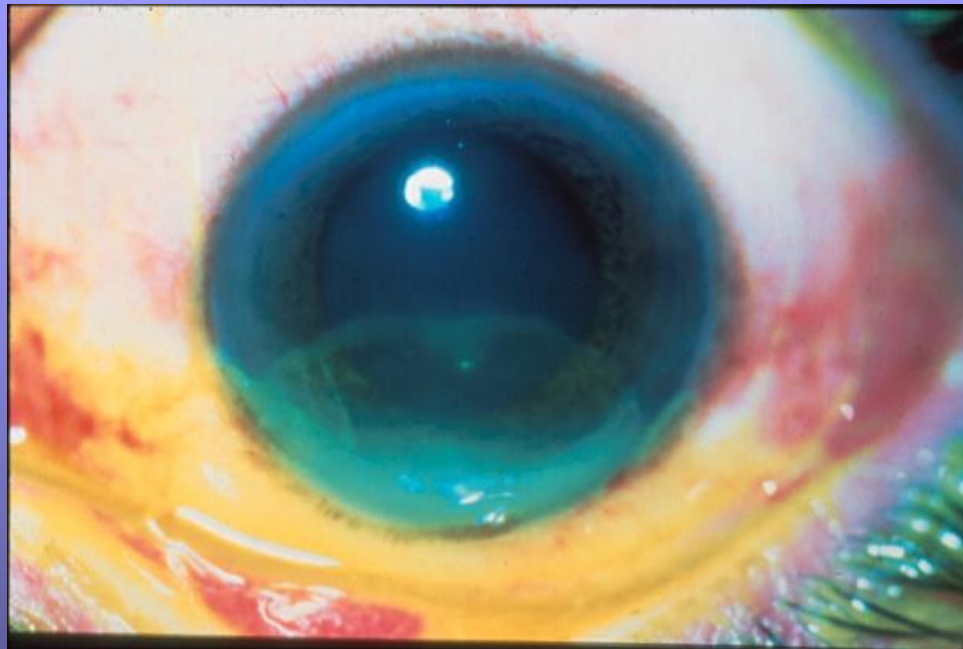
# ***Chemical injury***化學性創傷

- Management
  - Rinse with lots of water ( at least 200 ml) / normal saline
  - Don't ever rinse with neutralising agent
  - Refer to eye doctor immediately

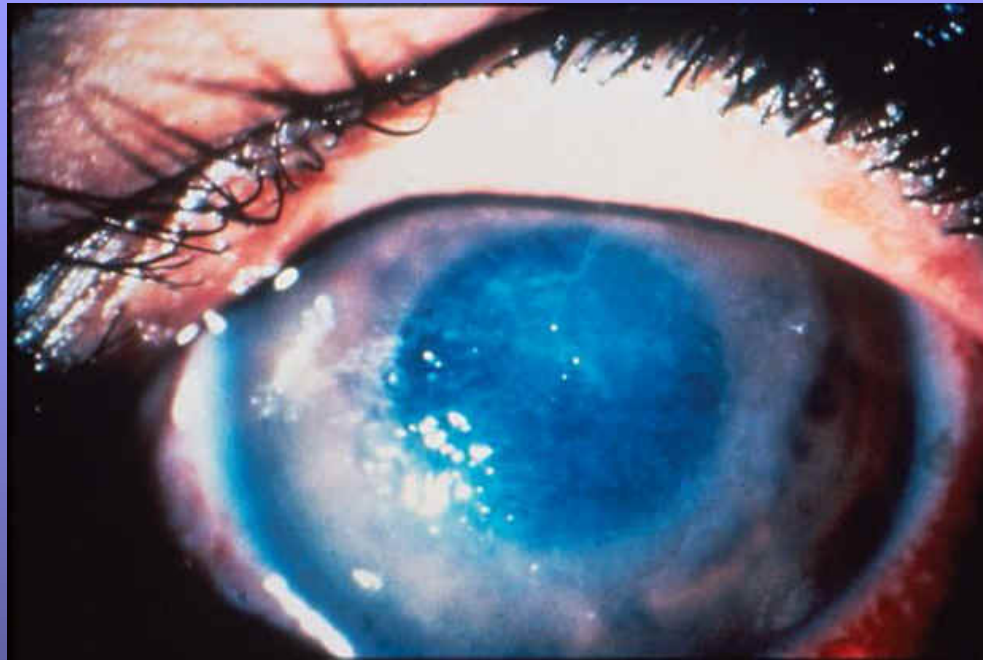


# ***Chemical injury***化學性創傷

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# ***Chemical injury***化學性創傷



# ***Chemical injury***化學性創傷

- Complications:
  - Corneal abrasion
  - Corneal oedema
  - Uveitis
  - Cataract
  - Glaucoma
  - Limbal stem cell deficiency
  - Symblepheron formation

## 5.Repetitive injury

- Evidence that repetitive sports manouvres can lead to increased risk of eye diseases
- Diving against retinal detachment and breaks

Ourgaud AG.Vitreous haemorrhage and retinal during underwater diving.Mars  
Med.1961;98:829.

# ***General nursing guidelines***

- Do not delay medical attention even for seemingly mild injuries.
- Stay calm, do not panic; keep the child as calm as possible.
- Do not rub the eye
- Do not attempt to rinse out the eye unless in chemical injury
- Shield the eye from pressure
- Avoid giving aspirin or ibuprofen
- Do not apply ointment or any medication.
- wear safety goggles during in some sports

# Physical exercise and eye health

- UV light
- Sun exposure, mountaineering, sunbathing/ swimming/ watersports/ skiing
- Prolonged exposure can lead to cataract, cornea abrasion and macula degeneration

END