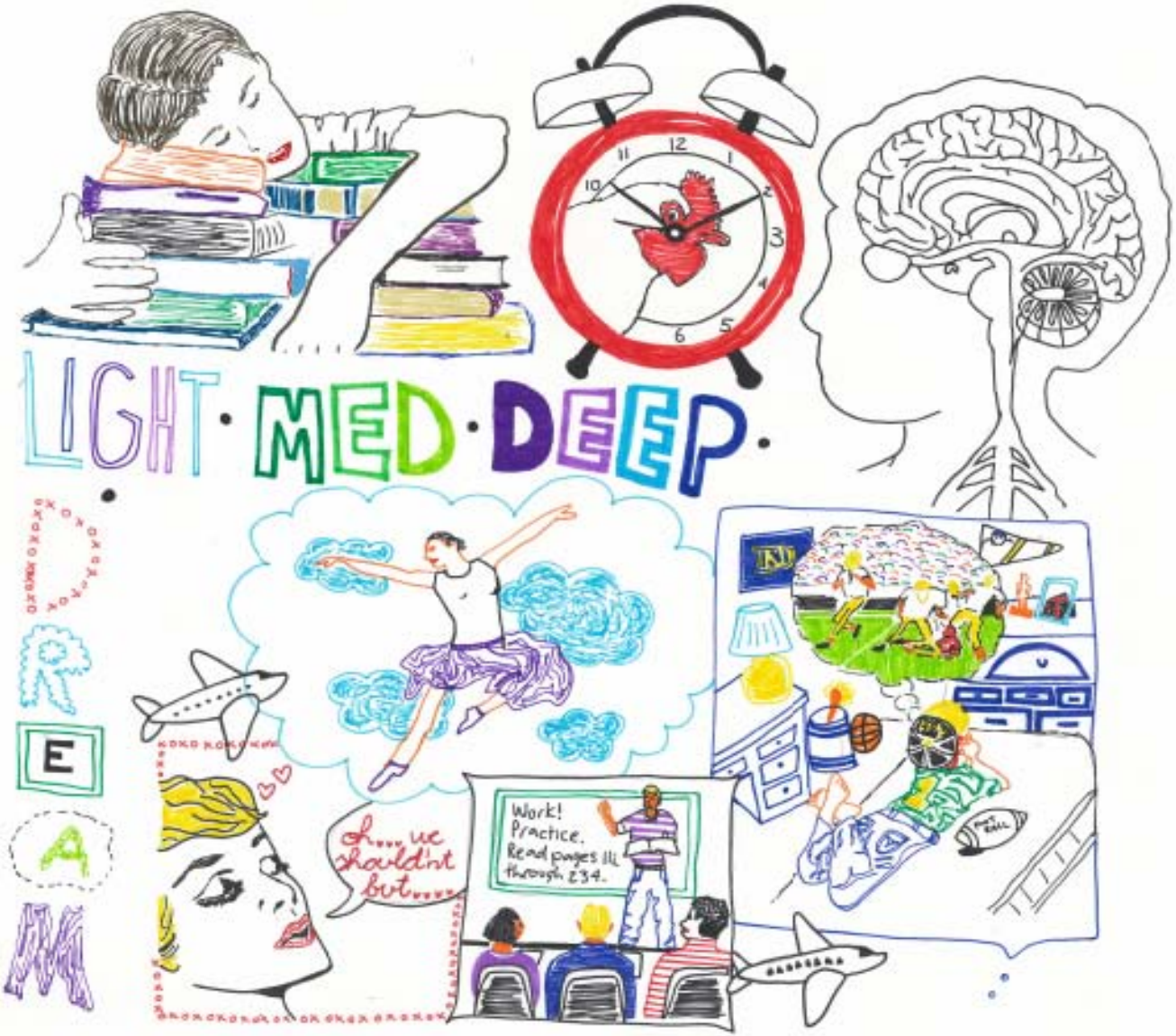
Restorative Sleep-40 years in Wilderness

Colin M. Shapiro


LIGHT · MED · DEEP ·
R
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I... we shouldn't but.....
Work! Practice. Read pages 111 through 234.

The Wall of Evidence
for
The Restorative Theory of Sleep

Catabolism/anabolism*
The balance tips towards more build-up during sleep

Growth hormone
Mostly released at night and mostly in deep sleep

ATP† concentrations
Increase while oxygen consumption drops - as during sleep

Oxygen
use decreases in deep sleep

Pregnancy
is associated with increased deep sleep

Illness
People with illnesses that lead to low energy output (e.g., paraplegics or those with hypothyroidism) have low levels of deep sleep

Exercise
People who exercise have more deep sleep, indicating that sleep is restorative

Immunology
Infected animals who are prevented from sleeping are more likely to die

Height
Teenagers get taller during the growth sleeping period

Core sleep
When sleep is lost, deep sleep is replaced first

Cell mitosis
Most cell division is during sleep

Recovery
There is more Deep Sleep after Deprivation

Memory
Growing evidence that certain types of memory need deep sleep

This figure emphasizes the points made on the previous page. There are many bricks in the wall of evidence that link sleep to a restorative process.

Slow-Wave Sleep: A Recovery Period After Exercise

Abstract. *Sleep recordings were carried out on athletes on four successive nights after completing a 92-kilometer road race. Significant increases in total sleep time and slow-wave sleep were found after this metabolic stress. The results show a definite exercise effect on sleep and support sleep-restoration hypotheses.*

Slow-Wave Sleep: A Recovery Period after Exercise
Author(s): Colin M. Shapiro, Ralph Bortz, Duncan Mitchell, Peter Bartel, Pieter Jooste
Source: *Science*, New Series, Vol. 214, No. 4526 (Dec. 11, 1981), pp. 1253-1254
Published by: American Association for the Advancement of Science
Stable URL: http://www.jstor.org/stable/1687778

Biological Psychology 15 (1982) 229–239
North-Holland Publishing Company

ENERGY EXPENDITURE AND RESTORATIVE SLEEP

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Accepted for publication 9 June 1982

RESTORATIVE SLEEP QUESTIONNAIRE

1.	How do you rate the quantity of your sleep?	Very poor	1 2 3 4 5 6 7 8 9 10	Very good
2.	How do you rate the quality of your sleep?	Very poor	1 2 3 4 5 6 7 8 9 10	Very good
3.	How do you rate the efficiency of your sleep? (below) (sleep efficiency is the proportion of time asleep compared to the time in bed)	Very poor	1 2 3 4 5 6 7 8 9 10	Very good
4.	Do you feel alert during the daytime	Not at all	1 2 3 4 5 6 7 8 9 10	Completely alert
5.	Do you feel restored by your sleep	Not at all	1 2 3 4 5 6 7 8 9 10	Completely refreshed
6.	Do you feel depressed *	Not at all	1 2 3 4 5 6 7 8 9 10	Extremely depressed
7.	How tired did you feel yesterday, in the evening, the hour before going to sleep	Not at all	1 2 3 4 5 6 7 8 9 10	Extremely tired