Mysterious roles of sleep

- Brain maturation
- Restoration of physical energy
- Regulation of immune function
- Modulation of endocrine functions (growth hormone, cortisol)
- Promotion of neural plasticity
- Role in memory processing and learning
- Role in recovery of illness and injury
Potential impacts of sleep-wake disturbances

- Insomnia (30-40%)
- Fatigue (30-75%)
- Sleepiness (14-55%)

- Concentration
- Memory
- Attention
- Vigilance
- Pain
- Irritability
- Anxiety
- Depression

Rehabilitation
Return to work
Quality of life
Potential causes of sleep-wake disturbance following TBI

Pathophysiological factors
- Structural damage to structures important for sleep
- Hormonal and neurotransmitter alterations
- Pain
- Medications

Psycho-social factors
- Environment (e.g. hospital, new home)
- Stress
- Unhealthy sleep/wake habits
- Thoughts, attitudes, beliefs
Alterations of sleep following TBI

- Fragmentation of sleep (more awakenings)
- Increased « light » sleep (Stages 1 and 2)
- Decreased REM sleep (first 6 months)
Spectrum of most common sleep-wake disturbances seen following TBI

- Insomnia
- Disorders causing Excessive Daytime Sleepiness
  - Sleep apnea (Obstructive or Central)
  - Narcolepsy
  - Post-traumatic hypersomnia
- Circadian Rhythm Sleep Disorders
- Fatigue
Only 6 published studies pertaining to intervention for sleep-wake disorders

Wiseman-Hakes, Colantonio & Gargaro (2009)
Management?

- Clinicians may simply rely on evidence obtained in non-TBI populations to choose their treatments.
- Need to adapt treatments to the particular needs of TBI survivors.
- Clinicians have built their own expertise - this knowledge needs to be shared.
Exploring post-TBI Insomnia and fatigue

- Literature Reviews
- Descriptive studies
  - Frequency, characteristics correlates
- Sleep laboratory study
  - Objective and subjective measures of insomnia
- Interventions
  - Efficacy of CBT
  - Knowledge exchange
POST-TBI INSOMNIA

- Delayed sleep-onset
- Multiple awakenings
- Prolonged awakenings
- Early morning awakenings
- Unrefreshing sleep
- Frustration, anticipation
Insomnia complaints

% insomnia complaints

Average time since injury

(Dikmen et al., 1986)
(Keshavan et al., 1981)
(Keshavan et al., 1981)
(Cohen et al., 1992)
(Fichtenberg et al., 2002)
(Clinchot et al., 1998)
(Beetar et al., 1996)
(Quellet et al., 2006)
Clinically significant insomnia

Criteria (DSM-IV & ICD):

- Subjective complaint of sleep disturbance
- Symptoms of insomnia
  - Sleep onset problems (>30 minutes)
  - Sleep maintenance problems (>30 minutes)
- At least 3 times a week
- Impacts on daytime functioning or significant distress
- Present for at least 1 month
Insomnia in mild to severe TBI

Average time since injury: 7.8 years
N=452

- Moderate to severe insomnia
- Present 5.7 nights/week
- Appears within a few weeks after accident
- Average duration: 6 years
- 41.6 % receiving treatment

Ouellet, Beaulieu-Bonneau, & Morin (2006) Journal of Head Trauma Rehabilitation
Sleep habits

<table>
<thead>
<tr>
<th>No Insomnia</th>
<th>Insomnia syndrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep Time: 8.24 h</td>
<td>Sleep Time: 6.59 h</td>
</tr>
<tr>
<td>Sleep Onset: 27.9 min</td>
<td>Sleep Onset: 57.88 min</td>
</tr>
<tr>
<td>Wake Time: 22.5 min</td>
<td>Wake Time: 96.7 min</td>
</tr>
<tr>
<td>Naps per week= 4.7</td>
<td>Naps per week = 8.5</td>
</tr>
</tbody>
</table>

Ouellet, Beaulieu-Bonneau, & Morin (2006)
*Journal of Head Trauma Rehabilitation*
Factors associated with Insomnia following TBI

Logistic Regression Analysis:

- Age
- Gender
- Severity of TBI
- Time since injury
- On long-term disability leave
- Presence of insomnia before TBI
- Depressive symptoms
- Anxiety symptoms
- Cognitive disturbance symptoms
- Irritability/anger symptoms
- Fatigue level
- Pain level

Ouellet, Beaulieu-Bonneau, & Morin (2006) *Journal of Head Trauma Rehabilitation*
Polysomnography data: TBI vs Healthy Good Sleepers

- Sleep complaints were objectified
- Sleep continuity is altered in TBI participants with insomnia
- Basic sleep architecture is normal (except more Stage 1)
- Resemble PSG in primary insomnia or depression

Ouellet & Morin (2006) *Sleep Medicine*
Pharmacological options

Primary or comorbid insomnia and fatigue

- Rapid symptomatic relief
- Recommended as a short-term option
- Gains not maintained after treatment discontinuation
- Potential side effects: drowsiness, dizziness, cognitive impairment, reduction of psychomotor speed
- Risk for abuse, tolerance and dependence

TBI

- Effects on memory, attention and vigilance may be particularly detrimental
- Some medications may lower seizure threshold
- Risk for abuse, tolerance and dependence
- Need for data on efficacy, safety and adherence

Flanagan, Greenwald & Wieber, 2007
Li Pi Shan & Ashworth (2004)
Non-pharmacological options

- Well-validated:
  - Stimulus Control
  - Sleep Restriction
  - Relaxation-based interventions
  - Paradoxical intention
  - Cognitive therapy
  - Combined CBT

- CBT is as effective as medication and more durable
  - 70-80% have clinically significant improvements
  - 30% become good sleepers

- CBT for Chronic Fatigue Syndrome: increase activity levels

TBI

- Preliminary evidence of the efficacy of CBT
- Needs to be adapted to the needs of the TBI population

Primary or Comorbid Insomnia and fatigue

Morin et al., 1994
Murtagh et al., 1994
Morin et al., 2006

Ouellet & Morin, APMR, 2004
Ouellet & Morin, APMR, 2007
A conceptual model of insomnia

- Pre-morbid Acute Insomnia
- Early Insomnia
- Chronic Insomnia

Factors:
- Predisposing factors
- Precipitating factors
- Perpetuating factors

Spielman & Glovinski, 1991
Morin, 1993

Threshold
Insomnia intensity
## Predisposing factors

<table>
<thead>
<tr>
<th>Primary insomnia</th>
<th>Specific to TBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Female</td>
<td>- Hormonal alterations</td>
</tr>
<tr>
<td>- Aging</td>
<td>- Neurotransmitter</td>
</tr>
<tr>
<td>- Familial history of insomnia</td>
<td>- Hypocretin levels</td>
</tr>
<tr>
<td>- Hyperarousability</td>
<td>- Alterations of intracranial pressure during sleep</td>
</tr>
<tr>
<td>- Biological vulnerability</td>
<td>- Premature aging of brain stem structures?</td>
</tr>
<tr>
<td>- Psychological vulnerability</td>
<td>- Comorbid psychopathology</td>
</tr>
</tbody>
</table>
A conceptual model of insomnia

Pre-morbid Acute Insomnia
Early Insomnia
Insomnia intensity
Threshold

Predisposing factors
Precipitating factors
Perpetuating factors

Spielman & Glovinski, 1991
Morin, 1993
Precipitating factors

**Primary insomnia**
- **Medical**
  - Illness
  - Hospitalization

- **Psychosocial**
  - Stressful life event (unemployment, marital stress)

- **Environmental**
  - Noise
  - Time change
  - Altitude
  - Comfort

**Specific to TBI**
- **Medical Conditions**
  - Hopsitalization, pain, orthopedic injuries, complications

- **Medication**
  - Ex: analgesics, anticonvulsants

- **Major stressors**
  - Grief, adjustment to major limitations

- **Chronic stressors**
  - Interpersonal problems, role or identity issues

- **Psychopathology**
  - TBI-related depression, anxiety

- **Environment**
  - Hospital or rehab center routine, noise, return home
A conceptual model of insomnia

Pre-morbid Acute Insomnia Early Insomnia

Predisposing factors Precipitating factors Perpetuating factors

Spielman & Glovinski, 1991 Morin, 1993

Threshold

Insomnia intensity

Pre-morbid Acute Insomnia Early Insomnia Chronic Insomnia

DYSFUNCTIONAL COGNITIONS MALADAPTIVE BEHAVIORS ANXIETY INSOMNIA

ANXIETY INSOMNIA DYSFUNCTIONAL COGNITIONS MALADAPTIVE BEHAVIORS

CONSEQUENCES
Perpetuating factors

**Dysfunctional Cognitions**
- Worry over sleep loss
- Rumination over consequences
- Unrealistic expectations
- Misattributions/amplifications

**Arousal**
- Emotional
- Cognitive
- Physiologic

**Consequences**
- Mood disturbances
- Fatigue
- Performance impairments
- Social discomfort

**Maladaptive Habits**
- Excessive time in bed
- Irregular sleep schedule
- Daytime napping
- Sleep-incompatible activities

**Insomnia**
Perpetuating factors

DYSFUNCTIONAL COGNITIONS
- Worry over sleep loss
- Rumination over consequences
- Unrealistic expectations
- Misattributions/amplifications

AROUSAL
- Emotional
- Cognitive
- Physiologic

INSOMNIA

CONSEQUENCES
- Mood disturbances
- Fatigue
- Performance impairments
- Social discomfort

MALADAPTIVE HABITS
- Excessive time in bed
- Irregular sleep schedule
- Daytime napping
- Sleep-incompatible activities
Sleep habits in TBI: Naps and rest periods

Before TBI

- 96.7% either never or rarely have to stop their activities to take a nap or rest during the day

Mean number of naps per week: 5.84 (±7.09)
Mean number of rest periods per week: 12.97 (±16.20)

After TBI

- 21.9% need a nap or rest period 3-7 times a week
- 49.5% need a nap or rest period more than 7 times a week

Ouellet & Morin, Rehab Psychol, 2006
## Sleep habits in TBI: Naps and Time in Bed

<table>
<thead>
<tr>
<th></th>
<th>TBI (n = 22)</th>
<th>CTL (n = 22)</th>
<th>t test</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PSG - Time spent in bed (min)</strong></td>
<td>489.5 ± 19.0</td>
<td>489.9 ± 15.5</td>
<td>.931</td>
<td></td>
</tr>
<tr>
<td><strong>PSG - Total sleep time (min)</strong></td>
<td>386.6 ± 78.4</td>
<td>416.3 ± 54.9</td>
<td>.153</td>
<td></td>
</tr>
<tr>
<td><strong>PSG - Wake after sleep onset (min)</strong></td>
<td>72.4 ± 70.1</td>
<td>46.9 ± 42.0</td>
<td>.149</td>
<td></td>
</tr>
<tr>
<td><strong>SD - Time spent in bed (min)</strong></td>
<td>514.5 ± 41.1</td>
<td>484.2 ± 45.1</td>
<td>.025*</td>
<td></td>
</tr>
<tr>
<td><strong>SD - Total sleep time (min)</strong></td>
<td>441.8 ± 67.4</td>
<td>428.5 ± 63.6</td>
<td>.507</td>
<td></td>
</tr>
<tr>
<td><strong>SD - Wake after sleep onset (min)</strong></td>
<td>19.5 ± 22.4</td>
<td>14.5 ± 29.1</td>
<td>.521</td>
<td></td>
</tr>
<tr>
<td><strong>SD - Number of naps/week</strong></td>
<td>3.3 ± 2.9</td>
<td>1.3 ± 1.2</td>
<td>.006*</td>
<td></td>
</tr>
<tr>
<td><strong>SD - Duration of naps/week</strong></td>
<td>213.1 ± 225.6</td>
<td>72.0 ± 88.3</td>
<td>.009*</td>
<td></td>
</tr>
</tbody>
</table>

*Beaulieu-Bonneau et al., in preparation
On average 4.4 years post-injury
Sleep habits in TBI: Sleep schedules, sleep hygiene

- Irregular sleep-wake schedules
  - Especially in younger adults
  - Lack of routine: no specific productive activity in the morning

- Substance use before sleep
  - 21.1% of insomnia sufferers report using alcohol or soft drugs

Ouellet, Beaulieu-Bonneau & Morin, JHTR, 2006
Perpetuating factors

Dysfunctional cognitions
- Worry over sleep loss
- Rumination over consequences
- Unrealistic expectations
- Misattributions/amplifications

Maladaptive habits
- Excessive time in bed
- Irregular sleep schedule
- Daytime napping
- Sleep-incompatible activities

Consequences
- Mood disturbances
- Fatigue
- Performance impairments
- Social discomfort

Arousal
- Emotional
- Cognitive
- Physiologic
Perpetuating factors

**DYSFUNCTIONAL COGNITIONS**
- Worry over sleep loss
- Rumination over consequences
- Unrealistic expectations
- Misattributions/amplifications

**AROUSAL**
- Emotional
- Cognitive
- Physiologic

**INSOMNIA**

**CONSEQUENCES**
- Mood disturbances
- Fatigue
- Performance impairments
- Social discomfort

**MALADAPTIVE HABITS**
- Excessive time in bed
- Irregular sleep schedule
- Daytime napping
- Sleep-incompatible activities
Cognitions in post-TBI insomnia

<table>
<thead>
<tr>
<th>Primary or comorbid Insomnia</th>
<th>TBI-specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ I need to catch up on sleep loss</td>
<td>□ If I don’t sleep well, my brain will not recover</td>
</tr>
<tr>
<td>□ I am loosing control over my ability to sleep</td>
<td>□ My caregivers tell me to rest, but can’t do it</td>
</tr>
<tr>
<td>□ If I feel tired, I have no energy and am not functionning well, it’s due to poor sleep</td>
<td>□ If I cannot sleep well, I will never be able to return to work</td>
</tr>
<tr>
<td>□ I should avoid or cancel obligations after a poor night’s sleep</td>
<td></td>
</tr>
</tbody>
</table>
Perpetuating factors

Dysfunctional Cognitions
- Worry over sleep loss
- Rumination over consequences
- Unrealistic expectations
- Misattributions/amplifications

Arousal
- Emotional
- Cognitive
- Physiologic

Insomnia

Consequences
- Mood disturbances
- Fatigue
- Performance impairments
- Social discomfort

Maladaptive Habits
- Excessive time in bed
- Irregular sleep schedule
- Daytime napping
- Sleep-incompatible activities
Perpetuating factors

Primary Insomnia

- Behavioral
  - Irregular sleep-wake routines
  - Excessive time spent in bed
- Cognitive
  - Performance anxiety
- Arousal

Specific to TBI

- Behavioral
  - Irregular schedules
  - Inactivity
  - Excessive time in bed
  - Naps
- Cognitive
  - Worrying and ruminations linked to the impacts of the injury
- Environmental
  - Significant others taking up roles or encouraging maladaptive habits
- Physiological arousal
  - Pain
## CBT for post-TBI insomnia
### Treatment components

<table>
<thead>
<tr>
<th>Treatment Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stimulus control</strong></td>
<td>• Re-associate cues with sleep and sleepiness</td>
</tr>
<tr>
<td></td>
<td>• Establish a regular circadian sleep/wake rhythm.</td>
</tr>
<tr>
<td><strong>Sleep Restriction</strong></td>
<td>• Curtail time in bed to the actual sleep time</td>
</tr>
<tr>
<td></td>
<td>• Consolidate sleep on a shorter period</td>
</tr>
<tr>
<td><strong>Cognitive Therapy</strong></td>
<td>• Identify and correct dysfunctional thoughts, beliefs and attitudes regarding sleep and fatigue</td>
</tr>
<tr>
<td><strong>Sleep Hygiene Education</strong></td>
<td>• Change habits practices and environmental factors interfering with sleep</td>
</tr>
<tr>
<td><strong>Fatigue Management</strong></td>
<td>• Monitor fatigue and modify activities</td>
</tr>
<tr>
<td></td>
<td>• Resume physical, social and leisure activities</td>
</tr>
</tbody>
</table>
An important tool during CBT for post-TBI insomnia: the sleep diary

<table>
<thead>
<tr>
<th>Evening questions (before going to bed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. In general today, I felt... (choose a number from the scale)</td>
</tr>
<tr>
<td>0: I was not tired at all</td>
</tr>
<tr>
<td>10: I felt extremely tired</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>B. In general today, I... (choose a number from the scale)</td>
</tr>
<tr>
<td>0: I did not accomplish anything at all</td>
</tr>
<tr>
<td>10: I took full advantage of my day</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Morning questions (after getting up)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Yesterday, I napped from ___ to ___</td>
</tr>
<tr>
<td>(Note the times of all naps). Did you fall asleep during this nap (YES/NO)?</td>
</tr>
<tr>
<td>1:50 - 2:30 (Yes)</td>
</tr>
<tr>
<td>2. Yesterday, I took ___ mg of medication and/or ___ oz of alcohol as a sleeping aid</td>
</tr>
<tr>
<td>Ativan 1 mg</td>
</tr>
<tr>
<td>3. Last night, I went to bed at ______</td>
</tr>
<tr>
<td>I turned the lights off at ______</td>
</tr>
<tr>
<td>10:45 pm 11:15 pm</td>
</tr>
<tr>
<td>4. After turning the lights off, I fell asleep in ____ minutes</td>
</tr>
<tr>
<td>40 min</td>
</tr>
<tr>
<td>5. My sleep was interrupted ____ times</td>
</tr>
<tr>
<td>(Specify number of nighttime awakenings)</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>6. Each time, my sleep was interrupted for ____ minutes</td>
</tr>
<tr>
<td>(Specify duration of each awakening)</td>
</tr>
<tr>
<td>5 45</td>
</tr>
<tr>
<td>7. Last night, I got out of bed ____ times</td>
</tr>
<tr>
<td>(Specify number of times your got out of bed)</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>8. This morning, I woke up at ____ (note time of last awakening without falling back asleep afterwards)</td>
</tr>
<tr>
<td>6:15 am</td>
</tr>
<tr>
<td>9. This morning, I got out of bed at ______</td>
</tr>
<tr>
<td>7:00 am</td>
</tr>
</tbody>
</table>
Stimulus Control

**Goals:**

- Reassociate temporal (bedtime) and environmental (bed and bedroom) stimuli with rapid sleep onset.
- Establish a regular circadian sleep/wake rhythm.

**Procedures:**

- Keep at least an hour before going to bed to relax
- Develop a ritual to do before going to bed
- Go to bed only when sleepy
- When unable to fall asleep or go back to sleep within 15 to 20 min, leave the bed and bedroom, return to bed only when sleepy
- Maintain a regular arising time in the morning
- Use the bed/bedroom for sleep and sex only
- Do not watch TV, listen to the radio, eat, or read in the bed
- Avoid taking naps during the day
Naps

- Sleep latency is inversely correlated with length of previous waking period.
- Early naps contain more REM sleep and less slow-wave sleep.
- Late naps contain more slow-wave sleep.

Figure 1: Hypnogram of normal sleep of an adult
Sleep Restriction

Goal

- Curtail time in bed to the actual sleep time, thereby creating mild sleep deprivation
- Consolidate sleep on a shorter period to increase its efficiency

Procedures:

- Self-monitor sleep
- Restrict the amount of time spent in bed to the actual amount of time spent asleep
- Time in bed is adjusted according to sleep efficiency: increased or decreased by 15 minutes
Sleep Restriction:
Curtailing time spent in bed to actual sleep time
Cognitive Therapy for insomnia

Goal

- Changing dysfunctional beliefs and attitudes about sleep and insomnia that exacerbate emotional arousal, performance anxiety, and learned helplessness related to sleep

Procedures

- Identify unrealistic expectations, faulty appraisals, misattributions of daytime impairments, misconceptions about the causes of insomnia.
- Challenge the validity of sleep by using cognitive restructuring techniques (e.g., decatastrophizing, reattribution, reappraisal, and attention-shifting).
## Sleep Hygiene Education

<table>
<thead>
<tr>
<th>Goals</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Educate clients about health practices and environmental factors</td>
<td>□ Diet</td>
</tr>
<tr>
<td>which may promote or interfere with sleep.</td>
<td>□ Exercise</td>
</tr>
<tr>
<td></td>
<td>□ Substance Use</td>
</tr>
<tr>
<td></td>
<td>□ Light</td>
</tr>
<tr>
<td></td>
<td>□ Noise</td>
</tr>
<tr>
<td></td>
<td>□ Temperature</td>
</tr>
<tr>
<td></td>
<td>□ Sleep &amp; Aging</td>
</tr>
</tbody>
</table>
Fatigue Management

**Goals**
- Recognize fatigue
- Manage energy more effectively
- Revise dysfunctional attitudes about fatigue and rest

**Procedure**
- Self-monitoring of fatigue and energy
- Identification of signs of fatigue
- Gradual augmentation of activity levels
- Activity planning (rest periods, alternating tasks, task segregation, realistic goal setting)
Adapting CBT for post-TBI Insomnia

- Shorter sessions (attention, fatigue)
- Written material at each session (memory)
- Repetition (memory)
- Structure (adherence, motivation)
- Involvement of significant other (motivation)

- Inclusion of a fatigue management component
  - Behavioural
  - Cognitive
<table>
<thead>
<tr>
<th>Content of sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>• Overview of treatment</td>
</tr>
<tr>
<td>• Presentation of basic facts about sleep and insomnia following TBI</td>
</tr>
<tr>
<td>• Presentation of importance of self-monitoring and support from significant other</td>
</tr>
<tr>
<td>• Review of sleep diary</td>
</tr>
<tr>
<td>• Establishment of sleep window (sleep restriction)</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>• Review of sleep diary</td>
</tr>
<tr>
<td>• Presentation of rationale of stimulus control and sleep restriction procedures</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>• Review of sleep diary; adjustment of sleep window</td>
</tr>
<tr>
<td>• Review of stimulus control and sleep restriction procedures</td>
</tr>
<tr>
<td>• Review of problems encountered during implementation of stimulus control and sleep restriction</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>• Review of sleep diary; adjustment of sleep window</td>
</tr>
<tr>
<td>• Continuation of stimulus control and sleep restriction procedures</td>
</tr>
<tr>
<td>• Beginning of cognitive therapy</td>
</tr>
<tr>
<td>Content of sessions</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td><strong>5</strong></td>
</tr>
<tr>
<td>• Review of sleep diary; adjustment of sleep window</td>
</tr>
<tr>
<td>• Continuation of stimulus control and sleep restriction procedures</td>
</tr>
<tr>
<td>• Continuation of cognitive restructuring</td>
</tr>
<tr>
<td>• Presentation of fatigue diary</td>
</tr>
<tr>
<td><strong>6</strong></td>
</tr>
<tr>
<td>• Review of sleep diary; adjustment of sleep window</td>
</tr>
<tr>
<td>• Continuation of stimulus control and sleep restriction procedures</td>
</tr>
<tr>
<td>• Continuation of cognitive restructuring</td>
</tr>
<tr>
<td>• Presentation of sleep hygiene recommendations</td>
</tr>
<tr>
<td>• Review of fatigue diary</td>
</tr>
<tr>
<td>• Presentation of fatigue management skills training</td>
</tr>
<tr>
<td><strong>7</strong></td>
</tr>
<tr>
<td>• Review of sleep diary; adjustment of sleep window</td>
</tr>
<tr>
<td>• Continuation of stimulus control and sleep restriction procedures</td>
</tr>
<tr>
<td>• Continuation of cognitive restructuring</td>
</tr>
<tr>
<td>• Review of fatigue diary</td>
</tr>
<tr>
<td>• Review of progress and learning</td>
</tr>
<tr>
<td>• Continuation of fatigue management skills training</td>
</tr>
<tr>
<td><strong>8</strong></td>
</tr>
<tr>
<td>• Review of sleep diary; adjustment of sleep window</td>
</tr>
<tr>
<td>• Review of progress and learning</td>
</tr>
<tr>
<td>• Relapse prevention</td>
</tr>
</tbody>
</table>
Pilot study

Fig 1. Sleep onset latency and time awake after sleep onset as reported on the sleep diary (averaged over weeks).

Ouellet & Morin (2004)
Archives of Physical Medicine & Rehab
Single-case experimental design

N=11 mild to severe TBI
Living in the community
Suffering from insomnia syndrome (DSM and ICD criteria)
Without comorbid psychiatric or medical disorder
Pain excluded as a cause of insomnia

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age (Sex)</th>
<th>TBI Severity</th>
<th>Months Since Injury</th>
<th>Glasgow Coma Scale Score</th>
<th>Neurologic Examination</th>
<th>Medication</th>
<th>Intellectual Function</th>
<th>Cognitive Deficit</th>
<th>Insomnia Type</th>
<th>Insomnia Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>26 (M)</td>
<td>Mild</td>
<td>25.5</td>
<td>ND</td>
<td>Negative</td>
<td>None</td>
<td>Average</td>
<td>Significant</td>
<td>Initial</td>
<td>1y</td>
</tr>
<tr>
<td>02</td>
<td>32 (M)</td>
<td>Severe</td>
<td>28</td>
<td>6/15</td>
<td>Positive</td>
<td>Trazodone</td>
<td>Average</td>
<td>Significant</td>
<td>Maintenance</td>
<td>2y</td>
</tr>
<tr>
<td>03</td>
<td>22 (F)</td>
<td>Moderate-severe</td>
<td>13</td>
<td>6/15</td>
<td>Positive</td>
<td>None</td>
<td>ND</td>
<td>Mild</td>
<td>Maintenance</td>
<td>1y</td>
</tr>
<tr>
<td>04</td>
<td>21 (M)</td>
<td>Moderate</td>
<td>9</td>
<td>14/15</td>
<td>Negative</td>
<td>None</td>
<td>High average</td>
<td>Significant</td>
<td>Maintenance</td>
<td>3mo</td>
</tr>
<tr>
<td>05</td>
<td>38 (F)</td>
<td>Mild-moderate</td>
<td>25</td>
<td>14/15</td>
<td>Positive</td>
<td>None</td>
<td>High average</td>
<td>Mild</td>
<td>Maintenance</td>
<td>2y</td>
</tr>
<tr>
<td>06</td>
<td>21 (M)</td>
<td>Severe</td>
<td>25</td>
<td>3/15</td>
<td>Positive</td>
<td>None</td>
<td>Borderline</td>
<td>Significant</td>
<td>Mixed</td>
<td>2y</td>
</tr>
<tr>
<td>07</td>
<td>21 (F)</td>
<td>Moderate</td>
<td>41.5</td>
<td>11/15</td>
<td>Positive</td>
<td>Venlaflaxine, diphenhydramine</td>
<td>ND</td>
<td>Mild</td>
<td>Mixed</td>
<td>2.5y</td>
</tr>
<tr>
<td>08</td>
<td>20 (F)</td>
<td>Moderate-severe</td>
<td>31.5</td>
<td>5/15</td>
<td>Positive</td>
<td>None</td>
<td>Average</td>
<td>Mild</td>
<td>Mixed</td>
<td>2y</td>
</tr>
<tr>
<td>09</td>
<td>46 (M)</td>
<td>Moderate-severe</td>
<td>35.5</td>
<td>13/15</td>
<td>Positive</td>
<td>None</td>
<td>Average</td>
<td>Mild</td>
<td>Maintenance</td>
<td>2.5y</td>
</tr>
<tr>
<td>10</td>
<td>23 (F)</td>
<td>Severe</td>
<td>36</td>
<td>3/15</td>
<td>Positive</td>
<td>Trazodone</td>
<td>Borderline</td>
<td>Significant</td>
<td>Maintenance</td>
<td>3y</td>
</tr>
<tr>
<td>11</td>
<td>30 (M)</td>
<td>Mild-moderate</td>
<td>33</td>
<td>ND</td>
<td>Negative</td>
<td>Venlaflaxine, gabapentin oxycodone</td>
<td>Low average</td>
<td>Significant</td>
<td>Initial</td>
<td>3y</td>
</tr>
</tbody>
</table>

Table 1: Sociodemographic and Clinical Characteristics of the Participants

Abbreviations: F, female; M, male; ND, no data available.
*As estimated in the earliest neuropsychologic report postaccident.
Design

PRE          | Baseline | Treatment | POST          | 1-mo F-up | 3-mo F-up
---          | ---      | ---       | ---           | ---       | ---
Participants A | 3 wks    | 8 sessions| Participants C | 3-mo F-up | 3-mo F-up
Participants B | 5 wks    | 8 sessions| Participants C | 3-mo F-up | 3-mo F-up
Participants C | 7 wks    | 8 sessions| Participants C | 3-mo F-up | 3-mo F-up

Participants A, B, and C are represented at different times and have different durations for the baseline, treatment, and post stages. The diagram shows the progression of the study with specific time intervals and sessions.
Results

- Baseline: high inter-night variability
- Treatment phase: Clear reductions in TWT for 8/11
- Swift progression for 5/11
- Latency to change: approximately 7 to 13 days
- Time series analyses: Large significant Level Changes in TWT noted for 8/11 participants
## Pre vs post treatment

### Table 2: Means for Grouped Data

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Pre</th>
<th>Post</th>
<th>1-Month Follow-Up</th>
<th>3-Month Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Major sleep indices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total wake time</td>
<td>128.46±47.86</td>
<td>59.29±39.54*</td>
<td>71.49±42.97</td>
<td>49.66±27.96*</td>
</tr>
<tr>
<td>Sleep efficiency</td>
<td>77.20±8.76</td>
<td>87.99±7.99*</td>
<td>86.26±7.92</td>
<td>90.88±5.29*</td>
</tr>
<tr>
<td>Total sleep time</td>
<td>425.68±51.20</td>
<td>444.43±58.74</td>
<td>453.43±59.48</td>
<td>496.72±50.24*</td>
</tr>
<tr>
<td><strong>Questionnaires</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISI score</td>
<td>17.55±4.03</td>
<td>8.78±3.38*</td>
<td>11.33±3.74</td>
<td>10.30±5.38*</td>
</tr>
<tr>
<td>MFI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total score</td>
<td>63.45±9.25</td>
<td>55.89±12.65*</td>
<td>54.40±14.41</td>
<td>52.67±14.05*</td>
</tr>
<tr>
<td>General</td>
<td>15.36±2.33</td>
<td>13.11±3.82</td>
<td>13.60±3.81</td>
<td>12.11±3.33*</td>
</tr>
<tr>
<td>Physical</td>
<td>13.18±4.35</td>
<td>10.88±4.19</td>
<td>10.80±4.61</td>
<td>9.44±4.09*</td>
</tr>
<tr>
<td>Reduced activity</td>
<td>12.45±2.94</td>
<td>12.45±2.94</td>
<td>9.70±3.80</td>
<td>9.89±3.21</td>
</tr>
<tr>
<td>Reduced motivation</td>
<td>8.50±2.63</td>
<td>8.80±2.78</td>
<td>7.66±2.34</td>
<td>8.67±3.31</td>
</tr>
<tr>
<td>Mental</td>
<td>13.45±4.41</td>
<td>11.8±5.00</td>
<td>12.70±4.11</td>
<td>11.89±5.58</td>
</tr>
<tr>
<td>DBAS score</td>
<td>47.40±9.91</td>
<td>32.86±8.48*</td>
<td>37.42±7.92</td>
<td>32.10±9.05*</td>
</tr>
<tr>
<td>BDI score</td>
<td>16.09±5.92</td>
<td>13.67±7.02†</td>
<td>13.10±5.88</td>
<td>11.90±6.94</td>
</tr>
<tr>
<td>BAI score</td>
<td>13.64±8.64</td>
<td>11.89±6.43</td>
<td>8.30±5.87</td>
<td>9.60±7.73†</td>
</tr>
</tbody>
</table>
Conclusions

- Psychological and behavioral factors are important in post-TBI insomnia.

- CBT seems as effective in the TBI population than in people with primary insomnia.

- Results seem to be durable up to 3 months.

- CBT reduces fatigue but more research on fatigue is needed.

- Cognitive limitations or behavioral problems did not constitute a barrier for implementation of CBT.
Best approach for insomnia?

- A combined approach (CBT+Medication) achieves better long-term outcome if medication is discontinued after the initial 6 weeks.

- Does this apply to TBI?

Morin et al., JAMA 2009
Fatigue affects 30 to 75% of persons with TBI

Linked to problems with mood, cognition, pain

Remains a major issue even several years post-accident
Fatigue following TBI:
Frequency, characteristics and associated factors

N= 452
Average time since injury: 7.8 years

N=452

68.6%
significantly more fatigued compared to before TBI

Ouellet & Morin (2006)
Rehabilitation Psychology
Multidimensional Fatigue Inventory

Ouellet & Morin (2006)
Rehabilitation Psychology
Factors Associated with Fatigue

Logistic regression analysis:

- Age
- Sex
- Severity of TBI
- Time since injury
- Long-term disability
- Depressive symptoms
- Anxiety symptoms
- Cognitive disturbance symptoms
- Anger/irritability symptoms
- Insomnia severity
- Perceived pain level

Ouellet & Morin (2006)
Rehabilitation Psychology
Rest periods and naps

Before TBI
- 96.7% either never or rarely have to stop their activities to take a nap or rest during the day

After TBI
- 21.9% need a nap or rest period 3-7 times a week
- 49.5% need a nap or rest period more than 7 times a week

Mean number of naps per week: 5.84 (±7.09)
Mean number of rest periods per week: 12.97 (±16.20)
Fatigue: Compensatory behaviours

- Stay in bed longer in the morning
- Take naps
- Cancel activities
- Go to bed earlier
- Spend more time in bed
- Consume caffeine
- Irregular sleep/wake schedules

Desynchronisation of the sleep/wake cycle
## Insomnia and Fatigue: Independent problems

<table>
<thead>
<tr>
<th>Insomnia syndrome</th>
<th>No Insomnia syndrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>87.1% significant fatigue</td>
<td>60.1% significant fatigue</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Significant fatigue</th>
<th>No significant fatigue</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.1% insomnia</td>
<td>12.9% insomnia</td>
</tr>
</tbody>
</table>
Differentiating fatigue from sleepiness

**FATIGUE**
- Subjective feeling of weariness, depleted energy
- Multidimensional (e.g. mental, physical)
- No real objective measure

**EXCESSIVE DAYTIME SLEEPINESS**
- Physiological drive to sleep
- Measurable signs:
  - Yawning
  - Eyes drooping
  - Reduced alertness
- Can be measured in a sleep laboratory (MSLT)
Fatigue following TBI: Management?

No effective pharmacological option has been identified.

Nonpharmacological options:
- Exercise
- Naps and Sleep Hygiene
- Stress reduction
- Cognitive-Behavior Therapy
- Light therapy?
Fatigue: pharmacological options?

- Anecdotal reports with: amantadine, methylphenidate, bomocriptine, modafinil, pemoline, phenylephrine and amphetamines

Randomized controlled trials:

- Jha et al. (2008): no success with modafinil for either sleepiness or fatigue
- Kaiser et al. (2010): modafinil improves sleepiness but not fatigue
Fatigue: Non-pharmacological options

Physical exercise

- Gordon and colleagues (1998): individuals with TBI who exercised regularly were
  - less depressed,
  - had fewer residual symptoms and
  - reported overall a better

- Driver and Ede (2009): benefits of an 8-week program of physical
  - Various components of mood were enhanced (anxiety, depression, anger, confusion) including a reduction in fatigue and an increase in vigour.
Fatigue: Non-pharmacological options?

- Caffeine
- Stress reduction
- Naps and rest
- Light therapy (Ponsford et al. In preparation)
- Cognitive-behavioral interventions (some evidence from the chronic fatigue syndrome literature)
The vicious cycle of fatigue

**Fatigue**

- Behaviours:
  - Avoid certain activities
  - Stop completely certain activities
  - Cancel social occasions
  - Seek rest (naps, increased time in bed)

**Consequences**:
- Loss of sources of gratification
- Social isolation
- Loss of source of pleasure
- Loss of alternative ways to rest
- Frustration, depression
- Physical deconditioning
- Dissatisfaction in relationships
- Decrease of motivation
- Sleep disturbances

**Inactivity**
Fatigue Management

Behaviours:
- Gradually resume avoided activities
- Find alternative activities
- Resume social interactions
- Re-arrange activities
- Regularize sleep/wake cycle
- Revise definition of rest

Consequences:
- Increased pleasure
- Increased gratification
- Better sleep
- Increased perceived control
- Increased self-confidence
- Better physical condition
- Increased psychological
- Opportunities for self-actualization

Better management of energy levels
Staying active following TBI

Volunteer (n=36)
Non-active (n=35)

Ouellet, Morin & Lavoie (2009)
Journal of Head Trauma Rehab

*p* level of independent sample t-test is indicated in italics. Bold indicates *p* < .05.

Ouellet, Morin & Lavoie (2009)
Journal of Head Trauma Rehab
The scientific literature provides few answers for effective management of post-TBI fatigue.

Clinicians have built their own expertise relative to fatigue management following TBI.

This multidisciplinary expertise should be collected and translated into tools that can be shared and further evaluated in clinical trials.
Larger knowledge exchange objectives

1. Review the available literature on fatigue and TBI
2. Document the existing expertise developed in our TBI unit
3. Present and validate the results of the survey
4. Triangulate with literature
5. Identify targets for interventions
6. Translate this data into a tangible clinical tool for assessment and intervention
7. Evaluate the tool directly in the clinical setting
8. Improve manual with feedback from clinicians and clients
9. Evaluate tool in systematic research
10. Disseminate and use for training
Participants

- IRDPQ TBI post-acute rehabilitation unit: 37 clinicians solicited

- Responders
  - 4 Occupational Therapists
  - 1 Social Worker
  - 5 Neuropsychologists
  - 1 Physiotherapists
  - 2 Speech Therapists
  - 3 Special Educators
  - 1 Music therapist
  - 1 Vocational Counselor
  - 1 Physician
  - 3 Nurses

N=22
60% response rate
Survey

1) What are the main manifestations or signs of fatigue in your clients?

2) Do you need to change or adapt your interventions to account for fatigue in your clients? If yes, how so?

3) Do you use specific tools to evaluate fatigue (questionnaires, scales)? If yes, which ones?

4) Do you give specific recommendations or advice to your clients about fatigue? If yes, which ones?

5) What are the barriers and facilitators to effective post-TBI fatigue management?
Qualitative Analysis

- Global examination of the meaning and symbolic content of the answers collected
- Preliminary Identification of major themes
- Coding of terms, keywords, ideas, phrases, expressions into meaningful concepts (a priori codes)
- Identification of themes
- Combination of themes if necessary
- Consensus of all members of the research team on the final themes retained for each question
1) WHAT ARE THE MAIN MANIFESTATIONS OR SIGNS OF FATIGUE IN YOUR CLIENTS?
Results: Manifestations and signs of fatigue

Five main themes emerged:

- Alterations of cognitive functions
  - Emotional reactions
  - Bodily signs
  - Endurance
  - Communication

- Attention
- Concentration
- Errors
- Difficulty processing instructions
Results: Manifestations and signs of fatigue

Five main themes emerged:

- Alterations of cognitive functions
- Emotional reactions
  - Bodily signs
  - Endurance
  - Communication

- Irritability
- Crying
- Euphoria
Results: Manifestations and signs of fatigue

- Five main themes emerged:
  - Alterations of cognitive functions
  - Emotional reactions
  - Bodily signs
    - Slowing of movements
    - Changes in posture
    - Headaches
    - Yawning
    - Sleepiness
  - Endurance
  - Communication
Results: Manifestations and signs of fatigue

Five main themes emerged:
- Alterations of cognitive functions
- Emotional reactions
- Bodily signs
- Endurance
- Communication

- Decreased performance
- Decreased dynamism
- Need for rest
Results: Manifestations and signs of fatigue

- Five main themes emerged:
  - Alterations of cognitive functions
  - Emotional reactions
  - Bodily signs
  - Endurance
  - Communication

- Difficulty following a conversation
- Difficulty with speech
2) DO YOU NEED TO CHANGE OR ADAPT YOUR INTERVENTIONS TO ACCOUNT FOR FATIGUE IN YOUR CLIENTS? IF YES, HOW SO?
Results: Adaptations or changes to interventions

Five main themes emerged:

- Plan interventions optimally
  - Shorter interventions
  - Manage demands within the treatment period
  - Control the environment
  - Integrate pleasure and humour
  - Not planning two demanding treatments back to back
  - Planning treatment during ‘optimal energy window’
  - Augment demands progressively in function of the client’s capacity
Results: Adaptations or changes to interventions

- Five main themes emerged:
  - Plan interventions optimally
  - Shorter interventions
  - Manage demands within the treatment period
  - Control the environment
  - Integrate pleasure and humour

- Cancelling or aborting therapy sessions
- Shorter sessions
Results: Adaptations or changes to interventions

- Five main themes emerged:
  - Plan interventions optimally
  - Shorter interventions
  - Manage demands within the treatment period
  - Control the environment
  - Integrate pleasure and humour

- Alternate tasks more and less cognitively or physically demanding
- Complete more complex tasks in the beginning of the session
- Take breaks
Results: Adaptations or changes to interventions

- Five main themes emerged:
  - Plan interventions optimally
  - Shorter interventions
  - Manage demands within the treatment period
  - Control the environment
  - Integrate pleasure and humour
Results: Adaptations or changes to interventions

Five main themes emerged:
- Plan interventions optimally
- Shorter interventions
- Manage demands within the treatment period
- Control the environment
- Integrate pleasure and humour

- Talk about positive aspects
- Laugh
- Make jokes
3) DO YOU USE SPECIFIC TOOLS TO EVALUATE FATIGUE? IF YES, WHICH ONES?
Results: Tools used to evaluate fatigue

- Four main themes emerged:
  - Observation of the client
    - Specific questions directed to the client
    - Help clients evaluate their fatigue levels
    - Evaluate other aspects which could cause/exacerbate fatigue
Results: Tools used to evaluate fatigue

- Four main themes emerged:
  - Observation of the client
  - Specific questions directed to the client
  - Help clients evaluate their fatigue levels
  - Evaluate other aspects which could cause/exacerbate fatigue

- Open-ended questioning
- Question client on gradation of signs
- Explore impacts of fatigue
Results: Tools used to evaluate fatigue

- Four main themes emerged:
  - Observation of the client
  - Specific questions directed to the client
    - Help clients evaluate their fatigue levels
  - Evaluate other aspects which could cause/exacerbate fatigue

- Diary
- Activity sheets
- Visual analog scale
- Variety of questionnaires
Results: Tools used to evaluate fatigue

- Four main themes emerged:
  - Observation of the client
  - Specific questions directed to the client
  - Help clients evaluate their fatigue levels
  - Evaluate other aspects which could cause/exacerbate fatigue
4) DO YOU GIVE SPECIFIC RECOMMENDATIONS OR ADVICE TO YOUR CLIENTS ABOUT FATIGUE? IF YES, WHICH ONES?
Results: Recommendations

- Seven main themes emerged:
  - Teach the clients to recognize signs of fatigue and respect their limits
  - Education
  - Teach the client effective planning of activities
  - Make a judicious use of breaks and rests periods
  - Modulate the environment
  - Encourage healthy habits
  - Teach stress management
- Regular verification of signs of fatigue
- Help clients recognize and name signs of fatigue
- Experimenting with the progression of fatigue
Results: Recommendations

- Seven main themes emerged:
  - Teach the clients to recognize signs of fatigue and respect their limits
  - Education
    - Teach the client effective planning of activities
    - Make a judicious use of breaks and rests periods
    - Modulate the environment
    - Encourage healthy habits
    - Teach stress management
  - Present multidimensionality of fatigue
  - Normalize
  - Give handouts
  - Use of meaningful metaphores (battery, bank account)
Results: Recommendations

- Seven main themes emerged:
  - Teach the clients to recognize signs of fatigue and respect their limits
  - Education
    - Teach the client effective planning of activities
  - Make a judicious use of breaks and rests periods
  - Modulate the environment
  - Encourage healthy habits
  - Teach stress management
  - Chose timing of activities
  - Separate activities into more manageable units
  - Alternate between activities
Results: Recommendations

- Seven main themes emerged:
  - Teach the clients to recognize signs of fatigue and respect their limits
  - Education
  - Teach the client effective planning of activities
  - Make a judicious use of breaks and rests periods
  - Modulate the environment
  - Encourage healthy habits
  - Teach stress management

- Naps
- Rest without sleeping (lying down, relaxation, walking, listening to music)
Results: Recommendations

Seven main themes emerged:

- Teach the clients to recognize signs of fatigue and respect their limits
- Education
- Teach the client effective planning of activities
- Make a judicious use of breaks and rests periods
- Modulate the environment
- Encourage healthy habits
- Teach stress management

- Plan visits
- Inform significant others
- Prepare for social occasions
Results: Recommendations

- Seven main themes emerged:
  - Teach the clients to recognize signs of fatigue and respect their limits
  - Education
  - Teach the client effective planning of activities
  - Make a judicious use of breaks and rests periods
  - Modulate the environment
  - Encourage healthy habits
  - Teach stress management

- Regular exercise
- Sleep hygiene
- Regular meal times
- Limit caffeine or energy drinks
Results: Recommendations

- Seven main themes emerged:
  - Teach the clients to recognize signs of fatigue and respect their limits
  - Education
  - Teach the client effective planning of activities
  - Make a judicious use of breaks and rests periods
  - Modulate the environment
  - Encourage healthy habits
  - Teach stress management

- Recognizing sources of stress
- Strategies to manage worrying
- Breathing
- Assertiveness
5) WHAT ARE THE BARRIERS AND FACILITATORS TO EFFECTIVE POST-TBI FATIGUE MANAGEMENT?
## Results: Barriers and facilitators

<table>
<thead>
<tr>
<th>Facilitators</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Sufficient awareness</td>
</tr>
<tr>
<td>□ Ability to observe one’s behavior</td>
</tr>
<tr>
<td>□ Motivation</td>
</tr>
<tr>
<td>□ Self-respect of strengths and limits</td>
</tr>
<tr>
<td>□ Capacity to adjust behaviour</td>
</tr>
<tr>
<td>□ Good energy management before injury</td>
</tr>
<tr>
<td>□ Significant others support learning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ No interest in analyzing one’s functioning</td>
</tr>
<tr>
<td>□ Difficulty adjusting behaviour</td>
</tr>
<tr>
<td>□ Apathy or passivity</td>
</tr>
<tr>
<td>□ Fatigue perceived as a punishment</td>
</tr>
<tr>
<td>□ Significant others continually compensate</td>
</tr>
</tbody>
</table>
Larger knowledge exchange objectives

1. Review the available literature on fatigue and TBI
2. Document the existing expertise developed in our TBI unit
3. Present and validate the results of the survey
4. Triangulate with literature
5. Identify targets for interventions
6. Translate this data into a tangible clinical tool for assessment and intervention
7. Evaluate the tool directly in the clinical setting
8. Improve manual with feedback from clinicians and clients
9. Evaluate tool in systematic research
10. Disseminate and use for training
Le guide de l'énergie

Manuel d'intervention pour la gestion de la fatigue chez les clientèles en réadaptation

Préparé par
le Comité sur la Fatigue de l'Institut de Réadaptation en Déficience Physique de Québec :

Lisa Binet
Nathalie Boutin
Jean-François Cantin (initiateur du projet)
Guylaene Duchesneau
Claire Landry
Julie Lessard
Marie-Christine Quellet
Isabelle Potvin
Nancy Turcotte

Juin 2010

3.4 Établir les attentes

Votre client est en train d'établir un horaire qui lui permet de mieux gérer son énergie. En effet, il a créé un bon équilibre entre les activités qu'il doit faire, celles qu'il aime faire et celles qui le dérangent. On peut toutefois continuer à améliorer son agenda en prenant en considération les attentes qui sont importantes en lien avec la performance lors de la réalisation de ses activités. En effet, lorsqu'une activité est réalisée, des attentes sont exprimées en lien avec la performance, dont la fréquence de l'activité, le rendement durant l'activité et la qualité du résultat. Ces attentes affectent directement la quantité d'énergie dépensée, mais également le niveau de satisfaction retiré.

Conseil C
Comment établir des attentes raisonnables?

Afin de maintenir des attentes réalistes et satisfaisantes pour évaluer la performance, il peut s'avérer essentiel de les modifier. Par exemple, on peut décider :

- D'effectuer la tâche moins souvent, mais d'en profiter au maximum ;
- De temporairement se satisfaire d'un rendement et d'une qualité moindre (ex : traiter moins de dossiers à la fin du travail pour se récompenser par un mieux satisfaire la fin du travail) ;
- Accepter que la tâche se fasse un peu moins souvent, ou encore servir à l'occasion des plaisirs préparés à l'avance ou congésés si cela permet d'effectuer d'autres activités plus plaisantes ;
- D'accepter que quelqu'un nous aide pour faire une tâche ;
- De déléguer une tâche à quelqu'un d'autre, quitte à ce que ce ne soit pas exactement à notre manière.

Établir des attentes réalistes

Dans le cas de Martin, pour améliorer à la plus grande fatigue, il accepte maintenant de prendre une semaine pour réaliser une tâche de rénovation qu'il pourrait effectuer auparavant dans une journée. Ce qu'il juge important et le satisfait aujourd'hui, c'est qu'il puisse parvenir au même résultat dans ce type de tâche, même si le rythme est différent et qu'il doit prendre des pauses. Il ne dépend donc pas de quelqu'un d'autre pour la réalisation des travaux lourds.
**Fatigue diary**

<table>
<thead>
<tr>
<th>Jour</th>
<th>Lundi</th>
<th>Mardi</th>
<th>Mercredi</th>
<th>Jeudi</th>
<th>Vendredi</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heure de lever</strong></td>
<td>6h30</td>
<td>7h30</td>
<td>insomnie 5h45h</td>
<td>insomnie 4h45h</td>
<td>insomnie 4h45h</td>
</tr>
<tr>
<td><strong>En me levant</strong></td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
</tr>
<tr>
<td><strong>En avant-midi</strong></td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
</tr>
<tr>
<td><strong>Commentaires</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Activités</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Au diner</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>En après-midi</strong></td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
</tr>
<tr>
<td><strong>Commentaires</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Activités</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>À l'heure du souper</strong></td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
</tr>
<tr>
<td><strong>En soirée</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Commentaires</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Activités</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Au couchez</strong></td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
<td>1h24h5</td>
</tr>
</tbody>
</table>

**Total de sommeil**
- 8 heures
- 16 heures
- 9 heures
- 10 heures
- 5h + 3h = 8h
**Intervention - Exercice E : Quelles activités me fatiguent le plus ?**

Consigne: Tentez d’identifier quelles activités vous fatiguent plus ou moins. Dans l’exemple suivant, Martin a fait une liste de différentes activités qu’il fait régulièrement et a regardé à quel point il ressentait la fatigue en les réalisant.

<table>
<thead>
<tr>
<th>Activité</th>
<th>Niveau de fatigue</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Je fonctionne bien</td>
</tr>
<tr>
<td>Préparer un repas</td>
<td></td>
</tr>
<tr>
<td>Regarder un documentaire à la télévision</td>
<td>X</td>
</tr>
<tr>
<td>Avoir une conversation simple</td>
<td></td>
</tr>
<tr>
<td>Remplir des papiers importants</td>
<td></td>
</tr>
<tr>
<td>Écouter de la musique</td>
<td>X</td>
</tr>
<tr>
<td>Assister à une réunion</td>
<td>X</td>
</tr>
<tr>
<td>Faire des achats dans un magasin que je ne connais pas</td>
<td></td>
</tr>
<tr>
<td>Lire mes nouveaux courriels</td>
<td></td>
</tr>
<tr>
<td>Écrire une lettre ou un courriel</td>
<td></td>
</tr>
<tr>
<td>Tondre le gazon</td>
<td></td>
</tr>
<tr>
<td>Suivre une conversation dans un environnement bruyant</td>
<td></td>
</tr>
</tbody>
</table>
Le guide de l'énergie

Manuel d'intervention pour la gestion de la fatigue
chez les clientèles en réadaptation

Préparé par
Le Comité sur la Fatigue de l'Institut de Réadaptation en Déficience Physique de Québec.

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Juin 2010

Ce que Martin a fait...

Niveau de fatigue minimale:

Début éveil 10:00
12:00 Marche dans ma cuisine
13:30 Déjeuner
14:00 Dormir
15:30 Je ne suis pas certain de finir
16:00 Dormir

Martin n'a pas pu dormir.
Il n'a pas planifié pour s'en émerger.

Ce que Martin aurait pu faire...

Niveau de fatigue minimale:

Début éveil 10:00
10:30 Lecture
11:30-12:00 Musique
11:13 Arrêter
12:00 Dormir

Martin a su anticiper sa fatigue.
Il a alterné une activité fatigante avec une activité apaisante.
Il a décidé de se reposer avant d'être épuisé.
Il poursuit avec des activités utiles mais moins fatigantes.
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- Simon Beaulieu-Bonneau, M.Ps.
- Lise Binet MA
- Nathalie Boutin MPs
- Guylaine Duchesneau MPs
- Jean-François Cantin PhD
- Paul Guilbault MD
- Claire Landry OT
- Julie Lessard OT
- Isabelle Potvin MPs
- Nancy Turcotte OT
- Monique Delisle OT
Funding - Thank you