



Kam kráčíš, spánková medicína?

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Jak to všechno začalo

Objev paradoxního (REM) spánku založen na pozorování očních pohybů: zavedena metoda okulografie (EOG)

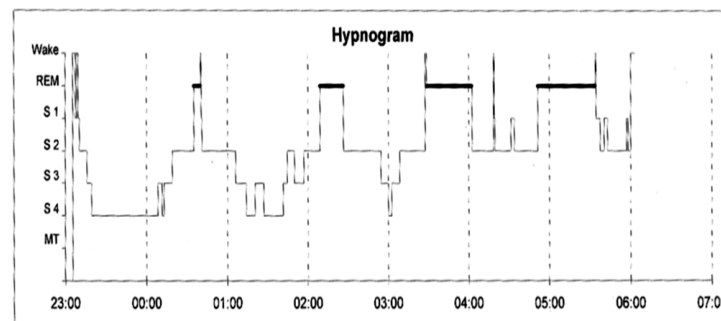
Aserinski a Kleitman 1953,1955



Objev cyklického střídání 2 druhů spánku (REM a NREM)

4 stadia NREM spánku

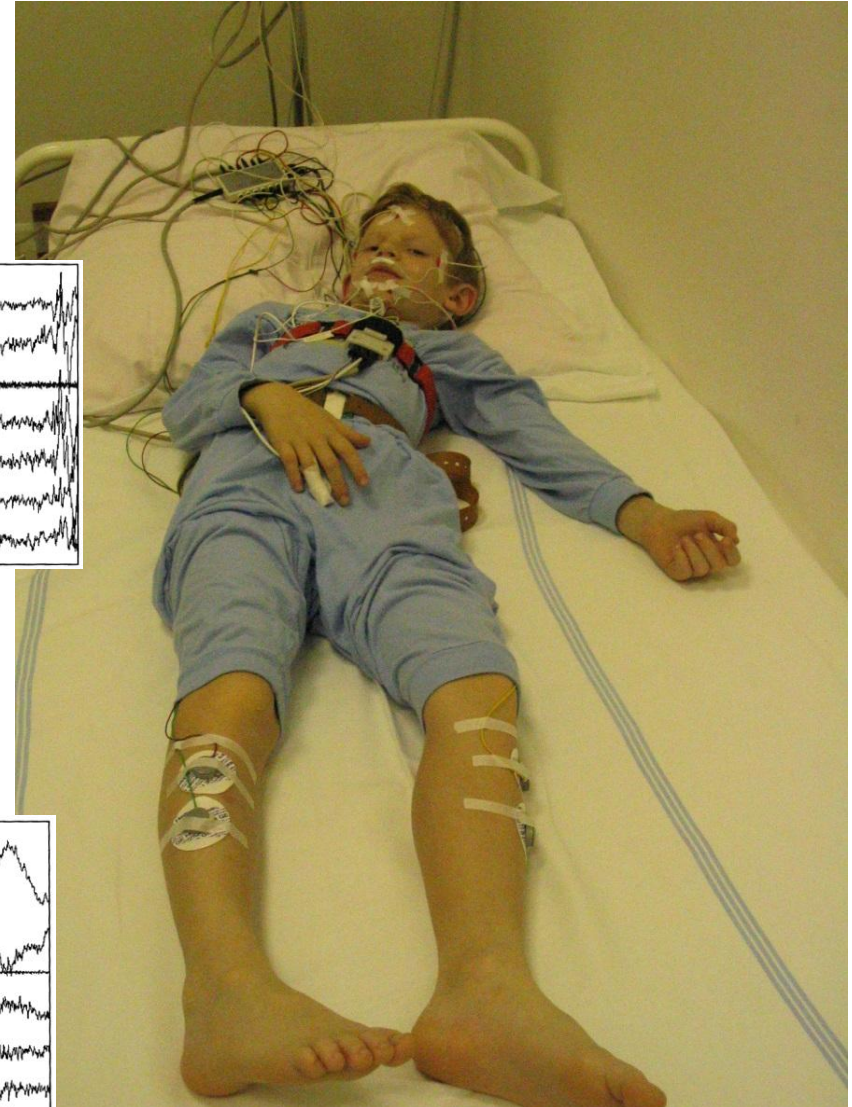
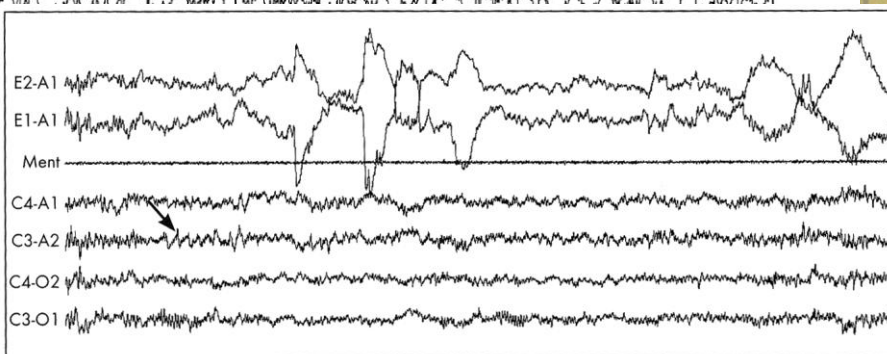
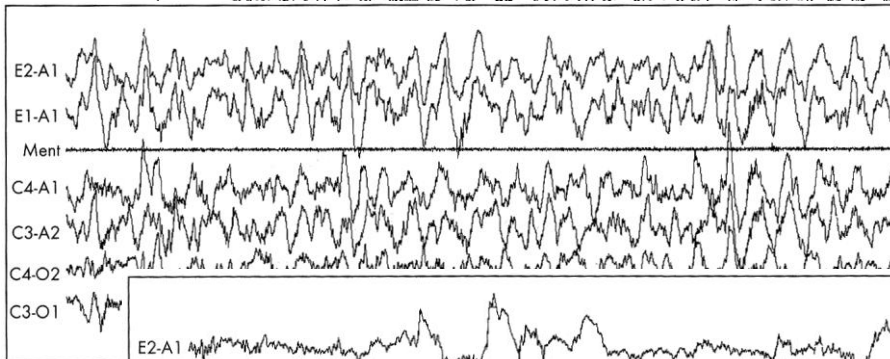
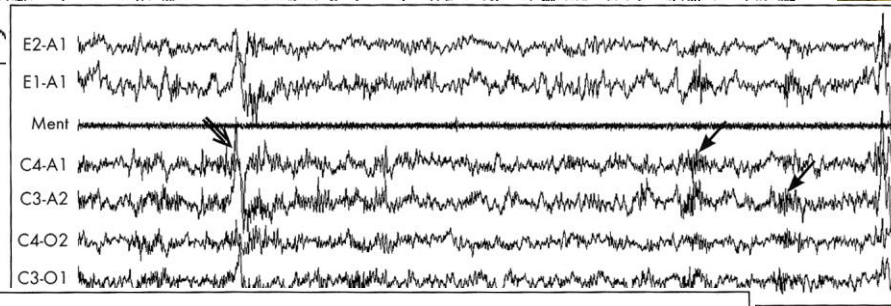
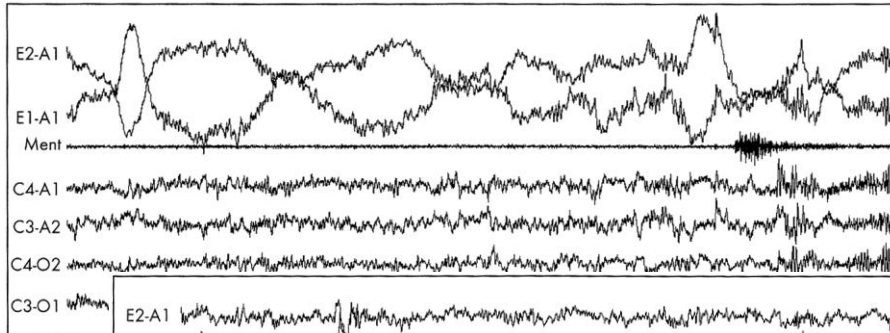
Dement a Kleitman 1957



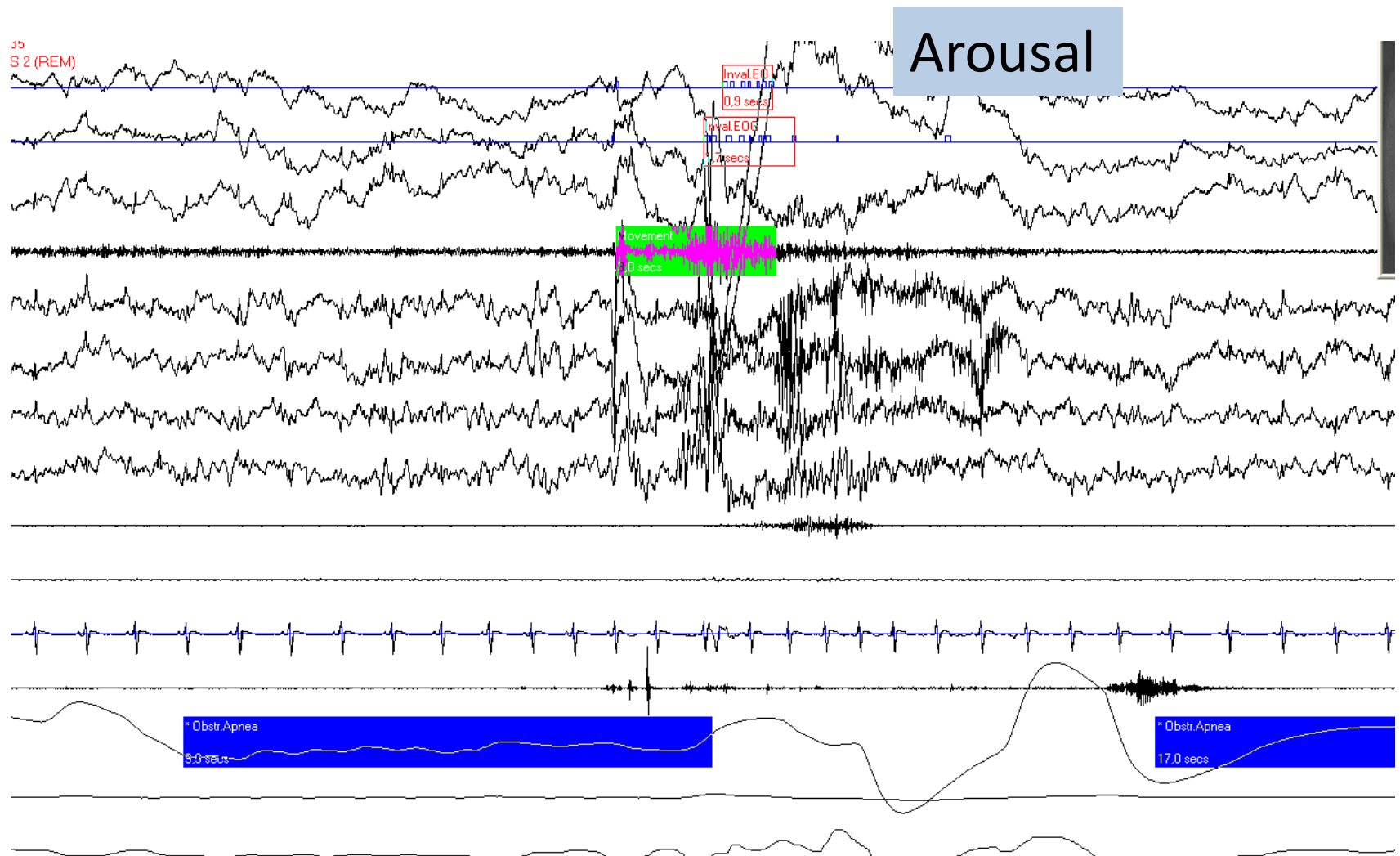
Polysomnografie: hodnocení spánkového záznamu standardizováno (základem EEG, EOG, EMG), stadia se hodnotí po 30 s epochách → hypnogram

Rechtschaffen a Kales 1968, AASM 2014

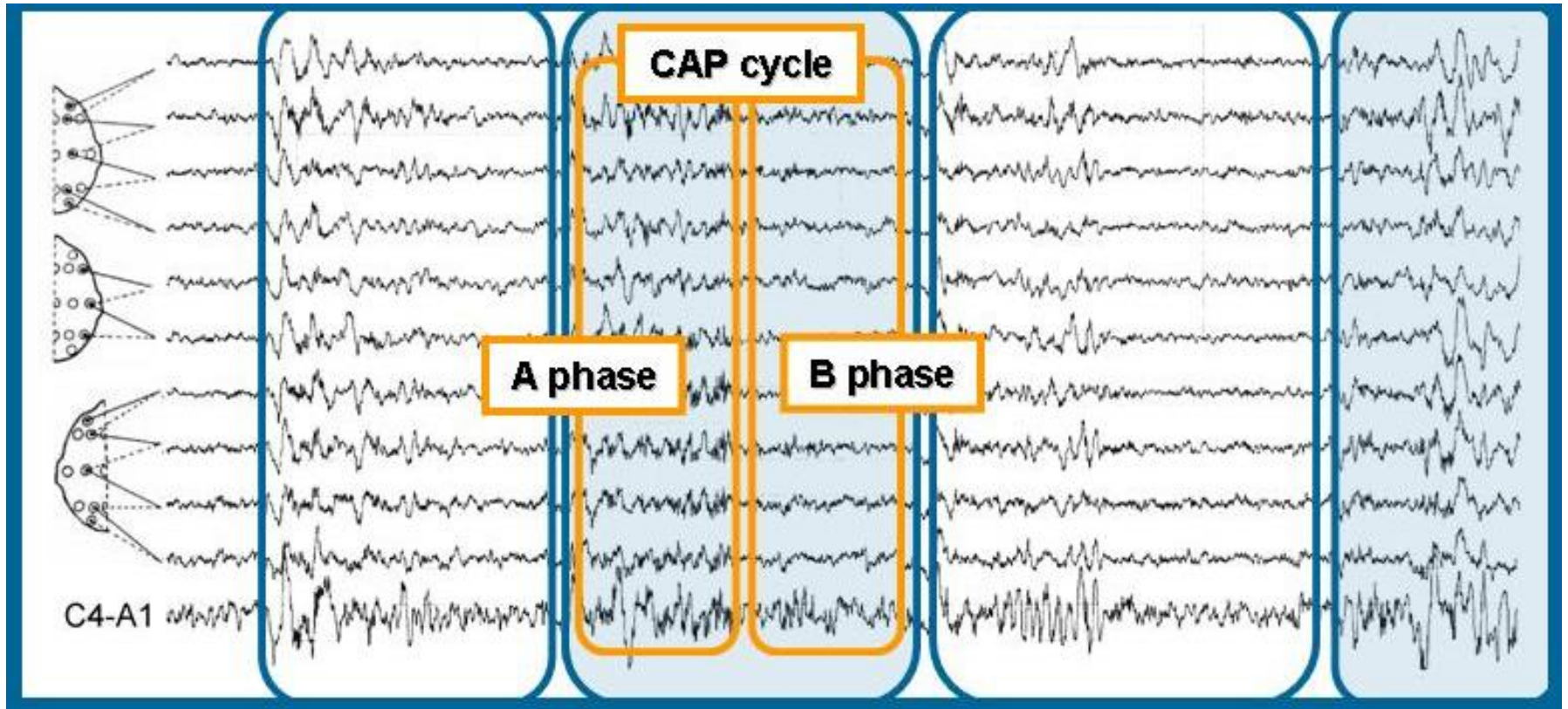
Od EEG k polysomnografii



Od spánkových stadií k mikrostruktuře spánku

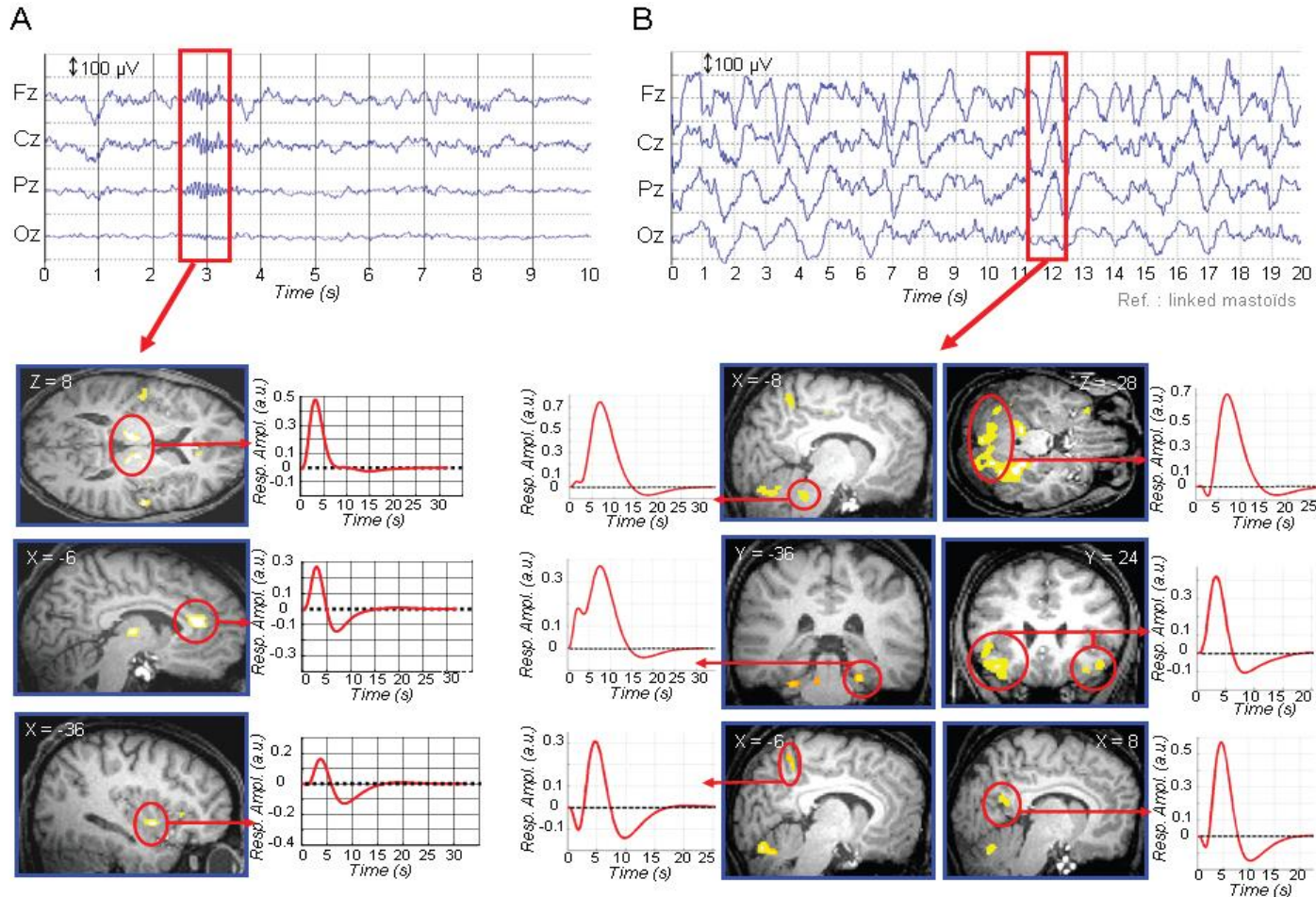


Od spánkových stadií k mikrostruktuře spánku

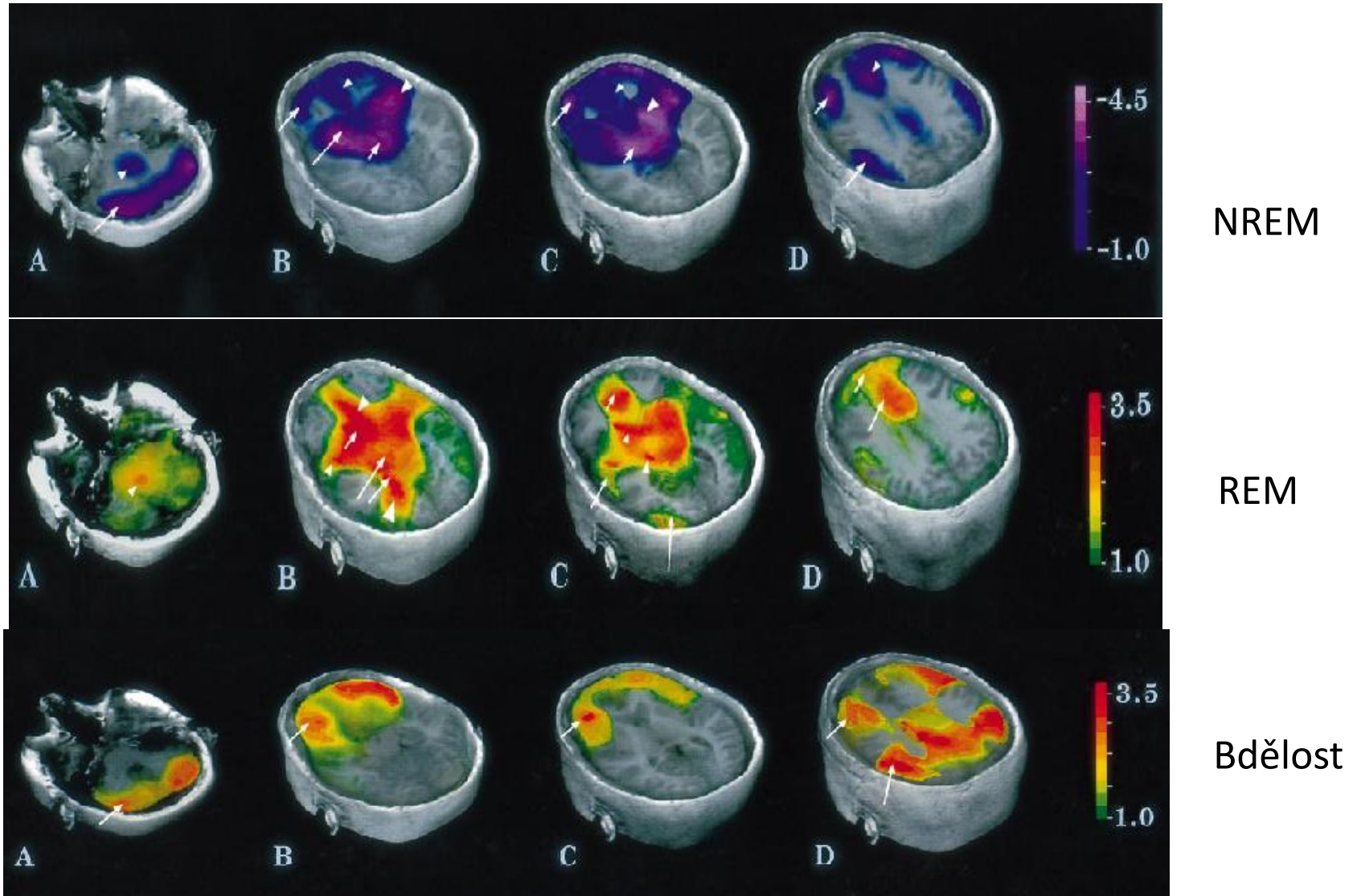


Cyklické alternující vzorce (CAP) *Terzano, 1985*

Kombinace f-MRI a EEG oscilací v NREM spánku



Spánek a zobrazovací vyšetření

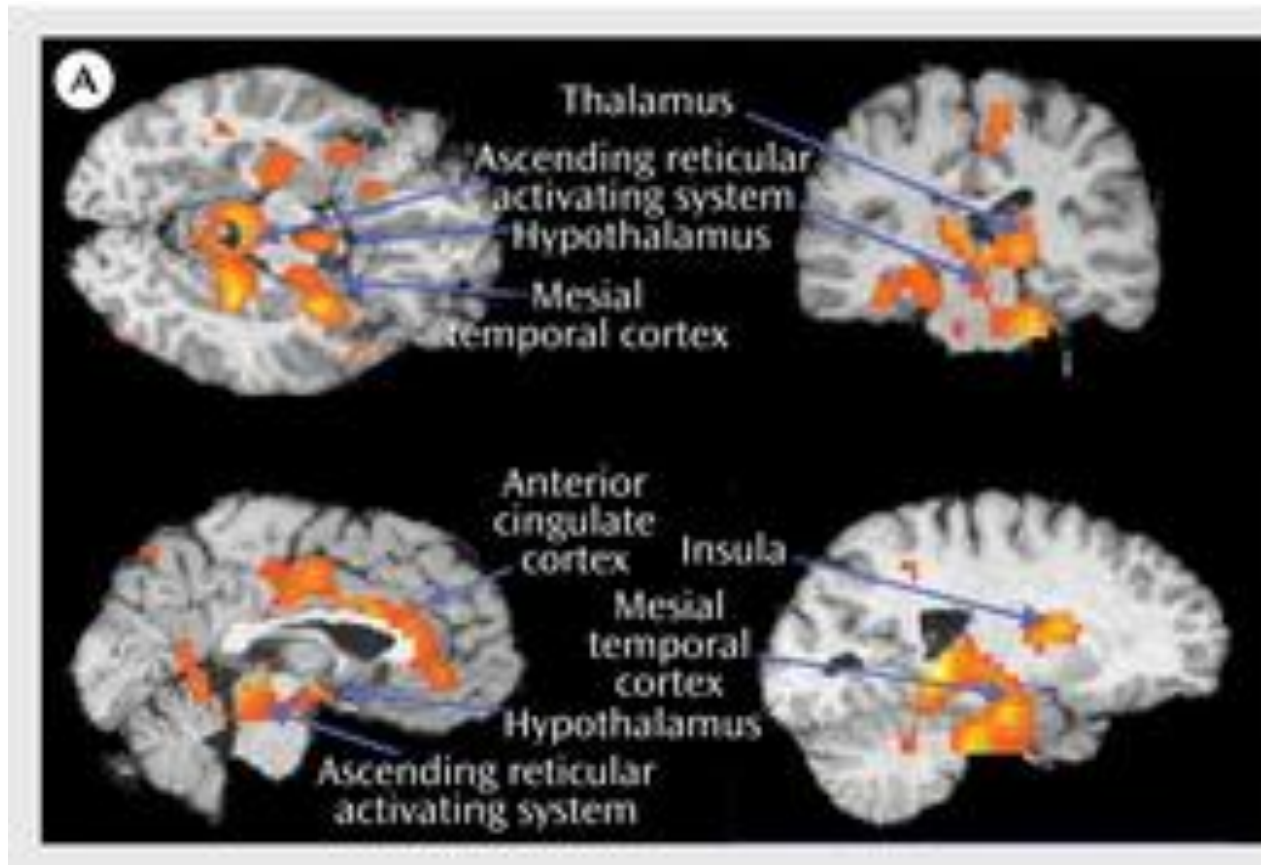


Nofzinger et al. 2007

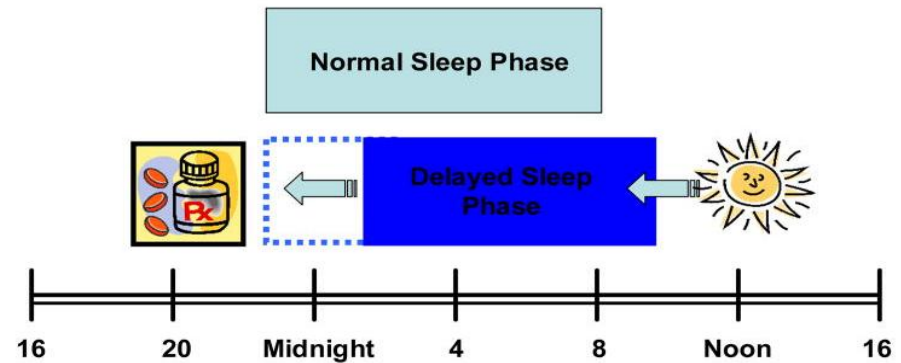
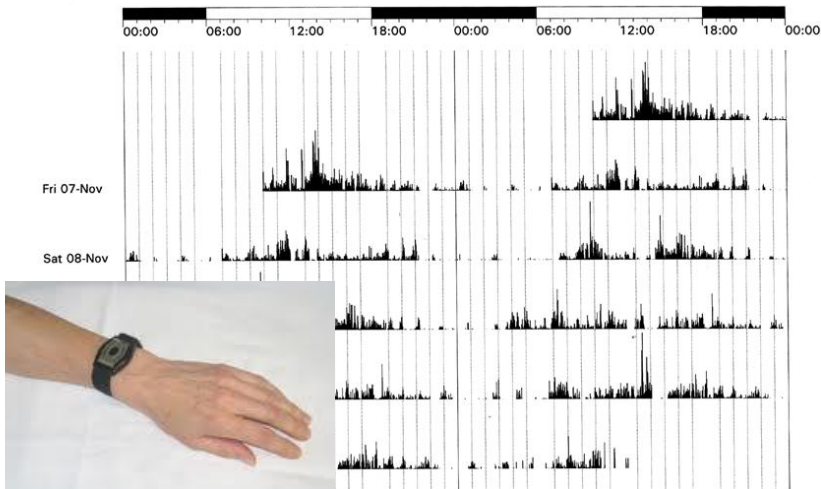
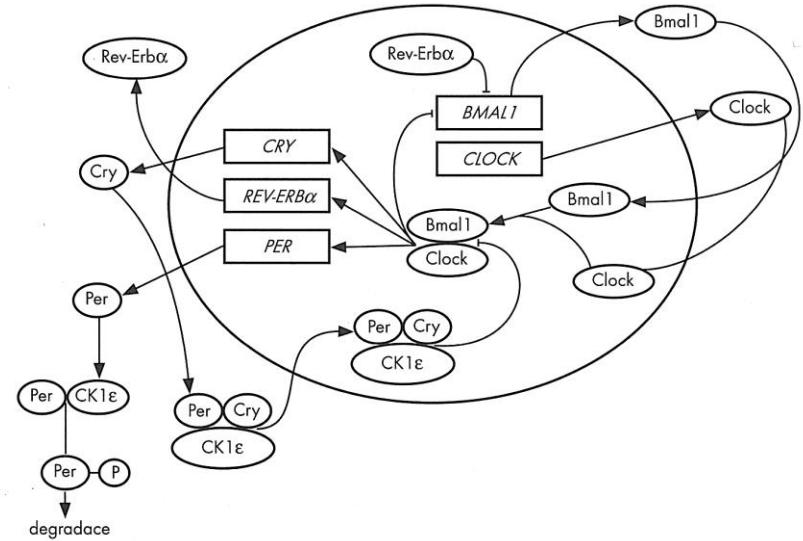
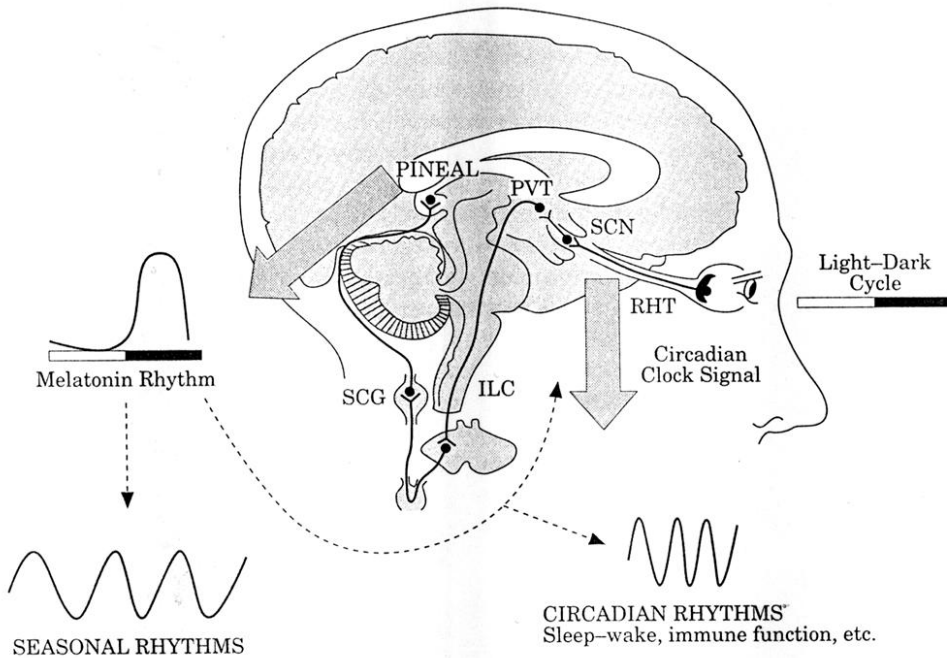
Functional Neuroimaging Evidence for Hyperarousal in Insomnia

Nofzinger et al, 2004

- Zvýšený metabolismus v oblastech odpovědných za bdělost/probouzení u pacientů s insomnií
- Nedochází k fyziologickému útlumu při usínání

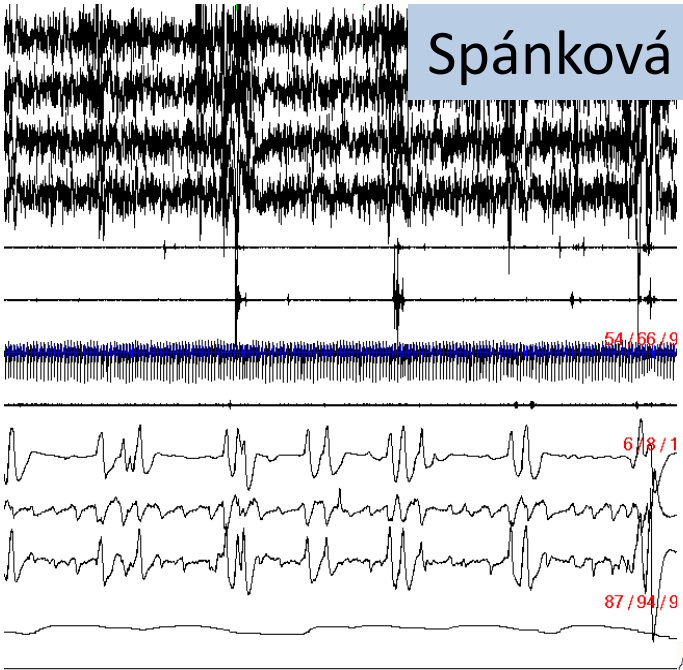


Cirkadiánní rytmicita

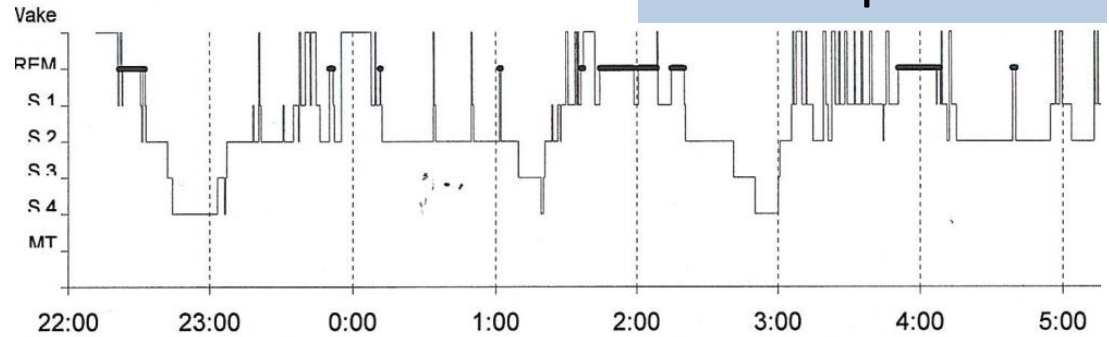


Jaké jsou pokroky spánkové medicíny

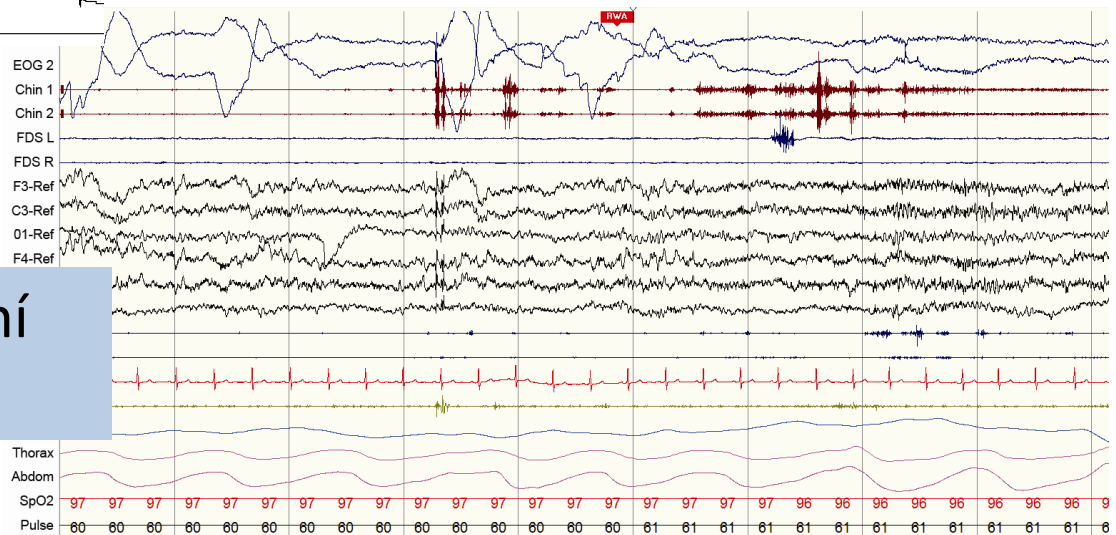
Spánková apnoe



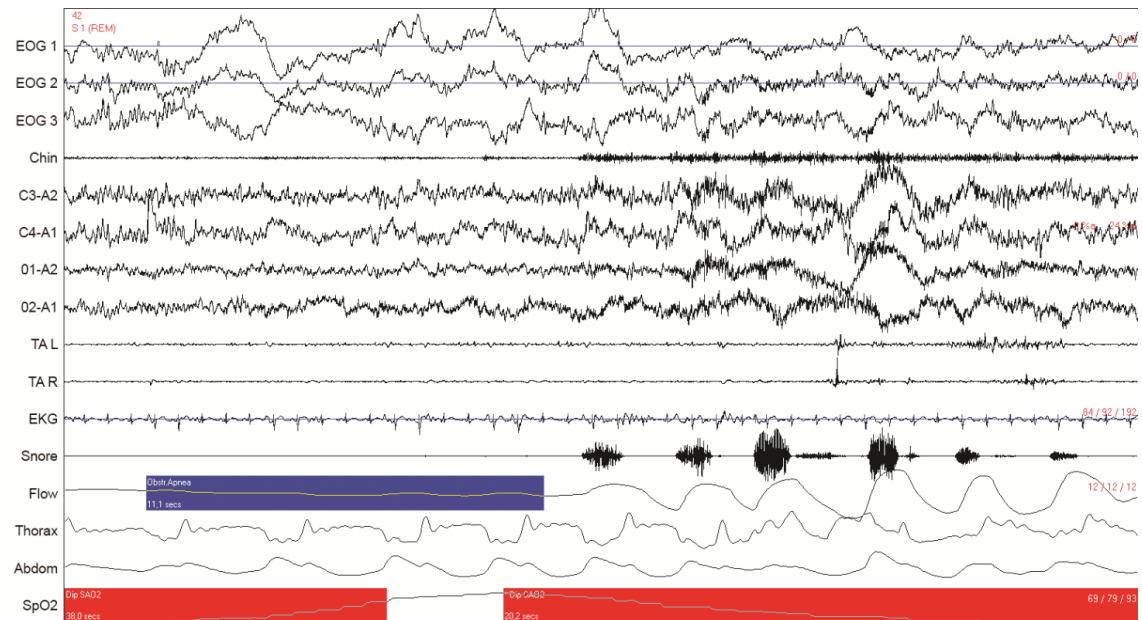
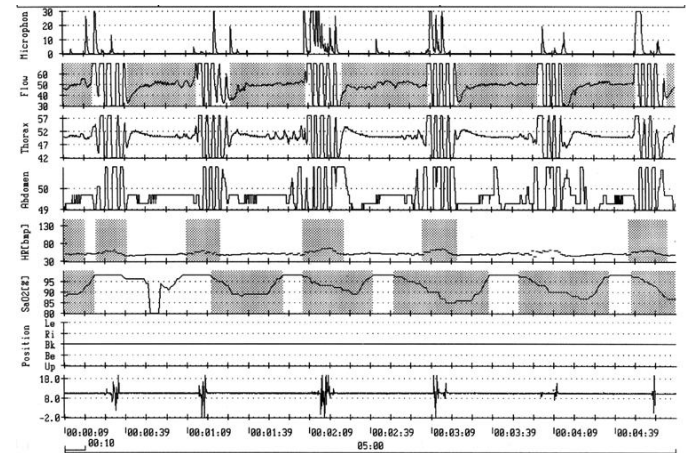
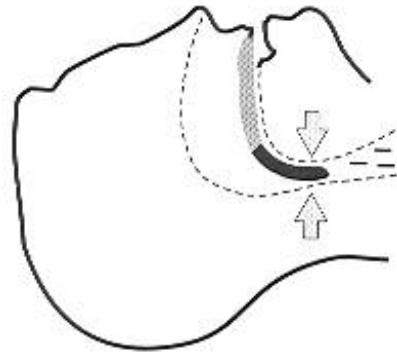
Narkolepsie



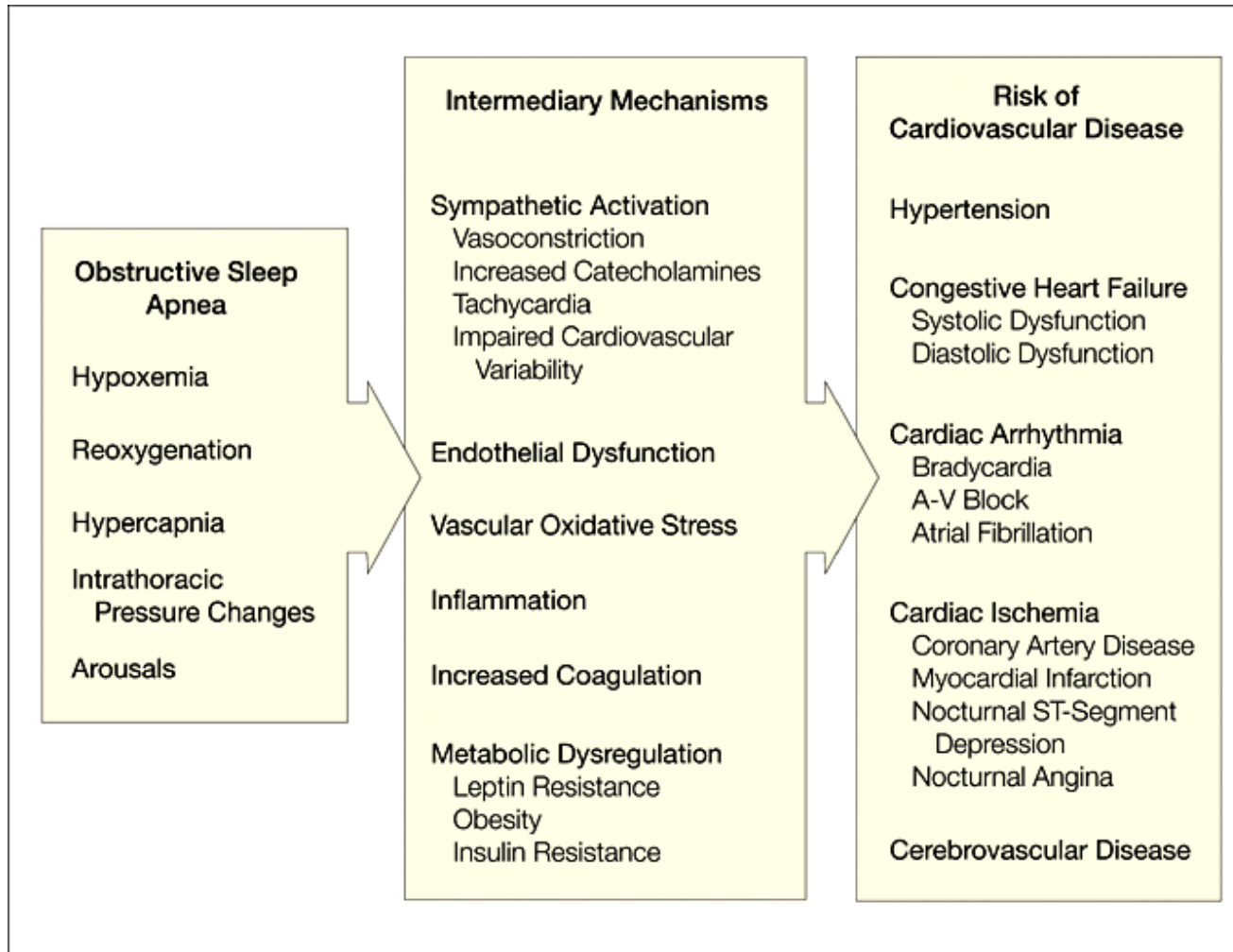
Porucha chování v REM spánku



Obstrukční spánková apnoe

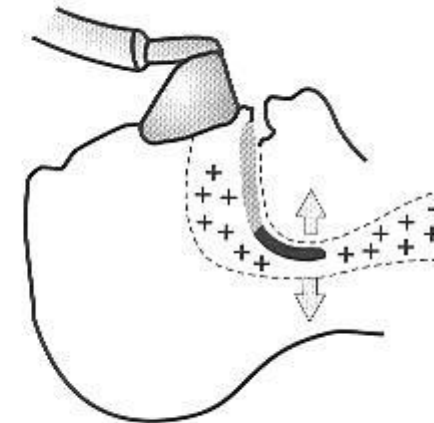
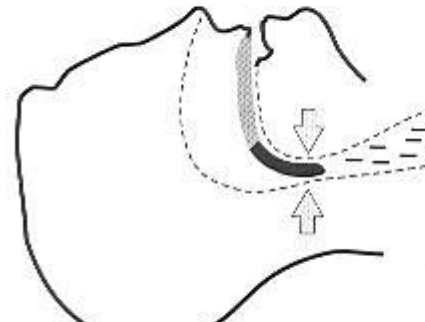


Obstrukční spánková apnoe



Obstrukční spánková apnoe

Sullivan et al. Reversal of obstructive sleep apnoea by continuous positive airway pressure applied through the nares. Lancet. 1981



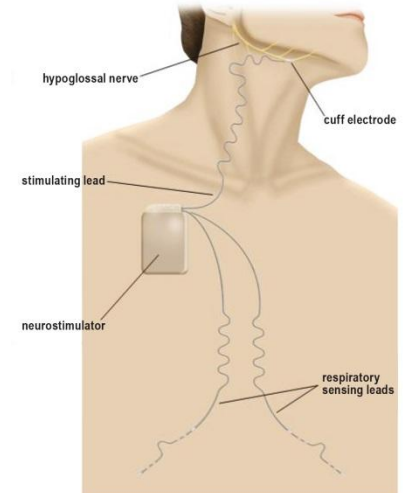
TREATING OSA WITH HYPOGLOSSAL NERVE STIMULATION

<http://dx.doi.org/10.5665/sleep.1380>

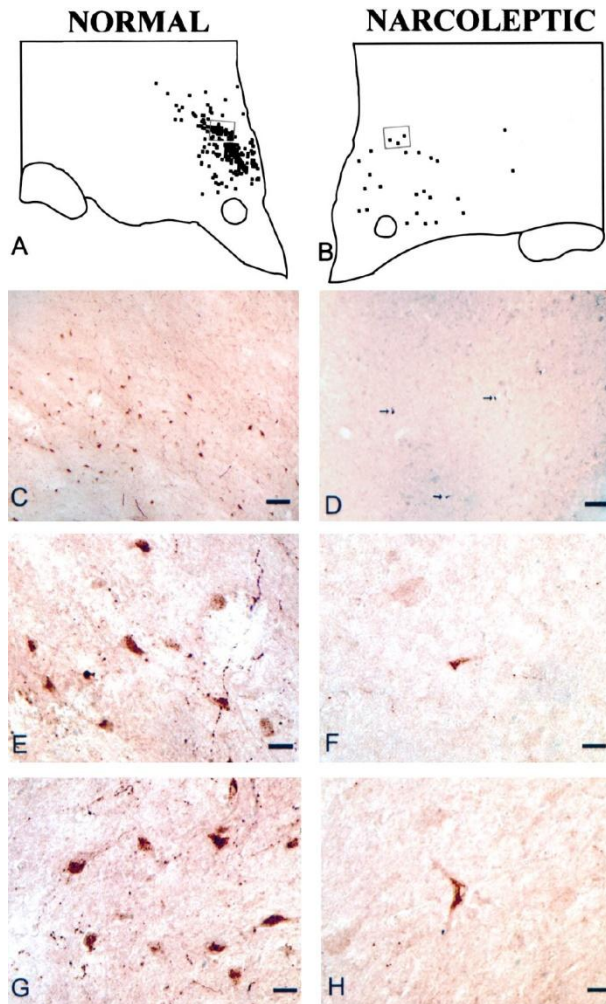
Treating Obstructive Sleep Apnea with Hypoglossal Nerve Stimulation

Peter R. Eastwood, PhD^{1,2}; Maree Barnes, MBBS³; Jennifer H. Walsh, PhD^{1,2}; Kathleen J. Maddison, BSc^{1,2}; Geoffrey Hee, MBBS; Alan R. Schwartz, MD⁵; Philip L. Smith, MD⁵; Atul Malhotra, MD⁶; R. Douglas McEvoy, MBBS^{7,11,15}; John R. Wheatley, MBBS, PhD⁸; Fergal J. O'Donoghue, MBBS, PhD^{3,4}; Peter D. Rochford, BAppSc, GradDip (Bio Instr)^{3,9}; Tom Churchward, RPSGT³; Matthew C. Campbell, MBBS³; Carsten E. Palme, MBBS¹⁰; Sam Robinson, MBBS¹¹; George S. Goding, MD¹²; Danny J. Eckert, PhD¹³; Amy S. Jordan, PhD⁴; Peter G. Catcheside, PhD^{7,11,15}; Louise Tyler, RN, RPSGT^{8,14}; Nick A. Antic, MBBS, PhD^{7,11,15}; Christopher J. Worsnop, MBBS, PhD^{3,4}; Eric J. Kezirian, MD, MPH¹⁶; David R. Hillman, MBBS¹

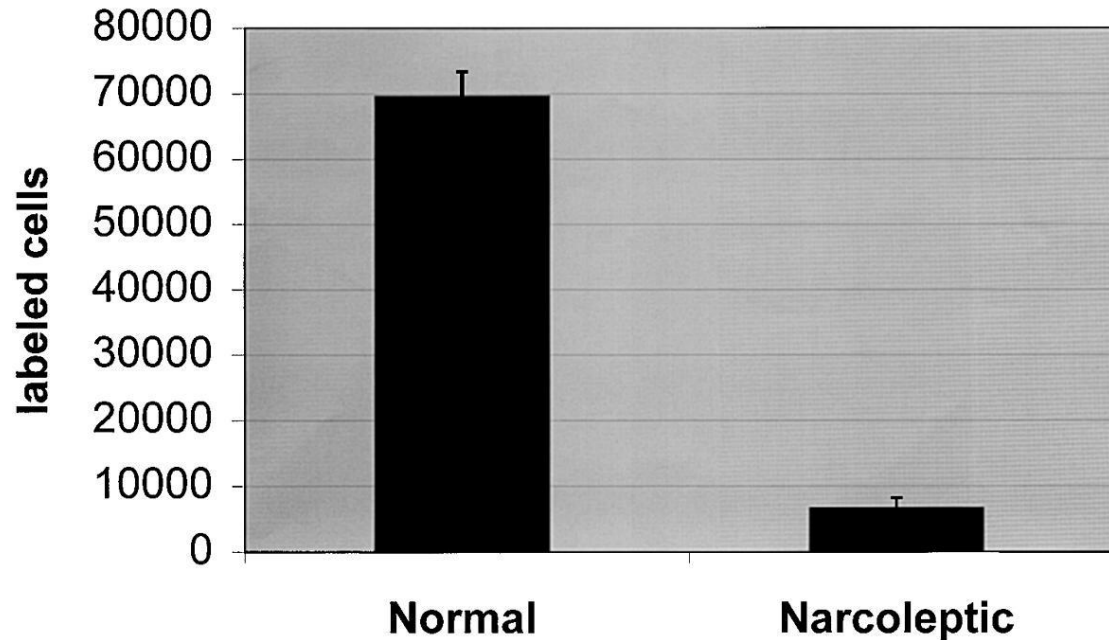
¹Sir Charles Gairdner Hospital, Perth, Australia; ²University of Western Australia, Perth, Australia; ³Institute for Breathing and Sleep, Austin Health, Melbourne, Australia; ⁴University of Melbourne, Melbourne, Australia; ⁵Johns Hopkins School of Medicine, Baltimore, MD; ⁶Brigham and Women's Hospital, Harvard Medical School, Boston, MA; ⁷Repatriation General Hospital, Adelaide, Australia; ⁸Westmead Hospital, Sydney, Australia; ⁹Austin Health, Melbourne, Australia; ¹⁰Westmead Private Hospital, Sydney, Australia; ¹¹Flinders University, Adelaide, Australia; ¹²University of Minnesota, Minneapolis, MN; ¹³Brigham and Women's Hospital, Boston, MA; ¹⁴Ludwig Engel Centre for Respiratory Research, Westmead Millennium Institute, Westmead, Australia; ¹⁵Adelaide Institute for Sleep Health, Adelaide, Australia; ¹⁶University of California San Francisco, San Francisco, CA



Narkolepsie a hypokretin

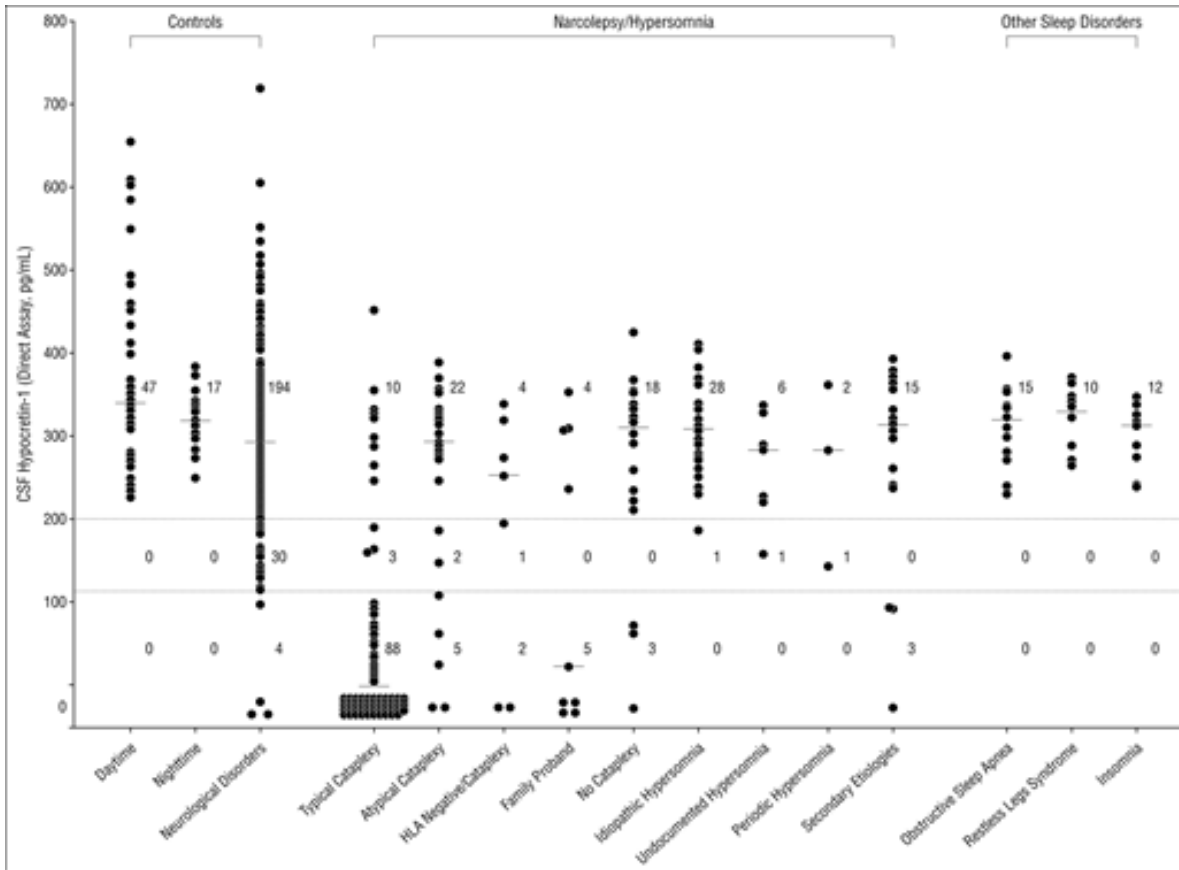


Hypocretin Neurons



Thanickal et al. Reduced Number of Hypocretin Neurons in Human Narcolepsy, 2000

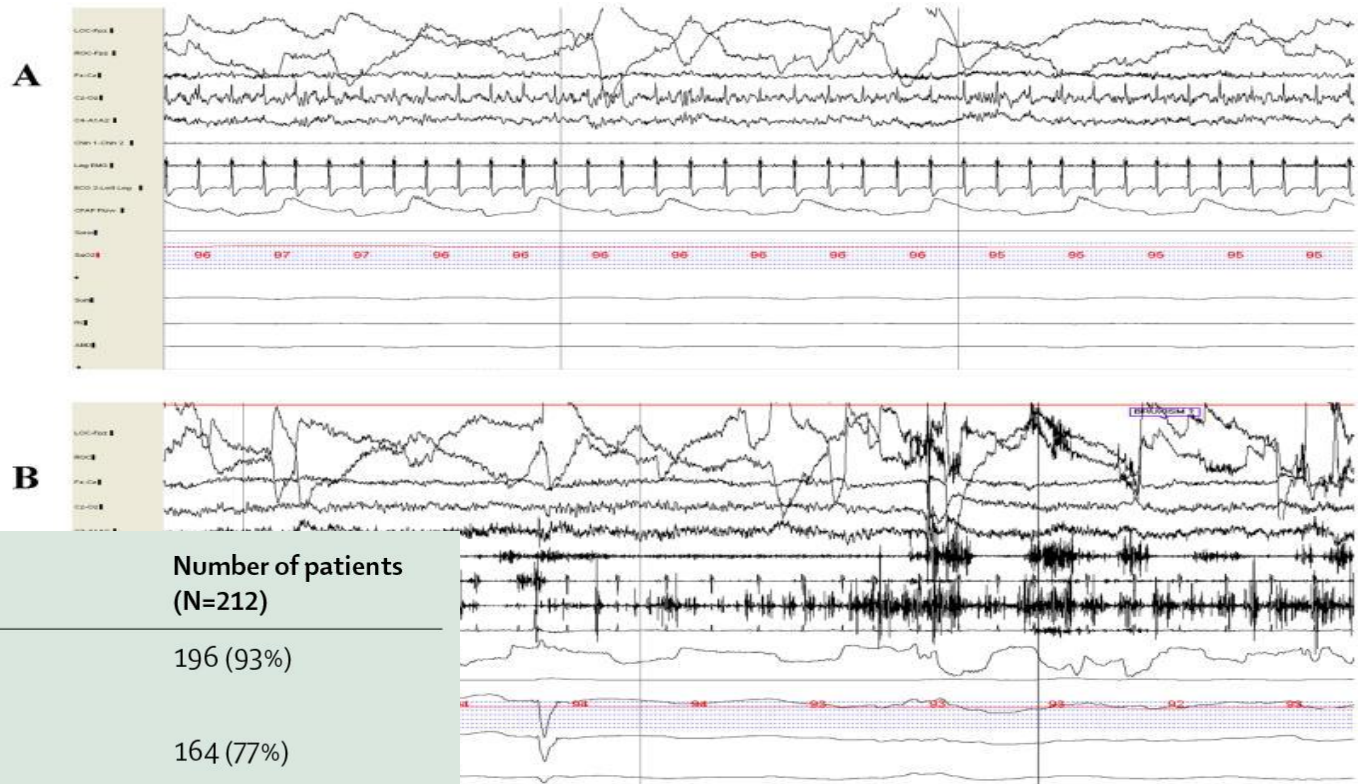
Narkolepsie a hypokretin



Narcolepsy-cataplexy with hypocretin deficiency-genuine disease entity. Measuring CSF hypocretin-1 is a definitive diagnostic test. It may be most useful in cases with cataplexy and when the MSLT is difficult to interpret

Mignot et al. 2002

Porucha chování v REM spánku - RBD



Number of patients (N=212)

Unpleasant dream recall	196 (93%)
Dream content	
Attacked by someone	164 (77%)
Arguing with someone	136 (64%)
Chased by someone	121 (57%)
Falling from a cliff	100 (47%)
Attacked by an animal	84 (40%)
Action-filled sports	33 (16%)
Children in a life-threatening situation	28 (13%)

Iranzo et al 2016

Porucha chování v REM spánku – časný marker neurodegenerativního onem.



Contents lists available at SciVerse ScienceDirect

Sleep Medicine

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



Original Article

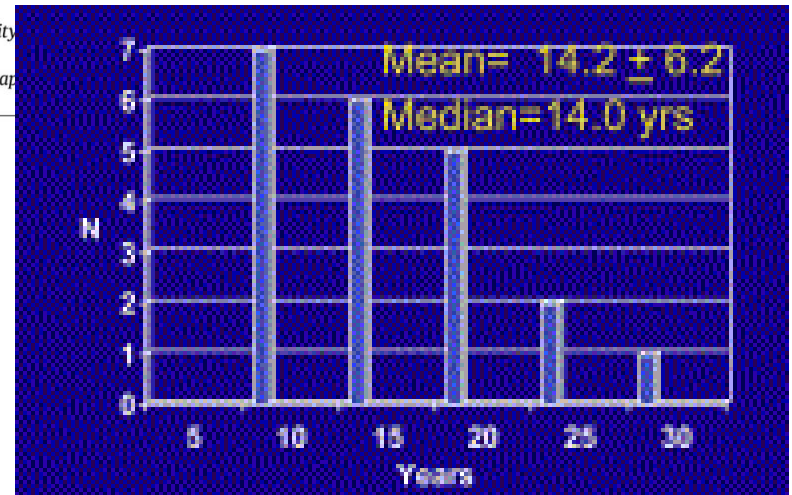
Delayed emergence of a parkinsonian disorder or dementia in 81% of older men initially diagnosed with idiopathic rapid eye movement sleep behavior disorder: a 16-year update on a previously reported series

Carlos H. Schenck^{a,*}, Bradley F. Boeve^b, Mark W. Mahowald^c

^aMinnesota Regional Sleep Disorders Center, Departments of Psychiatry, Hennepin County Medical Center and University

^bMayo Clinic for Sleep Medicine, and Department of Neurology, Mayo Clinic, Rochester, Minnesota, United States

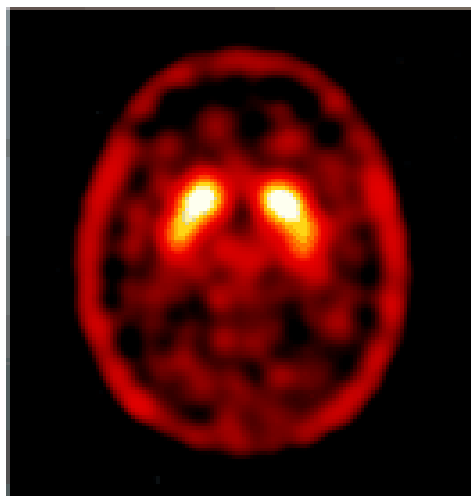
^cMinnesota Regional Sleep Disorders Center, Department of Neurology, University of Minnesota Medical School, Minneapolis



Interval od začátku RBD k neurodegeneraci

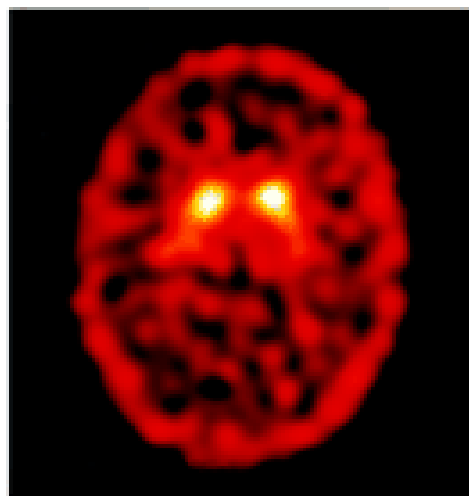
Eisensehr et al. Reduced striatal dopamine transporters in idiopathic rapid eye movement sleep behaviour disorder. Comparison with Parkinson's disease and controls. Brain 2000

Control



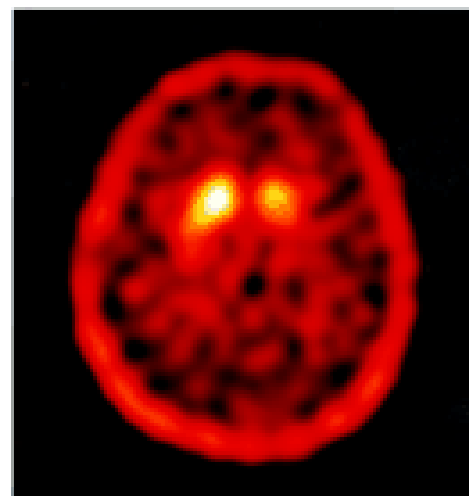
**Striatum: RT: 4.52
LT: 4.60**

RBD



**Striatum: RT: 2.88
LT: 2.90**

PD



**Striatum: RT: 3.44
LT: 2.46**

Riziko vzniku neurodegenerat. onem.

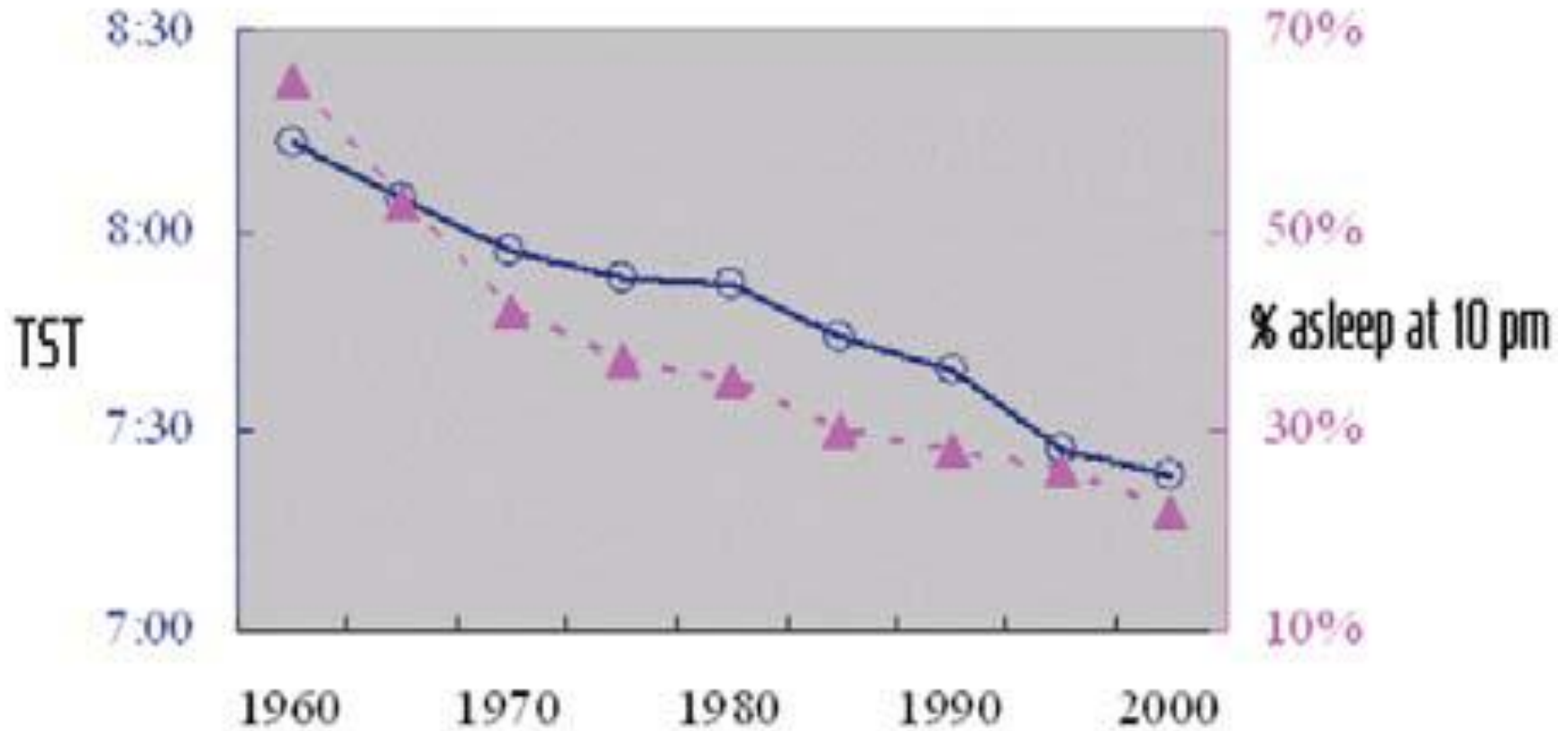
za 5 let od dg iRBD 33.1%

za 10 let 75.7%

za 14 let 90.9%

Iranzo et al 2014

Civilizační vlivy- pandemie zkracování spánku



Civilizační vlivy- pandemie zkracování spánku

AASM/SRM consensus statement 2015

Trvání spánku <7 hod:

↑ riziko

- hypertenze, srdečního selhání, CMP
- úmrtí
- obezity a diabetu mellitu
- snížené imunitní kompetence
- deprese
- nehod, chyb a sníženého výkonu

Perspektivy spánkové medicíny

Výskyt poruch spánku narůstá

Civilizační vlivy- zkracování doby spánku, směnný režim,
metabolické, endokrinní, imunitní důsledky

Poruchy spánku u psychiatrických a neurologických
onemocnění, možnost neuroprotektivní léčby u RBD

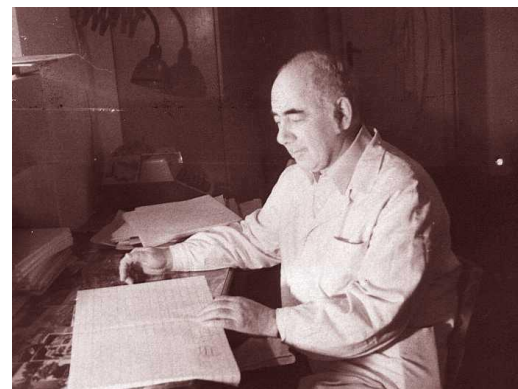
Alternativní metody vyšetření

Léčba a prevence spánkových poruch

Výzkum- genetika, cirkadiánní rytmy, paměť, sny

Rozvoj spánkové medicíny v naší republice

R. 1969 1. spánková laboratoř
ve střední Evropě Neurologická klinika
1. LF UK a VFN, Praha



Česká společnost pro výzkum spánku a spánkovou medicínu r. 2001
Znalostní zkoušky ze spánkové medicíny
Akreditovaná Centra diagnostiky a léčby poruch spánku (17 center)

