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Crew Endurance Management

Newsletter

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Crew Endurance Resources Now On-Line

www.uscg.mil/hq/g-m/cems/crewendurance.index.htm

Welcome to the inaugural issue of the Crew Endurance Management Newsletter! We've created this newsletter to provide basic information and applications of the Crew Endurance Management (CEMS). We'll be sending out issues via e-mail. So if you are interested in subscribing to the electronic newsletter, please register with us.

Some of our CEMS-related resources are available on our newly created website, such as the Crew Endurance Management Pamphlet and the CEMS Guide for Maritime Operations. Both are free of charge and downloadable.

The CEM web site continues to undergo further construction to serve customers better. Your thoughts and suggestions on what you would like to see on either the newsletter or the website are always welcome. Please forward them to fldr-G-MSE@comdt.uscg.mil or call us at 202-267-2997.

What Are Crew Endurance Risk Factors?

Did you know that 15 separate, yet interrelated, risk factors contribute to a person's overall endurance levels? Here's a list of all 15:

Problem	Example
1. Insufficient daily sleep duration.	Less than 7-8 hours of uninterrupted sleep.
2. Poor sleep quality	Waking during the nigh due to work related disruptions, ship motion, or noisy environment.
3. Sleep fragmentation	Breaking sleep into multiple rest periods with "naps" since unable to take a single, 7-8 hour sleep period.
4. Scheduling main sleep during the day.	Changing work cycles; the human body is designed to sleep at night.

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One of the main functions of sleep is to produce energy needed for both the brain and body to function well.

5. Changing work/rest schedules	Rotating between working days and working nights one or more times per week
6. Long work hours	Exceeding 12 hours per day.
7. No opportunities to make up lost sleep.	Napping during the day is not possible
8. Poor diet	Menu frequently includes fried foods, high fat and sugar content, and frequent caffeine consumption
9. High workload	High physical and/or mental effort required
10. High stress	Caused by extreme environment, high sustained physical or mental workload, rotating work schedules, and/or authoritarian leadership style
11. Lack of control over work environment or decisions	Workers isolated and not allowed to contribute in identifying and resolving problems
12. Excessive exposure to extreme environmental conditions	Cold, heat, high seas
13. No opportunity for exercise	Not enough time or no equipment/facilities
14 Family stress	Child and parent care, divorce, finances, etc.
15. Isolation from family	Need to know how family is doing

Insufficient daily sleep duration

Let's talk more about the first risk factor(in successive newsletters we'll go into more detail of each). In order to make energy (called ATP) our bodies need good nutrition, water, oxygen, and sufficient sleep. Scientific studies have shown that seven to eight hours of continuous sleep are necessary to restore these energy supplies.

What happens when we don't get enough sleep?

The brain, nervous system, and all our body systems cannot function efficiently. Under these conditions, we

- do not think clearly
- become irritable
- do not communicate well with each other

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- become withdrawn and less willing to resolve issues and problems
- have an impaired ability to fight disease
- experience fatigue throughout or work and leisure hours

and since we can't compensate for our lack of energy, our ability to carry out physical and mental tasks is compromised. All of these risk factors lead to reduced safety conditions!

Why do these risk factors happen?

Because our bodies cycle in and out of various stages of sleep ranging from deep sleep to REM sleep, the sleep period must be continuous and uninterrupted. Seemingly minor irritations like noise, temperature, and light can keep us from ever reaching those critical stages of sleep that replenish both the body's and brain's energy stores.