

NUHS SLEEP STUDY

Comparing traditional call and float schedules

Lab Visit Briefing



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Study team



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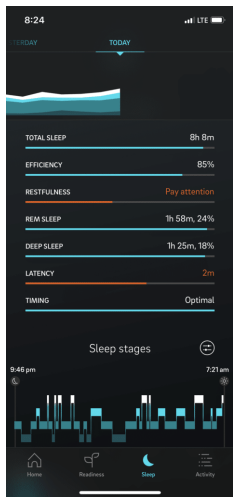
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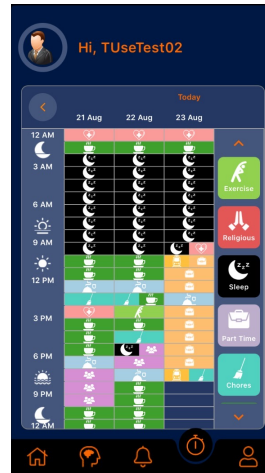
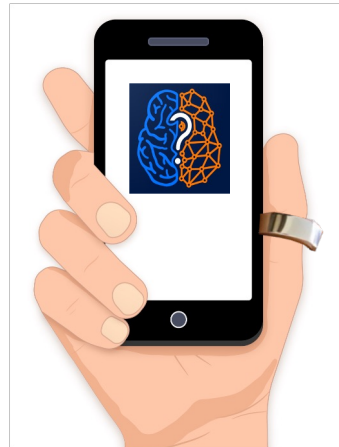
Aims of study

- To understand how sleep patterns surrounding night float and traditional on-call schedules affect well-being, cognitive performance and glucose metabolism among PGY-1 medical doctors.

Oura Ring



App-based cognitive performance and questionnaires



Laptop-based Vigilance task

Respond as fast as possible to the timer



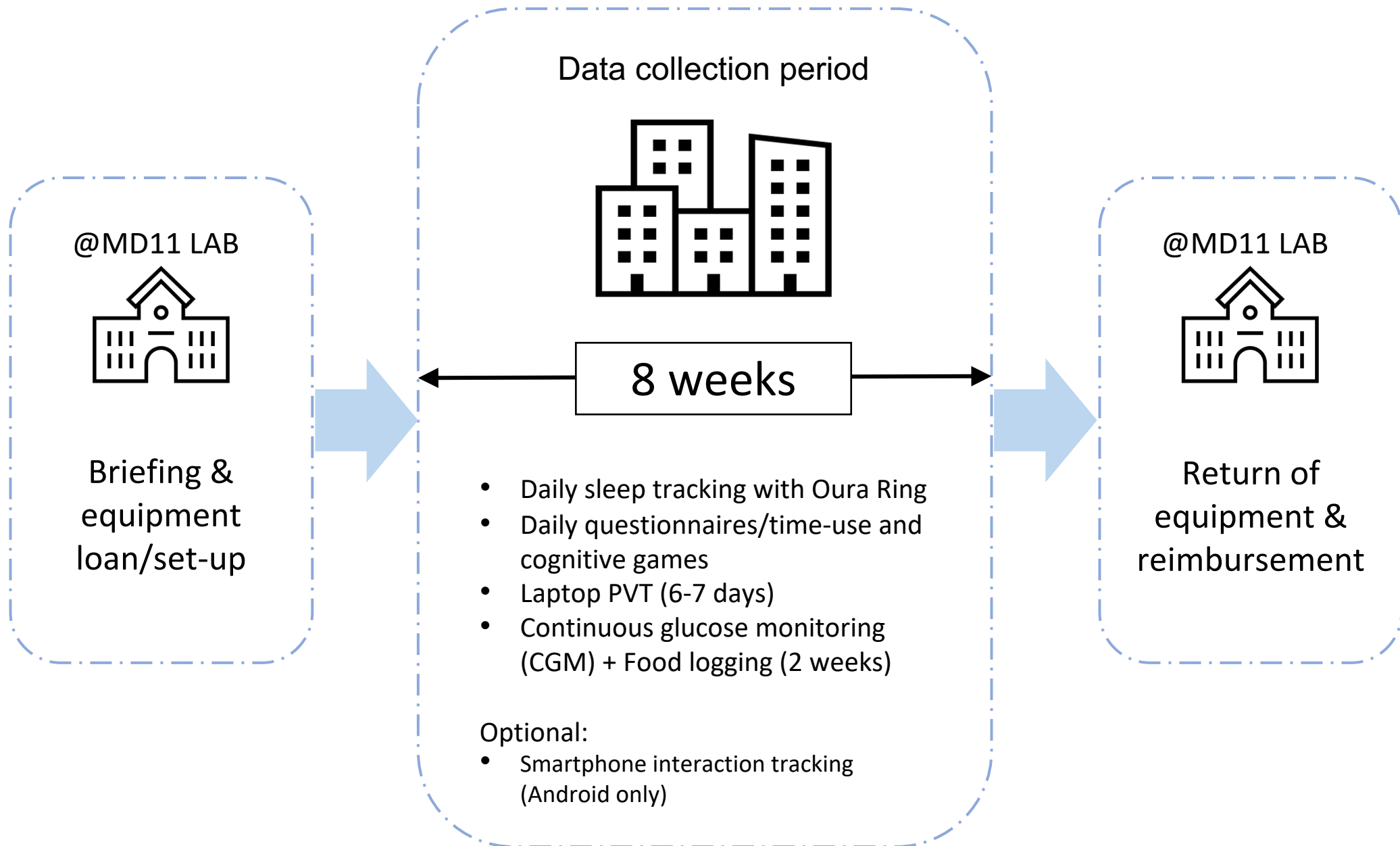
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Continuous Glucose Monitoring + Food logging



Eligibility criteria

- Aged 21 or above
- Be an NUHS PGY-1 doctor
- Rotations in 2022-2023



How will my data be kept private and confidential?

Personal data will be kept confidential

Research data will be de-identified

Raw data will be handled by NUS researchers only

NUHS members will only have access to summarized group data

Study measures

1. **Oura Ring**
2. Daily Z4IP app tasks
3. Laptop-based vigilance task (PVT)
4. Continuous glucose monitoring (CGM) & Food logging
5. Online questionnaires
6. Smartphone interaction tracking (optional)

Sleep tracking : **Oura Ring**

- Multi-sensor wearable device
- Measures heart rate, movement, and temperature



Oura Ring



- Wear at all times (day and night!)
- On non-dominant hand
- The Oura Ring will be paired with your own smartphone

Oura Ring

Can be worn when



swimming/shower (water-resistant)

Remove only when



Charging



Contact sports



Medical
procedures

Remember to wear the ring again afterwards!!!

Study measures

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Daily Z4IP tasks

Mobile app to be downloaded on smartphone

Complete daily 1X

Completion window **5:00 – 22:00** (optimally approx. 30 minutes after wake):

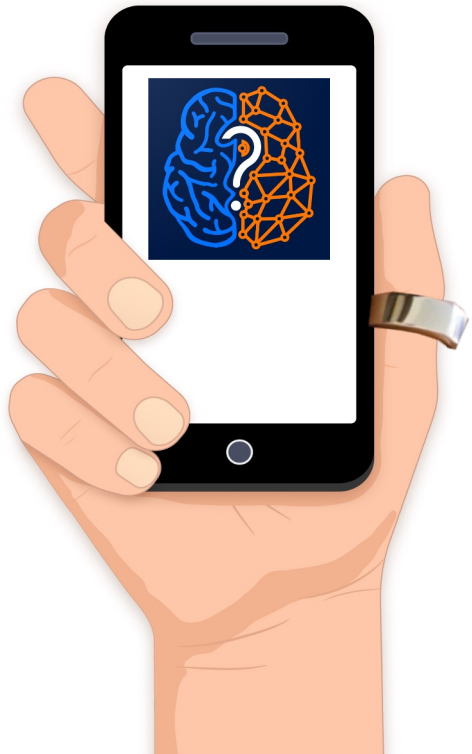
- **Cognitive tests** using **3** simple and short games
- **Mini questionnaires** assessing your sleep and well being

Approx 6 mins per session

Complete **anytime during the day**:

- **Time-use diary**

Approx 10 mins per day



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Psychomotor Vigilance Task (PVT)

- 10-min test of sustained attention
- Performed on netbooks
 - Quiet place / undisturbed
 - Sitting upright
- On 6 days @8AM-2PM*
 - Traditional: 3 post call days & 3 control days
 - Float: 3 night float days & 3 control days

*for post-call/post-float do PVT directly after shift
[definitely before sleeping]

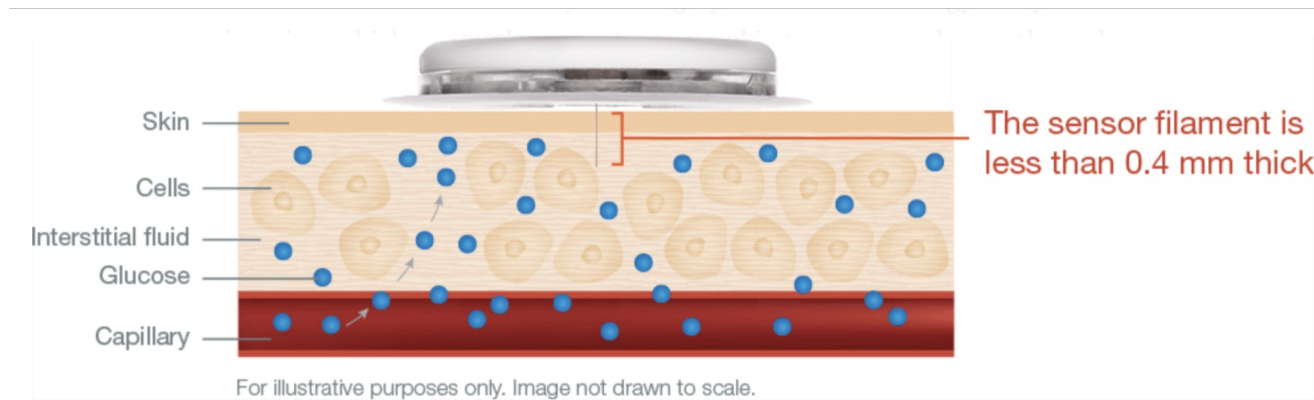


Study measures

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Continuous Glucose Monitoring (CGM)

- Monitors variation in your interstitial fluid glucose levels
- Contains small filament that penetrates skin
- Safe and comfortable to wear! 👍
- Can be worn to swim, shower, or exercise



****Cannot be worn if you go for an MRI scan, CT scan, or diathermy treatment.***

Continuous Glucose Measurement (CGM)

Duration: 2 weeks

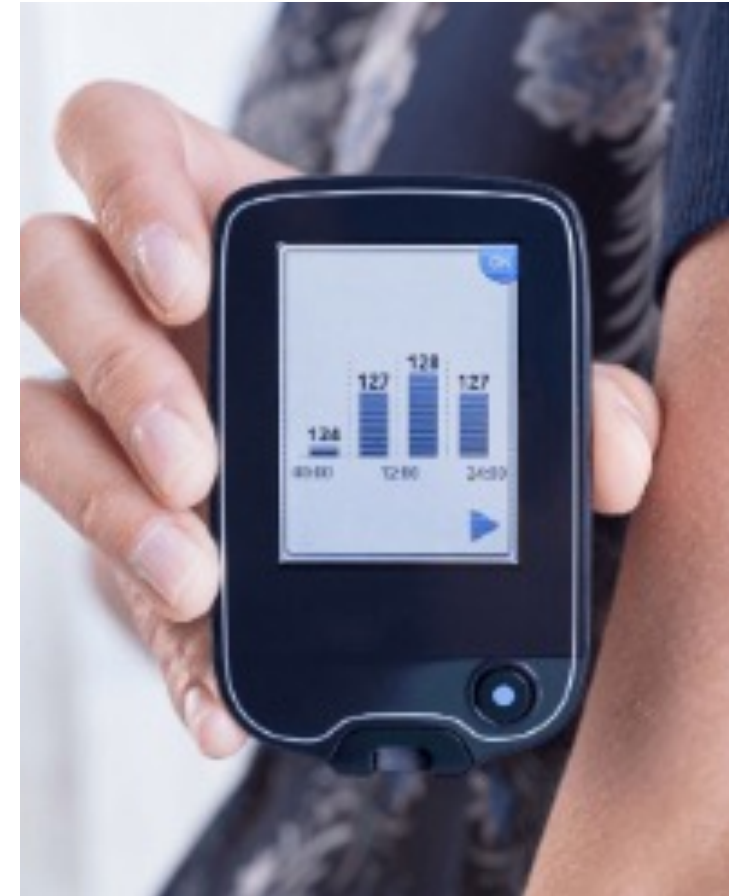
Start:

- Traditional: Start of data collection
- Float: 1 week float + 3-4 days pre- & post-float

Time: TBC

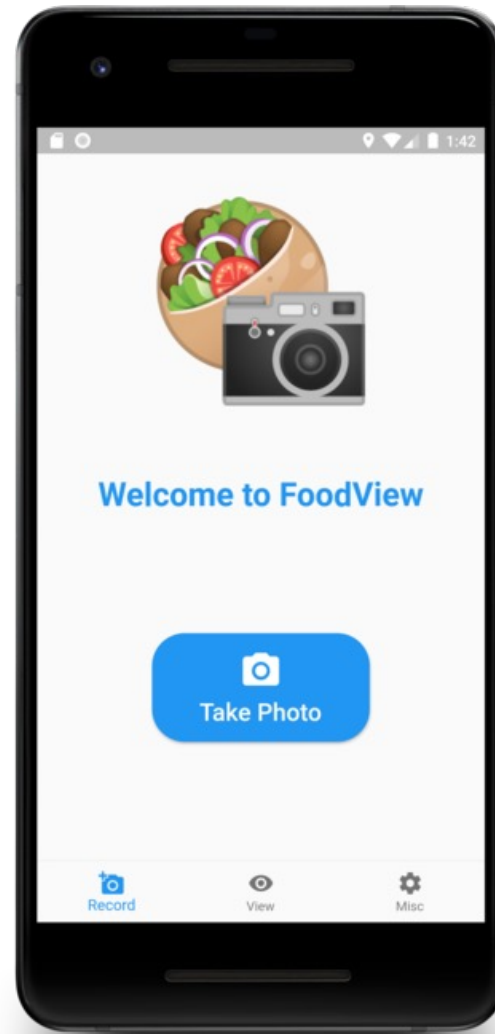
Venue: MD11

Our trained staff will assist you with the sensor application



Food logging

- FoodView app
- Take pictures of
 - meals / drinks / snacks
 - 2 weeks (during CGM)



Study measures

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5. **Online questionnaires**
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Questionnaires



LINK TO QUESTIONNAIRES
TO BE SENT TO YOUR
EMAIL.



COMPLETED AT YOUR
CONVENIENCE AT THE
START & END OF STUDY.



~35 MINUTES TO
COMPLETE.

Study measures

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Smartphone interaction tracking: TapCounter

- Optional for Android users
- Install TapCounter app from Google Play Store
- Passively keeps track of your phone touchscreen interactions to learn about your device usage patterns
- **MUST run in the background of your phone all the time**



Smartphone interaction tracking: TapCounter

What kind of data does this app collect?

Data Collected



- Mobile device model
- Time of phone interaction (taps & swipes)
- Active application
- Which city you are in (i.e. Singapore)

Data NOT Collected



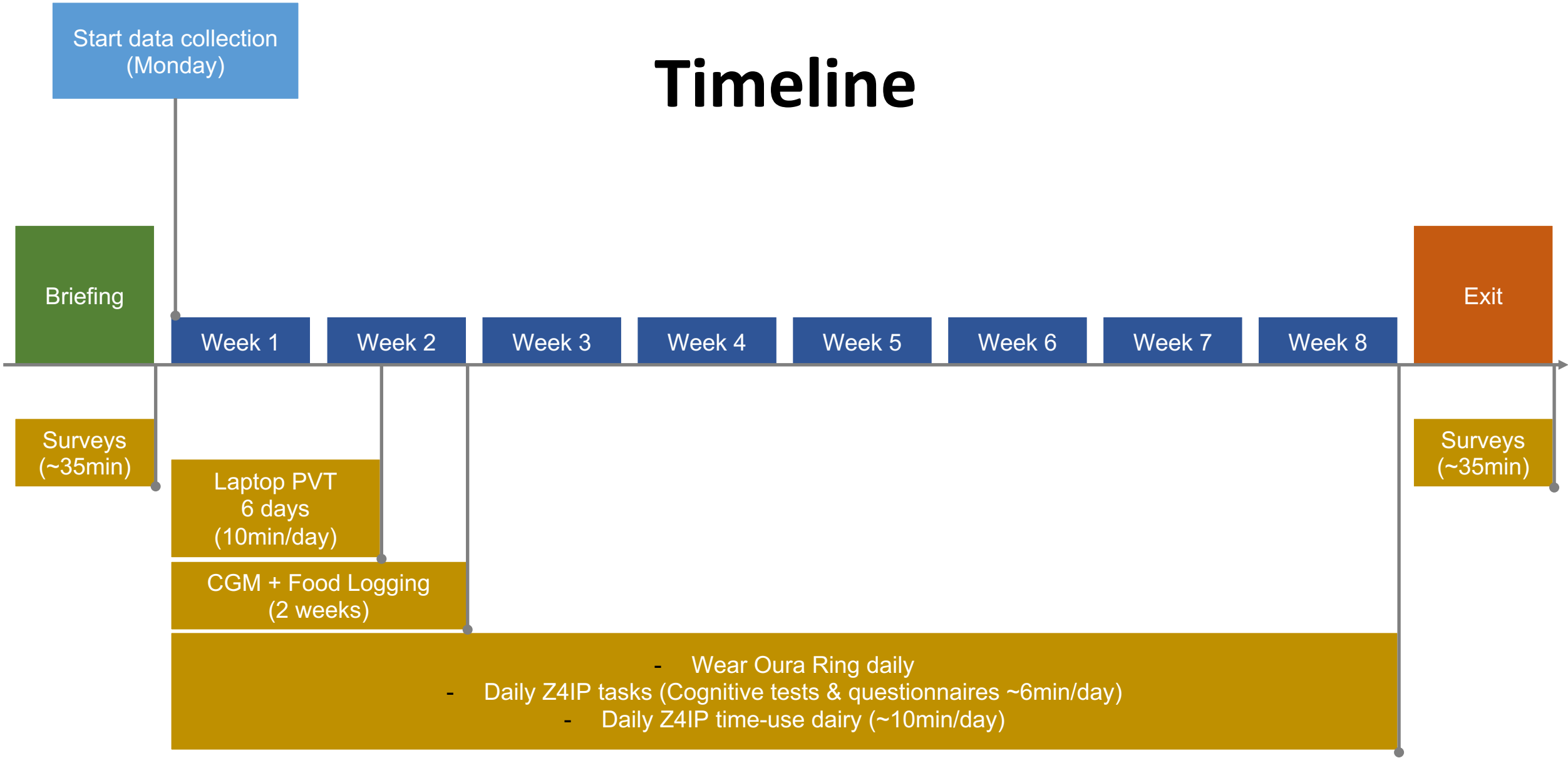
- Websites visited
- Content typed (i.e. text or numbers)
- Position of taps on the screen (e.g. password lock patterns)

End of study



- Venue: MD11
- Return of study equipment
- Exit Questionnaire
- Reimbursement settlement

Timeline



Reimbursement

- Participants can receive **up to \$230** at end of the study
- Amount is **conditional on weekly completion** of the study measures
- All reimbursement will be paid at the end of your data collection period (upon return of study equipment)



Reimbursement schedule

	Criteria	Reimbursement
Weeks 1 - 8	For minimum of 4 days/nights* per week: <ol style="list-style-type: none">1. Wear and record data from the Oura ring2. Complete the daily questionnaire / cognitive games / time-use on the Z4IP app	\$10/week
CGM + Food logging (2 weeks)	<ol style="list-style-type: none">1. Wear the CGM sensor for 2 weeks2. Provide daily food log pictures	\$50
Laptop PVT	Complete all scheduled sessions	\$50
Completion bonus	-	\$50
Total maximum reimbursement		\$230

Participation
is voluntary

You may discontinue the
study at any time

Reimbursement will be
pro-rated

Any questions?

Download apps

		Android	iPhone
Z4ip			
Oura			
TapCounter			