Sleep – A Dynamic Activity

Pre-reading

Questions: What do you know about sleep? What more would you like to know about it?
Definitions: Dynamic – lively or active
Dormant – not active for a period of time

Reading

Until the 1950s, most people thought of sleep as a passive, dormant part of our daily lives. We now know that our brains are very active during sleep. We usually pass through five stages of sleep: stages 1, 2, 3, 4, and REM (rapid eye movement) sleep. These stages progress in a cycle from stage 1 to REM sleep. Then the cycle starts over again with stage 1.

Adults spend almost 50 percent of our total sleep time in stage 2 sleep, about 20 percent in REM sleep, and the remaining 30 percent in the other stages. Infants, by contrast, spend about half of their sleep time in REM sleep.

During stage 1, which is light sleep, we drift in and out of sleep and can be awakened easily. Our eyes move very slowly, and a sensation of starting to fall followed by a sudden contraction of muscles may be experienced. These sudden movements are similar to the “jump” we make when startled.

When we enter stage 2 sleep, our eye movements stop and our brain waves become slower. In stage 3, extremely slow brain waves called delta waves begin to appear, interspersed with smaller, faster waves.

By stage 4, the brain produces delta waves almost exclusively. It is very difficult to wake someone during stages 3 and 4, which together are called deep sleep. There is no eye movement or muscle activity. People awakened during deep sleep do not adjust quickly and often feel groggy for several minutes after they wake up. Some children experience bedwetting, night terrors, or sleepwalking during deep sleep.

When we switch into REM sleep, our breathing becomes rapid, irregular, and shallow. Our eyes jerk rapidly in various directions, and our limb muscles become temporarily paralyzed. Our heart rate increases and our blood pressure rises. When people awaken during REM sleep, they often describe bizarre and illogical tales – dreams.

The first REM sleep period usually occurs about 70 to 90 minutes after we fall asleep. A complete sleep cycle takes, on average, 90 to 110 minutes. The first sleep cycles each night contain short REM periods and long periods of deep sleep. As the night progresses, REM sleep periods increase in length, while deep sleep decreases. By morning, people spend nearly all their sleep time in stages 1, 2, and REM.

Source: National Institute of Neurological Disorders and Stroke, Sleep – A Dynamic Activity
Understanding

1. What are delta waves? When are they present? ____________________________________________
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________________________________________________________________________________

2. What is REM? What happens during this stage of sleep? ________________________________
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________________________________________________________________________________
________________________________________________________________________________

3. What does the word passive mean? __________________________________________________
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4. During what stage(s) do we dream? _________________________________________________
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5. What might happen to children in the stage of deep sleep? ____________________________
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6. Why is sleep referred to as a dynamic activity? ______________________________________
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7. Do you think a person dreams more at the beginning, middle, or end of a night’s sleep? Why?____
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Writing

Option A: Summarize the reading in your own words.

Option B: What new things did you learn about sleep? What surprised you?

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Sleep – A Dynamic Activity – Level 7.0