







Shift Schedule Optimisation Program

&

Shift Working lifestyle training



Agenda

-  Shift Scheduling Optimisation Process (SSOP)
-  Scheduling Fundamentals
-  Sample Schedules
-  Shift working life style training

- Shift Schedules optimisation programme –
Working with Circadian Rhythms-US based
company
- A system for designing and determining the
optimal work pattern for any site

Shift Schedule Optimisation Process (SSOP)

- 🔪 Best work patterns are site specific
- 🔪 Three critical components (design criteria)
 - Operational (business needs)
 - Physiological (health and safety needs)
 - Sociological (employee needs and preferences)
- 🔪 Key is to determine each of the above criteria
- 🔪 Criteria provide a “yardstick” for measuring schedule alternatives for fit
- 🔪 All options and alternatives evaluated
- 🔪 Affected employees select preferred schedule from best alternatives
- 🔪 Current shift pattern is not an acceptable option
- 🔪 Circadian Technologies provides technical support to facilitate evaluation process



Goals and Objectives

- Maximise shiftworker quality of life
- Maximise health and safety
- Respond to employee scheduling concerns
- Determine the best schedule possibilities that exist
- Include employees in the evaluation process
- Respond to customer demand

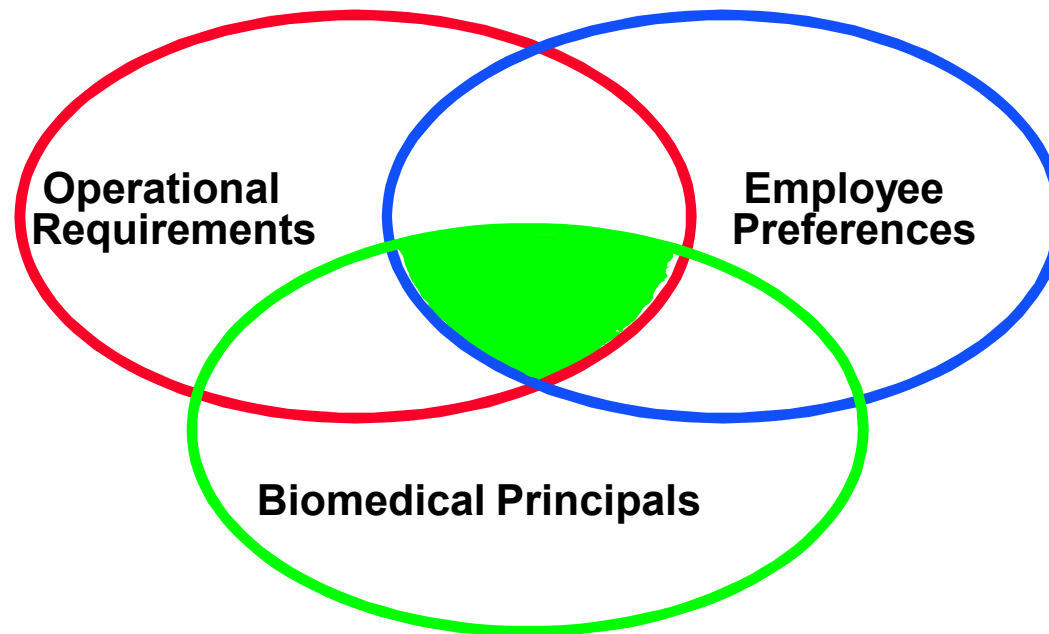
SSOP Key Elements

- Establish business needs/management operating criteria
- Conduct scheduling education sessions
- Administer survey on-site
- Analyse survey results
- Define employee design criteria
- Design schedule options that best fit the criteria & business criteria
- Present best schedule options/pro's and con's/features, etc. to employees
- Employees rank options
- Resolve implementation issues
- Change to new schedule for 12-month trial,
- Conduct post-implementation assessment (12-month follow-up)



Design Considerations

Site Specific Criteria



Physiological Design Criteria*

- 🔪 Clockwise rotation is easiest on the body
- 🔪 Slow rotation speed
- 🔪 Maximum schedule regularity
- 🔪 Minimum consecutive shifts worked
- 🔪 Minimum 48-hour rest/recovery breaks between turns
- 🔪 Maximum 12-hours worked per day (with either 8 or 12-hour shifts)
- 🔪 Maximum long breaks (4+ days) per cycle
- 🔪 Minimum night shift (sleep/wake) transitions

*Based on science and experience. No one schedule meets 100% of the physiological criteria, and no one criteria disqualifies a particular schedule option. It's the overall alignment that counts.



Employee Design Criteria

(Shiftworker Preferences)

- 🔪 Based on confidential survey data
 - a. Desired schedule features
 - b. Family/social needs
 - c. Health and safety needs
 - d. Personal preferences
- 🔪 Multiple choice (no right or wrong answers)
- 🔪 Anonymous questionnaire provides everyone an opportunity for personal input
- 🔪 Results presented to all as group responses to each question (no individual data)
- 🔪 Results used to determine employee schedule design criteria
- 🔪 Provides basis for determining preferred work schedules

Employee Handbook Schedule Options for Continuous Operations

Presented to:



November 2003

Employee Design Criteria

Q #	CRITERIA	SURVEY SCORE	SCORE ON 100 PT. SCALE
124	Rotation speed of 1 -2 weeks	93 %	12.1
116	Maximize total number of full weekends off (Saturday and Sunday)	88 %	11.4
117	Provide Schedules with long weekends off (3 or 4 days)	82 %	10.6
114	Provide schedules with the most days off possible	79 %	10.3
115	Minimize the number of consecutive shifts	79 %	10.2
Composite see below	Prefer 12 hour shifts	74 %	9.6
127, 128	Prefer to work rotating shifts	73 %	9.5
122	Prefer long weekends having Fri, Sat, & Sun off	70 %	9.1
118	Prefer every other weekend off versus blocked weekends	68 %	8.8
119	Provide schedules with long breaks (4 or more consecutive days off)	65 %	8.4
		770 %	100.0

148, 148, 150, 162, 163, 164	Prefer 8's	13 %
148, 151, 163, 163, 164	Prefer Combos	13 %
148, 152, 153, 162, 163, 164	Prefer 12's	74 % *

* = mandated preference



Example: Employee Design Criteria (Shiftworker Preferences)

Q #	Criteria	Max Score	Option A	Option B	Option C	Option D	Option E	Option F
124	Rotation speed of 1 -2 weeks	12.1	12.1	12.1	12.1	12.1	12.1	12.1
116	Maximize total number of full weekends off (Saturday and Sunday)	11.4	11.4	11.4	11.4	11.4	11.4	8.3
117	Provide Schedules with long weekends off (3 or 4 days)	10.6	10.6	5.3	10.6	10.6	5.3	8.0
114	Provide schedules with the most days off possible	10.3	10.3	10.3	10.3	10.3	10.3	10.3
115	Minimize the number of consecutive shifts	10.2	9.2	9.2	7.6	7.6	7.6	5.1
Composite see below	Prefer 12 hour shifts	9.6	9.6	9.6	9.6	9.6	9.6	9.6
127, 128	Prefer to work rotating shifts	9.5	9.5	9.5	9.5	9.5	9.5	9.5
122	Prefer long weekends having Fri, Sat, & Sun off	9.1	9.1	4.5	9.1	9.1	4.5	6.8
118	Prefer every other weekend off versus blocked weekends	8.8	8.8	8.8	0.0	0.0	0.0	0.0
119	Provide schedules with long breaks (4 or more consecutive days off)	8.4	0.0	4.2	4.2	4.2	8.4	8.4
	TOTALS	100.0	90.5	84.9	84.4	84.4	78.8	78.1



Example Schedule

Option F: 12-Hour 2-3-2

	M O N	T U E	W E D	T H U	F R I	S A T	S U N
1	D	D	-	-	N	N	N
2	-	-	D	D	-	-	-
3	N	N	-	-	D	D	D
4	-	-	N	N	-	-	-

2 - 2 , 3 - 2 , 2 - 3



Sample Ranking Form:

Rank options from 1 (favorite) to 6 (least favorite), leaving no boxes blank and using each number only once, or your ranking form will be invalid.

Option A -

**8-hour, semi-fixed schedule: 7-2, 7-2, 7-3
One 3-day break per month; 13 full weekends off per year**

Option B -

**8-hour, semi-fixed schedule: 6-2
7 full weekends off & 13 partial weekends off per year**

Option C -

**12-hour, fixed schedule: 4-4
20 full weekends & 13 partial weekends off per year**

Option D -

**12-hour, fixed schedule: 3-2, 4-5 / 2-4, 5-3
Two long-breaks per month; every other weekend off**

Option E -

**12-hour, fixed schedule: 2-2, 5-5 / 2-5, 5-2
Two 5-day breaks per month; every other weekend off**

Option F -

**12-hour, fixed schedule: 2-2, 3-2, 2-3
Two 3-day breaks per month; every other weekend off**



Agenda/Aims - training

Discuss

 circadian rhythms

 Sleep

 Healthy lifestyle

Improved understanding of ourselves

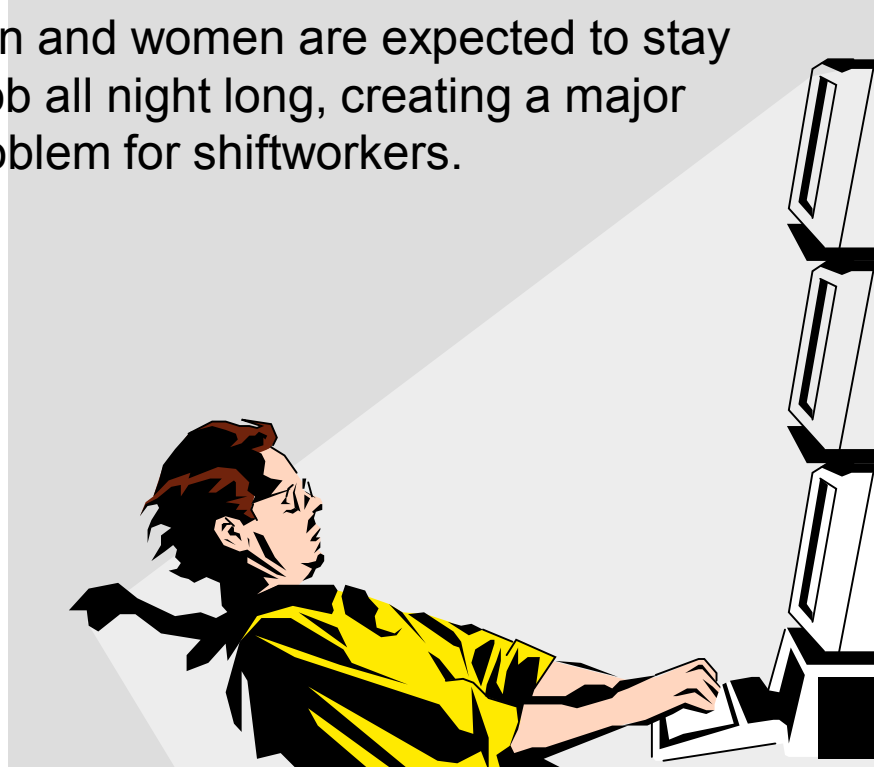
Design Specs of the Human Body

Humans were not designed for peak performance at night.

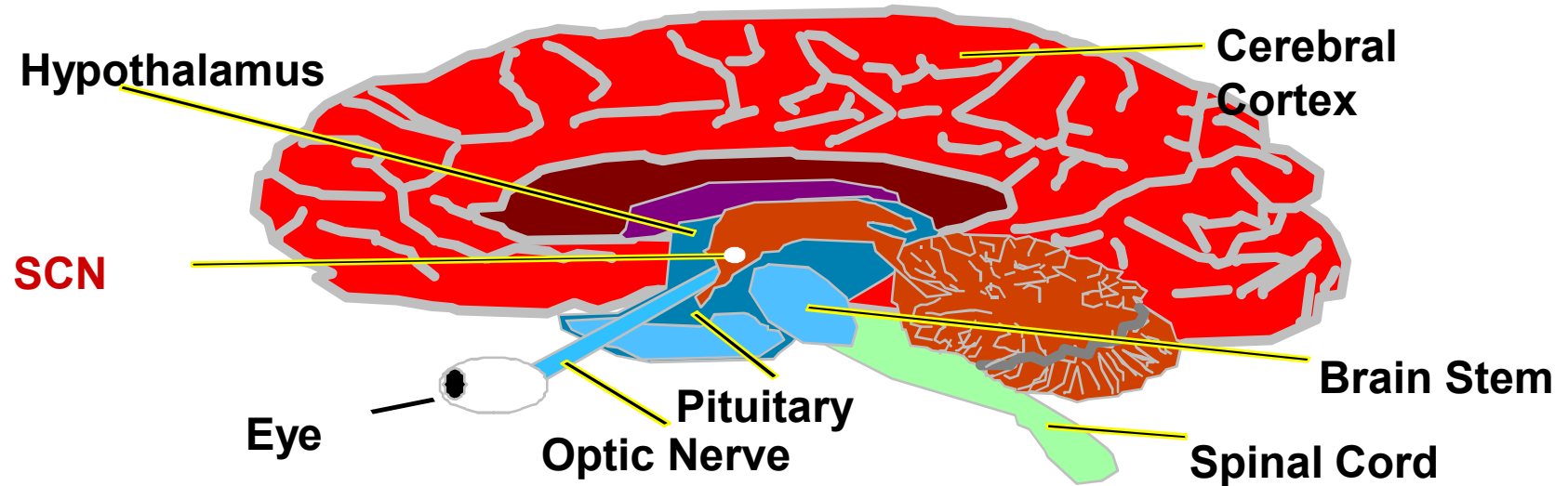


Fighting Mother Nature

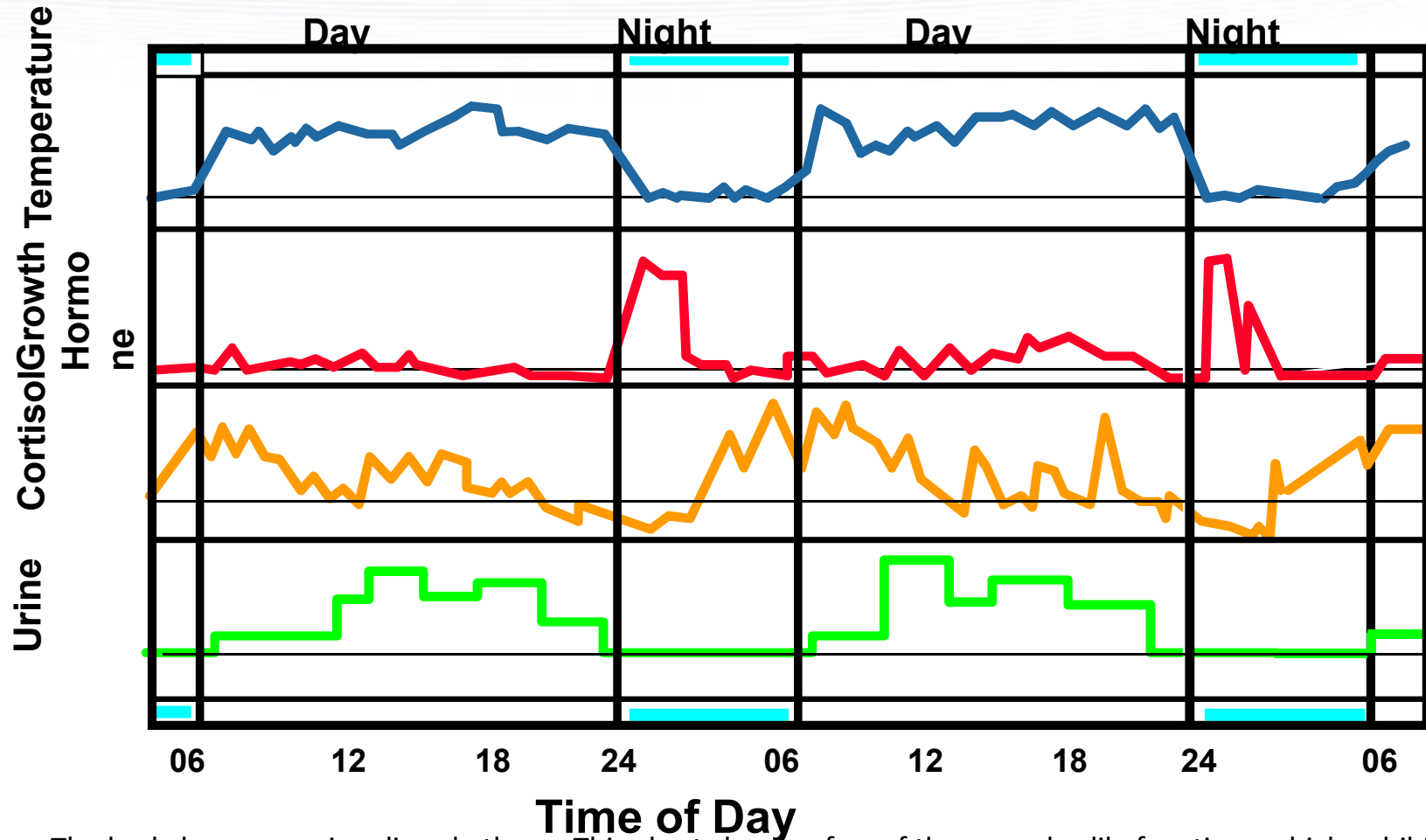
But modern men and women are expected to stay alert on the job all night long, creating a major problem for shiftworkers.



Suprachiasmatic Nucleus (SCN)

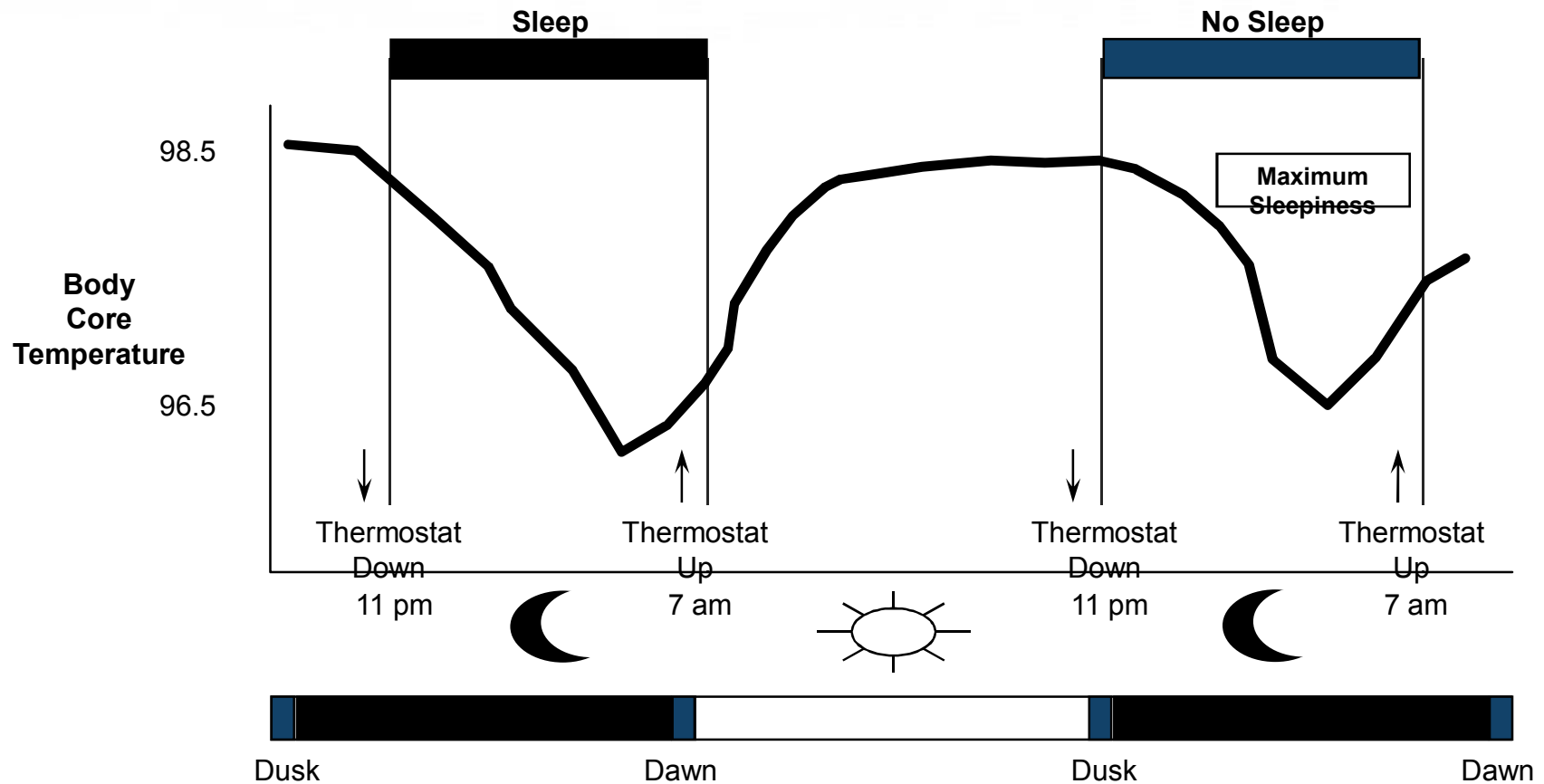


Daily Rhythms



The body has many circadian rhythms. This chart shows a few of the many bodily functions which exhibit a normal daily rhythm, including (1) core body temperature, (2 & 3) secretion of hormones such as growth hormones and stress hormones like cortisol, and (4) levels of electrolytes such as potassium in the blood and urine.

Circadian Temperature Rhythms



Whether we are awake or asleep, body functions continue to follow their Circadian rhythms.

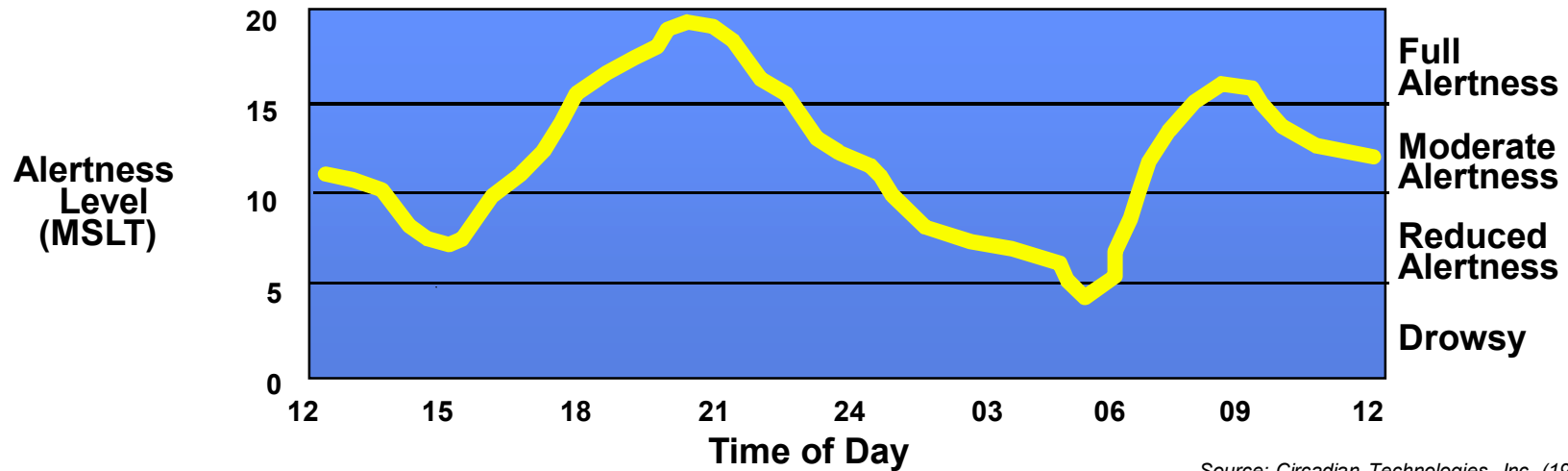
Alertness

 PLD

 Ultradian Rhythms

 Alertness & Sleep

Alertness Variability Over 24-Hour Period



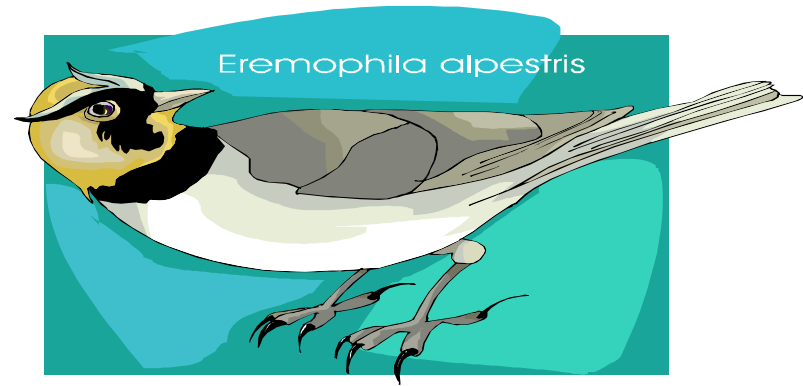
Source: Circadian Technologies, Inc. (1993)



Individual differences

Are you a

 Lark



Or an

 Owl?



Understanding sleep

- 🔪 Why do we need it?
- 🔪 How much do we need?
- 🔪 What can go wrong!
- 🔪 Sleep Architecture
- 🔪 Day time sleep
- 🔪 Shift workers



Improving your sleep

Managing your environment

- Light
- Bedding
- Ventilation
- Temperature
- Noise



How to improve your lifestyle & get better sleep

- ☞ Caffeine
- ☞ Alcohol
- ☞ Nicotine
- ☞ Sleeping pills
- ☞ Natural sleeping aids



Driving



- 🚗 Drowsy driving signs
- 🚗 Safety tips for the road







Shift working & Health

- 🔪 Sleep
- 🔪 Exercise
- 🔪 Diet/healthy eating
- 🔪 Digestion
- 🔪 Heart disease
- 🔪 Diabetes
- 🔪 Stress/ battling burnout
- 🔪 Family life/relationships



Summary

-  Circadian rhythms
-  Sleep and alertness
-  Driving
-  Healthy lifestyle