


Sleep Smarter, Learn Better

識瞓，識學

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What do you do when you have a
problem?
You SLEEP on it!

今日內容

睡眠基本步

睡眠與精神健康

學生的睡眠

瞓得唔好點算好?

睡眠基本步

睡眠與精神健康

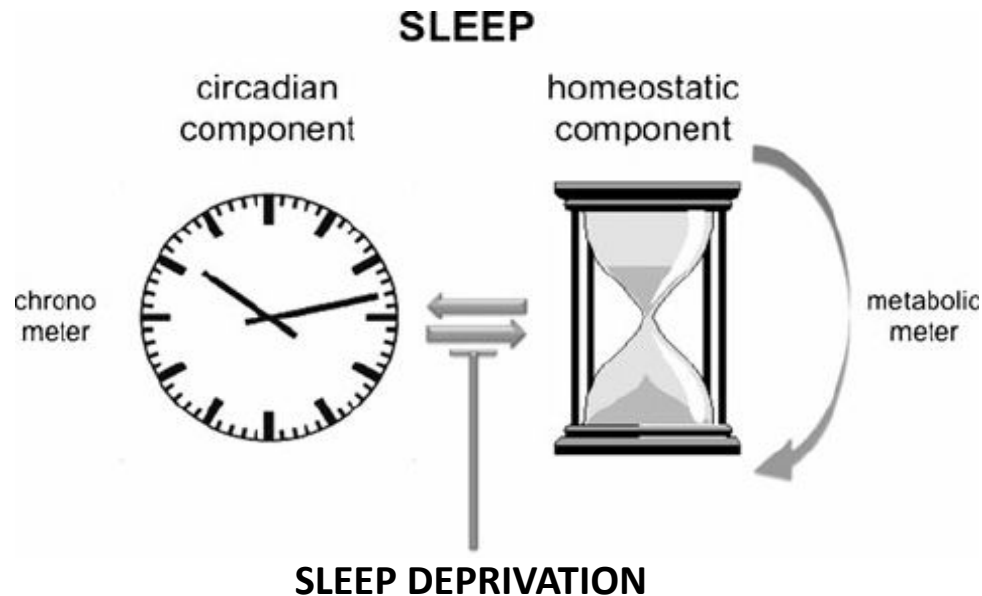
學生的睡眠

瞓得唔好點算好?

調控睡眠的基本機制

睡眠調控的雙歷程模式

- 恆定作用 (Homeostatic Sleep Process)
- 晝夜節律 (Circadian Process)





A Rhythmic World

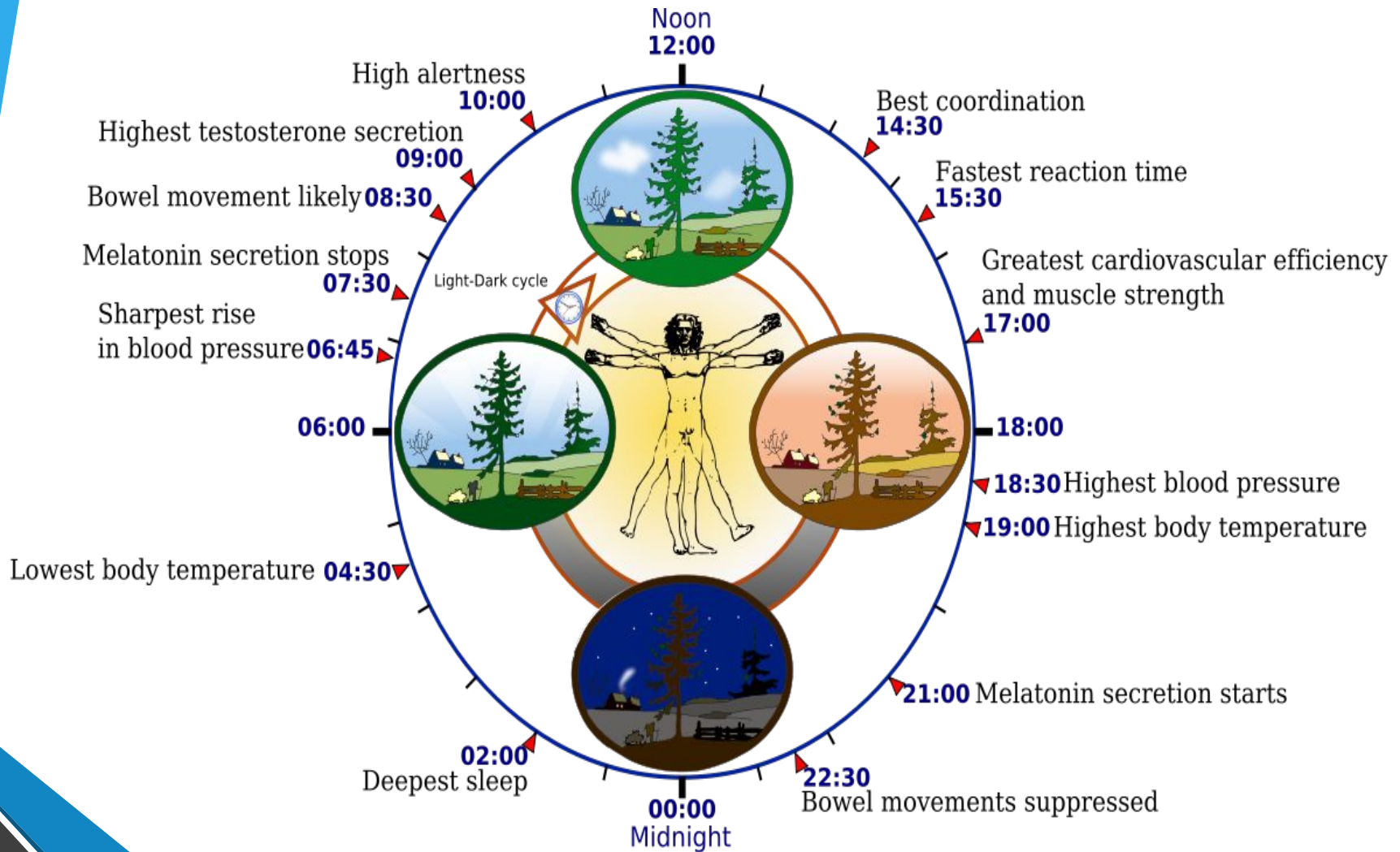
“To everything there is a season,
and a time to every purpose under the heaven”

(Ecclesiastes 3:1, Holy Bible)

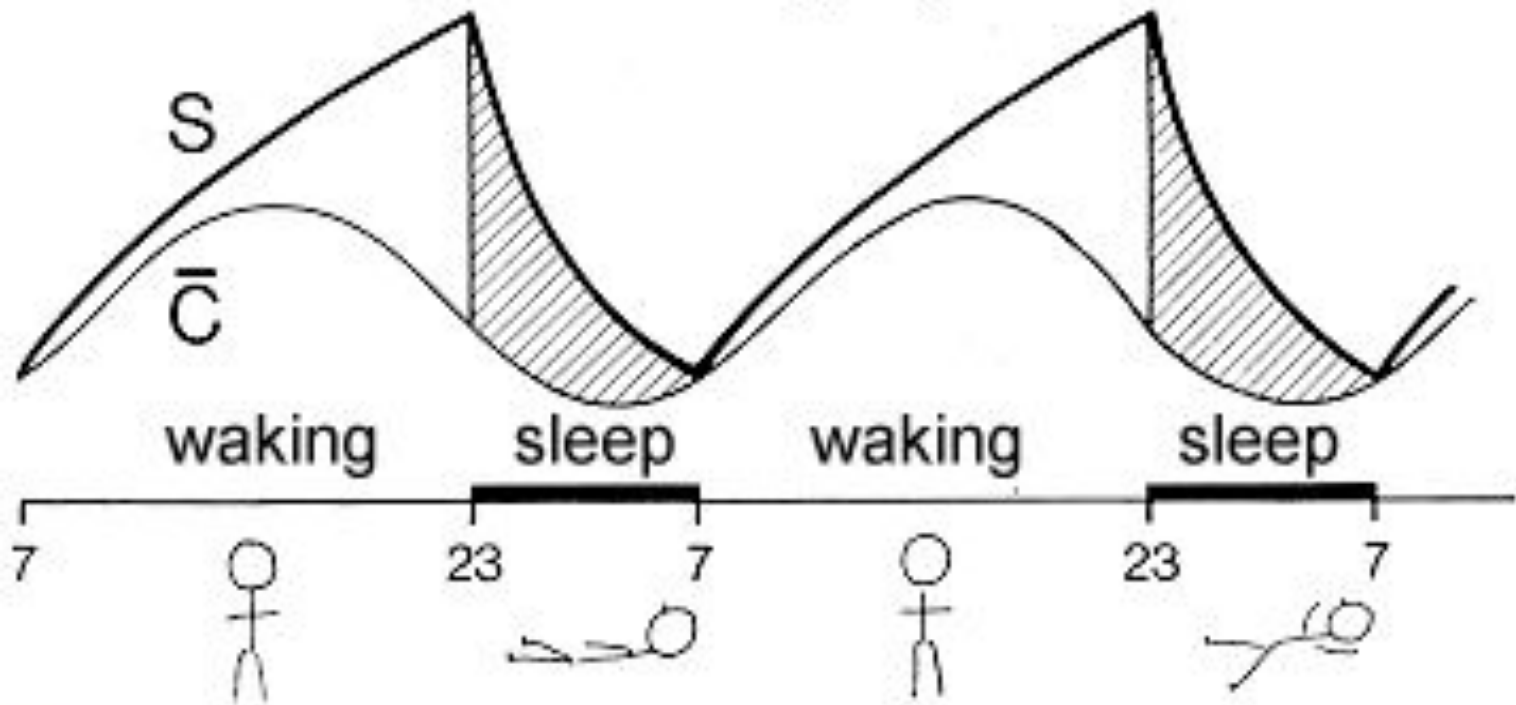
萬事都有定期，天下萬務都有定時

(傳道書 3:1)

生理時鐘



睡醒循環 (Sleep-wake cycle)





人為什麼要
睡覺？

睡眠的功能
是什麼？

情緒

Emotion regulation

Emotion processing

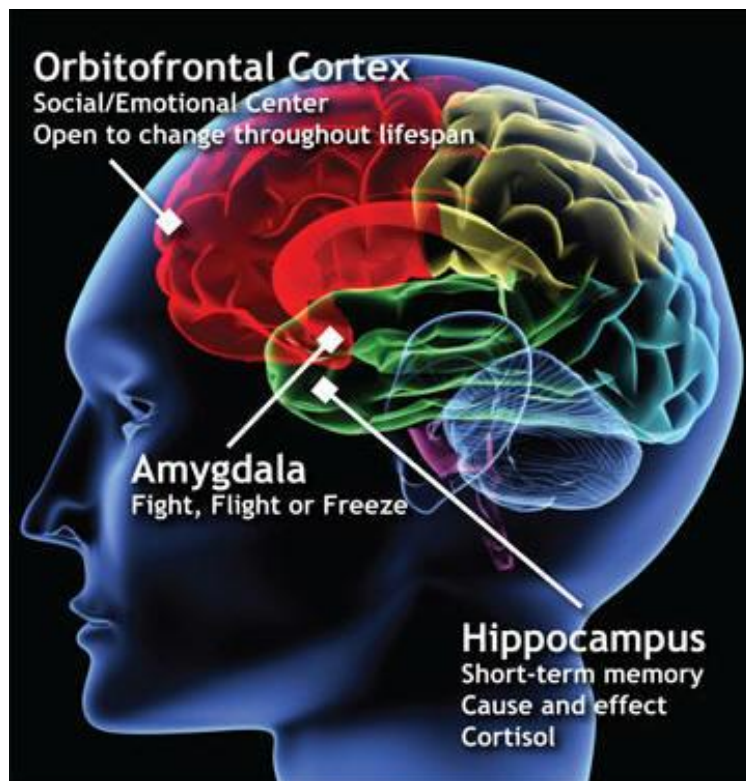
Prefrontal cortex

Limbic System
(Amygdala,
hippocampus)

認知

Executive functions
(e.g. Working
memory, planning
and decision
making)

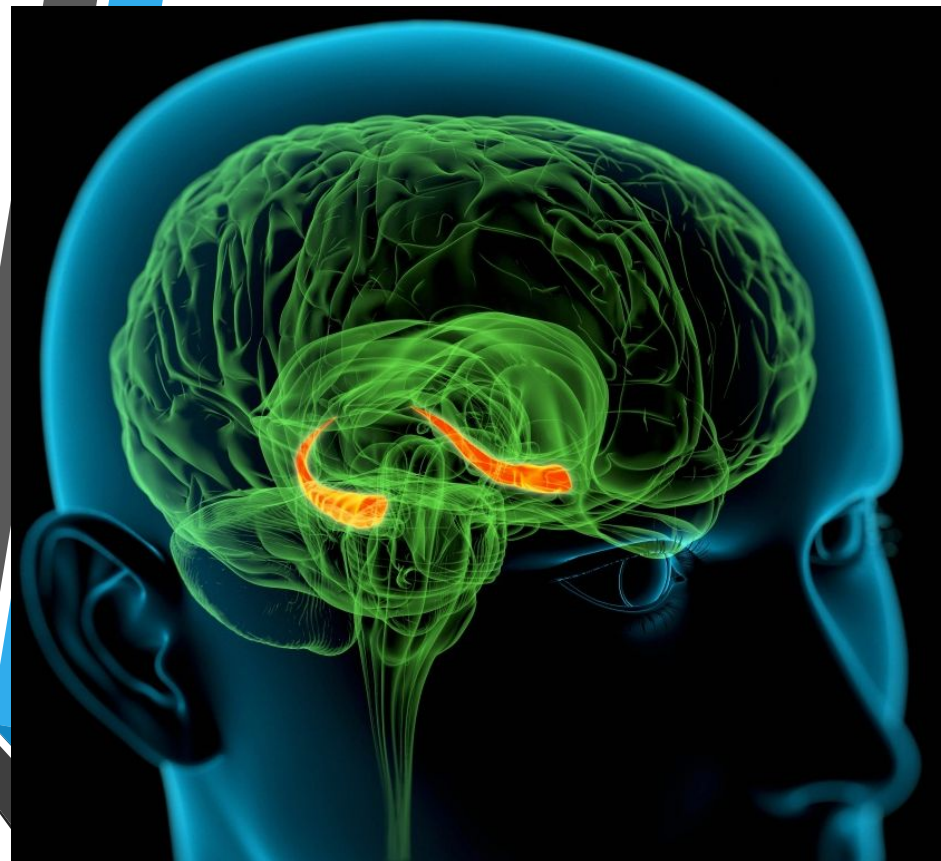
Learning and
Memory



睡眠的認知功能



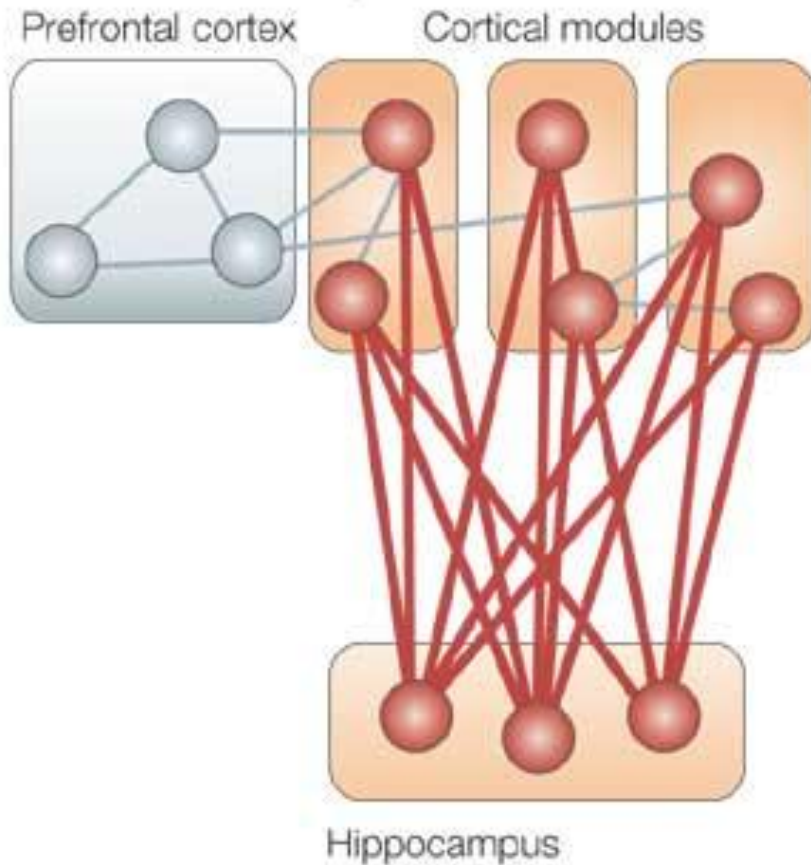
睡眠與記憶



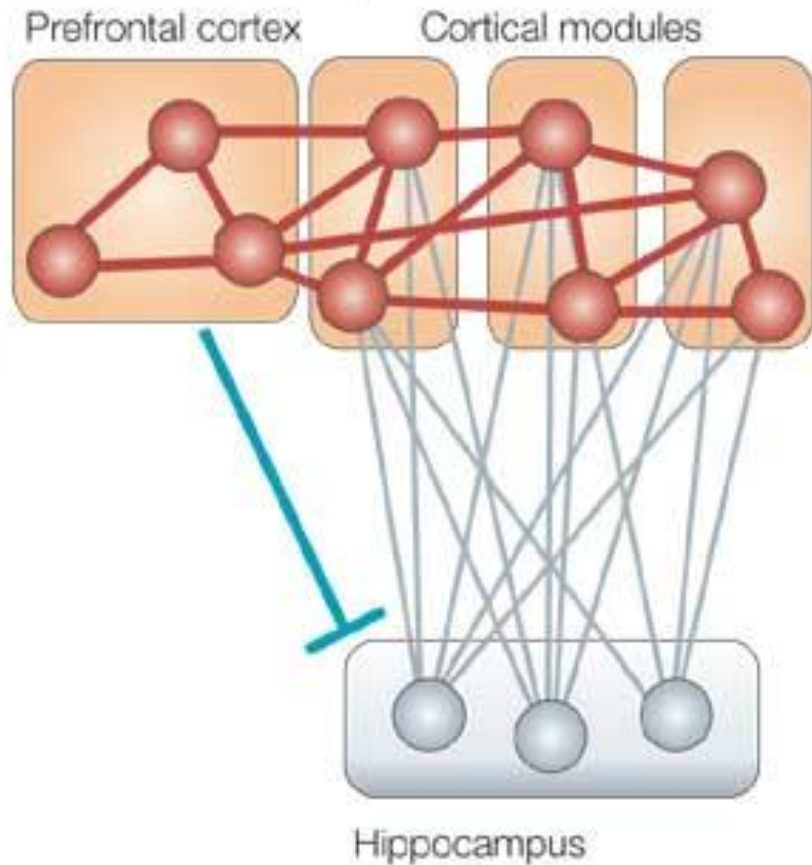
海馬體 (Hippocampus)

睡眠如何影響記憶？

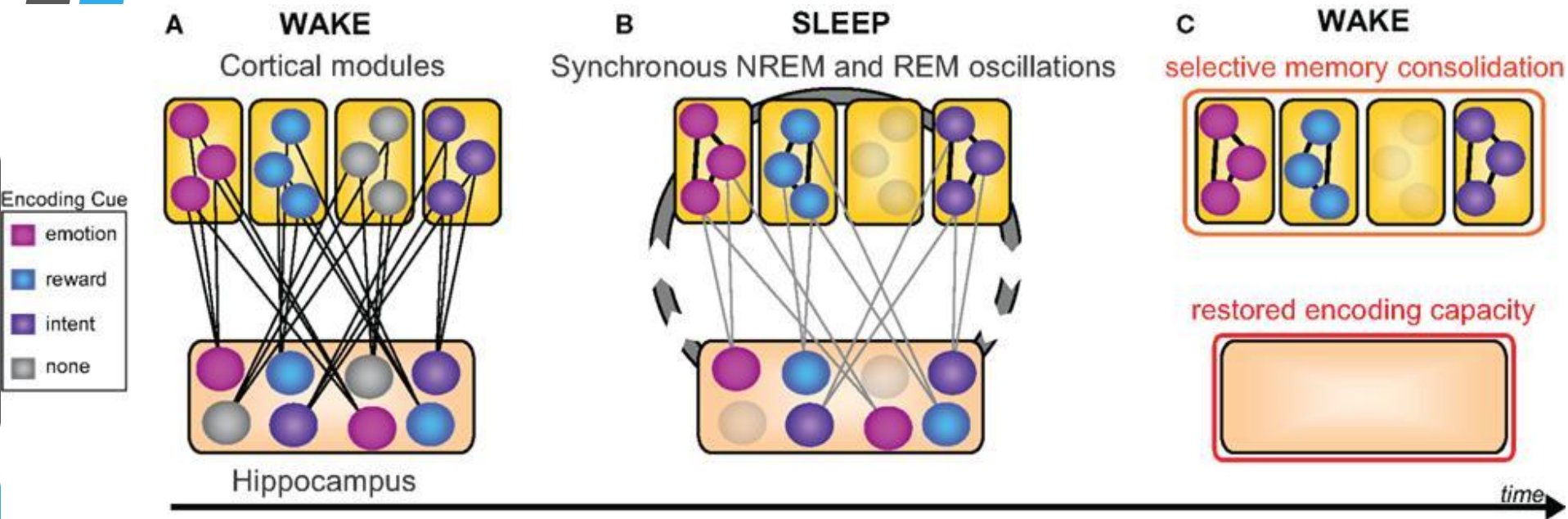
a Recent memory



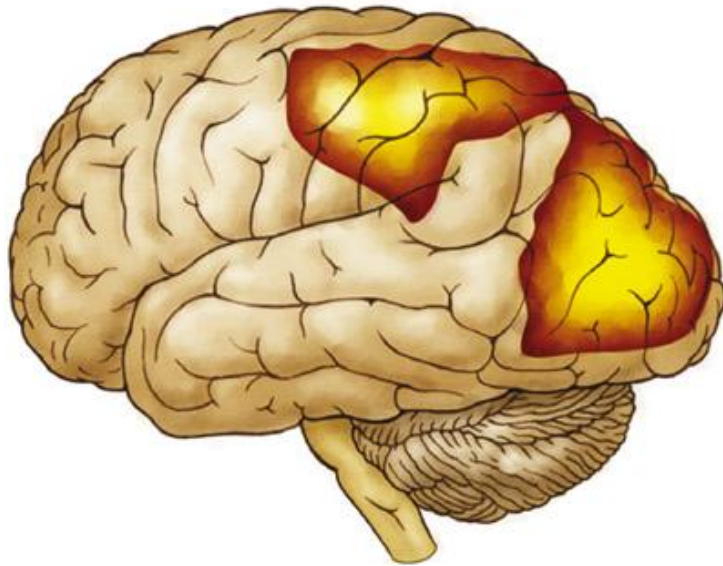
b Remote memory



睡眠如何影響記憶？

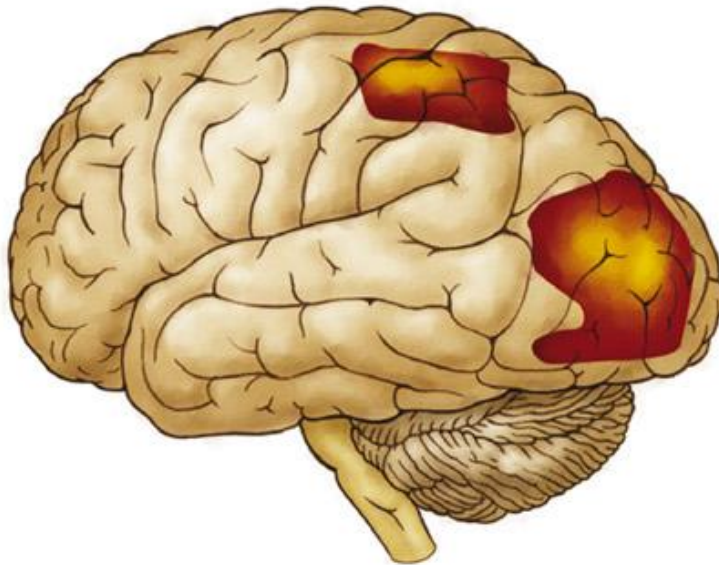


(A) Reaction-time task



Subjects are trained on a reaction-time task, and brain activity is recorded with PET.

(B) REM sleep that night



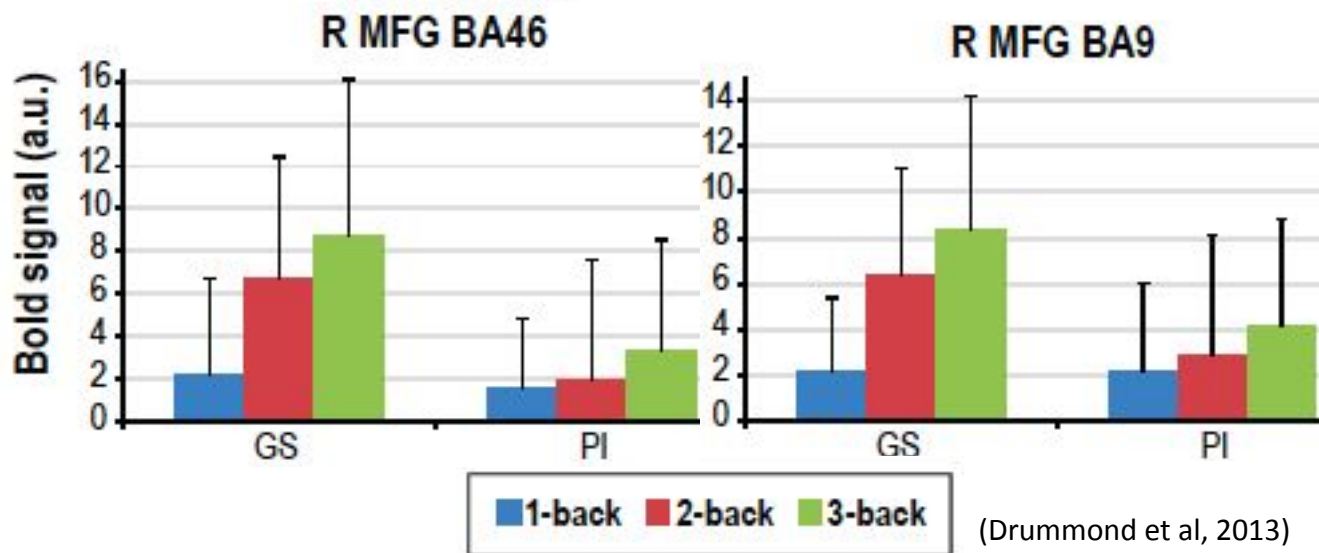
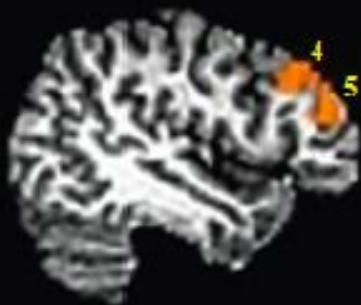
Subjects display a similar pattern of brain activity during subsequent REM sleep.

(Maquet et al., 2000)

失眠者的腦部運作

- 前額皮質 (prefrontal cortex) 在執行任務 (比如工作記憶) 中的參與減少
→ 不能夠調節相關的大腦區域

48R



(Drummond et al, 2013)

睡眠與工作記憶



(Wong, Cheung, & *Lau, 2017)



(Lau*, Wong, Lau, Hui, & Tseng, 2015)

睡眠有助排走腦內的神經毒性廢物！

睡眠時

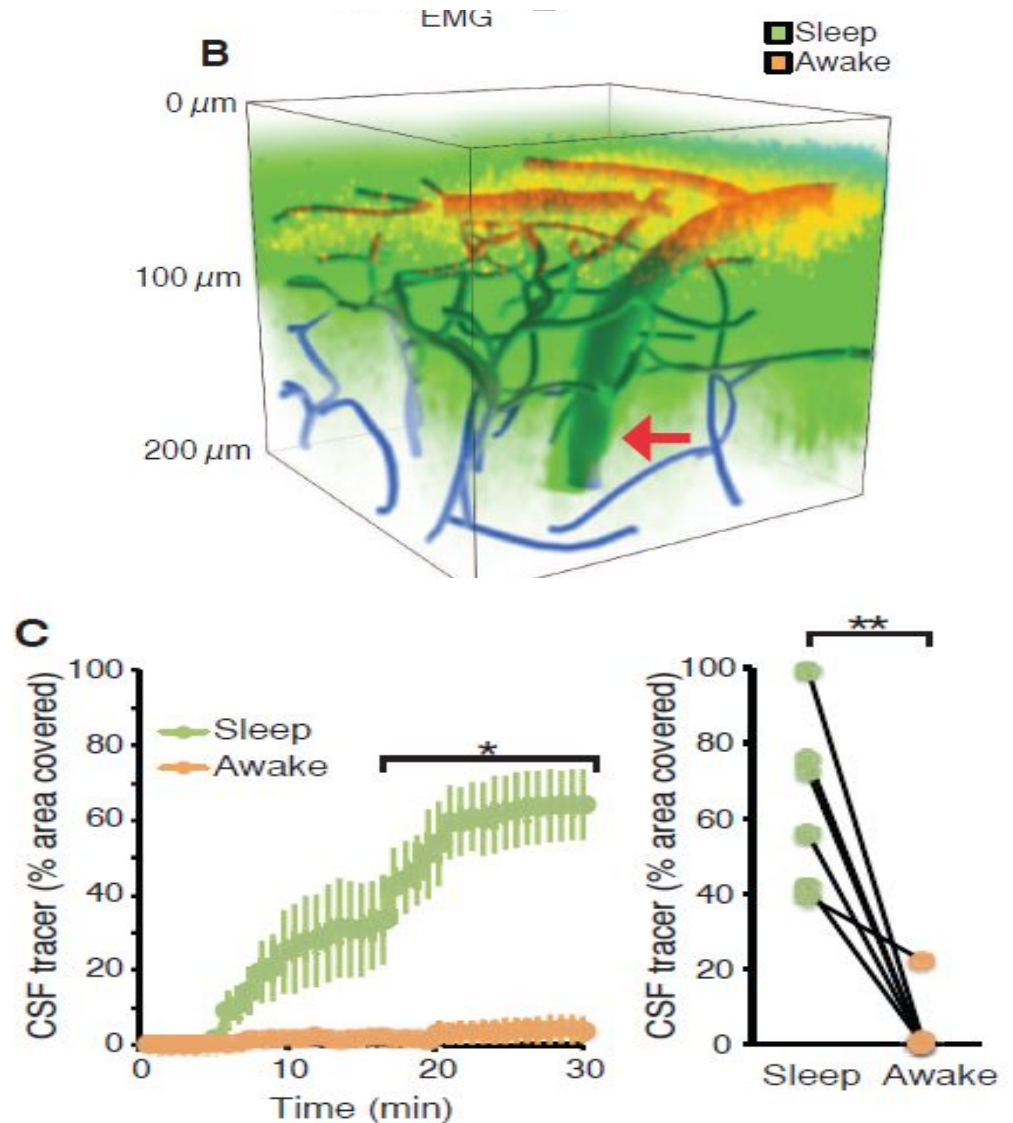
細胞間の間隙增加60%



增加腦脊液與
細胞間隙液的交換



有助排走神經毒性廢物(如
 β 類澱粉蛋白 - β amyloid)



睡眠基本步

睡眠與精神健康

睡眠與抗逆性(resilience)

學生的睡眠

瞓得唔好點算好?

睡眠的情緒功能

睡眠問題



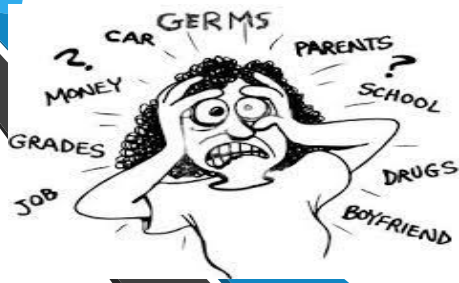
精神心理健康
Psychopathology

廣泛性焦慮
Generalized
Anxiety Disorder

創傷後壓力症
Posttraumatic
Stress Disorder

躁鬱症
Bipolar
Disorder

抑鬱症
Major
Depressive
Disorder



睡眠的情緒功能



ELSEVIER

Contents lists available at ScienceDirect

Journal of Affective Disorders

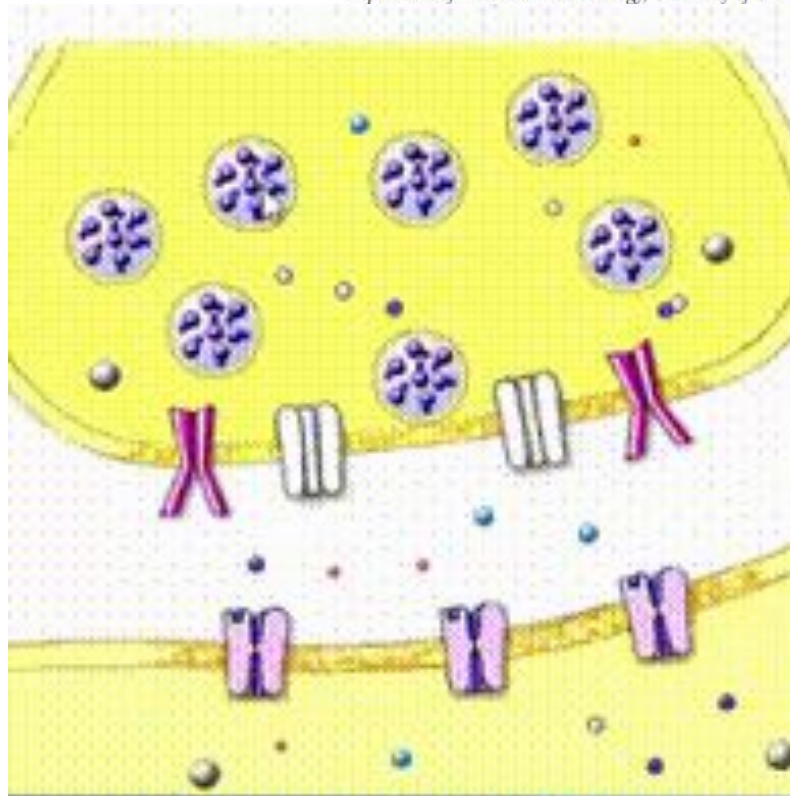
journal homepage: www.elsevier.com/locate/ja

SLEEP, SLEEP RESTRICTION, AND PERFORMANCE

Too Little Sleep Gradually Desensitizes the Serotonin 1A Receptor System

Viktor Roman, PhD; Irene Walstra; Paul G. M. Luiten, PhD; Peter Meerlo, PhD

Department of Molecular Neurobiology, University of Groningen, Haren, The Netherlands



神經遞質血清素

睡眠在抑鬱中扮演著關鍵作用

誘發因素

- 及時的失眠治療可以預防抑鬱症的產生或者復發

睡眠

抑鬱症

持續因素

- 治療睡眠障礙後，抑鬱的症狀也能夠得到改善

(Pigeon et al., 2008; Perlis et al., 2006)

睡眠質量、焦慮症與抑鬱症

睡眠質量差
增加

近3倍

睡眠質量欠佳
增加患
焦慮症及抑鬱症
的風險

睡眠質量差
增加

5-6倍

患上**焦慮症**的機率

患上**抑鬱症**的機率



香港教育大學

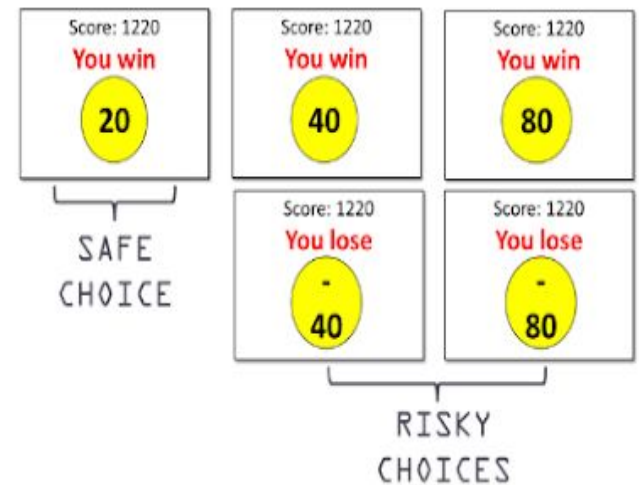
The Education University
of Hong Kong

(Wong, Lau, & Wing, 2015)

睡眠差異問題

睡眠時間不穩定

- 焦慮症及抑鬱症患者有更負面的注意力偏誤
- 較差的策劃能力
- 做出更高風險的決定



睡眠與樂觀之間的雙向關係

樂觀

抑鬱
情緒

睡眠
質量

- 987名上班人士 (平均年齡32.59)



Contents lists available at ScienceDirect

Journal of Psychosomatic Research



Bidirectional relationship between sleep and optimism with depressive mood as a mediator: A longitudinal study of Chinese working adults☆

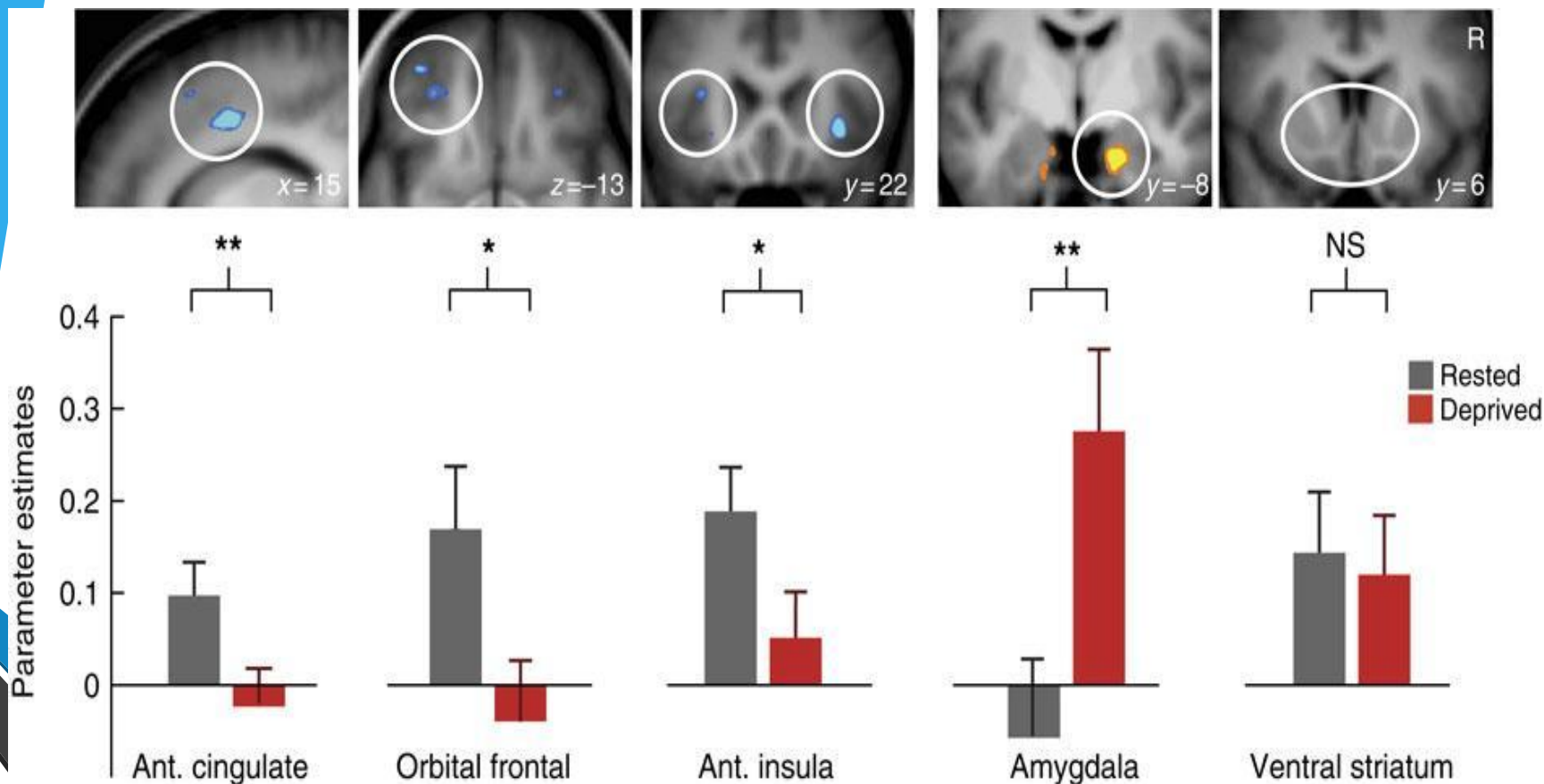
Esther Yuet Ying Lau^{a,b,*}, C. Harry Hui^c, Shu-Fai Cheung^d, Jasmine Lam^c

(Lau et al., 2015)



睡眠與大腦

- 睡眠剝奪組的**前額皮質 (prefrontal cortex)** 缺乏對來自於
- **邊緣皮質 (limbic cortex)** 的情緒反應的調節



(Greer, Goldstein, & Walker, 2013)

睡眠基本步

睡眠與精神健康

學生的睡眠

瞓得唔好點算好?



Sleep in students

睡眠時數建議

美國“國家睡眠基金會”(National Sleep Foundation)建議：

新生兒(0-3個月)：每天14-17小時

嬰兒(4-11個月)：12-15小時

幼兒(1-2歲)：11-14小時

學齡前兒童(3-5歲)：10-13小時

適齡兒童(6-13歲)：9-11小時

青少年(14-17歲)：8-10小時

年輕人(18-25歲)：7-9小時

成人(26-64歲)：7-9小時

老年人(65歲以上)：7-8小時



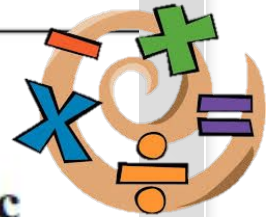
Sleep in Secondary School Children

Sleep Breath (2009) 13:357–367
DOI 10.1007/s11325-009-0255-5

ORIGINAL ARTICLE

Sleep duration, wake/sleep symptoms, and academic performance in Hong Kong Secondary School Children

E. P. Ng • D. K. Ng • C. H. Chan



- Sleep deprivation was associated with a decrease in Mathematics performance

(Ng, Ng, & Chan, 2009)



Sleep in Hong Kong Chinese Adolescents

1629 adolescents aged 12 to 19 years

- Average school-night bedtime:
- Total sleep time:
- Average bedtime and rise time on weekends was delayed by:
- Prevalence of sleep disturbance:

23:24pm

7.3 hr

64 min and 195 min

increased with age during adolescence and was higher among females

(Chung & Cheung, 2008).



South China Morning Post



Comment / Insight & Opinion

Hong Kong parents: Allow your children time to rest and play if you want them to succeed in life

Christian Chan and Esther Lau say that more exams and drilling at the expense of sleep and recreation defeats the purpose of advancing children's growth



Published: Wednesday, 09 December, 2015

Teens are **Wolves**



- Delayed sleep-wake cycle
- For teens, melatonin release occurs later in the evening
- Prefers afternoon and evening activity to mornings

Asian Teens are Worse



Contents lists available at ScienceDirect

Sleep Medicine

journal homepage: www.elsevier.com/locate/sleep



Review Article

Recent worldwide sleep patterns and problems during adolescence: A review and meta-analysis of age, region, and sleep

Michael Gradisar*, Greg Gardner, Hayley Dohnt

School of Psychology, Flinders University, G.P.O. Box 2100, Adelaide, 5001 South Australia, Australia

(Gradisar, Gardner, & Dohnt, 2011)

Social Media Use and Sleep



ELSEVIER

Contents lists available at [ScienceDirect](#)

Journal of Adolescence

journal homepage: www.elsevier.com/locate/jado



#Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem



Heather Cleland Woods, Holly Scott*

University of Glasgow, School of Psychology, 58 Hillhead Street, Glasgow G12 8QB, United Kingdom

(Wood & Scott, 2016)



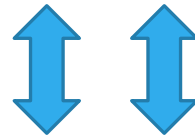
TV/Computer



**Not correlated
with
sleep variables**



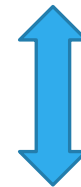
Mobile Phone



**Sleep quality, sleep
duration, daytime
sleepiness**



Portable Video Device



daytime sleepiness

(Mak et al., 2014)

“Yes I dose off but I’m OK.” Is it, really?

Brain, Behavior, and Immunity 58 (2016) 142–151



ELSEVIER

Contents lists available at ScienceDirect

Brain, Behavior, and Immunity

journal homepage: www.elsevier.com/locate/ybrbi



Full-length Article

Repeating patterns of sleep restriction and recovery: Do we get used to it?

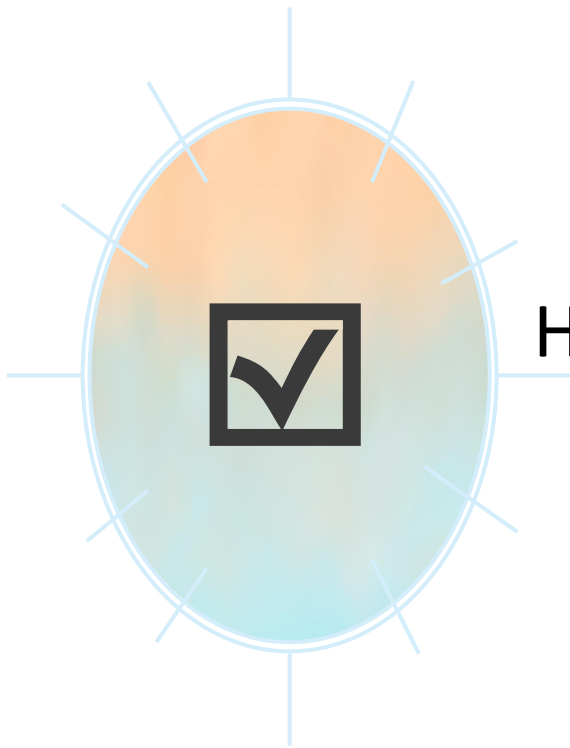


Norah S. Simpson^a, Moussa Diolombi^b, Jennifer Scott-Sutherland^b, Huan Yang^b, Vrushank Bhatt^b, Shiva Gautam^b, Janet Mullington^b, Monika Haack^{b,*}

^a Department of Psychiatry and Behavioral Sciences, 401 Quarry Rd., Stanford University School of Medicine, Stanford, CA, United States

^b Department of Neurology, Beth Israel Deaconess Medical Center/Harvard Medical School, DANA-727, 330 Brookline Ave., Boston, MA 02215, United States

(Simpson et al., 2016)



How about you?

睡眠基本步

睡眠與精神健康

學生的睡眠

瞓得唔好點算好?

睡眠狀況指標(SCI)

請計算以下兩項的
總分：

分數

題目	4	3	2	1	0
回想上個月一星期內有多少晚你的睡眠會出現問題？	0-1 晚	2 晚	3 晚	4 晚	5-7 晚
回想上個月，睡眠問題在何等程度上整體上困擾著你？	完全沒有	少許	頗為	相當	極度

什麼是失眠？



主觀滿意程度



困擾



難入睡

早醒

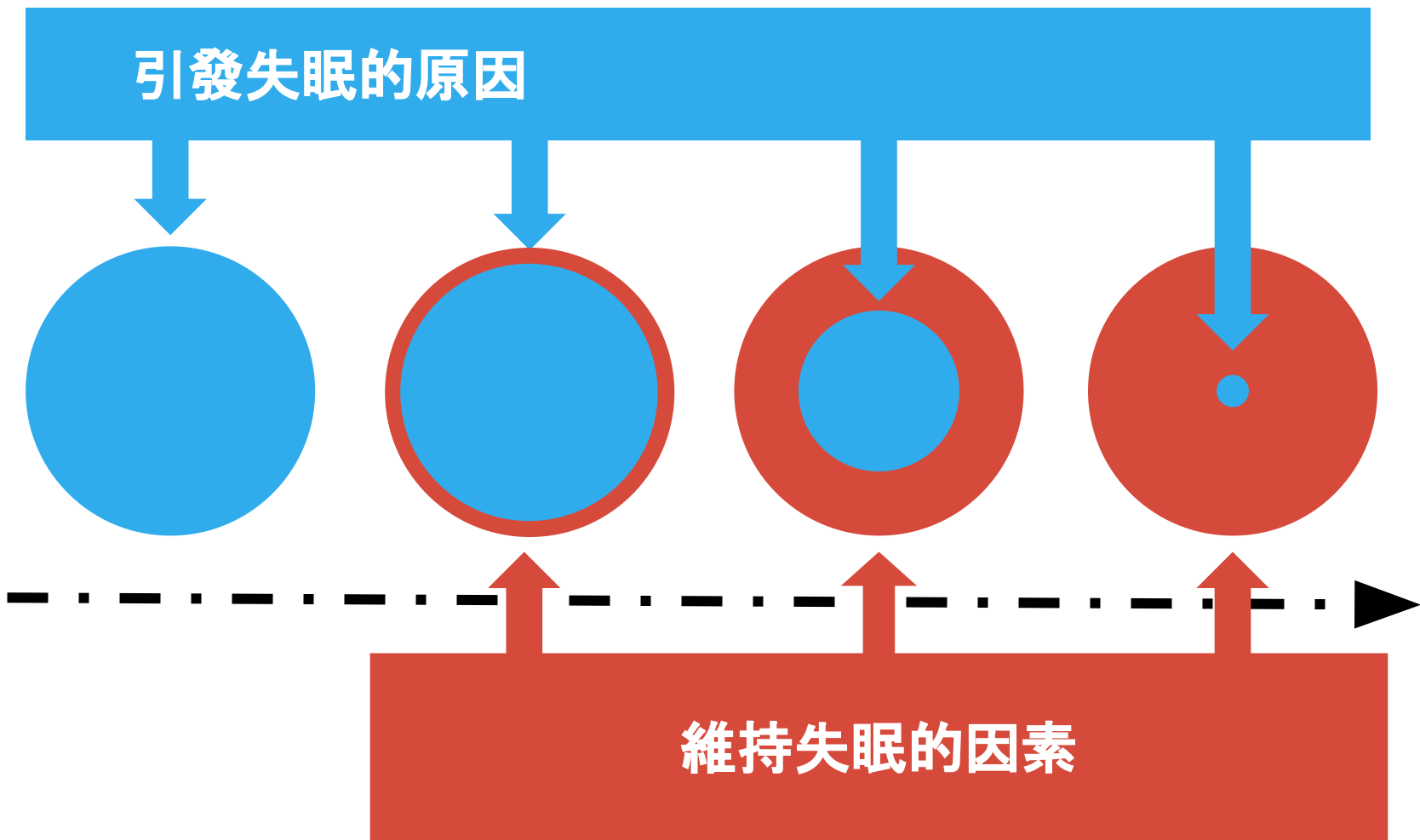
半夜醒

睡眠質素差

三個月

一星期三夜

失眠成因是什麼？



1. 換個角度想一想

「死喇，今晚瞓不著
瞓不著

「因為前一晚睡得不好，我今天一定面色很差！」



「我可能會些許疲倦，可是別人並不一定會注意到我。我可以明天好好打扮

「睡眠並不是比賽，我不需要和其他人計較！」

2. 改變環境



- 避免和孩子同床睡覺
- 不要在床上做與睡眠無關的事
 - 盡量減少噪音和光線
 - 保持睡房溫度較低

3. 改變生活習慣

每天作息不規律？

週末睡長一點補眠？

半夜會起來看時鐘？

白天無計劃的小睡？

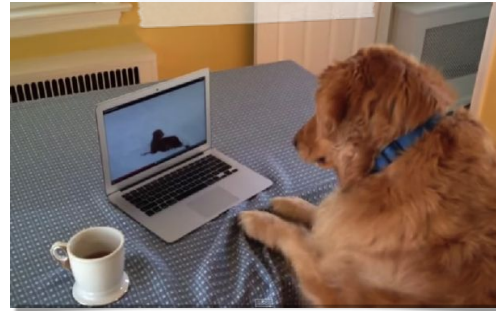
醒來會賴在床上？

日間不喜歡運動？

下午或晚上有飲咖啡的習慣？

習慣臨睡前飲酒？

臨瞓前上網？



處理失眠 Coping with Insomnia

- 定時睡覺
 - ★ 找出所需的睡眠量(7-9小時; 每個人都不一樣)
 - ★ 固定的睡眠和起床時間表
 - ★ 避免小睡
- 只能在床上睡覺(不閱讀、不看電視、不用電話)
- 只有想睡覺時才上床; 如果15分鐘後仍不能入睡, 可起來離開房間至再次想睡時才去睡
- 減低刺激
 - ❖ 下午和晚上飲用含咖啡因的飲料
 - ❖ 避免睡前喝酒或吸煙
 - ❖ 避免睡前做激烈的運動(日間運動)
 - ❖ 在日間安排「煩惱時間」
 - ❖ 睡前放鬆



好眠自己來

專家推薦的中西醫
失眠自助療法

鍾家輝 著

《好眠自己來》由精神科醫生、臨床心理學家、中醫師以及社工共同撰寫，深入淺出地剖析多種非藥物治療失眠的自助療法，包括認知行為治療、自我催眠、氣功和推拿等。書中亦有介紹治療失眠的藥物。受到失眠困擾的人士通過實踐自助療法，增加對失眠的認識，改變對失眠的固有觀念，相信也可以擁有夢寐以求的高品質睡眠。

——鍾家輝，香港大學精神醫學系臨床副教授。

「雖然坊間有五花八門處理失眠的資訊、偏方、秘方，但與其胡亂嘗試未有實證的方法，不如參考這本由研究睡眠多年，亦有豐富臨床經驗的專家編寫的失眠者自助書。編者鍾家輝醫生投入研究多種失眠療法，可謂中西合璧，立足科研，集百家之大成。期盼此書惠及大眾，並為失眠治療師提供極具價值的輔助材料。」——劉月瑩，香港教育大學心理學系助理教授

Later School Time

Practical tips for sleep health

ARTICLE

Impact of Delaying School Start Time on Adolescent Sleep, Mood, and Behavior

Judith A. Owens, MD, MPH; Katherine Belon, BA; Patricia Moss, PhD

- Fewer students seek help from counselors
- Sick days and tardiness decrease
- Parents report their teenagers are more positive and closer relationships at home
- Car accidents among teen drivers drop

Examining the Impact of Later High School Start Times on the Health and Academic Performance of High School Students: A Multi-Site Study

Final Report
February 2014

Kyla L. Wahlstrom, Ph.D.
Project Director/ Lead Investigator

Research Team/Report Authors
Kyla L. Wahlstrom, PhD, Principal Investigator
Beverly J. Dretzke, PhD, Research Associate
Molly F. Gordon, PhD, Research Associate
Kristin Peterson, MA, Research Fellow
Katherine Edwards, BA, Research Assistant
Julie Gdula, MA, Research Assistant

(Owens, Belon, & Moss, 2010;
Wahlstrom et al., 2014)

Later School Time

Practical tips for sleep health

228 Grade 11 students from an international boarding school in Hong Kong



T1: April 2017



T2: Oct 2017



Delayed School Start Time
is Associated with **Better
Sleep, Daytime
Functioning and Life
Satisfaction** in
Residential High-School
Students

Napping is beneficial to verbal declarative memory in adolescents

39 healthy boarding school students (ages 15-18, 70% female)



wake group

VS



one-hour afternoon nap

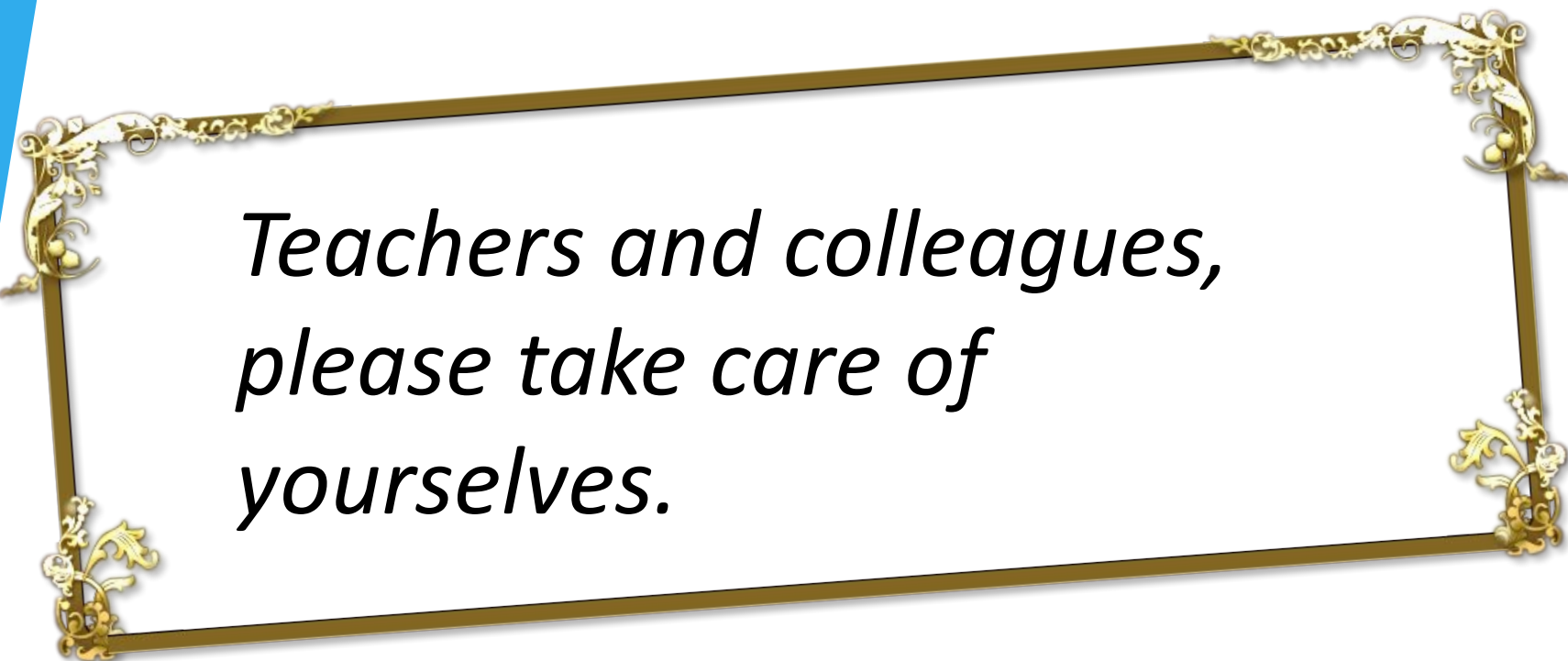
Students in napping group
recalled more details of
stories and more word pairs

Lau et al., 2018. Journal of Adolescence

總結

We have a big problem, we REALLY have to SLEEP on it

- 充足睡眠是生命之源
- 睡眠質量差影響腦部功能，妨礙精神健康
- 要戰勝逆境，必須有強健體魄、充足精神、靈活頭腦、平穩情緒，良好睡眠習慣不可或缺



*Teachers and colleagues,
please take care of
yourselves.*



Thank You!



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