

睡眠健康檢查計劃適用  
For Sleep Health Programme

**無線家用睡眠監測指環 Wireless Sleep Monitoring Ring (Sleep Ring)**  
**使用流程 Procedures**

香港中文大學醫務中心採用的「無線家用睡眠監測指環」(簡稱「睡眠指環」)已獲美國食品及藥物管理局(FDA)許可，用於篩檢阻塞性睡眠窒息症問題，指環所提供的睡眠數據，另有助醫生作臨床參考，配合其他篩查工具分析睡眠健康。

檢查人士需要配戴睡眠指環，而整個配戴及數據下載過程簡單易用，使用詳情可參考此短片：<https://bit.ly/cuclsleeping>

The "Wireless Sleep Monitoring Ring" ("Sleep Ring") adopted by the CUHK Medical Clinic has been approved by the US Food and Drug Administration (FDA) to screen for obstructive sleep apnea problems, the data captured by the ring provides clinical reference to doctors and able to analyse sleep health conditions together with other screening tools.

Participant needs to wear the sleep ring, the entire wearing and data download process is simple and easy to use. For details of usage, please refer to this video: <https://bit.ly/cuclsleeping>

**Step 1: 預約服務 Appointment Booking**

請經本中心的網上進行預約，或於服務時間內致電，預約醫生。

Please arrange appointment via our online registration platform or contact our receptionist by phone during clinic hours.

註：若睡眠問題經已嚴重影響健康及生活，請立即通知本中心的醫護團隊，以盡快作相應安排，諮詢醫生專業意見。

Note : If your health and daily life have seriously affected by sleep problems, please contact our centre for consulting doctor's professional advice, our medical team will make corresponding arrangements for you as soon as possible.

**Step 2: 拿取睡眠指環及機座 Pick up the Sleep Ring and Cradle on the same day**

約見醫生後，醫務中心職員會將睡眠指環及機座交給你，並講解使用方法，及預約覆診日期。

After consultation,  
clinic staff will pass you the Sleep Ring and Cradle, and  
explain the use of it. They will help you make the appointment for the follow up consultation.

### **Step 3: 進行睡眠測試 Conduct Sleep Test**

於家中進行 3 晚的睡眠監測。

Conduct 3 nights of sleep test at home.

### **Step 4: 覆診 Follow-up Consultation**

在覆診日帶回指環及機座，讓醫護人員擷取篩查結果，由醫生講解報告

Please bring back the Sleep Ring and Cradle on the day of the follow-up consultation. Our clinic staff will retrieve the report, and pass to our physicians for result interpretation.

## 常見問題 FAQ

### Q1: 為甚麼要選用睡眠指環? Why should you choose this sleep test?

A: 睡眠指環輕巧方便及容易操作，讓病人於家中亦可接受篩查，避免因需要留院而影響睡眠狀況，以至影響測試結果。

The Ring is light, convenient and easy to use. Patients can take the screening at home thus to avoid any sleep interruption due to hospital stay.

### Q2: 睡眠測試指環不適用於哪些人士? Who should NOT use this sleep test?

A: 如果患者有以下情況，睡眠分析將受到影響：

- 正在使用氧氣療法或非入侵性正壓呼吸器
- 患有慢性阻塞性肺病、神經肌肉疾病、睡眠週期性肢體抽動或嗜睡症
- 循環系統有缺損而影響運氧能力
- 檢測位置，即食指有損傷或殘缺
- 檢測位置的皮膚有明顯的色素沉積或染色，如紋身、傷口
- 對「可熱塑性聚氨酯」物料有嚴重接觸性敏感反應

Sleep analysis would be affected if patients have the following conditions:

- Receiving oxygen therapy or noninvasive ventilation
- Suffering from chronic obstructive pulmonary disorder (COPD), neuromuscular disease, periodic limb movement, or narcolepsy
- Have compromised circulation which affects the oxygen carrying capability
- Presence of injury or physical malformation at the measuring spot i.e. index finger
- Existence of significant skin pigmentation at the measuring spot, e.g. tattoos, skin wound, etc.
- Have severe contact allergies to thermoplastic polyurethane

### **Q3: 若戴上指環後出現敏感症狀，該怎樣處理？**

#### **If I have allergic reactions after wearing the Ring, what should I do?**

A: 如出現敏感反應，請立即除下指環並聯絡本中心職員。

If your skin is sensitive to the materials of the Ring, please take off the Ring and contact our clinic staff.

### **Q4: 睡眠測試前應注意甚麼？ What should I pay attention to before the sleep test?**

A: 注意事項包括：

- 避免於中午後食/飲用含咖啡因食品或飲料
- 避免飲用酒精飲料
- 避免於日間小睡
- 除非醫生有其他指示，可繼續服用日常的處方藥物
- 若感到不適，如傷風或感冒，請於完全康復後再另選測試日期

Before the sleep test, please:

- Avoid intaking caffeine after noon
- Avoid drinking alcohol
- Avoid napping during daytime
- Continue to take any prescribed medications that you usually take, unless otherwise instructed by the doctor
- Postpone the test if you are sick e.g. cold or flu

### **Q5: 測試期間可否服用安眠藥？ Can I use sleeping pills during sleep test?**

A: 為反映日常的呼吸狀況，你可如常服用安眠藥。若正服用肌肉放鬆藥物，請通知主診醫生，因為該等藥物有機會引起更多呼吸暫停或呼吸不足情況的出現。

One should continue to use sleeping pills as usual to reflect his/her breathing in regular situations. Please inform your physician if you are taking medications that contains muscle relaxant, e.g. Benzodiazepines, which tends to induce more apnea/hypopnea events.

**Q6: 在半夜醒來時，需要除下指環嗎？**

**Should I take off the Ring when I wake up in the midnight?**

A: 在半夜醒來時並不需要除下指環；當你再次入睡後，指環會繼續進行同一晚的測量。若你需要洗手，請暫時除下指環，待雙手乾透後重新戴上。直至早上起床後才把指環放回基座。

You do not need to take off the Ring if you wake up during midnight. The same night measurement will continue after returning to sleep. Please remove the Ring temporarily if you need to wash hands. DO NOT place the Ring back to the Cradle until you wake up in the morning.

**Q7: 需要進行多少晚的測量？ How many nights of measurement is needed?**

A: 建議進行三晚的測量。睡眠窒息情況每晚都有差異，三晚睡眠測試能夠提供更多數據以判斷睡眠窒息症的嚴重程度。A 3 nights of measurement is recommended. Frequency of respiratory events vary every night for the same person. A 3-night study gives more information on the severity of sleep apnea.

**Q8: 測試需要多長的睡眠時間？ How many hours of sleep is needed?**

A: 為有效評估阻塞性睡眠窒息症的嚴重程度，測試需要不少於 6 小時的睡眠時間。指環會累計同一晚的總睡眠時間，若除下指環超過 60 分鐘則會影響檢查結果。

At least 6 hours of sleep is needed to assess the OSA. The total sleep time is accumulative within the same night, unless the Ring is detached for over 60 minutes.

**Q9: 我需要為指環充電嗎？ Do I need to charge the device?**

A: 指環完全充電後可進行 10 小時的測量。請確保在每晚測量前後均將指環妥善地與機座連接以進行充電。

When fully charged, the Ring's battery is enough for 10 hours of measurement. Please make sure that the Ring is properly connected to the Cradle for recharging before and after each measurement.

### **Q10: 睡眠測試指環有多準確？ How accurate is this sleep test?**

A: 與標準的多項睡眠電圖檢查比較，指環對檢測中度至嚴重程度的阻塞性睡眠窒息症 (睡眠窒息指數>15) 的準確度接近 90%。

For moderate to severe OSA (apnea hypopnea index >15), the accuracy rate is close to 90% as compared to standard laboratory conducted polysomnography.

### **Q11: 有哪些因素會影響測試的成功率?**

**What kind of factors will affect the success rate of the test?**

A: 以下為主要的因素：

- 脈搏太弱
- 入睡後身體仍慣常出現不自主的肢體動作
- 睡眠時間少於所需的 6 小時

Below are the main factors

- Low in cardiac output
- Involuntary limb movements after falling asleep
- Less than 6 hours of sleep

### **Q12: 進行睡眠指環測試後，我還需要接受多項睡眠電圖檢查嗎?**

**Is Polysomnography (PSG) necessary after using the Ring?**

A: 睡眠測試指環主要用於篩查及協助診斷睡眠窒息症。在接受睡眠指環檢測後，應根據醫生專業臨床判斷和病人意願來決定是否需要進行其他更深入的檢查。

The Sleep Ring is used as a screening test and diagnosis aid. Any further investigation depends on clinical judgement and patient preference.

### **Q13: 如何在沒有呼吸系統數據下斷定是否有睡眠窒息或睡眠不足?**

**How to determine apnea/ hypopnea without respiratory channels?**

A: 睡眠監測指環是利用人工智能對測試者的血氧濃度、脈搏率、活動情況進行演算分析。

By AI based algorithm analysis of SpO<sub>2</sub>, pulse rate and motion

**Q14: 如何在沒有腦電圖資料下判斷總睡眠時間?**

**How to determine total sleep time without EEG?**

A: 睡眠指環是利用人工智能對測試者的脈搏率、活動情況進行演算分析。

By AI based algorithm analysis of pulse rate and motion

**Q15: 多項睡眠電圖檢查及睡眠測試指環哪個較準確?**

**Is polysomnography or Belun Ring more accurate?**

A: 多項睡眠電圖為睡眠障礙的標準檢測方法。與入院進行的多項睡眠電圖檢查比較，倍靈指環對檢測中度至嚴重程度的阻塞性睡眠窒息症 (睡眠窒息指數>15) 的準確度接近 90%。

Polysomnography is the standard lab test for diagnosis of sleep disorders. For moderate to severe OSA (apnea hypopnea index >15), the accuracy rate of Belun Ring is close to 90% as compared to standard laboratory conducted polysomnography.

**Q16: 要等多久才可取得指環?報告分析需時多久?**

**How long does it take to receive the ring? How long does report analysis take?**

A: 經醫生診症及確認接受睡眠測試後，本中心的醫護人員會即日將指環及機座交予你，講解使用方法，以及為你預約覆診日期。請你於覆診當天將指環及機座交還給醫護人員，我們會即時連接系統讀取報告，以便醫生為你提供進一步的醫療建議。

Clinic staff will give you the Sleep Ring on the day of consultation. We will explain to you how to use the sleep ring and help you arrange a follow up consultation.

During the follow up consultation, please return the set of Sleep Ring to our clinic staff, and we will have it connected to the system and retrieve the report. The doctor will refer to the report and render medical advice.

**Q17: 如果首次測試不成功，如何處理？**

**What if the test is not successful at the first attempt?**

A: 如首次使用指環進行測試不成功，醫生會審視實際狀況，若認為合適，會免費為你再次安排進行家中睡眠測試及預約下次的覆診日期。

如果再次的測試亦不成功，醫生會與你商討情況及按需要作出其他安排。你將不需要為這次測試繳付費用。若再接受其他模式的睡眠測試，將需繳付額外的費用。

If the report could not be retrieved, the doctor will assess the situation and reschedule another sleep test without additional charges.

If the test is found unsuccessful again, the doctor will discuss with you and make appropriate arrangement. You will not need to pay for this test.

If you are recommended to conduct other types of sleep tests, it will incur extra charges.

**Q18: 如遺失或損壞了指環及/或機座，需要賠償嗎？**

**Do I need to pay for any damage or loss of the Sleep Ring?**

A: 若遺失或損壞了指環及/或機座，你需向睡眠指環的製造商倍靈科技有限公司繳付港幣 6,500 元的賠償金。

You are liable to pay a compensation fee of HK\$6,500 to Belun Technology Company Limited, the manufacturer of the Sleep Ring, for any damage or loss caused by negligence.

**Q19: 指環容易掉出來嗎? Does the Sleep Ring fall out easily?**

A: 指環有不同大小，醫護人員會協助你選擇最合適的尺碼，並指導你如何正確使用指環。

The Sleep Ring has several sizes. Our clinic staff will help you choose the most suitable one and teach you how to use it properly.



**Q20: 如何避免測量失敗的情況發生? How to prevent a failure of test?**

A: 使用指環前，醫護人員會協助你選擇合適的尺碼，並講解配戴和操作指環的方法。根據過往的數據顯示，指環測試的不成功率少於 10%。你若有任何疑問，請聯絡我們的醫護人員，以提供適時協助。

Our clinic staff will help you choose the most suitable ring size and teach you the proper way of using it. According to past data, the failure rate of the test is less than 10%. Should you have any enquiry, please do not hesitate and contact our medical staff for assistance.