

# 個人化眩暈復健經驗分享

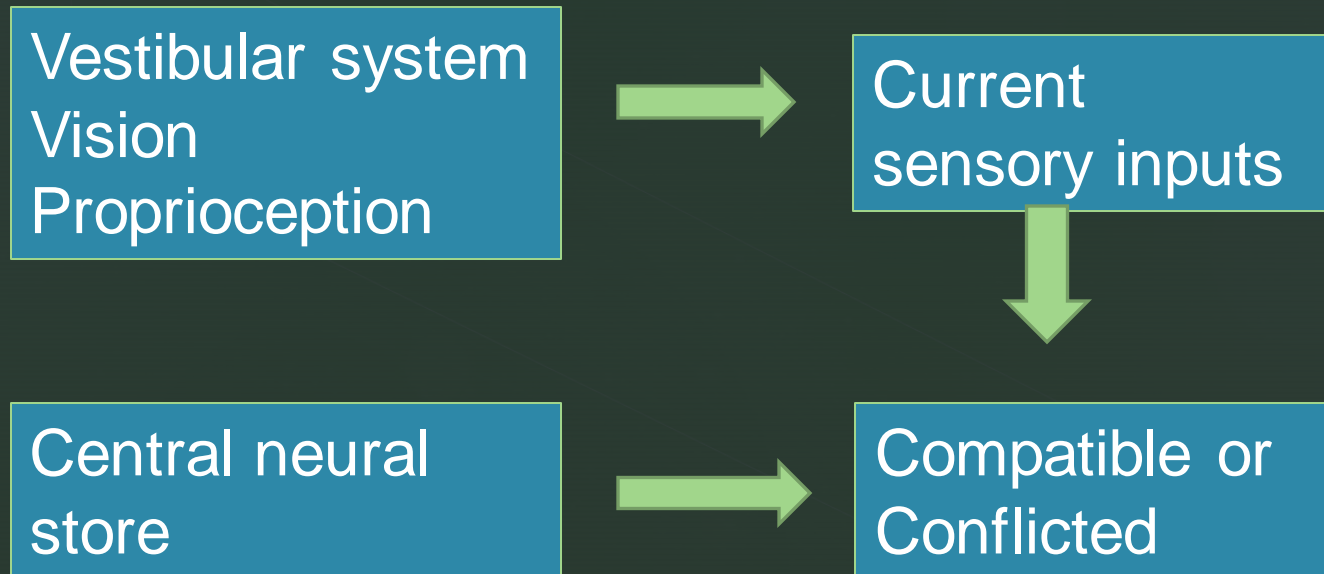
## Personalised Vestibular Rehabilitation Program: Experience Sharing

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## Chronic Dizziness and Imbalance

- Mismatch hypothesis
- Substitution V.S. Compensation
- Never put just one diagnosis to complicated dizziness patients

# Mismatch Theory



## ▸ Substitution V.S. Compensation

- Compensation: a preferred pathway for the recovery from acute vertigo, to repair the errors, reflex repair (VOR, VSR), Kaman filter (central, cerebral).
- Substitution: the use of visual and somatosensory cues instead of vestibular system.

## ▸ Risk Factors of Compensation

- Primary and secondary symptoms  
Neck pain, Fatigue, Headache
- Depression/anxiety/avoidance behaviour
- Bizarre symptomatology
- Aggressive general and specific exercise regimes

# Substitution

- The use of visual and somatosensory cues
- However, walk/run/dark/speedy  $\Rightarrow$  insufficient

- Frequency ranges:

Semicircular Canals 1-5 Hz

Somatosensory 1.5-3 Hz

Vision 0-2 Hz

Otolith 0-1 Hz

## Vestibular Rehabilitation

- No gold standard
- May affect the Kalman filter
- Reassess and rearrange balance system and perception conflicts
- Desensitization or
- EMDR for PTSD

## Candidates for Vestibular Rehabilitation

- Recurrent dizziness
- Unsteadiness
- Speedy vision change intolerance
- Not on an acute vertigo episode



- ▶ Purposes of Vestibular Rehabilitation
  - To re-establish a foundation for balance and coordination development
  - To improve life qualities and functions of daily life activities
  - To improve self-confidence

## ▸ Clinical Approaches to Chronic Dizziness Patients

- History taking
- Vestibular tests
- Neurologist and psychiatrist consultation
- Computerized Dynamic Posturography

# Trigger Factors

- Darkness, crowds, open space, cobblestone floor
- Head or body movement, posture change, sitting, walking or running
- Vision or scene stimulation
- Occupation, family support system, mood condition, social activities and motivations

## Individual Risks and Disabilities

- Fall and muscle loss
- LOM of joints and spine
- Old CVA or post-CVA imbalance
- Control of systemic diseases
- Emotion and motivation

## ▲ Clinical Judgements According to CDP

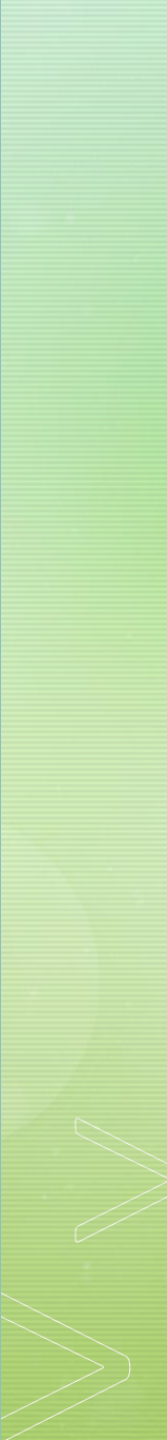
- 6 conditions: comparing one to another
- Re-confirm with patient's experience
- Planning of treatment priorities

## Types of Vestibular Exercises

- VOR adaptation exercises
- Habituation exercises
- Substitution exercises
- Optokinetic stimulation

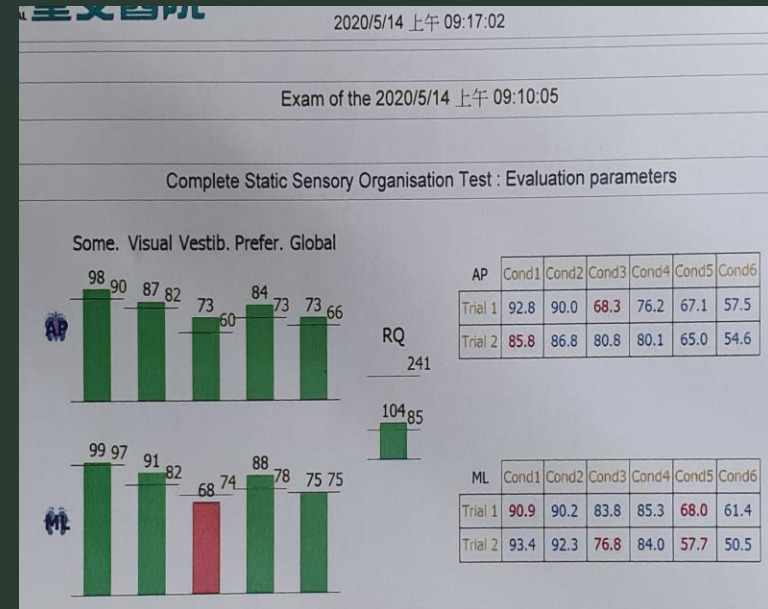


# Case Report 1

- 64 y/o female, unsteadiness on and off for 2 years.
  - History of vertigo and right COM, but no headache
  - Caloric: normal
  - Limited outdoor activities and fear of fall, darkness and fast vision shift. Unable to do jogging or running.
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# Case Report 1: CDP result

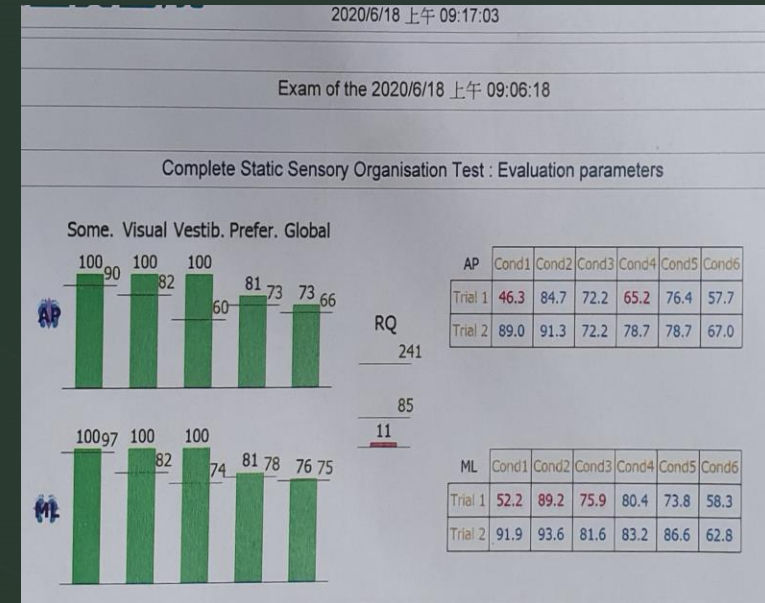
- Generally good, but mild poor in condition 3, 5, and 6.
- Interpretation
- Plan to do: enhance VOR and VSR, and visual training games.





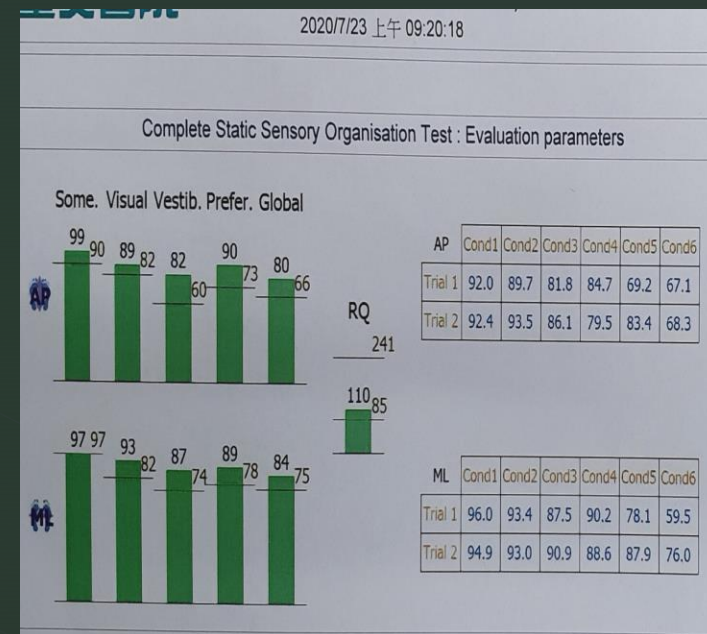
# Case Report 1: Follow-up

- 2<sup>nd</sup> visit
- Less floor floating and unsteady feeling, less fear for going out, and stepping on stairs.
- Interpretation
- Plans: Eyes closed exercise on foam, walking tasks, and visual training games.



# Case Report 1: Follow-up

- 3<sup>rd</sup> visit
- Symptom free and all conditions presented great.
- Case closed

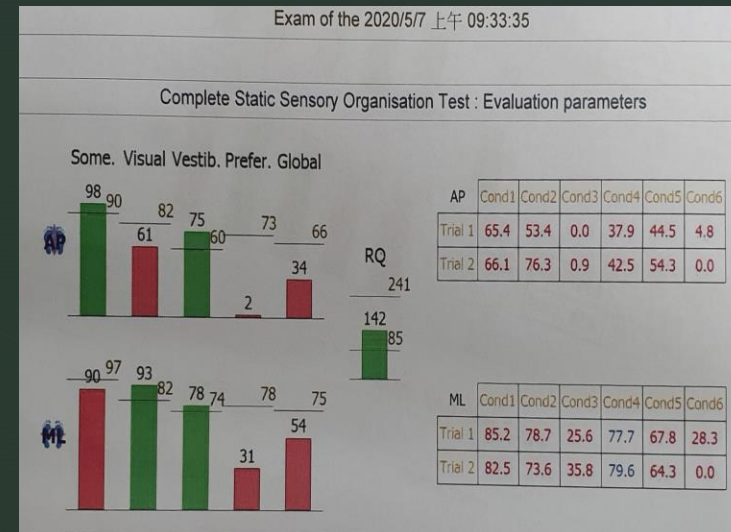


## Case Report 2

- 57 y/o female, dizziness and unsteadiness on and off for 2 years, vertigo episode once only (2019, last year)
- Cataract ou s/p, 3 years ago
- No headache, no systemic disease
- Caloric test: 28% LW, VNG: delayed saccade and pursuit.
- Triggers: darkness, speedy head turning, overloading

# Case Report 2: CDP Result

- All conditions presented bad, esp in cond 3 and 6.
- Interpretation
- Plans to do: basic vest rehab works

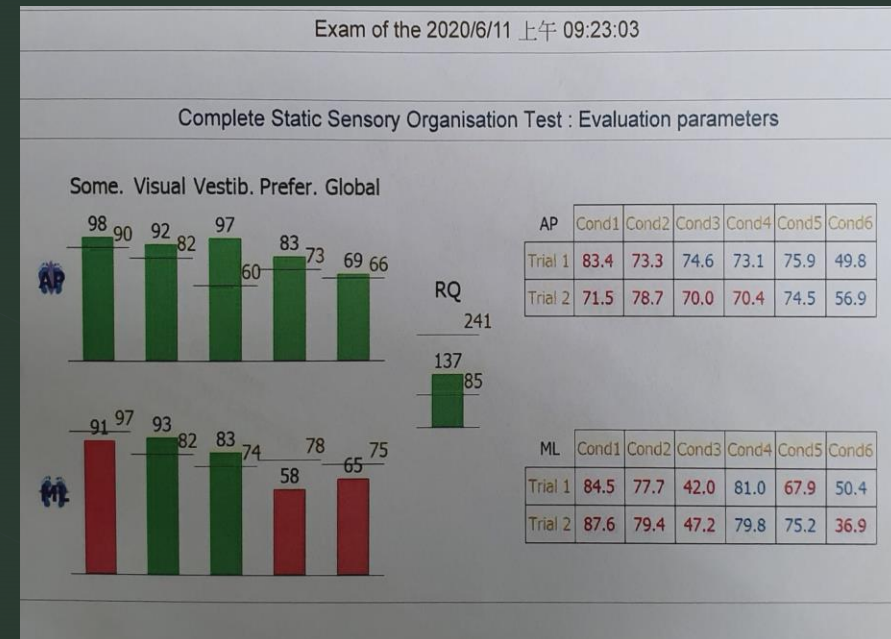


# Case 2: Stage 1 homework

日期	難易度	持續時間	眩暈感	難易度	持續時間	眩暈感	難易度	持續時間	眩暈感
5/9									
坐 動眼 上下	3		是/否	3		是/否	3		是/否
坐 動眼 左右	3		是/否	3		是/否	3		是/否
坐 動眼 遠近		1分25	是/否		1分50	是/否		1分50	是/否
站 轉頭 左右		1分40	是/否		1分30	是/否		1分50	是/否
站 轉頭 上下		1分35	是/否		1分25	是/否		1分45	是/否
坐 左右搬動地上物品	3		是/否	3		是/否	3		是/否
坐 站起轉一圈再坐下 再站起,反向轉一圈再 坐下	3		是/否	3		是/否	3		是/否
閉眼前後腳站 30 秒	2	30秒	是/否	2	30秒	是/否	2	30秒	是/否
閉眼立正站 30 秒	3		是/否	3		是/否	3		是/否
靠牆站 VOR		2分	是/否		1分50	是/否		1分45	是/否

# Case Report 2: Follow-up

- 2<sup>nd</sup> visit, much better
- All conditions improved, relative poor in 3 and 6.
- Interpretation
- Plans: add walking tasks and visual training games

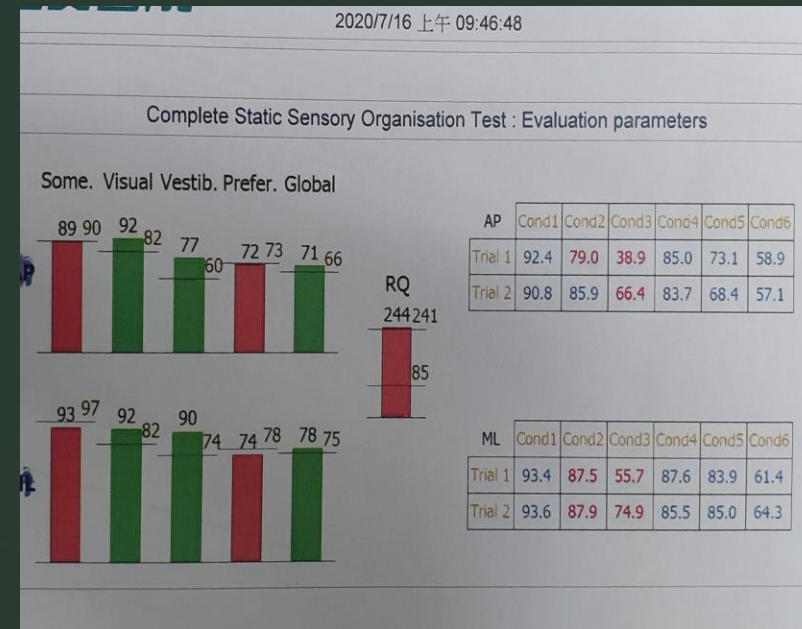


## Case 2: Stage 2 homework

日期	難易度	持續時間	眩暈感	難易度	持續時間	眩暈感	難易度	持續時間	眩暈感
站 動眼 左右			是/否			是/否			是/否
站 轉頭 左右			是/否			是/否			是/否
直走 10m 看左右各 3 步			是/否			是/否			是/否
直走 10m 看上下各 3 步			是/否			是/否			是/否
站 VOR			是/否			是/否			是/否
閉眼 在軟墊前後腳站			是/否			是/否			是/否
閉眼 在軟墊立正站			是/否			是/否			是/否
深蹲 30 秒			是/否			是/否			是/否

# Case Report 2: Follow-up

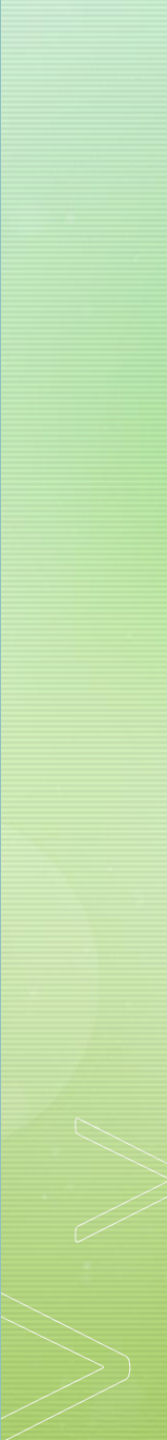
- 3<sup>rd</sup> visit, no more illness and daily tasks well-tolerated
- CDP all conditions improved
- Case closed





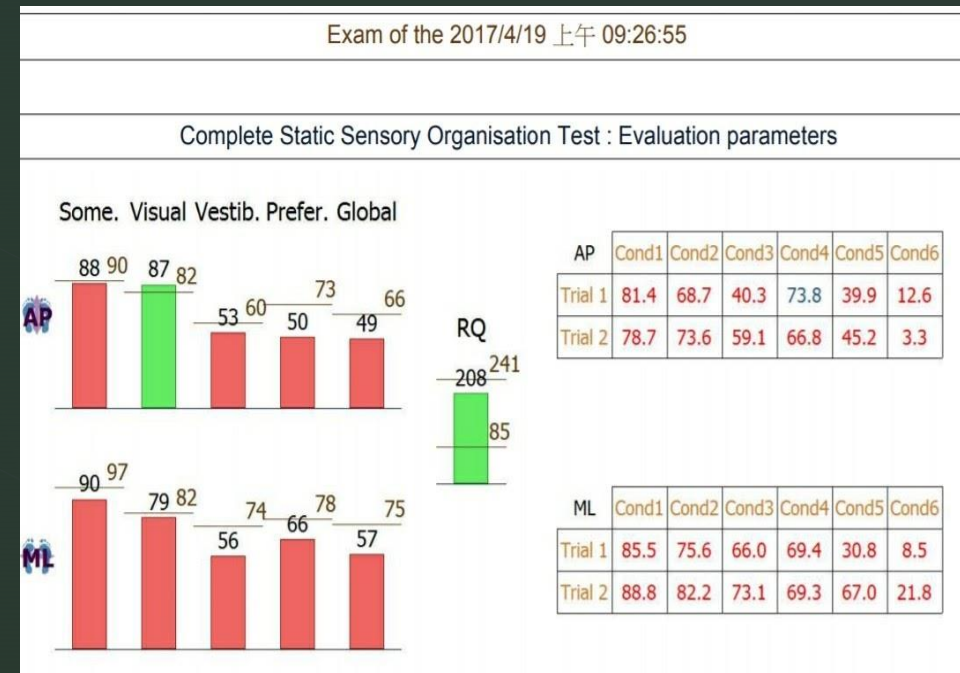


## Case Report 3

- 82 y/o male, unsteadiness for 3 months
  - Reduced social activities, self confidence
  - Associated with emotional strikes, darkness, and visual scene change
  - Fears of fall, wobbling surface, stairs
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# Case Report 3: CDP Result

- SOT 49/57
- Poor vestibular engagement and severe visual disturbance
- Somatosensory dependence



## Case Report 3: Treatment Plans

- Block vision and somatosensation
- Gaze stabilization
- Gait exercises
- Computerised visual balance exercises

# Case Report 3: Homework

4/19

眩暈特別  
復健動作自行評估

每個動作持續 3 分鐘，每天 3 回 難易度請

日期	難易度	持續時間	眩暈感
106.4.23			
躺 動眼 上下	3	3分	是/否
躺 動眼 左右	3	3分	是/否
躺 轉頭 左右	3	3分	是/否
躺 轉頭 上下	3	3分	是/否
坐 動眼 上下			是/否
坐 動眼 左右			是/否
坐 轉頭 左右			是/否
坐 轉頭 上下			是/否
在軟墊行走	3	3分	是/否
閉眼在軟墊行走	2	3分	是/否
在軟墊前後腳站	3	3分	是/否
在軟墊閉眼前後腳站	0	30秒	是/否
在軟墊立正站	3	3分	是/否
在軟墊閉眼立正站	2	3分	是/否
VOR	3	3分	是/否

5/24

復健動作自行評估

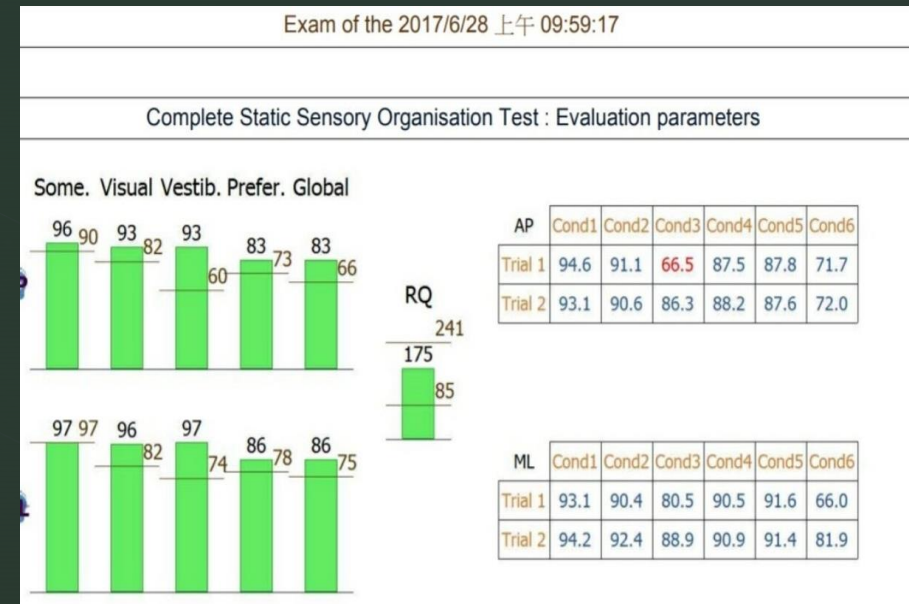
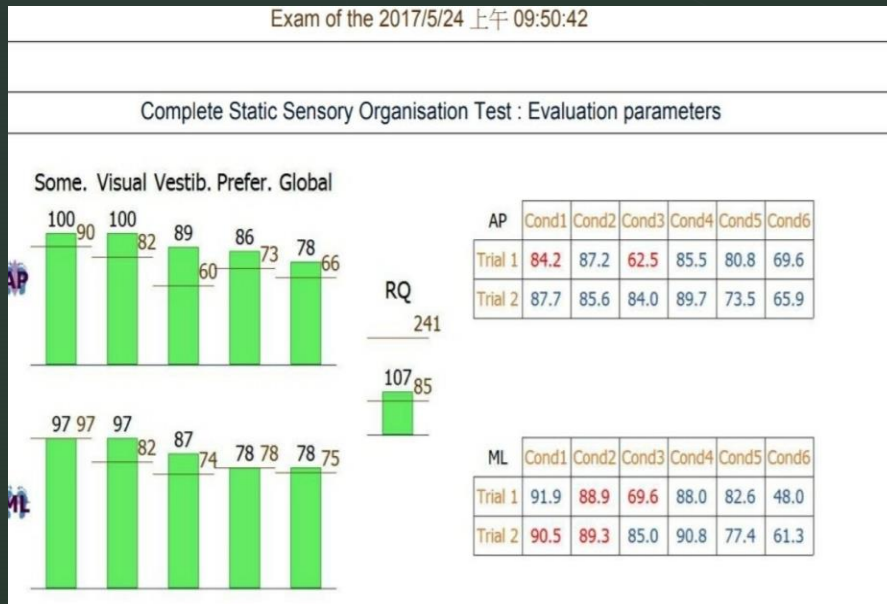
每個動作持續 3 分鐘，每天 3 回，依個人速度  
難易度請填 0-3，3 為毫無困難，0 表示無法做

日期	難易度	持續時間	眩暈感
106.5.24			
坐 轉頭 左右	3	3分	是/否
上下樓梯 5-6 階(來回 5 趟)	3		是/否
坐 繞圈 左 5 圈 右 5 圈	3		是/否
VOR	3	3分	是/否
閉眼 在軟墊前後腳站	1	1分20秒	是/否
彎腰拾起地上物站起，左轉放到身後，在右轉拾起，再回身放前方，坐下	3	3分	是/否
左右手拋球 高位(胸口)	3	3分	是/否
靠牆深蹲 30 秒	3	30秒	是/否
開眼 在軟墊單腳站(腳跟碰膝)	1	2分	是/否
閉眼 在軟墊單腳站(腳跟碰膝)	0	4秒	是/否
開眼 倒退走	3	3分	是/否
開眼 跨越障礙物	3	3分	是/否
開眼 走 轉頭(左 3 右 3)	3	3分	是/否

# Case Report 3: Follow-up

5/24

6/28



# Computerised Visual Balance Exercises

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Thank You for Your Attention

