How Sleep Resets the Brain's Emotional Compass
by Carolyn Gregoire

As most of us know all too well, lack of sleep and a bad mood often go hand-in-hand.

But a poor night's sleep doesn't just put a damper on your own emotions. New research from The University of California, Berkeley suggests that it may also hinder your ability to accurately read the emotions of others — an impairment that may have wide-ranging consequences for our social interactions.

"Recognizing the emotional expressions of someone else changes everything about whether or not you decide to interact with them, and in return, whether they interact you," Dr. Matthew Walker, a professor of psychology and neuroscience at the university and one of the study's authors, told The Huffington Post in an email. "Should you lose the ability to read and decode facial emotions, you are placed at a profound social and psychological disadvantage. We know this from conditions such as Autism and Asperger's Syndrome, in which individuals fail to decode emotions, resulting in markedly diminished social and psychological functioning."

The study, published this week in the Journal of Neuroscience, finds that sleep loss dulls our ability to read facial expressions, which is an important component component of emotional intelligence. But on the bright side, dreaming actually boosts this ability, the researchers found.

How sleep loss impairs the emotional brain

For the study, researchers conducted brain scans and monitored the heart rates of 18 young adults while they viewed 70 images of faces with expressions ranging from friendly to neutral to threatening. The participants viewed the faces two separate times — once after a full night's sleep and once after pulling an all-nighter.

Study participants viewed images of 70 faces while their brains were scanned and their heart rates were monitored.

The fMRI brain scans revealed that the emotion-sensing areas of the sleep-deprived brain did not distinguish between the friendly and the threatening faces. The heart rates of the sleep-deprived participants also did not respond to the threatening faces. What's more, the neural link between the brain and the heart — which normally allows the body to receive distress signals — was disconnected in the sleep-deprived participants.

"This is especially concerning considering that almost two thirds of people in developed nations fail to get sufficient sleep," Walker said. "The real-life implications become clear

when you consider professional and societal circumstances where sleep deprivation is common — be it doctors and medical staff, military personnel or new parents, the accurate identification and recognition of emotional signals, as well as the need to be guided by them, is utterly critical."

Walker and his colleagues previously showed that sleep loss is implicated in many mental illnesses. A 2007 brain-imaging study revealed that sleep loss over-activates the amygdala, a part of the brain that plays a role in emotional processing and is involved in mental illnesses such as depression and anxiety.

"It's almost as though, without sleep, the brain... was unable to put emotional experiences into context and produce controlled, appropriate responses," Walker said in a statement when the prior study was published. "Emotionally, you're not on a level playing field."

The secret to emotional intelligence

On the upside, however, the new study showed that the amount of REM (rapid eye movement) sleep participants got — the type of sleep that's associated with dreaming, which usually occurs in the early morning — was correlated with their ability to accurately read facial expressions, suggesting that dreams may play an important role in emotional intelligence.

"Dream sleep appears to reset the magnetic north of our emotional compass," Walker said. "One question is whether we can now enhance the quality of dream sleep, and in doing so, improve emotional intelligence."

Join an Awakin Call with Dr. Matthew Walker on "Sleeping Enough to be Truly Awake", November 12th 2106 at 9AM PST. More details and RSVP info here.