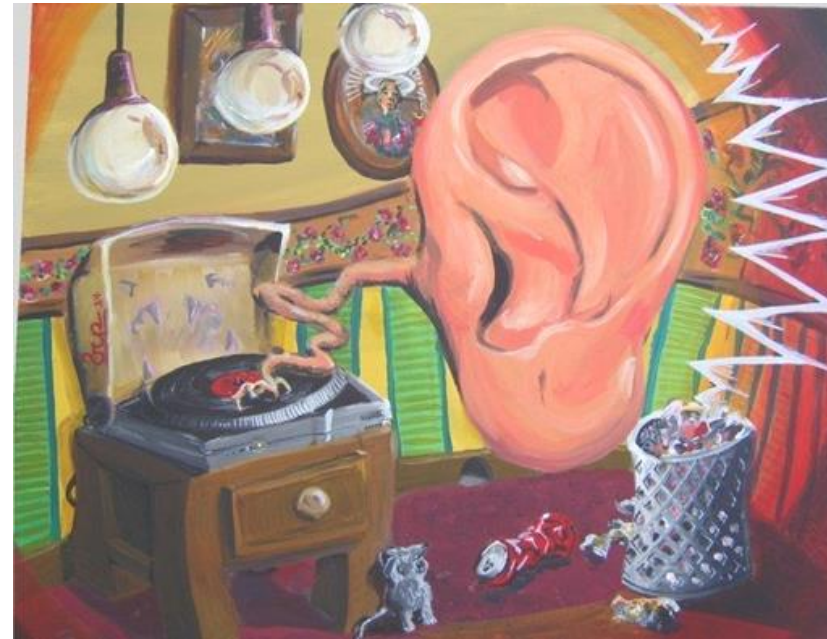
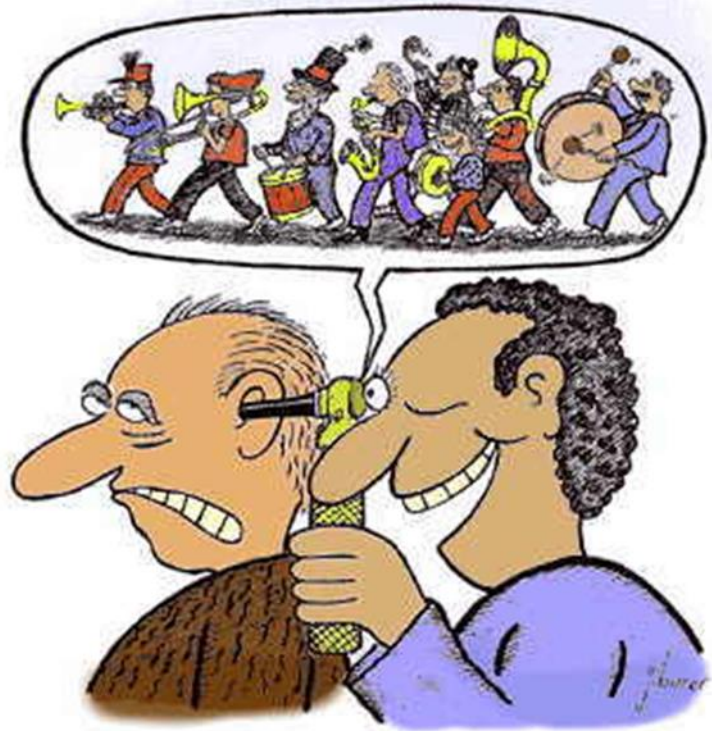


# Tinnitus and vertigo

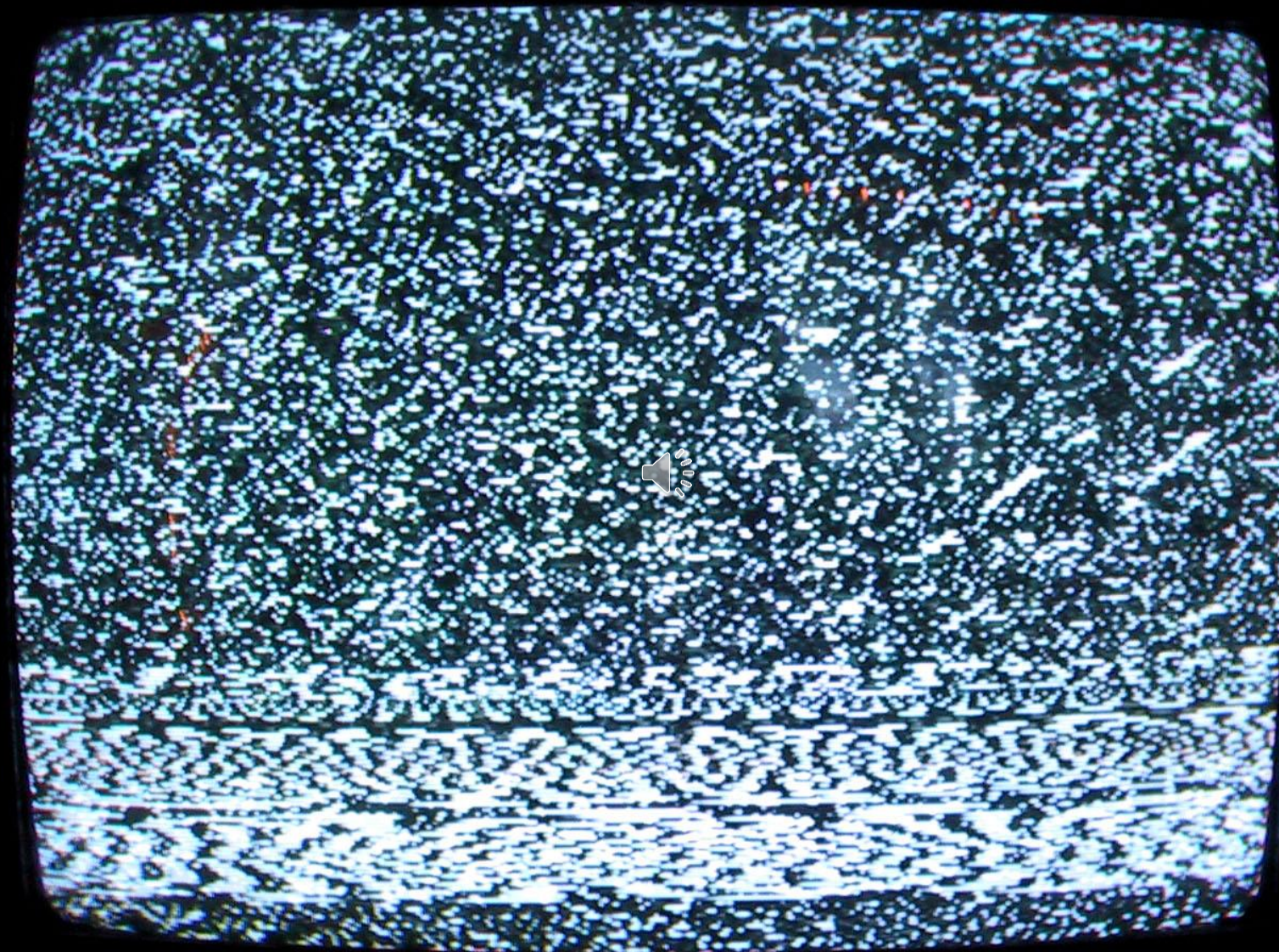
高雄長庚醫院耳鼻喉科

楊昭輝醫師

# 耳鳴









# Tinnitus

Latin “Tinnire” means “to ring”



# 耳鳴的原因

TABLE 22-2. Medical Conditions That May Be Associated with Tinnitus

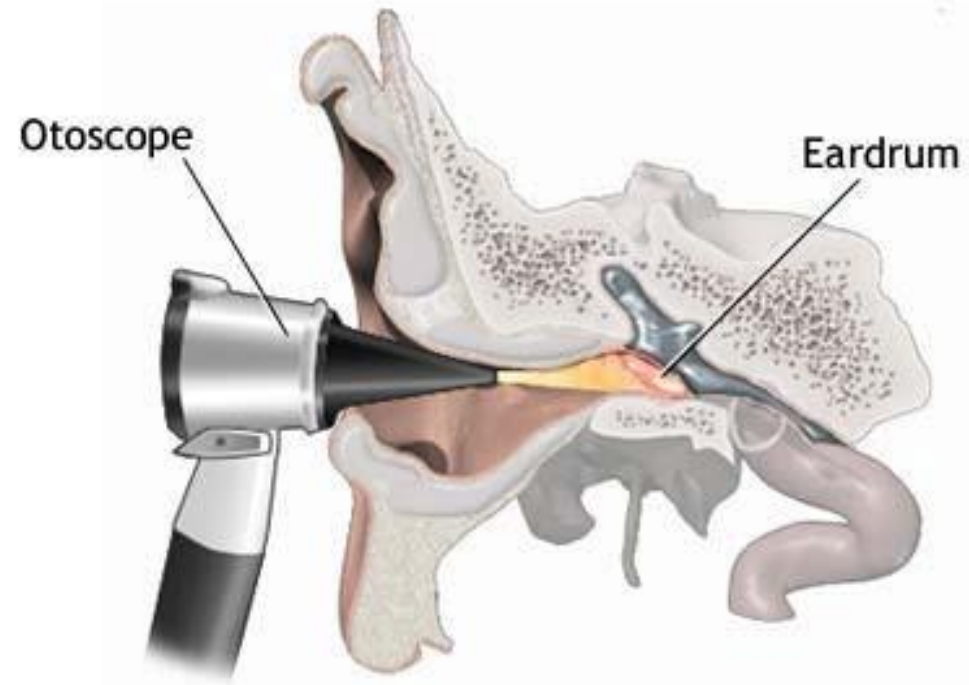
---

Conductive hearing losses
Otitis media
Cerumen impaction
Ossicular stiffness/discontinuity
Otosclerosis
Sensorineural hearing losses
Meniere's disease
Presbycusis
Cochlear otosclerosis
Vestibular schwannoma
Sudden hearing loss
Hormonal changes
Pregnancy
Menopause
Thyroid dysfunction
Some medications or withdrawal from them
Somatosounds
Produced by structures adjacent to the ear
Pulsatile
Neoplasm
Arterial
Venous
Beginning of intracranial hypertension
Great vessel bruits
Nonpulsatile
Tensor tympani myoclonus
Tensor veli palatini myoclonus
Patent eustachian tube
Produced by structures in the ear
Spontaneous otoacoustic emissions
Produced by joint abnormalities
Temporomandibular joint disorders

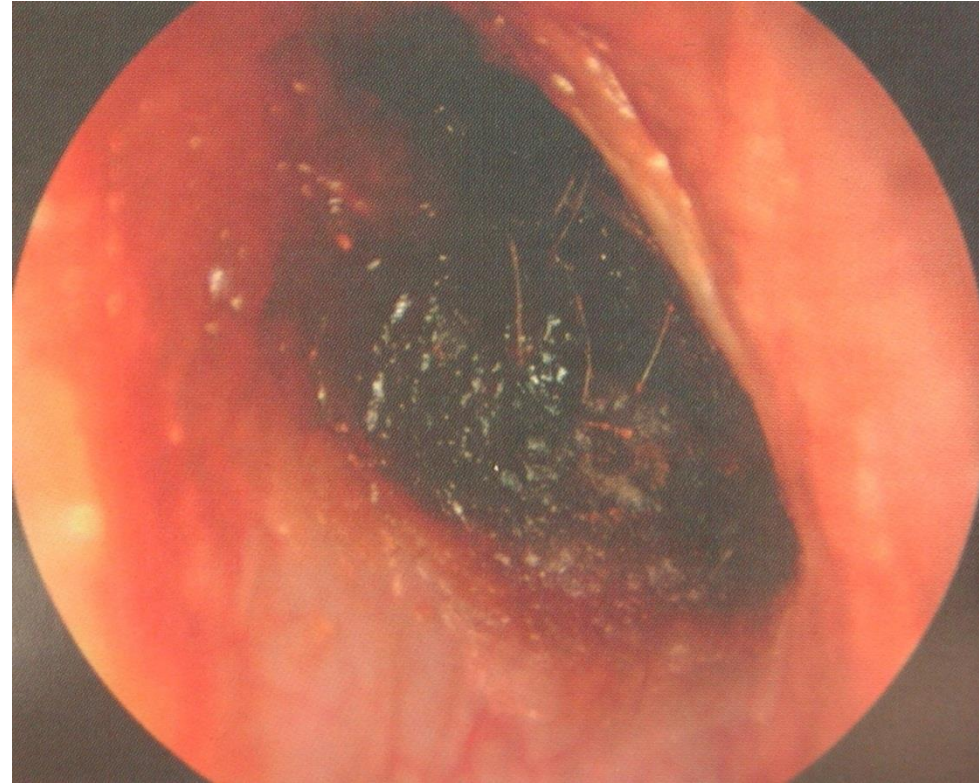
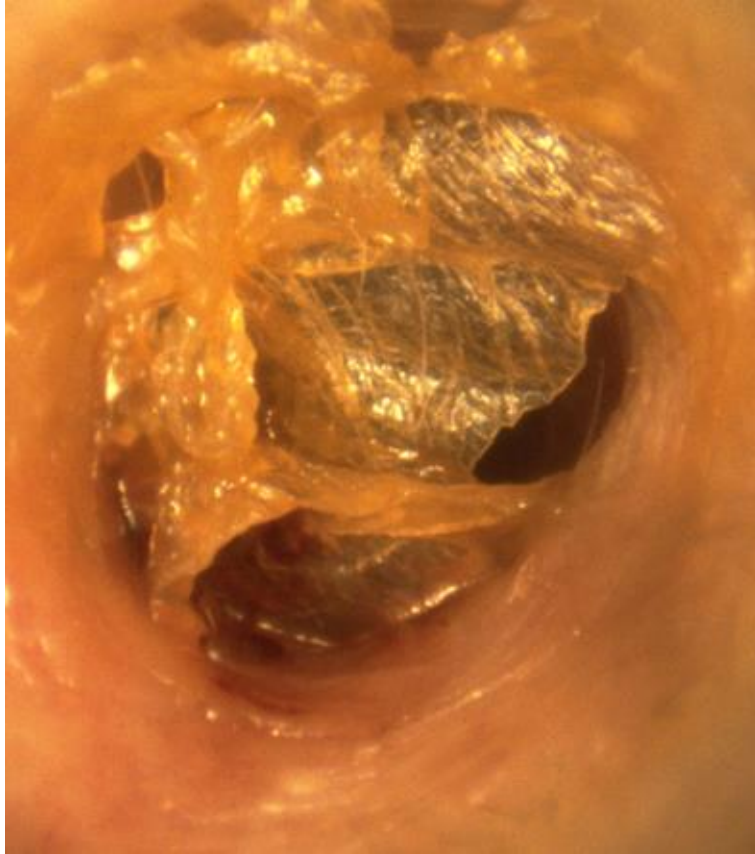
---

# 耳鼻喉科檢查工具

---



ADAM.

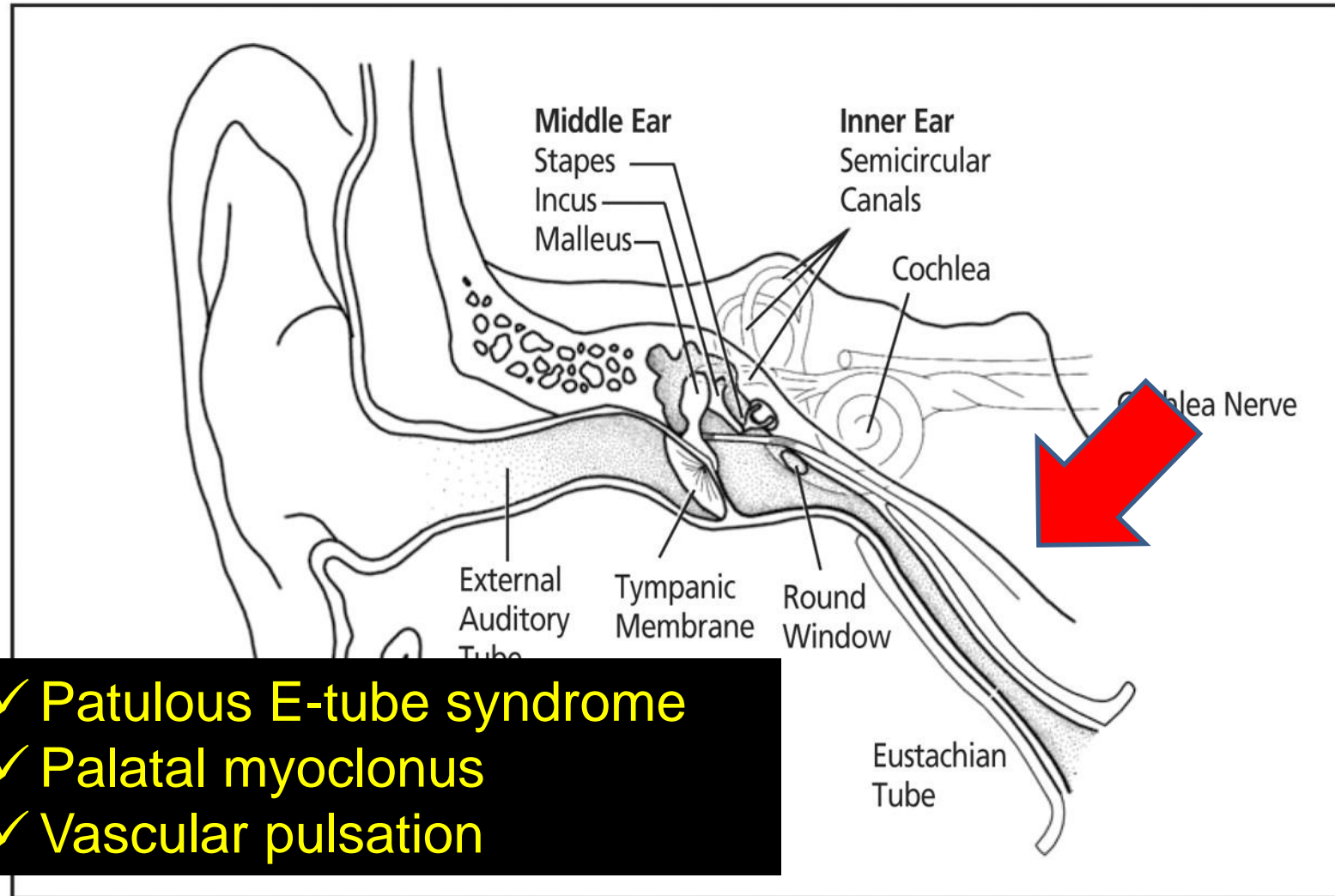




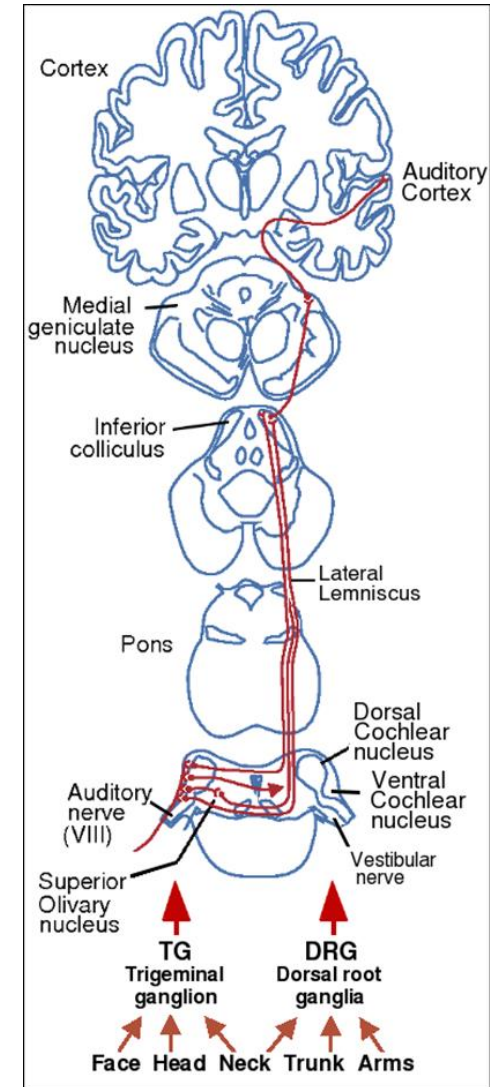
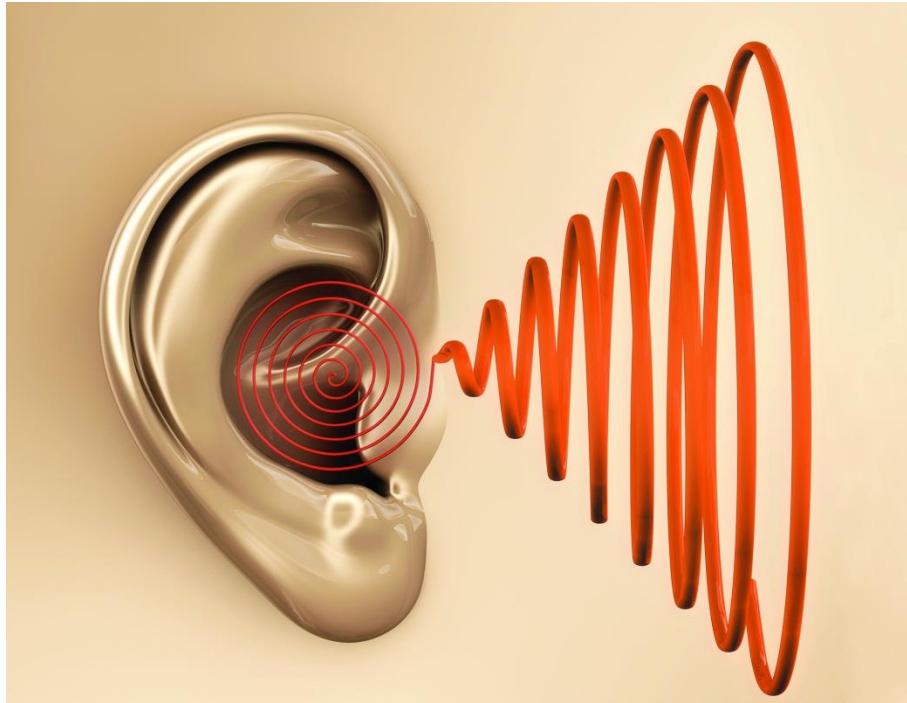




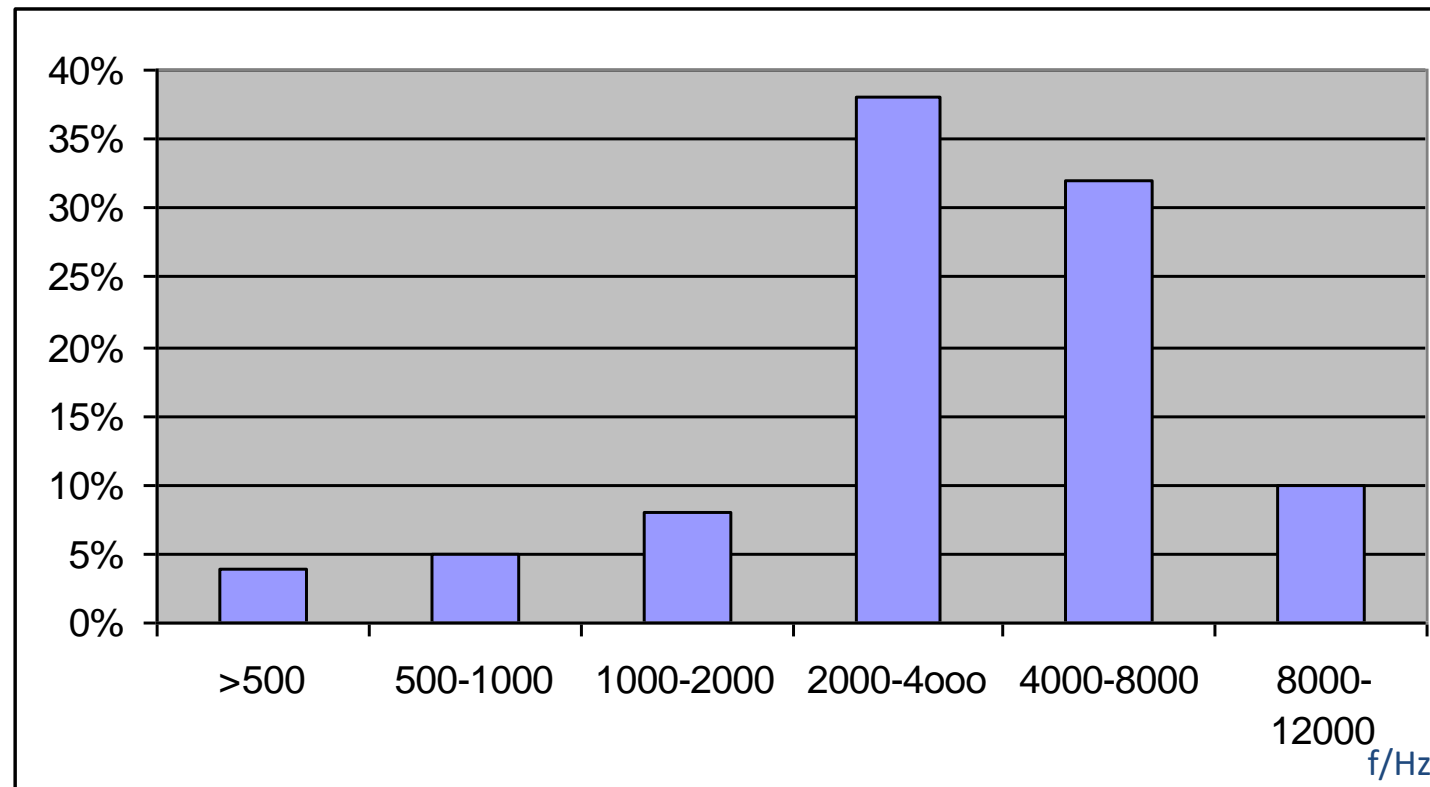
# Somatosounds



# Subjective tinnitus

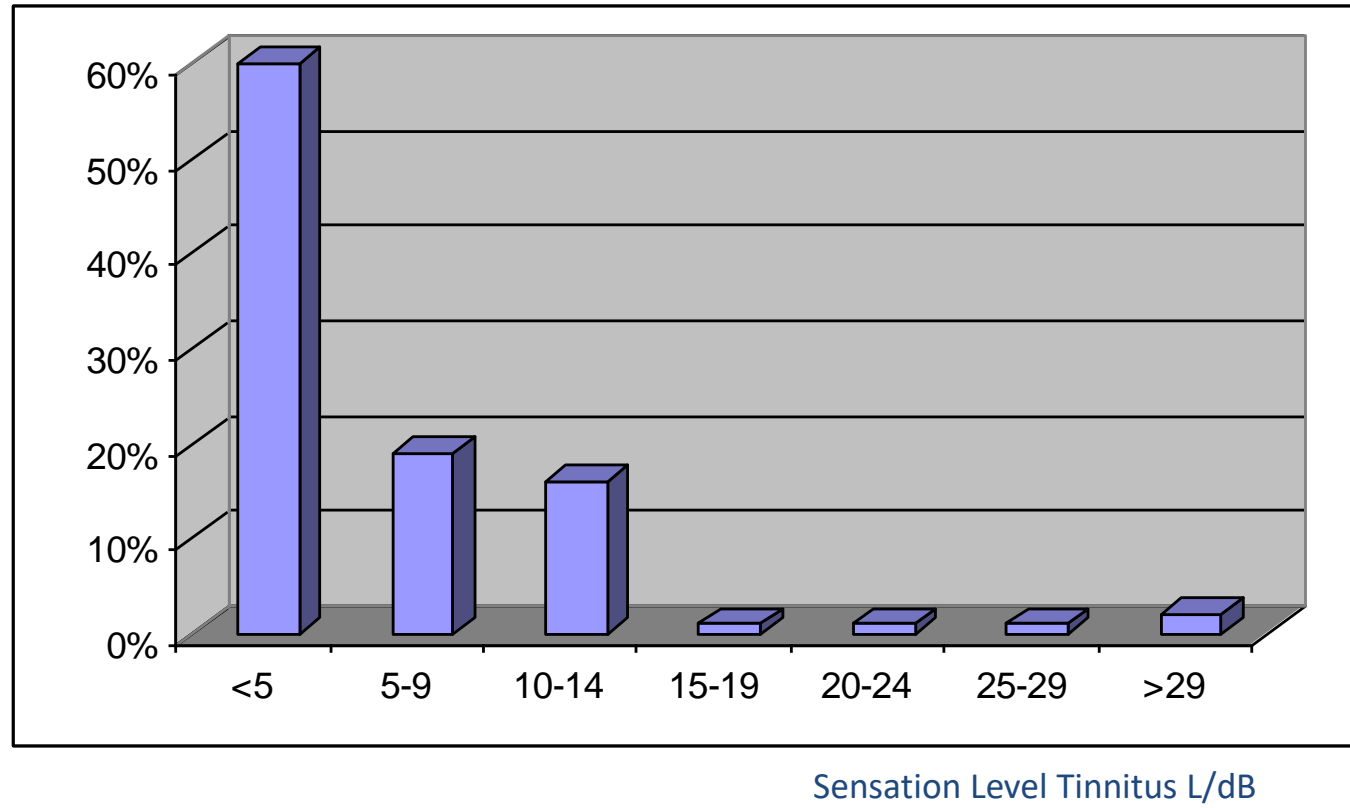


## Distribution of the Tinnitus Frequencies

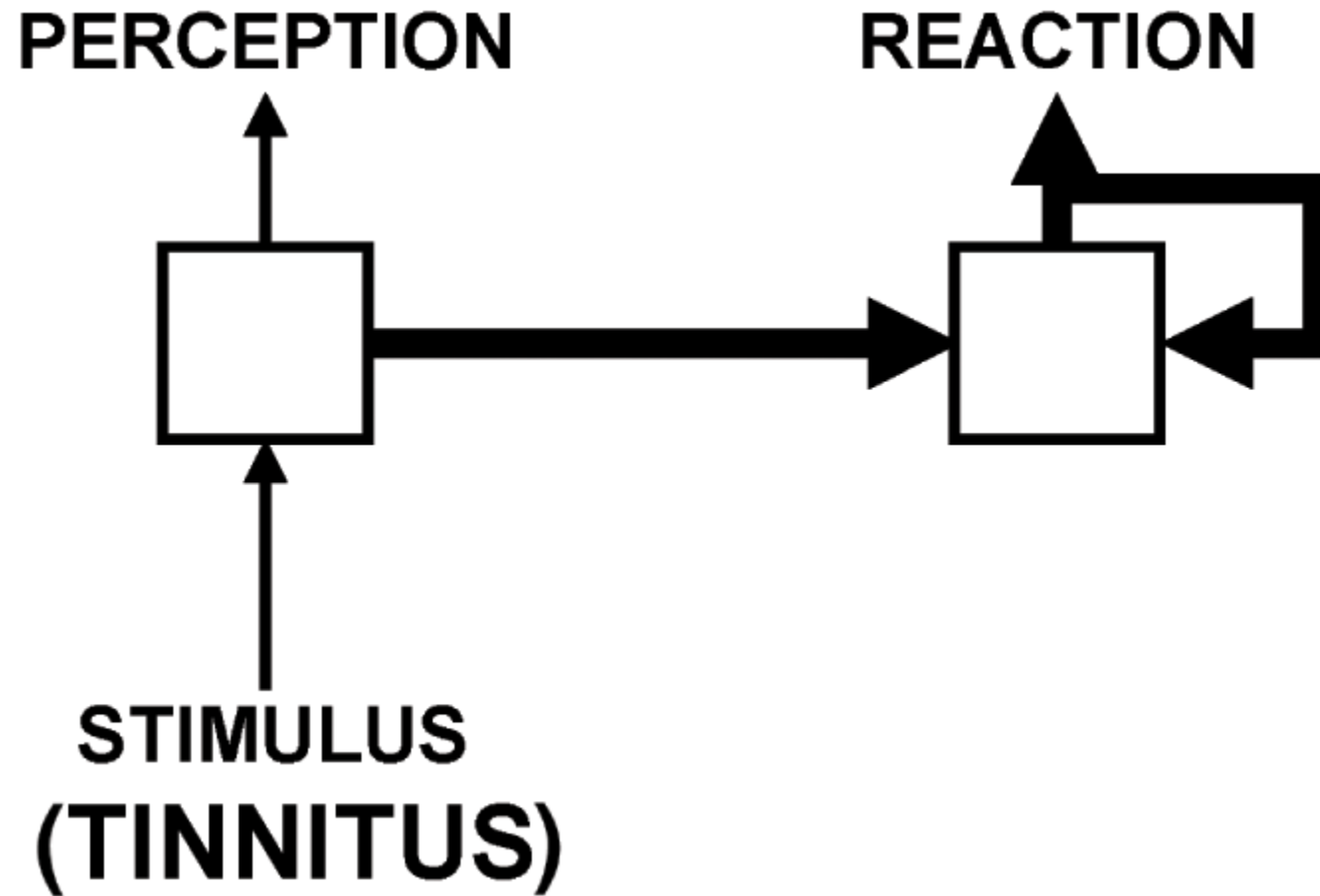




## Tinnitus Intensity



# Neurophysiological model of tinnitus



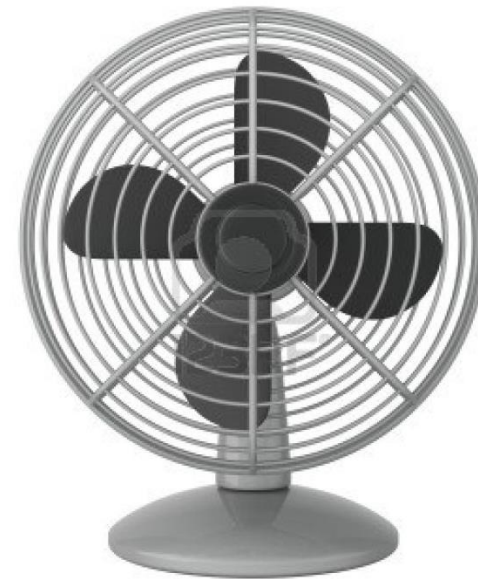
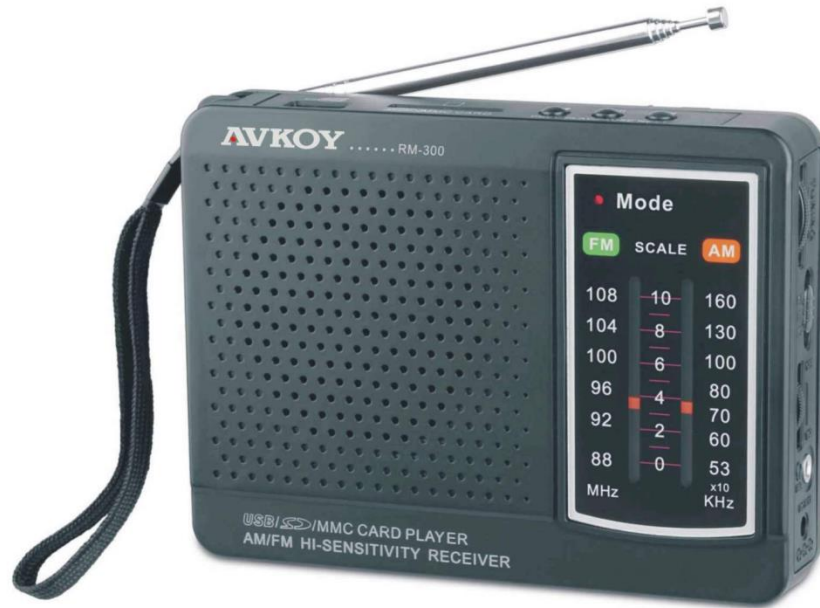
# Suffering of tinnitus

- Anger
- Irritation
- Blame
- Bitterness
- Fear
- Anxiety





# Environmental Masking





Hearing aid



### 耳鳴自助三部曲

耳鳴自助，要  
並排除重大疾病導  
是最重要的，就  
聲音就在你我耳

#### 第一部曲

認識耳鳴  
正確求醫

向耳  
的耳鳴

#### 第二部曲

聲音療癒  
平靜舒眠

#### 第三部曲

放鬆心情  
規律作息

什麼

的

位

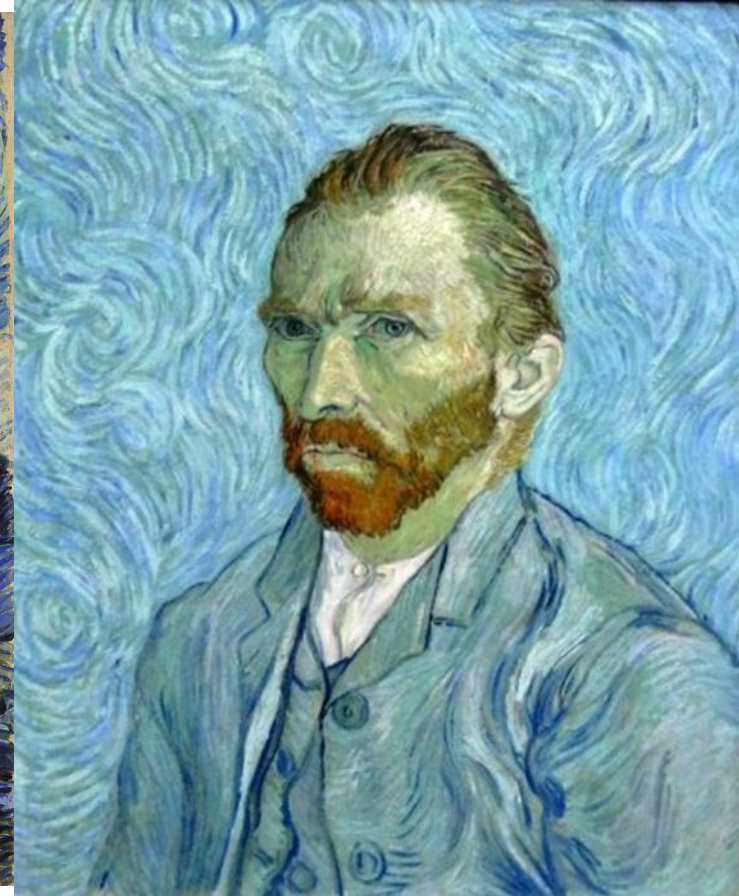
**TTRA**  
台灣耳鳴學會  
Taiwan Tinnitus Association

## 耳鳴自助手冊

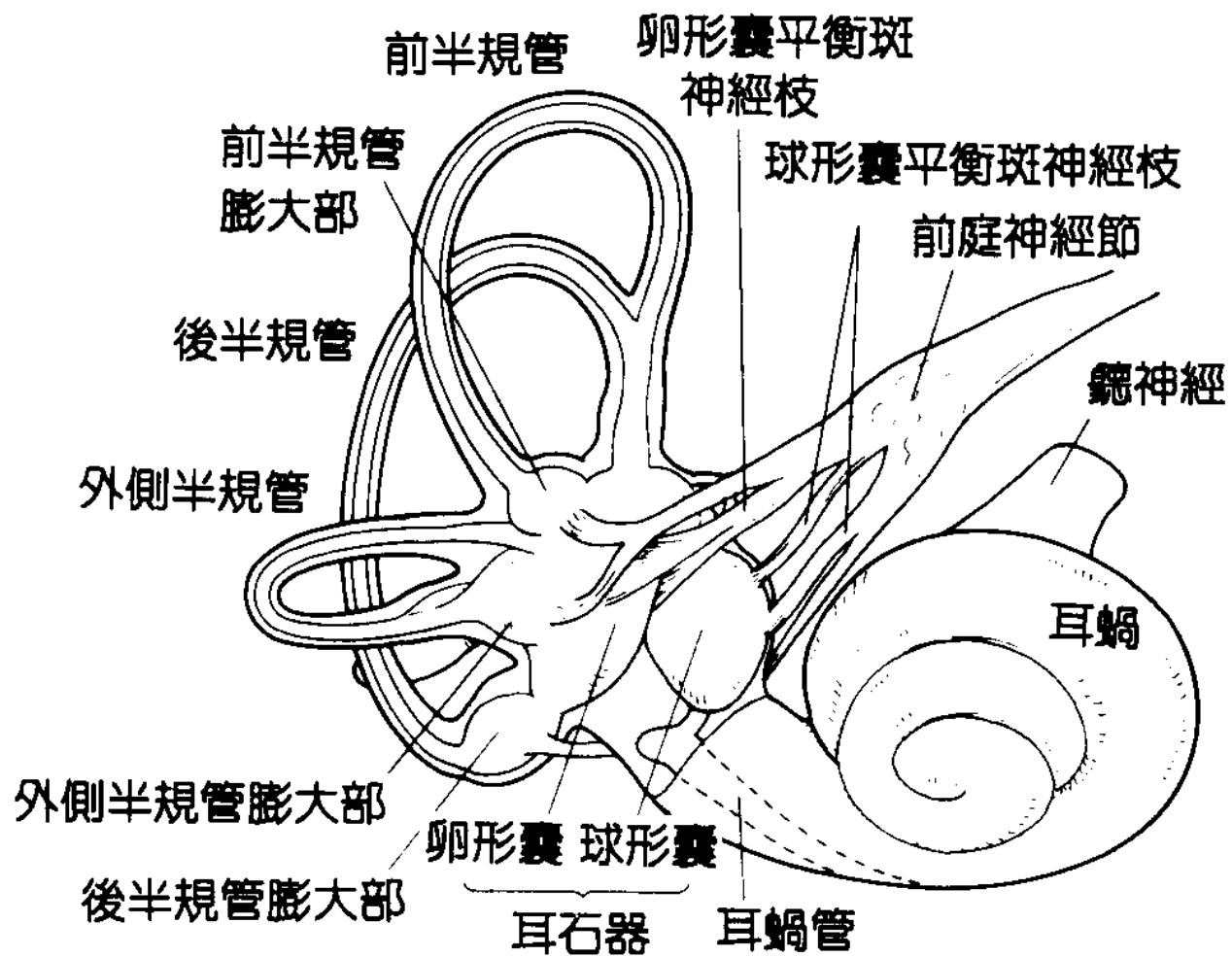




# 眩暈



# Anatomy



# 眩暈定義

- 頭暈(dizziness): 頭重腳輕、昏昏的、或想吐的感覺，例如感冒、或血壓上升，都會令人感覺頭昏，這類頭昏並不會有「旋轉」的感覺。
- 眩暈(vertigo): 感覺自己在轉的頭暈症狀，眼睛打開看四周之景象呈現一種繞轉之現象，伴隨嘔吐、噁心四肢無法站穩。

# “Dizziness (頭暈)” disorder

Vertigo	Illusion of motion, either linear or rotating (patient or environment)	Vestibular disturbance attributable to peripheral (BPPV, labyrinthitis) or central (brainstem, cerebellar) disease Cardiovascular disease
Presyncope Light-headedness	Impending faint	Diffuse cerebral ischemia attributable to vasovagal response, cardiac disease, or metabolic disorders
Dysequilibrium	Impaired balance and gaze	Impaired motor control due to neuromuscular disease, severe bilateral vestibular disease, stroke, multisensory deficits, or medications
Nonspecific	Light-headedness, “confusion,” “wooziness,”	Often psychological disorders (anxiety, depression, panic), hyperventilation

頭暈其實是一種症狀，而不能稱上疾病，大部分的頭暈與內科疾病有關，譬如貧血、姿態性低血壓等等。

有些人蹲著站起來時會覺得頭暈，這種姿態性引起的頭暈很常見，有些人蹲著站起來時會覺得頭暈，這種姿態性引起的頭暈很常見，通常容易發生在血管彈性比較不好的老年人。



# Medication related dizziness

Drug Class	Type of Dizziness	Mechanism
Alcohol	Unsteady gaze, positional vertigo	 Cerebellar and vestibular dysfunction
Sedatives, anxiolytics	Nonspecific lightheadedness	Central nervous system depression
Antihypertensives	Presyncope	Orthostatic hypotension
Antiepileptics	Dysequilibrium	Cerebellar dysfunction
Aminoglycosides	Dysequilibrium, oscillopsia	Labyrinthine hair cell damage

# Vertigo (眩暈)

- **Periheral vertigo**末梢性(周圍性)眩暈:
  1. Benign paroxysmal positional vertigo (BPPV)
  2. Meniere's disease
  3. Vestibular
  4. Perilymph fistula
  5. Bilateral vestibular loss
- **Central vertigo**中樞性眩暈
  1. Vertebrobasilar insufficiency
  2. Migraine
  3. Stroke (cerebellar/ brainstem hemorrhage or infarction)
  4. Tumor
  5. Seizure
  6. Multiple sclerosis
  7. Cerebellar degeneration
  8. Chiari malformation

# Evaluation of vertigo

1. Past history
2. Physical examination
3. Auditory examination
4. Vestibular examination
  - Electronystagmography (ENG)
  - Caloric test
5. Electrocochleography (EcochG)
6. Auditory brainstem response (ABR)
7. Serology : syphilis, autoimmune disease
8. Imaging

# Past history

- Past history : FH, medication, trauma, URI history
- Characteristics of vertigo ?
- Previous episode ?
- Duration ?
- Precipitating factor ?
- Association factor ?
  - Nausea, vomiting
  - Hearing loss, tinnitus
  - Neurologic symptoms



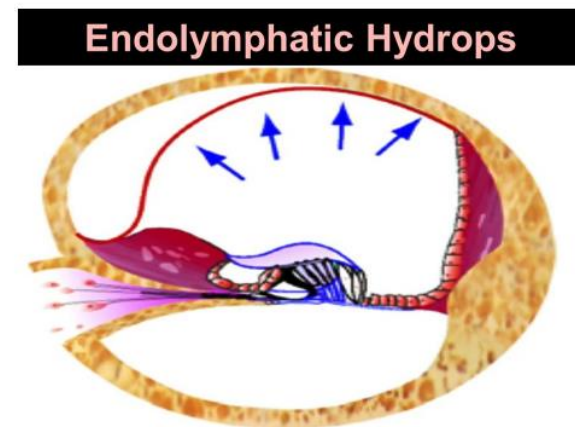
# Vertigo

TABLE 20–1. Differential Diagnosis of Vertigo Based on Time Frame of Vertigo and Presence or Absence of Hearing Loss

<i>Duration of Vertigo</i>	<i>Hearing Loss Absent</i>	<i>Hearing Loss Present</i>
Seconds	Benign paroxysmal positional vertigo	Perilymphatic fistula Cholesteatoma
Minutes	Vertebral/basilar artery insufficiency Migraines	
Hours	Vestibulopathy	Meniere's disease
Days	Vestibular neuronitis	Labyrinthitis
Weeks	Central nervous system lesions Lyme disease Multiple sclerosis	Vestibular schwannoma Autoimmune processes Psychogenic

# Meniere's disease 梅尼爾式症

- endolymphatic hydrops
- vertigo, fluctuating hearing loss, tinnitus, and aural fullness
  - 內淋巴水腫
  - 眩暈：激烈、自發、反覆
  - 耳鳴
  - 耳塞感
  - 每次發作1-4小時，間隔數天至數月
  - 好發於20-50歲;女>男
  - 多次發作後聽力變差而失聰



# Meniere's disease

1. 嚴重的眩暈：以第一次發作時最厲害。
2. 自發性的眩暈：不須任何誘因，有可突然間就發作了。
3. 重覆性的眩暈
4. 可回復性的眩暈：即在發作與發作之間有完全正常的時候，不會持續數天眩暈。
5. 伴有耳蝸神經症狀的眩暈：聽力常呈起伏性，在急性發作時耳鳴得很厲害，而且有時會覺得聽到不同頻率的聲音。
6. 聽力障礙常表現在低頻處
7. 病人常會抱怨怕聽到吵雜的聲音

# Management

- Medical treatment
  - low-sodium diet
  - Diuretics
  - vestibular suppressants
  - antiemetic medications
  - Intratympanic gentamicin
- Surgery
  - Endolymphatic sac surgery
  - Vestibular nerve
  - transmastoid labyrinthectomy

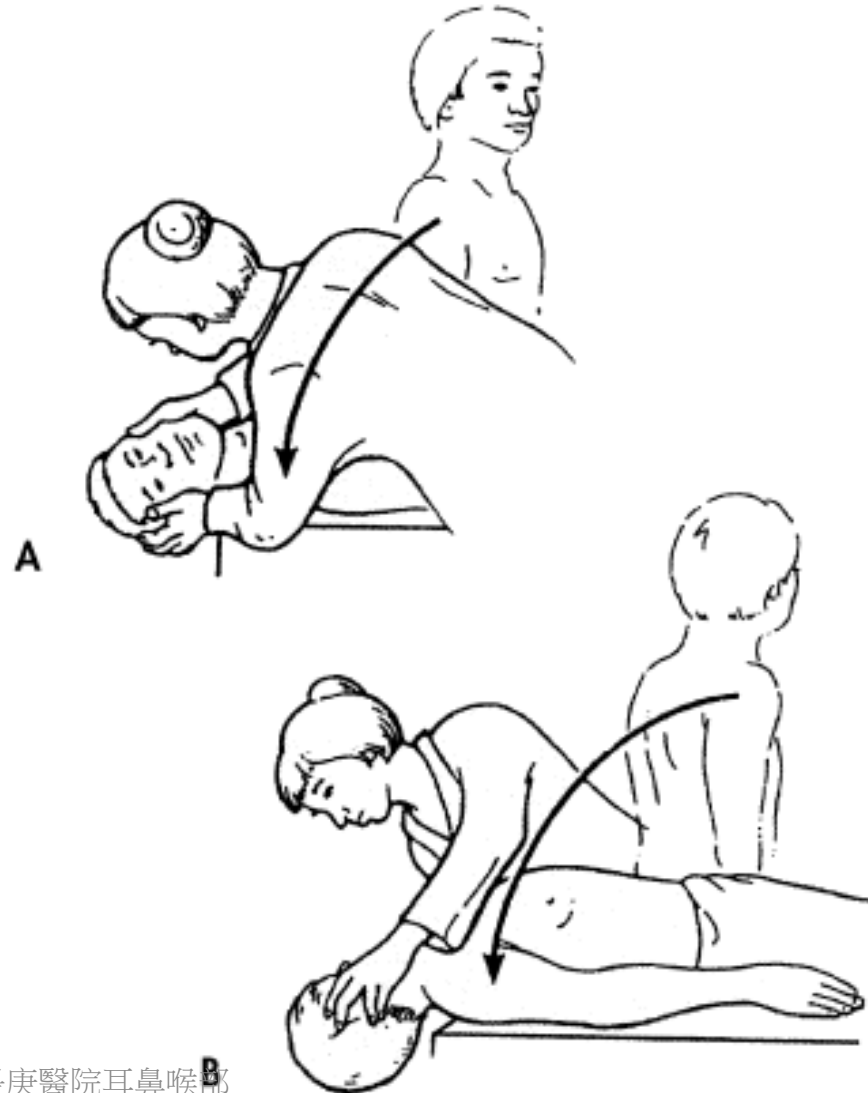


# Benign paroxysmal positional vertigo (BPPV)

- Symptoms :
  - vertigo lasting seconds when in certain positions
  - Triggering movements include rolling over in bed into a lateral position, getting out of bed, looking up and back, and bending over.
  - no associated hearing loss
- The most common cause of this disorder is the presence of debris in the posterior semicircular duct

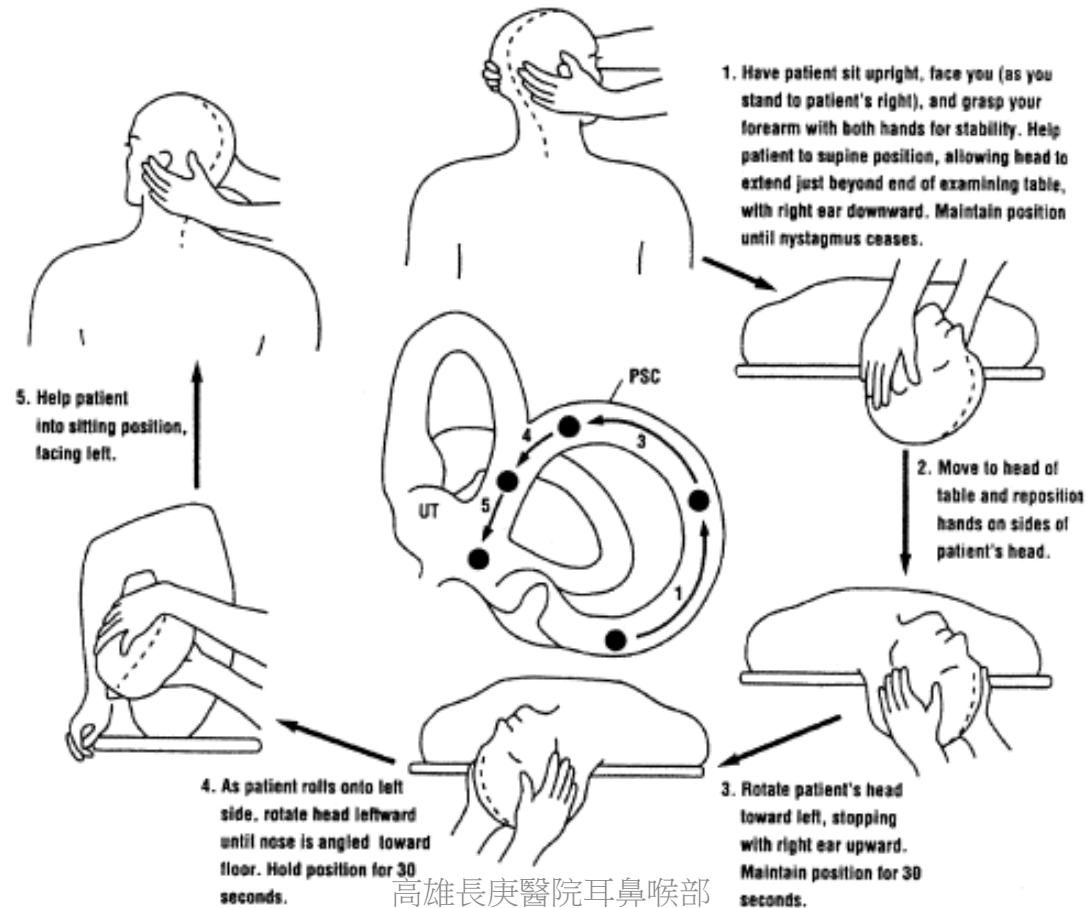
# Diagnostic Evaluation

- Dix-Hallpike test
  - There is a latency of 1 to 2 seconds prior to the onset of the nystagmus and vertigo.
  - The nystagmus is mixed with a torsional and vertical component and is geotropic (downbeat, rotatory nystagmus).
  - the nystagmus is fatigable



# Management

- Repositioning maneuver



# Vestibular neuronitis

- 出現在感冒或病毒感染之後的頭暈，前庭神經發炎，這時可能會出現嚴重的眩暈（天旋地轉），嚴重者甚至於可能會嘔吐、四肢無力等等現象。
- lasts a few days with complete or at least partial recovery within a few weeks to months
- Recurrent attacks are unusual
- normal hearing and a normal neurologic examination.



# Management

- Supportive care
  - vestibular suppressants
  - antiemetics

# Central vertigo

- 頭暈也可能是腦血管疾病的「前兆」
- 脊椎基底動脈血管循環不良：因年紀大易有心血管疾病或常常有血液流動改變，使血流不暢，供血減少，在這種長期由於脊椎基底動脈供血不足而缺氧的情況下，從而發生眩暈症狀。
- 暈眩合併高血壓、糖尿病、心臟病等中風高危險群者，還出現口齒不清、複視、步態不穩等，就要進一步做腦血管方面檢查，積極控制血壓、血糖，亦可使用防血栓藥物，以避免中風。

# 如何保養

- 多休息
- 少熬夜、少感冒、少壓力
- 少菸酒、少咖啡因
- 眩暈之季節、在忙碌之時、與寒冬之刻，如果有慢性眩暈症的病人，平常身邊就得準備止暈藥，當眩暈出現前兆時，提早與及時的服用藥物。

Thanks for your attention

