

# Baby catnappers bulk up

*Infants that sleep less more likely to be overweight*

By RITA RUBIN  
Gannett News Service

Infants and toddlers who slept fewer than 12 hours in a 24-hour period were twice as likely to be overweight than longer sleepers by the time they're 3 years old, a study showed Monday. The children most likely to be overweight were those who slept less than 12 hours and watched at least two hours of televi-

sion a day, says the study in the "Archives of Pediatric and Adolescent Medicine".

Although previous research has linked inadequate sleep with weight gain in adults and older children and TV viewing and obesity in older children, the authors of the new study say theirs is the first to connect sleep and television viewing in infants

excess weight.

The researchers focused on 915 children in an ongoing Massachusetts study. When the children were 6 months old, their mothers were asked about their sleeping habits. When the children were ages 1 and 2, the mothers were asked about their sleep and television watching. "One

of the things we thought was that if children are sleeping less they might be watching more TV, and maybe that would explain the relationship between sleep and obesity," says lead author Elsie Taveras, a Harvard pediatrician who runs the childhood obesity prevention clinic at Chil-

dren's Hospital Boston. "But that wasn't the case."

The children slept an average of 12.3 hours a day at age 6 months, 12.8 hours a day at 1 year and 12 hours a day at age 2. Some who slept more than 12 hours also watched more than two hours of TV a day, while

some briefer sleepers didn't.

Why less sleep in infancy and toddlerhood was linked to a greater chance of becoming overweight isn't clear, says co-author Matthew Gillman, also a Harvard pediatrician. Gillman says some short-term experiments in adults suggest that "people whose sleep is curtailed do have hormone changes that tend to increase appetite."



## SLEEP/ Sleep deprivation affects bodily rhythms

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icine at the University of Chicago. "But sleep deprivation may be bad for the body, too, representing a risk for a variety of abnormal conditions."

Dennis Corrigan sometimes questions his decision to switch to a night shift 12 years ago.

By working nights, the UPS truck driver from West Covina, age 52, avoids the physical demands of the day shift, when lifting boxes is part of the job, plus the worst of city traffic. The 10:45 p.m.-to-11 a.m. shift also allowed him to attend all of his son's high school football games.

But Corrigan sleeps only about six hours a day. He has put on weight and gets less exercise than before the switch and was diagnosed with diabetes five years ago.

"The rough part is, when I come home, I'm hungry," he says. "I eat a heavy meal before going off to bed. You're not supposed to do that. It's a worry."

His circadian rhythms may be to blame. Those rhythms determine when certain body processes take place. For example, melatonin, the hormone that aids sleep, is released at night; the hormone cortisol is low at night and pours out in the morning, jump-starting the body's daytime functions. Even in night workers, melatonin continues to peak at night and cortisol levels continue to peak in the early morning hours, when they are eager to get some sleep.

Those disrupted circadian rhythms are why night-shift workers sleep less and with poorer quality, Van Cauter says. They try to sleep when their bodies want to be awake.

Chronic sleep deprivation may carry some of the same risks as disrupted circadian rhythms, she says. Today, Americans average about one hour less of sleep per night than they did 30 years ago.

Bunag feels the effect of night-shift work on her days off. If she tries to sleep at night, she often awakes around 3 a.m. and is alert until dawn, when she falls back to sleep, often

for 10 hours. On workdays, she sleeps about six hours during the day but awakens still tired.

"My problem is not while working but on my days off," she says. "I feel unproductive, because all I do is sleep all day and I'm up the whole night, when nothing much can get done."

She finds herself less willing to socialize these days and worries that her irritability may border on depression. She also wonders about the long-term health consequences of her schedule. "I want to be able to sleep normally at night when the body does all of its detoxifying, cleansing, repairing and recharging. But I haven't figured out what's going to work for me."

Her concerns are well-founded.

■ Night-shift workers have a 40 percent to 50 percent increased risk of heart disease compared with day workers, various studies have found.

■ People who regularly get five hours of sleep, common among night-shift workers, are 50 percent more likely to be obese than normal sleepers, Columbia University researchers have found. Several dozen other studies have tied sleep loss to weight gain as well.

■ Women night-shift workers have higher rates of miscarriage, preterm birth and low birth-weight babies.

■ Night-shift workers show increased rates of breast (by 50 percent) and colon (by 35 percent) cancer in numerous independent studies. Animal studies have shown that exposure to dim light during the night can substantially increase tumor development.

"It's been known for years that there is an increased risk of a variety of medical conditions in the population of shift workers," says Dr. Diane Boivin, associate professor of psychiatry and director of the Centre for Study and Treatment of Circadian Rhythms at Douglas Mental Health University Institute in Montreal. "What is difficult to parcel out is the exact contribution of this circadian misalignment



Registered nurse Liberty Bunag relies on coffee, caffeinated soda and rice to get through 12-hour overnight shifts at White Memorial Medical Center in Los Angeles.

and sleep deprivation. We think it's major, but it's very difficult to be sure."

Science is inching closer to understanding how a lack of sleep — or sleep at the wrong time — can wreak biological havoc. In the past few years, researchers have made surprising discoveries about the body's sophisticated timekeeping.

Scientists once assumed the body's sole "clock" was nestled in a place in the brain called the suprachiasmatic nucleus, or SCN. Light — particularly sunlight — is the primary synchronizer for circadian rhythms. When we open our eyes each morning, light reaches photoreceptors in the retina and creates signals that travel to the SCN to jump-start the body's hormones, neurotransmitters, temperature and metabolism for the new day.

But that's not the body's only timepiece. Circadian timekeeping genes can be found in organs all over the body. These peripheral clocks control the activity of many cellular processes and biological functions, and their presence may explain why sleep deprivation seems to have such a broad



Since switching to the night shift 12 years ago, Dennis Corrigan, 52, a UPS truck driver from West Covina, has put on weight and been diagnosed with diabetes.

effect on overall health. Light sets the circadian clocks in the SCN, but scientists still aren't sure what compels the body's peripheral clocks to work in unison. After all, the liver and the digestive tract don't have direct access to sunlight.

"The SCN is like a musical conductor, and the

peripheral clocks are the instruments that need to play their music with peak activity at certain times of the day to get good harmony across the body," Boivin says. "They must be in sync."

Research continues. For now, scientists and sleep doctors implore people to show a little

respect for slumber.

"People think of sleep as a waste of time," says Paolo Sassone-Corsi, chairman of the department of pharmacology at the University of California, Irvine. "But it's essential. A correct sleep-wake cycle is as important to health as any other thing in our lives."

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