

# SLEEP 101 : THE BASICS





**SLEEP  
WHAT IS IT ?**

**JUST 8 HOURS OF UNCONSCIOUSNESS  
OR SOMETHING MORE ?**

SLEEP  
WHAT IS IT ?



JUST 8 HOURS OF UNCONSCIOUSNESS  
OR SOMETHING MORE ?

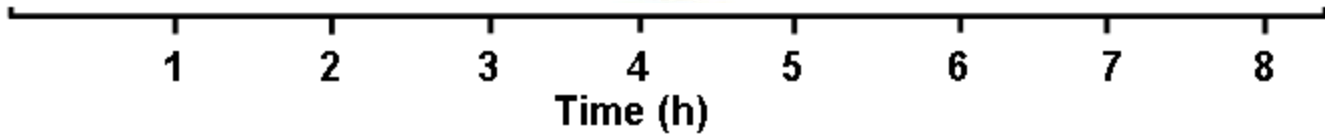
**SLEEP PERIOD AND PREFERRED PHASE**  
**SLEEP CONTINUITY**  
**MICRO AROUSALS**  
**SLEEP ARCHITECTURE**

03/01/2009  
10:32:29

## SLEEP PHASE



03/02/2009  
06:30:09

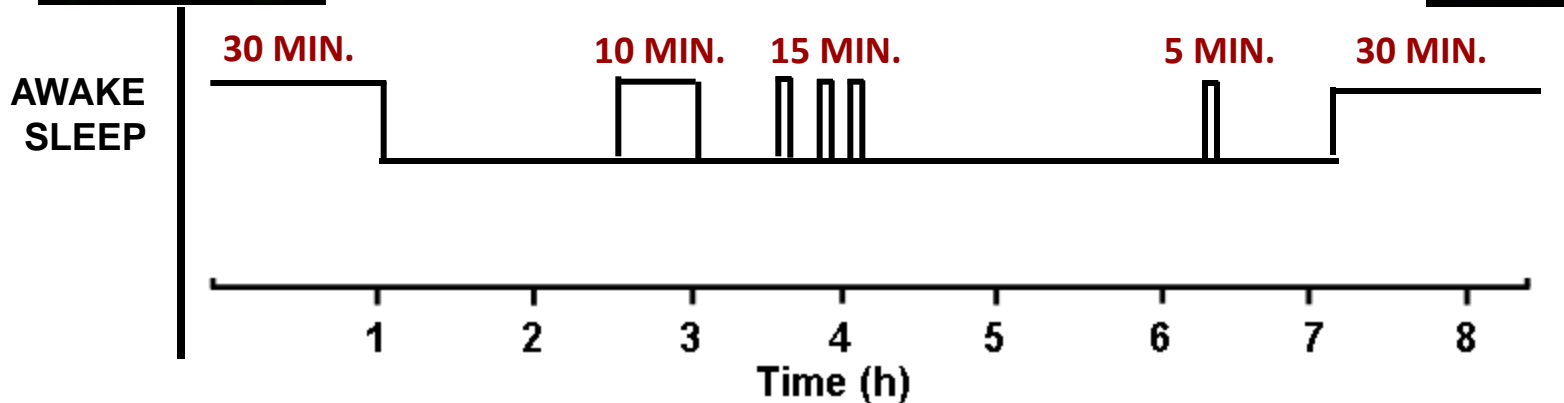


**SLEEP PERIOD = TIME IN BED (TIB)**

03/01/2009  
10:32:29

## SLEEP CONTINUITY

03/02/2009  
06:30:09



### SLEEP CONTINUITY MEASURES

TIME IN BED (TIB)

478 MIN (~ 8hrs)

SLEEP LATENCY (SL)

30 MIN

NUMBER OF AWAKENINGS (NWA)

6

WAKE AFTER SLEEP ONSET (WASO)

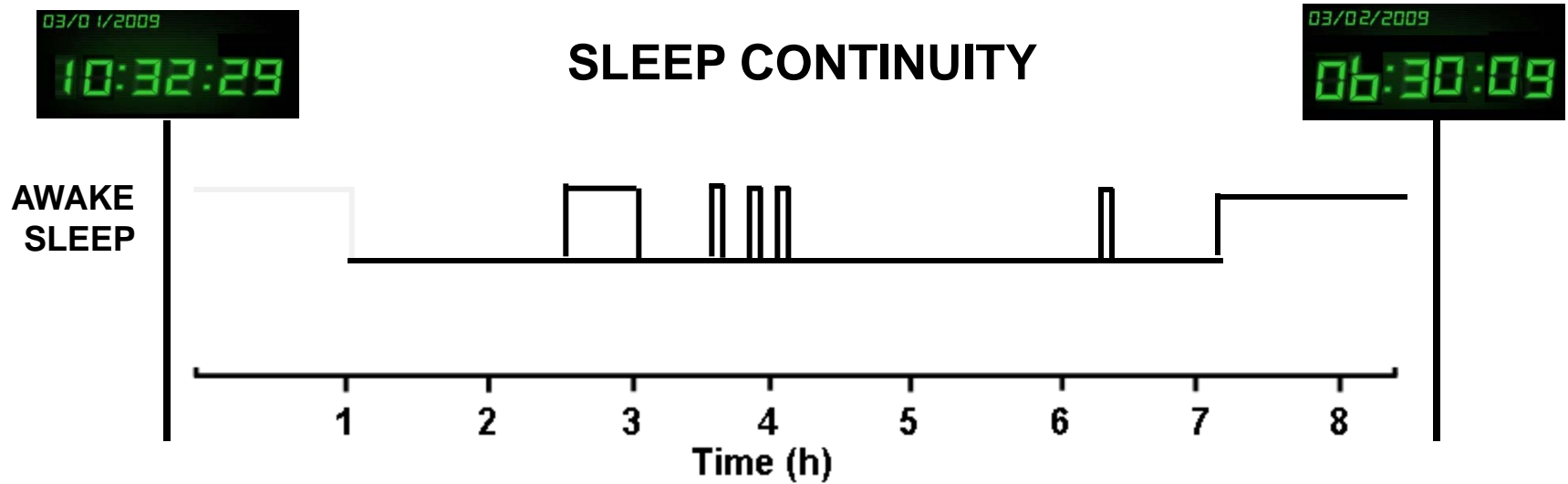
60 MIN

TOTAL SLEEP TIME (TST)

388 MIN (~6.5 hrs)

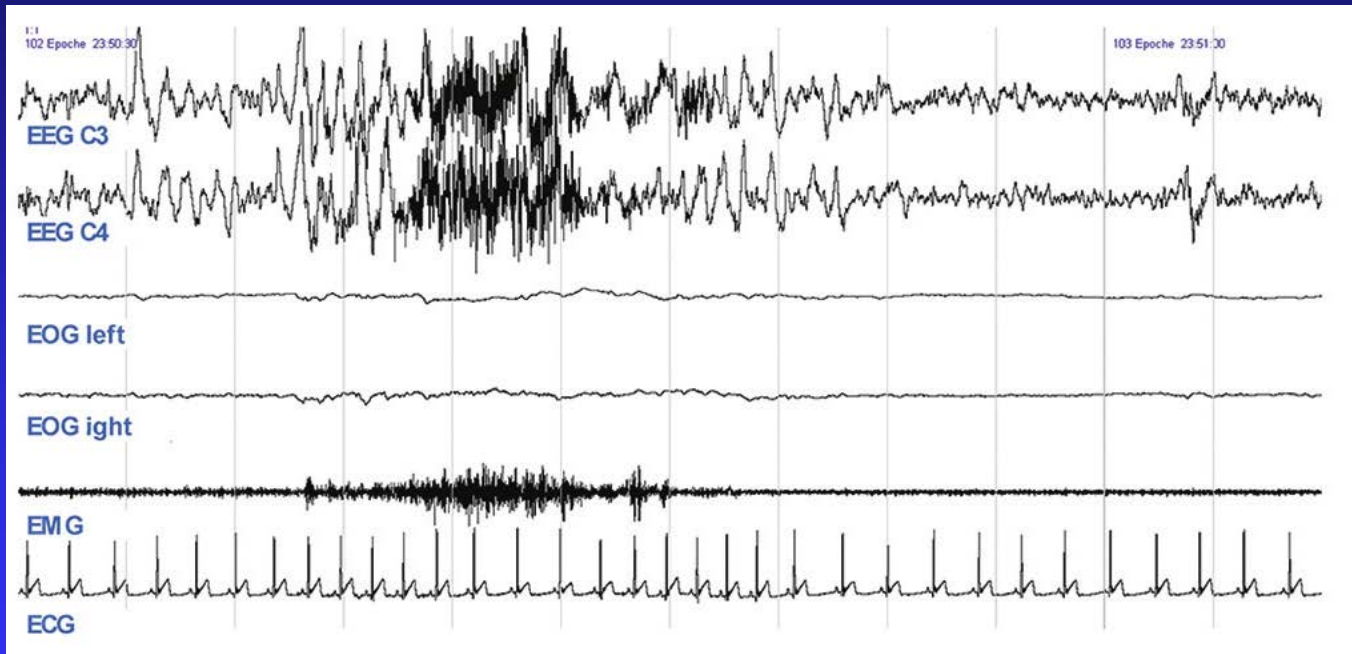
SLEEP EFFICIENCY (SE%)

82%



**NOTE: NOT ALL AWAKENINGS ARE THE SAME  
HOURS VS. MINUTES VS. SECONDS**

# MICROAROUSALS



# MICROAROUSALS

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**Ihr Team**

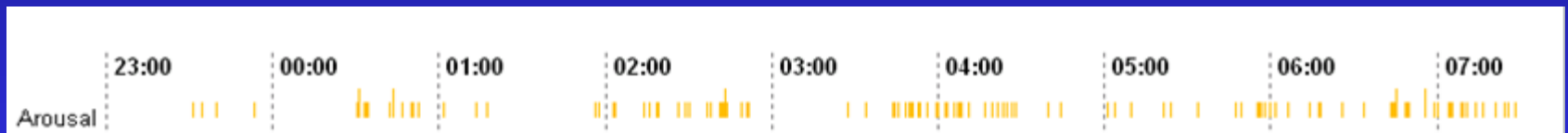
Designed by Rottler und Lenzlinger



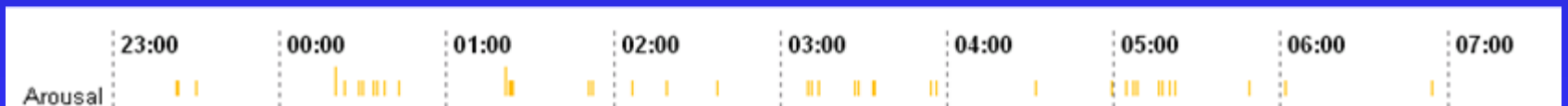
## PATIENT WITH SLEEP APNEA



## PATIENT WITH INSOMNIA



## GOOD SLEEPER

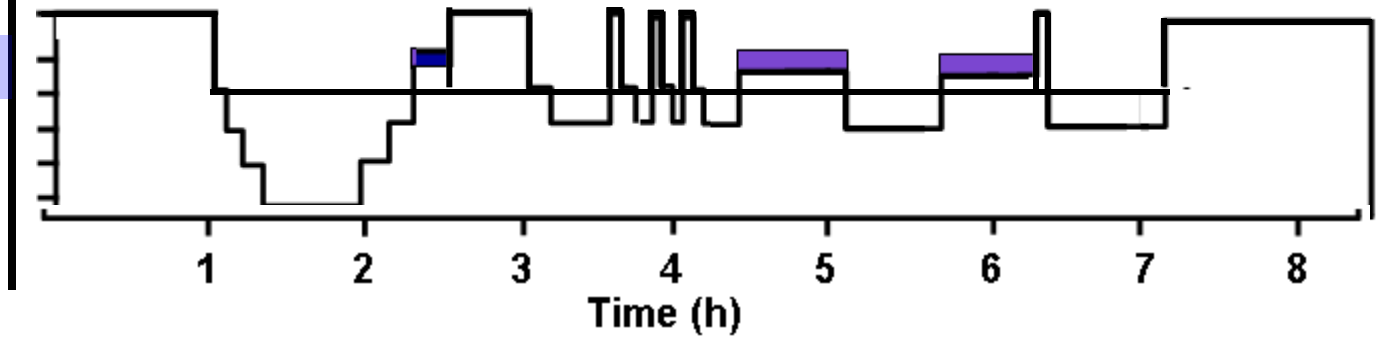


03/01/2009  
10:32:29

# SLEEP ARCHITECTURE

03/02/2009  
06:30:09

AWAKE  
SLEEP  
STG1  
STG2  
STG3  
STG4



## SLEEP ARCHITECTURE MEASURES

STG1  
STG2  
STG3  
STG4  
REM

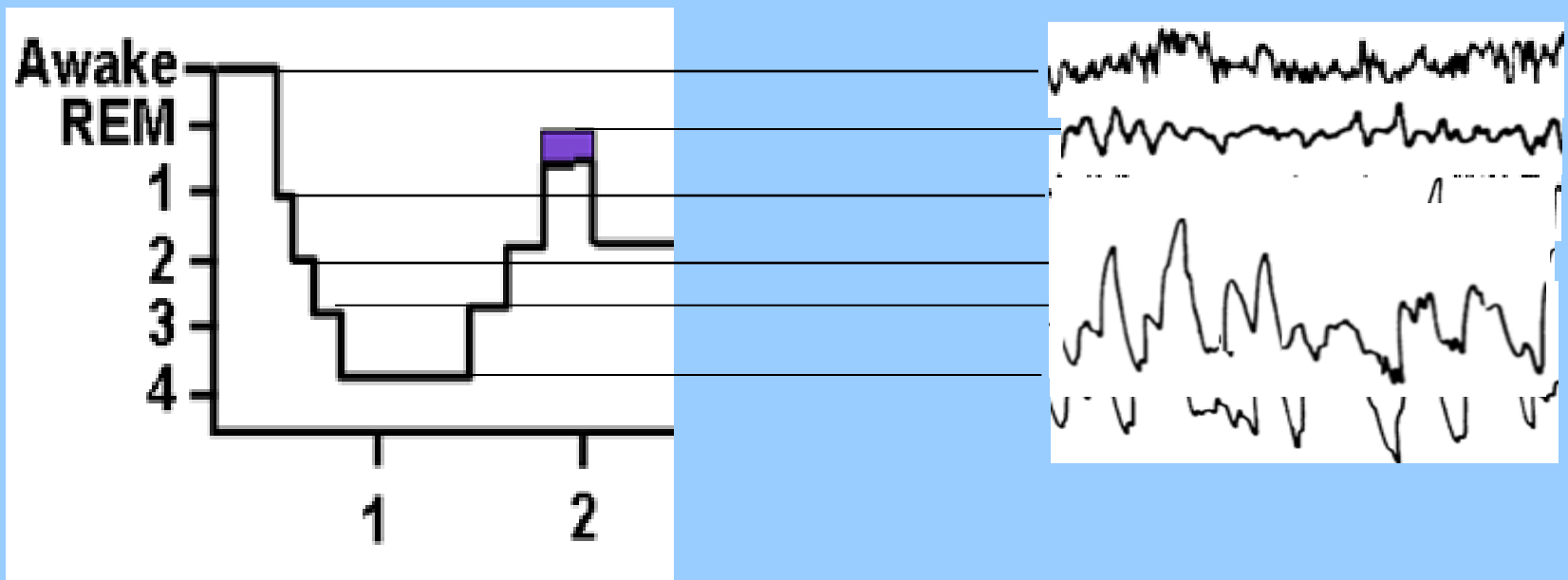
}  
}  
}  
}

**NREM**

10% } ↑  
60% }  
3% } ↓  
7% }  
20%

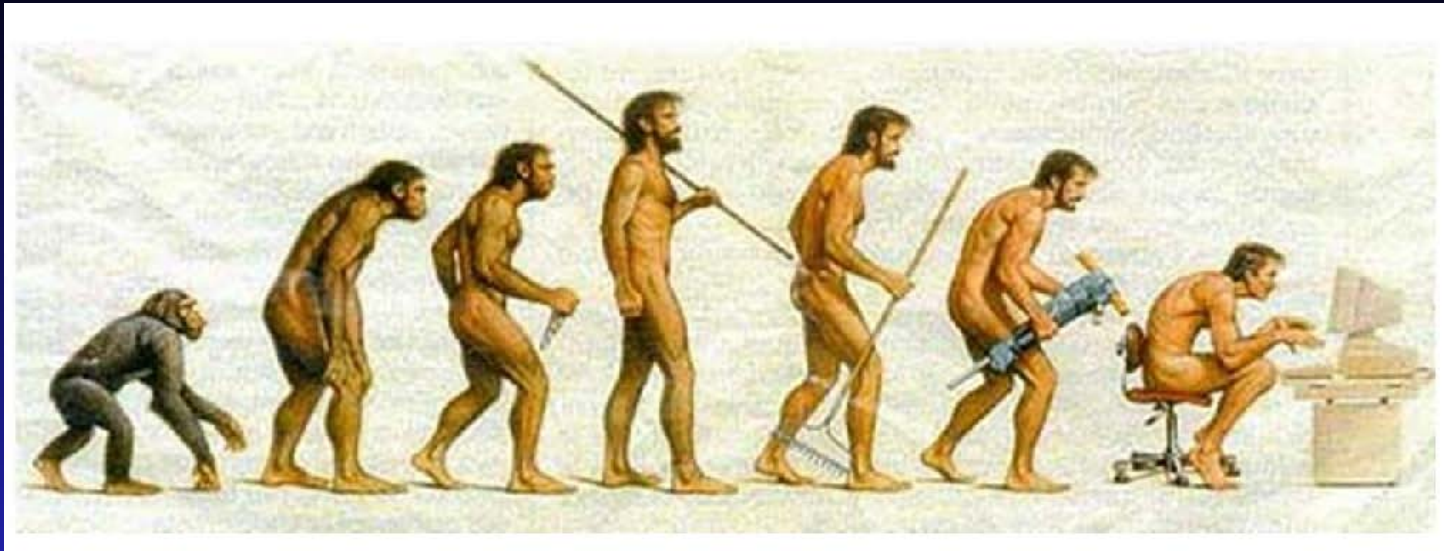
**NOTE: RL AND SWS-L**

# HOW ARE THE STAGES OF SLEEP CLASSIFIED ?





**WHAT IS THE FUNCTION OF SLEEP ?**



**ALLAN RECHTSCHAFFEN**

**“IF SLEEP DOES NOT SERVE AN ABSOLUTELY  
VITAL FUNCTION,**

**THEN IT IS THE BIGGEST MISTAKE  
THE EVOLUTIONARY PROCESS EVER MADE.”**

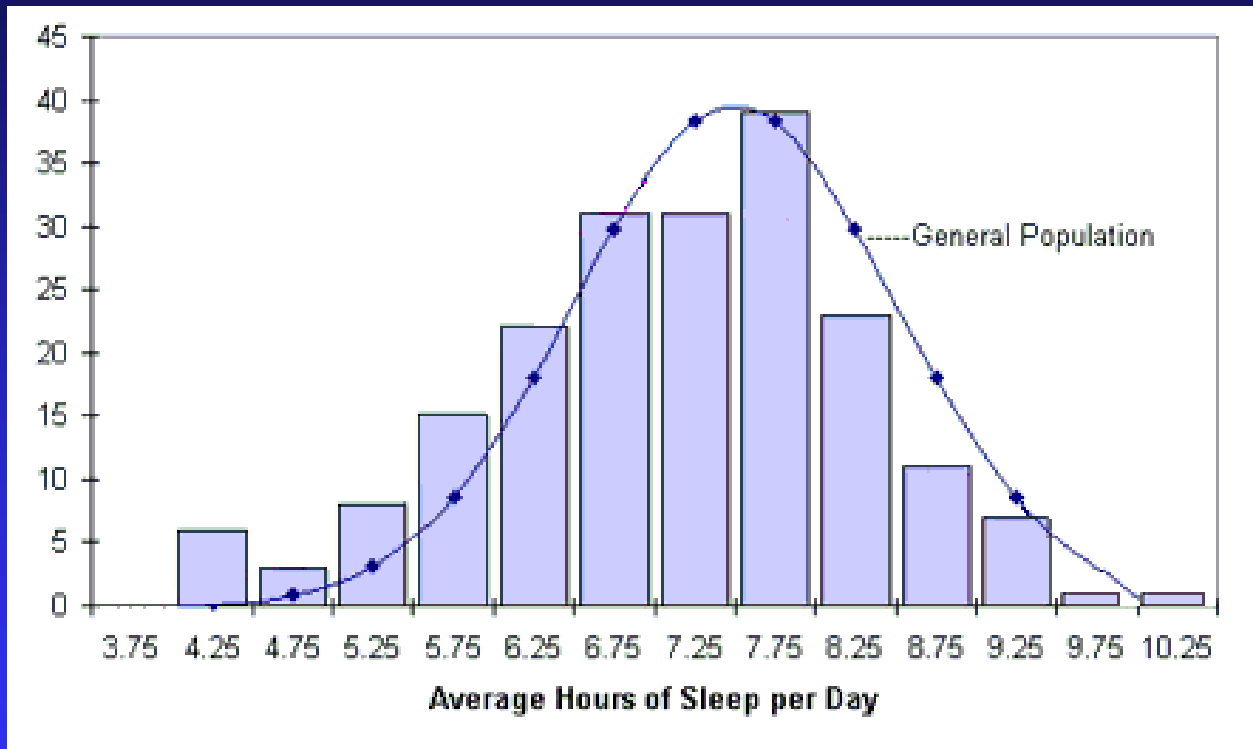
**ANY IDEAS ABOUT THE FUNCTION(S) OF SLEEP ?**



# POSSIBLE FUNCTIONS OF SLEEP

- ENFORCED IMMOBILITY
- CONSERVATION OF EFFORT & ENERGY
- PROMOTION OPTIMAL PERFORMANCE
- GROWTH & TISSUE RESTORATION
- AUGMENTATION OF IMMUNE FUNCTION
- MEMORY CONSOLIDATION
- MOOD REGULATION
- CNS BETA-AMYLOID CLEARANCE \*\*

# HOW MUCH SLEEP DOES ONE NEED ?



**THE POPULATION MODE IS ABOUT 7.5 HOURS**



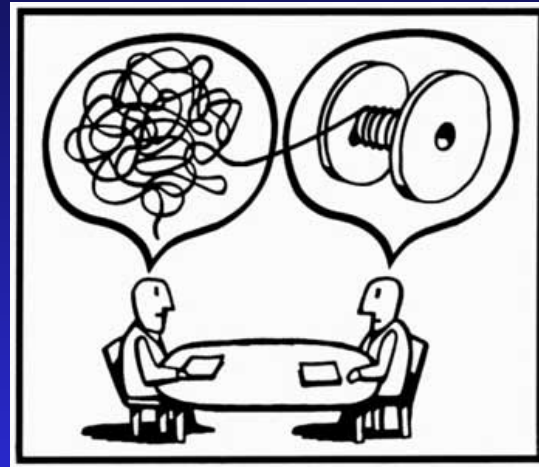
# THE PROBLEM

**THE PROBLEM WITH USING POPULATION NORMS  
IS THAT “INDIVIDUALS MAY SEEK MORE SLEEP  
THAN THEY NEED WHEN IDIOGRAPHIC SLEEP  
NEEDS ARE DEFINED BY NOMOTHETIC GOALS”  
(KENNETH LICHSTEIN, 2010)**

SAY WHAT ?



# TRANSLATION



**PROBLEMS ARRISE WHEN THE INDIVIDUAL GOVERNS WHEN AND HOW MUCH THEY SLEEP BASED ON “UNIVERSAL NORMS”.**

# A NOMOTHETIC



HOW MUCH SHOULD ONE SLEEP ?  
BY NATURE 5 HOURS, BY CUSTOM 7,  
BY LAZINESS 9 AND BY WICKEDNESS 11.

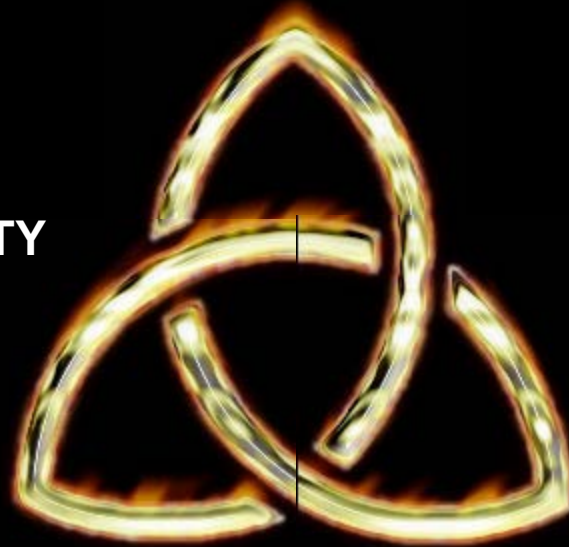
## **THE PROBLEM**

**THE PROBLEM IS THAT BOTH TOO LITTLE  
AND TOO MUCH SLEEP MAY BE  
DELETERIOUS TO ONE'S HEALTH,  
FUNCTIONING, AND SENSE OF WELL BEING.**

**A BALANCE MUST BE STRUCK**

**SLEEP NEED**

**SLEEP ABILITY**



**SLEEP OPPORTUNITY**



**WHAT HAPPENS WHEN THINGS ARE  
OUT OF BALANCE ?**



**WHEN NEED IS MORE THAN ABILITY,  
THIS IS INSOMNIA OR A CRD OR OTHER SLEEP DX**



# International Classification of Sleep Disorders

Third Edition



American Academy of Sleep Medicine

## Insomnia

Idiopathic  
Psychophysiologic  
Paradoxical

## Narcolepsy

## Sleep Disordered Breathing (SDB)

Sleep apnea (Hypopnea, CSA, OSA)  
Snoring  
Upper airway resistance syndrome

## Restless leg syndrome / Periodic limb movement disorder

## Hypersomnia

## Circadian rhythm sleep disorders

Delayed sleep phase syndrome  
Advanced sleep phase syndrome  
Non-24-hour sleep-wake syndrome  
Jet Lag

## Parasomnias

REM sleep Behaviour disorder  
Sleep terror  
Sleepwalking  
Bruxism  
Bedwetting  
Sleep talking  
Sleep sex  
Exploding head syndrome

## Sleeping sickness

## Fatal Familial Insomnia



**WHEN NEED IS LESS THAN ABILITY,  
THIS IS LIKELY THE PHENOMENON OF SHORT SLEEP**



**WHEN NEED AND ABILITY ARE MORE THAN OPPORTUNITY,  
THIS IS INSUFFICIENT SLEEP SYNDROME (SLEEP DEPRIVATION)**

# SO THAT'S A GENERAL CONCEPTUAL FRAMEWORK



# LET'S LOOK AT THINGS WHEN THEY'VE BEEN FULLY FRAMED



