DEPARTMENT OF THE AIR FORCE

PHYSICAL THERAPY CLINIC

EGLIN AIR FORCE BASE, FLORIDA 32542

9 March 2014

SUBJECT: Implementation of Progressive Return to Activity guidelines following mild Traumatic Brain Injury (mTBI)

1. PURPOSE: Establish the purpose, inclusion criteria, evaluation methods, and treatment protocol of a program to facilitate recovery via the Progressive Return to Activity guidelines for service members who have sustained mTBI. 1
2. SCOPE: This proposal applies to all service members who have sustained mTBI and have persistent post-concussive symptoms, as well as the clinicians who are responsible for implementation of Progressive Return to Activity guidelines. Other stakeholders to include Medical Center Command, Neurology and current mTBI care clinicians, and Cadre staff for support.
3. NEEDS ASSESSMENT: Approximately 99% of the patients seen in outpatient Physical Therapy at Eglin Air Force Base (AFB) are treated for orthopedic issues. There is currently no vestibular-certified therapist on staff. The Neurology staff at Eglin AFB has recently begun a comprehensive mTBI program to treat Air Force and Army Special Forces service members post-mTBI, but Physical Therapy is not one of the regular disciplines on board at this time. Service members may be referred from this program to Physical Therapy for cervical spine pain, impaired coordination, or vertigo. Physical Therapy should play a more active role in the rehabilitation of the aforementioned service members in the event that they report persistent post-concussive symptoms with physical activity. Orthopedic Physical Therapists have the potential to work with these service members on a gradual progression of activity while concurrently addressing vestibular-related symptoms. A program to facilitate this progression is necessary to allocate responsibilities and create an efficient system of recovery.
4. RESPONSIBILITIES: Outpatient Physical Therapy will assess service members with referral from primary care or Neurology, and refer appropriate service members to the program for progressive return to activity.
5. PROCEDURES: The Progressive Return to Activity guidelines allow for the assessment of presence and intensity of mTBI symptoms at rest and with exertion. They provide an effective and safe method for returning service members with persistent post-concussive symptoms to intensive activity. The evaluation and treatment methods are outlined below:
   1. Staff Training
      1. PowerPoint presentation overview of the Progressive Return to Activity Guidelines and intervention examples to be presented in a one hour in-service 2
      2. PowerPoint presentation on common vestibular examination techniques, diagnoses and treatments for service members post-mTBI to be presented in a one hour in-service

* 1. Indications for Referral: 1
     1. Service members should be referred to Physical Therapy for implementation of Progressive Return to Activity if they report symptoms following a period of rest after mTBI. This period of rest should be 24 hours for a first mTBI and up to seven days for a repeat (within 12 months) mTBI. The service member who rests for the recommended period of time and experiences symptoms after activity or an exertion test should also be referred.
  2. Definitions for the Guidelines 1
     1. Neurobehavioral Symptom Inventory (NSI): A 22-item inventory of common post-mTBI symptoms
     2. Borg’s Rate of Perceived Exertion (RPE): Subjective measure of physical activity level of intensity
     3. Theoretical maximum Heart Rate (THR): THR = 220 – age
  3. General Protocol 1
     1. All reported symptoms should be mild (1) or lower on the NSI prior to progressing to next stage.
     2. The service member should be advised to rest if increased symptoms are reported during or following activity.
     3. NSI, resting heart rate (HR), and resting blood pressure (BP) should be assessed daily.
     4. BP and HR should not exceed 140/90 mmHg or 100 bpm, respectively. If these values are exceeded, the service member should not progress to the next stage.
  4. Progressive Return to Activity Following Acute Concussion/Mild Traumatic Brain Injury: Guidance for the Rehabilitation Provider in Deployed and Non-Deployed Settings 3
     1. See the following Clinical Support Tool for detailed return to activity guidance

<http://dvbic.dcoe.mil/sites/default/files/2013_PRA_Rehab_CST_FINAL.pdf>

* 1. Program Specifications & Manpower
     1. Program will be scheduled for 60 minutes, two times per week. Service members in Stage 1 will not attend and service members in Stage 2 will only attend for half of each session.
     2. Program will minimally require one physical therapist, plus an additional physical therapist or physical therapy assistant for a program size greater than five patients.
     3. See Appendix A for specific exercises that are appropriate for program sessions.

1. CONTACT: Any questions or concerns to be directed to Deborah Kenner.
   1. Deborah Kenner, Student Physical Therapist

Email: kenner@med.unc.edu

**References**

1. Progressive return to activity following acute concussion/mild traumatic brain injury: Guidance for the rehabilitation provider in deployed and non-deployed settings: Clinical recommendation. Defense and Veterans Brain Injury Center Web site. [http://dvbic.dcoe.mil/sites/default/files/2013\_PRA\_Rehab\_CR\_FINAL.pdf](http://dvbic.dcoe.mil/sites/default/files/2013_PRA_Rehab_CR_FINAL.pdf" \t "_blank). Updated 2014. Accessed 3/1/2014.

2. Progressive return to activity following acute concussion/ mild traumatic brain injury: Guidance for the rehabilitation provider in deployed and non-deployed settings. provider training slides. Defense and Veterans Brain Injury Center Web site. [http://dvbic.dcoe.mil/sites/default/files/PRA\_REHAB\_Ed\_slides\_MRMC\_FINAL.pdf](http://dvbic.dcoe.mil/sites/default/files/PRA_REHAB_Ed_slides_MRMC_FINAL.pdf" \t "_blank). Updated 2014. Accessed 3/1/2014.

3. Progressive return to activity following acute concussion/mild traumatic brain injury: Guidance for the rehabilitation provider in deployed and non-deployed settings: Clinical support tool. Defense and Veterans Brain Injury Center Web site. [http://dvbic.dcoe.mil/sites/default/files/2013\_PRA\_Rehab\_CST\_FINAL.pdf](http://dvbic.dcoe.mil/sites/default/files/2013_PRA_Rehab_CST_FINAL.pdf" \t "_blank). Updated 2014. Accessed 3/1/2014.

4. Patient activity guidance after concussion. Defense and Veterans Brain Injury Center Web site. [http://dvbic.dcoe.mil/sites/default/files/2013\_PRA\_Rehab\_PES\_FINAL.pdf](http://dvbic.dcoe.mil/sites/default/files/2013_PRA_Rehab_PES_FINAL.pdf" \t "_blank). Updated 2014. Accessed 3/1/2014.

**Appendix A** 2,4

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| **Stage** | **Activity Examples** | **DO NOT** |
| Stage 2 | * Stairs * Stationary bike * Walk on treadmill or flat surface * Stretching * Static catch with small, light ball | * Repetitive lifting or resistance training * Sit-ups, push-ups, pull-ups |
| Stage 3 | * Stairs * Stationary bike * Elliptical * Swimming without flip turns * Walk on uneven surface * Sit-ups, push-ups, pull-ups <25% of normal reps * Single leg stance, eyes open and closed * Squats, planks | * Repetitive lifting * Combatives or collision sports |
| Stage 4 | * Stationary bike * Elliptical * Light resistance training * Brisk walk or hike without additional load * Jumping rope * Swimming with flip turns * Sit-ups, push-ups, pull-ups <50% of normal reps * Light agility drills | * Combatives or collision sports |
| Stage 5 | * Normal resistance training * Brisk walk or hike without additional load * Running * Jumping rope * Plyometrics * Agility drills | * Combatives or collision sports |