

EXERCISE PROGRESSION AFTER CONCUSSION

Each course of action will have to be adjusted to the student's individual needs.

STAGE OF REHABILITATION	GOALS	RECOMMENDED EXERCISES
<p>STAGE 1</p> <p>Target Heart Rate: 30-40% of maximum exertion</p> <p>Recommendations: Exercise in a quiet and safe area; no impact activities; may try very limited balance exercises if tolerated.</p> <p>10-15 minutes of light cardio exercise trials. Multiple trials can be done if symptoms are not worsened.</p>	<p>Prevent deconditioning (prevent "sluggish, couch potato effect" from too much rest)</p> <ul style="list-style-type: none"> Stretch and walk at least twice per day No running, no contact; exercise with movement in neutral planes (avoid fast head movements or bending over) <p>Level of exercise: you can still breathe through your nose comfortably</p>	<p>Walking, stretching, slow bodyweight squats (10-15 minute trials)</p> <p>Upper extremity (UE) very light hand weights; resistive band rowing; lower extremity (LE) straight leg raises</p> <p>Gentle neck range of motion; shoulder, pectoralis, hamstring, hip flexor, quadriceps, calf stretching ("top to bottom stretching" of all large muscle groups)</p> <p>Proceed to Stage 2 when you can attend full days at school (with academic adjustments if necessary) and symptoms are minimal</p>
<p>STAGE 2</p> <p>Target Heart Rate: 40-60% of maximum exertion</p> <p>Recommendations: May use various exercise equipment. Some mild positional changes and head movement introduced</p> <p>10-15 minutes of cardio exercise trials.</p>	<p>Light to moderate aerobic conditioning, resistance training, stretching and balance</p> <ul style="list-style-type: none"> Moderate balance activities; perform with minimal head position changes Light/moderate work with resistance bands and light dumbbells <p>Level of exercise: you have to breathe through your mouth but can talk without pausing to catch your breath</p>	<p>Stationary bike; light swimming; resistive band exercises (UE/LE); wall squats; lunges; step-up/down</p> <p>Any Stage 1 stretching, active stretching as tolerated (lunge walks; side-to-side groin stretch; walking hamstring stretch)</p> <p>If muscular neck pain persists, continue to treat with massage, shoulder exercises, and gentle stretch</p> <p>Proceed to Stage 3 when school is tolerated and you are symptom free</p>
<p>STAGE 3</p> <p>Target Heart Rate: 60-80% of maximum exertion</p> <p>Recommendations: Any environment ok for exercise (indoor/outdoor); integrate strength, conditioning & balance exercises; can incorporate concentration challenges (counting exercises, visual games)</p> <p>Moderately aggressive aerobic and strength exercises. 20-30 minutes of cardio and strength training exercise trials.</p>	<p>Running, jumping, plyometrics (no contact)</p> <ul style="list-style-type: none"> Exercise with head movements in all planes, including quickly bending forward if tolerated Challenging balance exercises, challenging positional changes <p>Level of exercise: you have to breathe through your mouth and catching your breath impedes ability to talk continuously (exercise is not at the level of maximal exercise intensity)</p>	<p>Treadmill (jogging); stationary or outside bike; elliptical; resistive weight training including free weights; dynamic strength activities</p> <p>Half speed agility drills (zig-zag runs, side shuffle, ball toss, balance disc; squats & lunges on BOSU ball); OK for noncontact ice skating, stick handling, light ball kicking, batting cage</p> <p>Proceed to Stage 4 after several days of Stage 3 success and when academic adjustments are not needed (full academic success)</p>
<p>STAGE 4</p> <p>Target Heart Rate: 80% of maximum exertion</p> <p>Recommendations: Continue to avoid contact activity, but resume aggressive training in all environments if symptoms are gone.</p>	<p>Full intensity NON-CONTACT physical training</p> <ul style="list-style-type: none"> Sport-specific activities and drills Full aerobic and strength exercises <p>Level of exercise: At the level of maximal intensity</p>	<p>Graded treadmill; sprint conditioning and interval training; sport-specific drills/training</p> <p>35- to 45-minute trials</p> <p>Proceed to Stage 5 (contact activities) ONLY after evaluation and full clearance by your treating clinician</p>
<p>STAGE 5</p> <p>Target Heart Rate: Full exertion</p> <p>Recommendations: Initiate contact activities as appropriate to sport activity, full exertion for return to competition.</p> <p>DO NOT PROCEED TO CONTACT ACTIVITIES UNTIL CLEARANCE</p>	<p>Continue aggressive strength/conditioning exercises</p> <ul style="list-style-type: none"> Sport-specific activities and drills Consider isometric neck/periscapular strengthening and proprioception training to prevent future injuries Full contact activities only if symptoms do not return 	<p>Programs typically led by team athletic trainers or coaches</p> <p>Practice & game intensity training</p> <p>Typically, at least two practices are completed before game play</p> <p>Immediately report any return of symptoms</p>

*Max HR is (220-your age); Target Heart Rates calculated by Karvonen's equation: ((Max HR – Resting HR) X Target Percentage) + Resting HR