

Eyes Wide Shut: We Don't Have a Fatigue Problem

Eyes Wide Shut: We don't have a fatigue problem!



Mike Harnett
President
Solaris Fatigue Management



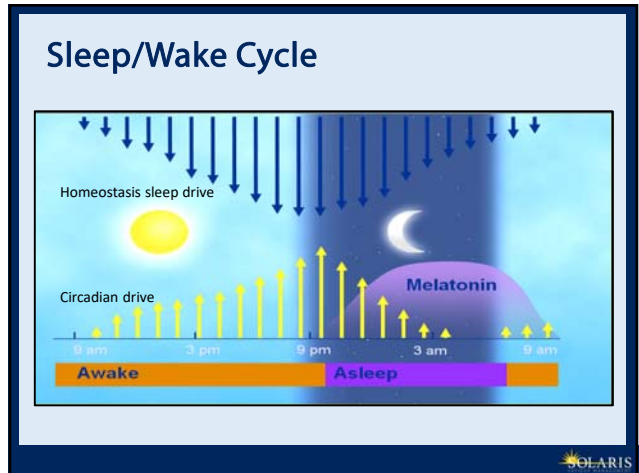
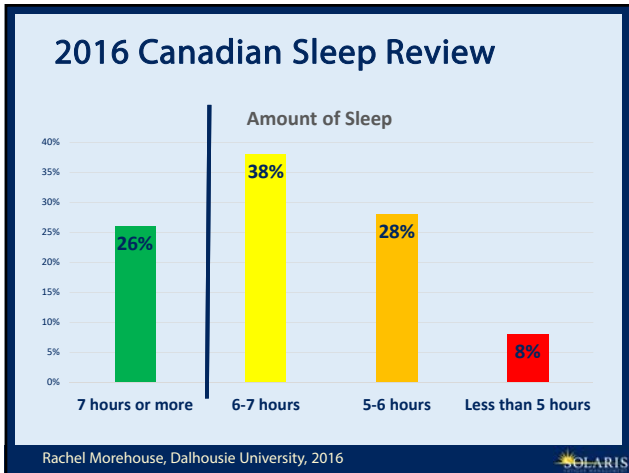
Types of Fatigue

Task Related Fatigue

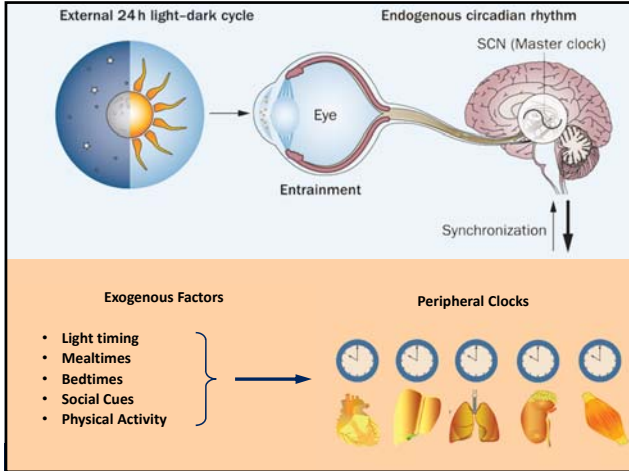


Sleep Related Fatigue





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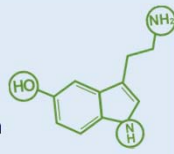
Light and Melatonin

- Natural sleep hormone synthesized and secreted at night
- Light at inappropriate times can depress production
- Age reduces production
- Powerful anti-oxidant



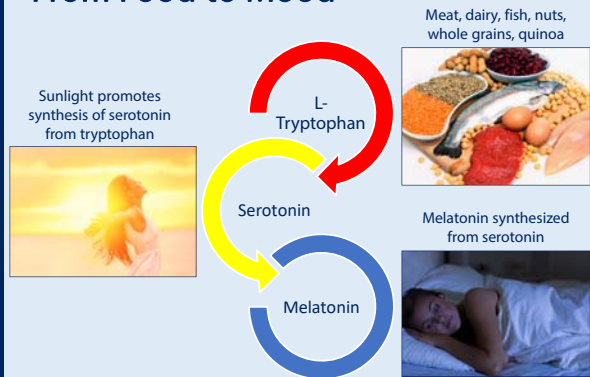
Serotonin

- Melatonin synthesized from Serotonin
- Known as the "happiness" hormone
- Significantly reduced serotonin levels in rotating shift workers



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From Food to Mood



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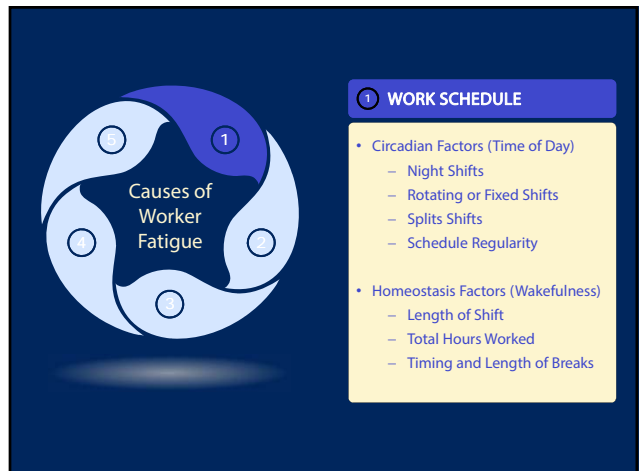
The Reality of our Species



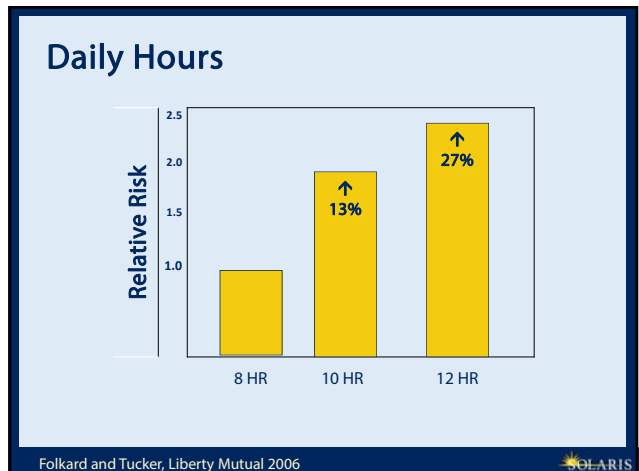
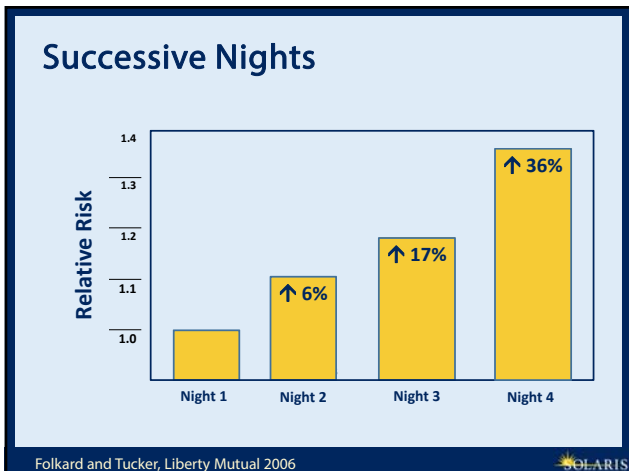
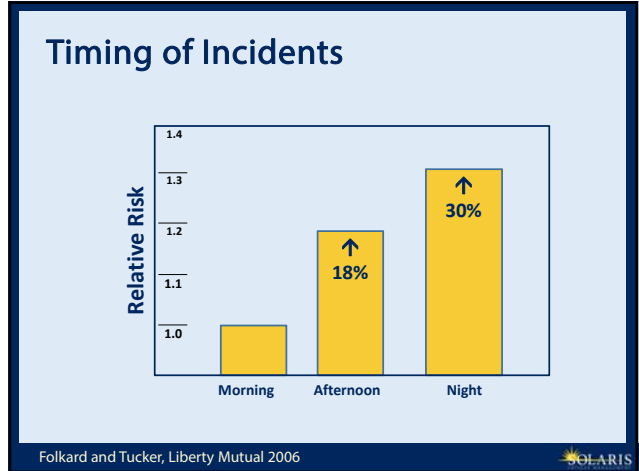
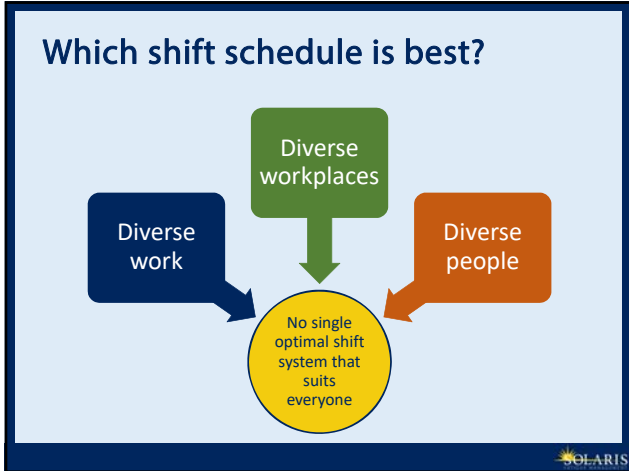
- Can never “fully” adapt to working at night
- Rotating and erratic schedules are the hardest to synchronize

Do you have a fatigue problem?





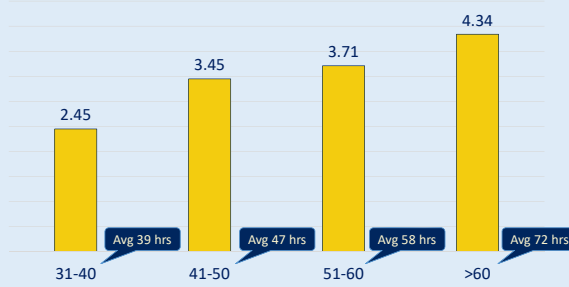
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Weekly Hours on Injury Rates

Estimated Annual Injury Incidence/100 Workers

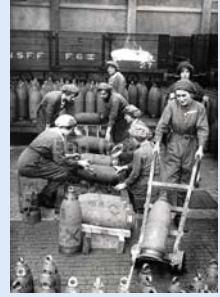


NHIS survey (2004–2008)



Productivity vs Weekly Work Hours

- Increasing working hours does not equate to increased productivity
- Output falls sharply after 50 hrs
- At 70 hrs, workers produce no more than working only 55 hrs



Pencavel, J. The Productivity of Working Hours (2014)



Recovery cannot occur if we work

- Beyond 12 hours in a 24 hour period
- Beyond 60 hours in a 7 day period



Duty Time Thresholds

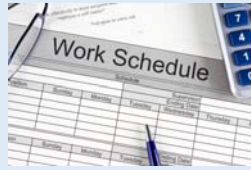
- Working more than...
 - 7 consecutive mixed shifts
 - 3 consecutive night shifts
 - 5 consecutive early shifts (start prior to 6AM)



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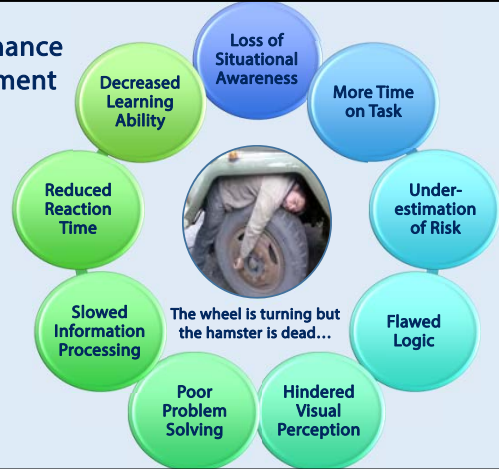
Good Schedule Design

- Takes into account
 - Time of day factors
 - Commuting factors
 - Essential activities of daily living
 - Quality of lodgings
 - Predictability



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Performance Impairment



Cognitively Unengaging Tasks

- Deterioration after 20-30 minutes
- Microsleeps!



Hours of Sleep	<4	4-4.9	5-5.9	6-6.9
Risk Level for MVC	11.5	5.4	1.9	1.3

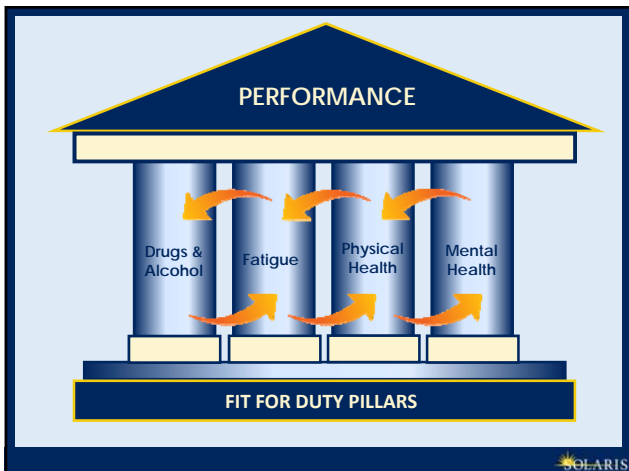
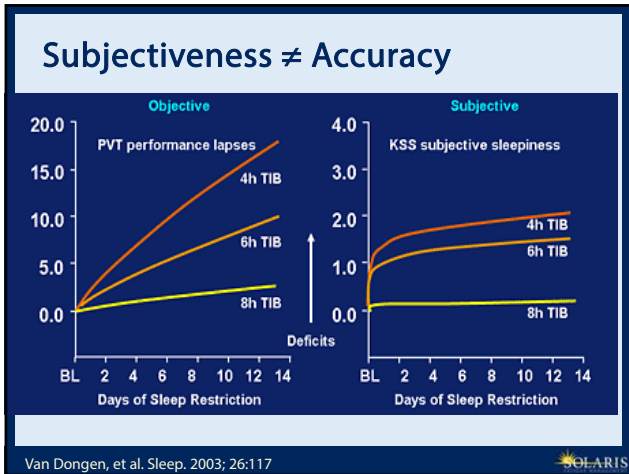
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Fatigue is Dangerous



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- ### Three Approaches to Managing Fatigue
- #### 1. Prescriptive Rules
- Relies on work/rest rules and hours of service regulations
 - Currently not in line with fatigue science
 - Fatigue is too complex to be managed through rules alone!

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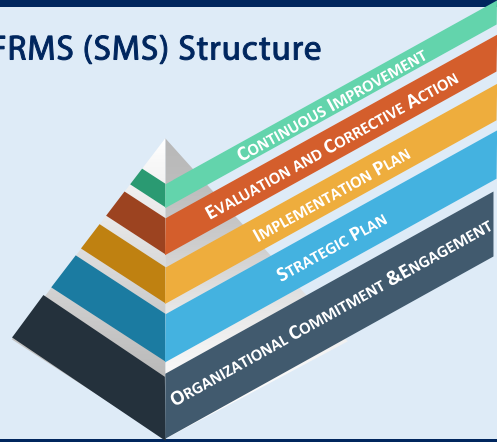
2. Strategic Approach: Fatigue Risk Management System (FRMS)

- Supportive framework that can tie in to existing SMS
- Focus is on long term success
- Clearly identifies the purpose of your FMP
- Looks for flaws in the system!
- Best for,
 - larger organizations
 - where safety sensitive work exists



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FRMS (SMS) Structure



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Company X Scorecard - 2017

Category	Points Available	Initial	18 mos later
Organizational Culture, Commitment and Engagement	52	15	40
Strategic Plan	38	10	26
Hazard ID and Risk Assessment	26	15	19
Implementation of Risk Controls	92	6	61
Evaluation & Corrective Action	30	0	17
Management Review & Continuous Improvement	22	0	11
Overall Score	260	46	174
		(18%)	(67%)

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3. Tactical Approach: Fatigue Management Program (FMP)

- Short term initiatives with limited or no follow up
- Capitalize on best practices
- Good for smaller employers or where there are no (or limited) safety sensitive positions



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Thank you!

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	• Shift Workers
	• Supervisors, Committees
	• Management, Leadership
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	• Needs Assessment & Gap Analysis
	• Schedule / Roster Analysis
	• Fatigue Risk Assessments
	• Program Guidance and Development