Geisinger Sports Medicine
Concussion – Return to Play Protocol

Rational: Return to Play (RTP) presents athletic trainers with a standardized series of steps to ensure the safe return of a recovering concussed athlete to field of play. These steps progress the athlete through daily SCATs ensuring the asymptomatic athlete can proceed to the next step of the protocol. Any return of symptoms forces the athlete to return to a previous step till completion. In some more severe cases, athletes may start the protocol again at Stage 0.

Protocol:

Stage 0 - Athlete must remain at this stage until all signs and symptoms have been resolved for 24 hours

Stage 1 - Athlete completes a 15-minute bike workout without return of symptoms

Stage 2 - Athlete completes a workout without return of symptoms
- Bike Sprint workout – 20 minutes (see following pages)
- Treadmill incline workout – 20 minutes (see following pages)

Stage 3 - Athlete completes a workout without return of symptoms
- On-field workout (see following pages)
- Weightlifting workout (see following pages)
- Multi-directional Movement

Stage 4 - Athlete completes a "Stress Test" workout without return of symptoms
- Stress Test Option 1 (see following pages)
- Stress Test Option 2 (see following pages)
- After Stress Test: light/non-contact practice
  - No contact in any sport
  - No live Scrimmage in any sport

After Stage 4, clearance is established by the Athletic Trainer and a licensed physician. The Athletic Trainer discusses symptoms with physician and both must agree it is safe for the athlete to participate.

Stage 5 - Athlete completes a full practice with no restrictions

Stage 6 - Release / Return of athlete to full play and competition

Stage 1 - Example 15 minute light bike workout

This is an example only and the athletic trainer conducting this stage may have to modify exercises based on the athlete and equipment available

TIME	TENSION	RPM	LEVEL
15 min	1	70 rpm	2
12 min	1	90 rpm	2
10 min	2	70 rpm	3
8 min	2	95 rpm	3
7 min	2	70 rpm	3
5 min	2	100 rpm	3
4 min	3	70 rpm	4
3 min	2	100 rpm	3
2 min	1	70 rpm	2

**Discontinue any workout that causes a return or increase in concussion symptoms.

Stage 2 - Example – 20 minute Bike sprint workout

This is an example only and the athletic trainer conducting this stage may have to modify exercises based on the athlete and equipment available

TIME	TENSION	RPM	LEVEL
20 MIN	2	70 RPM	3
18 MIN	3	80 RPM	4
16 MIN	2	95 RPM	3
15 MIN	3	80 RPM	4
13 MIN	2	95 RPM	3
12 MIN	4	80 RPM	5
10 MIN	2	105 RPM	3
9 MIN	3	80 RPM	4
7 MIN	2	105 RPM	3
6 MIN	3	90 RPM	4
4 MIN	2	80 RPM	3
2 MIN	2	70 RPM	3

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Stage 2 - Example – 20 minute Treadmill incline workout

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	TIME	SPEED	INCLINE
START	0 – 2	3.0	0.0
	2 – 4	3.5	5.0
	4 – 6	3.5	8.0
	6 – 8	3.5	10.0
	8 – 10	3.5	12.0
	10 – 12	3.0	13.0
	12 – 14	3.0	14.0
	14 – 16	3.0	15.0
	16 – 18	3.0	10.0
	18 – 20	3.0	0.0
END	20	0	0.0

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Stage 3 – Example - On-field workout

This is an example only and the athletic trainer conducting this stage may have to modify exercises based on the athlete and equipment available

5 - 10 mins	jump rope, jogging, running
Traveling Exercises 5 - 10 yards	walking on your toes forward, backward, lateral lunges - forward and backwards walking giant arm swings happy go lucky line touches hop jumps running 360 skipping - forward, backward, lateral
Stationary Exercises 25 reps	push-ups full sit-ups wall ball shots box jumps - low box 6" - 12"
15 - 20 mins	complete sports specific drills
Condition Exercises	300 yd shuttle at different length - 25, 50, or 100 60 yd shuttles Stadium steps

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Stage 3 – Example – Weightlifting workout (about 40 minutes for most athletes)

This is an example only and the athletic trainer conducting this stage may have to modify exercises based on the athlete and equipment available.

- Exercises are grouped in pairs or "super-setted". Little to no rest between sets/exercises. For example: exercises 1, exercise 2, exercise 1, exercise 2
- Rest is allowed while demonstrating next exercise or setting up next exercise.
- Weights used are variable depending of strength and coordination of athlete. Weights should be Moderate 50%-70% of max 1 repetition, enough to elevate blood pressure and break a sweat, but not so much athlete is using improper form.
- All exercises are performed for 15 reps X 2 sets.
- Care or extra spotting must be given to athletes that have never worked out in the weight room.

Exercise(s) pairings:

Seating Rows & Lat Pull-downs

Bicep Curls & Tricep Press-downs

Bench Press & Dumbbell Front Squat(chalice Squat)

Optional pairing -- Lunges & Dumbbell Press

Crunches & Straight Leg Raises

*Optional pairing may be included if time allows or for an athlete that has prior experience in the weight room and progresses through exercises quickly.

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Stage 4 – Example – Stress test #1

This is an example only and the athletic trainer conducting this stage may have to modify exercises based on the athlete and equipment available

5 - 10 minutes	jump rope, jogging, running		
Traveling Exercises 5 - 10 yards	walking on your toes forward, backward, lateral lunges - forward and backwards walking giant arm swings happy go lucky line touches hop jumps running 360 skipping - forward, backward, lateral		
15 - 20 minutes	complete sports specific drills		
Circuit Exercise 15 - 20 minutes	Select 5 exercises Complete the following	10x 10x 10x 10x 1x	wall ball shots w/ 12 lb med ball lateral hop over 6" hurdle kettle bell swing w/ 18 lbs pank up/downs 60 yard shuttle
Bonus Exercise	Add one Bonus exercise at the end ... 30x burpees 75x full sit-ups 50x push-ups 5x 50 yds sprint		

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Stage 4 – Example – Stress test #2

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5 Station Sprint/Jog workout

- Goal: Conditioning workout(increase blood pressure) with exercises(spike blood pressure) to provide a controlled stress on post concussion athlete.
- Athlete may start off sprinting but allowed to jog as they get tired.
- Exercise repetitions may be varied according to athlete's abilities.
- Must monitor athlete closely in case of symptom(s) return.
- Most athlete's symptoms return with burpee/mtn. climber/burpee combination.
- Workout times to expect: 20+ minutes = Struggling / out of shape athlete
  15-17 minutes = Average Joe / decent shape
  12 minutes or less = Wrestler shape / very good shape

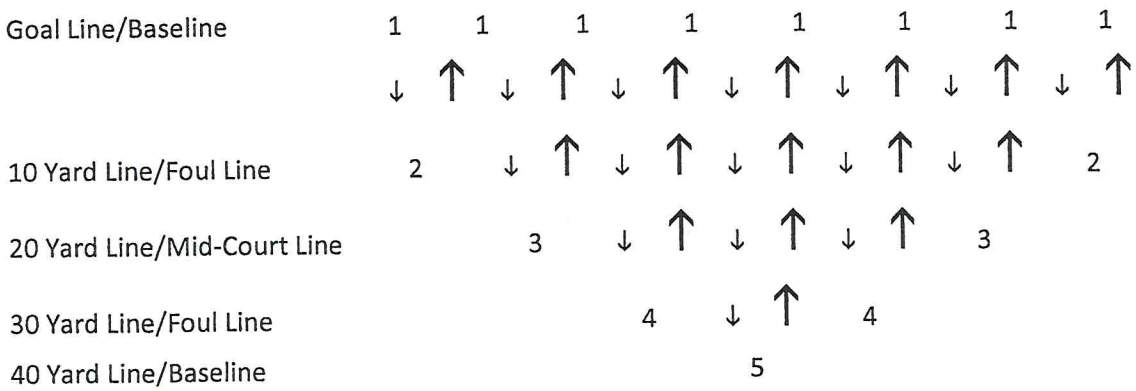
Warm with 5 laps or 5 up and back on length of workout zone / area.

Cooldown with 2 lap jog or 2 up and back on length of workout zone, and finish 2 lap walk.

*Highly encourage walking finishing laps with athlete and discuss workout and any symptoms.

Station Exercises:		
	1. Jumping Jacks	15-20 repetitions
	2. Pushups	15-20 repetitions
	3. Lunges, left and right legs	15-20 repetitions
	4. Burpees	15-20 repetitions
	5. Mountain climbers	30 seconds – 1 minute

Workout zone: Football field, basketball court, or 5 spaced out markers on ground



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