

Eurest

# Catering for the night shift

*Analysing whether an improved workplace food offer can support healthier outcomes for those who work alternative shifts in business and industry*



Those who work overnight, including in factories, warehouses, retail, call centres and the public sector, can face significant health impacts that range from sleep disorder to poor physical and mental health. So, the big question for employers, and for the contract catering industry, is: *how can we change that?*

Poor sleep has been linked to a range of long-term health impacts, including an increased risk of type 2 diabetes, obesity, depression, heart attack and stroke. In fact, Shift Work Sleep Disorder (SWSD) is now a recognised and diagnosable condition.

Night work upsets the body's circadian rhythm, creating impacts similar to jet lag according to a recent report from the University of Bristol. This includes changes to appetite, which may explain why shift workers often live with obesity.<sup>1</sup>

This white paper looks at the range of health impacts suffered by shift workers and analyses how better nutrition, and a more bespoke offer in the workplace restaurant, could be a catalyst for change.

We talk to nutritionists, culinary experts, academics and health advisers – and outline advice for businesses on how to support the overall health of shift workers through their food and beverage offer.

### **Insights include:**

**Shift workers have a double burden of dietary risk, due to eating less healthy diets and eating during the night.**

— *Dr Rachel Gibson, Registered Dietitian and Lecturer in the Department of Nutritional Sciences at King's College London*

**Night shift workers want a more flexible night menu – with freshly cooked, healthy options available.**

— *Ryan Holmes, Culinary Director, Eures, reports on results of a research study of night shift workers at a large tech company.*

**What night shift workers should eat for optimum performance.**

— *Katrina Francis, Nutrition and Sustainability Manager, Eures*

**How a major manufacturing company could tackle the health impacts of rotational shift work.**

— *Elizabeth Walker, Wellbeing Physiologist, Health Partners*

<sup>1</sup> <https://www.bristol.ac.uk/news/2023/october/night-shift-work.html>







# Defining the impact of shift work on health and wellbeing





## Understanding what shift work means and who is impacted

Shift work is essential to the UK's economy and society, allowing organisations to operate 24/7 across key sectors such as manufacturing, retail or the public sector. So, helping those who work alternative hours stay fit and healthy should be a big consideration.

Despite that, there has been surprisingly little research on the impact of working nights on employees – and even less on whether nutrition could help mitigate associated problems such as lack of sleep, obesity and mental health challenges.

In fact, although the debate often focuses on those who work at night, it's important to consider that health and wellbeing impacts may still be relevant to those who work in the afternoon and evening – and those who start early in the morning.

It certainly relates to employees who work rotating, irregular or on-call shifts, which have a similar impact on the body clock as night shifts.

*We asked Dr Rachel Gibson, a respected dietitian and lecturer majoring on the research area of workplace, diet and health, to unravel what science says about the impact of working shifts – and the potential role of food and nutrition in combatting or mitigating any identified symptoms...*





# What science is saying about the link between shift work and poor health

**By Dr Rachel Gibson, Registered Dietitian and Lecturer in the Department of Nutritional Sciences at King's College London**

In recent years there has been an increasing amount of interest in the role of shift work and its impact on health.

The Working Time Society published a series of consensus statements in 2019 based on published evidence that had investigated the links between working shifts and poor health. It reported strong evidence to support the relationship between working shifts (predominantly shift patterns that include night and/or rotating shifts) and poor cardiometabolic health (such as cardiovascular diseases, type 2 diabetes) and gastrointestinal disorders (such as constipation or reflux).

One of the largest studies conducted over a longer period, is the Nurses' Health Study in America. This study followed more than 200,000 nurses over several decades and collected data on diet, working hours and health.

Results supported an association between the increasing number of years of rotating shift work and increased risk of developing type 2 diabetes. However, weight gain was found to be a factor in the relationship between the two - underlining that diet plays a significant role in maintaining a healthy weight and reducing the risk of many of the conditions associated with working shifts.







## The role of diet and chrono nutrition in shift worker health

Working shifts requires employees to alter many aspects of daily behaviour – such as time of sleeping, activities and eating.

There are two aspects to dietary behaviour that are important to consider in shift workers:

1. What is eaten
2. When it is eaten

Studies have shown that shift working employees, especially those who work at night, make less healthy food choices. Diet patterns reported in night workers are typically low in fruit, vegetables and fibre and higher in sugary snack foods and drinks. There are several reasons for less healthy food choices among this employee group, including:

- Limited access to food at night
- Limited rest breaks
- Higher levels of hormones that signal hunger
- Eating due to emotional factors such as tiredness and stress.

**Chrono-nutrition** is an emerging field of nutritional science that investigates how the timing of when we eat impacts our health. In non-shift working populations, eating later in the day (e.g. into the evening and night) compared to the morning has been associated with weight gain, high blood pressure and poorer blood glucose control.

## Disrupting the circadian rhythm

How the time of eating impacts on health is related to circadian rhythms or our 'body clock.' Humans are a diurnal species – our bodily functions have evolved systems where activities take place during daylight hours, and we sleep during darkness. When we start eating and being active during the night we become out of sync with our internal body clock and over time this may impact our health.

Short term studies in healthy volunteers who undertook simulated night work (where they stayed in a residential research facility and were provided meals during the night) have shown that even a few nights of reversed eating and sleeping can cause changes in our physiology. However, the mechanisms that link long term shift work to cardiometabolic health still need to be fully understood.

**It is likely that shift workers have a double burden of dietary risk, due to eating less healthy diets and eating during the night.**



## Potential health and wellbeing impacts of a combination of shift work and poor nutrition

- Sleep deprivation/sleep disorder/fatigue
- Weight gain
- Lower levels of concentration
- Higher levels of stress
- Poor nutrition
- Poor hydration
- Impact on circadian rhythm
- Type 2 diabetes
- High blood pressure
- Poor blood glucose control
- Acid reflux
- Irritable bowel syndrome

## What this could mean in the workplace<sup>2</sup>

*As reported by Nicole Murphy at the CPD Online College*

- Excessive daytime sleepiness.
- Impaired alertness.
- Reduced cognitive function.
- Fatigue and a lack of energy.
- Irritability and mood swings.
- Difficulties focusing, concentrating and making decisions.
- Decreased performance at work, including slower reaction times, reduced productivity and increased errors or accidents.
- Increased risk of accidents and injuries.



<sup>2</sup> <https://cpdonline.co.uk/knowledge-base/mental-health/shift-work-sleep-disorder/>





# Study links night shift work with changes in appetite

Scientists have uncovered why night shift work is associated with changes in appetite in a new University of Bristol-led study.

The study, published in *Communications Biology*, revealed how circadian misalignment can profoundly alter the brain's regulation of hormones controlling hunger to the detriment of metabolic health - effectively encouraging animals to eat more at night in a case study.

The adrenal hormone corticosterone is a major factor in the daily control of brain peptides that regulate appetite. But when the circadian rhythm is disrupted, it results in abnormal appetite when awake at night when the body should be sleeping.

Author Dr Becky Conway-Campbell, Research Fellow in Bristol Medical School: Translational Health Sciences, believes this has implications for humans, too.

"For people working throughout the night, a reversed body clock can play havoc with their health," she said.

"Internal brain messages to drive increased appetite are difficult to override with 'discipline' or 'routine'.

"So, we are currently designing studies to assess rescue strategies and pharmacological intervention drugs. We hope our findings also provide new insight into how chronic stress and sleep disruption leads to caloric overconsumption."



# How a healthy catering offer can help night shift workers





A major barrier to healthy eating cited by night workers is the limited access to healthy food during night-time hours.

There are specific considerations that employers need to consider when planning night-time food provision.

***Each workplace is different, and the dietary needs of a shift workforce will differ.***

It is important to consider the time of the shifts worked when planning a menu.

While there is limited evidence on the size and type of meals to provide for night workers, guidelines often suggest a main meal prior to starting a night shift and a smaller meal or snack at the end of a night shift, prior to a daytime sleep.

The nutritional quality of the food provided is important, but it also needs to satisfy the challenges of eating at night, for example changes in the digestive system at night can result in bloating and irritable bowel type symptoms. Smaller meals or healthier snacks may be preferable.

A limited number of research studies have investigated the benefits of restricting food intake at specific times during the night for example, between midnight and 6am.

While there are suggestive marginal benefits, these may be offset by symptoms such as headaches and fatigue. It is therefore important to consider the energy (calorie) requirements of different job roles e.g., manual activity vs. sedentary office-based roles.



## Don't forget hydration

Hydration is important and can often be overlooked during shift work.

Beverages make up about a fifth of calorie and sugar intake in UK adults. Therefore, given the association between shift work and weight gain, employers and employees need to be mindful of the nutritional profile of beverages on offer.

Night workers who struggle with daytime sleep may want to consider reducing their intake of caffeinated drinks or limiting them to earlier during the night shift.

### Practical tips for catering to workers at night

- **Engage with the workforce:** understand shift times, time and frequency of breaks, where staff eat and rest.
- **Make healthy hydration a priority:** make sure staff have easy access to beverages. Water should always be available, but teas, coffees also count towards fluid intake. Review the caffeine and sugar content of energy drinks provided.
- **Think nutritional balance:** provide a mix of fruit, vegetables, lean protein, slow-release carbohydrates (e.g., whole grains).
- **Design lighter meals and snacks:** look at the provision of smaller servings and healthy snacks.
- **Do not overlook taste:** think about how to satisfy cravings with healthier snack options.
- **Build awareness:** not all staff may be aware of the impact of night work on health and the importance of healthy food choices.





*"Workers who are fit and adopt healthy behaviours are less likely to get ill and may adapt more easily to shift work. Where possible promote healthy behaviours such as healthy eating and exercise."*

### **HSA, Guidance for Employers and Employees on Night and Shift Work<sup>3</sup>**



<sup>3</sup> [https://www.hsa.ie/eng/publications\\_and\\_forms/publications/general\\_application\\_regulations/night\\_work\\_and\\_shift\\_work.html](https://www.hsa.ie/eng/publications_and_forms/publications/general_application_regulations/night_work_and_shift_work.html)

# Q&A



**Ryan Holmes,**  
**Culinary Director, Eurest**

**Q: The issue of how to feed the night shift in a way that supports health and wellbeing is a big discussion point. How has the conversation gone at Eurest?**

**A:** It's something that we are actively researching, looking for answers. We surveyed those working at night at a large tech company to find out more, for instance, and to discover what their work-life patterns look like and what they want from their workplace restaurant.

The site includes four workplace restaurants, including one specifically for the night shift. So, it was a good case study.

We asked questions such as "When you come in to do your shift" and "When do you have your breakfast? When do you sleep? What does your day and home schedule look like?"

Once their answers were analysed, we looked to balance our meals accordingly.

We identified that health and nutrition is so important with night feeding. Having a different sleep pattern fundamentally goes against what the body wants to do. So, we need to give people the right food to stay alert, stay awake and stay well. As a result, we completely changed our catering offer.

**Q: What is the optimum time for those on a night shift to eat?**

**A:** That really depends on their sleep patterns. So, a food offer needs to be flexible. What's important is that shift workers are not made to feel like second class citizens or forgotten about. The aim is to offer them the same or better than the day shift, with enhanced grab and go options that are healthy and nutritious.

**Q: How do you work out what kind of food is most suited to a night shift?**

**A:** It's about nutrition and access. We need to help people look after their bodies, and minds, in the right way – by providing a balanced diet, but also give them what they want, when they want it.

So, if they want to have breakfast when they come into work, then we need to give them breakfast. If they want to have it at the end of the shift, we need to do it then.

There's been a history in our industry of leading with the day offer and then offering something less at night. In this instance, we turned that around. We are now leading with the night offer.

It's important that food for night workers is freshly cooked and nutritious. It's ok for the night offer to be different, but it should appeal to what workers want and need.

**Q: Does that mean that all workplace restaurants should have a chef working at night?**

**A:** Perhaps that's the ideal, but it's not always possible and depends on budget and on ways of working. Many shift workers don't want to sit down to a cooked meal in a restaurant. They often have shorter breaks than daytime workers and want something quicker.

One solution is microwave meals that can be quickly heated – or kept warm in hot-lockers that can be accessed any time.

We've worked with suppliers to ensure that microwave meals are as good as dishes served in the daytime and provide a healthy, balanced meal.

Hot lockers, vending machines and micro markets which offer frictionless payment, which is quick, are all part of the solution too.



### Q: What kind of issues did night shift workers bring up about workplace feeding in your survey?

**A:** It was about the lack of access to food when they want it – especially healthy food. They wanted the salad bar to be open at night and healthy snacks available. For those that take very short breaks, they wanted healthy grab and go options.

### Q: What do clients say about the topic? Are they engaged?

**A:** They are, increasingly so, because night shift workers are important. They are expensive to hire and aren't easy to find. Not everyone wants to work those hours. It's important they are looked after.

## Night shift feeding at a large tech company

Eurest worked with a large tech company on a night shift survey that aimed to listen to the views of night shift workers and then deliver a catering service that better suited their needs.

The key elements of our solution were:

- Cook to Order food – three stations where food is cooked fresh in front of people every night.
- More front-of-house experienced chefs – to give that extra 'theatre' element to liven up the night shift.
- More healthy options – chop chop salad, undressed foods, wider range in salad bar and deli bar.
- More flexibility – people are able to decide what goes in their 'cook to order meal'. Smaller portion options available at some of the main meal counters.

Our night-time offer was put together by Culinary Director, Ryan Holmes and the client's nutrition team.

It features easily digestible lean proteins and complex carbohydrates to sustain energy levels and a variety of colourful vegetables and fruit to protect and promote health.

We also offer healthier alternatives to confectionary to keep energy levels up.

It includes:

#### Carbohydrates

Whole grains and "slow burning" foods like brown rice, wild rice, and rolled oats are filling and fuel productivity.

*Example: Blueberry, apple & chia overnight oats*

#### Fruit and vegetables

These are good snacks as their sugar is converted into energy relatively slowly and they also provide vitamins, minerals and fibre.

*Examples:*

- *Fuel Your Life Beetroot & Berry smoothie bowl with flax seeds*
- *Hummus & crudités*

#### Lighter meals/snacks

On offer throughout the shift, as heavy meals can affect alertness or cause drowsiness.

*Examples:*

- *Tuscan bean soup,*
- *Crayfish, lime aioli & rocket on soda bread*
- *Green goodness snack pot*

#### Energy boosters

Avoiding sugary foods, such as chocolate, as they provide a short-term energy boost followed by a dip in energy levels.

*Example: Cranberry, cashew and coconut energy balls*

# Shift work: what to eat and drink for optimum performance





## Advice from a nutritionist

By Katrina Francis RNutr, Nutrition and Sustainability Manager, Eurest

Nutritional advice for shift workers can depend on an individual's circumstances, working hours and lifestyle; but there are some basic principles to consider.

There are some clear benefits in:

### 1 Staying hydrated – consume water or low sugar drinks regularly.

Dehydration is a major cause of fatigue and poor concentration. Ensure you have water or other low sugar drinks (i.e., no added sugar squash) available and grab frequent sips throughout your shift.



## 2 Having regular meals – aim for three balanced meals or two lighter meals, with healthy snacks between.

- Smaller snacks or a light meal during your breaks may be better than one big meal, especially at night. Eating too much can make you feel drowsy – the infamous food coma!
- Avoid long periods without any food, letting yourself get to a point where you are starving by the time you take your break or finish your shift. You will be much more likely to overeat when you do this, as we tend to overcompensate. Hunger also affects our judgement and decision-making ability – we make poor decisions when we are hungry, and not necessarily just in relation to food!
- Shift workers can be encouraged to avoid skipping meals and to spread food intake more evenly throughout the waking period with a mix of light or heavy meals, snacks and drinks.







## 4 Forward planning for what happens after work.

- Busy schedules and long hours may leave us reaching for unhealthy grab and go solutions or even visiting the drive-through on the way home. This seems very appealing having worked long, busy hours in often physically or mentally draining roles – we feel like we deserve a treat! On an occasional basis, this would be fine. However, high fat, high sugar foods ultimately worsen fatigue, sluggishness and motivation, leading to a continual cycle of poor food choices because we are too tired to prepare and plan ahead. Over time this will affect long term health.
- During working hours, check out your workplace menu and plan what to consume before turning up at the counter.





## 5 Choosing slow energy release food

- It can be tempting to reach for that chocolate bar, bag of sweets or sugary energy drink when you feel you need a boost during your shift. However, these foods will only enhance energy levels for a short while, with a quick sharp peak in blood sugar levels, which can be difficult to bring under control.
- Look for foods with a lower glycaemic index (GI), reducing sugar and saturated fat, choosing healthier snacks and drinks and limiting caffeine to within recommended levels can all be useful in improving diet quality in shift workers.
- Avoid over-reliance on (high-energy content) convenience foods and sugar rich products such as soft drinks, bakery items, sweets and non-fibre carbohydrates like white bread during the shift.
- Instead choose vegetable soups, salads, fruit salads, yoghurt, wholegrain sandwiches, overnight oats, veg sticks, wholemeal pitta and hummus, rye crackers, cereal bars, boiled eggs, and unsalted nuts.





## Night shift: when to eat

There is currently no strong evidence for any firm dietary recommendations regarding the optimal time to eat for shift workers – and this is something which needs attention and research.

But there are some principles to consider:

- Consume your main meal earlier in the biological day e.g. before a shift starts rather than during the night. Stick as closely as possible to a normal day and night pattern of food intake.
- During breaks at night, consume lighter meals and/ or healthy snacks.
- As part of general sleep hygiene, have a light rather than a heavy meal in the one to two hours before bed. Don't forget to eat otherwise, you'll wake up from hunger.
- Avoid skipping meals – instead, spread food intake more evenly throughout the waking period with a mix of light or heavy meals, snacks and drinks. Divide the 24-hour intake into eating events with three satiating meals each contributing 20–35% of calories.





# Eurest Night Shift Survey

Eurest surveyed a sample of night shift workers at a major client to find out their views on catering provision and how eating patterns impact their health.

It revealed:

- 78%** change their eating patterns to match their work/sleep pattern
- 16%** said they would visit more often if there were more salad options
- 48%** have only one break each night shift
- 10%** would visit more often for low fat meals and 5% for low calorie meals
- 41%** have their main meal during their shift
- 71%** said that offering quick click and collect options would be an improvement they supported
- 26%** eat immediately before going to work and 7% when they get home
- 62%** would value the ability to pre-order on an app

# Q&A



## Elizabeth Walker, Wellbeing Physiologist, Health Partners

Elizabeth Walker works for Health Partners, providing occupational health services for a major manufacturer which is a Euresst client. She has been in the role for five years and is currently undertaking a research project on the impact of shift patterns on health as part of a course with Leeds Beckett University.

As part of the company's Occupational Health offer to employees, she provides musculoskeletal rehab but also offers a more holistic approach. For instance, advising lifestyle changes that can help an individual improve their health.

This includes body weight, cholesterol, blood pressure, blood glucose – the kind of issues which can be exacerbated by the poor nutrition associated with shift work.

### **Q: Can you tell us more about the site you are studying and the people there?**

**A:** It's a major manufacturing company with 11,000 people on site – and it's a diverse group in terms of age, gender, age and ethnicity.

A middle-aged male with an above-optimum waist circumference is probably our target market for this study, but there are also a lot of people who are a little overweight and their diet isn't of an ideal standard.

When you add in that they work shifts, they are more at risk from developing lifestyle-related diseases.

### **Q: How many of the employees there are on night shifts?**

**A:** On one of its biggest sites, the business utilises a rolling three-shift pattern, which is mornings, afternoons and nights.

On a morning, people start at 6am and go through to 2pm. On the afternoon, they start at 1.30pm and go through to 9.30pm. Then the night shift comes in, from 9pm to 6am.

We have three build halls that do night shifts at one site, which is a lot of people.

Even the morning shift are getting up at 4am or 5am to get to work on time. The afternoon shift work until 9.30pm and no doubt going to bed late. So, there is disruption to the body clock in every shift.

That's why I chose a rolling shift pattern for my research because it's so disruptive. People go from one week to the next with a with a different shift pattern.

### **Q: What are you aiming to find out?**

**A:** A My brief is to see if there is anything that we can do to improve the healthy eating habits of people who work nights.

We want to get into the hearts and minds of the people who work here and encourage healthy eating practices at work.



**Q: How much research has been done about the health of night shift workers in the manufacturing sector?**

**A:** Not as much as you would expect. I discovered there has been a lot of research in the healthcare sector, the impact on nurses, for instance – but very little on manufacturing.

**Q: What is your research process?**

**A:** I've decided to go down the qualitative route by gathering three groups of five people drawn across the site who are working the three-shift rolling pattern. We'll be asking about their perceptions of the challenges to healthy eating when working shifts, what they need, where they need help.

**Q: What's the driver for the business here?**

**A:** It's about supporting health and wellbeing. But they also want to know if we're feeding people better, will their cognition improve? Will their memory improve? Will their alertness and agility improve? Will their energy levels improve through the night? If all that ended up in fewer re-works required at the end of a night shift that could be a huge business benefit – on top of the health benefits for employees.

**Q: What are you hearing from employees at the moment about shift work?**

**A:** Just that it's difficult. Difficult to eat healthily and to maintain a decent weight, and to spend time with your family and have enough energy for it all. They are too rushed and tired to plan how to eat well, and for most people it doesn't happen. There isn't always the ability, willingness or energy to do it.

Those issues are then exacerbated by biological difficulties that go hand in hand with people who work on a night shift, where their biological clocks are turned upside down because they're working when they should be sleeping. Understanding the impact of that will be part of the study.

**Q: Do you have any statistics that show the size of the problem in terms of health of shift workers on site?**

**A:** Nothing extensive, but we do have statistics from on-site health kiosks in build halls across the site where people can weigh themselves, and get a run-down of some of their key metrics

We've been able to extrapolate data from those on an ongoing basis over the last few years. Not everybody uses them, but what data we do get is quite worrying, from the point of view of blood pressure, obesity and other wellbeing metrics relating to heart health. It's enough to know we need to understand the situation better.

**Q: What advice do people need?**

**A:** When to eat is a big one. People tell me they don't know whether to have breakfast before they go to bed at night – or an 'evening' meal. Or what to eat when they get to work.

There's a lot of dilemmas, especially when you have to fit that pattern into family life. But there's not much advice out there for how to work a shift and keep a healthy lifestyle.

It's common sense to say don't eat too much overnight because the body shouldn't be digesting at that stage, it should be resting.

The recommendations, as they currently stand, are eat light and eat slow-releasing carbohydrates. But we need more research.

We hope to scope some interventions that will help on a long-term basis, but we also need to test their readiness to change.







# Conclusion

By Ryan Holmes

A healthy, nutritious diet that supports wellbeing is crucial for those who work shift patterns, and now is the right time to think about how we change the culture around catering provision to support them better.



Some key takeaways:

1. It's clear that working at night and sleeping in the day can lead to wellbeing issues – and that a healthy diet could be part of the solution to help tackle it. Night workers need a menu that allows them to stay alert, awake and well and helps look after their bodies in the right way.
2. More research is needed on the impact of shift work on the body and looking at the best possible times to eat at night. As well as exploring the positive impact a healthier diet could have on weight management and keeping diseases such as type 2 diabetes at bay.
3. The onus is on employers and contract caterers to deliver a catering offer that values the night shift and ensures they receive, at the very least, a menu and choice that matches what their daytime colleagues have long been used to. That means food which is freshly cooked, with exciting healthy options always available – and healthy grab and go options on offer, too.
4. We need to listen to shift workers and give them what they want, when they want it. Healthy options should be easily available, allowing people to resist the urge to go for items high in fat or sugar when they are tired and lacking in resolve.
5. Don't assume those at night want a heavy 'lunch' in the middle of the night. Our research shows that not everyone wants breakfast when they arrive and dinner in the early hours; in fact, science suggest a lighter meal would be more beneficial to health for many in the hours when they should be sleeping. Many night shift workers have short breaks, and no time to sit down for a big meal, either.
6. There are big benefits for businesses when they get the nightshift menu right. When you look at the list of potential health impacts of working nights, it is a long one – so the benefits of a healthy food and beverage offer after dark are many-fold. If your people are healthier, they are happier and, quite possibly, they work better, too. It could certainly have a positive impact on absence due to sickness and potentially on productivity.

Most of all, however, it's about treating those who work night shifts with the respect they deserve.

They often perform roles that are crucial to the business, and which are difficult to recruit for. The very least they deserve is to be given every opportunity possible to stay fit and healthy – and be supported to do so.

# Eurest

