RETURN TO WORK AFTER CONCUSSION: Considerations

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Focus on TBI and Concussion
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Hillary Clinton expected to return to work next week after spending nearly three weeks out due to concussion

Hillary Rodham Clinton is expected to return to work next week, almost three weeks after being sidelined by a concussion. The 65-year-old secretary of state was diagnosed with the concussion on December 13 and hasn't been seen in public since. She is expected to step down from her role in the beginning of 2013.

By DAILY MAIL REPORTER and ASSOCIATED PRESS REPORTER
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Indian actress Priyanka Chopra has returned to work on the sets of the American TV show "Quantico" after suffering a concussion in an on-set accident last week.

She returned to work on Monday. The actress' representative confirmed the news to The Hollywood Reporter on Tuesday, reports dailymail.co.uk.
Introduction

• Poor consensus on definition of concussion make it difficult to standardize treatment

• Treatment recommendations are generalized and broad
  – Return to physical activity/sports
  – General return to cognitive activities
  – Specific return to work/vocational

- Guidelines for Concussion/mTBI & Persistent Symptoms: 3rd Edition by the Ontario Neurotrauma Foundation
Concussion Definition - AANS

A concussion is an injury to the brain that results in temporary loss of normal brain function. It usually is caused by a blow to the head. In many cases, there are no external signs of head trauma. Many people assume that concussions involve a loss of consciousness, but that is not true. In many cases, a person with a concussion never loses consciousness.

The formal medical definition of concussion is a clinical syndrome characterized by immediate and transient alteration in brain function, including alteration of mental status and level of consciousness, resulting from mechanical force or trauma.
## Concussion Symptoms

<table>
<thead>
<tr>
<th>Physical</th>
<th>Cognitive</th>
<th>Emotional</th>
<th>Sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Headache</td>
<td>• Feeling mentally “foggy”</td>
<td>• Irritability</td>
<td>• Drowsiness</td>
</tr>
<tr>
<td>• Nausea</td>
<td>• Feeling slowed down</td>
<td>• Sadness</td>
<td>• Sleeping less</td>
</tr>
<tr>
<td>• Vomiting</td>
<td>• Difficulty concentrating</td>
<td>• More emotional</td>
<td>than usual</td>
</tr>
<tr>
<td>• Balance problems</td>
<td>• Difficulty remembering</td>
<td>• Nervousness</td>
<td>• Sleeping more</td>
</tr>
<tr>
<td>• Dizziness</td>
<td>• Forgetful of recent information or conversations</td>
<td></td>
<td>than usual</td>
</tr>
<tr>
<td>• Visual problems</td>
<td>• Confused about recent events</td>
<td></td>
<td>• Trouble falling</td>
</tr>
<tr>
<td>• Fatigue</td>
<td>• Answers questions slowly</td>
<td></td>
<td>asleep</td>
</tr>
<tr>
<td>• Sensitivity to light</td>
<td>• Repeats questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Sensitivity to noise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Numbness/Tingling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Dazed or stunned</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Source: NORTHBAY HEALTHCARE*
General Return to Activity

• Physical, Cognitive and Emotional Impairments
• Graded resumption of pre-injury activity within days to weeks
  – REDUCED risk of persistent post-concussive symptoms
    - Physical activity in school aged children (Grool, JAMA, 2016; 316(23):2504)
    - Employed workers (Cancielliere, Arch Phys Med Rehab, 2014; 95(3 Suppl):S201
      – Better health status, sense of well-being and quality of life
      – Less use of health services and greater social integration
General Return to Activity


So, how soon after a concussion is it safe to start doing aerobic exercise? Lawrence says the study, which followed the recovery of 253 people between the ages of 15 and 20, has shown that some individuals benefit from starting low-impact, aerobic activity as early as 24 hours after injury.

For each successive day of delaying the start of aerobic exercise, individuals had a less favourable recovery trajectory, according to the study. Initiating aerobic exercise at three and seven days following injury was associated with a reduced probability of 36.5 per cent and 73.2 per cent respectively of a faster full return to sport, and a reduced probability of 45.9 per cent and 83.1 per cent respectively of a faster full return to school and work.
General Return to Activity

• **Timing**
  – Short period of physical and cognitive rest
  – Avoid more than 3 days of bedrest
    – Silverberg, J Head Trauma Rehab, 2013;28(4):250
  – Avoid all activities with high concussion/TBI risk for 7-10 days
General Return to Activity

• Cognitive Rest
  – Cognitive activities can exacerbate symptoms
    - Tasks requiring sustained concentration, attention, or problem-solving
    - Reading
    - Computer or cell phone use, TV, video games
    - Demanding social interactions
# Return to Cognitive Exertion Protocol

<table>
<thead>
<tr>
<th>Stage</th>
<th>Objectives of each stage</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
<th>Stage 5</th>
<th>Stage 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Restrictive cognitive activity</td>
<td>Recovery</td>
<td>Gradual reintroduction of cognitive activity</td>
<td>Increase cognitive stamina with self-paced school</td>
<td>Begin gradual return to school</td>
<td>Work up to some full days at school</td>
<td>Resume full cognitive workload</td>
</tr>
<tr>
<td></td>
<td>Activities that should be avoided</td>
<td>Schoolwork, Reading, Texting, Video games</td>
<td>Avoid prolonged participation in the same type of activities found in stage 1</td>
<td>Avoid prolonged participation in the same type of activities found in stage 1</td>
<td>Tests, Noisy locations, Carrying heavy backpacks</td>
<td>Compelling to attend a full week a class, More than one test per day</td>
<td>Excessive use of stimulants, Caffeine, ADHD drugs (Ritalin, Adderall...)</td>
</tr>
<tr>
<td></td>
<td>Acceptable activities at each stage of rehabilitation</td>
<td>Cognitive rest at home</td>
<td>Adding cognitive activities, Start with 5-15 minutes at a time, Build to a 60 minute session without a break</td>
<td>Adding homework, Start with 20 minute sessions, Build to the equivalent of half a school day (3-4 hours)</td>
<td>Attend school with classroom accommodations only, Start with a half-day of school, Build to a full day of quieter classes, Homework, 15 minute blocks, Build to 1 hour of homework daily</td>
<td>Tests, Allowing extra time to complete tests, Homework, Ability to go beyond 1 hour as tolerated</td>
<td>Catching up with homework and tests</td>
</tr>
<tr>
<td></td>
<td>Timeline</td>
<td>Symptom-free for 24 hours? Yes: Begin Stage 2, No: Continue resting</td>
<td>Tolerates cognitive activity for 1 hour without a break? Yes: Move to Stage 3, No: Return to Stage 1</td>
<td>Tolerates 3-4 hours of trial school schedule at home? Yes: Move to Stage 4, No: Return to Stage 2</td>
<td>Tolerates a full day of school with modifications? Yes: Move to Stage 5, No: Return to Stage 3</td>
<td>Tolerates a full school day and a normal work load? Yes: Move to Stage 6, No: Return to Stage 4</td>
<td>Tolerates full cognitive workload? Yes: Begin Return to Physical Exertion Protocol, No: Return to Stage 5</td>
</tr>
</tbody>
</table>
General Return to Activity

• Graded Return
  – Maximal participation in pre-injury activity while minimizing symptom exacerbation
  – Sub-symptom threshold level of activity
  – If symptom recurrence
    - Reduce activity level (physical and cognitive)
    - Increase at a slower pace
    - Rule of thumb of 24 hours of activity with no symptoms before progression
Specific Return to Work

• Majority of workers return in 1-2 weeks after concussion/mTBI
  – Recovery expectations
  – Socioeconomic factors
  – Healthcare provider advice

• Many factors help predict poorer outcomes

  Number of symptoms at follow-up  Dizziness
  Post-traumatic stress            Cognitive difficulties
  Reduced social interaction      Pre-injury work history
  Financial compensation seeking  Pre-existing mental health difficulties
Specific Return to Work

• Goal is to avoid delays in RTW

• Barriers to return to work
  – Cognitive difficulty (thinking, concentration, fatigue)
  – Invisibility of the injury
  – Lack of advice/guidance on returning to work
  – RTW support systems are poorly managed
Specific Return to Work

• Assessment of Readiness
  – Healthcare worker defines
    - Risk (medical restrictions)
    - Capacity (physical, cognitive and emotional limitations)
    - Tolerance (symptom triggers)
  – Employer
    - Correlates above with job demands
    - Identify opportunities for accommodations and work modifications
Specific Return to Work

• Assessment of Readiness

  - Risk
    - Medical restrictions due to impairment that could result in harm if worker engages in given work task
      - Performance error in physical or decision-critical task
      - Harm to worker, co-worker or general public
      - Harm can also be disruption of equipment, production or work environment
    - Examples
      - Impaired balance: No working at heights
      - Impaired concentration or visual disturbance: No operation of heavy machinery
Specific Return to Work

• Assessment of Readiness

  – Capacity

    - Activities that the patient physically, cognitively or emotionally cannot perform
      - Do not pose a harm but interfere with ability to perform the given task
      - Worker should not be expected to perform the task

    - Examples
      - Photophobia
      - Sonophobia
      - Slowed cognitive processing
Specific Return to Work

• Assessment of Readiness

  – Tolerance

    - Patient/worker’s ability to tolerate symptoms
      - Not medically definable
      - Task may increase symptom but not hinder ability to perform the task
      - Careful to not coddle patient as sometimes they need “permission” to be more aggressive in return to work
      - “Uncomfortable” but not “un-doable”
      - If intolerance reaches level of limitation and requires accommodation, should be commented upon to employer
Specific Return to Work

• Assessment of Readiness
  – Physical Evaluation
    - Often revealed in history patient relays
  – Cognitive Evaluation
    - Executive functioning, attention, memory, information processing and verbal skills
  – Psychosocial/Emotional Evaluation
    - Re-organization of psychosocial identity can also lead to mood disorders
Specific Return to Work

• Assessment of Readiness
  – Employer Responsibility
    - Uses the healthcare info on risk, capacity and tolerance to accommodate worker and adjust work type
  – General vocational accommodations
    Flexible work hours
    Work from home
    Gradual work re-entry
    Decreased computer work
    Additional time for task completion
    Quiet space for breaks
    Enhanced level of supervision
    Change of job
<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Possible Strategies</th>
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</thead>
<tbody>
<tr>
<td>Difficulty remembering</td>
<td>• Use some external memory aids including:</td>
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<tr>
<td></td>
<td>o A Diary or Notebook nearby to write information down,</td>
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<td></td>
<td>o A Calendar nearby to keep track of appointments,</td>
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<td></td>
<td>o To-Do List of the day or week’s tasks</td>
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<tr>
<td></td>
<td>o Tape recorders or Dictaphones to keep track of thoughts or tasks</td>
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<td></td>
<td>o Sticky Notes, Electronic organisers, cameras,</td>
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<tr>
<td></td>
<td>o Watches, mobile phones</td>
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<tr>
<td></td>
<td>o Request written and verbal instructions</td>
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<tr>
<td>Difficulty concentrating or comprehending</td>
<td>• Reduce distractions in the workspace for example:</td>
</tr>
<tr>
<td></td>
<td>o Clean up work area (a less cluttered work area can lead to less distractions)</td>
</tr>
<tr>
<td></td>
<td>o Minimize sensory distractions including excessive visual stimulation or environmental noises</td>
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<td></td>
<td>• Take more time to complete tasks:</td>
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<tr>
<td></td>
<td>o Memory, attention span and processing speed are usually impaired during the recovery process. Taking more time to complete assignments or projects may help</td>
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<td></td>
<td>• Take frequent rest breaks</td>
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<td></td>
<td>• Try avoiding multi-tasking</td>
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<td></td>
<td>• Split large jobs/assignments into smaller tasks or steps</td>
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<tr>
<td></td>
<td>• Restructure the job to include only essential tasks</td>
</tr>
<tr>
<td>Increased Fatigue</td>
<td>• Plan/rearrange the work day:</td>
</tr>
<tr>
<td></td>
<td>The concussed brain will fatigue more easily and is typically the freshest earlier in the morning after a good night’s sleep.</td>
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<tr>
<td></td>
<td>Therefore plan activities that require the most physical and cognitive energy earlier in the morning (if possible)</td>
</tr>
<tr>
<td></td>
<td>• Take frequent rest breaks:</td>
</tr>
<tr>
<td></td>
<td>o Note the time when the onset of symptoms occurs and plan on taking a break prior to that cut-off time in the next study session. Take frequent breaks. Listen to the symptoms and don’t push through them.</td>
</tr>
<tr>
<td></td>
<td>o Listen to these symptoms as they are related to your concussion and fighting through them will prolong your recovery. Step away from the activity and take the necessary rest as needed.</td>
</tr>
<tr>
<td>Visual disturbances/ Eye fatigue or Eye strain</td>
<td>• Take frequent rest breaks</td>
</tr>
<tr>
<td></td>
<td>• Remove glare</td>
</tr>
<tr>
<td></td>
<td>• Increase print or font size</td>
</tr>
<tr>
<td>Sensitivity to Noise</td>
<td>• Reduce noise by:</td>
</tr>
<tr>
<td></td>
<td>o Implementing some noise protection, noise cancelling headphones, sound proofing</td>
</tr>
<tr>
<td>Sensitivity to Light</td>
<td>• Decrease visual stimuli:</td>
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<tr>
<td></td>
<td>o Dim lighting, wear sunglasses, bring shades down</td>
</tr>
</tbody>
</table>
Specific Return to Work

• Assessment of Readiness
  – Goal: enable worker to fully participate in work tasks while remaining below the symptom exacerbation threshold
  – No common template fits all patient/workers
  – Symptom existence does not preclude RTW
  – Symptom exacerbation due to work requires re-evaluation and accommodation with gradual RTW at a slower pace
Specific Return to Work

• Assessment of Readiness
  – Formal vocational evaluation
    - Complex cases with difficulty defining restrictions
    - Suitability of accommodated work and workplace
    - Assessment
      – Person domains (physical, neuropsych/cognitive, psychosocial, communications, functional, work-related skills and behaviors)
      – Job demands (physical, neuropsych, behavioral, communication, responsibilities and expectations, work time, safety)
      – Work environment (physical and cultural workplace elements)
<72 Hours
- Immediate period of rest to prompt recovery.
- Avoid activities that increase the risk for another concussion/mTBI.
- No bed rest exceeding 3 days.

> 72 Hours
Gradual return to activity as tolerated.

Do the patient's normal work activities involve significant physical demands?

No

Is there a high risk of injury-re-injury or any other safety concerns regarding work?

No

Return to work as tolerated.

Yes

Exertion testing can be done (e.g., graduated treadmill exercise test).

Does this cause a return of symptoms?

No

Return to work as tolerated.

Yes

- Monitored progressive return to work is recommended.
- Low-level exercise may be of benefit.

Return to work as tolerated.

A more in-depth assessment of symptoms and necessary work accommodations and restrictions should be identified (Sidebar 1).

Is the individual experiencing persistent symptoms or is unable to successfully resume pre-injury work duties?

No

Continue to monitor progressive return to work.

Yes

Refer to specialists for in-depth vocational evaluation (Appendix 12.1) involving:
- Assessment of person
- Occupational and job demands
- Work environment
- Environmental supports
- Facilitators and barriers to successful return

Does the evaluation by specialists determine that return to work is possible?

No

Consider referral to a structured program that promotes community integration (e.g., volunteer work).

Sidebar 1: Work Accommodations and Restrictions
Work restrictions should apply if:
- A work-specific task cannot be completed
- The work environment cannot be adapted
- Deficits cannot be accommodated
- Symptoms recur

Examples of Modifications:
- Length of work day
- Gradual work re-entry
- Additional time for tasks
- Change of job
- Environmental modifications
Thank you