Fatigue – Stats and Facts

DID YOU KNOW?

Occupational fatigue is a frightening yet mostly overlooked health condition that affects a majority of the labor force in North America. Because of the lack of awareness, people tend to misunderstand it as a normal part of working and underestimate it. But, there's more to workplace fatigue than just being tired.

To give you a better understanding of what occupational fatigue is and its effects, here are some statistics we compiled that we feel every modern worker today needs be aware of.

1. More than 69% of workers feel fatigued at work

According to a 2018 survey report by the National Safety Council (NSC), two-thirds of the US labor force experiences workplace fatigue. This means that almost 107 million out of the 160 million US workers are affected by occupational fatigue.

Fatigue, **which can be either acute or chronic**, is defined by the NSC as "feelings of tiredness, sleepiness, reduced energy, and increased effort needed to perform tasks at a desired level."

Not only can it reduce productivity, it affects safety as well. Unfortunately, many of these tired workers come from safety-critical industries like transportation, construction, manufacturing, and utilities.

2. Losing even two hours of sleep is similar to the effect of having three beers

According to numerous studies, being awake for long periods of time is akin to being inebriated. A loss of two hours of sleep is similar to having 3 beers, while a loss of 4 hours is equivalent to having a six pack in the amount of impairment.

The Canadian Centre for Occupational Health and Safety expands on those numbers with the following:

- Staying awake for 17 hours is equivalent to having a blood-alcohol content

(BAC) of 0.05
- Staying awake for 21 hours is equivalent to having a BAC of 0.08
- Staying awake for 24 hours is equivalent to having a BAC of 0.10

In the US, the legal alcohol limit for driving varies from state to state. But, the standard is .008 for residential drivers and .004 for commercial drivers. This means that fatigued people who are driving home from work or as part of their work are putting themselves and the people around them at severe risk.

3. Fatigued people are 3 times more likely to be in a car crash

Just like when a person is intoxicated, the effects of being fatigued include reduced reaction times, ability to pay attention, and awareness of hazards. In fact, motor vehicle crashes are the leading cause of work fatalities.

Alarmingly, in 2005, the American Sleep Foundation statistics reported that:

- 60% of adult drivers, or 168 million people, reported driving while feeling drowsy.
- 37%, or 103 million people, have fallen asleep while driving.
- 13% of adult drivers confessed to driving while drowsy at least once a month.
- 4%, or 11 million people, had or almost had an accident due to fatigued driving.
- 59% of night shift workers sleep less than 7 hours a day

Night shift workers are at a higher risk of developing occupational fatigue because they tend to sleep less than day workers. Our body has a circadian rhythm which tells us when to sleep and when to be awake. Night shift workers have a hard time getting more quality sleep because they are trying to override their natural sleeping pattern.

Employees working irregular shifts are even more vulnerable since their body clocks can’t adapt to the changing sleep schedule.

4. The risk of injury on night shifts is 30% higher than day shifts

Fatigue-related safety risks peak during night shifts, **particularly between 2 am and 6 am**. The risk of injury on the night shift further increases as fatigued workers rack up their sleep debt, going up to 36% higher on the fourth consecutive night shift.

Sleep debt is the cumulative effect of regular lack of sleep. **For example, after losing two hours of sleep every day for ten days, your performance on the eleventh day will be as if you didn’t have any sleep at all.**

5. 97% of fatigued workers have reduced cognitive performance

When people are affected by occupational fatigue, their cognitive abilities go down. This leads to poorer performance in terms of attention, vigilance, and memory.

Fatigued workers also tend to make more errors and become less productive. In industries where clear thinking is a necessity for safety, workplace fatigue can lead to accidents and even fatalities.

Cognitively demanding tasks include:

- **Monotonous tasks-**These are unstimulating and monotonous tasks like driving on the highway.
- **High alert tasks –**These are tasks like assembly line work wherein vigilance is a must.
- **Repetitive tasks –**Tasks that only use a limited number of muscles groups like data entry are repetitive tasks.

6. Workers with sleep problems are 1.62 times more likely to get injured than workers with no sleep issues

According to statistics released by the National Institute of Neurological Disorders and Stroke, about 40 million Americans suffer from chronic long-term sleep disorders

An additional 20 million people experience occasional sleep problems.

Unfortunately, 90% of the people who have sleep problems go untreated. The two most common sleep disorders are obstructive sleep apnea and insomnia.

Since sleep disorders can lead to lack of sleep or poor quality sleep, it can also contribute to occupational fatigue and, ultimately, a higher risk of injuries. **To resolve this, employers should screen their employees for sleep disorders and establish programs for their treatment.**

7. 13% of all workplace injuries are caused by fatigue.

Occupational fatigue usually play out in the following order:

1. First, the fatigued worker will experience decreased cognitive performance
2. Microsleeps or nodding off starts to occur as the body uncontrollably tries to get some sleep
3. Risk of injuries at the workplace starts to increase as a consequence of the above two.

8. Up to 93% of all employers feel that fatigue is a safety issue, though only 72% of employees agree

Because of the effects of occupational fatigue on the body, it is truly a safety issue. At 93%, most employers agree with this statement. However, only 72% of employees recognize fatigue as a safety issue.

This means that many employees tend to overestimate their condition, making them poor judges of their own health. As such, it is the employer’s responsibility to establish fatigue risk management systems and encourage workers to join sleep health programs. It is also important to actively monitor the number of consecutive hours and days worked so that enough recuperative rest can be provided.

9. Only 20% of employees understand what occupational fatigue is

According to the NHS, 80% of employees are not aware of the causes and risks of occupational fatigue.

- Only 31% of workers know of the workplace factors that can lead to fatigue.
- Only 41% of workers believe that there should be a rest break when driving for more than 1.5 to 2 hours.
- 73% of workers failed to identify all the signs of drowsy driving.
- 89% of people failed to identify the high-risks of shift work.

Because of this lack of awareness on the employees' part, it is the employers' duty to educate their workers about occupational fatigue.

10. Fatigued workers lose 5.6 hours of productive time per week

Aside from safety, another side effect of occupational fatigue is poor productivity. Because of reduced cognitive performance, fatigued workers find it hard to concentrate and need more time to complete their tasks.

Healthy workers only have a productivity loss of 26%. On the other hand, fatigued workers have a 66% rate of lost productivity due to cognitive decline and inability to focus.

To counter this, companies should establish programs that help their employees maintain a good work-life balance. Steps should also be taken to improve the assessment and treatment of people with fatigue.

11. Fatigue costs employers about $136 billion a year in health-related lost productivity

There are two ways that occupational fatigue leads to health-related productivity loss.

- **Absenteeism**– Workers who are in poor health tend to take more time off from work to consult their doctors and get some time to recuperate. But, once they return to work, they are, once again, exposed to the factors that can lead to occupational fatigue, making it a continuous cycle.
- **Presenteeism**– These are fatigued workers who are present at work, but are not able to perform well because of health reasons.

Interestingly, out of the $136 billion spent on lost productivity, 84% is due to presenteeism rather than absenteeism, according the statistics.

12. The cost of fatigue is approximately $80 million per year for an average-sized company with 52,000 employees

The NSC collaborated with the Brigham and Women's Hospital to create the Fatigue Cost Calculator. Using this tool, it found that an American company with 1,000 workers lose $1.4 million dollars a year due to occupational fatigue. This is the combined cost of absenteeism, presenteeism, health care costs, occupational costs, and accidents.

On top of the financial loss, the Fatigue Cost Calculator can also identify how much savings a company can get from implementing a sleep-health education program that targets untreated sleep disorders. For example, an average-sized company can save up to $40 million in a year if 50% of their labor force participates in a sleep-health program.

13. Up to 2.5 million Americans are estimated to have chronic fatigue syndrome

Based on the 2015 report of the Institute of Medicine (IOM), up to 2.5 million people in the US are afflicted with chronic fatigue syndrome (CFS), with 90% of these cases left undiagnosed.

Compared to acute fatigue which can be resolved with enough rest and relaxation, CFS is a disabling and long-term illness that doesn't get better with rest. It is an illness that is often misunderstood and undiagnosed because of the lack of awareness in both the patient and doctor's part.

14. Chronic fatigue syndrome is most common in the 40 to 60 age group, which is over 33% of the working population

CFS is more common in women than men, and, among races, most common in white people. Though it can affect people of all ages, including children, it is most often diagnosed in adults aged 40 to 60. This age group comprises more than one-third of the US labor force.

Currently, there are no specific laboratory tests that can be used in directly diagnosing CFS. Also, there is no known cure for this illness, though there are some ways to manage its symptoms.

15. The top 2 causes of occupational fatigue are sleep deprivation and work environmental factors

A study published in October 2016 said that the major drivers of occupational fatigue are sleep deprivation and factors in the work environment like noise, temperature, and vibration. Other factors that can contribute to work fatigue include working time, changing shifts, and the type of tasks done.

These issues can be easily remedied with a change of schedule and an improvement in the work environment. But, workplace fatigue mostly goes unaddressed because most employers and employees are not well-educated about it.

Other Noteworthy Workplace Fatigue Statistics

To give you an even clearer idea about the effects of occupational fatigue, here are some other important statistics about workplace fatigue, particularly from the perspective of employers:

- 47% of employers have experienced productivity loss in their company due to fatigue.
- 50% of employers have had an employee fall asleep on the job.
- 57% of employers report absenteeism due to fatigue.
- 32% of employers report injuries and near misses due to fatigue.

Overcoming Workplace Fatigue

Experts say effectively combating workplace fatigue requires changes in both the personal lives of employees, plus good workplace policies. Some recommendations:

- Practice good sleep hygiene. Avoid using your computer or cell phones 1-2

hours prior to sleeping. Avoid stimulants like caffeine, and go to bed at a consistent and regular time.
- Stay Hydrated. Drinking adequate amount of water daily has been shown to have a major effect on brain function and energy levels.
- Move often (for office workers). Frequent movements encourage blood circulation and helps ward off fatigue. Incorporate ergonomic exercises every few hours that can be performed right at your desk.
- Eat Smarter. Food is the fuel to our bodies, and what you put in directly affects your output. Avoid overeating and foods high in artificial sugars. Pick fruits and high energy snacks instead.
- Alternate between sitting and standing. Prolonged sitting slows down our metabolism and makes us feel more sluggish. The golden ratio between sitting and standing for maximum health benefits according to research lies between 1:1 to 1:3, such as sit for 15 minutes and stand for 45 minutes (maximum). Use a tall chair optimized for standing desks to allow you to switch between the two positions easily.
- Introduce a Fatigue Risk Management System (FRMS). For employers, a proven method for helping fight workplace fatigue is to have a well thought out Fatigue Management System in place. This creates a process for monitoring, reporting, and dealing with workplace fatigue that everyone in the company can get on board with.

KEEP IN MIND

Fatigue is the state of feeling very tired, weary or sleepy resulting from insufficient sleep, prolonged mental or physical work, or extended periods of stress or anxiety. Boring or repetitive tasks can intensify feelings of fatigue. Fatigue can be described as either acute or chronic.

Acute fatigue results from short-term sleep loss or from short periods of heavy physical or mental work. The effects of acute fatigue are of short duration and usually can be reversed by sleep and relaxation.

Chronic fatigue syndrome is the constant, severe state of tiredness that is not relieved by rest. The symptoms of chronic fatigue syndrome are similar to the flu, last longer than six months and interfere with certain activities. The exact cause of this syndrome is still unknown.

Employers and supervisors should be concerned about the impact of fatigue in the workplace as it can be considered a form of impairment, making fatigue a workplace hazard. However, fatigue levels are not easily measured or quantified; therefore, it is difficult to isolate the effect of fatigue on accident and injury rates. Awareness and observation of changes in behaviour is one method to identify fatigue. Factors that may influence fatigue are shift rotation patterns, balanced workloads, timing of tasks and activities, availability of resources, and the workplace environment (e.g., lighting, ventilation, temperature, etc).

Some research studies have shown that when workers have slept for less than 5 hours before work or when workers have been awake for more than 16 hours, their chance of making mistakes at work due to fatigue are significantly increased.

Research has shown that the number of hours awake can be similar to blood alcohol levels. One study reports the following:

- 17 hours awake is equivalent to a blood alcohol content of 0.05
- 21 hours awake is equivalent to a blood alcohol content of 0.08 (legal limit in Canada)
- 24-25 hours awake is equivalent to a blood alcohol content of 0.10

Fatigue is regarded as having an impact on work performance. Government of Alberta, Labour* reports that most incidents occur when people are more likely to want sleep – between midnight and 6 am, and between 1 to 3 pm. Government of Alberta, Labour also reports that fatigue affects people differently but it can increase a worker's hazard exposure by:

- reducing mental and physical functioning,
- impairing judgement and concentration,
- lowering motivation,
- slowing reaction time, and
- increasing risk-taking behaviour.

Signs and symptoms of fatigue include:

- weariness,
- tiredness,
- sleepiness, including falling asleep against your will ("micro" sleeps),
- irritability,
- reduced alertness, concentration and memory,
- lack of motivation,
- depression,
- giddiness,
- headaches,
- loss of appetite,
- digestive problems, and
- increased susceptibility to illness.

Because fatigue cannot be "measured", it is difficult to separate the effects of long working hours or lack of sleep to any changes in incident or injury rates.

However, studies report the effects of fatigue as:

- reduced decision making ability,
- reduced ability to do complex planning,
- reduced communication skills,
- reduced productivity or performance,
- reduced attention and vigilance,
- reduced ability to handle stress on the job,
- reduced reaction time – both in speed and thought,
- loss of memory or the ability to recall details,
- failure to respond to changes in surroundings or information provided,
- unable to stay awake (e.g., falling asleep while operating machinery or driving a vehicle),
- increased tendency for risk-taking,
- increased forgetfulness,
- increased errors in judgement,
- increased sick time, absenteeism, rate of turnover,
- increased medical costs, and
- increased incident rates.

There are many, many causes of fatigue.

Work-related factors **may** include long work hours, long hours of physical or mental activity, insufficient break time between shifts, changes to jobs or shift rotations, inadequate rest, excessive stress, having multiple jobs, or a combination of these factors.

Changes to home environments can also impact sleep such as a new baby, change in patterns and routines, new or changing caregiver roles.

Sometimes, a sleep disorder may cause fatigue. You should ask your doctor or health professional for more information. These conditions include:

Insomnia

People who suffer from insomnia often complain that they cannot fall asleep, or cannot stay asleep for a full night. They may frequently wake up during the night, wake up too early, not able to fall asleep at night, or have difficulty getting back to sleep if woken. Either way, they do not feel rested. Insomnia can be both short term (in response to a stressful event or change in environment) or long term.

Sleep Apnea

Most cases of sleep apnea are caused by a condition called “Obstructive Sleep Apnea”. Sleep apnea is a breathing disorder in which there are brief interruptions (lasting a minimum of 10 seconds) in breathing during sleep. This condition is caused by a narrowing (or collapse) of the throat or upper airway during sleep. This narrowing restricts or prevents breathing while you are sleeping (air cannot flow into or out of your nose and mouth even though your body continues to try to breathe). With sleep apnea, there are frequent interruptions to sleep making your sleep unrestful. People often complain of early morning headaches and excessive daytime sleepiness.

Symptoms of sleep apnea include:

- chronic, loud snoring,
- gasping or choking while sleeping,
- excessive daytime sleepiness, and
- personality changes or difficulties thinking.

Restless Legs Syndrome

With restless legs syndrome, people report sensations of creeping, crawling, pulling, or tingling which cause an irresistible urge to move their legs. This phenomenon usually happens as a person is trying to fall asleep, making sleep difficult. Movements may also occur during sleep, partially waking the person (even though they might not “notice”) and disrupting sleep patterns.

Narcolepsy

Narcolepsy is a rare condition associated with sudden sleep “attacks” where a person will have an uncontrollable urge to sleep many times in one day.

Other Situations

Substances such as nicotine, caffeine, and alcohol can affect the quality of sleep. Caffeine can remain in the body for about 3 to 7 hours and may affect sleep. Alcohol may shorten the time to fall asleep, but it disrupts later in the night. Nicotine also can disrupt sleep and reduce total sleep time.

Other substances such as over-the-counter medications or prescriptions may also affect sleep. For example, long-acting benzodiazepines (drugs used to relieve anxiety or insomnia) may contribute to daytime sleepiness.

Prevention

If you suspect you may have a medical condition that interferes with your sleep, go to your doctor and have any concerns investigated.

Sleep Hygiene

There is no one way to get a good sleep – what works for one person may not work for another. In general, suggestions include:

- Go to bed and get up at the same time every day.
- Exercise regularly.
- Eat at regular intervals and consume a balanced diet of fruits, vegetables, whole grains, healthy fats and protein.
- Use your bed primarily just for sleeping (e.g., do not watch television, read or do work in bed).
- If you are not sleepy, do not try to go to bed. Get up and read or do something quiet instead.
- Avoid caffeine, tobacco or alcohol – especially before bed time.
- Turn off the telephone ringer and answering machine speaker.
- Ask family members to be respectful if one person is sleeping. Family members can use headphones for the TV and radio if necessary.
- Make the room as dark and quiet as possible. Use heavy, dark curtains, blinds, or a sleeping eye mask. Soundproof the room where possible or use ear plugs.
- Most people sleep better when the room is cool. Consider using an air conditioner or fan in the summer months.

What are some tips for “good” eating habits that help encourage sleep?

The Dietitians of Canada have made the following recommendations:

Establish Regular Eating Times

Our bodies need energy provided by food to be able to perform our daily activities. Having meals at regular times is important to function at our best. If you tend to skip meals or eat at irregular times, you may experience fatigue, food cravings or increased eating at the next meal. Aim to have at least three meals a day including a variety of foods from the four food groups of Canada’s Food Guide. Try to have your “main meal” before going to work. A heavy meal during the night may cause heartburn, gas or constipation, as well as make you

feel sleepy or sluggish.

Snack Ideas for Your Work Break(s)

Having snacks in between meals is a great way to keep us nourished and give us the energy we need to complete our work shifts. At breaks, opt for healthy snacks that include combinations from a variety of foods from the four food groups. Here are some ideas:

- crackers or fruit and cheese
- social tea cookies and milk
- yogurt and a small low fat muffin
- celery sticks with peanut butter
- baby carrots with low fat cream cheese dip
- cut up fresh fruit or have nuts mixed with plain yogurt

Check your Caffeine Intake

Excessive intake of caffeine can cause insomnia, headaches, irritability and nervousness. It is recommended that foods containing caffeine should not be consumed up to 8 hours before sleeping.

Common caffeine sources include:

- coffee
- tea
- iced tea
- cola drinks
- chocolate
- headache relievers

Alternatives:

- decaffeinated coffee or tea
- non-cola beverages
- water

Snacks for sleeping well

Going to bed with an empty stomach or immediately after a heavy meal can interfere with sleep. If you get home hungry, have a snack that is low in fat and easy to digest. A light snack before going to bed helps in getting a good restful sleep. Examples include:

- cereal with milk
- fresh fruit and yogurt
- oatmeal with raisins
- digestive cookies and milk
- piece of toast with a small banana
- multigrain bagel, toasted and lightly buttered

From: The Dietitians of Canada, 2017

What are some tips if driving?

According to the Canadian Council of Motor Transportation Administrators, 20% of motor vehicle collisions can be linked to fatigue. Therefore, the best advice is to **not** drive if you are tired. However, some tips include:

- Keep vehicle well ventilated.
- Avoid caffeine or other drugs to keep you awake (you will feel very tired when they wear off).
- Listen to the radio (especially “talk” radio).
- Eat lightly and avoid heavy fatty foods.
- Stop often (about every two hours). Take a walk and get some fresh air.
- Change drivers if you are travelling with others.

How can a workplace help keep workers “alert”?

Fatigue is increased by:

- dim lighting,
- limited visual acuity (i.e., due to weather),
- high temperatures,
- high noise,
- high comfort,
- tasks which must be sustained for long periods of time, and
- work tasks which are long, repetitive, paced, difficult, boring and monotonous.

Workplaces can help by providing environments which have good lighting, comfortable temperatures, and reasonable noise levels. Work tasks should provide a variety of interest and tasks should change throughout the shift. Awareness education and training about the implications of fatigue, the importance of sleep, balanced diet and exercise, and alertness strategies can also be helpful.

If extended hours/overtime are common, remember to consider the time required to commute home, meal preparation, eating, socializing with family, etc. Workplaces may wish to consider providing:

- on-site accommodations,
- prepared meals for workers, and
- facilities where employees can take a nap before they drive home.