Shift Work and Weight Gain

WHY THE ***TIME THAT YOU EAT*** MAY BE CAUSING YOU TO GAIN WEIGHT

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Hi there and welcome!

My name is Audra Starkey and I'm a clinically trained Nutritionist (BHSc) and ex shift worker, with a special interest in shift work nutrition.

If you've been struggling to lose weight whilst working 24/7, and you're looking for some guidance from someone who truly understands how hard it is to work shift work, then you've come to the right place.

Please join me in the next few pages as I discuss why the time that you eat, may be causing you to gain weight, and how it might just be the key to helping you lose those stubborn kilograms once and for all.

See you on the next page!

Audra x

Why weight loss is so hard when working 24/7

Do you wake up in the morning (or night, depending on your shift), staring in the mirror wishing you were thinner? Do you wish your uniform wasn't quite so tight around the middle?

Well even though the number on the bathroom scales cannot truly define our happiness, losing some of these unwanted kilograms can certainly make us feel much healthier, boost our self-esteem, and provide us with way more energy which is a huge bonus for anyone running on little sleep!

If you're new to shift work, or you've been working it for years and are at a loss as to how to get rid of these stubborn kilograms, then read on.

First and foremost, I want you to know that I truly understand your pain.

Really, I do.

Having spent close to two decades working shift work myself, and enduring ongoing weight fluctuations and steady increments in weight gain over the years (I gained 10 kilograms in my first year of working 24/7), I certainly have an appreciation of what you might be going through.

And it's no fun at all.

In fact, it can be down right frustrating and demoralizing, particularly when you've tried absolutely everything to rid those kilograms but to no avail. Studies have even shown shift workers are prone to various metabolic disorders including weight gain and obesity[1].

But I'm here to tell you, just because the research favors shift workers being prone to weight gain, **it doesn't mean it's your destiny**. If this was the case, then every single shift worker would be overweight, and this is clearly not the case.

SO WHY DO WE GAIN WEIGHT WHEN WORKING 24/7?

There are multiple factors but ongoing and relentless fatigue undeniably plays a role in poor food choices, as we often lose our motivation or mojo to cook and prepare healthy meals when we feel so darn tired all of the time.

A situation no-one can truly appreciate or understand **unless you've spent years working shift work yourself.**

These not-so-healthy food choices, where we become reliant (and dare I say addicted) on take-away meals, vending machine snacks and pre-packaged foods is a recipe for weight gain disaster. Pardon the pun!

Sleep deprivation is also a type of endocrine or hormone disruptor which means it quite literally disrupts our hormones, two of which include the appetite-regulating hormones leptin and ghrelin[2].

Leptin is a hormone that is stored in our fat cells, and essentially sends signals to the brain telling us when we we're full. In contrast, ghrelin, is produced in the stomach and let's us know when we're feeling hungry.

The trouble for shift workers (and anyone else who may be struggling with insomnia), is these hormones are thrown into disarray when we're running on little sleep. Essentially it triggers the body to **produce higher amounts of ghrelin along with lower amounts of leptin** which can lead to overeating and subsequent weight gain[2].

In essence it causes your body to play tricks on you, telling you that you're hungry (thank you burst of ghrelin), when in fact you may not be hungry at all. The same applies to those feelings of fullness. As leptin is suppressed, you may not receive the signal telling you that you're feeling full, so you end up overeating.

Pretty fascinating isn't it?

This was illustrated in a study of over 1000 sleep-deprived subjects where **disruption to appetite hormones equated to an increase in food consumption equivalent to 350-500 k/cal per day**, most notably in the form of snacks made from carbohydrates[3].

In other words, we're more likely to consume calorie-dense foods like cake, pasta, bread, potatoes and pizza when we're running on little sleep, making it somewhat challenging for anyone trying to lose weight.

Why the time that you're eating may be the cause of your weight gain...

So you may be thinking, Audra – this is all great information, but what's this got to do with the time that I'm eating, and how that may be contributing to my weight gain? Well I'm so glad you asked.

Wait for it. Drum roll please.

IT'S BECAUSE WE NEED TO BE...

Eating minimally when our digestive system is 'sleeping'!

Sound a bit strange?

Well just stick with me here, and I promise it will all make sense shortly.

You see the thing is, there's SO much focus in the media along with various nutrition and dietary guidelines about what to eat, how much to eat etc., but we seem to be overlooking one of the most fundamental aspects of metabolic health, that being *when we're eating.*

Now don't get me wrong.

I'm not saying what we're eating and how much we're eating is not important.

On the contrary, both play a significant role in our health, well-being and waistline, and certainly formed a huge part of my training to become a Clinical Nutritionist.

But to be frank, it's not the "be all and end all" when it comes to weight gain and obesity. In some ways, this obsession about what we're eating has probably led some people to develop an unhealthy relationship with food, which is definitely not a healthy way to live either, but I'll leave that discussion for another time.

After spending 6 years submerged under textbooks and inhaling the contents of journal articles (yes, it took me a bit longer to complete a 3-year degree whilst working full-time), I have to say I was a little intrigued as to why **the topic of *food timing* was never discussed throughout my degree**.

Not one single lecture.

But maybe that's because I was the **only one in my class interested in the timing of food** – which for a shift worker is extremely relevant.

In other words, when we eat, or the time of ingestion, is just as critical, if not more so for our well-being[4].

This is because **the body's physiological response to food can be completely different depending on the circadian phase or timing of the body**[5].

By this I mean, the body responds to food intake differently – depending on the time of day.

In order to help explain this, we need to think of ourselves as walking clocks, and as weird as this sounds, that's exactly what we are.

Walking clocks...

This concept might be a little hard to understand at first, but our whole body is essentially made up of *Clock* genes located throughout every tissue, cell and organ in our body.

Our entire biochemistry is governed by a master clock, called the suprachiasmatic nucleus or SCN which is located in the brain. This 'master clock' sends messages to other circadian clocks or genes in our periphery tissues and organs, some of which include the pancreas, liver and gastrointestinal tract, all of which play a huge role in our digestive health[6].

Like all organs, the gastrointestinal tract operates under a 24-hour circadian cycle which means a number of gastrointestinal functions such as gastric acid production, nutrient absorption in the small intestine and motility in the colon, are designed to function at certain times of the day or night[7].

What's interesting, is that animal studies have shown genetic mutations of some of these Clock genes has led to metabolic syndrome[8]. In other words, when our clocks are not functioning under a normal circadian rhythm, which is often the case for shift workers, it led to weight gain.

And this is where food timing comes in, or the fancier, more scientific way to describe it is ***Chrono-nutrition.***

Food timing - what to eat when?

CHRONO-NUTRITION

Chrono-nutrition involves studying the impact nutrition has on our metabolism via our internal body clock. This includes meal regularity (or in the case of a shift worker, meal irregularity), frequency and clock time[9].

Incredibly, this topic is **rarely discussed in most health practitioner consultations** (probably because its not mentioned in any of our training or textbooks), yet it's relevance and importance cannot be over-estimated, particularly for anyone who works 24/7 and is continually struggling with their weight.

Ironically one of the most common questions I get asked by people is "what do I eat and when?" which is not surprising given most shift workers rarely eat breakfast at "breakfast time" and lunch at "lunch time" and so forth. It can certainly be confusing and at times overwhelming, particularly if you're trying desperately to stay healthy (and trim) whilst working 24/7.

So this brings me to chrono-therapy.

CHRONO-THERAPY

Chronotherapy is the practice of eating as close to "normal" times as possible to help reduce metabolic risk factors. This is essentially **eating in coordination with the body's natural daily rhythms** that typically follows a 24-hour cycle[10].

Now for the average nine-to-fiver who pretty much goes to bed at around the same time every night, and eats their meals at similar times of the day, this is pretty easy to do. But for those of us who work all different types of shifts, we end up falling into the trap of eating at all different times of the day.

The problem with this type of ad hoc eating pattern, is that **just altering the time that we eat** (regardless of what it actually is), it can greatly affect our body weight[11]. This is because many nutritionally related metabolic processes in the body follow this natural daily rhythm such as our appetite, digestion and the metabolism of fat, cholesterol and glucose[9, 12].

Now given many of our shift working jobs

require us to remain awake during the night, we often end up EATING in the same way.

However, when we **eat out of sync to our body's natural circadian clock**, it can disrupt our metabolism making us more susceptible to gut disturbances and other chronic diseases.

To help enhance our understanding of this, let's look at those animals which are nocturnal, meaning they are more active and consume most of their calories during the night-time. In a 6-week study published in Obesity (2009), mice fed a high fat diet during the daytime (when they are normally sleeping) **gained significantly more weight and had a much higher body fat composition** than those who were fed the same diet during the night-time (when they are normally awake)[11].

Now to be fair, not all animal studies can be replicated in human trials, however it certainly illustrates **how simply modifying the time that we eat, can greatly affect body weight**.

In other words, it provides causal evidence that eating at the "wrong" time, or how we've naturally evolved to eat, can lead to weight gain.

One of the reasons behind this, is that certain organs such as the liver and intestine methodically follow this 24-hour daily rhythm, and are not expecting food intake at 3am. So when you munch on that pizza at 3am whilst on night shift, when your body is normally sound asleep in bed – it's going to struggle to digest and absorb it.

Essentially our body is not geared up for night-time energy and nutrient consumption as gastric emptying, intestinal blood flow, kidney and liver activity all slow down during the night[13]. This can contribute to indigestion, pain and discomfort when working (and eating) on the night shift.

Other research has shown eating at inappropriate times of the day (when our digestive system is sleeping) may contribute to metabolic syndrome, a collection of conditions such as high blood pressure, high blood triglycerides, low levels of the good HDL cholesterol, insulin resistance and you guessed it – weight gain[14].

In essence, ingesting food during the night versus the day can have completely different effects on our metabolism, making shift workers vulnerable to weight gain.

In summary...

So there you have it. Food Timing. It's certainly not something that's discussed in most health practitioner consultations, which is why I wanted to share it with you in this report. Whilst the cause of weight gain can be very multifactorial, eating out of sync to the body's natural circadian clock can be a contributing factor for some people, in particular those who work 24/7.

Now I'm certainly not recommending you avoid eating altogether when working early shifts, or night shift although that does work for some people.

However, **limiting your food intake between midnight to 6am**, and having your main meals before of after these hours when your digestive system is essentially sleeping (or at least trying too!), will do wonders for your metabolic health and waistline[15].

I appreciate this can be tricky at times, depending on our meal breaks etc., but just do the best that you can. Foods which are more suitable to consume during midnight and 6am, are those which require little digestive effort in the form of liquid nutrition such as bone broths, soups and slow cooked casseroles. In other words, anything other than a pizza and hamburger!

Now before I go, I want to leave you with this great quote to ponder, by Dr Jason Fung, the author of The Obesity Code.

> **While we obsess over what to eat, we virtually ignore the crucial aspect of meal timing.**

Big shift working hugs,

Audra x

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P.S – Do you have any thoughts or feedback about this report? If so, I'd love to hear from you! Just send an email to **audra@healthyshiftworker.com**

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