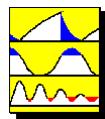




University of Zurich

**ZNZ** Zentrum für Neurowissenschaften Zürich  
Neuroscience Center Zurich  
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# Comparative physiology and pharmacology of sleep

## Introduction

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BIO 333: HS 2012; 17. September 2012

- <http://www.pharma.uzh.ch/research/chronobiology/areas/sleepbiology.html>
- Lecture downloads
- login: bio333
- PW: sleep.12

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Institute of Pharmacology and Toxicology  
**Chronobiology and Sleep Research**

Research Areas

**Environmental Sleep Biology and Biomathematical Modeling**

Chronobiology  
 Animal Models for Sleep  
**Environmental Sleep Biology and Biomathematical Modeling**  
 Sleep EEG and Sleep Regulation  
 RF-EMF and Brain Physiology  
 Publications  
 Group Members  
 Sleep CDT  
 Lecture downloads  
 Download Page  
 Human Sleep Psychopharmacology

Research efforts of the group are focused on:

## Main questions

- u Function(s) of sleep
- u Mechanisms of sleep regulation
- u Diagnosis and treatment of sleep pathology
  - e.g. insomnia, sleep apnea, narcolepsy
  - sleep pharmacology

## Sleep is important

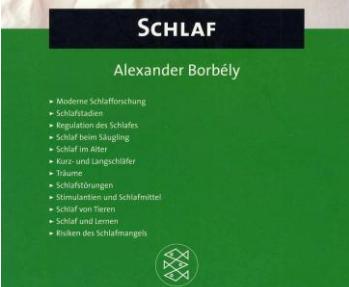
„If sleep has no vital function, it is the biggest mistake evolution ever made“

*Alan Rechtschaffen*

## Definition of sleep: behavioral criteria

- Preparatory behaviors
- Specific sleeping site
- Typical body posture
- Physical quiescence (+/-)
- Elevated arousal threshold
- Decreased reactivity
- Rapid state reversibility
- Homeostatic regulation*

*H. Piéron 1913; Flanigan 1974; Tobler 1982*



## Literature

### ***Das Geheimnis des Schlafs - Neue Wege und Erkenntnisse der Forschung***

Alexander Borbély

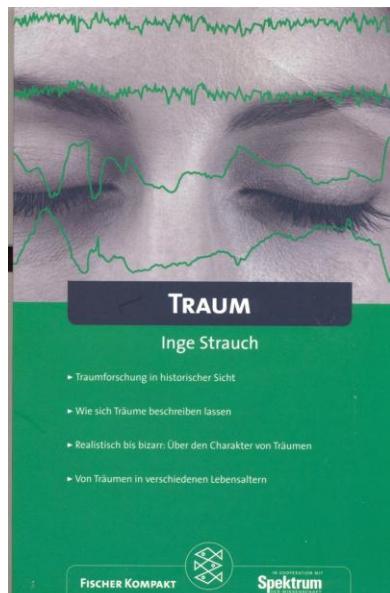
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Ausgabe für das Internet, 1998, A. Borbély, Universität Zürich.

<http://www.pharma.uzh.ch/static/schlafbuch/TITEL.htm>

Fischer Taschenbuch Verlag, 2004



## Literature

Fischer Taschenbuch Verlag, 2004

## Learning objectives

- to explain the essence of the sleep process and of sleep regulation (physiology, behavior, pharmacology and genetics)
- to compare the manifestations of sleep between different species (from drosophila to humans)
- describe the most important methods used in sleep research
- provide an overview of theories on the function of sleep

