

Shift Work and Cancer Risk

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“Shiftwork that involves circadian disruption is probably carcinogenic to humans,” the IARC, the cancer agency of the World Health Organization

In recent news the International Agency for Research on Cancer issued a statement saying that “shift workers and firefighters have a higher risk of cancer than the general population.” They go on to state that “such work should be classified as probably or possibly carcinogenic.” These conclusions are based on years of published research. More studies are in the process of being done to further confirm the link but it is apparent that shift work disturbs the body’s internal clock, thus having cancer-causing effects.

This "internal clock," also known as the circadian rhythm is a cycle that tells our bodies when to sleep, wake up and eat, among other very important physiological processes. This internal clock can be affected by environmental cues, like sunlight and temperature. When one's circadian rhythm is disrupted, such as in the case of those who do shift work, sleeping and eating patterns can be negatively affected. Disrupted circadian rhythm can also increase the chances of cardiovascular events, obesity, and a correlation with neurological problems like depression and bipolar disorder. Several tests in mice show that circadian clock genes are disrupted in tumor cells. The field studying chronobiology, which involves research on circadian rhythms is growing exponentially; researchers were awarded the 2017 Nobel Prize in physiology or medicine for their work in this area.

Nearly 20 percent of the working population in Europe and North America is engaged in shift work. Shift work is most prevalent in the health-care, industrial, transportation, communications, and hospitality sectors. In 2001, a team at the Fred Hutchinson Cancer Research Center in Seattle found that women who work night shifts may have a 60 percent greater risk of breast cancer. A journal of the American Association for Cancer Research, *Cancer Epidemiology, Biomarkers & Prevention* recently published an analysis of 61 studies that included nearly four million people. The researchers looked closely at the types of cancer women were getting - they found that women who worked night shifts for longer periods of time had a 41% higher risk of skin cancer, 32% higher risk of breast cancer and an 18% greater risk of digestive system cancers compared to women who did not work night shifts. “We are always going to have night workers and shift workers. Some jobs must be done around the clock like nurses. We need to know how to reduce the risk,” reports a representative for the IARC.

Other experts have pointed out that shift workers may have other behaviors that raise cancer risk, such as a higher tendency to drink alcohol or to smoke, or get less sleep. Nonetheless, most people are not able to easily change occupations so we focus on dampening this risk by implementing what called “Time Restricted Eating (TRE).” TRE can minimize the ill effects of eating in larger, unnatural timeframes, as we see in those who do shift work. TRE has strong science behind the improvements in immune system function, which is essential in minimizing cancer risk. The gut is the foundation of health - giving it time to rest and repair is imperative. Eating outside a window over 10-12 hours put enormous stress on not just the gastrointestinal system but also our inherent detoxification systems. Without normal repair mechanisms being employed, our gut becomes “leaky” thus spurring on leakage of antigens and amping up our immune system. This has been shown to be cornerstone in why the shift worker group has an increased risk for cancer.

The shift work findings may also be correlated with the body’s response to light. The pineal gland, found deep in the brain, produces the hormone melatonin after the body is exposed to sunlight (or artificial light) and then darkness. Production of melatonin is disrupted when people are awake at night (or awoken even in short spurts) with the pineal gland being exposed to light when it is normally not supposed to be. Melatonin production is normally increased after dusk - it’s action to get the body prepared and facilitate restful sleep. It attaches to receptors not just in the brain but also in the pancreas, informing it to not secrete hormones. It also acts as an antioxidant protecting DNA from the type of damage that leads to cancer and heart disease.

More research is being done to to examine the connection to increased cancer risk and shift work at this time. We do know this type of work is not decreasing and will never be able to be replaced. The World Health Organization’s categorization of shift work as a possible carcinogen should prompt us to make changes in what we can do to minimize this effect. We at the Connors Clinic work to implement strategies to lessen the effect of this risk and treat those with cancer who need to implement lifestyle changes and or detoxification, gut repair or other therapies that can minimize the effects of their occupation.