HOW TO SUPPORT SHIFT WORKERS

Shift work has become increasingly popular in the current 24/7 society, despite the harmful consequences for health, performance and safety.

Americans have been found to be more likely to work night shifts, with **26.6%** of the population engaging in non-traditional work schedules, particularly within protective services (police, fire, correction services) (24,8% of shift workers), followed by healthcare providers (10.9%). [1]

The number of shift workers has also risen in the European Union over the next couple of decades (**21%** of workers, compared to 10% 10-15 years ago), with differences across countries. In the UK, 18.6% of the population works nights, while in the Netherlands only 6.9%.[2]

Consequences of shift work

Taking place at times that one should naturally be asleep, nightshifts disrupt the natural sleep cycle and negatively impact individuals' health and performance. In the short term, shift work leads to decreased concentration and alertness [3], fatigue and sleep problems during the day. Studies conducted among nightshift workers found attention failures to occur at more than double the rate compared to non-extended shifts, and among healthcare workers the risk of medical errors three times higher. [4] [5]

Night shifts can also have detrimental consequences on long-term health and longevity. The World Health Organisation identified shift work as a probable carcinogen due to the disruption it causes to the circadian system.[6] Further studies have identified a relationship between cardiovascular disease and nightshift work, as well as a higher lung cancer mortality for individuals rotating night shifts for a period longer than five years.[7] Moreover, research carried out among Danish nurses found an increase in breast cancer risk among night shift workers even after a short period of night shift-work.[8]

Working irregular shifts has also been proven to disrupt the metabolism, resulting in diseases like obesity and type II diabetes. [9] A recent study, specifically, found night shift workers to have almost three times higher association with abdominal obesity independent of age and gender, if compared to day shift workers. [10]

Lastly, shift work has an impact on psychological well-being, increasing the risk of depression and anxiety as well as suicidal ideation in more extreme cases. [11] Depressive symptoms, specifically, were witnessed when night workers and nurses changed from night work to day work.[12]

Light

Nightshift work causes disruption of the internal circadian clock, negatively impacting behavior, sleepiness, performance and metabolism.

To counteract these effects, it has been found that light – applied at specific times of the day – can be used to shift the timing of the clock, reducing the circadian misalignment. More specifically, portable blue light devices can shift the clock when administered daily over a 2-hour window.[13]

Propeaq glasses are purposely designed to help shift workers counteract sleepiness during nightshift. By suppressing the production of melatonin and increasing that of cortisol, blue light can help shift the sleep-wake rhythm to a later period, increasing alertness, concentration and energy levels. To reap the full benefits, the glasses should be worn for 30 minutes between 1 and 3am.

Nutrition

Night shifts disrupt our natural biorhythm and have a negative effect on cognitive, physiological, psychological, and social functioning. Dietary changes are recommended for shift workers to improve their health and well-being.[14]

Due to high levels of fatigue and the need for a quick energy boost, night shifts workers often engage in unhealthy habits such as skipping meals, eating irregularly and consuming processed foods.[15] During the night, metabolism and gastrointestinal functions slow down, causing digestion problems and increasing the risk for weight gain, especially if unhealthy choices are made. Moreover, insulin and cholesterol levels rise with delayed eating, setting the stage for heart disease, diabetes and other health problems.[16] Dietary adjustments can however help counteract the negative effects of fatigue while promoting overall wellbeing.[17] Nutritionists have made a series of recommendations to optimize shift workers' health and help them maintain their energy through the night:[18] [19]

- Eat a main evening meal with whole grains and other complex starches before your shift. This can help you curb your hunger and cravings while providing your body with fuel.

- Plan ahead and make sure to have enough healthy food to go through the night. Sleep deprivation makes you more likely to crave calorie dense carbs, sugary food, and salty snacks.[20] These not only contain extra calories, but they also do not keep you full for long. Refined and processed foods cause a spike in blood sugar and can lead to inflammation and nutrient depletion, increasing the likelihood of getting sick.

- Have a snack around 2am but do not eat too much as you might feel sluggish afterwards. Foods high in protein and healthy fats are ideal to boost your energy levels. Carbohydrates on the other hand are not recommended.

- Avoid stimulants such as caffeine and energy drinks, as they can interfere with sleep, make you feel nervous and upset your stomach. Switch to decaffeinated tea or coffee, or herbal teas instead.

- Dehydration, often from too much caffeine, is a common cause of fatigue. Drinking plenty of water can help you feel more alert during your shift.

- Eat a healthy breakfast before going to sleep, to avoid waking up hungry. As your blood sugar levels drop at the end of the shift, you can have more carbohydrates such as a banana, whole grain cereals or a piece of whole grain toast with peanut butter.

3 foods to eat:

- **Low Glycemic Index (GI) foods** such as vegetable soups, nuts and seeds, yoghurt, cottage cheese and healthy fats. They are digested and absorbed more slowly and prevent a spike in blood sugar

- **Hydrating foods** such as melon, strawberries, cucumbers and zucchini to replenish your hydration levels.

- **Healthy fats and protein** such as avocado, cottage cheese, hummus, nuts and eggs. They make you feel full for longer and avoid cravings for unhealthy foods.

Sleep

Short rest during night shifts has been proven to be an effective strategy to counteract some of the negative effects of fatigue. 15-minute naps have been linked to improved performance and alertness for a period of up to three hours. Further, naps have

been found to increase attention to detail and promote better decision making.[21] For staff driving home after a night shift, taking a short nap reduces drowsiness as well as reducing the need for recovery sleep after work.[22] [23] Lastly, short rest has been found effective in improving mental states by increasing feelings of relaxation, and relieving stress even after a disrupted night's sleep.[24] [25]

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