MedicalXpress

Sitting in the sun is linked to days when people lived in caves, scientists believe

August 7 2017, by Rich Schneider

Sunbathers on a beach. Credit: Indiana University

Summer is in full stride, with people heading to beaches to soak up the

sun. But there's more to that behavior than trying to get a good tan, says an epidemiology expert at Indiana University-Purdue University Indianapolis.

The scientific community theorizes that sitting in the sun is an addictive, pleasure-producing behavior driven by a biological mechanism that developed when people lived in caves, according to Jiali Han, the Rachel Cecile Efroymson Professor in Cancer Research at the Indiana University Melvin and Bren Simon Cancer Center and professor and chair of the Department of Epidemiology at the Richard M. Fairbanks School of Public Health.

According to Han, the theory is that people turned to caves thousands of years ago for safety and warmth. But staying in those caves reduced their exposure to sunlight, which produces the Vitamin D needed for bone and reproductive health.

"So we think that this sun-seeking behavior was an evolutionary development," Han said.

The sun-seeking phenomenon comes from a biological mechanism that is triggered when people are exposed to sun or ultraviolet light, Han said. The top layer of the skin produces beta-endorphin, a hormone, which is then released into the bloodstream. When beta-endorphin reaches the brain, it makes people feel happy, acting on the same biological pathway as other addictive substances like tobacco and alcohol.

"People feel happy in the sun," Han said. "We go out into the sun, feel happy and want to stay in the sun longer.

"In other words, exposure to sun or UV light induces an opioid response that is associated with tanning addiction," Han said.

Han's research group is investigating the molecular pathways and relevant genes for this behavior.

The urge to be in the sun for hours on a beach occurs even among people whose skin burns, rather than tans, according to Han. "They get a burn, but they still want to do it because they feel addicted to it."

When summer ends, that craving for sunshine continues for many people, who then turn to indoor tanning beds, according to Han.

In a paper published in the *Journal of Dermatological Science*, Han reported that white female college students in Indiana who tan indoors know they are placing themselves at risk of skin cancer and premature skin aging, but most continue to tan indoors anyway.

Among the study's findings:

- 99.4 percent agreed that tanning can cause skin problems such as premature aging and skin cancer.
- 83.6 percent of survey respondents between the ages of 18 and 30 at Indiana University's campuses in Bloomington and Indianapolis agreed that a tan makes them feel more attractive.
- 83 percent agreed that compared to how they feel before tanning, they feel more relaxed and pleasant during tanning.

Fulfilling a sunshine fix carries a significant danger. "Exposure to the sun is a known causal factor for skin cancer," Han said.

According to Han, one out of five Americans will get skin cancer in their lifetime, even though skin cancer is preventable.

"You should try to avoid exposure to the sun," Han said, offering these tips: "Wear a hat, long sleeves and pants, and frequently apply

sunscreen—the higher the SPF, the better."

Provided by Indiana University