The book cover features a dark, industrial background with silhouettes of workers. One worker is at the top right, and another is at the bottom left, working at a desk with a computer. A large, semi-transparent clock face is overlaid on the right side, showing numbers from 5 to 10. The title 'WORKING the SHIFT' is prominently displayed in the center, with 'WORKING' in red, 'the' in white, and 'SHIFT' in yellow. Below the title, the subtitle 'A SELF-HEALTH GUIDE' is written in white. At the bottom, the authors' names are listed in yellow, followed by a bold white tagline.

WORKING the SHIFT

A SELF-HEALTH GUIDE

*by Colin M. Shapiro, M.D., Ph.D., Ronald J. Heslegrave, Ph.D.
Joanne Beyers, M.A., RD, Louise Picard, B.Sc. N., M.Sc.(A),*

***Practical strategies for improving the
way you work, sleep, live and play.***

Working The Shift

A self-health guide

This book is dedicated to our families and the families of other shiftworkers.

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Working The Shift
A self-health guide for shiftworkers
and their families

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TABLE OF CONTENTS

PREFACE

PART I: *UNDERSTANDING YOUR BODY CLOCK*

1. What are Normal Biological Rhythms? 7
2. What Controls Biological Rhythms? 10
3. How do Biological Rhythms Interact with the Sleep Cycle? 14
4. The Function of Sleep and its Relevance to Shiftworkers 18
5. Differences in Biological Rhythms among People and Changes over the Life Span 21

PART II: *CLOCKS IN COLLISION*

6. Shiftwork in Our Society 27
7. How Does Shiftwork Affect Your Health? 32
8. Driving Safety and the Shiftworker 40
9. Medication Use by Shiftworkers 45
10. Melatonin and Tryptophan 49

PART III: *HOW TO COPE WITH SHIFTWORK*

11. Shiftwork: Learning A New Lifestyle 52
12. Good Habits for Getting to Sleep and Staying Asleep 56
13. Tips for Staying Alert and Keeping Safe 63
14. Tips for Reducing Stress 69
15. Tips for Eating Healthy 75
16. Tips for Active Living 79

PART IV: *THE SHIFTWORKING FAMILY*

17. Tips for Improving Family and Social Life 83
 - a) Family Life
 - b) Children
 - c) Social Life
18. Shiftwork and Women 89

PART V: *THE SHIFTWORKING WORKPLACE*

19. Promoting Health in the Workplace 94
20. Getting to Know Yourself and How You Respond to Different Shifts and Shift Schedules 99

APPENDICES

- Agencies for Further Information 107
Recipes Ideas 108
Further Reading 112

PREFACE

Today, shiftwork is not just a work schedule, it's a way of life.

Like every other working circumstance, shiftwork has both advantages and disadvantages. On one hand, shiftworkers enjoy free time while most other people have to work. They can benefit from the flexibility to care for kids or attend school during the day, as well as better pay than their day-working colleagues. On the other hand, shiftworkers often suffer from gastro-intestinal problems and shiftwork can strain family relationships. Shiftworkers and researchers have found a number of ways to make shiftwork manageable. By applying these techniques, the advantages of shiftwork can be realised.

In this book, we hope to provide you with a basis for understanding why shiftwork presents a challenge to your body, a description of the specific risks of shiftwork, and a wealth of practical suggestions for successfully coping with shiftwork. We hope this book will serve as a practical guide for you, the shiftworker, your family and your workplace.



What are Normal Biological Rhythms?



Plants, like all other living things, have their own rhythms. Flowers may close at night and open during the day.

Plants, animals, and human beings live in a world governed by natural cycles. They vary their own behaviour and body processes to match the rhythms of the earth. Most obviously, we sleep during the night and work during the day. Inside our bodies, a vast number of chemical changes take place that also run in cycles that mirror day and night.

Our body temperature, for example, gets higher during the day, decreases overnight, then begins to increase again in the early morning. Biological rhythms that vary in accordance with the daily light/dark cycle are known as *circadian rhythms*.

These biological rhythms affect many aspects of your life. They affect when you want to sleep or be awake, when you want to eat, and when you want to make love. It is important for shiftworkers to be aware of their biological rhythms since they also affect your alertness and your ability to do your work. At certain times of the day,

particular tasks will be easier for you to do than at other times. Moreover, in the middle of the afternoon, and after midnight, biological rhythms will make you drowsy and less attentive. These times of decreased alertness can compromise your on-the-job performance and increase your risk of having an accident.



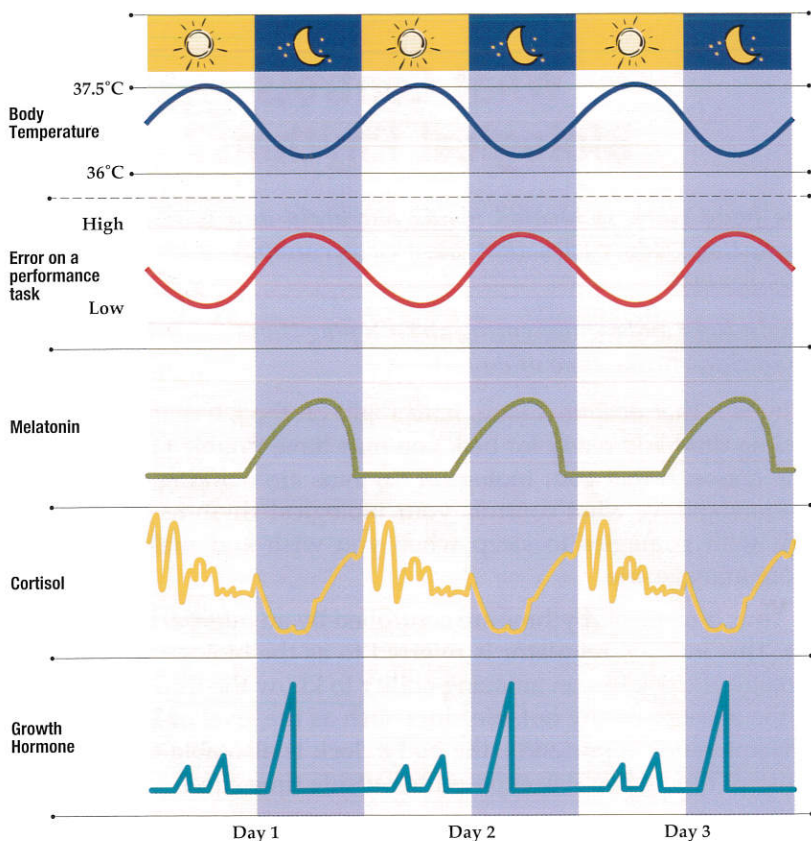
Cells, organs, individuals, families, societies and the world, as this illustration emphasizes from the centre out, are governed by 24-hour rhythms.

In this book, we will discuss biological rhythms in greater detail, particularly the manner in which they affect your ability to sleep and to do your job. We will consider the long-term implications of disrupting your biological rhythms with shiftwork and how you can minimise negative side effects of shiftwork.

All subsequent chapters will start with a couple of key 'Working The Shift Tips' that sum up the chapter. For this chapter, they are:

Our body processes vary in daily cycles known as circadian rhythms.

Sleepiness, alertness, hunger and other daily aspects of life are controlled by biological rhythms.



The graph above shows how our behaviour is affected by our 24-hour rhythms. Many rhythms work in harmony to support our needs. During the day, for example, our body temperature rises and the number of errors we make on certain tasks drops.



What Controls Biological Rhythms?

The body clock is located inside our brain and is responsible for regulating body cycles that vary in accordance with the time of day or night.

Bright light and regular eating and sleeping times can help adjust our body clock to the time of day.

Why is it that despite a long, hard night on the job that has left you feeling tired and ready for bed, you may have trouble falling asleep? The reason is that your biological rhythms are working against you. Understanding what controls your biological rhythms can provide you with strategies to sleep when you wish and make shiftwork more manageable.

Your biological rhythms are controlled by an internal body regulator. This internal regulator is referred to as the biological clock. The biological clock has an amazing ability to know the time of day even in the absence of any outside clues such as the level of light or dark. Perhaps more importantly, the body clock is also able to modify its sense of time when it is exposed to outside time cues.

THE SCN – THE BODY'S CLOCK.

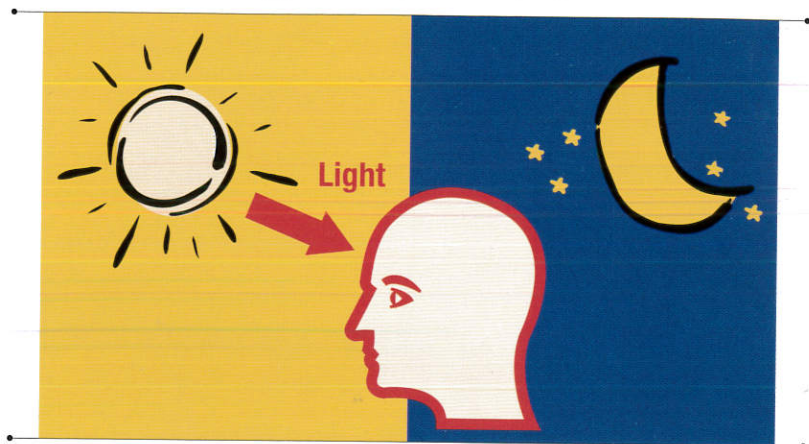
In recent years, scientists have found a part of the brain they believe acts as the body's clock. In an area of the brain called the hypothalamus, which is involved in regulating many of our basic behaviours like eating, there is a collection of cells known as the suprachiasmatic nucleus (SCN). The SCN receives signals about light and dark from the eye. If the SCN cells are removed from laboratory animals, their



Light entering the eye helps set our biological clock.

biological rhythms cease to function. If the SCN cells from another animal are then transplanted into these animals, their circadian rhythms are restored.

Sleep is Regulated by the Biological Clock (approximately a 25 hr. cycle)



Without clues, or zeitgebers, such as daylight and darkness, our bodies would follow a 25-hour cycle rather than adjusting to a 24-hour day.

ZEITGEBERS (TIME GIVERS)

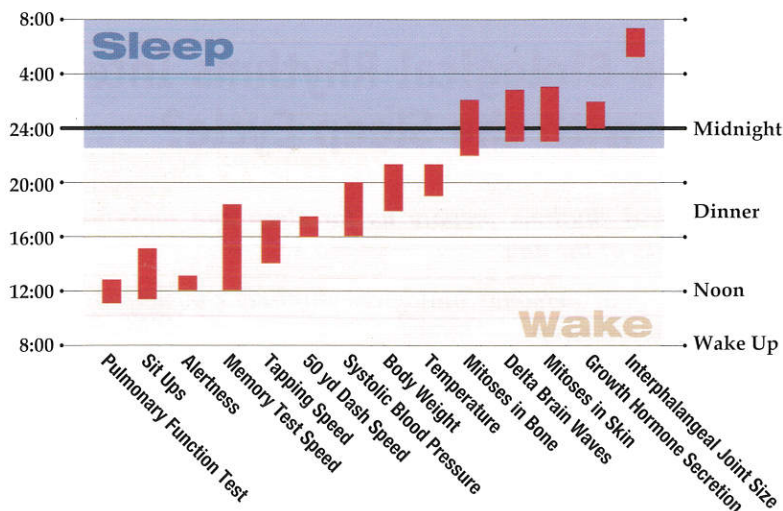
Experiments have shown that if people are placed into special rooms or caves that lack all clues as to the time of day, their biological rhythms will follow a cycle of approximately 25 hours rather than a 24 hour period. How then do most of us operate on a 24-hour basis? The answer is zeitgebers. Zeitgebers (from the German *zeit*, meaning time, and *geber*, meaning giver) are clues from the external environment that enable our body clock to adjust to our perception of time. Together, zeitgebers are said to train the body clock to harmonise with the surrounding physical and social environment.

One of the most important zeitgebers is the light/dark cycle. The body's internal clock, the SCN, receives signals from the eye and can therefore respond to variations in the intensity and duration of light during the day. Studies have shown that subjecting people to light at different times of the night can change their body rhythms and pattern of sleep and wakefulness.

Are there other zeitgebers? Yes. Many of our daily activities follow fairly regular routines and can therefore help to synchronise our biological rhythms with the outside world. Patterns of sleeping, eating, working, and social interaction have been shown to be potent synchronisers. Noise and temperature variation are also clues to which our body clock responds. Sleep and meal times, in particular,

appear to be important zeitgebers as both occur regularly at predictable times, stimulate various physiological processes and are often associated with social interactions with family and peers. Even a clock or a wrist watch can act as a zeitgeber. If we know what time it is, our behaviour and pattern of activities are often chosen to suit that point in the day.

Highest Point of a Variety of Daily Rhythms



All rhythms have a peak in the 24-hour cycle. This graph shows when a number of these peaks occur. For example, the release of growth hormone is at its peak between midnight and 2 a.m. Your memory is at its best between noon and 6 p.m.

Zeitgebers are important to shiftworkers since they can be powerful aids in realigning the shiftworker's body clock to correspond with their shiftwork schedule. Adoption of a regular routine will expose workers to a predictable array of external cues. International travellers have long known that a few days overseas immersed in the eating, sleeping, and social schedule of the people abroad will soon realign their body clock to match local time. The difference between body time and local time is what causes jet lag. Shiftworkers can minimise their own brand of jet lag by adopting a regular routine for eating, sleeping, and socialising.



How do Biological Rhythms Interact with the Sleep Cycle?

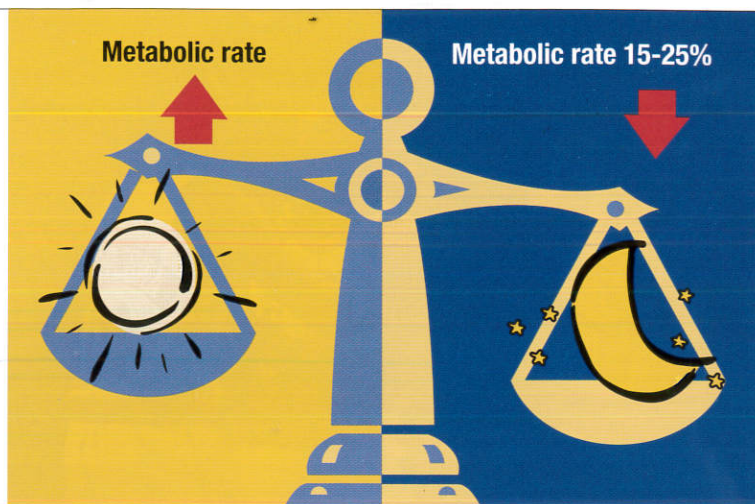
Our biological rhythms prepare us for sleep and wakefulness at different times of the day.

Recognising your personal biological rhythms can help determine when you should sleep.

When we go to sleep:

- ☺ Body temperature begins to decline an hour or two before sleep and continues until it reaches a low point between 3-4 a.m. After 6 a.m. it begins to rise again before we wake up.
- ☺ Heart rate and blood pressure decline.
- ☺ Melatonin, a hormone that promotes sleepiness, increases prior to sleep during the so-called 'forbidden zone' – a time when it is harder to fall asleep – and remains high through the night.
- ☺ Hormones important for tissue restoration, such as growth hormone, increase.
- ☺ Cortisol, adrenaline, and other hormones that help us to maintain wakefulness are suppressed until the latter part of our sleep; they then begin to increase in order to help us wake up.
- ☺ Kidney and bowel functions are suppressed so they don't wake us up to go to the bathroom.
- ☺ Brain activity changes. There is slower, more coordinated brain activity earlier in the night.

Sleep is Regulated by the Biological Clock



Your metabolic rate increases during the day to help keep you alert and decreases at night to help with the restorative aspect of sleep.

Together, these changes make it easier for us to get to sleep and to stay asleep.

The problem for shiftworkers is that their biological rhythms are not naturally in step with their waking and sleep schedule. At night, when you need to be awake and alert at work, your biological rhythms are inducing you to sleep. During the day, when you need sleep, your biological rhythms favour wakefulness and alertness. If you try to go to sleep when your body clock thinks you should be awake, you will almost certainly suffer from reduced sleep.

On days off, if you begin sleeping at night again, you cause even more confusion as your clock tries to respond to conflicting signals about when it should put you to sleep, wake you up, and prepare you for meals. Chapters 11, 12 and 13 give you specific tips on how to get to sleep and stay awake.

Even when your biological rhythms do begin to adapt to a new circadian cycle, the adaptation occurs at different rates for different physiological processes. For example, the timing of your melatonin secretion might adapt more quickly than the timing of temperature rhythm. Not only has the shift in one's biological rhythms been incomplete but biological processes are now desynchronised and not working together.

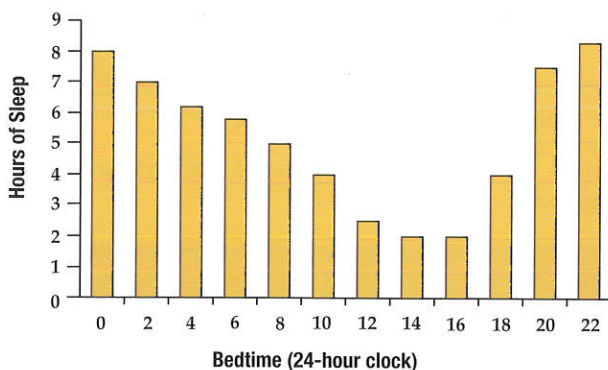


When you go to sleep, biological rhythms change in a co-ordinated way. They work like a team to prepare you for the action of the next working day. If you are jet-lagged or working shifts, some rhythms adapt more quickly than others. This is analogous to the forwards and defensemen not cooperating. Chaos and a poor performance are the result.

We believe that many people can never completely shift their rhythms such that their day and night physiology is reversed. For most people it is probably best simply to recognise this and use the tips given in Parts III and IV of this book to deal with change in the most effective way possible.

It is clear from a number of studies that the amount of sleep that we get is related to the time of day when we choose to sleep. A recent survey of over 5,000 German and Japanese shiftworkers demonstrated that going to bed between 8 p.m. and 2 a.m. results in about 7 to 8 hours of uninterrupted sleep. The further one delays bedtime to the morning and on through to the afternoon, less and less uninterrupted sleep is obtained. For instance, going to bed around 10 a.m. would typically allow about 4 to 5 hours of sleep; but going to bed between 3 and 5 p.m. may allow only 2 to 3 hours of uninterrupted sleep.

Average Sleep Length Depends on Bedtime



The quality of sleep can also be affected by sleeping at times that are out of sync with our biological rhythms. During shortened day or evening sleeps, the dreaming stage along with the lighter stages of sleep are markedly reduced while the deeper stages are often maintained. Since this deep sleep is the most important for restoring alertness and performance capabilities, this type of sleep is probably maintained because of the sleep debt that is being built up in the shiftworker due to reduced sleep. A sleep debt can have serious consequences for one's health and sense of well-being.

Sleep and biological rhythms are both complex processes with many components which fit together to make up the whole picture. The two processes fit together in a mutually complementary way to facilitate alertness when we are awake and allowing us maximum restoration when we are asleep.



The Function of Sleep and its Relevance to Shiftworkers

Sleep is restorative. To function well, each person should aim to have at least six hours of sleep every 24 hours.

Sleep restores best when all parts of the 'sleep orchestra' are playing together.



Since the dawn of time people have been fascinated by the daily experience of sleep. Part of this stems from the amazing phenomenon of dreaming. Until recently we haven't really understood the function of sleep.



The Function of Sleep and its Relevance to Shiftworkers

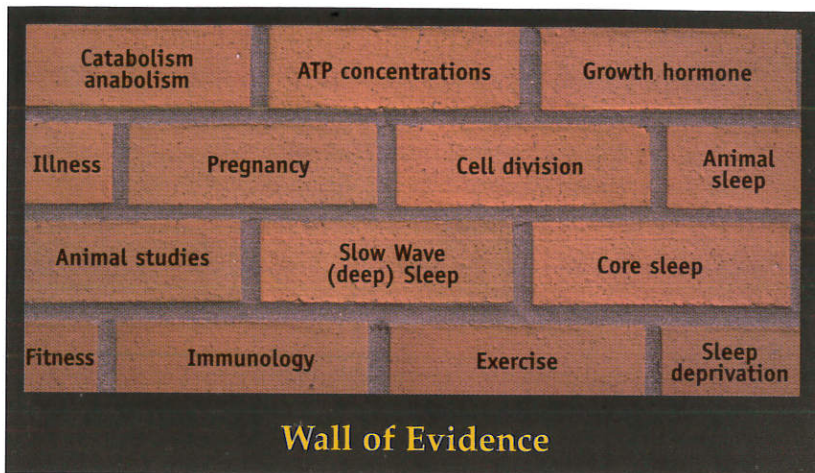
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Sleep Function: Restoration of Energy



Researchers are building a 'wall of evidence' to support the theory of the importance of sleep in restoring the body.

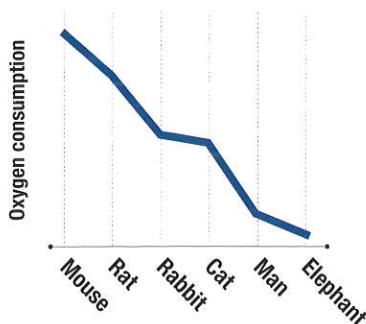
Scientists and physicians have increasingly come to believe that sleep serves a restorative function. This seems to make sense intuitively, but only in the past few years have scientists been able to find the building blocks required to construct the wall of evidence for this view. Scientists have found that:

- ⊗ When people exercise and use up energy, they tend to sleep longer and/or deeper the following night or nights. Fit individuals often have deeper sleep than unfit people.
- ⊗ During pregnancy there is an increase in deep sleep. Many women need to take a nap in the middle of the day, particularly in the first trimester. It seems that pregnant women need increased restorative time in order to support their baby's growth.
- ⊗ Metabolic rate (oxygen consumption) decreases during sleep and is at its lowest level during deep sleep. Decreased oxygen consumption supports the process of restoration. A person running a 100 metre dash uses a large amount of oxygen and burns up some of the body's energy resources. When a person is most tranquil and uses a minimal amount of oxygen, the stage is set for building and repairing tissues.
- ⊗ Growth hormone is secreted during the night, particularly in association with the first couple of episodes of deep sleep.
- ⊗ Animals with different metabolisms have different sleep cycles.

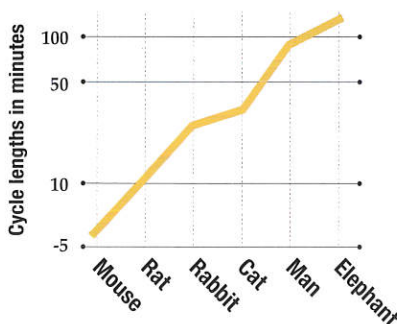
- ⌚ 'Catch-up' sleep following an episode of sleep deprivation is marked by an increase in the amount of deep sleep and in the amount of growth hormone released.
- ⌚ Bacteria-infected animals that sleep a great deal following the infection have a greater survival rate than those that do not.
- ⌚ People with higher metabolic rates have more deep sleep while those with lower metabolic rates tend to have less slow wave sleep (SWS).

Taken together, these points provide strong evidence that sleep serves a restorative function.

Metabolic Rate



Sleep Cycle Length



The chart on the left shows the metabolic rates of various animals. The chart on the right shows the sleep cycle length for the same animals. You can see that there is a relationship between metabolism and sleep cycle length. Sleep cycle length is the time between two dream episodes.

WHAT IF I HAVE POOR SLEEP OR DON'T GET ENOUGH SLEEP?

People who get poor quality, interrupted or insufficient sleep feel groggy, lethargic, and tired the following day. They often have difficulty thinking smoothly, concentrating on tasks and performing at their best. They might feel headaches or body aches as the day goes on. Lack of sleep can also affect one's mood. Tired people tend to be easily frustrated, irritable, and moody. In the long run, people who are chronically sleep deprived suffer from a general sense of poor health and have been shown to die at a younger age than those who get enough sleep.



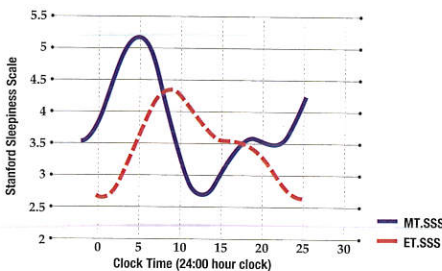
Differences in Biological Rhythms among People and Changes over the Life Span

Biological rhythms change as people age. Behaviours that might help a young worker adapt to shiftwork might not be effective later in life.

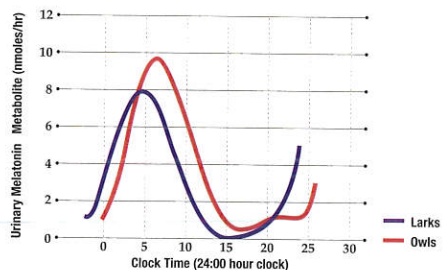
Workers approaching middle age probably need to re-examine their schedules and adaptation strategies.

Different tasks can be better performed at different times of the circadian cycle. Knowing when you are better at sorting tasks versus memory tasks will help you to improve your overall performance and make the work easier to do.

Subjective Sleepiness Rhythms of Morning and Evening Types



Melatonin Rhythms of Morning and Evening Types



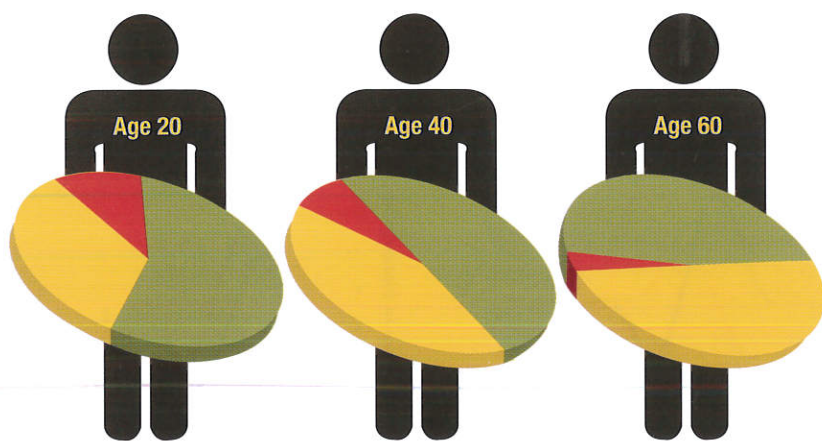
The subjective rhythms of larks (people who function best in the morning) are dramatically different from those of owls (people who function best in the evening). There is also a difference in the production of melatonin, which encourages sleep, between owls and larks.

Some people like to get up early in the morning and go to sleep early at night. Others prefer to sleep in and stay up late at night. These two types are sometimes referred to as larks and owls. Children and babies need to sleep longer than adults; teenagers prefer to go to sleep later at night whereas elderly people prefer going to bed at an earlier hour. These widely different sleep habits show that biological rhythms vary from person to person and change as people age.

LIFETIME CHANGES IN SLEEP RHYTHMS

People in their late teens have as much as a fifth of their sleep time occupied by deep sleep. This shrinks to a tenth of sleep time for middle-aged adults, and a twentieth of sleep time for people over age 60. This means that older people have less restorative sleep, more sleep complaints and a need for additional sleep (naps). For shiftworkers, perhaps as young as 35 or 40, this means more difficulty coping with shiftwork due to reduced restoration during what are often restricted sleep patterns.

The degree of variation within biological rhythms also decreases as people get older. The amount of melatonin released by an elderly person at night is less than that of a younger person. Also, younger people experience greater extremes of hot and cold as their body temperature goes through its circadian rhythm.



The amount of deep sleep a person has (shown in red), decreases as a person ages. The total sleep time (red plus green) decreases with age. Also, you go to sleep as schematically indicated by the start of the red section and earlier as you get older after age 20.

The decrease in the most restorative stage of sleep and the dampening of biological rhythms as people get older help explain why older people have more complaints about their sleep and have more difficulty coping with shiftwork.

These biological differences have important implications for aging workers. Even shiftworkers who have successfully worked shifts for many years might find it increasingly difficult to cope with a shiftwork schedule as they get older. Older workers should pay extra attention to the coping strategies presented in this book, and if all else fails, they might need to consider leaving shiftwork.

DIFFERENCES IN BIOLOGICAL RHYTHMS BETWEEN INDIVIDUALS

Biological rhythms also differ among people of the same age. This means that some people will find it easier to be alert at night than others.

Shiftworkers have long known that some people can handle shiftwork and others cannot. While a few people will always find it a major challenge to adjust to a shiftworker's schedule, the difficulties can be greatly reduced by making lifestyle changes that accommodate to the reality of shiftwork. Most people should be able to enjoy a smoother transition to shiftwork by following the advice given in this book.

DOCUMENTING YOUR RHYTHMS

The charts on the next two pages can help you appreciate your own rhythms. Use these charts to record your pattern, or photocopy them and use them for several weeks. Many shiftworkers and their families will learn from the process. You may ask your partner to complete a separate one to use in discussions about dividing domestic chores.

A one-day example from a bus driver working a split shift is shown

WEDNESDAY	NOON	2	4	6	8	10	Midnight	2	4	6	8	10	NOON
Work			<i>TW</i>	<i>W</i>	<i>WT</i>	<i>H</i>				<i>TW</i>	<i>W</i>	<i>WT</i>	<i>C</i>
Activities		<i>CC</i>				<i>SI</i>				<i>CCS</i>			<i>M</i>
Sleep		<i>D...I</i>					<i>D.....BI</i>						
Performance		<i>1</i>	<i>5</i>	<i>7</i>	<i>7</i>	<i>7</i>				<i>2</i>	<i>5</i>	<i>7</i>	<i>7</i>

Awake - ZZZ Chart

Complete A-E approximately 15-20 minutes after waking up. Complete 1-3 prior to switching off your light before your major sleep period. In the assessment of performance we would like you to use a scale from 1 to 10. For example, you might record a 1 or 2 if you are very sleepy, but if very refreshed, you would record an 8 or 9.

Fill in date under day	after arising					before sleep		
	A	B	C	D	E	1	2	3
	Hours of sleep last night	I awoke very sleepy = 0 very refreshed = 10	I feel fuzzy headed = 0 alert = 10	My sleep was restless = 0 tranquil = 10	My sleep was better than usual = 0 as usual = 5 very disrupted = 10	I feel very tired = 0 wide awake = 10	I feel physically worn out = 0 relaxed = 10	I feel tense = 0 calm = 10
Mon.								
Tues.								
Wed.								
Thurs.								
Fri.								
Sat.								
Sun.								

Work, Activities, Sleep, and Performance (WASP) Record

Use the following notations to complete the chart opposite.

WORK		ACTIVITIES
W - working hours	R1 - relaxation for myself	A - each alcoholic drink
T - travelling to work	R2 - relaxation with spouse	C - each caffeinated drink: includes coffee, tea, chocolate, cola
H - housework	R3 - relaxation with children	I - interruption of calmness. This may be an exciting movie on TV, sexual intercourse before sleeping, a noise during sleep, or anxious thoughts
C - work with children		P - every time you take a sleeping pill or tranquilliser
SLEEP TIME (including naps)		P2 - every time you take any other pill
D - lights out/dark	Note each entry to bed with ↓	M - meals
I - lights on/illumination	Note each exit from bed with ↑	S - snacks
B - alarm clock waking	Note time asleep with ----	X - exercise
		T - use of toilet during sleep time
PERFORMANCE (during wakefulness varies)		
On a scale of 1-10 where 1 = low and 10 = very high, rate your performance ability		



The lark and owl pictured above represent extreme morning and extreme evening behaviours in birds. People differ in the same way. People who are at their best in the morning are often called larks. Those who thrive in the evening are called owls. In addition to the backdrop of day for the lark and night for the owl, there are many features in this illustration for the shiftworker to consider. Can you identify some of them?



Shiftwork in Our Society

Recognise that shiftwork is very common.

Make a note of the advantages and disadvantages for you in working shifts.

Shiftwork has been around for a long time. For hundreds of years, bakers have worked through the night to have fresh bread ready for their customers each morning. Even ancient Rome had shiftworkers. A Roman law intended to reduce traffic congestion during the day forced tradesmen to make deliveries at night. However, thanks to Thomas Edison, the prevalence of shiftwork has skyrocketed since the industrial revolution.



Almost one in four workers works outside 'normal' daylight hours.

When Edison invented the light bulb, he predicted his invention would liberate us from the night and transform our lives. Edison probably never suspected just how right he was. We are now able to shop, bank, eat out, work out and be entertained well into the night. The price we pay for this new-found freedom, however, is the necessity of working shifts.

Shiftwork is a pervasive part of our society. In most western societies, almost one out



Shiftwork is essential in our modern economy.

of every four workers performs work outside of 'normal' daylight working hours. Shiftworkers are to be found in just about every industry including manufacturing, public safety, retail, health care, transportation, communications, mining and recreation.

Shiftworkers include people whom many wouldn't normally describe as working a shift.

One can define a shiftworker as anyone working outside of the usual 8 a.m. to 5 p.m. working day.

Ronald Heslegrave, one of the authors of this book, recently conducted a study of a group of air traffic controllers working different shifts. The worst performance, as expected, was by those working overnight. Surprisingly, the next most affected group was comprised of those on the so-called 'day' shift. This group started work at 6 a.m. To be at work on time, some needed to wake up as early as 4:30 a.m., clearly interrupting their night's sleep. By the same token, someone working in a corner store from 3 p.m. to 9 p.m. and getting to bed before 11 p.m. might be thought of as having a reasonable sleep routine. However, in terms of time away from family and social activities, that person may suffer many of the problems associated with shiftwork.

Shiftwork is likely to become even more prevalent in a society with modern communications and a global economy. The increase in the number of people society has to support has led to more 24-hour operations. Demand for goods and services now comes from around

the world, 24 hours a day, and businesses must be ready to meet them. To be competitive and survive in the global marketplace, companies often have no choice but to schedule night or around-the-clock shifts. Companies feel they have to maintain operations 24 hours a day in order to keep up with local and international competitors. For example, over-night mail sorting speeds the



International communication is increasing the demand for 24 hour services.

movement of mail, helping make business communications more efficient. Twenty-four-hour call centres are now being taken for granted, increasing the time available in which to do business and the need for shiftworkers. Technological innovations and competitive pressures have led to workforce reductions in many industries and flatter management structures. This has made companies reluctant to hire new workers, and decreased opportunities for workers to move out of shiftwork and into daytime jobs.

WHY WORK SHIFTS?

The vast majority of people work shifts because they have to, not because they want to. However, there are benefits in shiftwork as well. People choose shiftwork for reasons such as family responsibilities. Shiftwork allows time for child or elder care and allows young people to work at night and attend school during the day. Some people also like to work shifts because there is less management supervision and a special feeling of camaraderie with fellow workers.

Some mention other advantages such as extra days off and free time during regular business hours when banks and government offices are open. Other people with night owl temperaments simply enjoy being active at night.

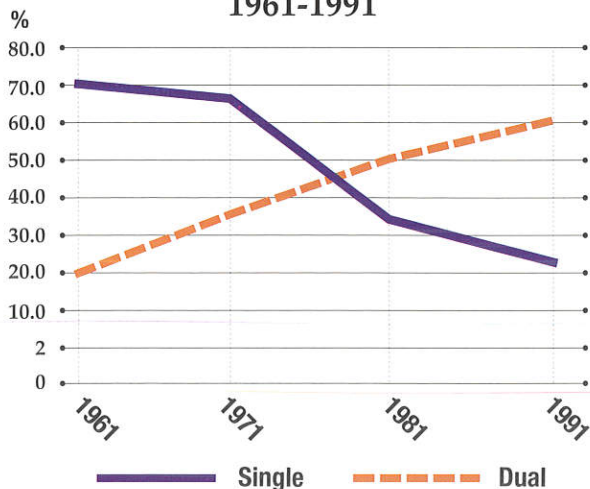
THE CHANGING PORTRAIT OF FAMILIES

As we consider how shiftwork affects our family life, we need to realize that families today are very different than they were in the past. This means that some of the information from earlier studies about the impact of shiftwork on families does not apply very well anymore.

For example, in Canada, Statistics Canada gives us a profile of today's families:

- ⊗ In 1961, 3 out of 4 families were 'typical' with a male breadwinner and a female homemaker. In 1991, this represents less than one in five families.
- ⊗ Common-law unions have increased over 100% from 1981 to 1991. One out of ten families is a common-law household.
- ⊗ One half of single mothers with children under 16 years old are in the workforce.
- ⊗ More than one out of every ten families is a single parent family. One child out of six is raised by one parent.
- ⊗ Almost one quarter of Canadian households have people who live alone.
- ⊗ There is a dramatic increase in families where both parents work. Two income families now represent over 60% of 'nuclear' families (two parents with children). This trend is illustrated in the graphic below.
- ⊗ About a third of all marriages end in divorce.
- ⊗ There is an increase in the number of 'blended' families (with children from previous unions).
- ⊗ Families move more and then there is less support from relatives and friends.

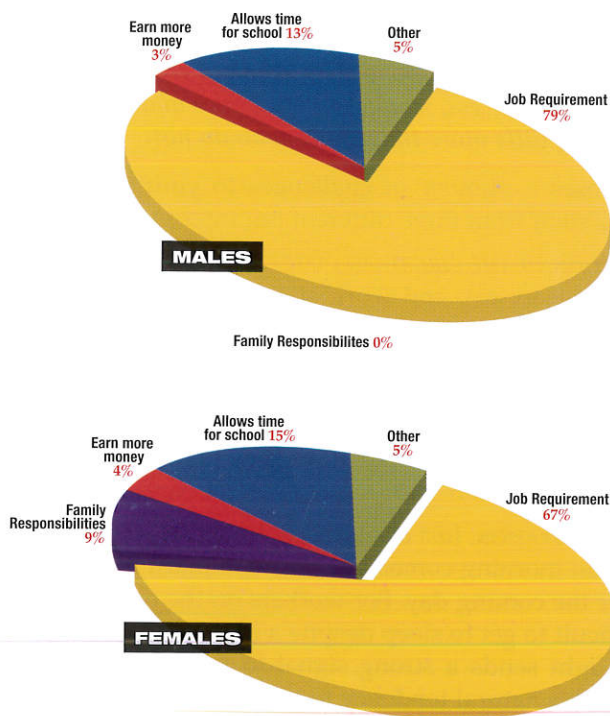
Single-earner & Dual-earner families 1961-1991



There are increasing demands on all families. Families face three, often competing, pressures: caring for children, caring for aging parents and trying to maintain an adequate income often requiring that two people work. According to a 1992 survey of families, one-third say they are constantly under stress trying to do more than they can handle. The Institute of Child Health says we are a society of exhausted workers where time is an elusive commodity – time for children, time for relaxation, time for community involvement and time for sleep. Do any of these sound like your family's situation?

Lack of time and sleep are issues for all families (we coined the term 'Toronto syndrome' for people living active lives – trying to squeeze too much into the day and cutting into sleep time).

Main Reasons for Working a Shift Schedule



People work shifts for a variety of reasons.



How Does Shiftwork Affect Your Health?

Shiftworkers suffer from a higher frequency of gastro-intestinal problems and cardiovascular disease than do their day-working colleagues.

Studies show that shiftworkers who drink a great deal of caffeine may use alcohol to excess, smoke more tobacco and tend to use drugs such as sleeping pills more than those who do not.

Shiftwork poses a number of challenges to your mind and body. These effects stem from three different but interrelated sources:

1. DISRUPTION OF THE CIRCADIAN CLOCK. Our body or *circadian* clock expects us to sleep, eat, and work at specific times of the day and signals our body to prepare itself for these activities at the expected times. When we radically alter the times we work or sleep, the body is unprepared and can make it difficult for us to do as we wish. At night, our bodies prepare for sleep by lowering internal temperatures and changing hormonal balances. If we need to work at night, then we have to battle against our body's actions to prepare itself for sleep.

2. SLEEP DEPRIVATION. Just as our body clock tries to help us to sleep at night, when morning comes, the body prepares itself to be awake and alert for the coming day. For workers on the night shift, this can make it difficult to get to sleep despite a long and tiring night on the job. Bright light sends a strong signal to the body reinforcing the circadian clock's natural tendency to awaken us in the morning.

Sleeping during the day can be made more difficult by disturbances at home. A ringing telephone, outside traffic, children

playing, visitors at the door and other common daytime events make it difficult to fall asleep and stay asleep.

3. DISRUPTION OF FAMILY AND SOCIAL LIFE. Even though almost one-quarter of the workforce in Western societies works shifts, our society is still structured for people who work during the day, enjoy leisure activities in the evening and sleep at night. Working nights and sleeping days puts you out of sync with the rest of society. It can be difficult to find time to be with your partner, children and friends. One of the most frequent complaints of shiftworkers is the impact of their work schedule on their family and social relationships.



The shiftworker is constantly pulled in many different directions by: work, family, recreation and leisure activities, and domestic chores going round the clock.

Sleep deprivation can make one irritable and moody around loved ones. A shiftworker's inability to spend relaxed time with family members can lead to a breakdown in his or her relationships. Sometimes the shiftworker tries to over-compensate for loss of family time by doing extra domestic chores. Such admirable intentions nevertheless encroach on sleep time and reduce sleep.

Individuals differ considerably in the ease with which they adjust to shiftwork. If you are experiencing these problems, then knowing about their causes can help you to implement effective strategies to become a healthier, happier worker. Finally, shiftworkers usually do not work shiftwork by choice and therefore the feeling of lack of control in their situation may well add to their feelings of life stress.

ON THE JOB

JOB PERFORMANCE

Ignoring your biological clock and biological rhythms can hurt your ability to work safely and effectively. Many studies in partial and total sleep deprivation have shown that alertness is at its lowest ebb between 2 and 6 a.m. Manual dexterity, recognition, and reaction times are at their worst during this period.

JOB SAFETY

Some of the most serious international accidents in the past 20 years have been attributed to the fatigue of shiftworkers working through the night. The oil spill from the *Exxon Valdez*, the accident at Three Mile Island, and the tragic gas leak in Bhopal, India, all occurred at night between midnight and 6 a.m. Fatigue-related transportation accidents on our roads, railways, and in the air dramatically rise during the so-called 'zone of vulnerability' between midnight and 6 a.m. (see Chapter 8).

Eighty to 90 percent of shiftworkers express concerns about fatigue or drowsiness at work. Feeling fatigued can be described in various ways: exhaustion, burnout, lack of energy, lack of strength, or feeling sleepy, tired, irritable or weary. Sleepy workers tend to have slower reaction

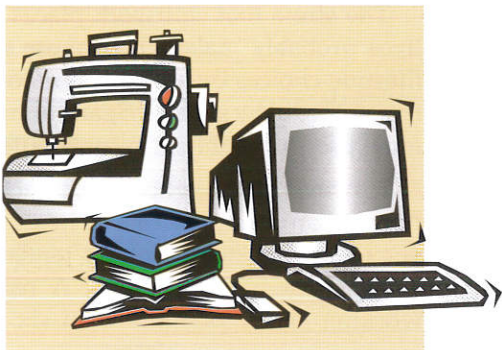


Burnout, lack of energy and strength (especially in older workers) or feeling sleepy and tired are some of the effects of disrupting natural biological rhythms.

times, to miss signals, warning lights or other indications of trouble, to misinterpret instructions, or to respond inappropriately to correctly perceived signals such as slowing down when told to speed up. Shiftworkers' increased susceptibility to accidents on the job or on the drive home is a serious concern. Errors on the job will decrease your effectiveness and productivity. Worse, accidents can hurt you and your colleagues.

MOONLIGHTING

One common error made by shiftworkers is that they see their free time during the day as an opportunity to work overtime, get a second job, or do extra work from home. These all further compromise sleep, health and family life. Ultimately, the extra earnings are not worth the cost you pay in reduced health and sleep.



Shiftworkers pay a huge price for moonlighting. Sewing at home or other moonlighting jobs that eat into sleep time simply aren't worth it.

PHYSICAL HEALTH

STOMACH TROUBLE

Shiftworkers have a greater incidence of gastro-intestinal disorders including general stomach discomfort, constipation, diarrhea, and peptic ulcer diseases. Stomach trouble for shiftworkers is probably the result of two related problems.

First, disruption of your body clock means that your body will release stomach acids and enzymes at 'normal' meal times when your work or sleep schedule might prevent you from eating. If there's no food in your stomach for these acids to break down, they can cause heartburn and more serious problems down the road.

Second, night workers tend to have poor dietary habits. It can be difficult to find high quality, nutritious meals in the middle of the night. Instead, workers resort instead to unhealthy fast foods, pop, and snack foods from convenience stores and vending machines. Workers lost in the hustle and bustle of modern-day life often have difficulty finding time for a nutritious meal or even less time to prepare quality foods to bring from home (see Chapter 15). Poor eating

habits can make you feel tired, slow down your thinking, and generally make it difficult for your body to cope with stress.

HEART TROUBLE

Shiftworkers have a moderately higher incidence of cardiovascular disease. It is unclear why this should be so, but it is known that heart functions such as blood pressure and heart rate follow circadian rhythms.

The stress that shiftwork places on workers' bodies and personal lives probably makes them more susceptible to heart disease. Poor lifestyle choices by shiftworkers to help cope with the difficulties of their schedule – such as cigarette smoking, alcohol, fast food and caffeine use – probably also contribute to cardiovascular disease.

However, even when these factors are taken into account there remains an increased rate of heart disease in shiftworkers. The danger of having heart trouble tends to increase with the number of years spent working shifts. A recent study indicated that nurses working shifts for more than six years experienced a 60 per cent increase in heart problems.

PHYSICAL FITNESS AND GENERAL WELL-BEING

Shiftworkers often complain that they generally feel unhealthy and suffer from moodiness, irritability and depression. These are not surprising complaints given that the poorly adjusted shiftworker may be sleep deprived, 'jet-lagged', prone to make errors on the job, experiencing family trouble and suffering from indigestion. These problems are made worse by poor physical fitness. The complex demands on shiftworkers' free time make it even more difficult to find time for regular exercise.

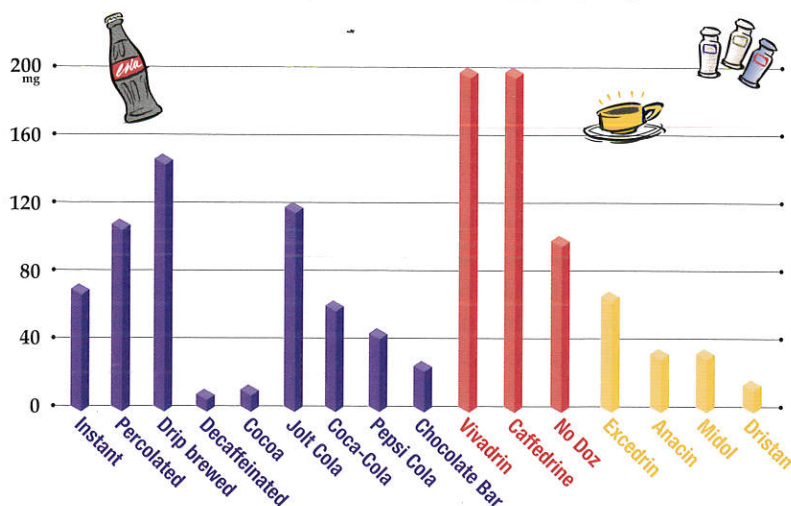
DEPRESSION

In recent years scientists have learned that loss of sleep can lead to depression. While many people become depressed even though they work so-called 'normal' hours, shiftworkers can become depressed for reasons including loss of sleep, the relative lack of usual social supports and disruption of normal biological rhythms. This may be a big problem with shiftworkers working rotating shifts.

CAFFEINE, ALCOHOL, AND TOBACCO

Several studies suggest that shiftworkers who drink a great deal of caffeine may use alcohol to excess, smoke tobacco more than non-shiftworkers and tend to use drugs such as sleeping pills.

Common Sources of Caffeine



Caffeine can be found in various concentrations in a large number of products.

Caffeine is found in coffee, tea, cola, chocolate products and some medications. People take caffeine-rich drinks in order to stay awake but there are a number of risks associated with too much caffeine. Some of the side effects include: difficulty in getting to sleep and staying asleep; digestive problems such as diarrhea, constipation, and heartburn; loss of body water due to caffeine's diuretic properties; anxiety and nervousness and an increase in the heart rate.

Alcohol is a widely abused drug in our culture. Many people use alcohol to relax and to help them sleep. For most shiftworkers, though, the problem is not getting to sleep but the length and quality of sleep. Alcohol interferes with both the duration and depth of sleep. Alcohol's diuretic effect can also interrupt sleep by waking you up for trips to the bathroom. It is a mistake to use alcohol to try to help you sleep. There are better solutions (see Chapter 9).

Tobacco is another highly addictive substance. Smoking may seem to help one stay alert in the short term, but ultimately it deprives the body of oxygen and makes a person more tired. On average, smoking reduces sleep by about 30 minutes each night.

Shiftworkers can also become addicted to over-the-counter medications and sleeping pills. However, there are appropriate uses of sleeping pills by shiftworkers under a physician's supervision (see Chapters 9, 10, and 12).

FAMILY AND SOCIAL LIFE

FAMILY LIFE

Shiftwork can pose a significant challenge to your marriage and family life. Your working schedule can make it difficult for you to find time to enjoy the company of your partner or to spend time with your kids. Your work might also lead to tension with your partner if it makes it more difficult for you to fulfill domestic duties such as child care, maintenance, cooking, shopping, and cleaning. Non-shiftworking partners may feel that much of the childrearing, such as discipline and housework, is left up to them. A couple's social life can also suffer, even if only one member works shifts.

SEXUAL LIFE DISRUPTED

For most couples, less time together usually leads to less communication and a less satisfying sex life. Shiftwork can interfere with a couple's sex life. Most couples tend to make love at night after a relaxed evening together. If one of the partners is required to work evenings, it can be difficult to find an opportune moment for sexual relations. Also, chronic lack of sleep may mean that lovemaking is simply neglected (see Chapter 17).

LESS TIME SPENT WITH KIDS

Evening shift workers can miss out on spending time with kids since they work when the kids are home from school. By the time the evening shift worker gets home from work, the kids have gone to sleep. Night shift workers do slightly better since they tend to be awake in the late afternoon when the kids get out of school. Unfortunately, many kids' out-of-school activities take place in the late afternoon or early evening when evening workers are unavailable. Some shiftworkers do get to go with their kids on school outings, which day workers may not be able to manage.

SOCIAL ISOLATION

Most social events and community group meetings take place in the evening. A worker's schedule might prevent him or her from becoming an active participant in church groups, volunteer societies, or social clubs that always meet in the evening. This can lead to a sense of social isolation. Moreover, evening and night workers can have a feeling of simply being out of touch with the rest of a society whose members work and play at different times. Unmarried shiftworkers can find that shiftwork interferes with dating.

EXTRA CHALLENGES FOR WOMEN

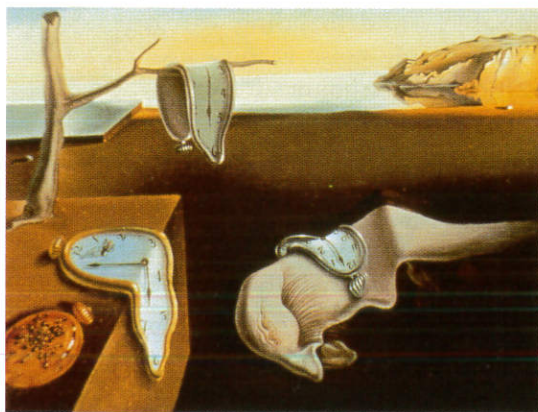
Female workers are often expected to manage the lion's share of domestic chores, and therefore must deal with an even greater workload than male counterparts and greater challenges of time management. It's almost as if women are expected to work two full-time jobs. Despite a biological need for more sleep than men, married female night workers often end up sleeping less than men because of these additional burdens. This is discussed further in Chapter 18.

INTERACTIVE EFFECTS

Many of the problems mentioned in this chapter tend to interact and reinforce one another. For example, sleep deprivation can lead to moodiness and irritability with family members, which can strain relationships that are already tense if family members feel neglected or overworked. Trouble at home can distract a worker at work and lead to a decline in working efficiency or an accident. Poor job performance combined with family difficulties and perhaps an upset stomach will inevitably create more stress in the worker's life and probably make it more difficult to sleep.

Some workers can get pulled into a negative, self-perpetuating cycle of poor family life, poor job performance, and poor health. This destructive cycle can ultimately lead to lowered self-esteem, depression, divorce, and job loss.

Fortunately, this need not be your fate. Knowing about the risks associated with shiftwork and effective strategies for circumventing these difficulties can help you to avoid this negative cycle. Parts III, IV and V of this book will provide you with a wealth of practical advice on how to overcome the particular challenges of shiftwork and to lead a happier, healthier life.



This painting by Salvador Dalí captures the surreal feeling shiftworkers can experience when their 'body clocks are in collision'.



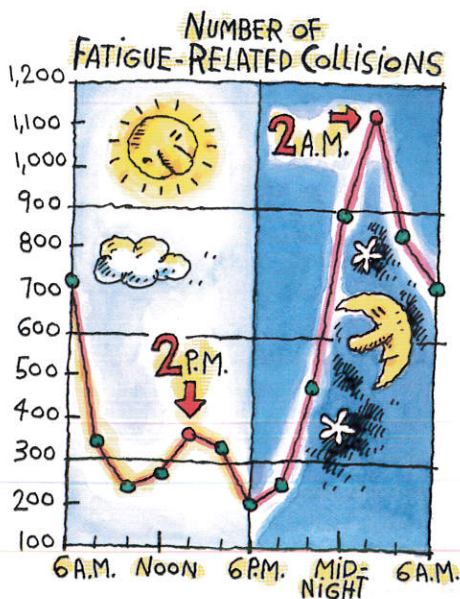
Driving Safety and the Shiftworker

The drive home is a time of particular risk for shiftworkers.

Take extra care during your drive home; travel with a friend or take public transport.

Ironically, one of the most dangerous situations faced by shiftworkers is the drive home after a long, hard night on the job. Having won the battle to stay awake all night, the drive home is the worker's first chance to unwind and to look forward to a few hours of soothing, restful sleep. The car seems to be an ideal haven from the noise and stress of work. It's warm, comfortable, undemanding, and the only noise is the soft purr of the engine. It's the perfect environment to lull you to sleep. Letting down your guard against drowsiness, even after you leave the processing plant, is an invitation for disaster.

Shiftworkers seem to be particularly prone to accidents caused by sleepiness on the drive home from work. One



Distribution of fatigue-related accidents across 24 hours.

consultant, advising companies on how to design shift systems, found that people working shifts are twice as likely to get into accidents as their day-working counterparts.

The drive home need not be a deadly risk for shiftworkers. The following information and precautions will help you to get home safely. This driving safety information has been adapted from a leaflet called *Wake Up!* produced by the AAA Foundation for Traffic Safety.

SLEEPING AND DRIVING DON'T MIX



When you are behind the wheel of a car, being sleepy is dangerous. Sleepiness slows reaction time, decreases awareness, and impairs judgement, just like drugs or alcohol. Just like drugs and alcohol, sleepiness can contribute to a collision. Most people know how dangerous drinking and driving is – driving drowsy can be just as fatal as driving drunk. A recent New York State survey showed that, in the last year, 22% of drivers reported falling asleep while driving.

DROWSY DRIVER'S QUIZ

Consider the following questions about driving while drowsy:

True or False?

- | | | |
|---|--|---|
| 1 | Coffee overcomes the effects of drowsiness while driving | <input type="checkbox"/> T <input type="checkbox"/> F |
| 2 | I can tell when I'm going to go to sleep. | <input type="checkbox"/> T <input type="checkbox"/> F |
| 3 | I'm a safe driver so it doesn't matter if I'm sleepy. | <input type="checkbox"/> T <input type="checkbox"/> F |
| 4 | Being sleepy makes you misperceive things. | <input type="checkbox"/> T <input type="checkbox"/> F |

THE ANSWERS

Coffee effectively overcomes the effects of drowsiness while driving.

FALSE

Stimulants are no substitute for sleep. Drinks containing caffeine, such as coffee or cola can help you feel more alert, but the effects last only a short time. If you drink coffee and are seriously sleep-deprived, you are still likely to have 'micro-sleeps' – brief naps that last around four or five seconds. At 100 kilometres per hour, that's more than 100 meters, and plenty of time to kill you.

I can tell when I'm going to go to sleep.

FALSE

If you're like most people, you believe you can control your sleep. In a test, nearly four-fifths of people said they could predict when they were about to fall asleep. They were wrong. The truth is, sleep is not voluntary. If you're drowsy, you can fall asleep and never even know it. You also cannot tell how long you've been asleep. When you're driving, being asleep for even a few seconds can kill you or someone else.

I'm a safe driver so it doesn't matter if I'm sleepy.

FALSE

The only safe driver is an alert driver. Even the safest drivers become confused and use poor judgement when they are sleepy. In order to be a safe driver you must have your eyes open – and that means staying off the road when you're sleepy.

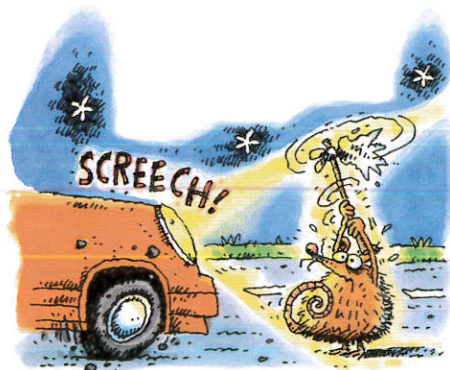
Being sleepy makes you misperceive things.

TRUE

Have you ever driven at night and seen something you thought was an animal but turned out to be a paper bag or a dead leaf? That's only one of the many ways sleepy drivers misjudge their surroundings. A drowsy driver doesn't process information as fast or as accurately as an alert driver and is unable to react quickly enough to avoid a collision.

DANGER SIGNALS FOR DROWSY DRIVERS

Here are a few ways to tell if you're about to fall asleep. Even if you are not aware of being drowsy, if you have a sleep debt you are still at risk. If you experience any



of these danger signs, take them as a warning that you could fall asleep without meaning to.

- ⊗ Your eyes close or go out of focus by themselves.
- ⊗ You have trouble keeping your head up.
- ⊗ You can't stop yawning.
- ⊗ You have wandering, disconnected thoughts.
- ⊗ You don't remember driving the last few miles.
- ⊗ You drift between lanes, tailgate, or miss traffic signs.
- ⊗ You keep jerking the car back into the lane.
- ⊗ You have drifted off the road and narrowly missed crashing.



If you experience even one of these symptoms, you may be in danger of falling asleep. Pull off the road and take a nap.

DRIVE ALERT ... ARRIVE ALIVE

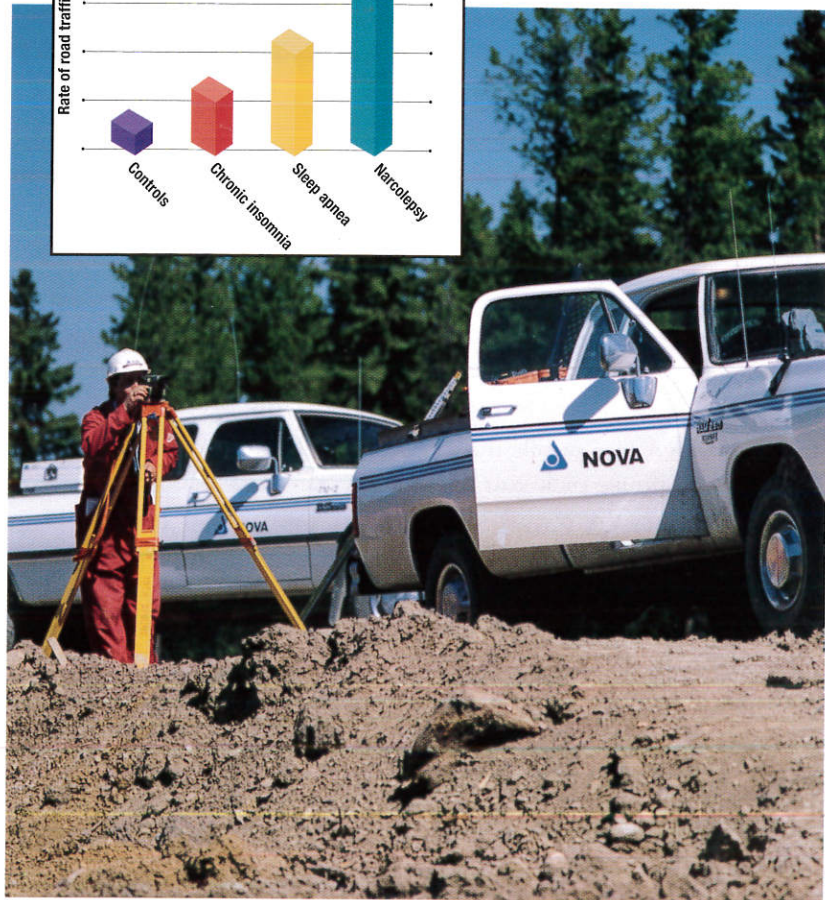
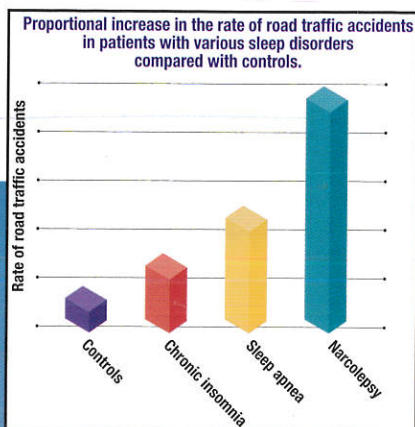
Driving, especially for long distances, reveals your true level of sleepiness. At the start of the trip the driver is still pumped up and attentive from work, but the alertness wears off once the trip is under way. Here are some suggestions to avoid driving tired:

1. Don't Drive. Use public transport, take a taxi, or arrange to have a friend or spouse pick you up from work.
2. Carpool with co-workers so that you can keep each other awake. Talk with your passengers. If you're the passenger, watch the driver for signs of sleepiness. Make sure that both people in the front of the car are awake.
3. Open a window or turn on the air conditioner. A slightly cool environment will make it more difficult to fall asleep.
4. Turn on the radio to some peppy 'wake-up' music or a talk show. Silence and monotony invite sleep.



5. Take a short nap before you head out or stop for one part-way home if you feel yourself falling asleep. A short nap can help to rejuvenate you.

Sleepiness and Driving Don't Mix





Medication Use by Shiftworkers

Let your doctor know that you are a shiftworker so he or she can ensure that your medications won't interfere with your work or sleep.

Use a pill dispenser to keep track of your medication.

Doctors and shiftworkers need to take into account the particulars of a shiftworking lifestyle when considering medication. Medication schedules are often designed to interact with natural biological rhythms. For example, some drugs are designed to be taken before bed so that their tendency to cause drowsiness does not interfere with alertness and performance during waking hours. The irregular eating and sleeping schedule of shiftworkers can limit the effectiveness of drugs designed to be taken at specific times of the day.

Your doctor will probably want to consider changing your medications or changing your medication schedule in order to synchronise your treatment with your biological rhythms.

Drugs with side effects that include drowsiness should not be given to you at night if you will be working at that time. Your doctor can prescribe them for different times or replace them with non-drowsy alternatives. Similarly, the timing of diuretic medications – 'water' medicine for things such as high blood pressure or congestive heart failure – should be carefully chosen so as not to interfere with your sleep.

Some medications work better at different times of the day. Certain anti-cancer drugs work best if they are taken right before you go to sleep since that is when cancer cells are most active. As we mentioned previously, growth hormone is mostly secreted at night. If a child has

stunted growth and has to be given extra growth hormone by injection, then this is best done at night. That way, the hormone injection can mimic the body's normal circadian rhythms. Understanding the relationship between drug effects and the circadian system is a new area of medicine, called *chronopharmacology*, which is expected to develop rapidly over the next decade.

If your schedule makes it difficult for you to remember to take your medicine, you might try buying a special dispenser with compartments for each day of the week. Alternatively, you can connect medicine time with daily activities such as brushing your teeth. Your doctor can also help by prescribing once-a-day instead of three-times-a-day medications. Your doctor can choose between equally effective once-a-day medicines and many-times-a-day medicines for a number of different illnesses.

There are a couple of exceptions to the general rule that once-a-day medication is preferable for shiftworkers. Certain drugs designed to last all day, such as decongestants for people with allergies, can cause insomnia. In these cases, alternative short-acting drugs are preferable so that the worker can stop using them as bedtime approaches. The shiftworker needs to give sleep a high priority.

CONDITION	ONCE-A-DAY DRUGS	MORE THAN ONCE-A-DAY DRUGS
Epilepsy	Dilantin (Phenytoin)	Tegretol (Carbamazepine) Rivotril (Clonazepam)
Depression	Prozac (Fluoxetine) Anafranil (Chlomipramine) Evanil (Amitriptyline)	Serzone (Nefazedone) Norpramin (Desipramine) Sinequan (Doxepin)

DIABETES MEDICATION

Usually, shiftwork is not a problem for people taking pills to control diabetes. However, it is particularly important that people with diabetes maintain regular, good, eating habits in order to avoid low blood sugar (hypoglycemic) problems. Diabetics who take insulin shots, however, are probably better off on so-called 'intensive insulin therapy' where they take three or more shots per day. By taking many shots, rather than just one, shiftworkers with irregular eating patterns are better able to control their blood sugar level. Detailed management of your diabetes should include discussing with your dietitian and doctor the fact that you are a shiftworker.

BIRTH CONTROL PILLS

Most birth control pills have to be taken daily in order to be effective. If a pill is missed, take it as soon as possible. A back-up method such as condoms should be used for the remainder of the cycle. If taking daily pills is inconvenient for workers, they can consider using alternative methods of birth control. There are certain birth control drugs given by injection that can last for a few weeks at a time. See your doctor if you are interested in this option.

SLEEPING PILLS

Shiftworkers often resort to sleeping pills to help them get to sleep when their chosen sleep time is out of sync with their circadian rhythms. While we advise against using over-the-counter sleeping pills, medication prescribed by your doctor may help in coping with shiftwork. Even prescription pills, however, should be used with caution. Sleeping pills can leave a person feeling drowsy even after they wake up. These drugs should not be taken in order to sleep in the evening immediately before going to work. They are more

Don't Self Medicate for Insomnia



Many people use over-the-counter medication, alcohol, or both to help them get to sleep. This is not advised.

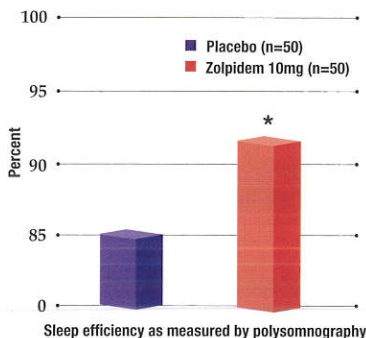
suitable for morning sleepers. Medical opinions differ on the frequency with which sleeping pills should be taken. Textbook medical advice suggests that sleeping pills should be taken only when absolutely necessary. Patients given this advice and made to feel reluctant about using these drugs sometimes suffer from anxiety over whether they'll get sufficient sleep or become drug dependent.

Consequently, some doctors recommend worry-prone patients take sleeping pills every day. Recognize, however, that daily use can lead to drug tolerance whereby greater and greater doses are needed to achieve the same effect.

The best course to follow might be a compromise where the pills are taken only on work days, with a half-dose on the last day of the working week. After a busy week on the job, you're more likely to get to sleep on your own without the aid of a full dose. This strategy can limit your intake while still helping you to get vital sleep on the days you need it most. Other people favour alternatives to prescription sleeping tablets. The best example is the compound tryptophan which occurs naturally in foods like milk and has mild sleep promoting properties. Tryptophan can be obtained by prescription as a "natural" hypnotic (see Chapter 10).

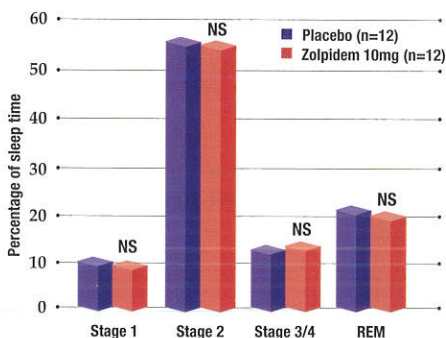
Generally, doctors advise against taking sleeping pills for any longer than four weeks at a stretch. If you have been taking sleeping pills for longer then this, we suggest that you see your doctor so that he or she can help you decide whether to continue. In certain situations, keeping a person on sleeping pills for extended periods may be indicated. Although there is no definitive regulation on the subject, we believe that the risks of having less than six hours of sleep each night are greater than the risks associated with taking the latest generation of sleeping pills (see below and Chapter 10).

**Zolpidem: Effectiveness
in Transient Insomnia**



*Significantly different from placebo ($P < 0.05$)

**Zolpidem: Effect of a Single 10 mg Dose
on Sleep Stages in Normal Subjects**



NS = no significant difference from placebo.

The graphs above show the features of a new short-acting sleeping tablet (Ambien/Zolpidem), that has the advantage of not disrupting sleep architecture as do most older sleep medications.



Melatonin and Tryptophan

It is premature to use melatonin as its safety has not yet been established.

Tryptophan is a natural food substance which may be an important sleep aid for shiftworkers.

Melatonin is a natural substance made in a part of the brain called the pineal gland. It is sometimes referred to as the 'hormone of darkness' because it is released during the night and its release is quickly switched off by exposure to bright light. As indicated in the graph on page 9, the rhythm of melatonin is generally opposite to the temperature rhythm. This means when temperature is low, melatonin is high. The initial ingredient for making melatonin is another naturally occurring substance called tryptophan. Tryptophan is an amino acid. Amino acids are the building blocks of protein and are found in food. Substances that are high in tryptophan include fish, milk, meat, and eggs.

There have been many claims about melatonin. Some of these claims have a kernel of truth, others only apply to animals when melatonin is used in extremely high doses, and yet others have absolutely no basis in reality whatsoever. The claims which have a kernel of truth include observations that in certain circumstances, melatonin may help to induce and maintain sleep. This seems to apply particularly in the elderly and in particular, those elderly individuals who have abnormally low levels of melatonin. The amount of melatonin that is secreted in a day is approximately 2 mg. The amount of melatonin secreted increases between birth and about two years of age when sleep patterns are becoming established. It

then declines steadily until the age of about 20 years after which it remains more or less constant until the age of 50 years. At that time some individuals have a further decline in the amount of melatonin secreted daily whereas others manage to maintain their released melatonin levels into old age. It is our presumption that the people who benefit from taking melatonin fall into the group who have had a decline in their melatonin secretion.

A second group of people who clearly benefit from melatonin are those who have an abnormal sleep cycle. It is thought that melatonin helps to synchronize sleep. This has been shown in individuals who are blind and in those who have a disrupted sleep and waking rhythm. Some of these suffer from a relatively rare sleep disorder where they are extreme night owls. This is known as phase delay syndrome. There are two studies, one from the U.K. and one that we carried out in Canada, showing that patients suffering from phase delay can have a more regular sleep pattern when using melatonin. Travellers also suffer from sleep cycle desynchronization commonly known as 'jetlag'. In the case of shiftwork, the role of melatonin is less clear.

One of the major problems with using melatonin is that ingested melatonin only lasts for about half an hour. Instead of getting the pattern of secretion that would normally occur, one gets the equivalent of a 'blast' of melatonin to the system and the impact of that is not yet well defined. A further problem is that there have been no large controlled studies on melatonin. The reason for this is that no drug company can patent melatonin and therefore no company is willing to invest the millions of dollars required to do proper tests to check the safety of using melatonin. For this reason, we have said that where there is a clear indication for melatonin to be used then we would support its use. Where there is no clear indication (such as using melatonin to promote sleep) then it is probably inadvisable to take melatonin. One can anticipate that in the next few years, a long-acting form of melatonin (which would be patentable) will become available and the appropriate studies will be carried out.

Some of the claims that have been made for melatonin include the fact that it increases longevity, increases sex drive, has anti-cancer properties, improves immunity and acts as a free radical scavenger. None of these are certain in humans and some might be quite incorrect.

While melatonin is probably a safe compound, it should be realized that any hormone can cause problems if taken for a long time in excessive dosages. One only needs to think of the difficulties that some athletes have had with taking steroid hormones to realize the possibility of complications from taking 'natural' hormones. Therefore, caution needs to be exercised. One authority on the subject has stated "Melatonin is a triumph of marketing over common sense."

A further problem with regard to melatonin is that the melatonin that is currently released through health food stores is of unknown purity. Therefore it may cause problems, not because of the melatonin but because of other chemicals in the compound that is purchased. With any drug, the regulating authority such as the FDA in the United States and the Health Protection Branch in Canada, certifies the purity of the prescription compound and drug companies are very closely regulated in a way in which health food stores are not. In this decade, there have been substances marketed through health food stores which led to a number of deaths, not because of the compound but because of an impurity.

Certain drugs can block the action of melatonin. In particular, beta blockers have this effect and it may be because of their action on melatonin that some beta blockers lead to impaired sleep.

TRYPTOPHAN

One of the alternatives to using melatonin is to use the precursor, tryptophan. In the case of tryptophan, there is no question about safety as this is a food substance. Tryptophan is marketed in Canada but not currently in the USA. When tryptophan is consumed, it does increase the brain levels of both melatonin and serotonin. Serotonin is a compound that is very much involved in the processes of alertness and sleep. A number of studies suggest that the consumption of a regular glass of whole milk may work on the basis of the tryptophan component of milk facilitating sleep. (In addition, there is the fact that any regular habit is likely to promote sleep.) One of the advantages of tryptophan is that it is metabolized rather slowly. When tryptophan is taken, half the amount will still be present in 6 hours and therefore tryptophan consumption acts as a slow release mechanism for melatonin: i.e. it is likely to promote sleep for 6-8 hours. By contrast, if one takes pure melatonin, only 1/1000 of the melatonin will be present at the end of six hours.



Shiftwork: Learning A New Lifestyle

Shiftwork can be an enjoyable way of living. Part of the solution is learning how to adjust.

Different strategies work for different people. You need to work out which strategies work for you and then follow them regularly.

Starting on shiftwork means embarking upon a new way of life not only for yourself but also for your whole family. Successfully adapting to shiftwork demands a team approach and includes roles for the worker, the family, and the workplace. The question you might ask is, "Where do I start?"

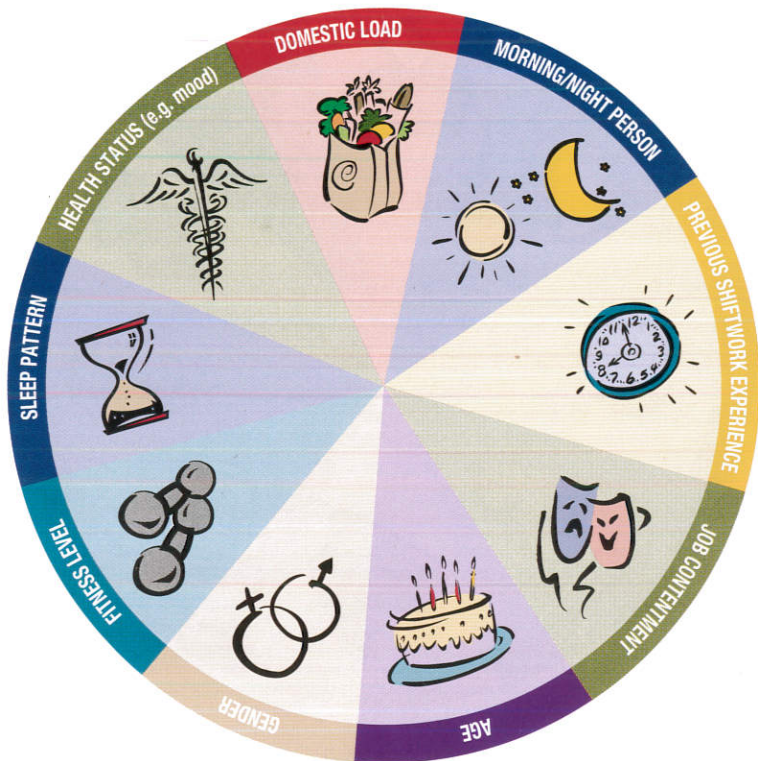
The information in the first two sections of this book is a great starting point. By understanding how your health and your relationships might be affected by shiftwork, you can anticipate potential difficulties and take steps to deal with them. It is important to recognize that there are internal and external factors which will influence your adaptation to shiftwork (see the figures on the next two pages).

If you are new to shiftwork, the first thing to understand is that adapting to shiftwork takes time. This is true for dealing with any change in our lives such as a new job, a family move, or a new baby. Also, remember that the ease with which individuals adjust to a shiftworking lifestyle varies considerably from person to person.



**A great attitude
is one of your best tools!**

It is essential that you involve your family and friends in helping with your adjustment. Shiftwork will not only change your lifestyle, it will affect your family's lifestyle. Share the information in this book with your family. If your family and friends have a better understanding of shiftwork it can help them to be considerate of your sleep schedule, more flexible in their plans, and generally helpful during your time of change.

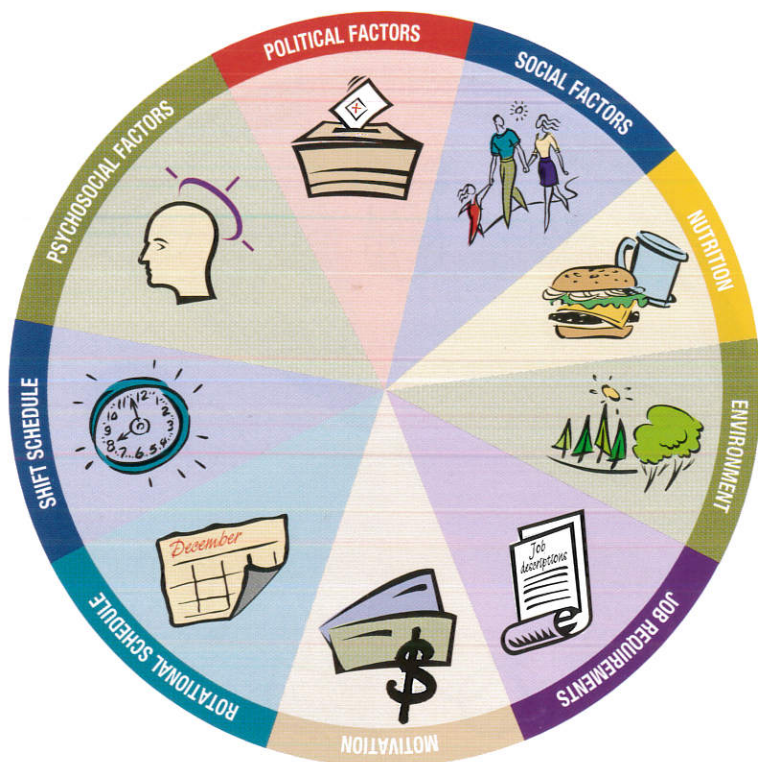


The following internal factors influence one's adaptation to shiftwork: Gender, Fitness Level, Sleep Pattern, Health Status, Domestic Load, Morning/Night Person, Previous Shiftwork Experience, Job Contentment, Age.

WHAT CAN I DO?

You are a key instrument of change in your life. The focus of this book is on what you can do to help yourself and to help others to understand your situation. Using some of the individual coping strategies suggested here is a good beginning. Start with the things you have some control over. Leading a healthier lifestyle, becoming more

physically active, paying attention to your diet, to alcohol and caffeine consumption, reducing smoking and dealing with stress in more effective ways can help you and your family adjust to your new schedule. Many of the tips in this book come from the real experts – experienced shiftworkers.



The following external factors influence one's adaptation to shiftwork: Rotational Schedule, Shift Schedule, Psychosocial Factors, Political Factors, Social Factors, Nutrition, Environment, Job Requirements, Motivation.

WHAT CAN WE DO AS A FAMILY?

Families can be defined as any group of individuals living together who demonstrate affection, loyalty, and durability.

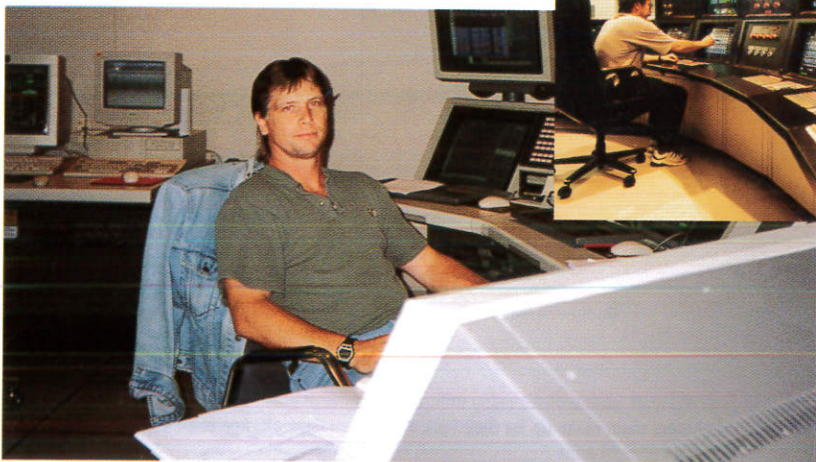
Families deal with change all the time and develop coping strategies that work for them. All family members need to understand what impact shiftwork may have on themselves and on other family members. With a parent working steady nights, what does that mean for the noisy toddler or the active youth with many friends? What

about the partner's social life? Chapter 17 will discuss the effects of shiftwork on families and suggest practical tips for families learning to live with shiftwork. Chapter 18 deals with shiftwork implications specific to women. Cultural differences between groups will influence how people negotiate changes in their lifestyle and what changes are acceptable. This complex issue merits detailed consideration by each family member.

A NOTE ABOUT THE WORKPLACE:

The workplace has a role to play in helping the workers and their families adjust to shiftwork. Management has a responsibility to promote shiftworkers' health by offering shiftwork workshops, resources such as this book, and videos that can be shared with family and friends. In addition, support services such as an after-hours cafeteria, 24-hour day care, access to physical fitness facilities, safety in the parking lot, and a company carpool to take workers home, can make a major difference in workers' lives. Having access to a shiftwork clinic, especially if it is onsite, can be very helpful. One of the most important things management and unions can do is to develop a workplace sensitive to the needs of shiftworkers and their families. Strategies can include adequate workplace lighting to maintain alertness on the job and sensitive scheduling to maximize the amount of 'time off' available to spend with family and friends. Consideration can be given to having areas conducive to sleep if strategic napping is used as a strategy. This is dealt with in more detail in Chapter 19.

Work light – good and bad.





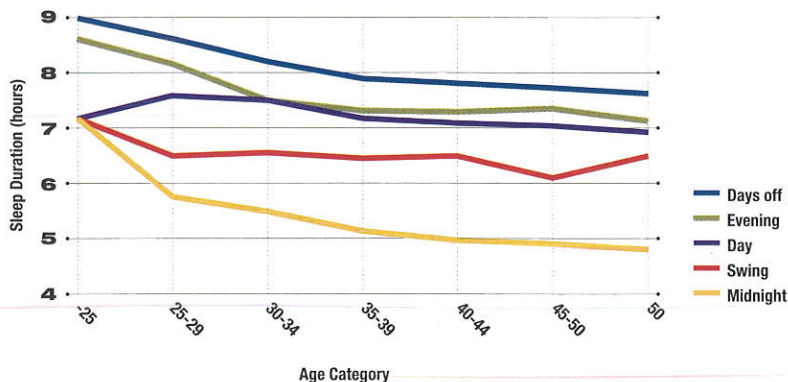
Good Habits for Getting to Sleep and Staying Asleep

Good bedtime habits can improve your sleep.

Complete the sleep hygiene quiz at the end of this chapter. Choose two or three ideas from the quiz for improving your sleep. Make these changes and stick to that pattern for one month, then re-evaluate the quality of your sleep and daily performance.

Many of the problems people have adjusting to shiftwork stem from difficulties with sleep. Fortunately, sleep specialists have found many ways to make it easier for you to get to sleep and stay asleep.

**Hours of Sleep During Different Shifts
for Each Age Group**



Depending on the shift, shiftworkers enjoy different amounts of sleep as shown in the illustration above. Shiftworkers must make up for their lack of sleep on days off. Age is an important factor, especially on the midnight shift.

WHEN TO SLEEP

Sleep specialists are divided over whether it is best for night workers to go to sleep immediately after their shift or to delay their sleep until the afternoon and evening. The chart below outlines the advantages and disadvantages of the alternatives. Researchers agree, however, that whichever time you feel is better for you, you should stick to the same schedule every day in order to train your body clock to prepare you for sleep at that time. Consider the following advantages and disadvantages of sleeping at different times of the day:

Sleeping in the Morning Immediately After the Night Shift is Over

ADVANTAGES	DISADVANTAGES
<ul style="list-style-type: none"> > Possible to avoid daylight (sunlight sends a strong signal to your body to stay awake) > Likely to sleep longer (your sleep will overlap with the body clock's afternoon drowsy time) > Will be awake in the afternoon and evening when friends and family tend to have free time 	<ul style="list-style-type: none"> > There may be a feeling of not enough wind-down time before bed > You may have family commitments for the morning (e.g. getting the kids off to school) > It breaks the 'normal' pattern of work, followed by personal time, followed by sleep > Avoiding morning light may not be realistic

Sleeping in the Afternoon or Early Evening Before Going to Work

ADVANTAGES	DISADVANTAGES
<ul style="list-style-type: none"> > Sleeping before going to work may help you to feel fresh and well-rested on the job > Easier to make the transition to sleeping all night on your days off > Easier to make this a permanent sleep pattern for work days and holidays 	<ul style="list-style-type: none"> > Early evening is one of the natural alert times dictated by the body clock; this makes it more difficult to sleep at this time > Social and family demands are highest at this time

Clearly, there are advantages and disadvantages to both times of sleep. Choose the one that looks like it will best suit your needs and then stick with it. If it doesn't work well for you after at least a month then consider switching to the other sleep time. For morning sleepers, a short nap late in the day will improve alertness on the job.

SLEEP ENVIRONMENT

The place where you sleep has a strong influence on how well you sleep. Consider the following aspects of your sleeping environment:

DISTURBANCES. It is essential that you are able to get a solid six or more hours of sleep each day, preferably all at the same time. Once you have chosen your daily sleeping time, you must let your family and friends know that you will not be available at this time except in emergencies. Unplug the phone in your room, don't answer the doorbell, and make it clear that you are unavailable to run errands or to accept a doctor's appointments. No one would dare wake someone up in the middle of the night unless it was very important; as a day sleeper, you should be given the same courtesy.

LIGHT. As we discussed in Part I of this book, light is a powerful zeitgeber that signals your body that it's time to be awake. In order to protect your sleep, make your sleeping room as dark as possible. Consider installing heavy drapes (see Appendix) or covering windows with styrofoam, aluminum foil, or black cardboard. If you can, try to avoid light on the way home from work. Leave before sunrise or wear dark glasses on the way home. Once home, don't turn on the lights and, if practical, go straight to bed. If you have to visit rooms other than your bedroom to prepare for bed, consider blocking out sunlight in those rooms as well.

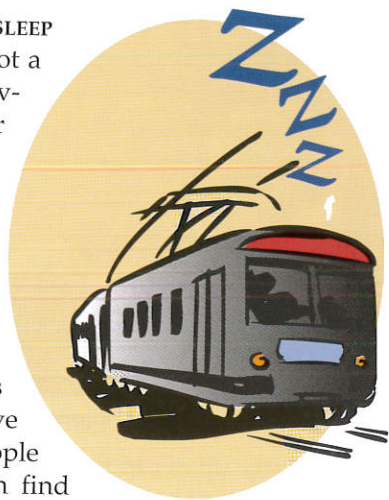
NOISE. If loud, sudden noises tend to wake you up or prevent you from getting to sleep then consider installing soundproofing or buying a pair of earplugs. Some people like to have a soft, constant noise in the background while they sleep. If so, an air conditioner or a fan can help. Recent research shows that while noise may not wake you up, it can alter the depth of sleep, leaving you tired the following day.

TEMPERATURE. Experiment with your sleeping temperature until you find the one that works best. Generally, a room that is too hot (above 24°C or 80°F) or too cold (below 17°C or 65°F) interferes with sleep. You can vary your sleeping temperature by experimenting with heaters and air conditioners as well as varying the clothes you wear to bed and the number of blankets you use. Temperature control can be especially important in the summer as the morning sun can heat your home to a temperature that will make sleep very difficult.

BEDS. An excessively hard surface might disturb your sleep. Otherwise, different people prefer very different kinds of beds. Explore which kind of surface works best for you.

GENERAL STRATEGIES FOR BETTER SLEEP

NAPPING. Generally, napping is not a good idea for people who are having problems with sleep. But for shiftworkers, other considerations come into play. Firstly, napping might be essential to allow shiftworkers to get a minimum of six hours sleep per day. Secondly, a nap in the latter part of the day will boost alertness over the night shift. If daily naps are a good thing for you then have one every day or not at all. People who nap only occasionally often find that they do not sleep well the next time they go to bed.



RESPECT YOUR BEDTIME. Make it a rule to always wear bed clothes and to sleep in your bed. Sleeping in your work clothes in front of the TV just because it happens to be daytime is a big mistake.

DEVELOP REGULAR BEDTIME HABITS. Try to go to bed and get up at the same time each day. One way of training your mind and body to expect sleep is to develop a routine for going to bed. For example, you might take a warm bath or a shower, brush your teeth, change into your bed clothes, set your alarm, practice a relaxation technique, then turn off the lights. Do whatever works best for you, but do the same thing every time that you go to sleep.

LEARN TO RELAX IN BED. Learn to associate lying in bed with a relaxed mind. If you go to bed and find yourself worrying about things, get out of bed and do a quiet activity until you feel drowsy. If you are tense, deep-muscle relaxation can help you. Clench your fists and feel the tension for a few seconds, then quickly relax your fists and feel the change. Repeat for your abdominal area and then your legs. Take deep, slow, rhythmic breaths to help you relax. There are audio tapes that can aid relaxation (see the Appendix and Chapter 14).

If worrying keeps you awake, set aside a fifteen minute 'worry period' for the same time every day (perhaps after dinner). Be strict and make sure that you focus all your worrying into this time. Remind yourself about this worry period if you wake up to solve your problems in the middle of your sleep. Remember that you're not really alert enough to resolve problems well when you're half asleep.



Good bedtime habits are particularly important for shiftworkers.

If you wake up or can't get to sleep, try to remain in bed and relax. If you feel yourself becoming tense and frustrated, don't just lie there. Read if this relaxes you or get up and enjoy a quiet activity to prepare yourself for sleep again after about 20 minutes. Do this in the dimmest light possible. Give yourself 30 minutes in bed before repeating this cycle.

A note on alarm clocks. Many people find that they get poor sleep if they are worried about whether their alarm clock will wake them. Make sure you have a reliable alarm clock with a battery backup. Remember bedtime, no matter what time of day, is for sleeping, not worrying about getting up. A recent study demonstrated that if people are concerned about the possibility of having their sleep interrupted because they were 'on call', they got less sleep in total and poorer quality sleep (less restorative sleep).

Don't label yourself an 'insomniac.' Most people have difficulty sleeping now and then. If you call yourself an insomniac, you could develop problems simply because you expect to. Try not to have negative thoughts about your sleep. A person who tells herself, "I must get a good sleep or else I'll be a wreck later.", is more likely to suffer than someone who thinks, "Even if I don't sleep now I will still be able to function."

SLEEP HYGIENE CHART

The chart on the next page provides a list of behaviours that can affect the quality of your sleep. Fill out the chart. Select two or three items in the 'bad' column and change those behaviours. In a few weeks, re-evaluate your sleep and alertness, using the charts in Chapter 5.

Sleep Hygiene Chart

CIRCLE EACH RESPONSE THAT APPLIES TO YOU	<u>GOOD</u>	<u>BAD</u>
1. Do you wake at the same time each day?	Yes	No
2. Do you exercise each day?	Yes	No
3. Do you set aside time daily to deal with stress, e.g. to list next day's tasks?	Yes	No
4. Do you have time to unwind before bedtime?	Yes	No
5. Do you have regular behaviours before bedtime, e.g. light snack?	Yes	No
6. Do you have a hot shower or bath before bed?	Yes	No
7. Do you go to bed when drowsy?	Yes	No
8. Have you discussed with your doctor any outstanding medical issues which may affect your sleep?	Yes	No
9. Is your bed comfortable?	Yes	No
10. Have you considered whether your bed partner is negatively affecting your sleep?	Yes	No
11. Is your bedroom secure?	Yes	No
12. Is your bedroom quiet and cool?	Yes	No
13. Is your bedroom dark?	Yes	No
14. Do you exercise close to bedtime?	No	Yes
15. Do you have much caffeine in a day?	No	Yes
16. Do you have any caffeine less than five hours before you go to sleep?	No	Yes
17. Do you smoke?	No	Yes
18. Do you smoke less than three hours before bed?	No	Yes
19. Do you have much to eat within the two hours before going to bed?	No	Yes
20. Do you consume much fluid within the two hours before going to bed?	No	Yes
21. Do you drink alcohol within the two hours before going bed?	No	Yes
22. Do you occasionally nap in the day?	No	Yes
23. Do you take non-prescription drugs?	No	Yes
24. Is sexual tension preventing you from falling asleep?	No	Yes
25. Do you engage in any stimulating activity before sleep, e.g. watching TV, sexual intercourse (for some), arguments?	No	Yes

TIPS FOR MAKING YOURSELF DROWSY

Here are some ideas for those times when sleep is slow in coming. No doubt you have a few ideas of your own to add to this list:

- ⊗ Try 'counting sheep'. Counting or imagining anything repetitive will also help to send you to sleep. Repetition is soothing and hypnotic.
- ⊗ Go around your home (in your mind's eye) straightening all the pictures. When you finish, start again.
- ⊗ Create an ending to a movie or compose a short story. Repeat the same story every night.
- ⊗ Imagine yourself in the midst of a tranquil scene, perhaps amongst mountains or near a quiet lake.
- ⊗ Squint your eyes in the dim light and focus on an object in your room. Try to close your eyes as much as possible while keeping focused on the barely visible object. For some, closing their eyes switches on all sorts of thoughts of things they should do. This technique will solve this problem.
- ⊗ Read a boring book – something you can leave at any moment.
- ⊗ Visualise a blackboard. If anything appears on it, rub it off!
- ⊗ Think of five things you can see in your room, five things you can hear, and five things you are aware of. Repeat the above with four items in each category. You can reuse items. Repeat with three, two, and then one item in each category.
- ⊗ If you are unable to sleep after 30 minutes of trying one of the previous suggestions get out of bed and try one of these activities:
 - Make a list of all your concerns then put them aside to deal with the following day.
 - Organise and rewrite your recipe box, address book, or photo album or a task you find boring
 - Listen to soothing music or a relaxation tape.
 - Take a warm bath.
 - Do any repetitive task such as knitting, needlepoint, dusting off your book shelf, or straightening your closets.

Hopefully, some of these suggestions will help you to fall back to sleep. Even if they take some time, at least you will have spent your time awake positively and productively.



Tips for Staying Alert and Keeping Safe

Control your exposure to light: bright lights at work, complete darkness for sleep.

Eat healthy meals and exercise frequently.

A major focus of adjusting to shiftwork is creating a daily routine in order to reset your circadian clock in accordance with your working schedule. If you can shift your internal clock to match your desired schedule, then half the battle has been won. A properly aligned circadian clock will help you to sleep when you wish, be alert on the job, and avoid the hazards of sleep deprivation.

One of the big advantages of the permanent shift, as opposed to the rotating shifts common in many workplaces, is that permanent shifts make it possible to sleep and work at the same time every day. This is a tremendous help in making it possible to adopt a regular routine.

STAYING ALERT ON THE JOB

LIGHTS. Light can be a great help in adjusting your body to a shift-working schedule. Light acts as a powerful zeitgeber telling your body clock that it is time to be awake and alert. Try to ensure that your workplace is brightly lit. Ordinary bright office lights with an intensity of about 200 lux, equivalent to the level of natural light at dawn, are sufficient to signal the body clock that it is time to be awake. The brighter the workplace, the better.



Try to avoid sustained exposure to bright light on the drive home.

THE DRIVE HOME. While sustained exposure to bright light at work will help keep you awake, you want to avoid the much brighter natural light of the sun on the way home from work or else your body will try to keep you awake. If necessary, wear dark glasses on the drive home if you are using public transport or if you are a passenger in someone's car. If you are driving, you should wear dark glasses only if you think you are still able to drive your car safely.

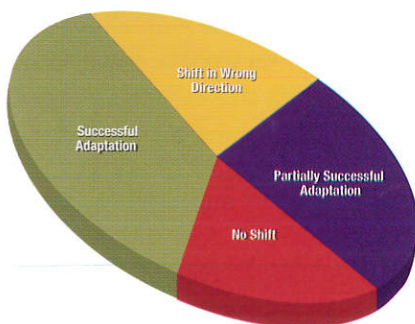
Recently, researchers in Boston and Melbourne have claimed that even dim indoor light may have an effect on the body clock. It is important to realise that the body is not equally sensitive to light at all times of the day. Dawn light is especially powerful in altering the body clock. Thus it is critical for a night worker to avoid the light during the drive home if at all possible. A team from Oregon have found that evening light may help some people adapt to a new routine. Their results further suggest that some people adapt well, some not at all, and for some the addition of melatonin may help them to shift their body rhythm.

KEEP YOUR LEVEL OF INTEREST UP. It's difficult to stay alert and awake when doing boring, repetitive, simple work. If possible, try to save your more challenging work for the hours when your body clock will be particularly intent on sleep (2 to 6 a.m.). If you feel like dozing, try to stimulate yourself by asking questions, making comments, or taking notes. Try to move around while you work or do some of the on-the-job exercises described in the box on the next page.

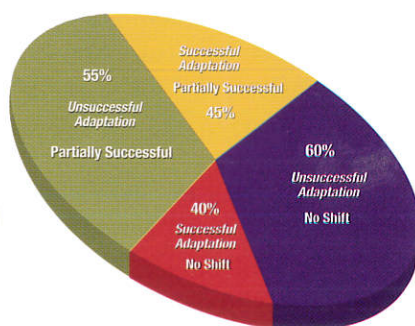
AVOID CONDITIONS CONDUCIVE TO SLEEP. Consider the conditions that are conducive to sleep: a comfortable chair, warm air, and a steady, repetitive hum in the background. Try to avoid this sleep trap by standing up, walking around, keeping the room temperature slightly cool, and listening to lively music or radio discussions. 'Talk' radio is very helpful for keeping your mind focused. Chewing gum might also help. Some researchers even believe that certain aromas, such as spearmint, help to prevent drowsiness. Basically, sleep prevents sleepiness. A nap before work is the best strategy as well as ensuring that you get enough sleep. Do remember that for the first 15-20 minutes after you wake you may not function at your best.

Adaptation to Shiftwork

Natural Adaptation (Without Melatonin)



Natural Adaptation (With Melatonin)



Only one-third of those who must adjust to shiftwork are successful in doing it on their own. Another 20 per cent are somewhat able to adjust to a new shift. However, 29 per cent of shiftworkers do not make the adjustment and for 16 per cent, their body clocks shift in the wrong direction. As shown in the pie graph right, after using melatonin, 45 per cent of those workers who were only partially successful initially, were able to fully adjust as well as 40 per cent of those who showed no shift initially. (Personal Communication, Robert Sack.)

The following on-the-job exercises were designed by the American College of Sports Medicine to help make you feel more alert and comfortable while you work.

FINGERS. With palms down, spread your fingers apart as far as you can. Hold the count for five. Relax. Repeat.

KNEE KISS. Pull one leg to your chest, grasp with both hands, and hold for a count of five. Repeat with opposite leg.

MIDDLE-UPPER BACK STRETCH. Raise your right arm and grasp it below the elbow with your left hand. Gently pull your right elbow toward your left shoulder until you feel the stretch. Hold for five seconds. Do both sides.

QUADRICEPS. Bring your legs straight out in front of your body, and then hold them in that position for five seconds. Make sure you are sitting up straight. Relax. Repeat.

SHOULDER ROLL. Slowly roll your shoulders forward five times in a circular motion using your full range of motion. Then roll your shoulders backward five times with the same circular motion.

NECK. Let your head drop slowly to the left, then to the right. Slowly drop your chin to your chest, and then raise your chin as high as you can. Turn your head to the left, return it to the normal position, and then turn it to the right.

SIDE STRETCH. Interlace your fingers. Lift your arms over your head, keeping your elbows straight. Press your arms backward as far as you can. Then slowly lean to the left and then to the right until you can feel stretching.

PECTORAL STRETCH. Grasp your hands behind your neck and press your elbows back as far as you can. Return to the starting position, then drop your arms and relax. Repeat.

BACK RELAXER. Sit on chair. Bend down between your knees as far as you can. Return to the upright position, straighten, and relax.

WINDMILL. Sit on a chair. Place your feet apart on the floor. Bend over and touch your right hand to your left foot with your left arm extended up. Switch sides repeatedly.

MAINTAIN HEALTHY EATING PATTERNS. Adopting regular, healthy eating patterns will lessen the likelihood of stomach pains and help to make you more alert and energetic. Have a good, nutritious meal before you begin your shift. If the cafeteria at your workplace is closed during your shift, or does not offer healthy alternatives, then pack a meal from home. Have a light snack during your most sleepy hours (2 to 6 a.m.). Eating in social situations also helps to promote better alertness. One or two cups of coffee or cola to give you a caffeine kick are fine for the first part of your shift but is counter-productive and unhealthy if used in excess. Avoid caffeine during the last part of your shift since it will interfere with your sleep.

NAPPING. Carefully planned naps can help rejuvenate and reinvigorate you and keep you going for a few more hours. Some famous leaders who got by on very little sleep, as did Winston Churchill,



Sometimes a nap before you drive home might prevent a tragedy, but if you plan to nap, do it properly!

were in the habit of taking naps during lulls in their day. Naps can be a hazard, though, if they are taken at inappropriate times or allowed to last for too long. Too many naps will ultimately interfere with your ability to have a sustained period of deep sleep following your shift. Naps are best taken just before your shift begins, and during a break in the first half of your shift. Aim for a nap of 20 to 30 minutes. You should allow a few minutes after waking up from naps for your sleepiness to pass so that you are fully ready for work again. This short period of impairment is called sleep inertia. On waking up from deeper levels of sleep, you may feel groggy and lethargic

rather than refreshed. Sleep will help your alertness level on the job. The advantages and disadvantages of different napping strategies were discussed in further detail in Chapter 12.

GENERAL LIFESTYLE TIPS FOR SLEEP

PHYSICAL FITNESS. Improved physical conditioning seems to increase sleep length, depth and continuity, maintain night shift alertness, and decrease general fatigue. It also increases the amplitude (the range) of key circadian rhythms. See Chapter 6.

MAINTAIN YOUR ROUTINE ON YOUR DAYS OFF. Night and evening workers face a bit of a dilemma when it comes to their days off. Workers finally have a chance to eat, sleep, and play at the same times as the rest of society. For many, days off are an opportunity to spend time with loved ones, catch up on backlogged household work, and take care of chores such as shopping and visiting the bank. Unfortunately, zeitgebers, sunlight in particular, are far more powerful entraining mechanisms than the strategies we have suggested for shifting your body clock. Interrupting your established routine of day sleep and night work can put your careful efforts to reset your circadian clock back to square one.

Most shiftworkers choose not to maintain a nocturnally-oriented lifestyle on their days off because such a lifestyle is inconsistent with personal and family or social priorities. However, you can take steps to prepare yourself in the days prior to your return to work by shifting your sleeping patterns toward going to bed later and rising later in the morning.



Tips for Reducing Stress

You have too much stress if it interferes with your health, your ability to do your job, or your capacity to enjoy life.

Make stress relaxation techniques a regular part of your life.

Stress is a response mechanism initiated by the body when confronted by difficult situations. Muscles get tense, the heart speeds up, blood pressure rises, breathing becomes more rapid, and the mind begins to race. One generally feels on edge, unsure if the body is about to spring into action or lose control over itself and the surrounding situation. Stress can be triggered by changes or events that run the gamut from big to small, trivial to groundbreaking and enjoyable to dangerous. Stress can come from all facets of life: family life, financial status, your work, the weather or even amusement park rides.

Stress can be both a positive and negative component of our lives. A person with no stress at all probably lacks stimulation and wanders through life feeling bored. A little stress can help keep life challenging and exciting. Moreover, the symptoms associated with stress can help us to deal with difficult situations. The classic example is a runner on the starting line of an important race – her anxiety, increased heart rate, and rapid breathing will help her to run faster and push herself to beat her competition. Stress becomes dangerous, though, when its intensity or frequency is such that it interferes with our health, our ability to get work done, or our capacity to enjoy our lives. As with all things, a balance needs to be found between too much stress and too little stimulation.

ARE YOU BEING OVER-STRESSED?

Consider the following lifestyle and personality traits:

- ☒ Are you always in a hurry?
- ☒ Is it difficult for you to communicate openly with others?
- ☒ Do you get angry easily?
- ☒ Are you highly competitive?
- ☒ Do you feel that you have little personal control in your life?
- ☒ Are you uneasy when waiting?
- ☒ Do you always feel responsible?
- ☒ Is it difficult for you to set aside time for relaxation?
- ☒ Do you often bring home problems from work?
- ☒ Are you often critical of yourself and/or others?
- ☒ Do you often eat unhealthy foods on the run?

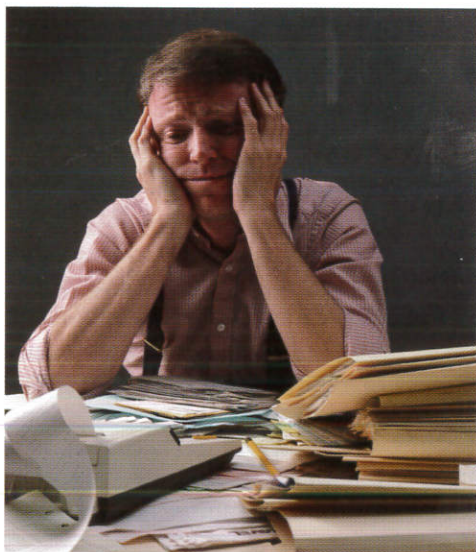
If you answered yes to most of the above questions you may be overwhelmed by stress. Try incorporating into your life some of the following strategies for stress management.

MANAGING YOUR STRESS

Stress management is best accomplished by simultaneously reducing your sources of anxiety and adopting lifestyle changes that make your stresses easier to bear. Consider making changes in the following areas of life:

PHYSICAL HEALTH

Our level of fitness has a dramatic impact on our general sense of wellness and ability to tolerate stress. Exercise can be a source of satisfaction and relaxation. Healthy eating



Does this picture look familiar?

habits also fortify our bodies and help us to deal with the challenges of a hectic life (see Chapters 15 and 16). The workplace can be designed to help or hinder physical functioning.



Energize your relationships on holidays or days off.

PERSONAL LIFE

FRIENDS AND FAMILY. Make time for friends and loved ones. Don't feel that you have to bear all your difficulties on your own. Talk to people you trust. Often, talking about a problem can help to put it into perspective and reveal ways of dealing with it. Moreover, spending time with friends is fun and relaxing.

SENSE OF HUMOUR. *Laugh and the world laughs with you.* Scientists have yet to gain a full understanding how humour affects our well-being, but it seems certain that a good laugh goes a long way towards making life more enjoyable and our problems more bearable.

HOBBIES. Hobbies have the potential to stimulate and challenge us without the anxiety associated with challenges on the job or at home. Take care not to let your hobbies become so obsessive or competitive that they become sources of stress.

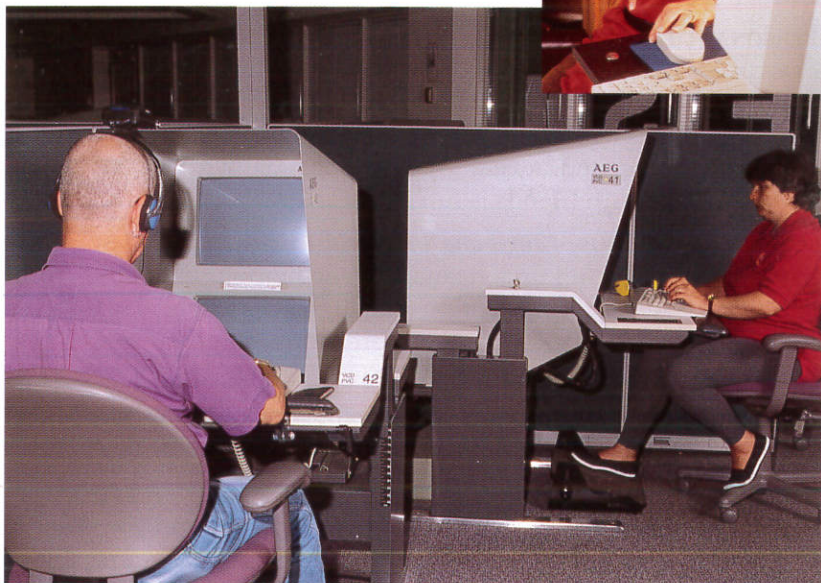
PERSONAL REWARD. You work hard for your money and you deserve to enjoy the fruits of your labour. If you can, treat yourself to a vacation or a nice meal. Allow the source of your stress to be also a source of pleasure.

WORKING LIFE

TIME OFF AND HOLIDAYS. Don't let your work rule your life. Take advantage of your time off and holidays to spend time with your family, see friends, enjoy hobbies, and pursue different kinds of challenges. Try to leave the stresses and worries of work behind when you punch the time clock. They'll still be waiting when you return for your next shift, so forget about them while you can.

ON THE JOB DIFFICULTIES. Don't allow frustrating situations to go on without confronting them. Speak to your peers about your difficulties and try to devise solutions together. Also talk about problems and potential solutions with management or with your union. Be realistic about what one person can accomplish.

CAREER GOALS AND CHANGES. Make a realistic evaluation of your aspirations, qualifications, and the sacrifices you're prepared to make to advance your career. Progress always involves work, time and strategy. If you're unhappy with your work then consider possible changes. Don't be afraid to make your feelings known to your employer and family.



Stress can be produced by poor work environment as is clearly shown in the face of the woman (inset). Postal code readers pictured above have sophisticated, ergonomically-designed work areas to minimize stress.

Tips for Coping with Stress and Burnout

DOWN STRESS

- D**on't delay relaxation. Use some relaxation technique daily such as walking the dog, throwing a baseball, or meeting a friend for coffee.
- O**rganise time well and delegate tasks. Leave spare time for emergencies.
- W**ork off stress by doing some physical activity.
- N**egotiate and recognize what cannot be changed. Apply this both at work and at home but be sure to implement as many specific strategies as possible that help you to manage a shiftworking lifestyle. See chapters 11 and 12.
- S**leep is essential for getting over stress. Ensure that you get at least six hours of sleep every day. If this is unmanageable, consult your family physician.
- T**iredness can go unrecognised, especially when you're under pressure. Be sensitive to whether fatigue is affecting your mood.
- R**estrict the use of alcohol, nicotine, and coffee especially in the five hours immediately preceding sleep time.
- E**at regular meals. Keep a meal schedule that is constant for each working day.
- S**ay *no* now. Don't take on unreasonable extra jobs because you are home during daylight hours.
- S**ickness or fatigue should not be ignored or 'worked through'. Seek support. Talk out issues with family, professionals, and friends.

RELAXATION TECHNIQUES

The following techniques can help you. Some are best done with the aid of a cassette, others with the aid of one or two sessions with an instructor. All of these techniques work best in a quiet relaxing atmosphere.

DEEP BREATHING. This is the most basic of stress relieving techniques. One of the body's automatic reactions to stress is rapid, shallow breathing. Breathing slowly and deeply is one way that you can interrupt your stress reaction and "turn on your relaxation response." Relax while sitting or standing. Put one hand on your chest or your stomach. Breathe in slowly through your nose and count to 4. Fill your lungs. Hold for a count of 2. Breathe out slowly to a count of 2. Repeat 2 or 3 times.

CLEARING YOUR MIND. Concentrate on one pleasant, peaceful thought or image and let the rest of your worries slip away, creating a feeling of deep relaxation. Giving yourself a mental break also relaxes your body.

STRETCHING. A simple way to loosen tight muscles and combat stress is to do stretching exercises. They take only a few minutes and can easily be done during your break.

VISUALIZATION. Visualization allows your imagination to run free. Give yourself a mental vacation whenever you feel the need to relax. Visualize yourself feeling warm, calm, relaxed in a tranquil setting, feeling all of the wonderful sensations – warmth of the sun, the fragrance in the air ...

AUTOGENIC TRAINING. The basic idea here is mind over matter. By giving yourself mental cues you can literally tell your body how to feel and produce a relaxation response when you feel tense. Concentrate on a mental suggestion such as "My left arm feels heavy and warm.". Try to actually feel your arm getting heavier. Repeat the same command for different parts of your body. This technique requires practice so you need to do it for about 10 minutes, once or twice a day.

PROGRESSIVE MUSCULAR RELAXATION. Similar to autogenic training, this technique helps you to feel the difference between relaxation and tension. It is a 3-step technique. First you tense a muscle and notice how it feels; then you release the tension and pay attention to that feeling; and finally you concentrate on the difference between the two sensations. Repeat for different parts of your body. This can be done sitting or standing and takes about 15 minutes.

BIOFEEDBACK. If you have difficulty zeroing in on your reaction to stress and your ability to relax, biofeedback may be able to help. Trained biofeedback practitioners show you how to listen to signals from your body and change these physical responses through relaxation. It is often used together with other progressive relaxation techniques such as deep breathing, visualization and so on.



Tips for Eating Healthy

Establish a regular eating routine of three meals per day taken at the same times each day.

Concentrate on eating healthy foods and limiting your consumption of junk food. Follow a healthy food guide.

The food we eat, and when we eat it, have a major impact on our overall level of health and sense of well-being. Far too often, shift-workers' decisions about meal times don't get the importance they deserve and workers end up grabbing whatever they can find to eat whenever they feel they can spare a few moments. The quality of your diet and meal times deserve the same attention and respect that day workers give to their eating habits.

Try to establish a regular eating routine in order to realign your circadian rhythms to a new eating schedule.

Pay particular attention to choosing healthy foods and finding time to make nutritious meals. The best advice is a healthy diet based on healthy eating guidelines.

SOME EATING AND DRINKING SUGGESTIONS:

EAT A MAIN MEAL BEFORE YOU BEGIN YOUR SHIFT

Eating regularly means having at least three meals each day. Do not go more than 5 hours without eating. If you work nights, plan to have at least one of your meals during the first half of your shift. Evening workers might want to have their meal at the beginning of the second half of their shift. Eating small, healthy meals or snacks at work is one way to stay alert. Healthy meals or snacks should include foods from two to three food groups, such as: cheese,

crackers and an orange, or hummus on pita bread with a glass of milk.

During the second half of your shift try to decrease fluid intake and avoid caffeine so as not to interfere with your sleep later on. Try some caffeine-free drinks such as milk, water, juice, soup, hot apple cider, and caffeine-free soft drinks or herbal teas.



CO-ORDINATE YOUR EATING SCHEDULE WITH YOUR SLEEPING SCHEDULE

Have a small, low-fat meal before bed in order to prevent hunger from disrupting your sleep. This will also lower the chance of digestive problems. Avoid large, greasy meals since they induce too much stomach acid and prevent the digestive system from getting the rest it needs. Eat as soon as you wake up – breakfast is still the most important meal of the day even if you do have it at three o'clock in the afternoon. Remember, your body hasn't had any fuel for the seven or eight hours that you've been sleeping.

DO CERTAIN FOODS AFFECT ALERTNESS OR HELP MAKE PEOPLE SLEEPY?

There is no clear answer at this time. There is some research that suggests that hormones in our body that affect sleepiness and alertness may be affected by diet. One theory proposes that carbohydrate-rich meals can help you get to sleep while protein-rich meals help you to stay awake. Unfortunately, it is too soon to say whether these foods should be the basis of long-term shiftworker adaptation strategies.

DO YOU SUFFER FROM HEARTBURN?

Heartburn is a common digestive problem that bothers many people who work shifts. It is a burning sensation felt when stomach contents back up into the oesophagus. Here are some tips to help prevent heartburn:

- ☺ Eat small nutritious snacks
- ☺ Some foods that can cause heartburn are:
 - fried foods, added fats (butter and margarine), salad dressings, gravy, nuts, rich desserts, and junk foods.
 - citrus fruits and their juices, tomatoes, onions, green peppers, radishes, avocados, garlic, and olives.
 - spicy foods.
 - alcohol, coffee (regular and decaf), tea, cola drinks and chocolate.
 - peppermint and spearmint.

- ⊗ Do not eat or drink at least 2 hours before lying down.
- ⊗ Elevate the head of your bed or prop yourself up with pillows. Gravity will help prevent the stomach contents from moving back into the esophagus.

DO YOU SUFFER FROM CONSTIPATION?

Constipation is the slow movement of hard-to-pass stools. If you suffer from constipation, the best thing you can do is add extra fibre to your diet. Keep in mind that as fibre is added to your diet, more gas will be produced. As your body adjusts, gas will decrease. Fibre can be found in foods such as wheat bran, whole-grain flour products, and rolled oats. Whole wheat bread and bran muffins are great tasting, easy ways to add fibre to your diet.

Drinking more fluids can also help. Staying well hydrated will not only help your bowels but will also make you more alert and less irritable. Add four to six more cups of fluid to the volume you're presently drinking.

SOME HIGH FIBRE TIPS

- ⊗ Eat more fruits and vegetables, unpeeled if possible.
- ⊗ Try some whole grain cereals such as Red River®, Shredded Wheat®, oatmeal, All Bran® and Bran Flakes®.
- ⊗ Try whole wheat pastas, brown rice, legumes and grains such as cous-cous and quinoa.
- ⊗ Sprinkle wheat germ or bran on top of cold cereals or mix with hot cereals while cooking.
- ⊗ Use whole-grain flour when baking.

DO YOU SUFFER FROM DIARRHEA?

Diarrhea can lead to dehydration so be sure to drink extra fluids if you have diarrhea. If diarrhea lasts more than 48 hours call your doctor.

Some foods that might make diarrhea worse include:

- ⊗ Foods that contain sorbitol or mannitol, such as diet gum and diet candy.
- ⊗ Coffee, tea, cola, cocoa, and alcoholic drinks.
- ⊗ Spicy foods.
- ⊗ Foods that contain lactose (milk sugar) such as milk and ice cream.



Eating healthy means a more restful sleep.

LOWER FAT IS WHERE IT'S AT!

All adults, regardless of whether they work shifts or not, need to pay attention to the amount of fat they eat. While adults need some dietary fat in order to be well, most simply eat too much. As a result, many workers are overweight and have high blood cholesterol. Too much fat can increase your chance of heart trouble down the road. Here are some fat-fighting ideas:

- 🕒 Add herbs and spices such as garlic and thyme to enhance the flavour of lower-fat dishes.
- 🕒 Choose lower-fat spreads and dressings.
- 🕒 Be skimpy with margarine or butter on toast and sandwiches. Moisten sandwiches with tomato, cucumber, or lettuce slices instead.
- 🕒 Eat smaller meat portions. Have more starchy foods such as pasta, rice, and potatoes. Starchy foods are filling, not fattening. Be wary of high fat toppings such as margarine, sour cream and gravy.
- 🕒 Remove visible fat and skin from meat and poultry.
- 🕒 Use lower-fat cooking methods such as baking, boiling, barbecuing, broiling, stir-frying, steaming, poaching, microwaving and stewing. Experiment with herbs and spices such as garlic and thyme to enhance lower-fat dishes.
- 🕒 Try some low-fat snacks and desserts such as fruit salads, yogurt, light puddings, unbuttered popcorn, pretzels, whole-grain crackers and bread sticks.
- 🕒 Learn to read food labels.

If you have specific nutrition concerns, talk to a registered dietitian.

CHAPTER 16

Tips for Active Living

Regular physical activity will improve your sleep, make you feel healthier and increase your alertness.

Tossing a football, walking to work, vacuuming the house and other physical activities can give you almost as much exercise as a trip to the gym.

Physical fitness improves an individual's health, sense of well-being, enjoyment of life, mental alertness and quality of sleep. Shiftworkers' busy schedules, though, have traditionally made it difficult for them to find the time for regular exercise. A new concept called Active Living makes good physical conditioning easier for shiftworkers to achieve. It's a way of thinking, acting and feeling which values the integration of fun physical activity into everyday life.

Active Living recognises that every little bit of activity counts towards increasing physical fitness. The expression, 'No pain, no gain!' no longer applies. The possibilities are endless: stair climbing, walking, gardening,



Some workers benefit from having physical activity as an integral part of the job.

raking leaves, dancing, skating, hiking, sliding, doing housework, swimming, biking, tossing a frisbee, going for a nature walk, having a snowball fight, and playing with the children ... all of these are effective ways to improve your health.

Ideally, one should try to be moderately active for 30 minutes or more as many days of the week as possible. Activity time can be accumulated throughout the day. In fact, ten minutes of moderate physical activity three times a day produces nearly the same results as 30 minutes of continuous physical activity a day.



Exercise can be a social activity.

What regular physical activity can do for you:

Body Fitness

- 🚲 lower your heart rate
- 🚲 lower your blood pressure
- 🚲 burn fat, help control weight
- 🚲 lower your blood cholesterol
- 🚲 strengthen muscles, bones, and joints
- 🚲 improve your circulation
- 🚲 decrease constipation

Mind Fitness

- 🚲 reduce stress
- 🚲 improve your self-esteem
- 🚲 decrease the urge to smoke, drink, or take drugs
- 🚲 improve your general sense of well-being

OTHER BENEFITS:

Improved physical fitness will help make you more alert on the job. Regular conditioning will increase your energy level. For some people, a short, brisk walk after waking up is as good as a cup of coffee!

Active living increases quality family time. Integrating active living into family time is not only fun but can also make the shiftworker feel closer to his or her partner and children. Plus, many activities such as cycling to work or working in the garden are good for the environment.

GETTING STARTED

It is important to check your physical shape before starting any physical activity program. If you have heart disease, high blood pressure, diabetes or joint problems, or if you haven't been active for a long time, it's a good idea to check with your doctor before you begin.

ONE FINAL WORD

Sudden bursts of exercise at too intense levels can result in injury or just be too unpleasant to continue. It's particularly important to begin and end an activity or movement slowly with appropriate warm-up and cool-down stretches. An easy way to determine if your activity is of a moderate, healthy intensity is the 'talk test'. Being able to talk aloud while doing your activity is a good indicator that you are exercising at a safe level. If you cannot talk and are breathing very heavily then you are overdoing it.



Active living possibilities are endless.

TIPS FOR ACTIVE LIVING

At Work:

- ⊗ Try the on-the-job alertness exercises described in Chapter 13.
- ⊗ Take the long way to the cafeteria.
- ⊗ Join an employee fitness program.
- ⊗ Deliver messages by hand instead of phoning.
- ⊗ Walk or bike to work. If you take the bus get off a couple of stops early and walk the rest of the way.
- ⊗ Use the stairs rather than the elevator.
- ⊗ Go for a walk during your breaks.

At Home:

- ⊗ Try using music to keep you moving while you dust, vacuum, scrub, or wash dishes.
- ⊗ Do stretching exercises while you watch TV.
- ⊗ Meet a friend for a walk instead of for coffee.
- ⊗ Join a team or ask neighbours to play a pick-up game of softball, basketball, volleyball, hockey, bowling, soccer, croquet.... If all your neighbours work days, organise a game with other people working your shift.
- ⊗ Join a fitness club.
- ⊗ Get your neighbours together for a giant clean-up and yard sale.
- ⊗ Organize a bike ride, picnic or badminton game with friends and relatives.
- ⊗ Make one night of the week family activity night. Ask the kids to suggest activities they would enjoy or to invent an active game for the whole family to play.
- ⊗ Play games like hide and seek, tag, or follow the leader with your child leading.
- ⊗ Make walking a part of your everyday life. It is a great way to get active and to stay active. Walking is easy, fun, and does not require any special equipment – just comfortable shoes!



Tips for Improving Family and Social Life

Communication, sensitivity, time management, and compromise are the keys to a happy shiftworking family.

Don't be embarrassed or shy to talk openly with family members about the competing demands on your time. Make a family plan as to how the problems should be dealt with.

There is no magic formula for improving family life. The key strategies for a successful shiftworking family are sensitivity and communication. Love and an honest commitment to finding compromises that make everyone a little happier will go a long way.

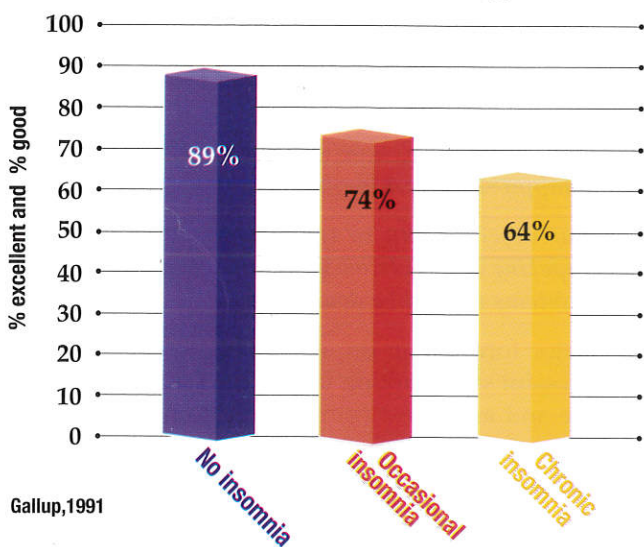
The important point is that family members must talk with each other about their concerns. In this chapter, we will provide you with a number of ideas for improving your family life, but often the best solutions are unique ideas thought up by the whole family after discussing their problems with each other. Of course, this makes sense no one knows your family better than itself. So how do families adapt to shiftwork? There is no simple solution. The first step requires personal effort.

WHAT CAN THE SHIFTWORKER DO?

The first thing you can do is to share this book with your partner, children and friends. The information about your biological rhythms and how they are affected by working shifts will help your family to understand what you are going through. When shiftworkers first learn about how their body clock influences their lives, they often realize that problems on the job, or tension with a partner, might not

have been an indication of a failing relationship so much as a signal that they were being sleep deprived. **Your spouse might have complained that you've changed since your marriage, that you've become less caring, more moody and bad tempered. These are all symptoms of sleep deprivation.** Once you know that your work schedule is making you irritable, you can take extra care to avoid taking out your frustrations on your loved ones. This is particularly important to remember when you have to discipline the kids.

Impact of Insomnia on Social Relationships



In general, adopting the strategies discussed in this book for adjusting your mind and body to shiftwork will improve your family life. A happy shiftworking family begins with a healthy, well-rested shiftworker.

BALANCING SLEEP AND FAMILY

Maintaining a balance between giving yourself daily uninterrupted sleep time and spending time with your family can be difficult. On the one hand, quality sleep at the same time each day is essential to adjust your circadian rhythms, for example, to a night working schedule. Adequate sleep will help make you more alert on the job and more sociable with family and friends. On the other hand, you

may feel obligated to interrupt your sleep in order to spend time with your family when they're available.

You have to balance in your mind the relative costs of depriving yourself of sleep against missing out on family time and family duties. The ultimate decision is yours, but if the quality of your family life is deteriorating then a more structured family review is probably a good idea.

One good way to balance sleep and family time is, once again, to sleep at the same time each day. This will not only help to shift your circadian rhythms, but will also make it easier for your family to know when you will be consistently available. If your spouse and kids know that you will always be free in the late afternoon, then that can be a special time to do things together.



WHAT CAN WE DO AS A FAMILY?

It is essential that you actively schedule time to be with your

Make family time a priority.

family. Don't leave this to chance. Try to plan on having at least one meal together every day. This need not be dinner – if breakfast fits everyone's schedule more easily, then meet for breakfast. Work out when your work and sleep schedule will leave you free time. For night workers, this is usually the late afternoon and early evening. Prioritize spending time with your family during this period. Ask your partner and kids to organise their schedules to make this a priority family time for them as well. Some families like to keep a large calendar in the kitchen on which everyone can write down their schedule. That way, it's easier to find the times when everyone is available to be together. A magnetic calendar that allows changes is a great convenience (see Appendix).

Holding regular family meetings is a good approach not only for dealing with problems, but for planning fun things like holidays. Having everyone state how the shiftwork schedule affects them might be a good agenda item. Together, the family can brainstorm solutions. Solving problems together as a family becomes easier with time and practice. Remember that conflict is a normal part of family living.

MAINTAIN YOUR RELATIONSHIP WITH YOUR PARTNER

Take special care of your relationship with your partner. The kids will eventually be leaving home, after which it will just be you and your partner again. The essence of a relationship is time spent enjoying each other's company and supporting each other during difficult times. As important as it is to have regular time together with the whole family, it is equally important that you actively schedule time to be alone with your partner. If your sexual life has suffered, make dates for lovemaking. If your schedules simply won't overlap, set a time to call your partner at work each day or make it a point to meet during meal breaks. Be flexible about housework and maintenance. Lower your standards. Remember that maintaining a strong relationship will inevitably require compromises by both you and your partner. For some couples, another solution is to have your partner find a job with a shift schedule similar to yours. This might not be easy or even possible especially if you still have young kids.



Take special care of your relationship.

WHAT ABOUT SHIFTWORK AND KIDS?

There is very little information on what children think about being part of a shiftworking family. No one has ever talked to the children themselves. Most studies on the effects of shiftwork on family and social relations were limited to information from the male shiftworker and occasionally the spouses were interviewed. The problem is that there are different advantages and disadvantages for the children depending on the type of shift, type of family and the ages of the children. The afternoon shift is felt to be greatest challenge in matching leisure time to that of the kids. Since evening workers spend less time with children they are less involved in the rearing, disciplining, car pooling, etc.

Some workers, however, have found creative solutions. As one shiftworker told us "I was on afternoon shift and couldn't go to my daughter's graduation. I wanted to go but couldn't switch shifts. Instead of being angry, I took my daughter out for lunch the next day. It was very special to me." The key is being flexible and making the most of time together. Ask someone to videotape special events such as school concerts. Never make promises that you might not be able to keep. Try to take advantage of the fact that your morning and afternoon free time allows you to get involved in your kid's schooling. Participate in day trips, have the kids come home for lunch, or meet them at school during their breaks. On your days off, your alert hours should overlap nicely with the kid's time off from school.

Whereas the night shift allows more time with the children, there are other issues. Nightworkers may spend more time with their children at the expense of their sleep. Often, partners of nightworkers also state that nightwork changes the whole family's lifestyle. It may be difficult to keep the house quiet during the day. The partner might need to limit the friends that the children can invite over to play, or try to keep toddlers quiet. Some strategies include organizing day outings to the library or play centre to keep the house quiet; planning a family breakfast when the nightworker arrives home, and then sleeping during the school hours.

Night shiftworkers often find that their leisure time overlaps with when the kids are home from school. Indeed, this free time in the afternoon and evening gives night workers an advantage over day workers when it comes to being with their children; use this time to be an active presence in your kid's lives. Make it a point to spend time with each child as often as possible. Try to make your time together meaningful – rather than sitting in front of the television set, go outside, play a game, or get some exercise together. Show your kids that you are taking an interest in things that are important to them by watching, helping, or participating in their sports, hobbies and schoolwork. Take the kids with you whenever possible – running errands, shopping. Make the most of your driving time in the car.

A particular challenge for shiftworkers is the access to day care. Since most day care facilities do not offer 24-hour care, the arrangements may be complicated, especially with rotating shifts and with single parents. Some couples choose to work opposite shifts to care for their children. Unfortunately, this makes it even more difficult for families to spend some time together. In planning day care, try to arrange a back-up plan if possible. Exchanging child care with

neighbours or friends may help. Lobby for better access to day care in the workplace and in the community. Remember also that everyone needs some free time. Respect the need for your partner to have a break from the kids.

SOCIALIZING AND BEING PART OF SOCIETY

Fortunately, being part of society at non-traditional hours is less of a problem than it used to be. Modern technology and the increasing popularity of shiftwork have made it easier for night and evening workers to enjoy the events watched by the rest of society and to find friends free to socialize at unusual hours. Use a VCR to tape missed shows and sporting events. Make friends with other shiftworkers since their schedules are more likely to mesh with yours. In addition, the families of shiftworkers tend to be sympathetic to the particular pressures of shiftwork. Research tells us that the amount of social support we get from our family and friends is important for our health. If your family and friends have a better understanding for shiftwork it is easier to negotiate changes around social and family obligations and celebrations. It might mean having a Thanksgiving brunch instead of dinner! One strategy for finding other shiftworkers is to see which companies have their lights on at night and a full parking lot. If you feel a need to be more involved in your community then look for groups that meet during the day – if you can't find one, start one with shiftworkers!

WHAT IF MY RELATIONSHIP IS IN SERIOUS TROUBLE?

Maintaining a strong relationship with your partner and family can be very challenging for all people, not just shiftworkers. You may find that you have reached a point where you and your partner have been unable to resolve some major problems. It might be beneficial for you to consider seeking the professional help of a marriage counsellor or family therapist or someone at a shiftwork clinic. A professionally trained, neutral observer can help you and your partner to gain a deeper understanding of your relationship and how you might overcome your difficulties.

Adapting to shiftwork in a healthy way is not an easy task and it changes with the difficult stages in our lives. More research is needed in this area. What is clear, however is that we need to think in terms of the 'shiftworking family' not only the shiftworker.



Shiftwork and Women

More women are now working outside the home and more women are working shifts.

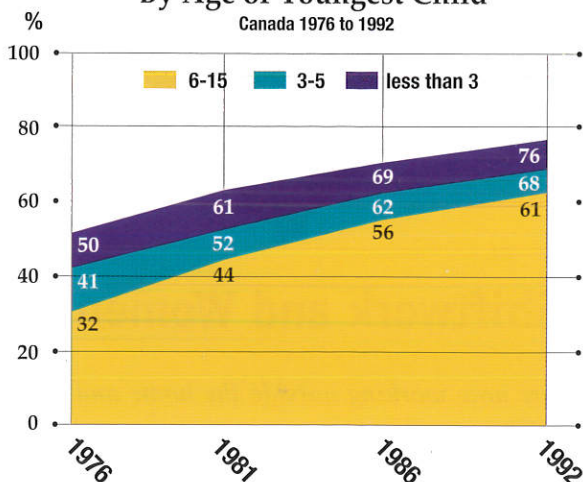
Review the tips for the shiftworking woman to help balance work, home, personal and shiftwork demands.

Much of the research on shiftwork to date has focused on men in industrial settings. Some of this can be explained by the fact that much of the shiftwork research has been carried out primarily in European settings where until recently women were not permitted to work shiftwork in heavy industry. There is, however, an increasing amount of research on the effects of shiftwork on women. An example of this growing interest is a publication for the American Nurses Association summarizing the research to date on shiftwork and nursing.

A PICTURE OF WOMEN IN THE WORKFORCE:

- ☹ In the early '60s, less than a third of women worked outside the home. This has changed dramatically as shown in the graph on page 90. Some experts predict that in the near future close to 80% of women will be working outside the home.
- ☹ Almost 2/3 of women with children under 6 years of age are now in the paid workforce.
- ☹ In certain countries in the past, women were not allowed to work shifts out of concern for their childbearing and child rearing responsibilities.
- ☹ Almost a quarter of working women now work shifts and this trend is increasing. There are only slightly more men than women now working shifts in many western countries.
- ☹ Over 1/3 of full time shiftworkers have children under the age of 16 and 1/3 of female single parents work shifts.

Labour Force Participation of Women By Age of Youngest Child



HOW DOES SHIFTWORK AFFECT WOMEN'S HEALTH?

Women experience many of the same effects of shiftwork as their male counterparts. Lack of sleep and digestive problems are true for women as well as men. A large American study of female nurses also found that those who worked 6 or more years of rotating night shifts had a 60 per cent greater chance of developing heart problems. This is similar to what was found in a study of Swedish men. What is not clear is whether this is due to shiftwork or to some of the effects of shiftwork such as increased stress or less social support.

There is also a concern that dealing with the sleep disturbances associated with shiftwork may be more difficult for women. Women generally suffer more from sleep disturbances than men so that when shiftwork is added it aggravates the problem. Women's sleep may be interrupted for several reasons. Women are often the ones who get up with young children who are teething or ill, and women who are breastfeeding may be up more often. Some women do not sleep as well when they are premenstrual and also when they are menstruating (especially if they have painful periods). For women during menopause, sleep may be interrupted with hot flashes often called 'night sweats'. For the pregnant worker, who may already have increased fatigue and less restful sleep, shiftwork poses further challenges.

About 50% of working women feel that they do not get adequate rest. Women tend to use tranquilizers and sleeping pills more often than men. Some studies suggest that the use of these medications increases on rotating shifts.

WHAT ABOUT MENSTRUATION AND PREGNANCY?

Recent studies suggest that women who work rotating shifts are more likely to have problems with their menstrual cycle. Although there are some contradictions in the research to date, it does appear that rotating shifts may contribute to an irregular cycle, longer periods and may aggravate symptoms of Premenstrual Syndrome (PMS). One British study found that there may be an association between the number of night shifts and the length of the premenstrual and menstrual period as well as the severity of PMS. A Canadian study also raises the question that shiftwork may increase the chances of having a miscarriage, a premature birth or a baby that is of low birth weight. This may be linked to the fatigue and stress more often found with shiftworkers. This is an important area that needs more study.

EFFECTS OF SHIFTWORK ON WOMEN'S SOCIAL AND FAMILY LIFE

The effects of shiftwork have to be considered in the context of the challenges faced today by working women. Women still tend to be responsible for most of the child care and the traditional housework. One large study suggests that shiftworking women actually spend more time doing housework than day workers – probably at the expense of their social and personal life. Women's main role in child care is also reflected in the reasons workers give for working shifts. Whereas 9% of women work shifts to help meet family responsibilities, this was not a reason given by men. For families with children younger than six, four out of 10 married women work shifts to allow for better child care.

Working women generally face a difficult balancing act. When shiftwork is added to the juggling, it only adds to the problem. According to an American researcher, when we consider work at home and in the workplace, women work an additional 15 hours longer each week than men – that is an extra month per year. We have coined the term 'the second shift' and found that women talked about sleep the same way that a hungry person talks about food. Some estimate that women will spend about 17 years child rearing and 18 years caring for an older parent. In many families there is the need to provide some care to an elderly parent and the caregiver is








primarily a woman. If we remember that coping with shiftwork becomes more difficult with age, then the additional challenge of caring for an older parent can place even more difficult demands on women in this age group.

Meaningful relationships are essential to staying healthy and coping with stress. In addition to their partner, women often rely on a few close friends to help them cope. A trend in some societies is that families move more and there is less support from relatives and friends. When working shifts there is even less time for family and friends. A study of women working rotating shifts found that they scored lower on measures of social networking than those of fixed shifts.



One third of full-time shiftworkers have children under 16.

TIPS FOR THE SHIFTWORKING WOMAN

-  Take a look at where you spend your time and energy. Draw a circle and divide it into the following three sections. The size of each slice of this pie should correspond to the amount of time in a day you spend for each category: 1) caring for others, 2) housework, job and other tasks, and 3) meeting personal needs. Plan to make some changes to improve the balance and learn to say 'No!' Do not feel guilty about taking time for yourself. Consult your partner and ask him or her to do the same. Identify possible conflicts and move ahead with an acceptable plan.
-  Carefully complete the WASP diary (Work, Activities, Sleep and Performance Record) in Chapter 5. Review this with your partner, friend, nurse, or someone at a shiftwork clinic. Try to better balance child care and housekeeping responsibilities. Share the chores with your children and partner. Consider hiring a cleaning service. Lower your expectations.
-  Every woman is different. Pay attention to how your work schedule affects your menstrual cycle.
-  Take stock of the stresses in your life. Complete the exercise in Chapter 14.
-  Pay particular attention to the tips for sleep in Chapter 12.
-  Do not take tranquilizers or sleeping pills without discussing these or alternatives with your physician. Avoid over-the-counter medications.
-  Some women living with a shiftworker report that they are uneasy when alone at night and do not sleep as well. This makes for two tired partners! To feel more secure, consider an alarm system or check-in calls.



Promoting Health in the Workplace

Health practices, personal resources and environment are the three major factors influencing shiftworker wellness in the workplace.

Companies can adopt specific strategies for helping shiftworkers cope.

When you realize that about one third of your life is spent at work, it makes sense that the hours of work, the type of work you do, and the environment in which you work, can have a profound impact on your health.

Much of the information in this book has dealt with what you and your family can do to help you adjust to shiftwork. What is the role of the workplace?

The occupational health and safety field has traditionally been concerned with controlling physical, chemical, noise, lighting and other workplace hazards. This area is now expanding to include the psychosocial and organisational aspects of work which may affect the health of shiftworkers. One such effort has recently developed a Workplace Health System which outlines a process to help companies (management and employees alike) establish appropriate health promotion programs and policies (see Appendix).

It is well recognized that when offering workplace health promotion programs, a healthy working environment is created that can lead to:

- ⊗ improved employee health
- ⊗ improved health care, safety and absenteeism costs
- ⊗ improved quality of work
- ⊗ improved productivity
- ⊗ improved job satisfaction
- ⊗ improved policies that influence health.

According to the Workplace Health System, there are three avenues through which workplace health promotion programs can influence shiftworker wellness. They are:

Health Practices (personal health behaviours such as proper sleeping and eating, reduced smoking and drinking, and control over the use of medicinal and other drugs)

Personal Resources (the control shiftworkers feel they have over their health, their work and the degree to which they participate in improving their health, work and home environment)

Environment (includes work schedules, type of work and responsibilities; noise, air, light and equipment conditions; relations with co-workers and supervisors, relations at home).

All three avenues impact upon the health of the shiftworker and must be considered in establishing appropriate health promotion policies and programs in the workplace.



Health practices, personal resources and environment affect shiftworkers health.

TIPS FOR SUCCESSFUL HEALTH PROMOTION PROGRAMS IN THE WORKPLACE:

- ⊗ Talk with others in the health promotion field (public health units, non-governmental health agencies, private consultants, etc.) and other companies who have established programs.
- ⊗ Get commitment to good workplace health from all components of the company (management, unions, employees).

- ❶ Establish a Workplace Health Committee with representation from all employee and employer groups (open-door).
- ❷ Encourage employee-driven programs since they have a better chance for success.
- ❸ Establish open communication between all levels of management and employees.
- ❹ Assess employee interests and needs that will form the basis upon which activities can be developed and offered.
- ❺ Recognize the needs, preferences and attitudes of different groups of employees (male, female, young, old, single, married, and those of different cultural backgrounds will all have different needs).
- ❻ Be prepared to adapt to special features of the workplace environment (company structure and culture).
- ❼ Support the development of a strong overall health policy in the workplace. Everyone should be sensitive to the possible effects of business decisions on employee health. Healthy employees are an important part of doing good business.



Many companies have adapted strategies to help shiftworkers cope — put your self health behaviours and your company policy under the microscope.

SPECIFIC STRATEGIES FOR THE SHIFTWORKING WORKPLACE

Many companies have adopted specific strategies in an effort to meet the unique challenges for their shiftworkers. These include:

- ④ Management and union cooperation with hours of work:
 - negotiations cover shift length dependent on workload, fairness in rotation, advance notice of change with mutual agreement, provision of weekend free-time, monetary and non-monetary options for compensating shiftwork, other more innovative alternative work arrangements, such as a reduced work week and flexible starting times
 - sensitive shift schedules designed to best meet not only the company's needs but also the needs of the shiftworkers and their families
 - input from all levels of workers who participate in shiftwork is beneficial for determining effective shift schedule designs. It also communicates that the employer values the shiftworkers and is concerned about their well-being.
- ④ Management and union cooperation with working conditions:
 - increased illumination in areas where night shiftworkers work, socialize and eat
 - appropriate ventilation, temperature and noise controls (preferably with some variation to help maintain alertness)
 - appropriate allocation of work load and type of tasks depending upon hours of work
 - access to cafeteria, vending machine, microwave, refrigerator, to improve availability to healthy foods.
 - access to areas conducive for napping, when permissible
 - break schedules designed to provide opportunities to exercise and socialize to maintain alertness.
- ④ On-going comprehensive evaluation to evaluate the effectiveness of programs and policies should include:
 - satisfaction with shift schedules
 - complaints of physical and social stress and strain
 - number of safety-related incidents
 - absenteeism and turnover rates
 - production figures.

- ⌚ Provide ongoing support to promote shiftworkers health:
 - offer shiftwork and health workshops at all hours of the day and night
 - cover a variety of health topics and issues (e.g. stress, sleep, nutrition, smoking cessation, active living, parenting, substance abuse, etc.)
 - provide access to health information in a useful and permanent way (videos and books, such as this book which focuses on shiftwork and many interrelated factors) that can be shared with family and friends.
- ⌚ On-going education to all levels of workers about the unique challenges faced by shiftworking employees:
 - provide new employees, as part of training and orientation, with information on how to adapt well to shiftwork
 - encourage non-shiftworking managers to work some shifts to gain better appreciation of the challenges of shift work.
- ⌚ Provision of support services accessible beyond 9 a.m. to 5 p.m.:
 - on-site, after hours or 24-hour day care
 - physical fitness facilities (or subsidy for fitness facilities)
 - security in the parking lot 24 hours a day
 - organise company carpools
 - make human resources/payroll department hours of operation accessible to shiftworkers. Accessibility also means effective methods of communicating problems and prompt responses
 - counselling services, employee and family assistance programs, employee health clinics, shiftwork and sleep clinics, if available
 - staff meetings, in-services, professional development classes.



Getting to Know Yourself and How You Respond to Different Shifts and Shift Schedules

Many factors influence how we respond to shiftwork.

Find out what factors influence your ability to handle shiftwork.

BOTTOMLINE SUGGESTIONS FOR SHIFTWORKERS

WORKING SPECIFIC SHIFTS

Having read the earlier chapters in the book, you now have a better understanding about the problems related to shiftwork and have gained some helpful tips on ways of improving your work, home and social life as a shiftworker. However, you may still be saying to yourself, "That's all helpful but what do I do about working my shift?". This chapter is intended to pull together some of the information from previous chapters to help you deal better with different shift types.

It would be wonderful to provide specific information in a book of this sort on *your* specific shift schedule but it is impossible to deal specifically with each and every type of shift as it affects each and every shiftworker. One of the reasons for this is that there are hundreds of shiftwork schedules.

The more important reason why it is not possible to provide a shiftwork recipe for *your* specific shift schedule is because you are unique. Individuals respond differently to different shifts and respond differently to the same shift over time.

GETTING TO KNOW YOURSELF

It has been estimated that as many as 20% of workers who become shiftworkers have a great deal of difficulty adapting to shiftwork, particularly nightwork, and many of these workers voluntarily leave their employment to avoid shiftwork. The remainder will have varying amounts of success coping with shiftwork. It has been estimated that as many as 80% of shiftworkers expect to be unable to continue shiftwork until retirement.

The reasons for this wide range in individual abilities to cope with shiftwork are many. Some of these reasons were discussed in previous chapters. Some people have biological rhythms that make morning shifts better (*larks*) and other have biological rhythms that make evening shifts better (*owls*). Are you one of these types and, if so, which one?

Not only do different individuals react differently to shiftwork but the same individual reacts differently as they age. As was discussed earlier, the biological rhythms of individuals change with age and most individuals find it increasingly difficult to deal with shiftwork as they age. Researchers used to think that age did not become an important factor until 45-50 years old. However, in a recent survey of air traffic controllers (conducted by one of the authors, R.H.), it was found that shiftworkers begin to report increasing difficulty with shiftwork in their 30s.

You might ask yourself: "What can I do if we are all different?". The first step is getting to know yourself. When do I function best? How difficult is shiftwork for me? What parts of my job are the most difficult for me? Am I an owl, a lark or neither? How much sleep do



Different components of sleep work together to produce a quality product, just as a symphony plays in harmony. When all parts of the Toronto Symphony Orchestra (pictured above) don't work together, the result is chaos.

I get on different shifts? If you can answer some of these questions, you will have a good idea about how well you are adapting to your shiftwork schedule, where some of the problem areas in your shift schedule might be, and what some of the solutions are.

The first step in answering these questions is to keep track over a couple of shift schedules. In Chapter 5, we provided the WASP Record Chart which would allow you to keep track of your sleep, activities and performance levels across each day for a week. This chart could be completed several times for longer shift schedules. You could also supplement this chart to address specific problems that might be important to you. For instance, if you wanted to find out which shift or shift schedule was the most difficult for you, add a column onto the end of the chart and rate the difficulty of each shift at the end of the shift.

Keeping a record like this will allow you to pinpoint where and when difficulties occur and whether or not sleep debt is a major problem. Remember, you will feel differently at the beginning of a shift schedule than at the end of the cycle, on different shifts, after different shift durations (8 vs 10 or 12 hours), after different amounts of sleep, whether one is an owl or lark, and perhaps at different times of the year. Most important, you will likely feel different as you age. Consider repeating this exercise in 5 years. In addition, if your shift schedule changes, repeat this exercise since different shift schedules affect workers differently.

Even though the best way to master shiftwork is to get to know yourself and your strengths and weaknesses with regard to shiftwork, there are things that work for most people.

Note: The sleep quality you get in the day is not the same as the sleep quality you get at night. One Canada Post worker on the night shift described his frustration at the fact that when he sleeps at night, six hours good sleep leaves him alert the next day. However, when he sleeps in the day 8 hours does not seem as restorative. Furthermore, his wife is intolerant of his longer sleeping time. This emphasizes two points: firstly, sleep quality does vary depending on when you sleep; secondly, having a spouse/family member on-side is imperative.

WHAT SHOULD I DO AS A NIGHT WORKER?

Night shiftworkers have the biggest challenges since they have to work during the lowest part of their circadian rhythm where their ability to stay awake and pay attention to critical events is weakest.

In addition, they also have to sleep during the day or evening when good sleep is difficult to obtain. Getting as much and as good quality sleep as possible is key to night shiftwork and will improve your ability to stay awake on the job. Here are some tips for night shiftworkers (but make sure they work for you):

- ⌚ Get as much sleep as possible for the time you are on nightshift. This means follow the rules of sleep hygiene (see Chapter 12) as much as possible: for instance, keep your bedroom comfortable, secure, quiet, dark and cool, follow bedtime routines, avoid caffeine within 4 hours of bedtime, let your family know that certain times are protected for sleep, and avoid alcohol before bed.
- ⌚ Try to sleep when you get home from work in the morning rather than starting your sleep in the afternoon since you will likely get a longer sleep (see Chapter 3).
- ⌚ Most night shiftworkers report getting only 4-6 hours of sleep; Supplement your sleep with a nap probably in the early evening depending on your shift start time.
- ⌚ Protect your sleep time as priority time. It will be easier. You can make up for lost domestic and social time better if you are not exhausted from your shiftwork.
- ⌚ Plan for your time off as it will be important to you.
- ⌚ On the job, try to keep your job as varied as possible. Changing tasks and, if possible, locations, will keep you more alert.
- ⌚ Ensure that good lighting is available at your workstation as well as in the environment around you. Much of the light in our environment is reflected light or deflected by our physical characteristics (such as eye sockets, eyebrows, and eyelids) so less light than we think actually gets into our eyes. Keeping the work environment dark only promotes sleep.
- ⌚ Try to keep the noise in your work environment changing. Since many workers have to wear hearing protection, changing your noise environment is difficult. Consider supplementing your hearing protection with built-in communication or radio signals. For those in work places where ambient noise can be controlled, music to 'soothe the savage breast' or 'elevator music' will put you to sleep. Many work places have background noise to block out production noise or office noise. This type of environment will put you to sleep. Try talk radio or rebroadcast 'morning shows'.

- ☹ Caffeine is effective at promoting alertness but not for long. Unless you have stomach or digestive problems, caffeine can be used in the early part of the shift. Caffeine too close to quitting can reduce your ability to fall asleep easily.
- ☹ Night shiftworkers tend to have digestive and stomach problems. Try and eat healthy at work (see Chapter 15). If this is not possible, take your 'lunch'.
- ☹ Nap on the job, if possible. There is no substitute for sleep. If your schedule and employer permit, use some of your breaks to sleep. Strategic napping is becoming possible, and in some cases sanctioned, in the workplace.
- ☹ Keep the workplace social. The more interaction that you have with your fellow night workers, the better. You will all feel more alert (whether you agree with your co-workers or not). Some workers prefer the night shift since there is less supervision and a more casual atmosphere can sometimes prevail. If this is so, take advantage of the more social nature of the workplace.
- ☹ Be careful on the drive home. This is a major hazard for the night shiftworker. The rest of the traffic assumes you have had a 'good night's sleep.' A very recent study of intensive care nurses who worked nights reported that 95% of these nurses reported accidents or near-accidents while commuting to/from work in the last year. Car-pool if possible to reduce the number of times you drive home and use a buddy system to keep the driver awake.

WHAT SHOULD I DO AS AN EVENING WORKER?

As an evening worker, sleep and job performance problems are usually less difficult than on most other types of shifts. Most evening workers get a reasonable amount of sleep (see Chapter 12) and from our knowledge of job performance, those who work in the evening perform well until 11 or 12 pm. (Of course this does not apply to everyone.) Domestic, social and nutritional problems are the most important. Here are some tips for evening shiftworkers (but make sure they work for you):

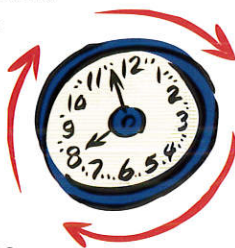


- ☹ As with any shiftworker, protect your sleep. While evening workers tend to get as much or more sleep than other workers, this sleep still has to be protected. Your vulnerable time is in the morning when 'day workers' (children and others) get up. If you get home after midnight, make sure the morning is protected time.

- ⊗ Proper nutrition can be a problem for evening workers. Bring a proper snack from home. Make lunch your main meal.
- ⊗ Evening workers often have less time for family and social events which are organised for day workers. Evening workers are often gone before their family is home from school and work and cannot participate in evening activities with friends. Maximize your time off and plan for activities, communication, and time with your partner, family and friends. Meet for lunch. Videotape special events.
- ⊗ All aspects of good sleep practices and workplace environments apply.

WHAT SHOULD I DO AS A ROTATING SHIFTWORKER?

Rotating shiftworkers have particular problems because they being asked to adjust their work and social life to a different clock on a regular basis. As was discussed in Chapter 2, your biological clock is intended to keep your biological rhythms in a fixed pattern. For the rotating shiftworker, your work clock and your biological clock are 'clocks in collision'. When you rotate your shift your biological clock remains on the old rotation while your work demands are on the new rotation. Inevitably, staying alert on the job and getting good quality sleep can suffer. Shiftworkers on rotating shifts often report more flexibility in scheduling time with family, friends, and leisure activities. However, if you lack energy, you might not be able to take advantage of such increased flexibility. Here are some tips for rotating shiftworkers (make use of the ones that work for you):

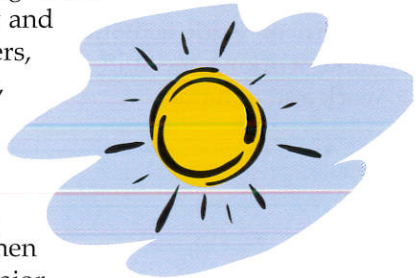


- ⊗ If your shift rotation does not involve night work, follow the advice above for day and evening workers. Remember, the day shift may be more difficult if it has an early start, and the evening shift may take more time away from family and friends
- ⊗ If your shift rotation involves night work, follow the guidelines for night workers. Prepare for the night rotation by getting adequate sleep before that rotation and supplement that sleep with naps if possible. If you are up late the night before a night rotation this may help you adjust to the night rotation, but make sure you get adequate amounts of sleep as well.
- ⊗ If your rotation involves weekend work, make your family and partner a priority on days off since you have lost out on weekend time together.

- ☹ If your shift rotation involves night work, most shift schedules (5 consecutive nights or less) are too short for you to fully adapt biologically to that night routine. In addition, most night workers revert to normal day activities on their time off so that any adjustment that might have occurred is lost. Thus, you can anticipate all of the difficulties associated with night work. It is imperative to follow good sleep hygiene and alertness tips so that your 'sleep debt' does not build over the consecutive nights.
- ☹ If your shift rotation involves night work, consider rotations that involve less consecutive nights in order to minimize sleep debt across the shift rotation. Try to keep consecutive night shifts to a minimum in any shift rotation.
- ☹ If your shift rotation involves day, evening, and night work, organise those shifts in a clockwise manner such that you rotate from day to evening to night shifts. Remember if there is time off between these rotations then you are rotating from a day shift to the next shift.
- ☹ Make sure the time off between shift rotations is adequate. Many shift rotations include shift changes with minimum time off between shifts. For instance, it is not uncommon to work a night shift followed by a evening shift with only 8 hours available between shifts. Little sleep can be obtained between these shifts especially since sleep is hard to get during the day.
- ☹ Remember that if you are on a rotating shift, so, too, is your family on a rotating domestic shift. Plan and schedule time with your family and partner that takes maximum advantage of your shift.

WHAT SHOULD I DO AS A DAY WORKER?

Day workers often have the second most difficult shift, depending on how early they start the shift and how long the commute is to the workplace. Many day workers report for work earlier than they used to and have to stay longer at the workplace (The Toronto Syndrome). Many day workers end up bringing work home and this cuts into their family and leisure time. The use of computers, e-mail, reduced long-distance rates, and faxes all facilitate communication and efficiency but at the same time tend to take time away from the other priorities in our lives. Their days start earlier, especially when you add commuting time in major



urban centers, and end later. Day workers generally report less sleep than they need, more fatigue, and reduced time with family. Here are some tips for day shiftworkers (but make sure they work for you):

- ☹ Use good sleep hygiene and protect your sleep. The earlier the day shift starts, the less sleep the day worker tends to get. Some studies have reported that for every hour you start before 8:00 am, you lose about 45 minutes of sleep. Day workers are often at risk of building a sleep debt. Organise your evening to take into account the amount of sleep you will obtain and plan to go to bed earlier.
- ☹ Reduce your commuting time if possible or arrange to car-pool or use public transportation. Day workers usually have the longest commuting time since most workers are day workers. This can extend your working day considerably, especially in major urban centers, leaving you catching up on other duties at home and delaying your bedtime.
- ☹ Use your lunch break effectively. Not only should you attend to proper nutrition at lunch but you can also use this time to socialize or exercise. Most people suffer from a reduced ability to work and concentrate after lunch (between 1-3 pm). Socializing and especially exercising can reduce the effect of this post-lunch dip in effectiveness.
- ☹ Organise your work to reflect changes in your abilities throughout the day. For instance, in the period after lunch try to schedule activities that change more rapidly, involve group interaction, include more well-learned routine tasks, and avoid new tasks or tasks that require sustained attention and concentration. Try to include tasks in this period that you can literally 'do in your sleep'.
- ☹ As a day worker, you have the best opportunities to spend time with your family, partner, and friends. Use your time effectively so that you don't spend this valuable time working. The pressure to take work home is greater for day workers.

Regardless of what shift you work, whether it is rotating or permanent or involves weekend work or not, you must find the pattern of work activities and sleep strategies that work for you. Make working the shift such that you maximize your enjoyment at work and at home.

APPENDICES

AGENCIES FOR FURTHER INFORMATION:

National Sleep Foundation

Mrs. Carol Westbrook, Executive Director, 122 South Robertson Blvd., Third Floor, Los Angeles, California, USA 90048. Telephone (310)288-0466, Fax (310)288-0570.

The National Sleep Foundation is a non-profit charitable organisation established to help improve the quality of life by promoting knowledge about sleep, its disorders, and its relation to health. The Foundation serves as a national referral service and co-ordinating centre for public information.

Sleep/Wake Disorders Canada

Mrs. Bev Devins, Executive Director, 3080 Yonge St., Suite 5055, Toronto, Ontario, Canada M4N 3N1. Telephone (416)483-9654 or 1(800)387-9253.

Sleep/Wake Disorders Canada is a non-profit volunteer charitable association which encourages and supports anyone with any type of sleep disorder. Non-professional members facilitate self-help groups and provide support. Its members work to improve the quality of life, alertness, and productivity of persons with sleep/wake disorders.

Sleep Devices Inc.

Mr. Kevin O'Donnell, PO Box 23510, Dexter PO, 5889 Leslie St., Willowdale, Ontario, Canada M2H 3R9. Telephone (905)889-6464, Fax (905)889-3649.

This is a mail order business dedicated to providing a range of sleep-related appliances including anti-snoring devices, anti-allergenic bedding, video material, relaxation tapes, and light therapy equipment. A number of devices especially useful for the shiftworker, e.g. ceiling fan (for temperature control and as a white noise device); blackout curtaining; books on insomnia; Canada's Food Guide and magnetic calenders will be helpful.

Health Units/Departments

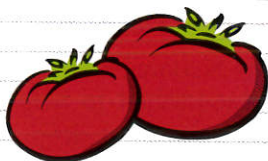
Public Health Units/Departments are funded by governments to provide programs and services to promote health and prevent disease. Check your telephone book for a local health department address.

RECIPE IDEAS:

Here are some great recipes to start you on the path to healthy eating. See Chapter 15 for a discussion of the benefits of healthy eating.

TOMATO SOUP

- 3 tsp. margarine
- 2 onions, chopped
- 6 tsp. sugar
- 6 cups milk
- 2 tbsp. flour
- 2 (28 oz) cans tomatoes



Brown margarine, onions and sugar. Add flour and stir. Add tomatoes and boil for 2 minutes. Add milk.

BEEF BARLEY SOUP

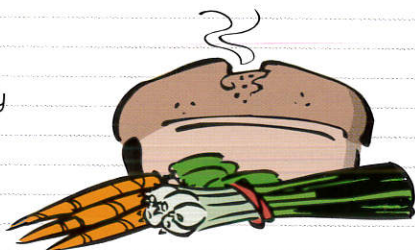
- 2 cups beef chunks
- 6 cups beef broth
- 1 (28oz) can tomatoes, mashed
- 1 (10 oz) can condensed tomato soup
- 2 cups shredded carrots
- 2 cups chopped onions
- 1 cup chopped celery
- 1/2 cup pearl or pot barley
- 6 cups water
- 1 tbsp. parsley flakes
- 1 tsp. sugar
- 1 tsp. salt
- 1/4 tsp. pepper
- 1/4 tsp. thyme



Heat the beef broth. Add all ingredients except chunks of beef. Bring to a boil, cover and simmer slowly for 1 1/2 hour more. Add chunks of beef and continue cooking on low for 1/2 hour more. Makes 22 cups.

VEGETABLE MEATLOAF

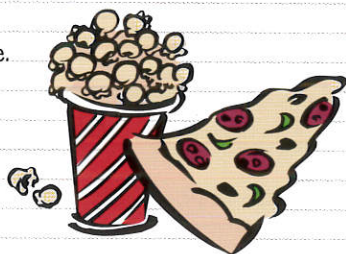
- 1 1/2 lb. lean ground beef
- 1/2 cup wheat bran
- 1 celery stalk, chopped finely
- 1 onion, chopped finely
- 1/2 green pepper, diced
- 2 carrots, shredded
- 1 egg



Mix all ingredients together. Place in loaf pan. Cook at 350°F for 1 hour.

PIZZA POPCORN

- Pop popcorn in an air-popper.
- While hot sprinkle with herb mixture.
- For herb mixture, combine
- 2 tbsp. parmesan cheese
- 1 tsp. garlic powder,
- 1 tsp. Italian herb seasoning
- 1 tsp. paprika and 1/2 tsp. salt.



FRUIT DIP

- 1 cup plain yogurt (2% or less)
- 1 grated peel of lemon
- 1 tbsp. lemon juice
- 3 tbsp. liquid honey



Combine well. Cover and refrigerate.
Serve with seasonal fresh fruit pieces.



GONE ALL AFTERNOON STEW

- 2 lb. stew meat
- 3 medium carrots, sliced
- 2 onions, chopped
- 3 potatoes, peeled and quartered
- 1 pkg. frozen peas
- 1 can tomato soup
- 1/2 soup can water
- Dash pepper
- 1 bay leaf
- 1/4 cup sweet pickle juice

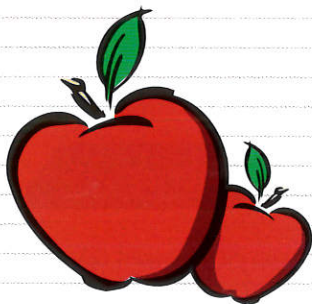


Mix ingredients in large casserole, cover and bake for 5 hours in 275°F oven. Leftover vegetables may be added or used instead of the peas.

NOTE: This is a good recipe to put in the oven before a nap. A salad and rolls served with it makes a complete meal. If peas are used, they can be added after half the baking time has passed or cook on top of stove and add just before serving.

APPLE CAKE

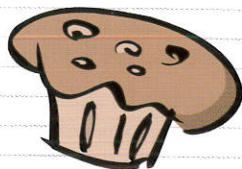
- 1 cup all-purpose flour
- 3/4 cup whole wheat flour
- 2 cups white sugar
- 1 tsp. baking soda
- 1/2 tsp. salt
- 4 cups sliced apples, peeled
- 1/3 cup oil
- 2 eggs
- 1 tsp. cinnamon
- 1/4 cup raisins



Mix first 4 ingredients together, then add sliced apples. Mix together remaining ingredients and blend together with apple mixture. Bake in 11 x 14 inch pan at 350°F for 45 minutes.

SUPRISE MUFFINS

- 1/2 cup raisins
- 1/2 cup boiling water
- 1/2 cup beans in tomato sauce,
mashed with a fork or potato masher
- 1/2 cup rolled oats
- 1/2 cup flour
- 1/4 tsp. salt
- 1/2 tsp. baking powder
- 1/2 tsp. cinnamon
- 1 egg
- 1/4 cup oil
- 1/4 cup packed brown sugar
- 1/2 tsp. vanilla



Mix raisins with boiling water, stir and set aside. Mix beans, oats, flour, salt, baking powder, baking soda and cinnamon together and set aside. Mix eggs, add oil, brown sugar and vanilla. Blend with bean mixture along with raisins and water. Bake at 350°F for 30 minutes. Makes 12 large muffins.

(Ontario Ministry of Agriculture and Food, Ontario Coloured Beans)

ALMOND COOKIES

- 2 tbsp. margarine
- 1/2 cup sugar
- 1/2 tsp. vanilla
- 1/2 tsp. almond extract
- 1/2 cup chick peas, mashed
with a fork or potato masher
- 1/2 cup rolled oats
- 1/2 cup skim milk powder
- 2 tsp. baking powder
- 1/2 cup flour
- 1/2 tsp. salt
- 1/2 cup raisins
- 1/2 cup sliced almonds
- 2 tbsp. milk or more, if necessary



Mix margarine, sugar and flavourings. Mix beans with dry ingredients and add to margarine mixture. If mixture is too dry, add milk. Fold in raisins and almonds. Drop by teaspoons onto cookie sheet. Bake at 350°F for 15 minutes. Makes 25 cookies.

(Ontario Ministry of Agriculture and Food, Ontario Coloured Beans)

FURTHER READING

Resources relevant to shiftworkers:

Shiftwork Like Clockwork Facilitator's Guide, Sudbury and Porcupine Health Units, 1995 (Telephone 705-922-9200)

Conquering Insomnia Available by mail order from Sleep Devices Inc. (see previous page)

The Nurses Handbook, Ruth Alward & Timothy H. Monk, American Nurses Publishing, Washington, D.C. 1993

Great recipe books for healthy eating:

The Vitality Cookbook, Monda Rosenberg and Frances Berkoff with Chatelaine triple-tested recipes. Harper Collins Publishers Ltd. 1995

Suppertime Survival, L. Roblin & B. Callaghan, MacMillan Canada 1995

Healthy Pleasures Great Tastes from Canadian Dietitians and Chefs, The Canadian Dietetic Association in collaboration with the Canadian Federation of Chefs and Cooks, Macmillan Canada 1995

MultiCultural Cooking, Kay Spicer, Canadian Diabetes Association, Mighton House 1995

Simply Heart Smart Cooking, Bonnie Stern, Random House, Toronto and the Heart & Stroke Foundation of Canada 1994

THE AUTHORS AND THE BOOK

Further information about the Authors can be obtained through JoliJoco Publications. Phone/Fax: 905 882 6748.

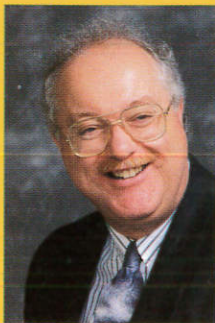
Bulk orders of this book or a version tailored for a particular industry workplace can be made available upon request.

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