How Fatigue affects your immunity level

Dr Eric Olson from the Mayo Clinic states:

• Lack of sleep can affect your immune system
• People who don’t get quality sleep are more likely to get sick after being exposed to a virus
• Lack of sleep can affect how fast you recover if you get sick
Fatigue is an impairment of mental and physical function manifested by a cluster of debilitating symptoms, usually including excessive sleepiness, reduced physical and mental performance and depressed mood and loss of motivation.

We can all manage fatigue and not become dog tired.
Fatigue signs and symptoms

- Forgetful
- Fixated
- Poor decisions
- Apathetic
- Slowed reaction time
- Lethargic
- Reduced vigilance
- Bad mood
- Poor communication
Human Biological clock

The Suprachiasmatic Nucleus
Circadian rhythms

- High alertness: 10:00
- Highest testosterone secretion: 10:00
- Bowel movement likely: 08:30
- Melatonin secretion stops: 07:30
- Sharpest rise in blood pressure: 06:45
- Lowest body temperature: 04:30
- Deepest sleep: 02:00
- Noon: 12:00
- Best coordination: 14:30
- Fastest reaction time: 15:30
- Greatest cardiovascular efficiency and muscle strength: 17:00
- 18:00: Highest blood pressure
- 19:00: Highest body temperature
- 21:00: Melatonin secretion starts
- 22:30: Bowel movements suppressed
- Midnight: 00:00
Circadian Rhythms: Normal Alertness Curve

Over 24 hour period

Alertness Level (MST)

- Full Alertness
- Moderate Alertness
- Reduced Alertness
- Drowsy

Afternoon
Evening
Midnight
Early AM
Morning
Jet lag and shift work can result in:

- Disturbed sleep
- Work-time sleepiness
- Increased reports of fatigue
- Decreased physical and mental performance
Fatigue formula

\[ Ft = Fss + Few + Fpf \]

- \( Ft \) – Total Fatigue
- \( Fss \) – Shift system
- \( Few \) – Ergonomics and work
- \( Fpf \) – Personal factors
Fss – Shift systems

Rules for bio rostering:
• Must be forward rotating (day – evening – night)

• Must provide for 7 – 8 hours sleep every 24 hours

• Not more than 4 consecutive night shifts (12 hours)

• Not more than 5 consecutive night shifts (8 hours)

• Must provide minimum 36 hours off after night shift
Rules for ergonomics and work:

• 21 degrees is the ideal working temperature

• Poor ergonomics causes poor performance

• Noise and vibration increase fatigue

• Travel tips and facts
Rules for personal factors:

• Fit for duty = 7-8 hours sleep

• Chronic illnesses e.g. diabetes and TB increase fatigue

• Wrong diets e.g. foods high in Tryptophan

• Stress, depression and sleep apnea
Common misconceptions

- “I know how tired I am”
- “I’ve lost sleep before and I did just fine”
- “I’m motivated enough to just push through it”

Why not?

- People cannot predict when they will doze off
- It is difficult to reliably estimate your own alertness and performance
How to use the Alertmeter
Setting a baseline

Welcome
Click “Go To Test” button to start the test.

Touch “GO TO TEST” to start Alertness test
Alertmeter Alertness Test

Series of screens with various shapes. You select: Is all patterns the same or different?
Alertmeter Alertness Test

Example with one shape that is different

Are these shapes the same?

YES

NO
Alertmeter Alertness Test

Example with all shapes the same

Are these shapes the same?

- Yes
- No

Notice Timer!
Alertmeter Alertness Test

Are these shapes the same?

Yes

No
Alertmeter Alertness Test

Are these shapes the same?

YES

NO