**MEDICAL DISCLAIMER:**

*Any medical information provided is solely for the purpose of providing information and is not intended as medical advice. You should always talk to your personal healthcare providers for specific medical and health-related instructions and guidelines.*

**SLEEP STAGES**

Sleep is divided into two main types with a few sub-types; each of which is vital every night; they cycle each night and vary in predominance over the course of our lifetimes.

* **REM** (Rapid Eye Movement) Sleep and
* **Non-REM (aka NREM**). NREM is further divided into four stages with
  + NREM Stages 1 & 2 called **LIGHT Sleep** and
  + NREM Stages 3 & 4 **DEEP Sleep**.

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| **LIGHT Sleep NREM Stages 1 & 2** | **DEEP Sleep NREM Stages 3 & 4** | **REM SLEEP** |
| Entry point to sleep as body unwinds and slows down to promote mental and physical recovery. Typically the transition stage to other stages or awakenings. | Promotes physical recovery, aspects of memory and learning, and the immune system. Performs a file transfer function as it reflects on “memory packets” (recent information) and moves them from a short-term storage area to a more permanent long-term location. | Associated with dreaming, creativity, problem solving as REM Sleep integrates information (past and present facts and skills) to continue building a more accurate view of the world. REM also regulates mood and emotional health.  During this stage, your body is immobilized, safe-guarding you from acting out your dreams. |

In terms of processing information so it’s retained in our brai**ns**, Walker uses these terms to illustrate that flow:

|  |  |  |
| --- | --- | --- |
| **LIGHT Sleep is “RECEPTIVE”** | **DEEP Sleep is “REFLECTIVE”** | **REM Sleep is “INTEGRATIVE”** |

A sleep cycle may include all three sleep stages as well as (hopefully brief) “awake” periods. Typically your sleep starts with LIGHT Sleep, transitions to DEEP Sleep, then back to LIGHT and then into REM. Generally Sleep “Cycles” last 90 minutes; so you usually pass through several cycles each night. The % of DEEP Sleep is greater (than REM) during the first part of the night, then the REM % is higher during the 2nd part of the night. So, if your total sleep time is too short, REM sleep is usually more impacted than NREM. Most sources recommended 8 hours of sleep nightly and explained that “lost” sleep could not be recovered by sleeping later on the weekend.

Two primary forces regulate your sleep – the 24-hour circadian rhythm and the “sleep pressure” signal of adenosine, the sleepiness chemical. Caffeine will block adenosine but adenosine’s pressure to sleep continues to build up until the caffeine is finally metabolized by your liver and the pent-up pressure to sleep is released.

Walker’s book published in 2017, observed that wearable devices were fast emerging to provide sleep details. Such devices are here (I have a FITBIT which tracks heart rate and body movements to estimate sleep stages). Analyzing sleep trends could motivate us to adopt better sleep habits so we receive the 8 hours of sleep we all are entitled to (and need).

* “Sleep DO’s, DON’Ts” and “Gadgets, Tips and Other Thoughts” are attached in the “Sleep Pearls” document
* Also attached is a list of Dr. Walker’s TED Talks on Sleep.

**INFORMATION SOURCES:**

*In addition to learnings from Matthew Walker’s book, “Why We Sleep” and his TED Talks, we share information from other sources such as The National Sleep Foundation (NSF), advice from medical “Sleep Specialists” with whom some of us have worked, and documentation provided (n collaboration with NSF) with a FITBIT Sense wrist monitor.*