

# Concussion Rehabilitation Progressions <sup>1,2</sup>

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<b>Phase 1</b>	
Target HR:	30-40% of maximum exertion
Recommendations:	10-15 minutes of cardio exercise, low stimulus environment no impact/contact activities balance and vestibular treatment (pm) limit head movement/position change limit concentration activities
Activity:	very light aerobic conditioning sub-max strengthening ROM/stretching very low-level balance activity
<b>Phase 2</b>	
Target HR:	40-60% of maximum exertion
Recommendations:	20-30 minutes of cardio exercise exercise in gym areas use various exercise equipment allow some positional changes and head movement low level concentration activities
Activity:	moderate aerobic conditioning light weight strength exercises stretching (active stretching initiated) low-level balance activity
<b>Phase 3</b>	
Target HR:	50-80% of maximum exertion
Recommendations:	any environment is okay for exercise (indoor/outdoor) integrate strength, conditioning, and balance/proprioception exercises incorporate concentration challenges
Activity:	moderately aggressive aerobic conditioning all forms of strength exercise (80% max) active stretching exercises impact activities, running, plyometrics (no contact) challenging proprio-balance activities
<b>Phase 4: Sport Performance Training</b>	
Target HR:	80-90% of maximum exertion
Recommendations:	continue to avoid contact activity resume aggressive training in all environments
Activity:	non-contact physical training aggressive strength exercises impact activities/plyometrics sport-specific training activities
<b>Phase 5: Sport Performance Training</b>	
Target HR:	Full exertion
Recommendations:	Initiate contact activities as appropriate to sport activity full exertion for sport
Activity:	resume full physical training with contact

continue aggressive strength/conditioning exercise  
sport-specific activity

<sup>1</sup> ImPACT (2009) ImPACT™ The best approach to concussion management.

<sup>2</sup> Learish, S. (2008). New developments in sports related concussion: Physical therapy and rehabilitation 5 stage exertion protocol. Pittsburgh, PA. University of Pittsburgh Center for Sports Medicine