

Fatigue management for supervisors

•	• •			• •		• •		• •		• •		• •		• •		• •			• •			• •			- 6-						• •	• •			• •		• •				1.10		• •				a (a	1.1	
•										• •		• •		• •		• •			• •				F																1.0	1.0	1.0			1.0			a (a)	10.00	1.0
•	• •									• •		• •		• •		• •	÷		• •			• •															• •												1.00
•	• •		 									• •		• •			1.14				• /				•))•				÷			÷.,					• •			1.0			• •	10					1.00
•	• •		 											• •									1	-	٢.,				÷											10.14		10		10		1.		10.00	1.0
•	• •		 											• •															÷											10.14		10		10		1.		10.00	1.0
•	• •	14.1	 		14.14						14.1	• •					1.											1.1	1.14			1.14		1.				14.14				1		100				10.0	1.0
•	• •	14.1	 		14.14						14.1	• •					1.					. .						1.1	1.14			1.14		1.				14.14				1		100				10.0	1.0
•	• •	14.1	 		14.14						14.1	• •					1.	-				• •						1.1	1.14			1.14		1.				14.14				1		100				10.0	1.0
•	• •	14.1	 1.14		14.14	÷ 14	14.1		14.1	• •	14.1	• •	14.1	• •	14							• •						1.	1.14		1.14	1.14		1.		14.1		14.14		24.3		201		24		100		1.0	1.56
•	• •	14.1	 1.14		14.14	÷ 14	14.1		14.1	• •	14.1	• •	14.1	• •	14	• /						• •						1.	1.14		1.14	1.14		1.		14.1		14.14		24.3		201		24		100		1.0	1.56
•	• •	14.1	 1.14		14.14	÷ 14	14.1		14.1	• •	14.1	• •	14.1	• •	100							• •						1.	1.14		1.14	1.14		1.		14.1		14.14		24.3		201		24		100		1.0	1.56
	• •	14	 1.4		14.14	÷ 14	14.1		14.1		14.1	• •	14.1							1.		• •						1.	1.14		1.14	1.14		1.		14.1		14.14		1.0		100		100		1.0		20.24	1.56
	• •	14	 1.4		14.14	÷ 14	14		14.1		14.1	• •	14.1							1.		• •						1.	1.14		1.14	1.14		1.		14.1		14.14		1.0		100		100		1.0		20.24	1.56
	• •	14	 1.4		14.14	÷ 14	14		14.1		14.1	• •	14.4				1.			1.		• •						1.	1.14		1.14	1.14		1.		14.1		14.14		1.0		201		100		100		20.24	1.56
	• •	14	 1.4		14.14	1.	14		14.1		14.1	• •					1.			1.		• •						1.	1.14		1.14	1.14		1.		14.1		14.14		1.0		201		100		1.0		20.24	1.56
	• •	14	 1.4		14.14	1.	14		14.1		14.1	• •			•		1.			1.		• •						1.	1.14		1.14	1.14		1.		14.1		14.14		1.0		201		100		1.0		20.24	1.56
	• •	14	 1.4		14.14	1.	14		14.1		34.2				14		1.			1.		• •						1.	1.14		1.14	1.14		1.		14.1		14.14		1.0		201		100		1.0		20.24	1.56
		14.1	 1.4		14.14		 14.1		14.1		14 V			• •	14		1.			1.			14			14		1.	1.14		1.14	1.14		1.		14.1		14.14		1.0		26.1		26		100		1.0	1.56
		14.1	 1.4		14.14		 14.1		14.1						14		1.			1.			14			14		1.	1.14			1.14		1.		14.1		14.14		1.0		26.1		100		100		1.0	1.56
		14.1	 1.4		14.14		 14.1		14.1	5 N.		1	14.1		14		1.			1.			14			14		1.	1.14			1.14		1.		14.1		14.14		1.0		26.1		100		100		1.0	1.56
		14.1	 1.4		14.14		 14.1		14.5			ζ.,	14.1		14		1.			1.			14			14		1.	1.14			1.14		1.		14.1		14.14		1.0		26.1		100		100		1.0	1.56
		14.1	 1.4		14.14		 14.1			• 14			14.1		14		1.			1.			14			14		1.	1.14			1.14		1.		14.1		14.14		1.0		26.1		100		100		1.0	1.56
		14.1	 1.4		14.14		14.1				14.1		14.1		14.1		1.			1.			14			14		1.	1.		1.	1.1		1.		14.1		14.14		1.0		100			1.0	100		100	1.5
		14.1	 1.4		14.14		14.1		14.1	Υ.	14.1		14.1		14.1		1.			1.			14			14		1.	1.		1.	1.1		1.		14.1		14.14		1.0		100			1.0	100		100	1.5
		14.1	 1.4		14.14	1.	 14.1		14.1		14.1		14.1		14.1		1.			1.			14			14	a 1	1.	1.	1 1	1.	1.	a 1	1.		14.1		14.14		1.0		100		100	1.0	100		10.14	1.5
		14.1	 1.4		14.14	1.	 14.1		14.1		14.1		14.1		14.1		1.			1.			14			14	a 1	1.	1.	1 1	1.	1.	a 1	1.		14.1		14.14		1.0		100		100	1.0	100		10.14	1.5
			 1.4				 1.		1.		14.1		14.1		1.																1.	1.		1.		14.1		14.14		100		100		6		1		10.14	
			 1.4				 1.		1.		14.1		14.1		1.																1.	1.		1.		14.1		14.14		100		100		6		100		10.14	
•			 1.0		14.14	1.	 1.		1.		14.1		14.1		1.																1.	1.		1.		14.1		14.14		26.0		100		10	6.5	100		26.24	



Definition

	na pengawata je na												
	· · · · · · · · · · · · · · · · · · · ·												
\sim													
•••••••••••••••••••••••••••••••••••••••													
· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • •	*****											
* * * * * * * * * * * * * * * * * * * *		* * * * * * * * * * * * * * * * * * * *											
			ne n										



Fatigue

"A state of impaired mental and/or physical performance and lowered alertness arising as a result or combination of hard physical and mental work, health and psychosocial factors or inadequate restorative sleep"







	1.4		• •	1.	• •	14.1	• •		1.00		14.14	6 (A)		1.14		14	• •							1.				• •	14.1	• •	14.1	• •	14.14	1.14		14.1			14.1	• •	14.1	a (a)	10.14		1.0	a (a)	10.00	1.0		20.3	
	1.		• •	1.		14.1			1.		14.14			1.		14	• •	14		14		14					10	• •	14.1		14.1		14.14	1.		1.0			1.		26.9				1.0		1.0			200	
	1.14			1.		14.1		Se . 14	1.		14.14			1.		1.		14		14		14					1.0		14.1		14.1		14.14	1.		1.0			1.0		25.9				1.5		1.0			26.5	
	1.	1.0		1.0		14.1		Se 14	1.		14.14			1.		1.		14		14		14.1					100		14.1		14.1		14.14	1.		1.0					22.0		0.0		1000		0.0		1.0	22.2	
																											100														22.2				1000		100			1000	
																												2.2		2.2		2.2								2.2											
																		÷.				÷.								10																					
																		÷.		÷.												1.1																			
			• •		• •		• •					• •	• •	۰.	• •		• •				• •		• •			• •		• •		• •		• •		۰.			• •	• •		• •											
•	• •		• •		• •	. * .	• •			• •		• •	• •		• •		• •		•		• •		• •			• •		• •		• •		• •		• •	• •		• •	• •		• •	1	1 (A)		1.1	1	1 (1)	1.1				P. (*
	• •		• •		• •		• •			• •		• •	• •		• •		•••			Y	•		• •			• •		• •		• •		• •		• •	• •		• •	• •		• •	1	8 (B)	1	1 (A)	1 1	8 (B)	1.1				e . e
• •	• •		• •		• •		• •					• •	• •		• •		* 🐴			-	Ø. •		• •			• •		• •		• •		• •		• •			• •	• •		• •		a (a)		6 (A		a (a)				1.0	6 (A
							• •												• *•								1.			• •		• •								• •	1.0	a (a)		8 (B.		a (14)		1.0		1.0	1.0
			• •				• •		1.00										• •					1.0		• •		• •		• •		• •								• •										20.2	6 (A
			• •															•										• •		• •										• •	20.07				1.0					20.0	
	1.14		• •	1.		14.1		1 • •	1.00		14.14			1.6				14		14		14		1.			100	• •	14.1	• •	14.1		14.14	1.4		1.0			1.		20.0		1.0		1.0		10.00	1.0		20.0	
	1.14			1.		14.1		Se . 14	1.		14.14							14		14		14		1.			1.0		14.1		14.1		14.14	1.		1.0			1.0		25.9				1.0		1.0			26.5	
	1.	14.1		1.		14.1		Se . Se	1.56		14.14		- 1			1.		14		14		14		1.5			1.0		14.1		14.1		14.14	1.		1.0			1.0		100.07		0.0		1.5		1.0			26.5	
									1.				- V					1.		1.		1.					2.0		1.												22.2	1.55	0.0		0.0		0.0			25.0	
												P															100														22.2				22.0		0.00			1000	
													/ <															2.2		2.2		2.2								2.2											
																												10		2.2										10											
			• •		•••		• •						• •		• •		•••		•••		• •		• •			• •		• •		• •		• •		٠.	• •		• •	• •		• •											
•	• •		• •		• •		• •			• •		• •	• •	•	• •		• •		• •		• •		• •			• •		• •		• •	.*	• •		۰.	• •		• •	• •		• •							1.1				
	• •		• •		• •		• •			• •		• •	• •		• •		• •		• •		• •		• •			• •		• •		• •		• •		• •	• •		• •	• •		• •		1 (A)			1.1	8 (B)	1.1				1.1
	• •		• •		• •		• •						• •		• •		• •		• •		• •		• •			• •		• •		• •		• •		• •			• •	• •		• •		8 (B		1 (A	1.00	8 (B					6 (A)
•			• •		• •		• •		1.0			e 14		1.0			• •								•			• •		• •		• •					e 14			• •	10.11	0.10		6 ° 6		0.10	0.0	10		10.11	1.0
			• •				• •																					• •		• •		• •								• •	20.0	a (a				0.00				10.1	
			• •																									• •		• •		• •								• •	0									10.1	



Impact of fatigue

1. Poor Concentration

Sleep deprivation (hrs)	Blood Alcohol Concentration
17 to 19	0.05
18 to 20	0.1

2. Poor Health

- Depressed Mood
 - Overweight
 - Lack of Energy
 - Physical Affect

= IT WILL AFFECT YOU !



Costs of Fatigue?

Fatigue costs the UK £40billion per year, of which £115-£240 million related to workplace incidents

200,000 lost working days per year

Driver fatigue contributes to 20% - 30% of private vehicle deaths and 20% of rail accidents





Clapham junction rail crash 1988

- A multiple train collision
- Thirty-five people died
- Five hundred people were injured.
- Faulty signalling connection
- The signalling technician responsible had worked a seven day week for the previous thirteen weeks.







Health effects

\sim																																																								
•																							1.				1	54			1.			1.		1.							1.14			1	. 1	1.00					100			2.
		14			14		14.14	1.4		14.1		14		1.			14		1.4				1.			1					1.			14		1.	14.1		14.1		1.		1.	14.1		100	6.9				14.1					
		14			1.		14.14	1.4		1.0		14		1.			14		1.	1.			1.			. (1.			1.		1.			14.1		1.		1.			100	1.1		1.		14					
					1.		1.1	1.0		1.0		1.0		1.			1.0			1.0								ノ			1					1	1.1		1.0					1.1		100	1.19	100	1.0	1.54	1.0	2.54	1000	1.5		100
																												J																												
		0																																																						
		0		10																				0										0																	÷.					
																								Ý																																
	• •			• •		• •			• •		• •		• •			• •										• •				• •			• •		• •			• •		• •																
•	• •			• •		• •		• •	• •		• •		• •			• •		• •							•	• •			•	• •		•	• •		• •			• •		• •		• •			• •		1									
•	• •			• •		• •		• •	• •		• •		• •			• •		• •							•	• •			•	• •		•	• •		• •			• •		• •		• •			• •		1							1		
•	• •			• •		• •		• •	• •		• •		• •			• •		* 4			• <				•	• •			•	• •		•	• •		• •			• •		• •		• •			• •		P 1								1.1	
•	• •			• •		• •			• •		• •		• •			• •						• •			•	• •			•	• •		•	• •		• •			• •		• •					• •		P 1							a a	1.10	
•	• •			• •		• •			• •		• •		• •			• •		•			• •	• •			•	• •			•	• •		•	• •		• •			• •		• •					• •					• •		a (a		a 14	1.0	
•	• •								• •				• •									• •			•	• •			•	• •			• •					• •		• •					• •			1.00		a (a				- C	1.0	
•	• •			• •		• •					• •		• •								• •				•	• •			•	• •		•	• •					• •		• •								1.00								
•				• •														1							•				•																								1.0			1
•				• •						1.0	• •														•				•							1.										1							1.0			1
•				• •	14		14.14	1.4		1.0	• •	14											1.		•		1.		•										14		1.		1.			100	. 1				14		100			1
		14			14		14.14	1.4		14.1		14.			$\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{$	6.	14		1.4				1.				1.	14			1.			14		1.	14.1		14.1		1.		1.	14.1		100	6.9				14.1					
		14			1.		14.14	1.4		1.0		1.					14		1.				1.		•		1.	14	•		1.			1.		1.	14 C		14.1		1.		1.	14 C		100	6.9	100			14.1	1.54	100	10.04		
		14			1.		14.14	1.4				1.		1			14		1.	1.			1.				1.	14			1.			1.		1.			14.1		1.		1.			100	1.1		1.		14					
					1.		14.14	1.4				1.0		1.			14		1.	1.0			1.	1.			1	14			1.			1.		1.	14.1		14.1		1.		1.	14.1		1001	1.5		14.1		14		1001	1.19		
					1.		1.1	1.0		1.0			Ζ.,	1.			1.0			1.0								1.0			1					1	1.1		1.0					1.1		100	1.19	100	1.0	1.54	1.0	2.54	1000	1.5		
		0		2.2							2.2													0																																
		0		10																				0										0																	÷.					
																																																				-				



Circadian Rhythm

- The Internal Body Clock: All living things regulated by 24 hour biological rhythms
- Time cues prime us for activity in the day, sleep at night. Most significant is exposure to light
- Sleepiness between midnight and 6am. Peaks 2am to 4am
- Smaller peak 1pm to 3pm







Short term health effects

- Physical blood shot eyes, slowed movements, poor co-ordination, slow responses
- Cognitive difficult to concentrate, make clear decisions, take in and act on information, more frequent lapses of attention or memory, react more slowly, make more errors
- Emotional depressed mood, irritable, frustrated





Long term health effects

- Cardio vascular high blood pressure, heart disease, high cholesterol
- Gastro-intestinal disorders stomach ulcer, heartburn, indigestion and obesity
- Substance misuse caffeine, nicotine, alcohol, sleeping pills, drugs)
- Sleep problems insomnia, obstructive sleep apnoea, shift work sleep disorder





When to see a Dr

- Do you snore?
- Are you excessively tired during the day?
- Have you been told you stop breathing during sleep?
- Do you have a history of hypertension?
- Is your neck greater than 43cm's (male) or greater than 4
- 0.6cm's (female)?
- Are your sleeping habits not improving after making lifestyle changes such as quitting smoking or engaging in physical activity?

If you answer yes to three or more questions, you should discuss your symptoms with your doctor





Fatigue assessment

•	• •		• •		• •		• •			• •			• •		• •						• •		•		- 4			171	• •		• •		• •		•	• •		• •	• •								P				
			• •		• •		• •												÷.,				• •	÷.,	P			Ko i Y	• •		• •		• •									 10.7	a (16)	200	a (a	1.00	a (a)		1.00		1.0
							• •				1.0								÷.					1					• •															10							1
											1.00						1.14		1.14							1		1.0							1.4		14.1					 26.7		10					100		
		14.1		1.		14.1		Se . 14	1.		1.						1.		1.			14.1	. (6	-	Z.,	1.0		14.1		14.1			1.14		1.0	1.			1.00	 100.0		26.1		1.0		1.0	1001		
		14.1		1.		14.1		Se . Se	1.		1.54	1 1					1.		1.5			14.1						1.9		14.1		14.1		14 A	1.5		1.0	1.		1 1	1.00	 100.0		1.0		1.0			1001		
											1.						1.											1.1				1.										1000		2.0		1.1	1.00	0.0	1000	1.0	
											1.						1.											1.1				1.										1000		2.0		1.1	1.00	0.0	1000	1.0	
																							7																			100	1.00	100					1000		
							2.2																						2.2		2.2		10																		
							10																						10				10																		
																	• _ `																																		
	• •		• •		• •		• •																• •			• •			• •		•••		• •		٠.	• •		٠.	•••												
• •	• •		• •		• •		• •			• •			۰.						•		• •		• •			• •			• •		• •		• •		۰.	• •		•	• •								1 (1)				
•	• •		• •		• •	. * .	• •			• •			• •			1	Υ.	* *		* 1	• •		•			• •			• •		• •		• •		•	• •		•	• •				8 (B)		1 (A)		1 (1)				
•	• •		• •		• •		• •			• •											• •		• •			• •		1	• •		• •		• •		• •	• •		• •	• •				8 (B)				8 (B)	1			
• •	• •		• •		• •		• •							~ e							• •		• •			• •		1	• •		• •		• •			• •			• •			 	8 (B				8 (B)	1.1			
• •	• •		• •		• •		• •					• 6									• •		• •	1.0		• •			• •		• •		• •			• •		• •				 	a (a)				6 (A				
• •					• •		• •					- V											• •	- 10		• •							• •									 10.1	a (a)	1.0			a (a)				10
• •					• •		• •																• •	1.0		• •	1		• •				• •									 1.0		1.							1
• 1							• •		÷						1 A.				÷				• •	1.0		• •	1		• •				• •		() () ()							 									10
• •							• •					V7							÷				• •	1.00			100		• •						1 A.							 10.1		1.					1.00		1
• •							• •		1.14		1.00	÷.,					1.14		1.14					1.0			1		• •						1.14		14.1					 100							1.00		16
• •	1.14	14		1.		14.1		14 A	1.		1.00		1.4		1.4		1.0		1.14			14		1.			100		• •			14.1			1.14		14.1	1.4			1.00	 26.7		100		1.0			100		16
• •		14.1		1.		14.1		Se . 14	1.		1.		1.1		1.1		1.		1.			14.1		1.				1.0		14.1		14.1			1.4		14.1	1.			1.00	 100.0		1.0		1.0			1001		
		14.1		1.		14.1		14.14	1.		1.						1.											100		14.1		1.0			1.		1.				1.	 26.2		100		100			100		6
		1.0		1.		1.0		1			1.						1.											100		1.0		1.0			1.		1.					100		100		100		10.0	100	18 No	
		1.0				1.0																																				100		100				0.0	1000	S. 5.	







Individual causes

- Circadian rhythm
 - Health conditions
- Sleep quality
 - Lifestyle
 - Poor Diet
 - Poor Hydration
 - Excessive Alcohol
 - Excessive/timing of caffeine
 - Lack of Exercise outside of work
 - Depressed Mood eg relationships, injury etc
 - Other factors

Individual



Work causes

- Long daily work hours
- Concentrating for extended periods
- High risk activities
- Shiftwork
- New at job or skill
- Working alone
- Being on call
- Working night shift





Work environment causes

- Insufficient breaks
- Not using breaks effectively
- Noise, vibration and heat
- Repetitive or boring tasks
- High physical and/or mental exertion

Work Environment



Home environment causes

- Sleep disruptions neighbours, family, living in multiple occupancy accommodation
- Poor sleep habits late to bed, watching tv
- Family illness, new baby
- Worries financial or domestic

Home Environment



Legal requirements

																											17 A.																								
•			* 1			• •			• •														• •												• •			• •			8 (B)	1.0.7	A 19		a (a		a (a	1.0	1.10		
•									• •												1.			1.	1			6 A																							1.0
		14		1.1	14.1		14.14	1.00		14.14	1.14	14.14					1.00		1.0		1.				6				1.14	 		1.1		1.0		Se 14	1.0			1.0	1.00			100		14.1				1.5	
		1.0			1.1					1.1							1.0													 				1.0			1.0			1.0	1.000	200	1.00	100		1.0		0.00		S. 54	
																									4																										
		÷.																								<u> </u>																				÷.					
•			•	۰.		• •			• •		۰.		• •		• •	• •		• •					•	\mathbf{r}		• •		• •	۰.	• •		۰.	• •		• •			• •	• •												
•	•		•	• •		• •			• •				• •		• •	• •		• •		• •					•	• •		• •		• •		•	• •		• •			• •	• •		8 (B)		1 (1)		a (a		a (a				
•						• •			• •													*	4			• •	1.0								• •			• •			8 (1 8		8 (B)		a (a		a (a		1.00		1.0
•									• •		÷												• •			• •	100		÷						• •			• •			a (14)										1.0
•				÷ .					• •														• •			• •	1.															10.0									1.0
•		14		1.	14.1			1.00		14.14	1.4						1.							1.			100		1.4	1.		1.		1.			14.1			1.0		100		1.0		14		1.0		1.0	100
• 1		14		1.1	14.1		1 1	1.00		14.14	1.	1 1												1.			1.0		1.	1.	a 1	1.		1.0			1.			1.0		100		1.1		14.1		1.0	1.00	1.0	
		1.0		1.	1.1			1.0		1.1																	100			 		1.		1.0			1.0			1.0	1.00	22.2	1.00	1000		1.0		22.2		1.0	
									2.2																		100																								
																																														÷.					
		÷.																																												÷.					
•			•	۰.		• •			• •		۰.		• •					• •					• •			• •		• •	۰.	• •		۰.	• •		• •			• •	• •												
•	•		•	• •		• •			• •				• •			• •	Υ.	• •		• •			• •		•	• •		• •		• •		•	• •		• •			• •	• •		8 (B)		1 (1)		a (a		a (a				
•	• •			• •		• •			• •				• • •					• •					• •			• •				• •		• •	• •		• •			• •	• •		8 (B)		8 (B)		a (a		a (a				
•									• •					~ (1		a a										• •	1.0								• •						8 (B	1.0	a (14)						1 (A)		100
•				÷.					• •		÷	- 1									1.00					• •			÷													20.0									1.
•				1.14				1.00	• •		1.14								1.		1.						1.0		1.14											1.		1.0									1.0
•		14		1.1	14.1			1.00									1.		1.		1.			1.			100		1.			1.		1.0			1.			1.0		100		1.0		14.1		1.0	1.00	1.0	
		14		1.1	14.1			1.00									1.		1.		1.			1.			100		1.	 1.		1.					1.			1.0		100.0	1.00	1000		14.1		0.0	100	1.0	
																											100																								
									2.2																																										
•			•			• •			• •							• •		• •		• •			• •			• •		• •				٠.	• •		• •			• •	• •												
•			•	• •		• •			• •		•		• •	•	• •	• •		• •		• •			• •		•	• •		• •	•	• •		• •	• •		• •			• •	• •		1 A										
•	• •		•			• •			• •									• •					• •			• •		• •		•			• •		• •			• •	• •		8 (B)		8 (B)								
•	• •		•						• •							• •		• •					• •		•	• •		• •					• •		• •			• •	• •		6 (A)		a (a)								
•									• •																	• •									• •										0.0		0.0	10.11			



Shift Work & the Law

Working Time Regulations 1998

- These lay down minimum legal requirements in how to organise working time. The key requirements are:-
 - a limit of an average of 48 hours a week which a worker can be required to work (though workers can choose to work more if they want to);
 - for night workers, a limit of an average of 8 hours work in each 24-hour period;
 - a right for night workers to receive free health assessments;
 - a right to 11 hours consecutive rest a day;
 - a right to a day off each week;
 - a right to a rest break if the working day is longer than six hours;
 - a right to four weeks' paid leave per year.
- There is also provision in the regulations to opt out of the 48 hours a week limit for a number of industries and roles



Shift Work & the Law

- Health & Safety at Work Act (HSWA)
- Management of Health & Safety at Work Regulations (MHSWR's)



UNSOCIAL HOURS

- A well as the specific duties in the WTR's, there are general duties in the above to protect the health & safety of employee's as far as reasonably practicable. This includes conducting risk assessments and implementing control measures for all relevant risks.
- Shift working is accepted as introducing additional health and safety risk into the workplace and therefore needs to be covered.





• •					14.1						• •										14		1.												1.00					20.0							1.0		20.0	
	÷ .										• •												F			10													• •	20.07				1.0			1.00		20.07	
	1.14	• •	14.1		14.1			1.		14.1	• •	14.14	1.14		1.		14				14					100		1.		1.		14.1			1.00			1.0		20.0		1.0		1.0			1.0		20.0	
	1.14		14.1		14.1			1.		14.1		14.14	1.		1.		14		14		14.2							1.		1.		14.1			1.00			14.1		26.0		1.0		1.0			100		26.0	
	1.14		1.		14.1		Se . Se	1.		14.1		14.14	1.		1.		14		14						μ.	100		1.		1.		14.1		a 1	1.00			1.0		25.9		0.0		0.0		1.0	1001		25.9	
	1.		1.		14.1			1.		14.1		14.14	1.1		1.		14									100		1.		1.		14.1		. .	1.00			1.		25.9		1.0		1.0		20.04	100		25.9	
	1.		1.		14.1			1.		14.1		14.14	1.1		1.		14				14.1					100		1.		1.		14.1		. .	1.00			1.		25.9		1.0		1.0		20.04	100		25.9	
	1.1		1.		14.1			1.		14.1		14.14			1.		14		14				1.					1.		1.		14.1		÷.,	1.00			1.0		22.0						1.0	100		22.0	
								1.				1.0			1.		1.	1			\checkmark		1.							1.										22.2		0.0		0.0		0.0	100	10 Ca	22.2	
																		6																						100				100					100	
																																								100.0		0.0		1000					100.0	
											2.2																													1000									1000	
											2.2								-																					1000									1000	
				2.2					2.2		2.2									2.2					2.2														2.2											
				2.2							2.2							2.2							2.2														2.2											
				10		10			2.2		2.2														2.2														2.2											
				10							10		•												10								10			10			10											
											10																																							
																	÷.				÷.																													
														/																																				
		• •		•••										•		•••		• •		• •					• •		• •				• •						• •		• •											
		• •		•••		• •							/			•••		• •		• •		• •			• •		• •				• •		• •			• •	• •		• •											
•		• •		• •		• •								•••		•••		• •		• •		• •			• •		• •		• •		• •		• •			• •	• •		• •											1.1
	• •	• •		•••		• •			• •				• •	•••		•••		•••		• •		• •			•••		• •		• •		•••		• •			• •	•••		• •											
•	•	 • •		• •		• •			• •				• •	• •		• •		• •		• •		• •			• •		• •		• •		• •		• •			• •	• •		• •											
•		• •		• •		• •			• •		• •		• •	• •		• •		• •		• •		• •			• •		• •		• •		• •		• •			• •	• •		• •	1	1 (1)		1.1		1 (1)				1	P. (*
• •		• •		• •		• •			• •		• •		• •	• •		• •		• •		• •		• •			• •		• •		• •		• •		• •			• •	• •		• •		8 (B)	1.1	1.10	1	8 (B)					8 (B)
•		• •		• •		• •			• •		• •		• •	• •		• •		• •		• •		• •			• •		• •		• •		• •		• •			• •	• •		• •	1.1	8 (B)	1.1	1.10	1 1	8 (B)	1.1		• •	1.1	6 (A)
•		• •		• •		• •			• •		• •					• •		• •		• •		• •	. 0	٠	• •		• •		• •		• •						• •		• •		8 (A)		8 - 10 -		8 (A)					8 (B)
•		• •		• •		• •					• •					• •		• •		• •		• •			• •						• •		• •			• •			• •		6 C.		8 - 10 A		6 C.			0.0		8 (B
•		• •		• •							• •					• •		• •		• •					• •						• •								• •	1.0								0.0	20.2	



The Modern Epidemic

- For thousands of years, people:
 - Worked during the day
 - Slept at night

Today

◆ 365 days a year

Electric light bulbs

Rapid jet travel

24/7 society

In the same time zone





BUT humans have remained the same



We spend a third of our lives doing it.... So why do we sleep?

- Restore bodies energy supply
- Repair work
- To combat fatigue





Myths about sleep

It is easy to tell when lack of sleep is starting to affect performance

sleep

- Alcohol is a good cure for sleep diffic
- People can train themselves to get by
- Once sleepiness is noticed, it is possible to force increased alertness



Sleep Stages

During an 8 hour period most people have five 90 minute sleep cycles

- Stage 1: Drowsiness
- Stage 2: Light sleep
- Stage 3: Deep sleep
- Stage 4: Deep sleep (more intense)
- REM: Dream sleep





Healthy sleep





Alcohol induced sleep



It only takes 2 standard drinks (20g alcohol)



Caffeine stimulated sleep





• How much sleep?

- Sleep plays an important role in our overall health
- Ideally 7-9 hours of good sleep each night
- Alternatively 6 hours of good sleep + naps (8/24 hrs)
- Some people may need only 6 while others prefer 9
- Research shows that women who sleep only 5 hours were at 45% higher risk of heart disease.

The irony is getting less sleep, to get more done, makes people far less productive



Improving fatigue

•	• 1							- a 1					1.14		1.0										1.								14.1							1.0					1.0				1.0	1.00	10.1	١,
•	• 1																								F			10					14.14																	100	10.14	١.
•	• 1	1.						1.14					1.4		1.																		14.14							1.							1.00		1.0	100	1.0	١.
	• 1	1.	14			1.		1.		14.1		14.14	1.4		1.		14.1		14				14.					1.0			1.		14.14						Se . 14	1.		14.1					100		1.0		1.0	
	• •	1.	14			1.		1.		14.1		14.14	1.54		1.00		1.		14									1.0		a 14	1.		14.14	1.		1.			Se . Se	1.00		14.1				10.00	155.7		1.0	100	0.0	
	• •	1.	14			1.		1.		14.1		14.14	1.54		1.00		1.		14					Κ.,			1.	1.0		a 14	1.		14.14	1.		1.			Se . Se	1.00		14.1				10.00	155.7		1.0	100	0.0	
		1.	14			1.		1.		14.1		1 1	1.		1.		1.		14				1.					1.1		÷.,	1.		14.14						Se	1.		14.1					1000		1.0			
								1.						1.0	1.				1.0					Ζ.	1.			1.1												1.							1000		0.0		0.0	
																							\checkmark																				100						0.00		0.0	
																				6																							100						0.00		0.0	
			0																																																	
			0								2.2																		10			2.2					10															
			0																		-								10								10															
			0																										10								10															
			0								10																		10																							
			0								1.1												÷.						1.1																							
۰.																																																				
•	•				• •						• •						. ×			•••		• •							• •			• •					• •															
۰.	• .				•••		• •		• •		•••		۰.					•••		•••		• •		• •			• •		•••	• •		•••		• •	•••		• •	•••			• •											Ľ
•	• •				• •		• •		• •		• •					Γ.		• •		• •		• •		• •			• •		• •			• •		• •	• •		• •	• •			• •							• •				Ľ
۰.	• •				• •		• •		• •		• •					•••		• •		• •		• •		• •			• •		• •			• •		• •	• •		• •	• •			• •							•			11	Ł
•	• •				• •		• •		• •		• •				1.	• •		• •		• •		• •		• •		* 1	• •		• •			• •		• •	• •		• •	• •			• •		1.1					8 (B)			1	Ł
•	• •				• •		• •		• •							• •		• •		• •		• •		• •			• •		• •			• •		• •	• •		• •	• •			• •		1.1						1.1		19.1	Ł
•	• •				• •				• •		•					• •		• •		• •		• •		• •			• •		• •			• •		• •	• •		• •						1.10						1.1		19.1	Ł
•	• •				• •				• •		• •					• •		• •		• •		• •		• •			• •		• •			• •		• •	• •		• •						1.10						1.1		19.1	Ł
•	• •				• •						• •					• •		• •		• •		• •		• •			• •		• •			• •		• •			• •						1.10					a (a	1.1			Ł
•	• •				• •						• •							• •				• •										• •					• •						1.0							1.0		k
•	• 1		14			-					• •							• •							÷				• •			• •					• •													1.0		k
•	•			9/1	12/	20	11				• •							• •				• •							• •			• •					• •						e 19					31		10		F
•	•			•	• •			1.0			• •							• •				• •							• •			• •	14.14				• •							• •							10	
•											• •														1																											



Fatigue fighting foods Avoid the insulin crash Zone!

- Avoid refined and quickly digested sugars; i.e. those high in GI
- Eat low GI foods: wholegrain breads Pasta, oats, apples, apricots, oranges,

yoghurt, milk

Eat more protein – it keeps your energy up and your hunger at bay



Fatigue fighting foods Avoid the insulin crash Zone!

- Avoid refined and quickly digested sugars; i.e. those high in GI
- Eat low GI foods: wholegrain breads Pasta, oats, apples, apricots, oranges,

yoghurt, milk

Eat more protein – it keeps your energy up and your hunger at bay







Move more – improve alertness

- Move your major muscle groups every 60-90 minutes
- Get up and walk round whenever possible
- Plan more stimulating work at times you feel most drowsy
- Keep in contact with co-workers to help keep alert

Start an exercise plan to get fitter

Plan a schedule that accounts for your work/shift schedule

A light walk when you get home may help you to relax for better sleep

Use physical activities to help you to focus on 'family time'





Exercise Effect

Reduces fatigue and increases energy levels

Exercise Level	Fatigue Level	Energy Level
Sedentary	Persistent fatigue	
	(25% of population)	
Low level exercise	65% reduction in	20% improved
20mins, 3 x week	fatigue	
Moderate level	9% reduction in	20% improved
exercise	fatigue	
20mins, 3 x week		

A 20 minute walk 2-3 times per week helps!



Eat within 1 hour of waking



Studies show that people who eat breakfast report:

Being in a better mood and having more energy throughout the day.

Eat every 3 hours



Too long without eating cases – light headed, tired, irritable, impatient, unfocused, unproductive

Any imbalance to the supply of glucose to the body...

Fatigue Mood changes Insomnia Excess sweating Forgetfulness

Digestive upset Dizziness Irritability Poor concentration



Crossrail

Eat well

Breakfast		
Sugary fortified cereals White toast / Jam Pastries Tea / Coffee Sweetened yoghurt Fried breakfast	Vs	Muesli Porridge Natural Yoghurt Fresh FruitVs Fresh pressed juices Boiled or poached eggs
Lunch		
White bread Little filling in sandwich Sausage roll Chips and burger Cake Crisps Chocolate bars Fizzy drink	Vs	Brown bread Lots of salad in sandwich Extra salad in tub Fruit Nuts and seeds Cereal bars Juice / water



• Water, water, water!

- Water hydration is the most fundamental requirement for human health
- Proper water intake can increase our bodies performance (mental alertness, increased exercise capacity, decreased fatigue)
- Approximately 2litres a day (6-8 glasses)
- Once you feel thirsty you are in the first stages of dehydration
- Check your urine. Should be clear to pale in colour and you should be urinating every 2-3hrs



Crossrai

Keep hydrated

Side effects of not being adequately hydrated:

- Drowsiness
- Headaches
- Dry skin, eyes or lips
- Lack of concentration
- Irritability

Check the colour of you pee every time you go to the toilet

Healthy pee is 1 to 3, 4 to 8 you must hydrate!





Sleep hygiene

- Avoid Stimulants
- Don't over-indulge
- Suitable bedroom environment
- Bedtime routine
- Relaxing routine
- Set a regular bedtime and wake-time schedule
- Plan your sleep sensibly
- Don't lie in bed worrying about getting to sleep
- Deal with worries by making a list
- Don't watch the clock by the bed
- Try to get up at the same time every morning
- Avoid exercising too close to bedtime





Managing Fatigue – Your Checklist !

- Talk with your supervisor re: your work tasks
- Use your breaks effectively
- Drink Plenty of water during the day e.g. minimum 2 litres
- Diet 5 small meals throughout the day
- Exercise outside of work e.g. Minimum 2x /week
- Sleep 8hrs of good quality sleep
- Alcohol more than 2 x standard drinks affects your sleep
- Caffeine not less than 10hrs before you sleep
- Outside work Interests Do something outside of work you love

BE PROATIVE – IF IT IS TO BE, IT'S UP TO ME



Find out more.....





Fatigue monitoring

																												_																	<u> </u>	-			<u> </u>						-
•	•										÷.		• •										1.00		• •	÷			1/1						• •									÷ 4					1.0						
•	•						1.		1.		1.14					1.							1.			1.14	À														14.1			1.1			1.0		1.0		10.0				
	•			14			1.		1.		1.	14.1		14.1		1.		1.			14.1		1.									14.1		14.1		14.1					14.1			1.	1.1		1.5		1.0		20.0	1.00			
	• 1			14			1.		1.	a 14	1.	14.1		14.1		1.		1.	1 1		14.1		1.		12							14.1		14.1		14.1	1.14	14 A	1.14		14.1		a 1	1.14	1.1				100		1.0			1.5	
				14			1.		1.	÷.,	1.	14.1		14.1		1.		1.			14.1		1.									14.1		1.		14.1			1.		14.1										1.0				
							1.											1.			1.													1.											0.0				0.0		0.0				
																																																	0.0		1.0				
																																																	1000		0.0				
				0																					Ζ.																														
			1	0									2.2																		2.2		2.2		2.2		10																		
			1	0																			A																																
			1	0									10									\sim										÷.			10		10																		
			1	0														•														÷.																							
				0																																																			
				0																	×																																		
۰.																																																							
•	•	• •				• •							• •			- 1						•			•						• •		• •		• •					• •															
۰.	•	• •				• •		• •		• •			• •							•		• •			•			• •			•••		• •		• •		• •		٠.	•••		• •	•	• •											
۰.	•	• •				• •		• •		• •			• •							•		• •			•			• •			•••		• •		• •		• •		٠.	•••		• •		• •											
•	•	• •				• •		• •			•		• •				J~•			• •		• •			• •			• •			• •		• •		• •		• •		۰.	• •		• •		۰.	1					•					
•	•	• •				• •		• •			•		• •				•			• •		• •			• •			• •			• •		• •		• •		• •		۰.	• •		• •		۰.	1					•					
•	•	• •		.*.		• •		• •					• •				• •			• •		• •			• •			• •			• •		• •		• •		• •		• •	• •		• •	* *	• •		1.10			1	• •			1		
•	•	• •			•	• •		• •		• •			• •		-		• •			• •		• •			• •	•		• •			• •		• •		• •		• •		• •	• •		• •		• •	1	1.10	1	1.10		• •					
•	•	• •			•	• •		• •		• •					• •		• •			• •		• •			• •	•		• •			• •		• •		• •		• •		• •	• •		• •		• •	1	1.10	1	1.10		• •					
•	•	• •			•	• •		• •						Z	• •		• •			• •		• •			• •			• •			• •		• •		• •		• •		• •	• •		• •		• •	2.1	1.10	1	1.10	1 1	• •					
•	•	• •			•	• •		• •					• •		• •		• •			• •		• •			• •			• •			• •		• •		• •		• •		• •	• •		• •		• •	2.1	1.10	1	1.10	1 1	• •					
•	•	• •				• •							• •		• •		• •			• •		• •			• •	• •		• •			• •		• •		• •		• •		• •	• •		• •		• •	1.1	1 (A		1.0		• •		1.0		1.10	
•	•	• •		~	10	10														• •		• •			• •				1.0		• •		• •													a (14)		1.0	1.0					1.0	
•	•	• •		9/	12	120	J1	6 -					• •		• •					• •		• •			• •	•		• •			• •		• •		• •											0.0					-4	4			
٠	•	• •			•	• •							• •		• •					• •		• •		•	•	•	•	• •	1.0	•	• •		• •		• •							e 14				a 14				• •		1.0		1.0	
•	•												• •		• •							• •			•			• •	1.0		• •		• •		• •																				



SYMPTOMS

- Chronic tiredness or sleepiness
 - Headache
- Dizziness
- Sore, aching or muscle weakness
- Heavy eyes
- Slowed reflexes and responses
- Impaired decision making and judgement
- Hallucinations
 - Appetite loss
 - Low motivation







SIGNS

PHYSICAL	MENTAL	EMOTIONAL
Yawning	Difficulty concentrating on a task	More quiet than usual
Heavy Eyelids	Lapses in attention	Lacking energy
Eye-rubbing	Difficulty remembering what you are doing	Mood changes, decrease tolerance
Head drooping	Failure to communicate important information	Emotional outburst, aggressive, rage
Micro sleeps	Failure to anticipate events or actions	
	Accidentally doing the wrong thing (error)	
, e	Accidentally not doing the right thing (omission)	

