Fatigue Countermeasures Training

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Flight Attendant Fatigue

• 84% of flight attendants reported experiencing fatigue during their last bid period
  – 71% reported that safety-related performance was affected

• 35% of flight attendants reported that their carrier provided fatigue training or education materials
  – 79% reported that the fatigue training or education materials provided did not help to minimize fatigue
Training Benefits

- Individual benefits of fatigue-related training across industries
  - Greater fatigue knowledge
  - 49% made changes at work
  - 47% made changes at home
  - 61% thought recurrent training was a good idea
  - Some reported that the organization made positive changes

Gander, Marshall, Bolger, & Girling, 2005; Rosekind et al., 2001
Training Benefits

• Individual benefits (cont.)
  ✓ Fewer workers found it difficult to...
    • Fulfill domestic responsibilities
    • Find time for entertainment and recreational activities
    • Believe that their health would improve with a different schedule
  ✓ Gastrointestinal symptoms decreased
  ✓ Use of excessive caffeine dropped (32% vs 8%)
  ✓ Average sleep increased from 4.8 hrs to 5.8 hrs

Kerin & Aguirre, 2005
Training Benefits

• Organizational benefits
  ✓ Reduced turnover and absenteeism
  ✓ Fewer fatigue and morale problems
  ✓ Increased worker perceptions safety
  ✓ Fewer accidents and injuries
  ✓ Even very seasoned workers have positive responses to fatigue training
    • 96% report using course lessons and plan to continue using course lessons

Current Project

• **Purpose:**

Given the benefits of existing training programs, the purpose of the current project was to identify the essential components of a fatigue countermeasure training program for flight attendants.
Method

• Step 1: Review of existing training programs
  – Identified existing fatigue-related training programs and materials
    • Scientific literature, public and private educational materials, fatigue researchers
  – Inclusion criteria
    ✓ Provided education or training on fatigue management, shiftwork, or alertness management
    ✓ Created or published after 1985
    ✓ Included an outline and summary
Method

- Step 1 results:
  - 49 usable training programs
    - Multiple audiences
    - Multiple media venues
    - Outline vs full training programs
Method

• Step 2: Content analysis
  – Reviewed existing training programs to develop a comprehensive outline of topics
    • 37 topics coded
  – Two raters independently identified the presence of each topic within each training program
    • Must include at least 3 sentences or at least 1 prescriptive, specific prescriptive recommendation
    • Inter-rater agreement (κ = .85)
Results

• Step 3: Developed topic outline
  – Identified topics to be included in the final training outline
  • Fatigue experts agreed consistently on the most important topic areas
    – Differences were mostly a function of the level of detail and the specific focus of the training program
    – All topics included in at least 8 programs

Recommend that they all be included to create a comprehensive fatigue countermeasure training program
## Results

<table>
<thead>
<tr>
<th>Topic</th>
<th>Overall (n=49)</th>
<th>Aviation (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatigue</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Circadian Rhythm</td>
<td>82%</td>
<td>100%</td>
</tr>
<tr>
<td>Sleep</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td>Napping</td>
<td>61%</td>
<td>92%</td>
</tr>
<tr>
<td>Work hours</td>
<td>71%</td>
<td>77%</td>
</tr>
<tr>
<td>Nutrition</td>
<td>69%</td>
<td>85%</td>
</tr>
<tr>
<td>Hydration</td>
<td>31%</td>
<td>54%</td>
</tr>
<tr>
<td>Exercise</td>
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<td>85%</td>
</tr>
</tbody>
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<td>92%</td>
</tr>
<tr>
<td>Sleeping Disorders</td>
<td>53%</td>
<td>77%</td>
</tr>
<tr>
<td>Family &amp; Social Life</td>
<td>53%</td>
<td>38%</td>
</tr>
<tr>
<td>Work Environment</td>
<td>45%</td>
<td>46%</td>
</tr>
<tr>
<td>Commuting</td>
<td>35%</td>
<td>38%</td>
</tr>
<tr>
<td>Jet Lag (n=8)</td>
<td>n/a</td>
<td>100%</td>
</tr>
<tr>
<td>Exercise</td>
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<td>85%</td>
</tr>
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</table>
Organizing the Training Outline

• **Step 4**
  – Topics were sorted into three primary areas
    • Basic fatigue information, off duty rest and activities, on duty specific issues
  – Each topic was further delineated

• **Final product**
  – A comprehensive fatigue countermeasure training outline
Conclusions

• Mitigating fatigue is a challenging proposition
• Well-developed training can help to manage fatigue in aviation operations
  – Individual benefits
  – Organizational benefits
• Training is the first step in active fatigue risk management
• Proviso
  – Training is only part of the solution
  – It cannot extend human physical and mental capabilities
Questions?

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References


