

# FESTIVAL DELLA SCIENZA MEDICA



INTELLIGENZA DELLA SALUTE

5° EDIZIONE

BOLOGNA

9-12 MAGGIO 2019

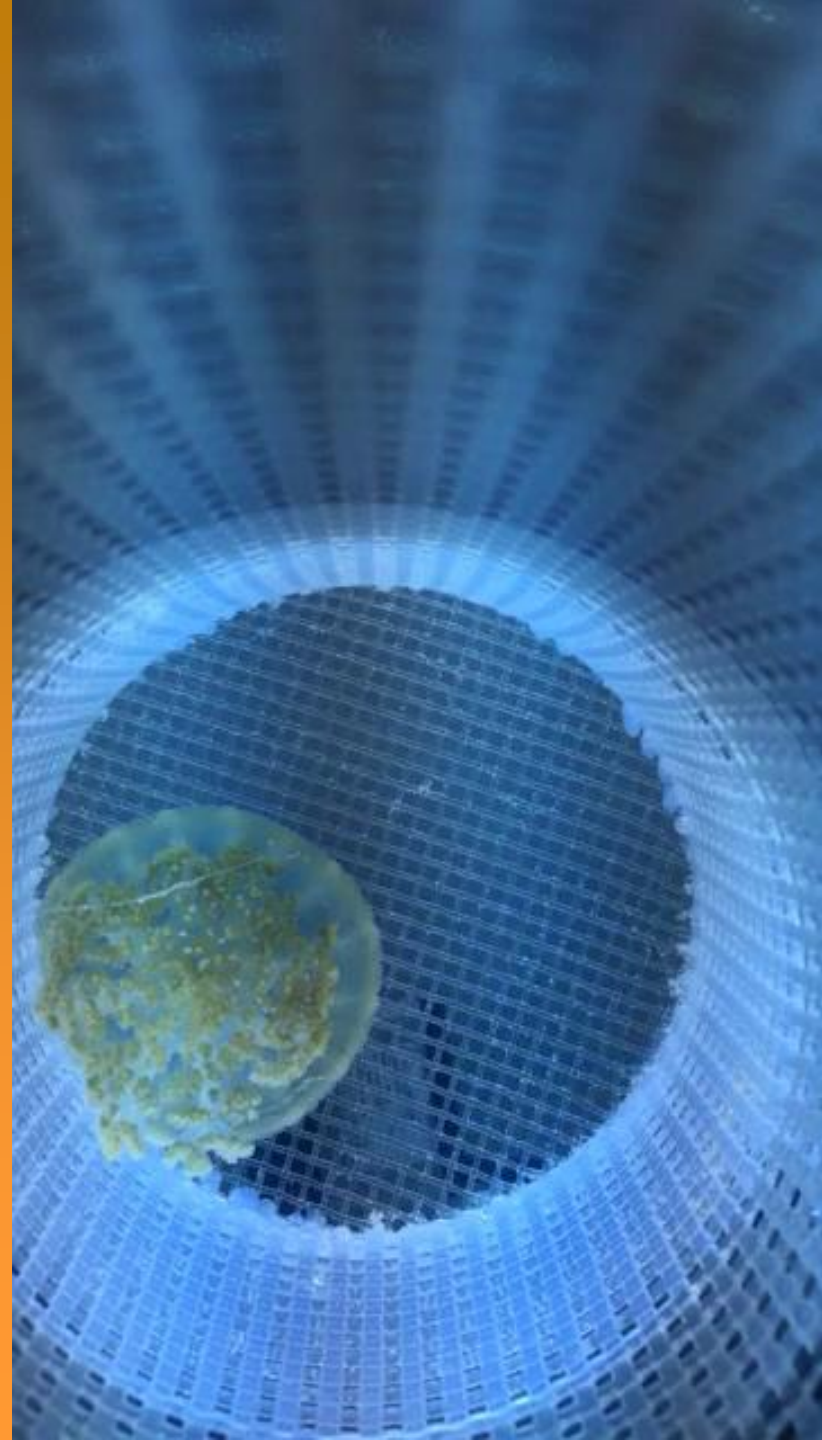
## *I tre fratelli che non dormivano mai e altre storie di disturbi del sonno*

Luigi De Gennaro

Giuseppe Plazzi

# *Storia di Cassiopea*

*You don't  
need a  
brain to  
sleep. Just  
ask jellyfish*



*Storie di sonno:*

*Leonardo da Vinci*

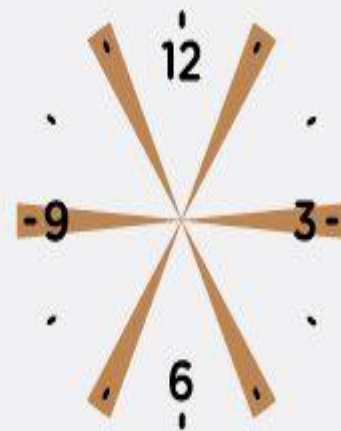


**Il sonno polifasico di Leonardo**

*Storie di sonno:*

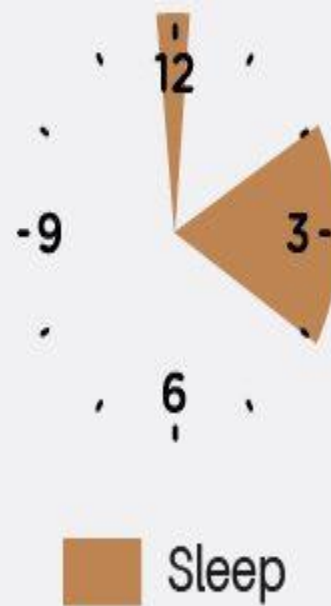
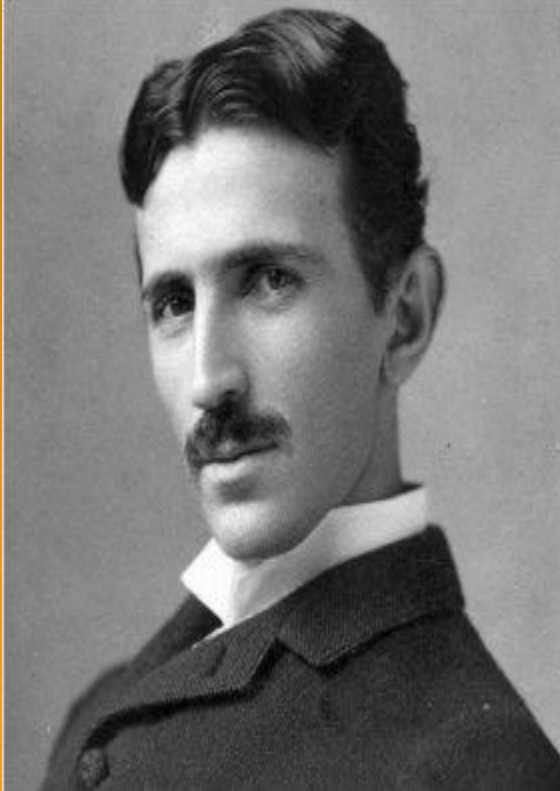
*Inventori, scrittori, pittori e  
condottieri*

## Salvador Dalí / Leonardo Da Vinci



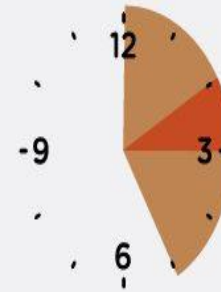
 Sleep

## Nikola Tesla





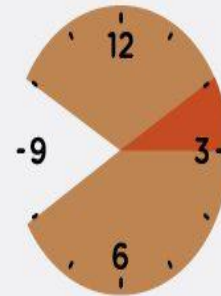
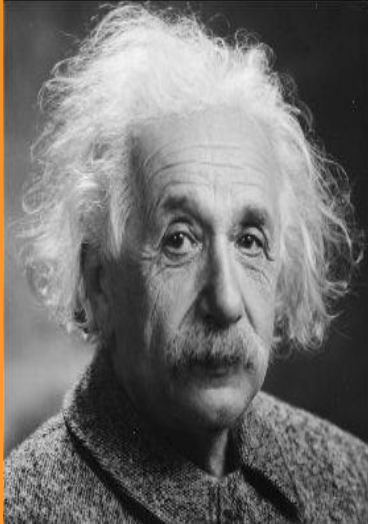
## Winston Churchill



Sleep

Daytime  
Sleep

## Albert Einstein



Sleep

Daytime  
Sleep

**Thomas Jefferson: 2 ore**



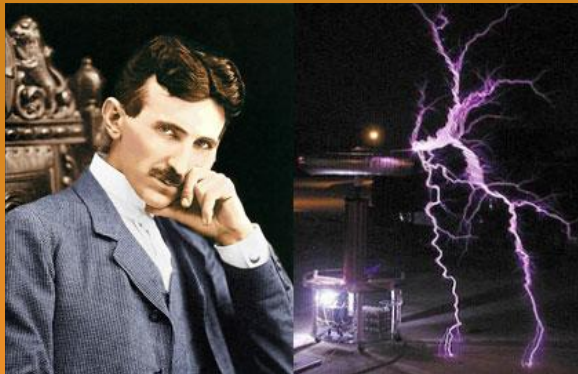
**Napoleone Bonaparte: 4 ore**



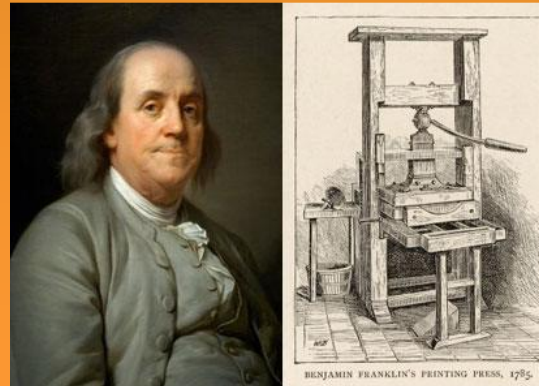
**Michelangelo: 4 ore**



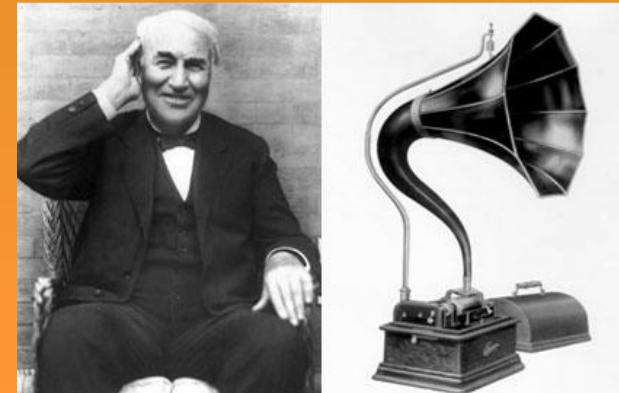
**Nikola Tesla: 2 ore**



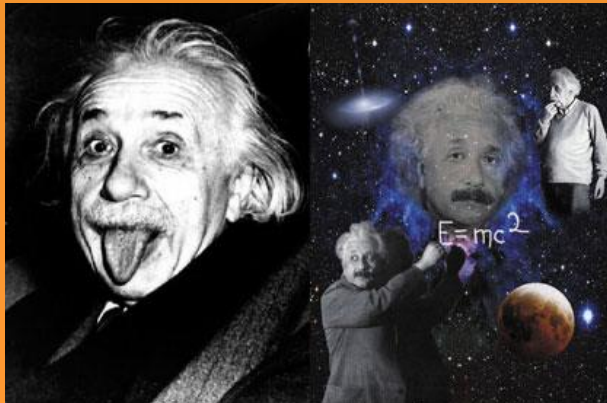
**Benjamin Franklin: 3-4 ore**



**Thomas Edison: 3-4 ore**

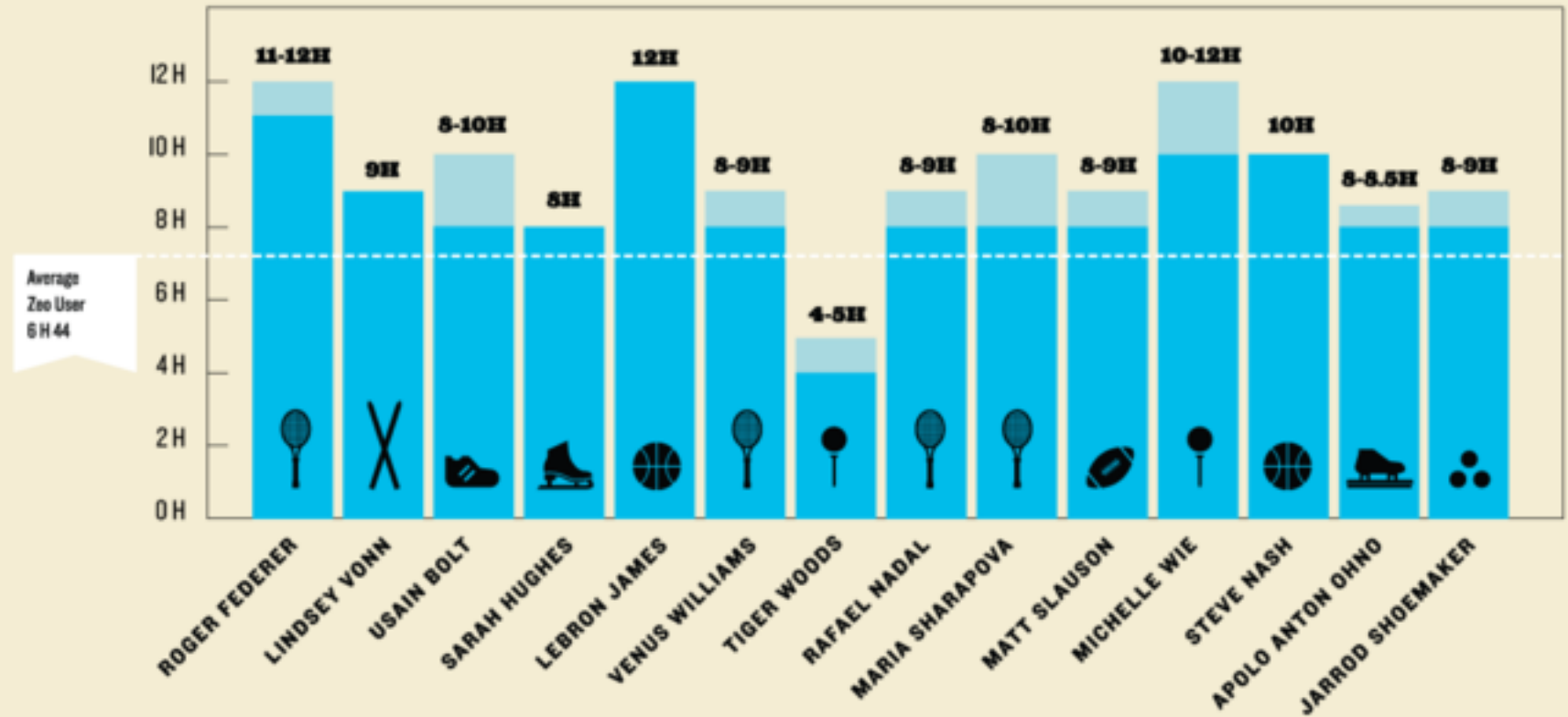


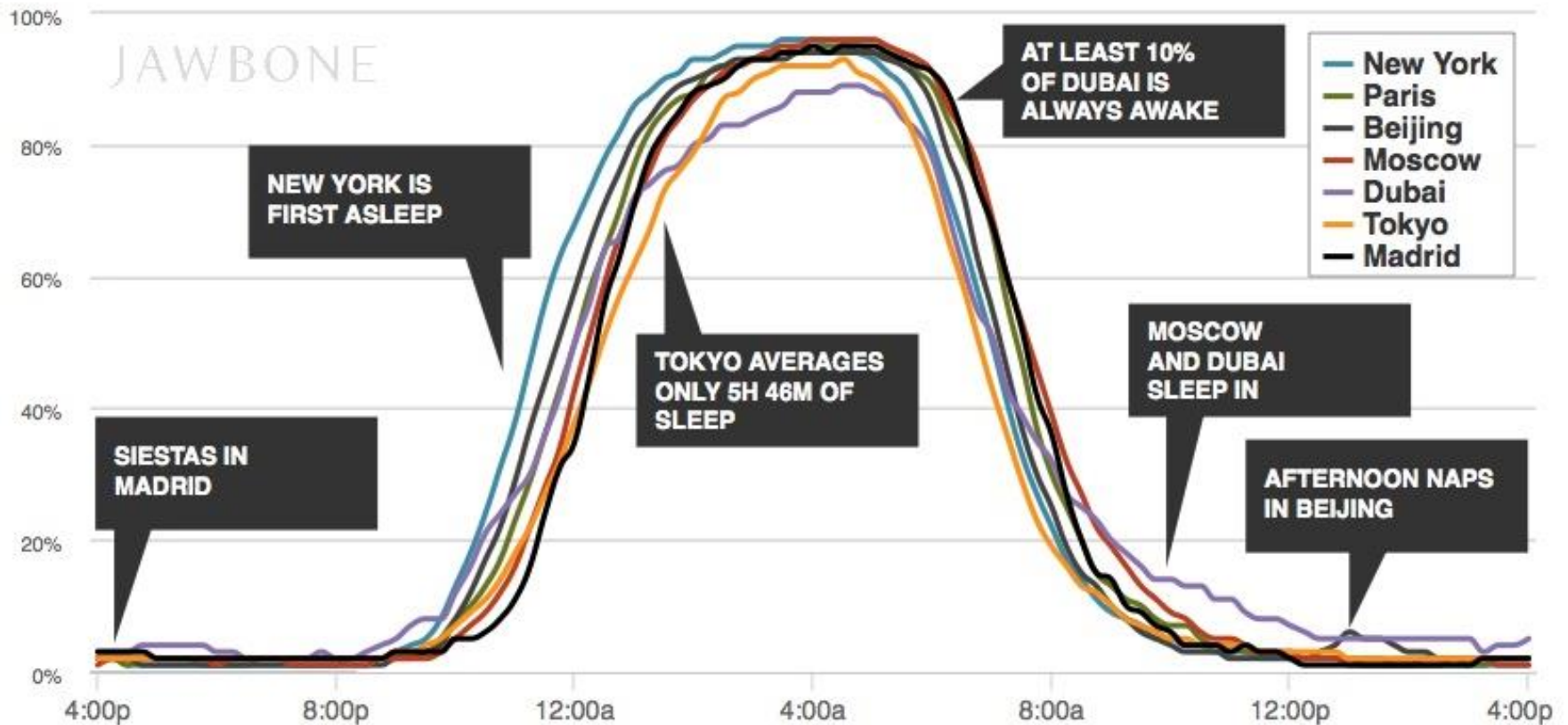
**Albert Einstein: 10-11 ore**



# Quanto gli atleti high-performer?

## HOW MUCH SLEEP THE PROS GET





<https://jawbone.com/blog/jawbone-up-data-by-city/?ClickID=dmznxthbowwv0z0mylnzsbhycb05bbrxmsw>

**Least Sleep: Tokyo, Japan – 5hr 44min**  
**Most Sleep: Melbourne, Australia – 6hr 58min**  
**Earliest to Bed: Brisbane, Australia – 10:57pm**  
**Latest to Bed: Moscow, Russia – 12:46am**  
**Earliest to Rise: Brisbane, Australia – 6:29am**  
**Latest to Rise: Moscow, Russia – 8:08am**

# Il più ampio studio di sonno mai realizzato, con 40.105 partecipanti in 170 Paesi

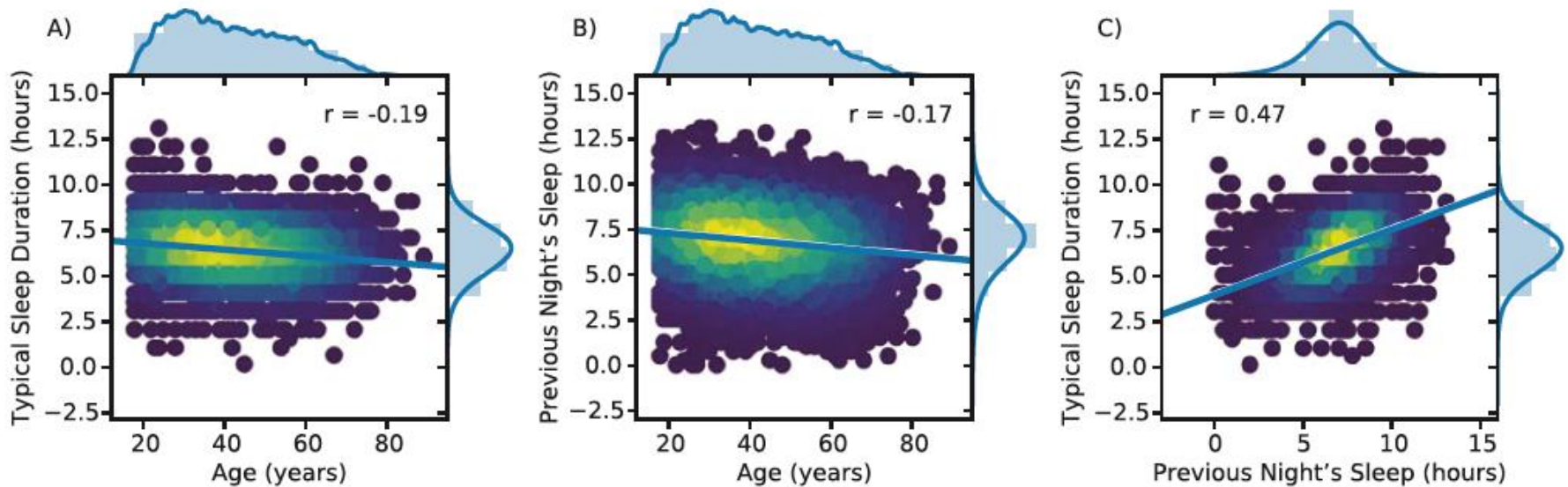


Figure 1. Scatterplots and histograms of (A) self-reported typical sleep duration per night in the past month versus age at test; (B) the number of hours slept the night prior to testing versus age at test; and (C) typical sleep duration versus previous night's sleep in the past month. Scatter plots were convolved with a Gaussian kernel to illustrate a 2D estimate of the probability distribution function of the data. Regression lines and associated statistics are shown in each plot. Histograms of each variable and their probability density function (PDF) estimates are shown above and to the right of each plot.

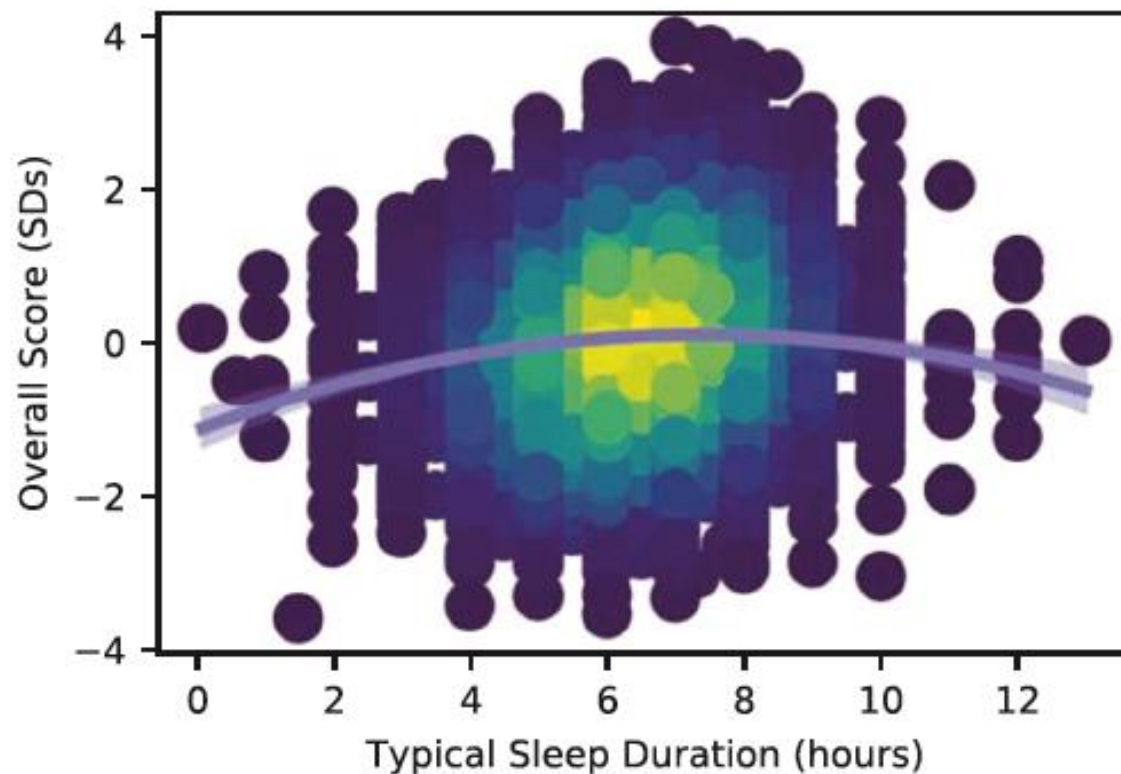
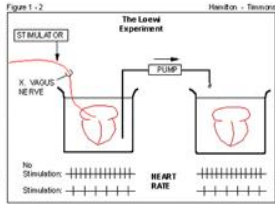


Figure 2. Overall test performance versus self-reported typical sleep duration per night in the past month, with the predicted overall performance for our population sample in light blue (with 95% confidence intervals). To better illustrate the density of data points in the sample, the color of each point is scaled by a kernel density estimate.

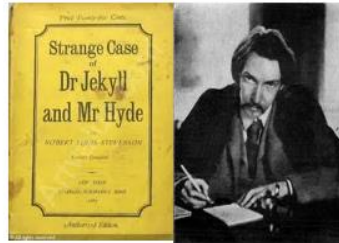
La diminuita  
durata del  
sonno (ma  
anche la  
prolungata) si  
associa a  
minori  
prestazioni  
cognitive

*Storie di rivelazioni  
nel sonno  
(nei sogni)*

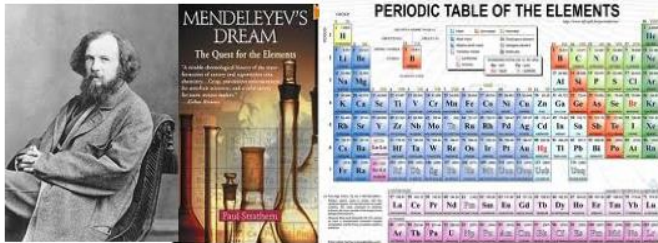
# *Il sonno (e il sogno) sogno come territorio privilegiato per la creazione artistica e la scoperta scientifica?*



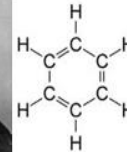
1920 Otto Loewi:  
la scoperta dei neurotrasmettitori



1886 Robert Louis Stevenson:  
Jekyll e Hyde



1860 Dmitri Mendeleev:  
La tavola degli elementi periodici



1865 Friedrich August Kekulé:  
La scoperta della struttura del benzene

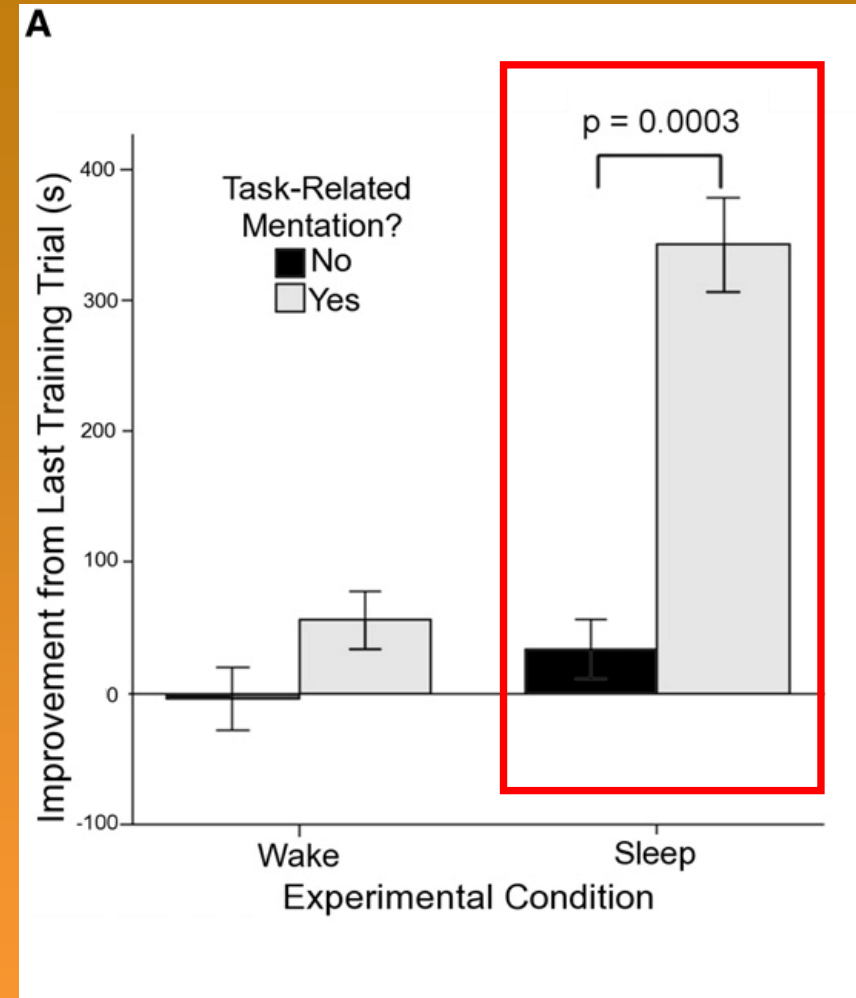
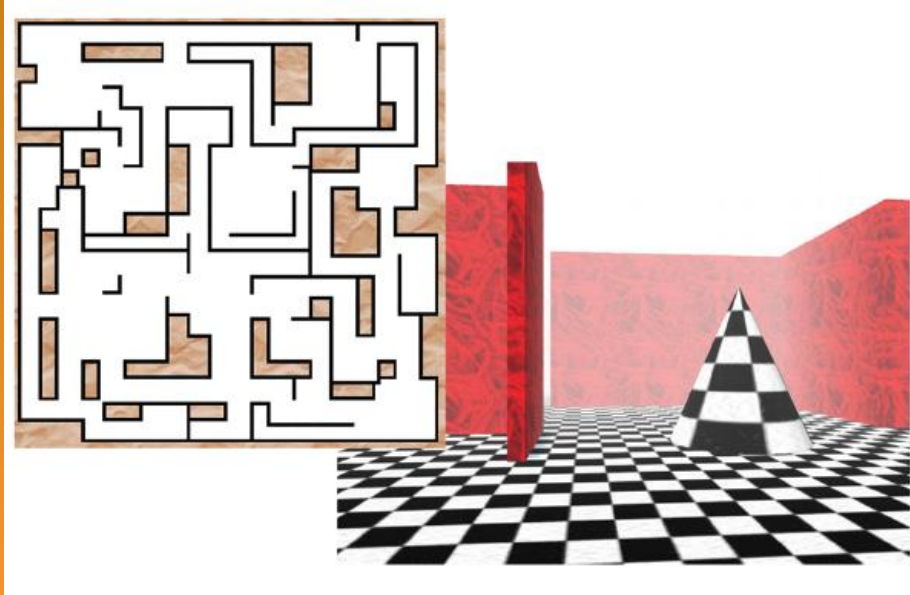


1713 Giuseppe Tartini:  
La Sonata per violino in sol minore, "Il trillo del diavolo"



1797 Samuel Taylor Coleridge:  
Kubla Khan





**L' incorporazione nel sogno di abilità apprese da svegli si associa a un ampio incremento nella prestazione successiva**

# *I “sogni” di Dan Shamir*





*Storie di omicidi  
inconsapevoli*

# Sleepwalker freed in slaying, acquitted in attempted murder

## Sleepwalker freed in slaying, acquitted in attempted murder

**First in Canada**

In law it is like a finding of acquittal, whether on reasonable doubt or otherwise... cannot be impeached in a final and conclusive... Wall...

Parks, 27, of Gata Circle, Pickering, was expecting the decision and was expressive when Wall announced his verdict.

The previous acquittal is believed to be the first time in Canada a man has been acquitted of a killing committed while he was sleepwalking.

He was arrested on May 21, 1988, and remained in custody until last May 20, when he was released on a \$10,000 bail condition.

Parks was sleepwalking when the killing occurred, then they would have to acquit him of murder.

After he was acquitted yesterday of attempting to murder his father-in-law, Dennis John Woods, 48, Parks went to a District Court courtroom two hours before in the University Ave. courthouse and pleaded guilty to fraud.

He pleaded guilty to defrauding Beveco Electric Inc. by falsely billing the company for merchandise allegedly supplied by Misses James Bennett, a fictitious person, between July, 1988 and February, 1981.

March and Parks had been sales coordinators for two years at Beveco on Bixlers Drive and bought large quantities of merchandise for the firm.

She said he made up a fictitious company and wrote five cheques to it totaling \$30,482.38 which he used to pay off gambling debts.

Parks, who's married to Karen Woods, was said to be under great deal of stress at the time of the killing and attempted murder of his in-law, court heard.

Part of the stress was related to defrauding his employers to cover losses at the race track.

Edwards called psychiatric evidence at the murder trial to show that Parks was sleepwalking at the time of the killing.

Barbara Ann Woods, 42, and her husband were attacked in their bed after Parks had driven 22 kilometers (14 miles) from his own home to their house on Hibernia Blvd. in Scarborough.

Evidence showed that his father-in-law was checked and stabbed with a tire iron, then stabbed four times, including once through the heart.

Parks slipped out of the University Ave. courthouse yesterday without being spotted by 150 police, but his lawyer said Parks is seeing his wife regularly and they expect to reunite. He is also a mother-in-law.



THE ARGUS, Wednesday, December 20, 1995

### Somnambulism plea in murder trial

# SLEEPWALKING MOTHER SET FREE BY JURY

**Freed on charge**

## Deeply attached to my daughter'

### Cook ran hot at this job

**IN 22-WORD CHARGE**

The 29-year-old Red Cross Christmas dinner at St. Ignace's church yesterday was an hour late because the...

**A MOTHER, accused of murdering her 19-year-old daughter, collapsed in the dock at the Criminal Court yesterday when the jury acquitted her without waiting to hear counsel's addresses or the judge's charge.**

Before the jury made its decision, mental specialists gave evidence about what went on...



- s **Uno dei più clamorosi casi di sonnambulismo è stato quello di Kenneth Parks, di Toronto, nel 1987, accusato per l'uccisione della suocera e il ferimento del suocero. L'allora 23 enne soffriva in quel periodo di insonnia, dovuta a un momento difficile: era senza lavoro ed aveva diversi debiti di gioco.**
  
- s **La mattina del 23 maggio 1987 si è alzato dal letto, è salito in macchina ed ha guidato per 23 km fino a casa dei suoceri, dove ha accoltellato a morte la suocera e ferito il suocero, coi quali aveva peraltro avuto fino a quel momento ottimi rapporti.**
  
- s **Parks si è recato poi in una stazione di polizia dove ha detto ad un agente: “Credo di avere ucciso delle persone”, per esclamare subito dopo “le mie mani!”, rendendosi conto solo in quel momento di avere profondi tagli su di esse, che hanno poi richiesto un intervento chirurgico**

*Medico-legal Issues*

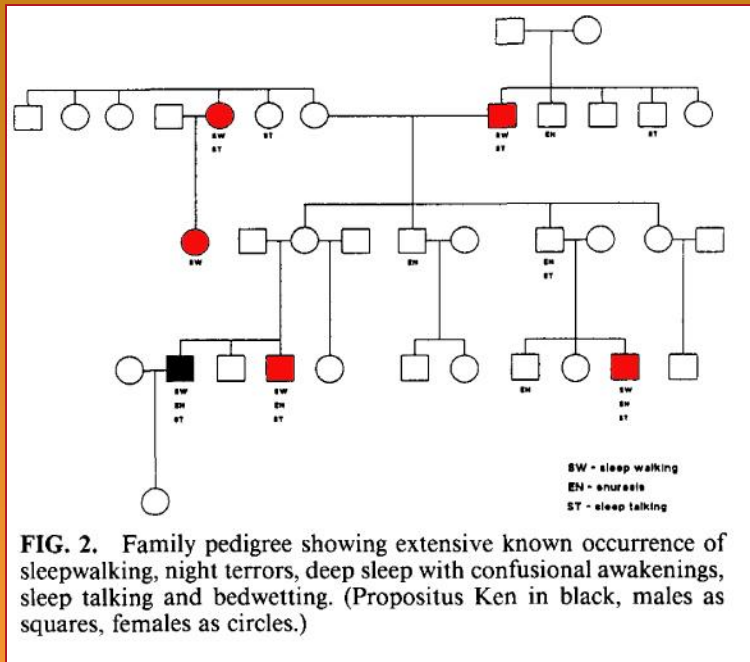
**Homicidal Somnambulism: A Case Report**

**\*R. Broughton, †R. Billings, ‡R. Cartwright, §D. Doucette, †J. Edmeads, §M. Edwardh, #F. Ervin, †B. Orchard, †R. Hill and \*\*G. Turrell**

**TABLE 2.** Sleep measures during initial incarceration in detention center and after long-term oxazepam administration

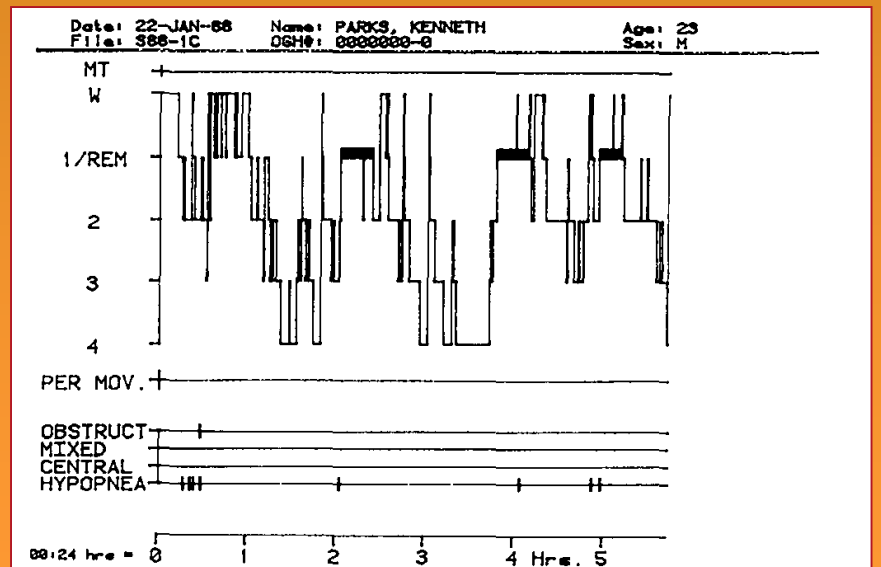
	Jan 22, 1988	Jan 23, 1988	July 25, 1989 <sup>a</sup>	Normal range <sup>b</sup>
Time in bed (minutes)	343.3	393.7	436.0	420-460
Sleep period duration (minutes)	321.3	249.0	349.5	403-446
Total sleep time (minutes)	287.0	229.3	361.0	397-441
Sleep efficiency (%)	89.3	92.1	91.5	89-100
Sleep latency (minutes)	21.7	144.3	23.0	5-32
SWS latency (minutes)	10.0	9.7	24.0	10-31
REM latency (minutes)	100.3	100.0	131.5	56-120
Waking after sleep onset (%)	10.7	7.9	8.5	0-4
Stage 1 (%)	8.8	14.7	17.6	2-7
Stage 2 (%)	34.9	45.5	54.8	38-53
Stage 3 (%)	13.0	10.8	0.8	4-8
Stage 4 (%)	15.1	12.6	0.0	8-20
REM sleep (%)	17.5	8.7	18.4	18-30
REM period efficiency (%)	97.0	76.0	99.0	80-100
Mean REM period duration (minutes)	19.2	14.8	24.3	18-40
Mean cycle length (minutes)	87.3	147.3	117.5	80-135
No. awakenings > 1 minute	7	10	7	0-7
No. stage shifts	128	170	148	25-60
No. stage shifts/hour	23.9	41.0	22.5	4-8
No. SWS-to-wake awakenings	5	8	0	0-3

<sup>a</sup> A repeat follow-up recording the next night on July 26, 1989 contained essentially identical findings.  
<sup>b</sup> Normal values for patient's age and sex are from published sources [especially Williams et al. (39)] and from the data bank of the Ottawa General Hospital sleep laboratories.



**Familiarità del disturbo  
 (chiaro e dimostrato  
 ruolo dei fattori  
 genetici)**

**Esame polisonnografico  
 (valutaz. della frammentarietà del sonno)**



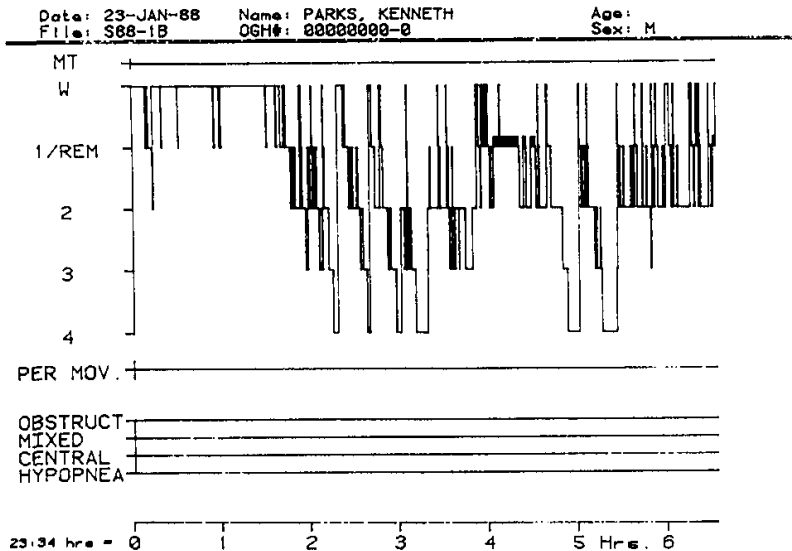


FIG. 4. Sleep histogram of subsequent detention center night, which included three forced arousals. It shows greater sleep onset insomnia, high instability of nonrapid eye movement sleep and eight direct SWS-to-wake arousals (two of which were experimentally induced),

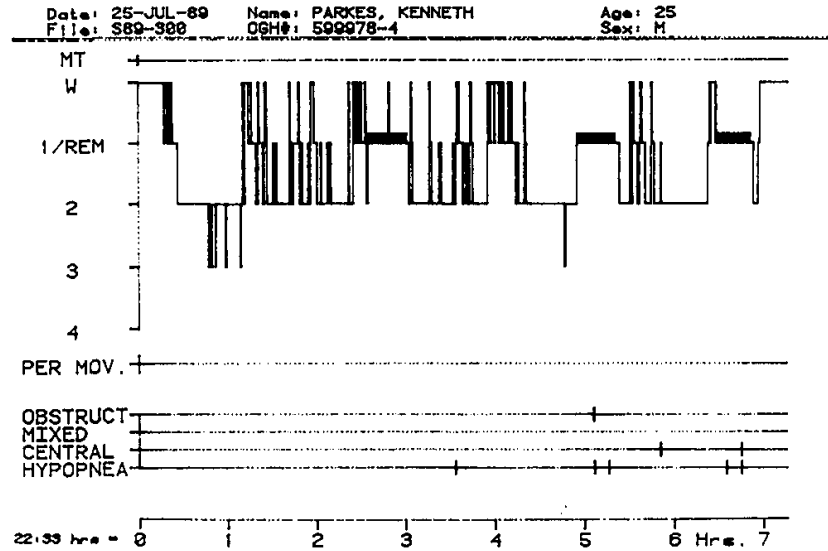


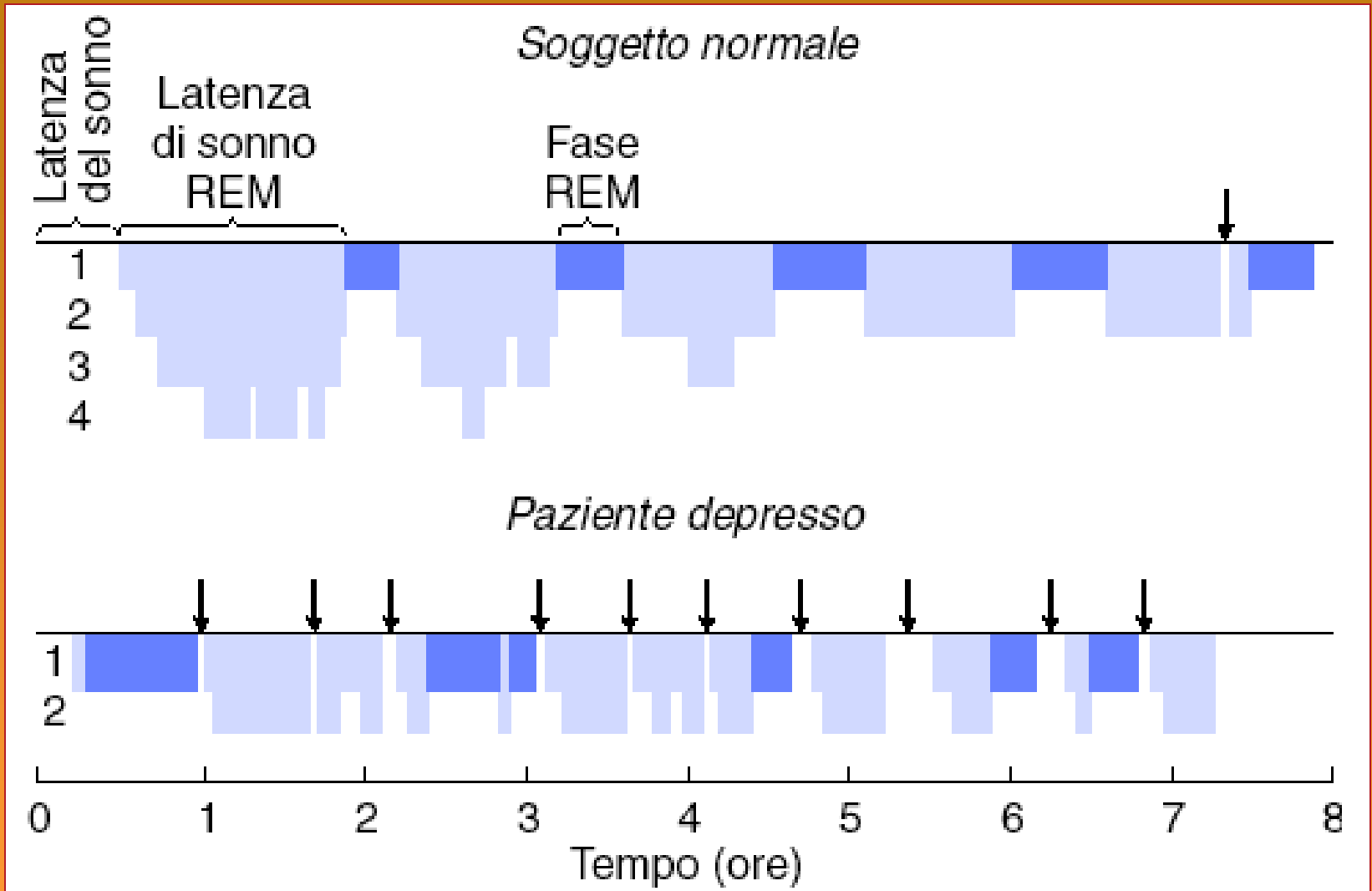
FIG. 5. Follow-up PSG some 18 months later, showing suppression of SWS (on chronic benzodiazepine therapy) with maintenance of sleep fragmentation.

Replicabilità delle  
 valutazioni cliniche  
 polisonnografiche

Scomparsa del sonno  
 profondo dopo l' avvio  
 al trattamento  
 farmacologico

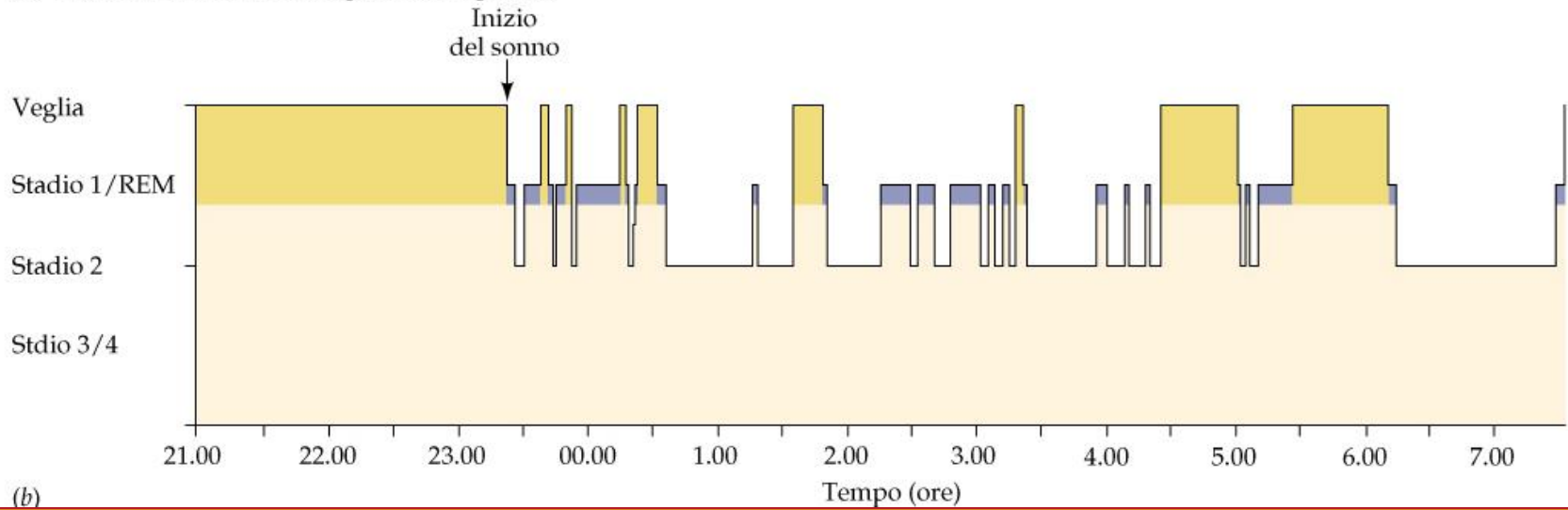


# *Storia di fratelli*



< SWS; > stadio 1; > frammentazione; risvegli precoci; < latenza REM;  
 > REM prima parte della notte; > densità REMs

(a) Struttura del sonno di un paziente depresso



Giuseppe Plazzi



# I tre fratelli che non dormivano mai

e altre storie di disturbi del sonno



Boglietti

*Storie di desideri notturni*