

RECENT ADVANCES IN OPHTHALMOLOGY

眼科新進展

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DEPARTMENT OF OPHTHALMOLOGY AND VISUAL SCIENCES (DOVS)



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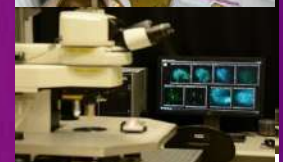
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A Centre of international excellence in ophthalmology



香港中文大學醫學院

Faculty of Medicine

The Chinese University of Hong Kong

香港眼科醫院，香港威爾斯親王醫院， 汕頭大學·香港中文大學聯合汕頭國際眼科中心

150多位眼科醫生
300多位護士及醫務人員
每年超過600,000 個門診及50,000 個手術



Department of Ophthalmology and Visual Sciences The Chinese University of Hong Kong



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Our Team

Department of Ophthalmology and Visual Sciences is represented by an internationally-reputed faculty of physicians and visual scientists.



Updates



Dr Li Jia CHEN wins the gold medal for the Best Original Research by Trainees from the Hong Kong Academy of Medicine

18 Jan 2016



27th Annual Scientific Meeting - Hong Kong Ophthalmological Symposium 2015

18 Dec 2015



CUHK/Osaka U Research Day

8 Dec 2015



The 2015 Symposium of Biology

22 Oct 2015

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Financial Disclosure



Aeon Astron Corporation - S
Alcon Laboratories, Inc. – C,L,S,T
Allergan, Inc. – C,T
AMO Asia Ltd. - S
Bausch + Lomb - C
Icare Finland – S
IOptima Ltd. - C
Merck & Co., Inc. – C,L,T
Pfizer, Inc. – C,L,S,T
Santen Pharmaceutical Co., Ltd. – C,L, S,T
Sensimed - S

C = Consultant / Advisor

L = Lecture Fees

S = Grant Support

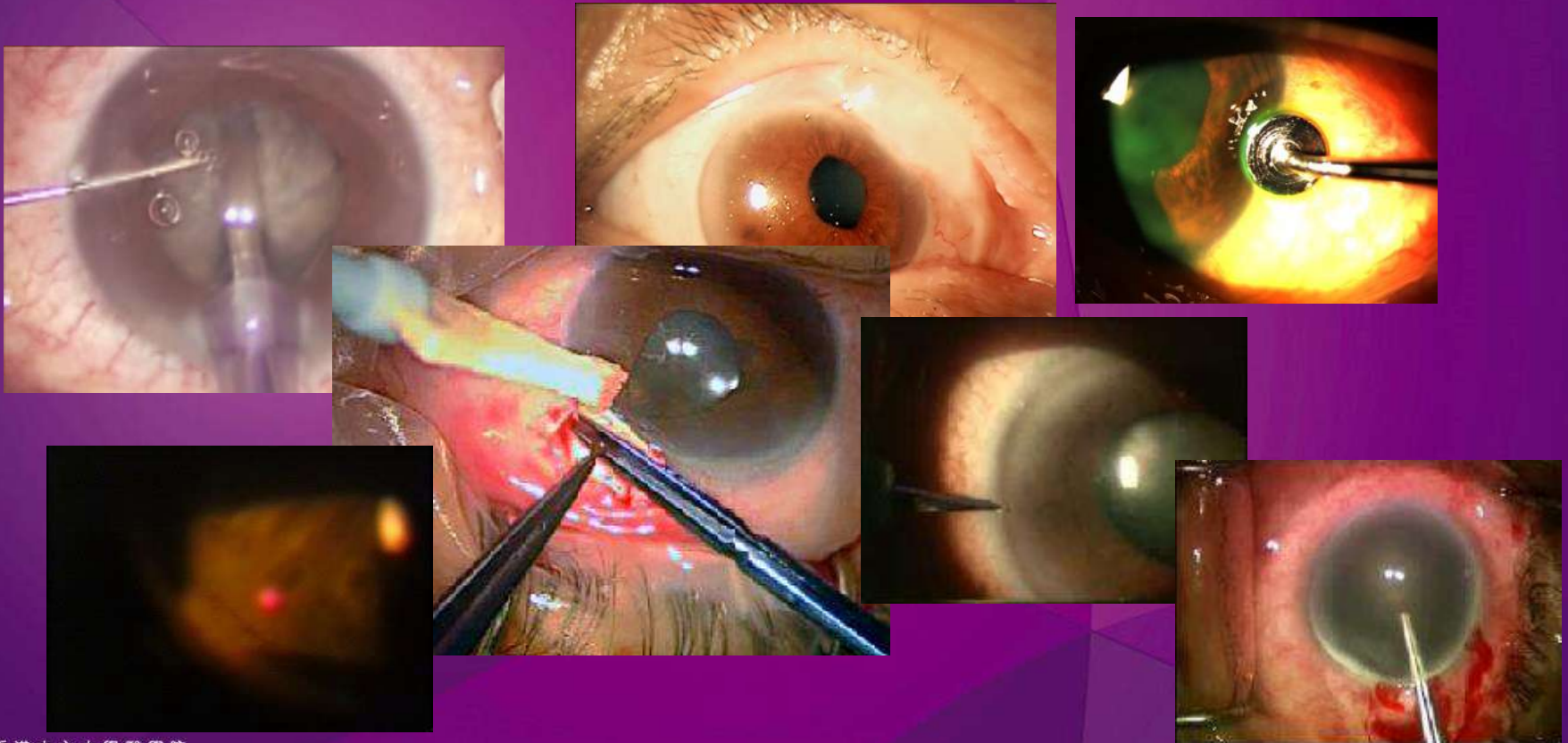
T = Travel Support



Synopsis



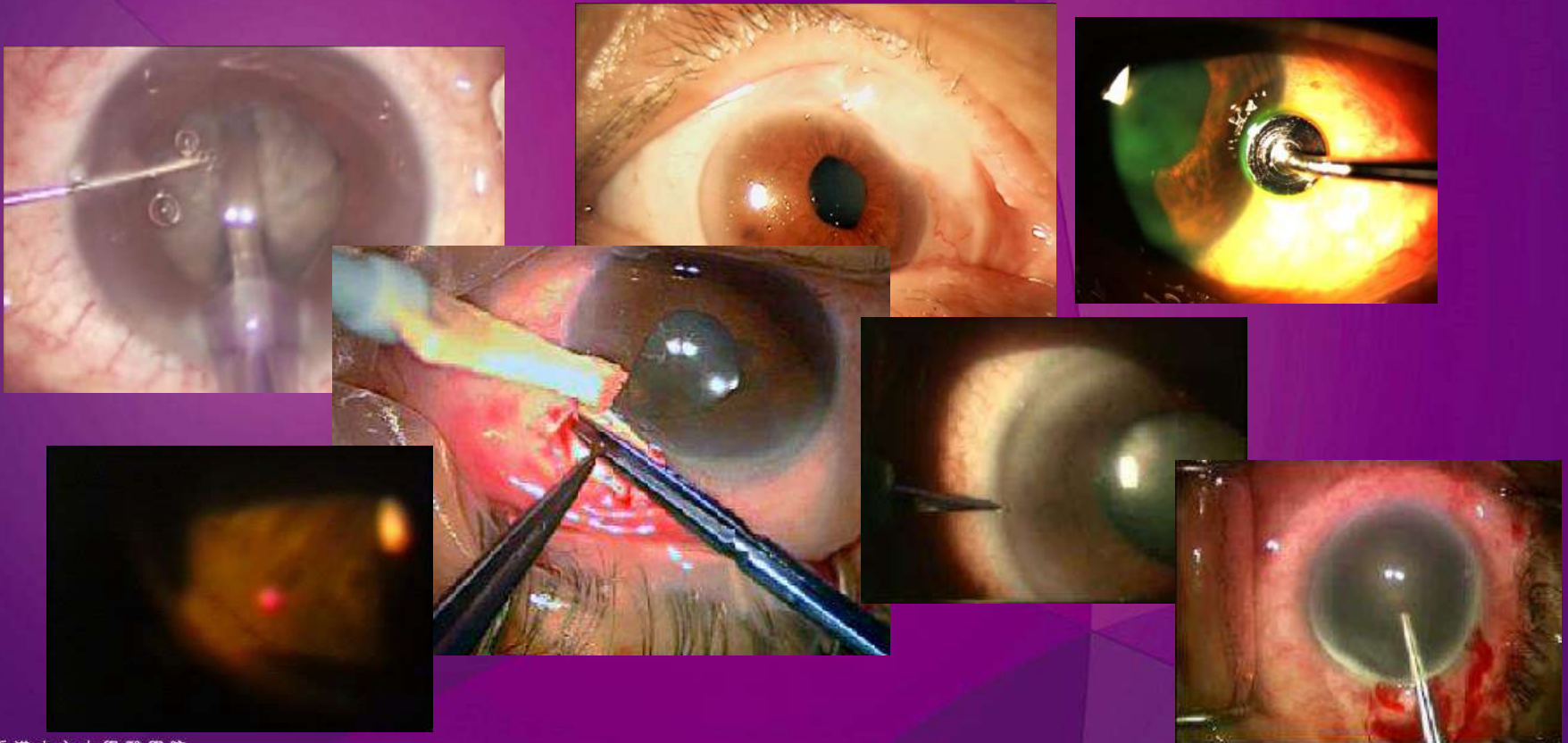
- Advances in Glaucoma
- Advances in Pediatric Ophthalmology



Synopsis

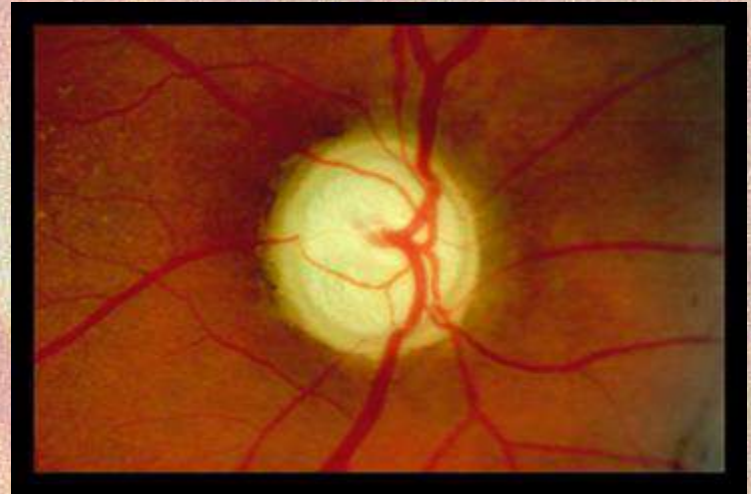


- **Advances in Glaucoma**
- **Advances in Pediatric Ophthalmology**



甚麼是青光眼？

- 青光眼是因視神經逐漸萎縮而成的一種眼病。
- 早期青光眼只導致周邊視力損失，而沒有可察覺之病症。
- 一般視光檢查不容易發現早期青光眼。



為什麼青光眼是可怕的疾病？

Why is glaucoma an important disease?

- 全球超過六千萬人患青光眼
- 當中一千五百萬是中國人
- 四十歲以上人仕，每三十八人就有一個患青光眼
- 60 million people have glaucoma worldwide
- 15 million of these are Chinese
- For those aged 40 years & above, 1 in 38 has glaucoma



為什麼青光眼是可怕的疾病？

Why is glaucoma an important disease?

香港永久失明之主要成因：

1. 青光眼 (23.06%)
2. 黃斑病變(深近視型) (17.79%)
3. 其他黃斑病變 (13.78%)

Causes of permanent blindness in HK:

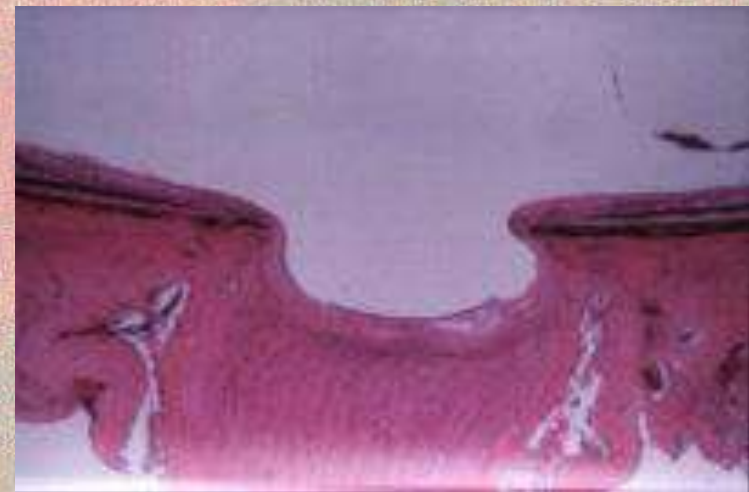
1. Glaucoma (23.06%)
2. Macular degeneration (myopia-related) (17.79%)
3. Other macular degenerations (13.78%)



為何認識青光眼這麼重要？

Why is awareness of glaucoma important?

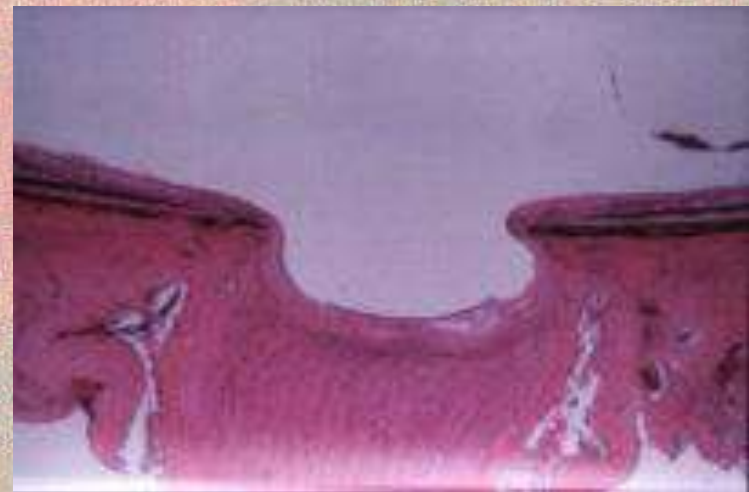
- 早期慢性青光眼只導致周邊視力損失，而沒有可察覺之病症。
- 一般視光檢查不容易發現早期慢性青光眼。
- Early chronic glaucoma usually results in only peripheral visual loss, which may NOT be noticeable by the patient.
- Routine visual acuity testing may not reveal early chronic disease.



為何認識青光眼這麼重要？

Why is awareness of glaucoma important?

- 青光眼若得不到及早治療，最終可引致不能逆轉的完全失明。
- 因此高危一族定期請眼科醫生驗眼相當重要。
- Without prompt therapy, glaucoma may result in **complete & irreversible blindness**.
- For people with risk factors, regular screening by ophthalmologists is critical.



青光眼的危機因素

Strong Risk Factors for Glaucoma

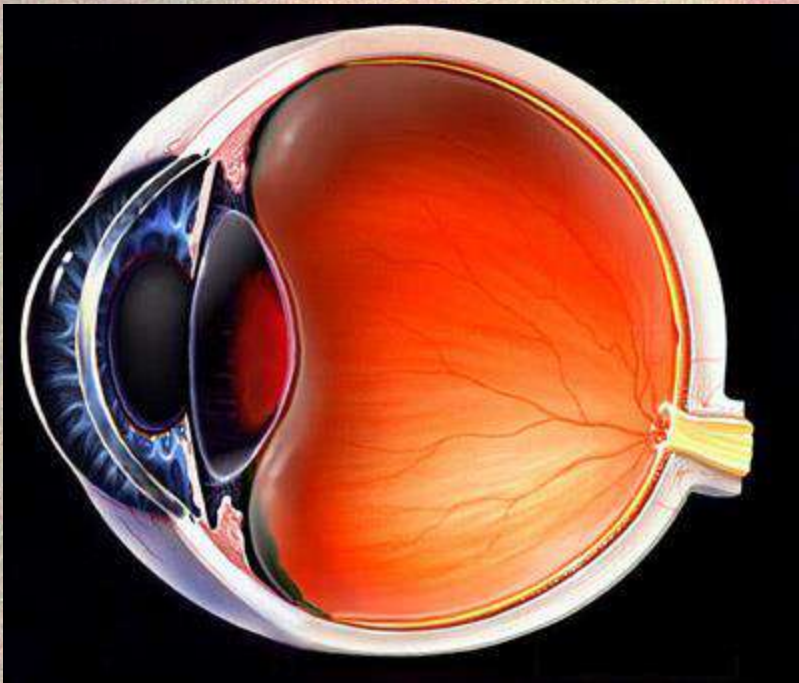
- 視神經異常 Optic nerve head alteration
- 眼內壓過高 Raised IOP
- 年齡 Age

青光眼的危機因素

Moderate Risk Factors for Glaucoma

- 家族成員患青光眼史 Family history of glaucoma
- 糖尿病 Diabetes mellitus
- 高血壓 Hypertension
- 深度近視/ 遠視 Short-sightedness / Long-sightedness
- 眼外傷 Trauma
- 偏頭痛 Migraine
- 曾經及目前正服用類固醇的人士 Use of steroid

眼內壓 IntraOcular Pressure (IOP)



- 眼內流體壓力
- 保持眼球結構的重要因素
- 簡稱「眼壓」

- Fluid pressure within the eye
- Important factor in maintaining structure of eyeball
- Abbreviated as 'IOP'

傳統的青光眼概念

The Traditional Concept of Glaucoma

- ‘青光眼 = 高眼壓所引致的視神經逐漸萎縮’
- ‘高眼壓就是青光眼的成因’
- ‘Glaucoma = High IOP causing progressive optic nerve degeneration’
- ‘High IOP is cause of glaucoma’



為何傳統之概念不完全正確?

Why is the traditional glaucoma concept not entirely correct?

- 高眼壓症 (OHT)
 - 正常眼壓性青光眼 (NTG)
 - 除眼壓之外很可能有其他因素引致青光眼
 - 這些因素暫未被確定
-
- Ocular hypertension (OHT)
 - Normal tension glaucoma (NTG)
 - Factors other than IOP may lead to glaucoma
 - These other factors are yet to be identified and confirmed

最新的青光眼與眼內壓概念

The Latest Concept of Glaucoma & IOP

- 多種不同危機因素 導致了青光眼
- 高眼壓只是其中一項重要之危機因素
- Different risk factors may lead to glaucoma
- High IOP is only one of the risk factors leading to glaucoma



最新的青光眼與眼內壓概念

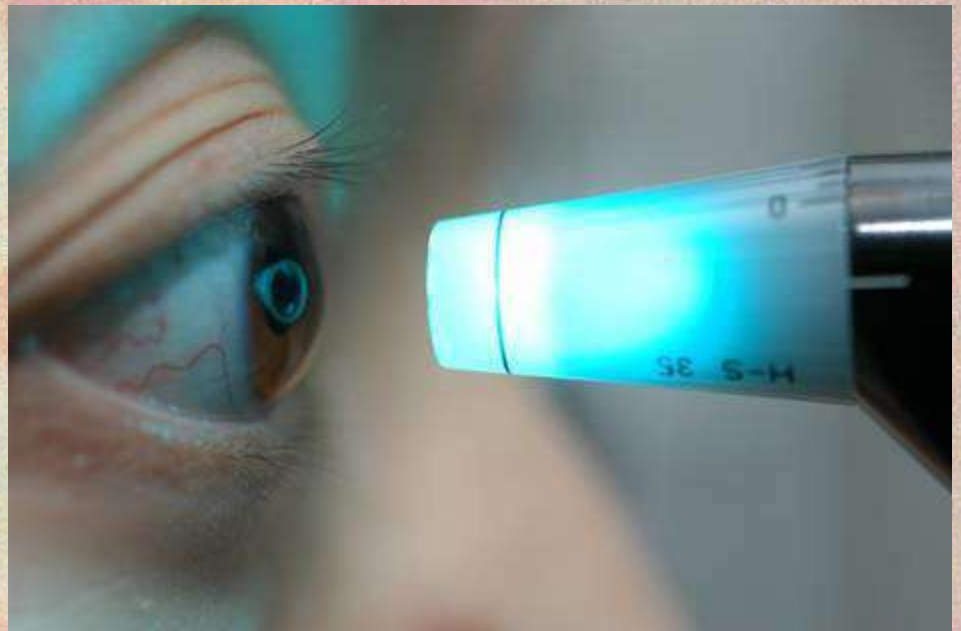
The Latest Concept of Glaucoma & IOP

- 高眼壓已非診斷青光眼之必要條件
- 因此單憑眼壓量度並不能夠排除青光眼
- High IOP is no longer an essential diagnostic criterion for glaucoma
 - *American Academy of Ophthalmology (AAO) Preferred Practice Pattern: Definition of POAG 2005*
- IOP by itself does not allow the diagnosis or exclusion of glaucoma

眼壓(IOP) 之測量



眼壓(IOP) 之測量



Home / Diurnal Measurement of IOP - Rebound Tonometer



Home / Diurnal Measurement of IOP - Rebound Tonometer



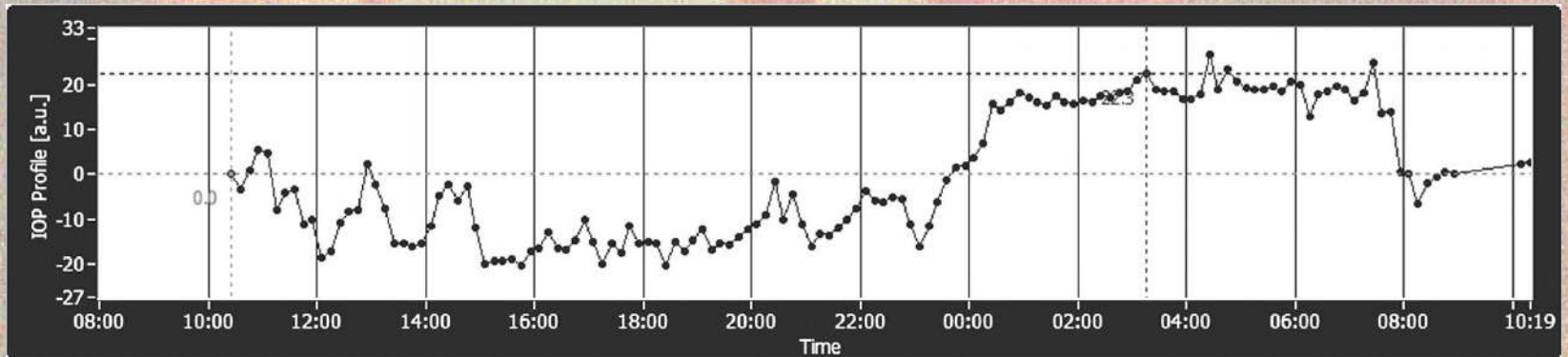
24-Hour Continuous IOP Measurement Sensimed Triggerfish



24-Hour Continuous IOP Measurement Sensimed Triggerfish



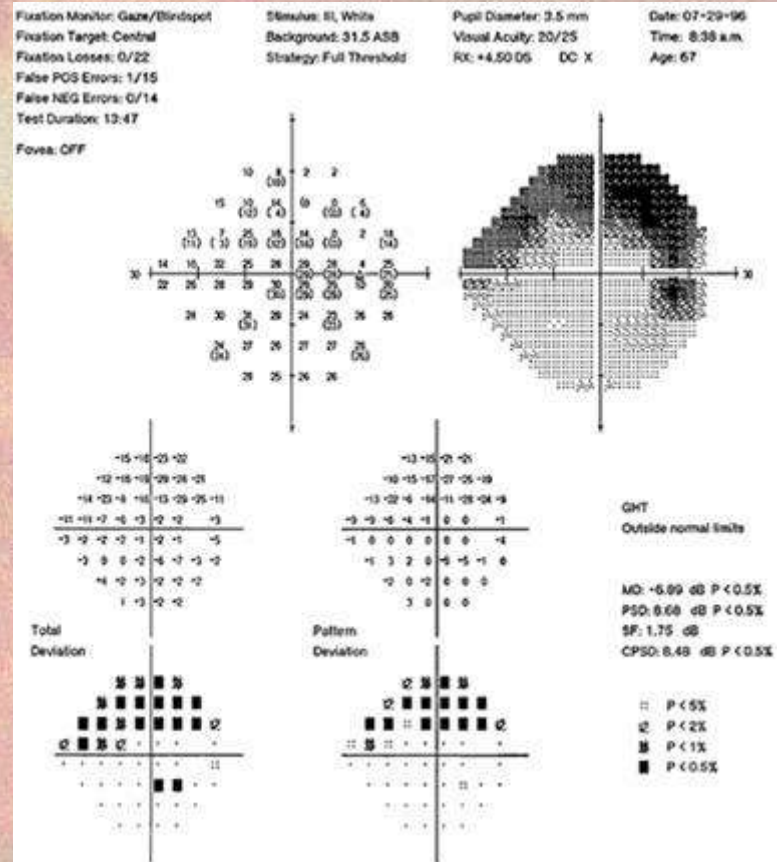
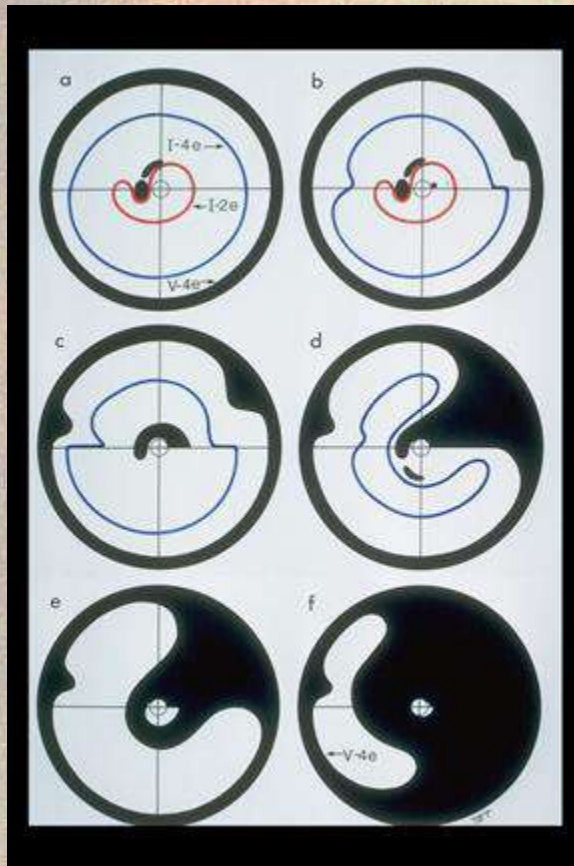
24-Hour Continuous IOP Measurement Sensimed Triggerfish



自動視野檢查



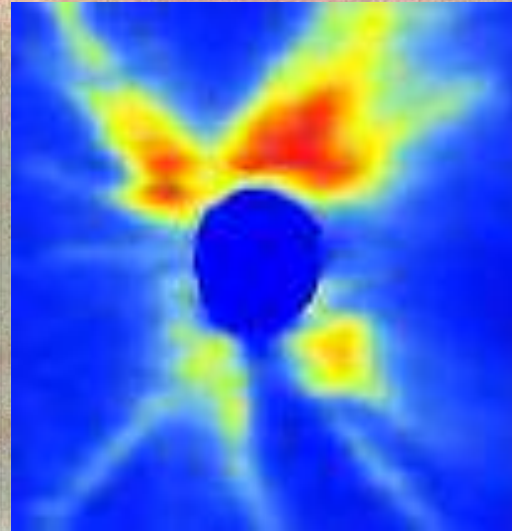
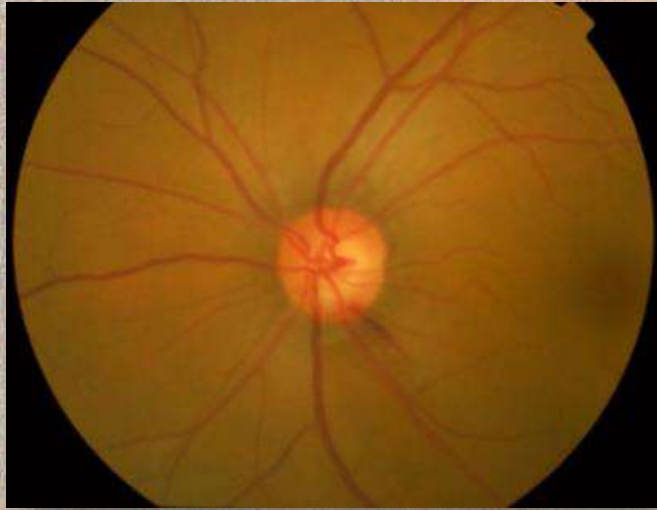
自動視野檢查



頻域光學相幹斷層掃描儀 (OCT)

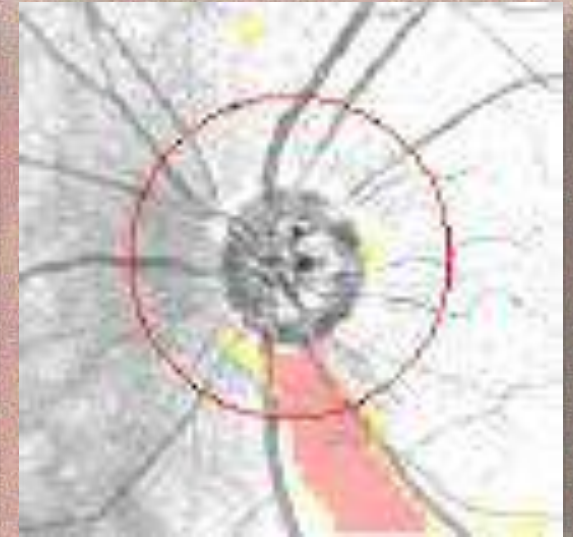


眼視網膜神經層
厚度地形圖
RNFL thickness map



紅色和黃色表示此處的視網膜神經比較厚，藍色表示此處神經層比較薄。

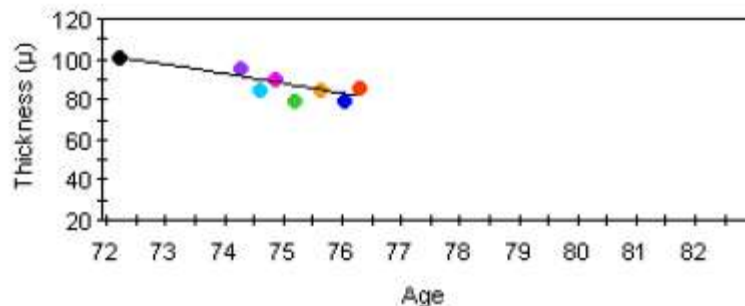
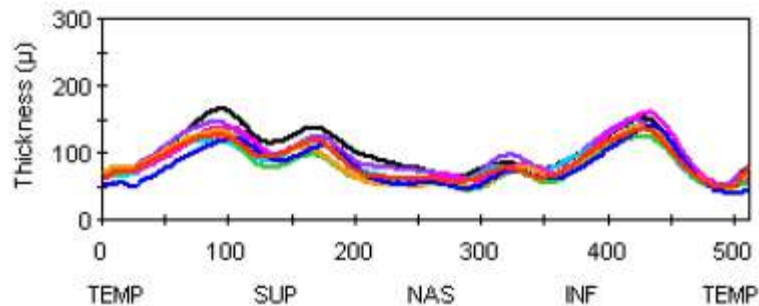
視網膜神經層厚度偏差圖
RNFL thickness deviation map



紅色的條帶表示這個位置的視神經缺損。

青光眼監察 - 神經纖維層改變圖

Monitoring of glaucoma progression: reduction of RNFL thickness

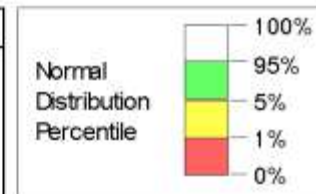


OS	SS,Q	AVG	SUP	INF
4/19/2004 3:58:58 PM (N=3)	8 F	101.85	136.00	110.00
5/4/2006 10:15:09 AM (N=3)	7 F	96.63	121.00	111.00
9/1/2006 10:44:30 AM (N=3)	7 F	85.95	106.00	102.00
12/29/2006 11:34:14 AM (N=3)	8 F	90.83	113.00	109.00
4/27/2007 12:00:31 PM (N=3)	7 F	80.66	101.00	91.00
9/18/2007 11:37:05 AM (N=3)	8 F	85.70	109.00	100.00
1/15/2008 11:59:43 AM (N=3)	8 F	80.22	105.00	94.00
5/30/2008 11:07:02 AM (N=3)	10 F	87.15	110.00	98.00

Rate of change: $-4.848 \pm 3.276 \mu/\text{year}^*$
 Statistically significant $P < 5\%$, seek clinical correlates

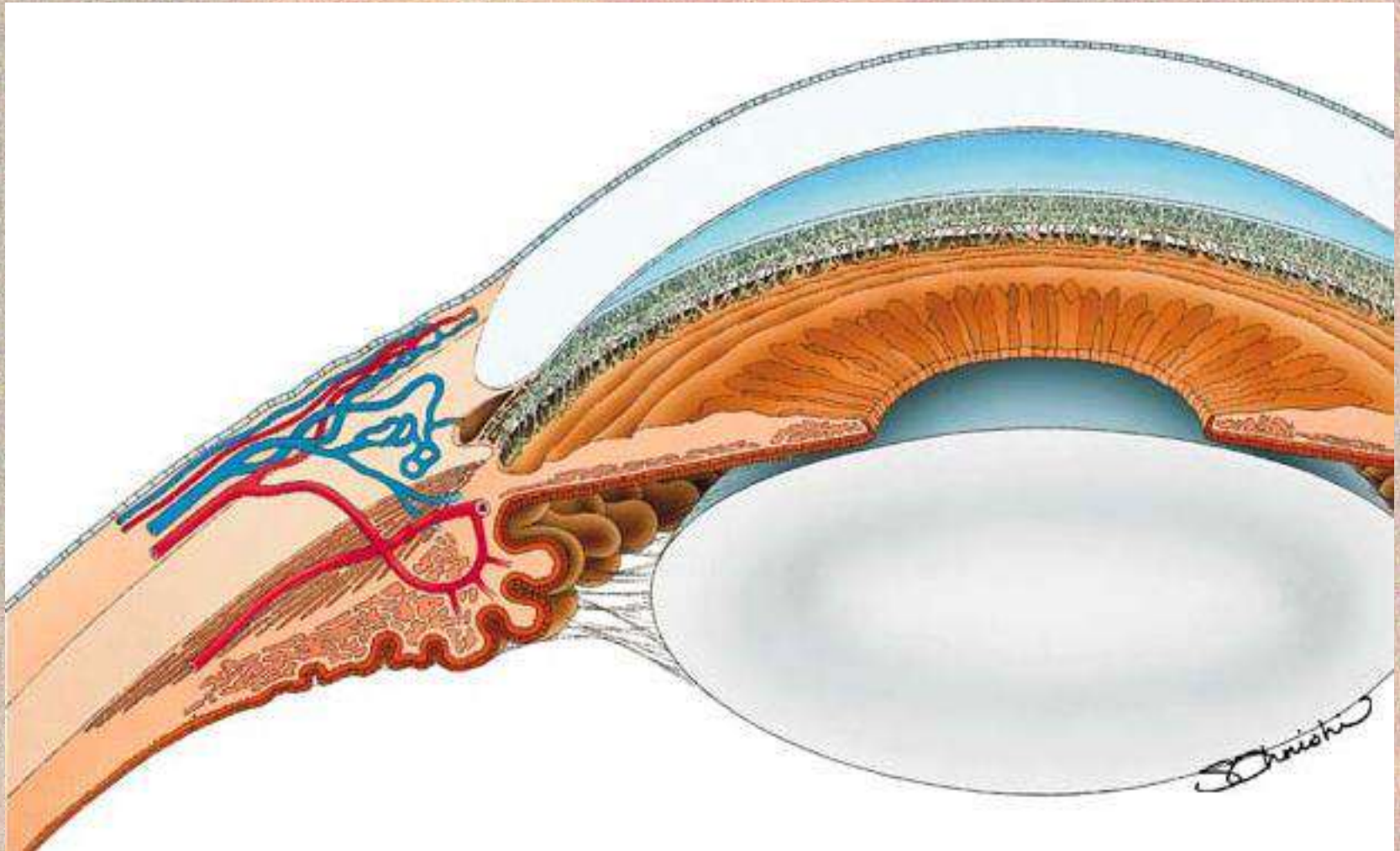
* 95% confidence Interval

QC
A - Scan too low
B - Scan too high
C - Low confidence in analysis
D - Missing data
E - Edited Layer
F - No Normative Data



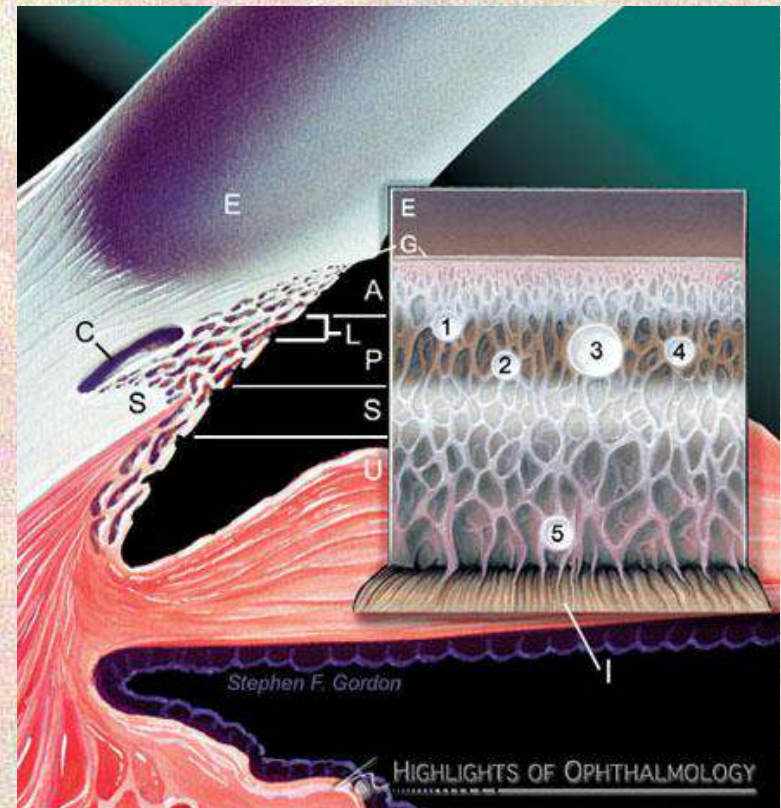
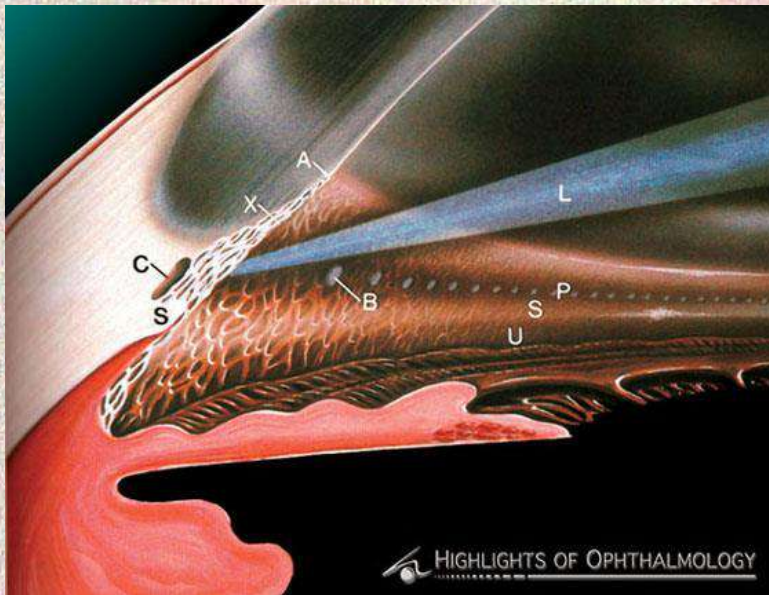
激光小樑成形術

Argon / Selective / Pattern Laser Trabeculoplasty
(ALT / SLT / PLT)



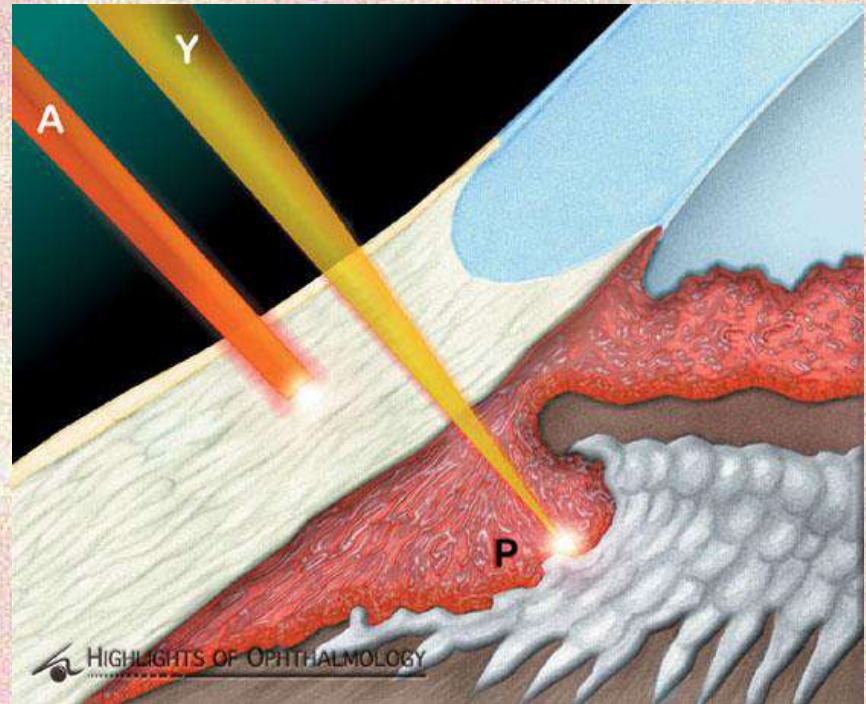
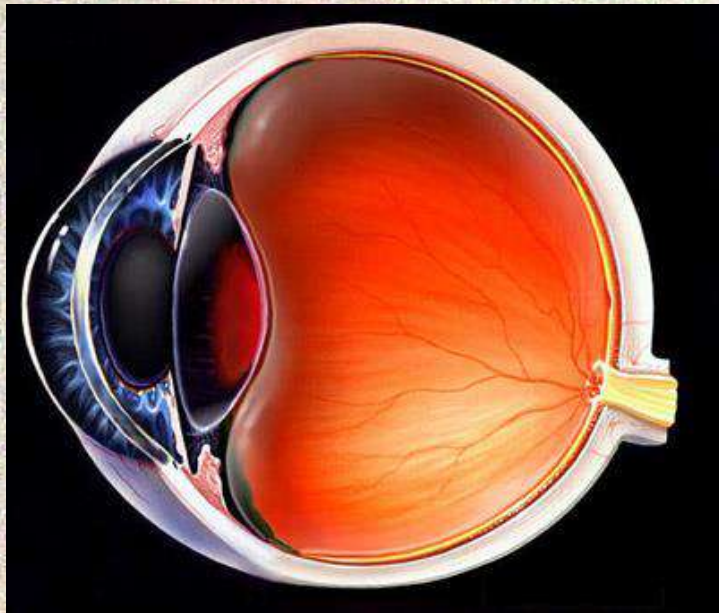
激光小樑成形術

Argon / Selective / Pattern Laser Trabeculoplasty
(ALT / SLT / PLT)

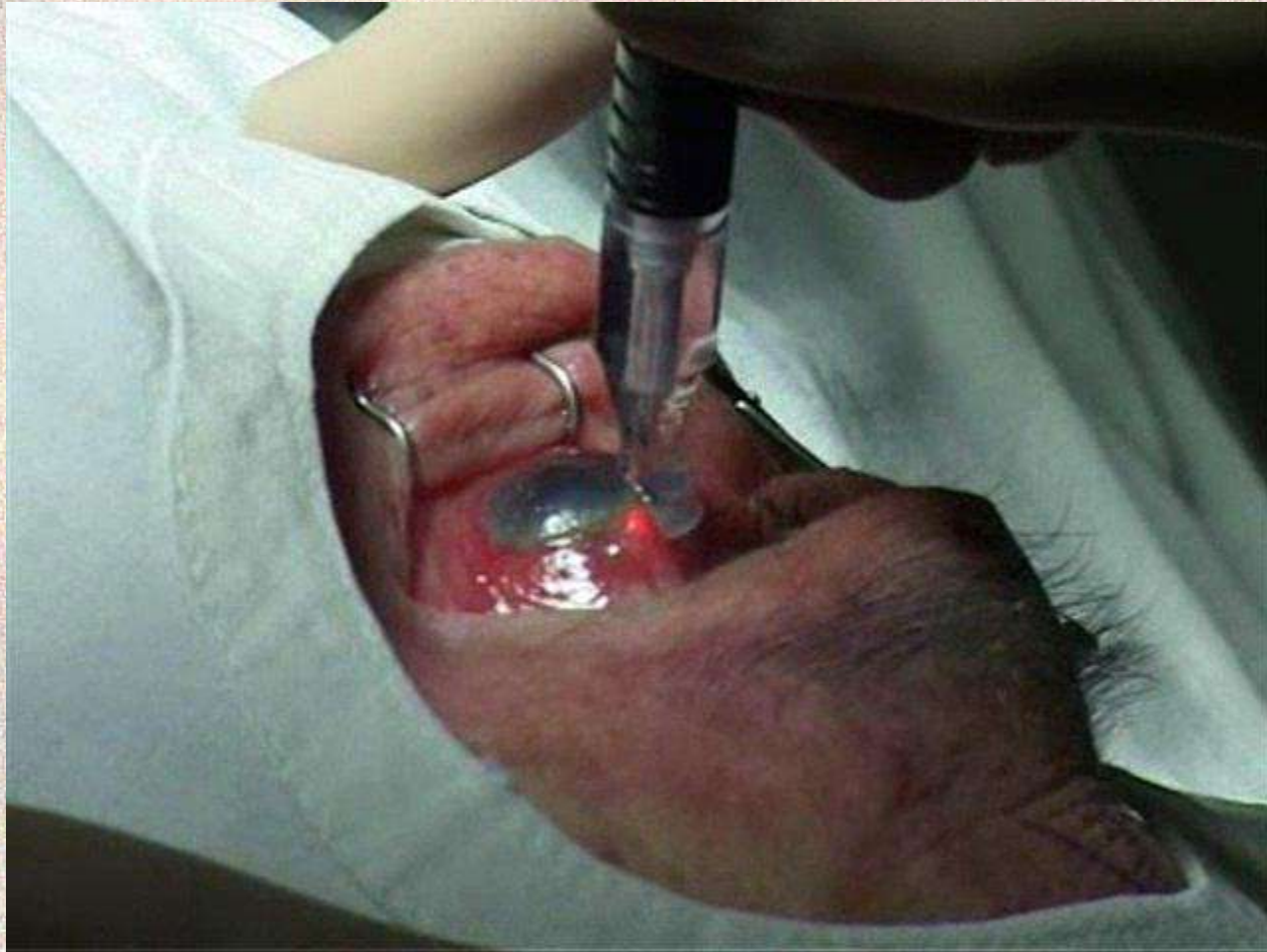


半導體激光經鞏膜外睫狀體光凝術

Diode Laser TranScleral Cyclophotocoagulation (DLTSC)

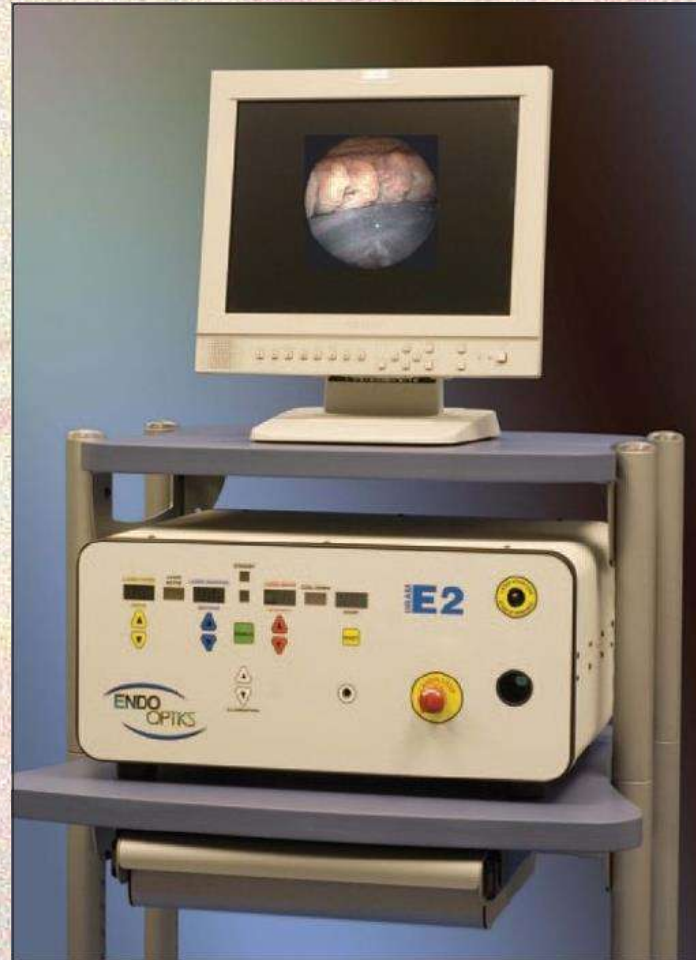


半導體激光經鞏膜外睫狀體光凝術 Diode Laser TranScleral Cyclophotocoagulation (DLTSC)



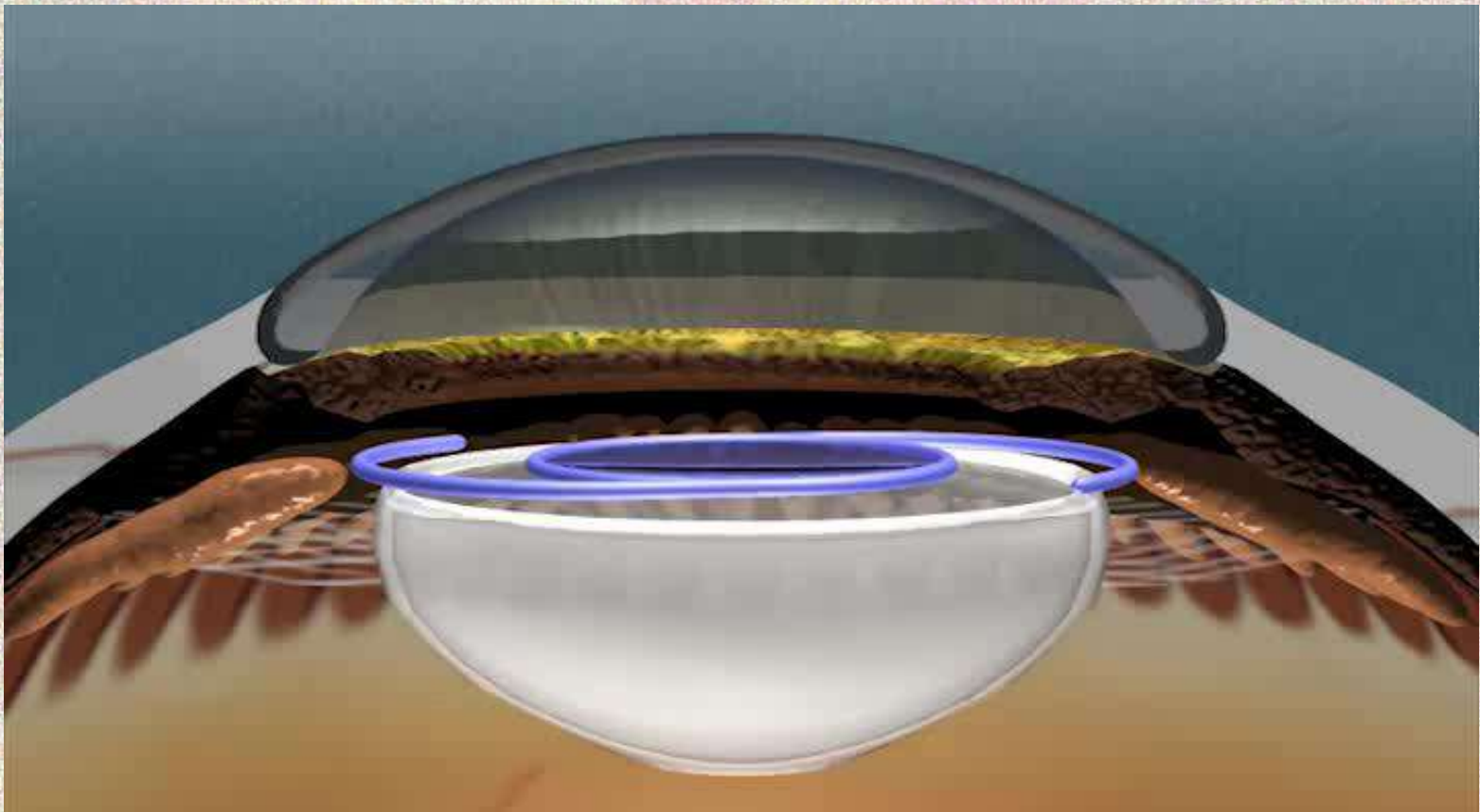
內窺鏡激光睫狀體光凝術

Endoscopic CycloPhotocoagulation



內窺鏡激光睫狀體光凝術

Endoscopic Cyclophotocoagulation



內窺鏡激光睫狀體光凝術

Endoscopic Cyclophotocoagulation



青光眼 - 手術治療

小樑切除手術 Trabeculectomy

青光眼引流閥植入手術 Glaucoma Drainage Device
(GDD)

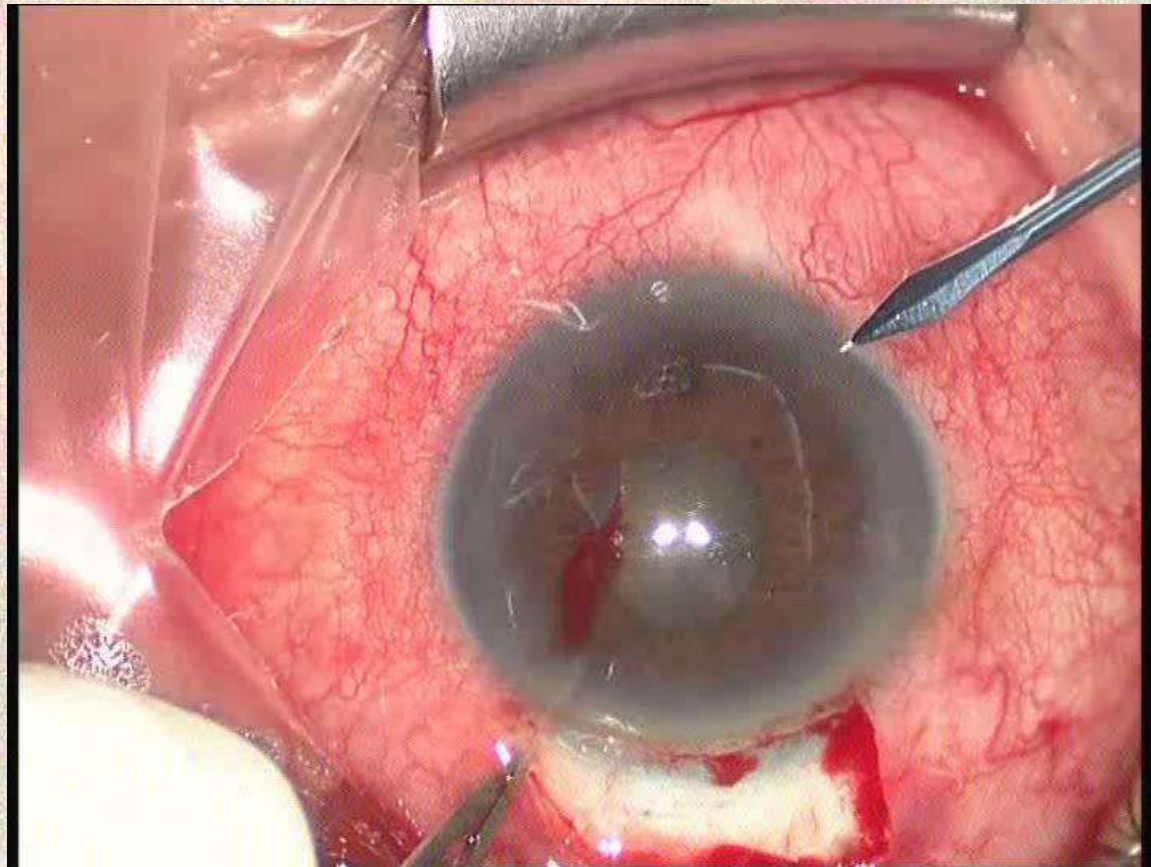
針刺手術 Needling Revision of Trabeculectomy

以上可合併白內障摘除 Combination of the above with cataract extraction

睫狀體冷凍手術

Cyclocryotherapy

激光輔助 非穿透性 小樑手術 Laser-Assisted Non-Penetrating Trabecular Surgery (LANPTS)

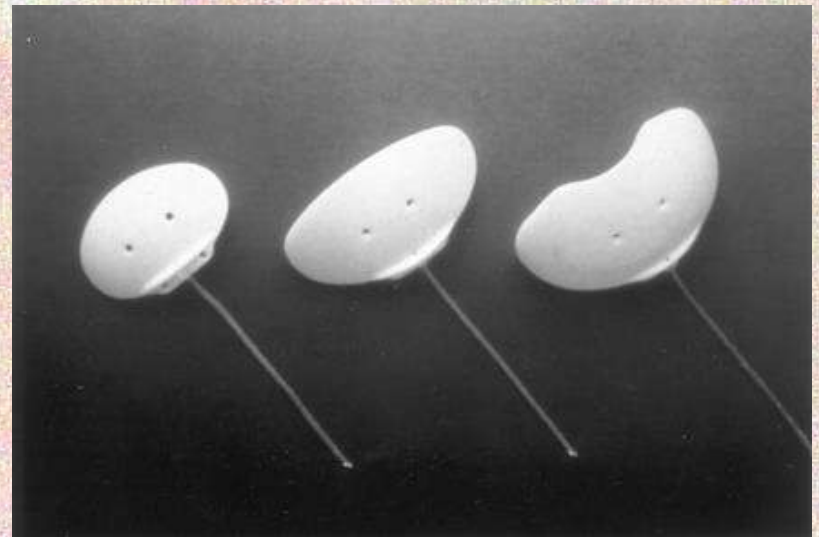
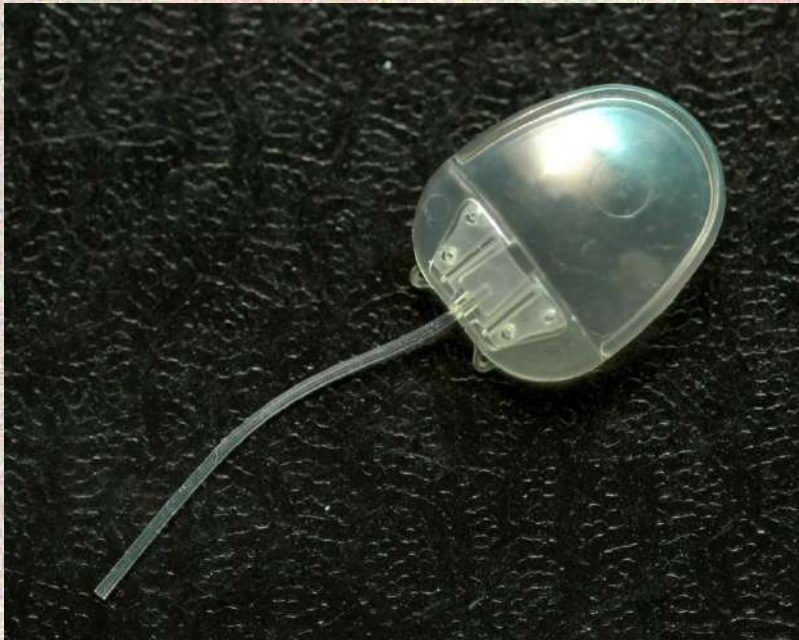


激光輔助 非穿透性 小樑手術 Laser-Assisted Non-Penetrating Trabecular Surgery (LANPTS)



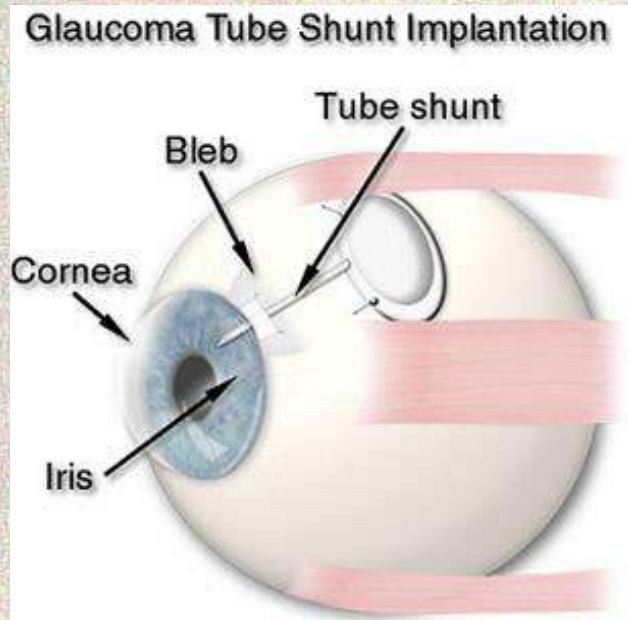
青光眼引流閥植入手術

Glaucoma Drainage Device (GDD)



青光眼引流閥植入手術

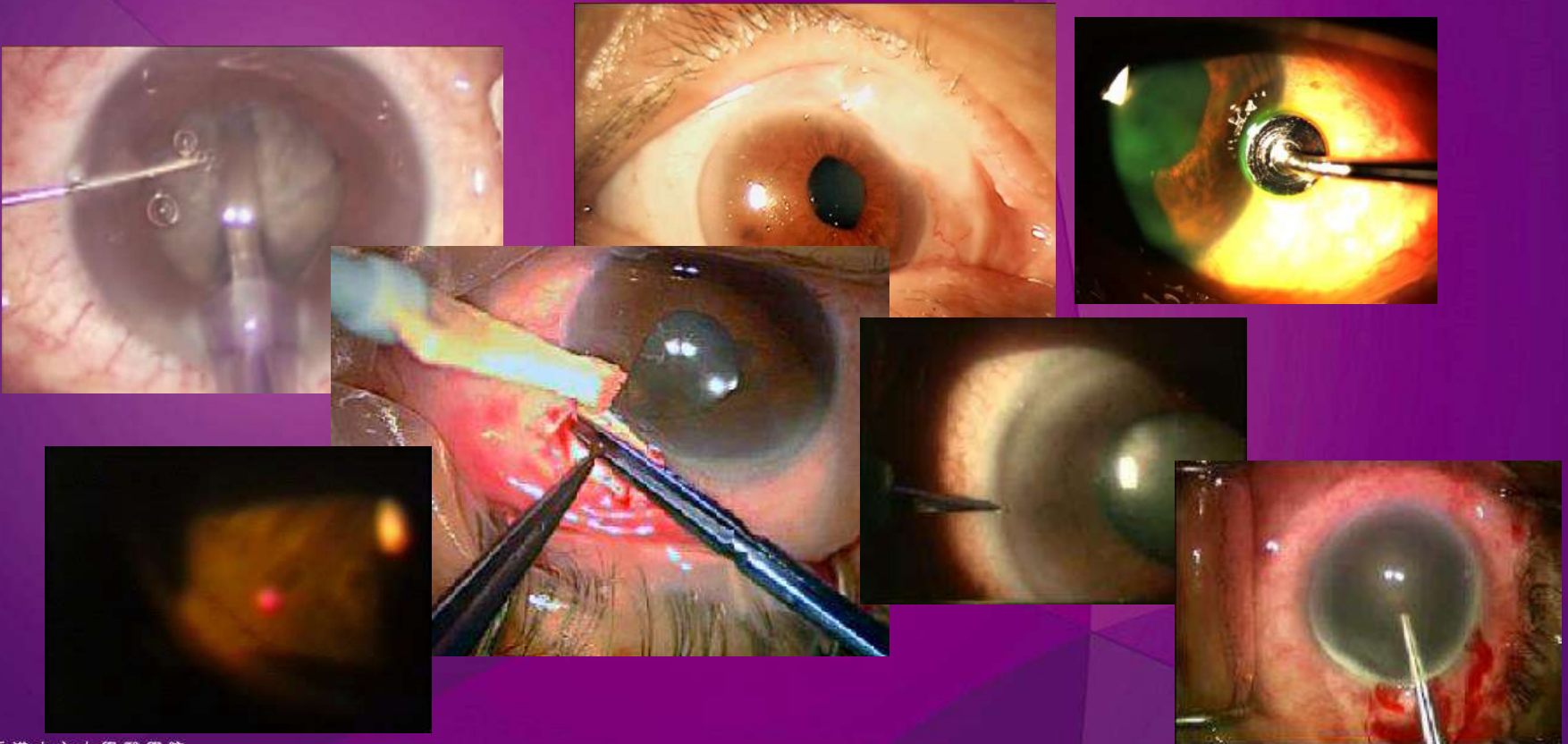
Glaucoma Drainage Device (GDD)



Synopsis



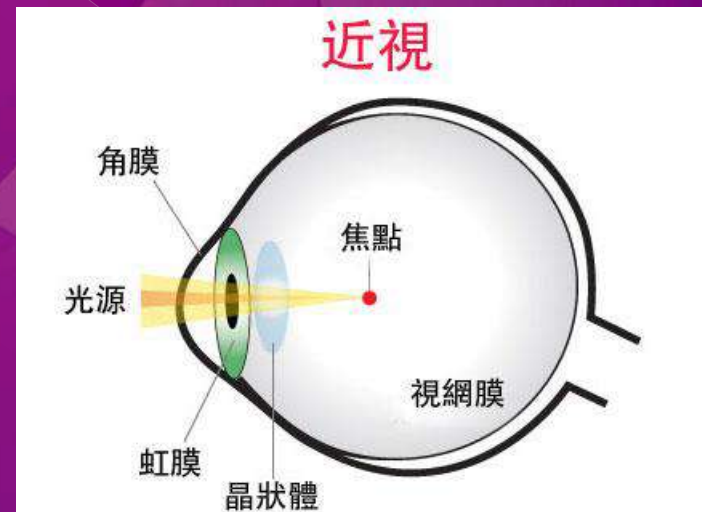
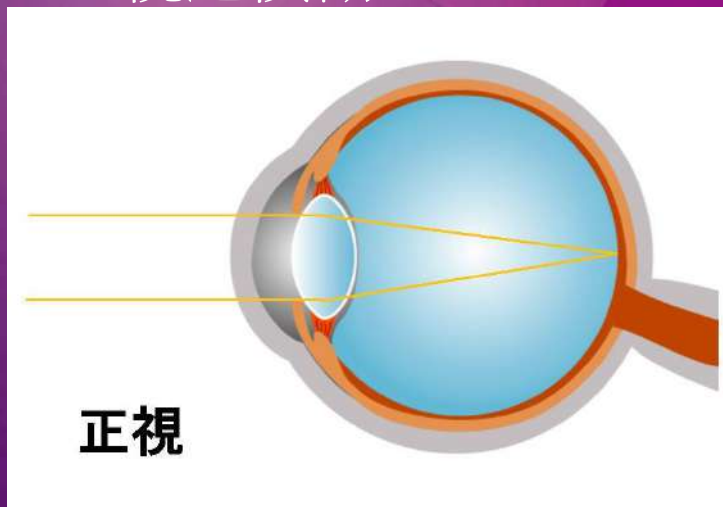
- Advances in Glaucoma
- Advances in Pediatric Ophthalmology



什麼是近視 (Myopia)?



- 近視是屈光不正的一種
- 近視眼看遠時：
 - 平行光線通過眼睛的角膜和晶體後，彙聚在視網膜之前，不能在視網膜上形成清晰的成像，導致視遠模糊



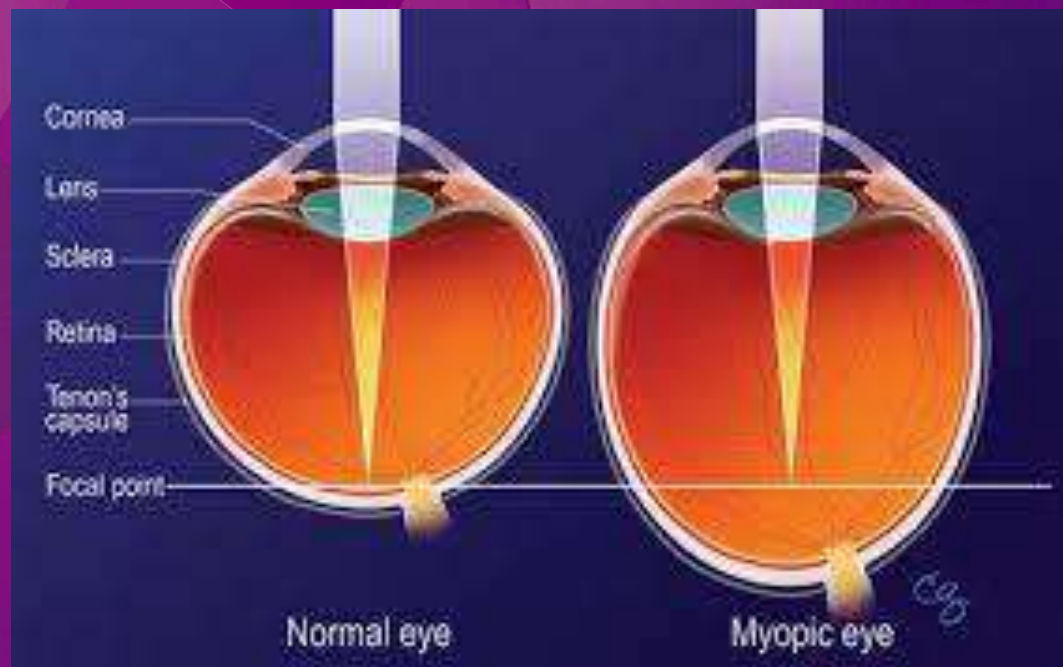
近視的病徵



1. 遠視力模糊
2. 近視力清楚
3. 眯眼
4. 偶發性頭痛

近視的發病機制

- ◎ 眼球延長
- ◎ 屈光力的改變 (角膜和晶體)

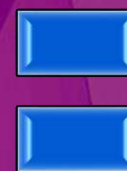


為什麼會有近視?

環境因素



遺傳因素



近視

深近視患者具有潛在失明風險



- 視網膜脫落
- 青光眼
- 白內障
- 脈絡膜、視網膜色素上皮細胞及鞏膜退化轉變



如何預防近視加深?

戶外活動



阻止近視加深：阿托品眼藥水



- ◎ 阿托品眼藥水 (Atropine)
- ◎ 迄今為止最古老的和最有效的藥物治療抑制近視的發展。
 - > 鬆弛睫狀體
 - > 用於散瞳檢查
 - > 減慢近視加深
- ◎ 可能的機制包括：
 1. 抑制眼球調節
 2. 重塑鞏膜, 防止拉長
 3. 瞳孔放大導致紫外線接觸增加

1% 阿托品滴眼液的副作用

◎ 瞳孔散大 → 畏光
眩光



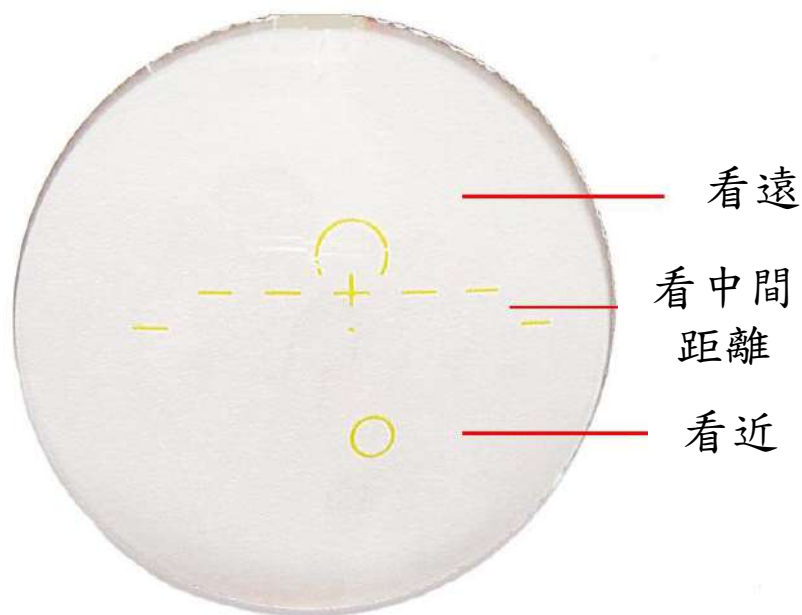
◎ 喪失調節能力 → 看近模糊

Henry looked to the right. He looked to the left. He looked up and he looked down. Where had Frog gone? Henry did not like being alone in the forest. "Frog, where are you?" Henry called. "Please come back!"

將1%阿托品滴眼液用於臨床不切實際

光致變色漸進眼鏡降低副作用

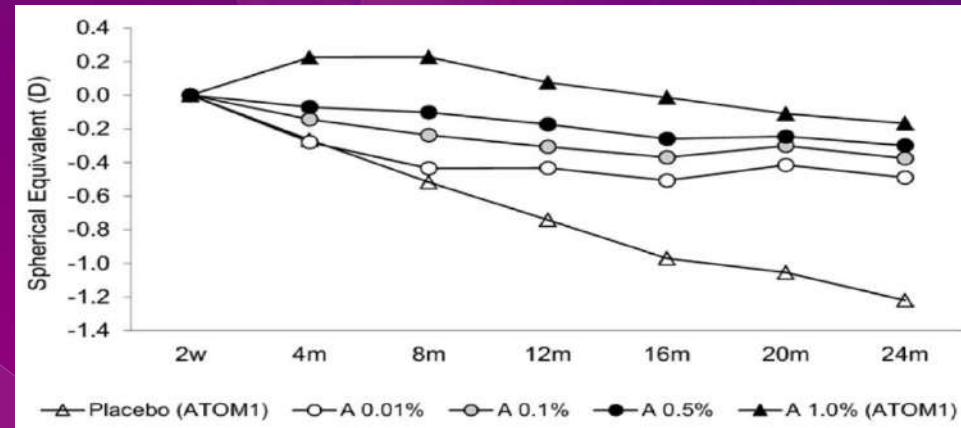
- 不需要調節即可看近
- 防止紫外線對眼的傷害
- 防止畏光，眩光等症狀



低劑量阿托品眼藥水控制近視加深



- ◎ 0.5%, 0.1% , 0.01 %
- ◎ 高治療效果
 - 近視的進展降低了60% -75 %
- ◎ 最低副作用
 - 不需要光致變色漸進眼鏡



	0.5%阿托品	0.1%阿托品	0.01% 阿托品	對照組
兩年近視加深度數	-0.30 +/-0.60	-0.38 +/- 0.60	-0.49± 0.63	-1.2± 0.69

Chia A et al., Atropine for the treatment of childhood myopia: safety and efficacy of 0.5%, 0.1%, and 0.01% doses (Atropine for the Treatment of Myopia2). Ophthalmology. 2012 Feb;119(2):347-54

不同劑量阿托品眼藥水的副作用



	0.01%	0.1%	0.5%
治療前瞳孔大小	4.7mm	4.6mm	4.7mm
治療后瞳孔大小	5.8mm	7.4mm	7.9mm
治療前的調節能力	16.2D	16.7D	15.8D
治療后的調節能力	11.3D	3.3D	2.8D



高劑量阿托品

低劑量阿托品

	需要光致變色漸變鏡的比例
阿托品 0.5%	70%
阿托品 0.1%	61%
阿托品 0.01%	6%

劑量越低，副作用相對越小

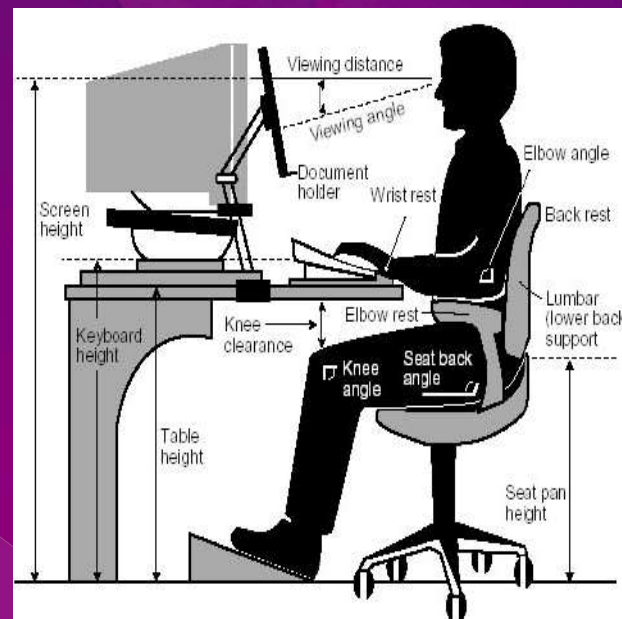
與使用數碼裝置相關 的常見眼睛問題

不良習慣可導致與使用數碼裝置有關的眼睛問題

- ◎ 長時間 (>1 小時) 使用數碼裝置，不休息
- ◎ 使用數碼裝置時用手擽眼睛
- ◎ 數碼裝置距眼睛距離太近 (<16 英寸或 <40 厘米)
- ◎ 不眨眼

電腦視力綜合征 (Computer Vision Syndrome)

- ◎ 眼乾
- ◎ 眼痛、眼疲勞
- ◎ 模糊
- ◎ 複視
- ◎ 頭痛



螢幕前面的時間和近視

- ◎ 記得一個良好的閱讀習慣
 - > 不太長 < 30 minutes
 - > 不太近 30 - 50cm
 - > 不太暗 避免在一個黑暗的環境
- ◎ 研究表明更多近的工作將會增加患近視的風險
- ◎ 花越多的時間在電子顯示裝置將在近視發展有負面影響

Electronic screen device viewing distance

電子螢幕顯觀看距離



30 cm



40 cm



50 cm

電子螢幕設備觀看時間

- ◎ < 2 年的年齡 0 小時
- ◎ 幼稚園 總數不超過 2 小時
- ◎ 小學生 工作的螢幕時間 + 不超過 2 小時
 玩的螢幕時間
- ◎ 中學生 避免長時間的螢幕上的時間

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POLICY STATEMENT

Media Use by Children Younger Than 2 Years

5.2 調整環境

保持窗口的光從一側進入，可使用百葉簾或防眩屏幕



使用大屏顯示器或屏幕放大鏡以減少眼睛疲勞



將頭頂的明亮照明保持在最低亮度



調整數碼屏幕設備的屏幕位置，以減少窗口和頭頂燈光的反射

加上抗眩光過濾器，以減少反射，並提高對比度

確保椅子靠近電腦、坐姿正確，以降低眼睛尋找最佳視線角度時的壓力

5.3 調整數碼屏幕設備

調整屏幕位置，確保可以在最佳的距離（約 20 英寸或 50 厘米）並稍微向下（約 5 英寸或 12-13 厘米）

優化個人屏幕亮度和對比度，讓眼睛感到最舒適



將參考材料盡量放在屏幕附近（例如，在顯示器旁邊使用資料夾），減少不斷調整眼睛的需要



5.4 調整行為



記得經常並完全地眨眼



“20-20-20 屏幕觀看規則”—每 20 分鐘離開屏幕，看 20 英尺（或 6 米）遠的物件，維持最少 20 秒



減少使用電子設備並增加戶外活動

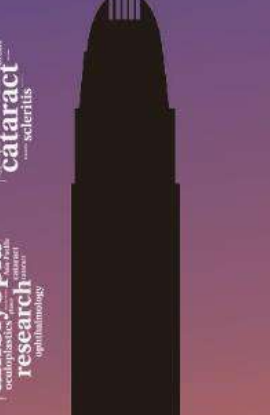


如果症狀持續，必須尋求眼科醫生的意見，以防止嚴重的眼睛問題

The 33rd Asia-Pacific Academy of
Ophthalmology Congress

held in conjunction with

The 29th Hong Kong
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FEBRUARY 8 – 11, 2018

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Thank you!



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