

Summary SOMNIA1000 dataset

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Center for Sleep Medicine Kempenhaeghe

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SOMNIA
1000



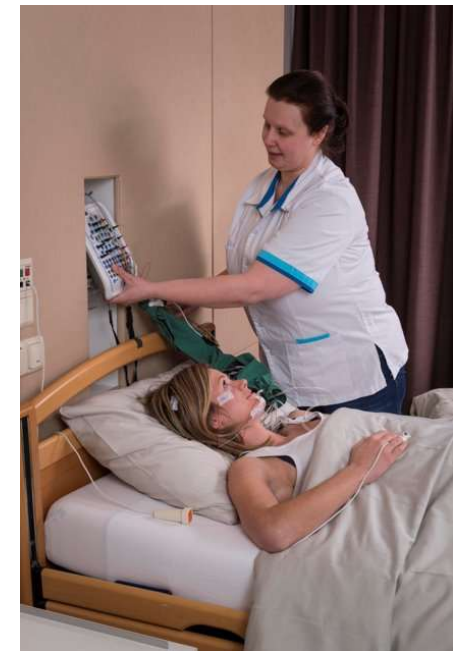
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SOMNIA1000 data collection

- SOMNIA: Sleep and Obstructive Sleep Apnoea Monitoring with Non-Invasive Applications
- Observational trial
 - Neurophysiological database for advanced sleep monitoring
 - › All data collected at Center for Sleep Medicine Kempenhaeghe
 - In-hospital nocturnal recording of:
 - › Polysomnography (PSG), as part of clinical process
 - › Simultaneously: one or more wearables

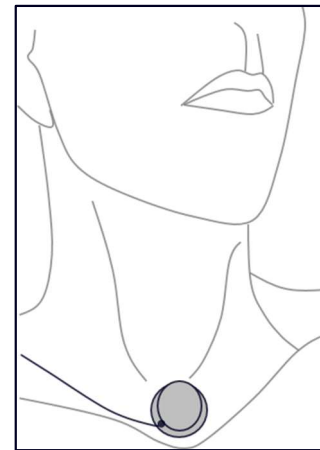


Available data

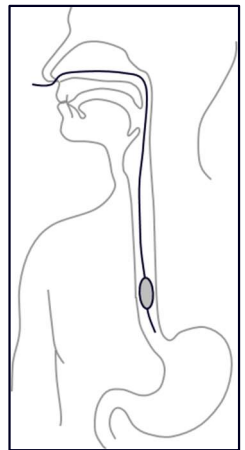
- 1000 full polysomnography datasets (incl. scored events and manual scored hypnogram)
 - Wide variety of sleep disordered participants (18 years or older)
 - Sleep disorder diagnosis
- Simultaneously recorded additional sensor data:
 - a. n = 400+ Wrist sensor data (PPG + Accelerometry)
 - b. n = 200+ Supra sternal notch pressure sensor data
 - c. n = 50+ Esophageal pressure sensor data
- Demographics: age, sex, BMI



a.



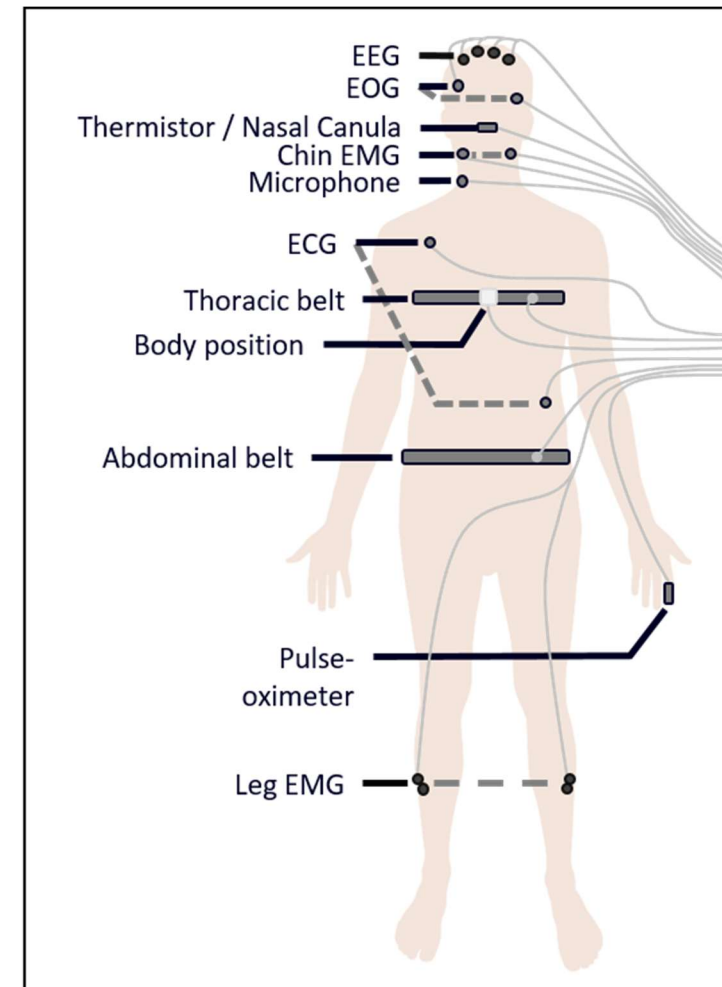
b.



c.

Available data - PSG

- PSG signals: (sample frequency and labels)
 - **EEG** 512Hz : F4-M1, F3-M2, C4-M1, C2-M2, O2-M1, O1-M2
 - **EOG** 512Hz : E2-M2, E1-M2
 - **EMG** 512Hz : Chin2-ChinZ, Chin1-ChinZ, Leg_L, Leg_R
 - **ECG** 512Hz : lead II
 - **Microphone** (snoring sounds) 512Hz: Snore
 - **Thermistor, Nasal Canula** 128Hz: Thermistor, Flow
 - **Respiratory RIP-belts** 128Hz: Thorax, Abdomen
 - **Position sensor** 16Hz: Position
 - **Saturation** 32Hz: SpO2
 - **Pulse-oximeter** 128Hz: Plethysmogram
- Additional scoring
 - **Sleep stages** (per 30 second epochs)
 - **Event annotations** (automated and manual scored)
- Data format: .edf



Available data – other sensors



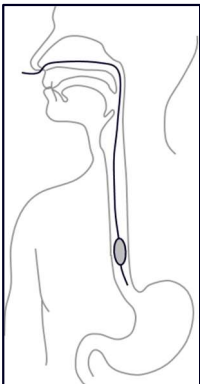
Wrist sensor

- Photoplethysmography (32Hz)
- Accelerometry (128Hz)
- Synchronization info
(*Separate data files*)



Supra sternal notch pressure sensor

- Raw signal (1024Hz)
- Breath envelope (128Hz)
- Snore envelope (128Hz)
(*Signal in PSG EDF file*)



Esophageal pressure sensor

- Pressure signal (128Hz)
(*Signal in PSG EDF file*)

Methods paper SOMNIA data collection

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Protocol of the SOMNIA project: an observational study to create a neurophysiological database for advanced clinical sleep monitoring 

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Van Gilst (BMJ Open) - Link: <https://doi.org/10.1136/bmjopen-2019-030996>

Prevalence of sleep disorders

	Prevalence
Obstructive Sleep Apnea	409
Chronic Insomnia Disorder	146
Narcolepsy (type 1 or 2)	22
Idiopathic Hypersomnia	19
Non-REM Parasomnia	67
REM sleep Behavior Disorder	34
Restless Legs Syndrome and/or Periodic Limb Movement disorder	52
Delayed Sleep-Wake Phase	10
Other (Insufficient Sleep Syndrome, Long Sleeper, Healthy Sleeper)	79
Co-morbid Insomnia and Sleep Apnea (COMISA)	114
RBD <u>and</u> OSA	48
Total:	1000

{ Participants diagnosed with a single sleep disorder

{ Participants diagnosed with two sleep disorders