Night work – the dark side

Night work is a reality – and, in some sectors, a real necessity. But, try as they may, most human beings will never be night owls. Night work cuts across biological rhythms and puts work times at loggerheads with social and family life. This yawning gap has a big impact on workers’ health.

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Night work means working when your body wants to rest. The Circadian rhythms (our 24-hour biological clocks) are disturbed. This shake-up causes medical problems in most men and women who work nights.

It was long believed, without evidence, that night workers quickly reversed their biological rhythms (cardiac rhythms, temperature, digestion, secretions, appetite etc.) so as to adjust biological activity to night-time employment. Now, we know that things do not happen that way. Short-term night work (two or three days) has virtually no influence on biorhythms. But neither does long-term night work really reverse biorhythms. It just flattens certain rhythms out to some extent. One explanation for this may be the contradictory influences exercised on the one hand by working hours and, on the other, by social and family rhythms that fiercely oppose these disturbances.

So some rhythms, such as heartbeats, shift over to the pattern imposed by night work, while others, like the secretion of digestive juices, abide by social and family hours. Other rhythms still, such as temperature overall, take a middle stance and change after four or five days. This split between night workers’ biorhythms stop their organisms from adapting completely to night schedules. Try as they may, most human beings will never be night owls. Age, and a worker’s material situation, also influence his or her ability to adjust.
One or two hours’ less sleep

Night workers experience more or less all the sleep problems that are going. Working hard all night does not mean that you will sleep like a log the next morning. First problem: when night workers get home, the daylight sends their organism a signal and reinforces their Circadian rhythms’ natural urge to wake them up. Then come all the problems caused by what the rest of society is doing: traffic, children playing, the phone ringing and so on. Hunger rhythms also interfere with sleep patterns. Consequently, sleep is often interrupted at noon in order to down some food, and in some cases is then resumed as an afternoon nap. So mental fatigue is less completely overcome: paradoxical sleep – the part that we dream in – is shorter. It arrives sooner after falling asleep than is the case with night-time slumber, but it is interrupted at the end of the morning by the reactivation of the biological rhythms. On average, it is estimated that a night worker sleeps between one and two hours less than a day worker. The night worker’s fatigue is further increased by the fact that working when the organism is in its deactivation period takes more effort than the same activity during the day.

Despite the biological drawbacks of night work, its frequency is increasing in several western countries, notably because enterprises’ main aim is to maximize profits. “Night work is appearing in a growing number of sectors, without any technical justification,” explains Denis De Mey, of the Belgian union confederation FGTB. “Rather, it’s a matter of the employers’ exploiting their plant more intensively in order to increase profitability. This is the case, for instance, in the construction sector, or in road-building. We’re told this is for safety reasons, to get the work done while there’s less traffic, but everyone knows that night-time traffic is more dangerous.”

Bad meals at night

Apart from sleep problems, gastro-intestinal disorders are the symptoms most frequently reported by shift workers: appetite problems, constipation, acid indigestion, diarrhea, abdominal pains, a rumbling stomach etc. Longer-term, many shift workers are liable to suffer serious illnesses, such as chronic gastritis, gastro-duodenitis, colitis and gastro-duodenal ulcers. Various estimates put the incidence of
these in night workers as two to ten times higher than in their day worker colleagues. There is an explanation for all these ailments: the night-time meal, taken at a time when the gastric secretions are deactivated, is often eaten cold, in a hurry and without appetite. This lack of appetite prompts the worker to take it with spices and with stimulants such as coffee and alcohol, which are aggressive on an unprotected stomach lining. As canteens are generally not open at night, the workers would do better to take their two main meals at home.

The stress associated with night work or shift work can also have negative consequences for the cardiovascular system, as several epidemiological studies have shown in recent years. “Neurovegetative reaction, or the lack of such reaction, provokes an increased hormonal response, which has repercussions on blood pressure, cardiac rhythms, thrombotic processes and the metabolism of lipides and glucose.” However, it is difficult to isolate night work as a risk factor for cardiovascular diseases, particularly as night work often leads to an accumulation of other risks, such as higher tobacco use, sleep disturbances or psychological problems. This last category of problems seems to be more frequent among night workers, due perhaps in part to sleep loss and chronic fatigue. Nervousness, anxiety, asthenia, depression and aggressivity are also more frequent among permanent night workers than among those who alternate their working hours. The lack of recuperating sleep also, incidentally, tends to increase the effects of ageing. “My great concern is premature ageing at all levels,” says Dr. Versailles-Tondreau, a Belgian occupational physician who specializes in night work. “In people who have worked nights for more than 20 years, ageing is on average 5 to 7 years more rapid. You can see it with the naked eye, particularly on their skin.”

Given the health problems that can be more frequently caused by night work, it might be thought that night workers would report sick more often than their daytime colleagues. Precise statistics on this are few and far between, but a 1980 study of chemical industry workers does not show any difference between night and day workers as regards the frequency of illness. This may be due to greater solidarity between night workers, or to the fact that night workers regard their symptoms as “inherent” to their activity, while a daytime colleague would be more inclined to call
the doctor. On average, however, shift workers’ illnesses last longer than those of day workers⁴.

As far as work accidents are concerned, there are no statistics to prove that they are more numerous at night. “But by experience, we know that night-time work accidents often have more serious consequences than the other ones,” Denis De Mey emphasizes. “This is, in particular, due to the fact that worker is more isolated if an incident occurs.” It is also in the middle of the night, when workers are most tired, that they are most prone to chronic illnesses. “I’ve noticed that workers who have chronic health problems (asthma, spasms, hypoglycemia etc.) are more often prey to them right in the middle of the night, between two and five in the morning,” Dr. Versailles-Tondreau explains. “In fact, I knew an asthma sufferer who died of an attack during those hours. He was working on rotary presses, and his colleagues didn’t realize how serious the attack was.”

**More breast cancers in women who work nights?**

Another cause for concern is that a Danish statistical study shows that the risk of developing breast cancer may be 50 per cent higher for women who work nights, and as much as 70 per cent higher for women who have worked nights for more than six years. As this is the first study on this specific question, prudence is required when drawing lessons from it, particularly as the sample was not fixed with great precision. More detailed research would have to be done before being able to state with certainty that night work is a risk factor for the development of breast cancer. Indeed, the link between the two is not immediately obvious, but the author of the study, Johnni Hansen, puts forward the following hypothesis: Night work alters sleep rhythms and exposure to natural life, and this may influence the level of activity of melatonin, a hormone that helps to regulate biological rhythms. But melatonin, which is secreted mainly at the end of the evening, in anticipation of sleep, also plays a role in determining levels of oestrogen, a hormone of which excessive quantities are thought to be associated with breast cancer. The Danish researcher does, however, point out that other aspects of night workers’ social life, for instance in some cases higher levels of alcohol consumption, may increase the risk.
In this respect, it should be emphasized that ILO Convention 89 (revised) on night work by women, adopted in 1948, in principle provides for a ban on night work by women in industry. However, in a ruling issued on 25 July 1991, the Court of Justice of the European Union declared this Convention to be incompatible with the principle of the equality of the sexes proclaimed by community directive 76/207 (which has the force of law in all the countries of the European Union). The Court considered that a form of discrimination was involved, an impediment to equality of opportunity between men and women as regards access to the labour market. Following this ruling, the seven EU member countries that had not yet withdrawn from Convention 89 did do in a hurry, followed by other countries. The International Labour Conference, acting on a call to revise Convention 89, adopted in 1990 both a protocol to Convention 89, with a view to facilitating its ratification, and a new Convention on night work, No. 171, which no longer bans women from night work in industry, but regulates such work for men and women alike. This Convention came into force in 1995, but has so far been ratified by only six States.

Shift work

One of the problems most frequently mentioned by shift workers (organized in successive shifts, implying regular night work) is the adverse effect on family life and social life. Those who work at night and sleep during the day have difficulty in finding time for their spouses, their family and their friends. A survey in the British steel industry shows that 40 per cent of shift workers complain of not having enough time with their wives. In the United States, another study showed that shift work increases the risk of divorce by 7 to 11 per cent. Fewer hours are spent with the family and, often, the time is of lower quality because night workers are more irritable. Then there are the obstacles to shift workers’ sex lives. One in two British steelworkers working on eight-hour shifts (02.00 to 10.00; 10.00 to 18.00; and 18.00 to 02.00) describes the times when he is working nights as “sexless”!

Alternating night work also affects collective activities, whether sports, access to culture, political or trade union activity etc. A shift worker cannot be involved in these activities on a regular basis. So it is often noted that night workers have fewer friends. Some of them greatly resent this. They feel shut out of society and ask to be put back
on a day job, even if this means losing some financial advantages. Others, more solitary by nature, spend their free time on individual hobbies that are easier to organize: gardening, do-it-yourself, cycling etc. But few night workers ever imagined all the social, family or medical consequences of night work before actually living through them.

That said, it is not always easy to persuade somebody to stop working nights, despite the health risks. Surveillance by the hierarchy is less strict at night. The feeling of camaraderie between colleagues is often greater. Sometimes, night workers are given extra days off. They may have more time to look after the children or to make use of services that are only available during the day.

And there are a whole series of activities that cannot stop at night, either because they are essential to society or because the financial cost would really be too high: emergency services, police, blast furnaces, foundries etc. So the question is how best to organize night work in the interests of workers’ health. Studies conducted so far suggest a series of tips, given in the box next to this article, aimed at limiting as far as possible the damage to night workers’ health.

Notes

1 Shift work means that people regularly work hours outside the normal “9 to 5” working day.

2 Travail posté et santé, European Foundation for the Improvement of Living and Working Conditions, January 2000.

3 idem, page 27

4 idem, page 11

5 Source: article published on the site www.circadian.com
Hints for improving night work ...

- It should be a personal choice.

- Rest in bed for at least 6 to 7 hours, even if you are not sleeping for all of that time. And have a good nap in the afternoon.

- Make sure the conditions are right for sleeping – unplug the phone or switch it to voicemail, disconnect the doorbell or put a note on the door, make sure the room is dark enough, wear earplugs, etc.

- Have a hot meal two or three hours after you get up and before beginning the night shift – at about 18.00, for instance. If possible, eat at the same time each day. When you come off the shift, don’t eat a big meal before going to sleep.

- Keep your social life going – try to adapt your schedules to your family’s, try to take a meal together with your nearest and dearest, try to have contact with other night workers during your free time.

... and for organizing work schedules

- Reduce the number of permanent night workers to the minimum. No study has ever shown that biological rhythms adjust completely to night work.

- Prefer short shift cycles: don’t make people work six or seven nights in succession, but rather three, or four at most. Sleep deficit tends to build up
after several successive night shifts, while rapid alternation makes it possible to vary rest periods and maintain social contacts. In this way, the organism can live more often in its normal state, thus ensuring less fatigue and fewer negative effects on health.

- Rotate shifts forwards rather than backwards: sleep and general well-being improve if shifts rotate from morning to afternoon to night.

- Avoid direct moves from one shift to another. For example, if a worker ends one shift at 22.00 and starts the next at 06.00, this obviously does not leave enough time for rest. There should be an interval of at least 11 hours between the end of one work period and the beginning of another.

- The morning shift should not start too early – if possible, not before 07.00. It has been noticed that, even when they have to get up very early, workers rarely go to bed before 21h30 or 22.00, due to family or social constraints. In the case of the “3x8” system, some advocate the pattern “08.00-16.00; 16.00-24.00; 24.00-8.00”. This allows two-thirds of the workers to be resting at the time when the body is most in need of it (between 02.00 and 05.00).

- Logic also demands that efforts be made to shorten the night shift. Night work requires more effort, and this should mean that work times are shorter. However, opinion is divided on this. Some think that a “2x12” roster suits workers at the end or in the middle of their careers better than “3x8”, because the 2x12 entitles them to compensatory days off which, when added to weekends, give workers a foretaste of retirement, as they have more time to fill. However, the “2x12” system is inadvisable for work that is very demanding either physically or mentally.