

Purpose: This document serves as a guideline for the assessment of sport-related concussions or suspected head injuries for ages 8 and above.

Background: Concussion management can be complicated; however, with training, professionals should be able to successfully administer all of the following exams. Individuals who are involved in the daily testing of athletes must adhere to these testing guidelines to provide the highest level of care for athletes. The [SCAT6](#) (Sport Concussion Assessment Tool-6) can be used for standardization, otherwise please refer to this document and complete all testing.

Suspicion of a Concussion: As defined by the CDC, a concussion is a type of brain injury caused by a bump, blow, or jolt to the head that alters brain function. Concussions can also occur from a fall or blow to the body that causes the head and brain to move rapidly back and forth. Even mild injuries to the head can be serious. If an athlete hits their head, neck, or body, they should be evaluated for a concussion. **Any** student-athlete with a suspected concussion is withheld from the competition or practice and is NOT allowed to return to activity for the remainder of that day. If a concussion is suspected, the following testing is recommended:

- Detailed injury report including documentation of the incident, evaluation, continued management, and clearance.
 - These documents must be kept until the athlete graduates.
- Symptom Checklist (page 3)
- Sample Fillable forms (pages 3 to 4)
- Tandem Gait (page 5)
 - 8 and to 12 (page
- Vestibular/Ocular-Motor Screening (VOMS) (page 8 to 12)
- Neurocognitive Testing (ImPACT) (page 13)
- Metabolic Testing (Buffalo Concussion Treadmill Test) (pages 14 to 16)
- Sample post-concussion notification (pages XX to XX)
- Sample signature page for parents and students (pages XX to XX)

Test Administration: To provide the highest level of care, all athletes should be assessed as follows:

- VOMS and Tandem Gait within 24-hours of the suspected injury
- ImPACT test should be administered when the athlete is fully symptom-free for 24-hours, as it can be too taxing and produce additional symptoms within acute recovery.
- If no trained personnel are present to administer the exams, at a minimum a symptom checklist and the ImPACT test should be administered (at the school/site) and then referred for further testing.
- Not administering an exam or taking a symptom checklist falls below the standard of care

Referral: Athletes can be referred to the UNR Neuromechanics Lab for additional testing. If referring please send the following information to Dr. Murray nicholasmurray@unr.edu:

- All data, including a detailed injury report. We have a digital reporting system (https://nevada.formstack.com/forms/neuromechanics_concussion_lab) where you can directly submit this

information in this manner, or you may use the paper forms.

- Once we have the necessary information, we will compile a report that will be sent to the athlete's family, attending medical professionals, appropriate school officials, and primary care physicians as needed.
- We have a direct referral for athletes who do not have a primary care physician, and this can be requested as needed.
- Please allow Dr. Murray 24-48 hours to respond to your provided data, or possibly longer if it is a holiday or weekend.

Requesting an Appointment: To have your athlete assessed in the Neuromechanics Laboratory, please schedule using this link: [Schedule an Appointment Here](#)

Return-to-Learn: The effects of concussion on a student's return to school experience are unique to each student. In most cases, a concussion will not significantly limit a student's participation in school. In some cases, a concussion can affect multiple aspects of a student's ability to participate, learn, and perform well in school. The experience of learning and engaging in academic activities that require concentration can cause a student's concussion symptoms to reappear or worsen. Given this connection and the way concussion effects can vary across students, academic adjustments should be tailored to each student's specific circumstances. Returning to the classroom or school work should be handled by a primary care physician with experience in the evaluation and management of concussions. If needed, Dr. Murray's office can provide a series of recommendations per your direct request but this should be handled per the department of education's guidelines.

Return-to-Play: This is a two-tiered process. An athlete cannot return-to-play until a physician has provided clearance, as well as recommendations from someone trained in the management of concussion in written form with appropriate documentation aligning with the [SCOAT6](#). Documented evidence of a comprehensive concussion assessment is mandatory. Once received, all athletes should complete a graduated return-to-play process that is handled by the most appropriate person on-site. If successful, the athlete can restart sports participation.

Individual site needs: Every participating site will have varying needs and care models. It is highly encouraged that each site be able to perform the testing that is recommended in this document or rely on the tools specific for your location/region. Various tools exist that perform some or all of these assessments. These include C3Logix and Sway, which are self-contained proprietary applications to administer concussion assessments. In Nevada, we have numerous care models and individuals who are trained in interpreting these test results. Please reach out to an individual site if you wish to learn more or to partner with these affiliates for testing. Here is a list of contacts for the various sites:

- Neuromechanics Laboratory at UNR: Dr. Nicholas Murray (nicholasmurray@unr.edu) – uses SCOAT6
- Dignity Health: Jeremy Haas (JBHaas@dignityhealthrehab.com) – uses C3Logix
- Truckee Forest Hospital: Anna Aldridge (aaldrige@TFHD.com) – uses SWAY
 - Individual site license available for SWAY – contact SWAY rep

Concussion Reporting Form

Name:

Date:

Affiliation:

Symptom	0	1	2	3	4	5	6	Comments
Headache								
Neck Pain								
Nausea or vomiting								
Dizziness								
Blurred Vision								
Balance Problems								
Sensitivity to light								
Sensitivity to noise								
Feeling slowed down								
Feeling like in a fog								
Don't feel right								
Difficulty concentrating								
Difficulty remembering								
Fatigue or low energy								
Confusion								
Drowsiness								
More emotional								
Irritability								
Sadness								
Nervous or anxious								
Trouble falling asleep								Hours slept:

7-point Likert scale ranging from 0 (none at all) to 6 (unbearable). Please record all symptoms before beginning testing, along with a total number of hours slept the previous night.

Name:

Date:

Affiliation:

Tandem Gait	Time	Errors
Normal Trial 1		
Normal Trial 2		
Normal Trial 3		
<i>Best of Normal Trials</i>		
Dual-Task: Serial 7's Trial 1		
Dual-Task: Serial 7's Trial 2		
Dual-Task: Serial 7's Trial 3		
<i>Best of Dual Task Trials</i>		

VOMS	Headache	Dizziness	Nausea	Fogginess	Comments
Baseline Symptoms					
Smooth Pursuits					
Saccades - Horizontal					
Saccades - Vertical					
Convergence (Near Point)					Measure 1: Measure 2: Measure 3:
VOR - Horizontal					
VOR - Vertical					
Visual Motion Sensitivity Test					

11-point Likert scale ranging from 0 (none at all) to 10 (unbearable).

Tandem Gait Procedure (13 and above)

Setup: Apply a strip of tape to the floor that is 3-meters (9.84-feet) long and 38-millimeters wide.

Procedures:

1. Instruct the athlete to walk in a heel-to-toe (tandem) manner along the tape, turn in place at the end of the tape, and return in a heel-to-toe manner to the starting point.

- They are to do this as quickly as they can. Inform them of the time that it should take for them to do this. Use the age-specific guidelines below:
 - College-aged athletes:^{1,2}
 - Single-Task (normal):
 - Males 10.6s
 - Females 11.7s
 - Dual-Task
 - Males 14.5s
 - Females 16.3s
 - High school and adolescence-aged athletes:^{3,4}
 - Single-Task (normal):
 - Males 14.0s
 - Females 15.0s
 - Dual-Task
 - Males 21s
 - Females 22s

2. Have them perform 6 trials (3 normal and 3 dual-task), and use a stopwatch to record their times. For the dual-task trials, we recommend Serial 7's, which has them count aloud backward by 7's from a given number. This prevents a learning effect from occurring during the dual-task trials. If counting backward by 7's is too challenging (which it should be for all age ranges) please contact us for alternative tasks.

The recommended order of trials is as follows:

Trial 1: Single task: tandem walk only

Trial 2: Dual task: tandem walk and serial 7 subtraction

Trial 3: Dual task: tandem walk and serial 7 count Trial 4: Single task-tandem walk only

Trial 5: Dual task- tandem walk and serial 7 count

Trial 6: Single task-tandem walk only

Please use the reporting form to record the times.

Tandem Gait Procedure (8 to 12 years of age)

The single-task procedures should be acceptable for all age ranges. However, the majority of younger athletes will struggle with counting backward by 7's. Start with counting backward by 3's and if that is not possible, have them name animals or colors (as many as possible). Here is a sample number list:

	90	76	103	87	74	60	89	70	93
1	87	73	100	84	71	57	86	67	90
2	84	70	97	81	68	54	83	64	87
3	81	67	94	78	65	51	80	61	84
4	78	64	91	75	62	48	77	58	81
5	75	61	88	72	59	45	74	55	78
6	72	58	85	69	56	42	71	52	75
7	69	55	82	66	53	39	68	49	72
8	66	52	79	63	50	36	65	46	69
9	63	49	76	60	47	33	62	43	66
10	60	46	73	57	44	30	59	40	63

Record the amount of errors and the time to complete the task on the same sheet on page 4.

References:

1. Oldham JR, Difabio MS, Kaminski TW, Dewolf RM, Howell DR, Buckley TA. Efficacy of Tandem Gait to Identify Impaired Postural Control after Concussion. *Med Sci Sports Exerc.* 2018;50(6):1162-1168.
2. Murray NG, Reed-Jones RJ, Szekely BJ, Powell DW. Clinical Assessments of Balance in Adults with Concussion: An Update. *Semin Speech Lang.* 2019;40(1):48-56.
3. Santo A, Lynall RC, Guskiewicz KM, Mihalik JP. Clinical Utility of the Sport Concussion Assessment Tool 3 (SCAT3) Tandem-Gait Test in High School Athletes. *J Athl Train.* 2017;52(12):1096-1100.
4. Murray NG, Moran R, Islas A, et al. Sport-related concussion adopt a more conservative approach to straight path walking and turning during tandem gait. DOI: <http://dx.doi.org/10.18053/jctres.07.202104.014>

Vestibular/Ocular-Motor Screening (VOMS) for Baseline and Concussion Assessment

The following VOMS instructions were obtained and revised from Mucha et al 2014.

Vestibular/Ocular Motor Test	Headache 0-10	Dizziness 0-10	Nausea 0-10	Fogginess 0-10	Comments
Baseline Symptoms					
Smooth Pursuits					
Saccades- Horizontal					
Saccades - Vertical					
Convergence (Near-Point) in centimeters					Measure 1: Measure 2: Measure 3:
VOR - Horizontal					
VOR - Vertical					
Visual Motion Sensitivity Test					

The VOMS is designed for use with subjects ages 9-40. When used with patients outside this age range, interpretation may vary. Please use a Visual Analog Scale (VAS) for anyone under the age of 8, or those unable to interpret the scale presented by the administrator. Abnormal findings or extreme provocation of symptoms with any test may indicate impairments, and should trigger a referral to the appropriate healthcare professional.

Equipment: Tape measure (cm); Metronome; 14-point target (wooden popsicle stick)

Baseline Symptoms – Record: Headache, Dizziness, Nausea & Fogginess on an 11-point Likert scale before beginning screening.

Smooth Pursuits - Test the ability to follow a slowly moving target. The patient and the examiner are seated. The examiner holds a target at a distance of 3-ft. from the patient. The patient is instructed to maintain focus on the target as the examiner moves the target smoothly in the horizontal direction, 1.5-ft. to the right and 1.5-ft. to the left of the midline. One repetition is complete when the target moves back and forth to the starting position twice. The examiner should move the target such that it takes 2 seconds to go from one direction to the other. The test is repeated with the examiner moving the target smoothly and slowly in the vertical direction.

1.5 ft. above and 1.5 ft. below midline for 2 complete repetitions. Again, The examiner should move the target such that it takes 2 seconds to go from one direction to the other. Record the headache, dizziness, nausea and fogginess ratings after the test.

Saccades – Test the ability of the eyes to move quickly between targets. The patient and the examiner are seated.

- **Horizontal Saccades:** The examiner holds two targets horizontally at a distance of 3 ft. from the patient. Targets should be 1.5 ft. to the right, and 1.5 ft. to the left of the midline so that the patient must gaze 30 degrees in each direction. Instruct the patient to move their eyes as quickly as possible from point to point at the beat of 180bpm. One repetition is complete when the eyes move both left and right of the starting position, and 10 repetitions are performed. Record the headache, dizziness, nausea and foginess ratings after the test.
- **Vertical Saccades:** Repeat the test with 2 points held vertically at a distance of 3 ft. from the patient. Targets should be 1.5 feet above and 1.5 feet below midline so that the patient must gaze 30 degrees in each direction. Instruct the patient to move their eyes as quickly as possible from point to point. One repetition is complete when the eyes move both up and down from the starting position, and 10 repetitions are performed. Record the headache, dizziness, nausea and
- **Convergence:** Measure the ability to view a near target without double vision. The patient is seated and wearing corrective lenses (if needed). The examiner is seated in front of the patient and observes their eye movement during this test. The patient focuses on a small target (approximately 14-point font size) at arm's length and slowly brings it toward the tip of their nose. The patient is instructed to stop moving the target when they see two distinct images or when the examiner observes an outward deviation of one eye. Blurring of the image is ignored. The distance in cm. between the target and the tip of the nose is measured and recorded. This is repeated a total of 3 times with measures recorded each time. Record: Headache, Dizziness, Nausea & Foginess ratings after the test. Abnormal: Near Point of convergence ≥ 5 cm from the tip of the nose foginess ratings after the test for adults and ≥ 10 cm.
- **Vestibular-Ocular Reflex (VOR):** Assess the ability to stabilize vision as the head moves. The patient and the examiner are seated. The examiner holds a 14-point target in front of the patient's midline, seated at a distance of 3 ft.
- **Horizontal VOR:** The patient is asked to rotate their head horizontally while maintaining focus on the target. The head is rotated 20 degrees to each side and a metronome is used to ensure the speed of rotation is maintained at 180bpm (one beat in each direction). One repetition is complete when the head moves back and forth to the starting position, and 10 repetitions are performed. Record the headache, dizziness, nausea and foginess ratings after the test.
- **Vertical VOR:** The test is repeated with the patient moving their head vertically. The head is moved to an amplitude of 20 degrees up and down, and a metronome is used to cadence head movement at 180bpm (one beat in each direction). One repetition is complete when the head moves both up and down from the starting position, and 10 repetitions are performed. Record the headache, dizziness, nausea and foginess ratings after the test.
- **Visual Motion Sensitivity (VMS) Test** – Test visual motion sensitivity and the ability to inhibit vestibular-induced symptom provocation. The patient stands with feet shoulder-width apart. The examiner stands next to and slightly behind the patient so that the patient is guarded but the movement can be performed freely. The patient holds their arm in front of them and focuses on their thumb. Maintaining focus on their thumb, the patient simultaneously rotates

their head, eyes, and trunk at an amplitude of 90 degrees to the right and 90 degrees to the left. A metronome is used to ensure the speed of rotation is maintained at 50 beats/min (one beat in each direction). One repetition is complete when the trunk rotates both left and right of the starting position, and 5 repetitions are performed. Record the headache, dizziness, nausea, and foggiest ratings after the test.

VOMS Procedure (8 to 12 years of age)

The VOMS is administered to younger children using the aforementioned procedures (pages 8 to 9). The only deviation is to use a visual analog scale and show them the responses they can select. We recommend using the Visual Analog Scale with Wong-Baker facial ideographic scale (see Garra et al 2010, *Acad Emerg Med*)². Record as normal using the sheet on page 4. A change score (without a history of motion sickness) of 2 is a positive sign of concussion.

Reference:

1. Mucha, A., Collins, M. W., Elbin, R. J., Furman, J. M., Troutman-Enseki, C., DeWolf, R. M., & Kontos, A. P. (2014). A brief vestibular/ocular motor screening (VOMS) assessment to evaluate concussions: preliminary findings. *The American journal of sports medicine*, 42(10), 2479-24
2. Garra G, Singer AJ, Taira BR, et al. Validation of the Wong-Baker FACES Pain Rating Scale in pediatric emergency department patients. *Acad Emerg Med*. 2010;17(1):50-54. doi:10.1111/j.1553-2712.2009.00620.x

How to Perform Vestibular/Ocular-Motor Screening (VOMS)



Figure 1. Smooth pursuits.

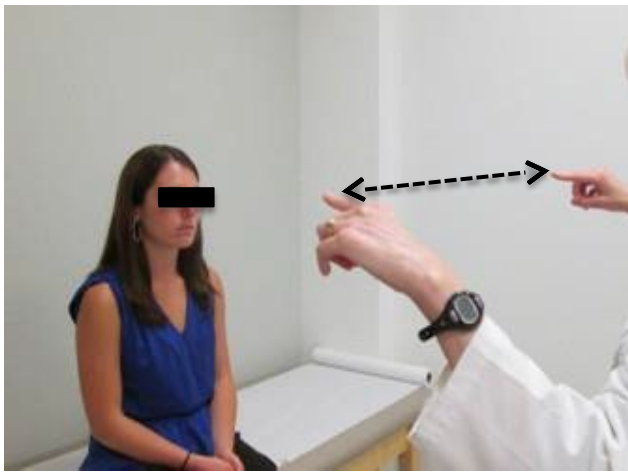


Figure 2. Horizontal saccades.

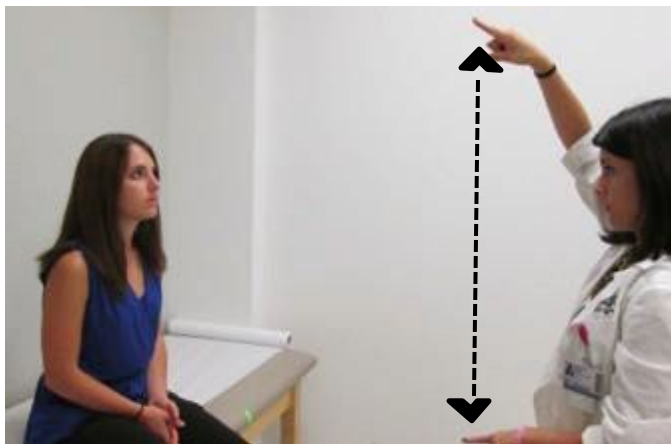


Figure 3. Vertical saccades.



Figure 4. Convergence.

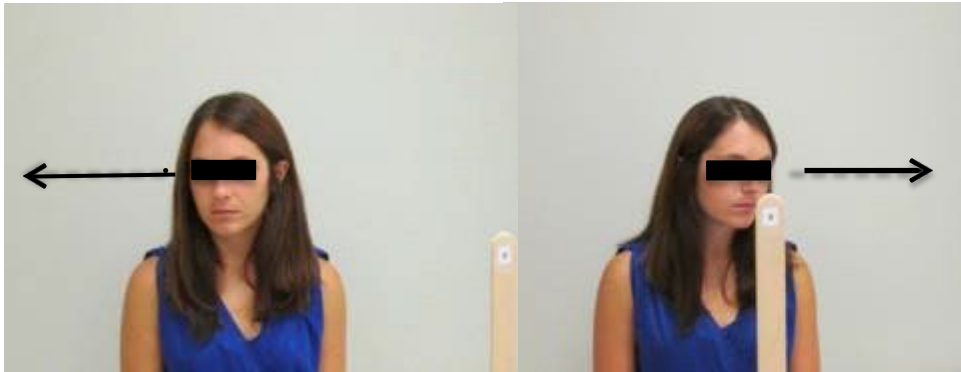


Figure 5. Horizontal VOR (vertical is administered in the same manner but in the vertical direction)



Figure 6. VMS.

ImPACT Test Guidelines

The purpose of these guidelines are to inform individuals of the requirements for taking the ImPACT test outside of the UNR facility.

Background: This highly sensitive neuropsychological test assesses varying levels of your ability to think, remember, and recall certain stimuli. This test will provide a baseline measure of your cognitive performance that is critical in our ability to make informed return-to-play decisions if you suffer a concussion. All modules of this test are a balance between speed and accuracy, please do not emphasize one over the other.

Individual Testing: This should be completed at home or at your respective site. If at home, a test code will be sent directly to the patient's email from the test administrator.

Batch Testing: This can be completed in a larger group setting and the customer code can be used. Please contact Dr. Murray for further information for your school's specific customer code. This cannot be used for at-home or individual testing.

Instructions: Once you begin the test, you will be prompted to complete a section of demographic information. Please fill this out to the best of your knowledge. In the medications section, please write in and any current medication you are taking. You will also complete a symptom checklist. This portion of the exam ascertains if you have any current signs or symptoms of a concussion on a scale of 0 (none at all) to 6 (the most severe you have ever felt). It is fine to have a few symptoms; however, if you report more than 6 total symptom severity, further discussion is required. The below information will provide you with a series of requirements to take the test. Please adhere to these and if you have any questions, please contact Dr. Murray (nicholasmurray@unr.edu; (775) 682-8348) directly.

- You Must:
 - Set aside 30-40 minutes to complete the exam that is free of any distractions
 - Use a computer (with a mouse and a keyboard) that is connected to the internet
 - Take the test in your native language (i.e. if you speak English but Spanish is your primary language, please take it in Spanish)
 - Take the exam in a quiet room free of distractions
 - Not have completed a strenuous workout within 3 hours of starting the exam
 - Have recently eaten (within 1 hour is ideal)
 - Have slept more than 6 hours (unless you commonly sleep less than 6 hours a night) the previous night
 - Not use your phone at any point in the exam
 - Not ingest alcoholic beverages before taking this exam
- This test requires a combination of speed and accuracy, please do your best with this. A good baseline now will benefit you in the event you sustain a concussion in that we along with your medical provider can better manage your condition should that event occur.

How to administer the Buffalo Concussion Treadmill Test (BCTT):

The BCTT is a [diagnostic test](#) that can rule out the presence of metabolic intolerance and provide an exercise prescription. The [full testing documentation packet](#), created by Dr. John Leddy, should be followed explicitly to not harm the patient. This test should be administered by a qualified healthcare professional or someone with training (CES, CSCS, CMS) in exercise prescriptions in diseased populations. There are modified protocols that do not require an incline treadmill or the use of a [stationary bike](#).

The exercise prescription generated from this test has the most benefit to the patient within the first 7-days of the injury. Our research has still found significant recovery effects, including psychological, if administered after 7-days.

Buffalo Concussion Treadmill Test (BCTT) Expectations

The Buffalo Concussion Treadmill Test is used to safely evaluate the presence of exercise intolerance or physiological dysfunction of the concussed patient. The BCTT is used as the basis for creating an individualized exercise prescription for the concussion patient. The BCTT is based on the Balke cardiac treadmill test, which requires a gradual increase in workload while walking on the treadmill.

What to expect:

- Proper workout attire will need to be worn for the test (workout clothes and shoes).
- A Heart Rate (HR) monitor will be worn during the test around the upper chest area.
 - We recommend the [Polar Heart Rate Monitor](#) connected to an iPad or smartphone
- A threshold HR for the test will be determined before beginning the test.
- HR, symptoms, and exertion level will be monitored and recorded throughout. This will determine if we continue or need to stop the testing.
- The test will consist of walking on the treadmill at a consistent speed based on your height
 - If you do not have experience on a treadmill, please let the test administrator know before you begin.
- The workload will gradually be increased during the test by increasing the incline of the treadmill at a rate of 1% per minute.
- The speed of the treadmill will be increased if you meet certain parameters of the testing protocols
- It is not uncommon for concussed patients who have completed the BCTT to notice an increase in symptoms later that day.
 - These symptoms should be short-lived (>15 to 20mins after the test completion).
 - Honesty with your symptoms before and during the testing is crucial. If you are not honest with your symptoms, it compromises the test which affects the determination to continue or stop the testing. It can also have an effect in prolonging recovery time.
- The BCTT is a beneficial tool in the concussion recovery process. It provides the ability to create a safe individualized exercise prescription to aid in this process. This is all predicated on the concussion patient being honest before, during, and after testing.
- If you have any questions or concerns regarding the BCTT. Please do not hesitate to reach out.

Buffalo Concussion Treadmill Test Assessment Form

Patient ID:

Date:

Starting speed: 3.2mph (3.2 mph for $\leq 5'10''$, 3.6 mph for $> 5'10''$ ** athlete should be at brisk walking pace)

Age Predicted MHR:

BCTT Max HR:

Maximum HR at symptom exacerbation (HRt):

Tester:

Min	%	HR (bpm)	RPE (6-20)	VAS scale (0-10)	Symptom Reports	Additional Observations
REST	NA					
0	0					
1	1					
2	2					
3	3					
4	4					
5	5					
6	6					
7	7					
8	8					
9	9					
10	10					
11	11					
12	12					
13	13					
14	14					
15	15					
16	+ 0.4 mph					
17	+ 0.4 mph					
18	+ 0.4 mph					
19	+ 0.4 mph					
20	+ 0.4 mph					
Recovery (2 min)	0 (2 mph)					

Initial aerobic exercise to start at 80% of above MHR at symptom exacerbation (HRt) x 2 weeks:**Additional comments:**

AEROBIC EXERCISE
(NO HR Monitor)
For patients 5'10" and Above

You can begin exercising using either a treadmill, stationary bike or elliptical. Please choose the treadmill incline that is most comfortable for you. **0% incline and outdoor cycling are not recommended.** Exercise should include a warm-up, 20 minutes at the prescribed stage, and then a cool-down. If you can exercise for two days straight without any increase in symptoms, then you may attempt the next stage. Your goal is to gradually increase your exercise intensity until you can exercise without any increase in symptoms. You can use Daily Symptom Diary on the next page to track your progress.

BCTT* Stage of Symptom Exacerbation	Prescribed METs** for Stationary Bike or Elliptical	Treadmill Prescription Set your treadmill to the appropriate grade and speed(mph) according to the results of your BCTT		
		1° Incline	3° Incline	5° Incline
Stage 1	3.3	1.4mph	1.3mph	1.2mph
Stage 2	3.9	1.8mph	1.7mph	1.5mph
Stage 3	4.6	2.2mph	2.0mph	1.9mph
Stage 4	5.2	2.6mph	2.4mph	2.2mph
Stage 5	5.8	3.0mph	2.7mph	2.5mph
Stage 6	6.4	3.3mph	3.1mph	2.9mph
Stage 7	7.0	3.7mph	3.4mph	3.2mph
Stage 8	7.6	4.1mph	3.8mph	3.5mph
Stage 9	8.2	4.5mph	4.1mph	3.8mph
Stage 10	8.8	4.9mph	4.5mph	4.2mph
Stage 11	9.5	5.3mph	4.8mph	4.5mph
Stage 12	10.1	5.6mph	5.2mph	4.8mph
Stage 13	10.7	6.0mph	5.6mph	5.1mph
Stage 14	11.3	6.4mph	5.9mph	5.5mph
Stage 15	11.9	6.8mph	6.3mph	5.8mph

*** Metabolic Equivalent of Task (MET) is an objective measure of energy expenditure and is often used to convert between exercise modalities. After entering your weight, the majority of stationary bikes and elliptical machines are able to calculate your energy expenditure in METs. This will allow you to customize your prescription to the exercise modality of your choosing.*

Patient: _____

Initial Aerobic Exercise Stage: _____

Daily Symptom Diary

Day	Attempted stage	How were your symptoms (1-10) before exercise?	How were your symptoms (1-10) during exercise?	What stage will you be attempting tomorrow?
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

When to stop?

If you experience an increase in your current symptoms (by 2 points on a 0-10 scale) or onset of two new symptoms of concussion while exercising at home and cannot continue, please stop for that day and try again the following day. If you experience an increase of 3-points or more, then attempt an easier stage the following day. If you experience a prolonged or severe increase of your concussion-related symptoms during exercise or after exercise, then do not perform the prescribed exercises and contact our office.

Sample Concussion Documentation/Notification (shared with permission from Dignity Health)



POST CONCUSSION NOTIFICATION

_____(Student Athlete) suffered a concussion on ____ / ____ / _____. Although your student athlete is currently alert and conscious, further follow-up is necessary to ensure a complete recovery. The following recommendations should be followed:

- Carefully monitor your student athlete for worsening symptoms
 - Avoid pain medication as this may mask symptoms
 - Tylenol (acetaminophen) is fine for minor headaches- follow package instructions
 - Avoid devices such as smartphones, tablets and computer- they can increase symptoms
 - Avoid caffeine or other stimulants
 - Avoid exercise until instructed to do so by your physician and athletic trainer
 - Avoid driving as reaction times and decision making can be impaired
- Worsening symptoms or new symptoms can indicate possible complications of this injury. If the following signs and symptoms are present, seek immediate emergency room evaluation:
- Severe Headache that intensifies
 - Vomiting
 - Change in mental status (inability to concentrate, understand simple directions, inability to arouse from sleep)
 - Double or blurred vision with sudden onset
 - Loss of memory
 - Difficulty with talking (slurred speech or garbled)
 - Weakness and clumsiness
 - Bloody or yellowish fluid leaking from ears or nose
 - Bruising appears behind the ears

Athletic Trainer Name: _____

Athletic Trainer Phone: _____

Athletic Trainer Email: _____



Concussion Management Procedure

Date: _____

Dear Parent or Guardian:

A Nevada Licensed Athletic Trainer has evaluated your student athlete and determined that they have likely suffered a concussion while participating in interscholastic athletics. To ensure the safety of your student athlete, and in accordance with Clark County School District (CCSD) and Nevada Interscholastic Activities Association (NIAA) policy, they will not be allowed to return to participation in their sport until they have passed all of the steps in the ***Concussion Management Procedure***.

Step 1. The student athlete must be evaluated and cleared to participate in the return to play protocol by a Nevada Licensed Physician, M.D. (Doctor of Medicine), D.O. (Doctor of Osteopathy), P.A (Physician's Assistant), or N.P (Nurse Practitioner).

- ☐ Your athletic trainer can provide you with names of physicians who specialize in concussion management or you may choose one on your own.
- ☐ The physician release **must be obtained in writing and specify the date the athlete can return to participation** and be turned into your high school athletic trainer.

Step 2. The student athlete must complete and pass standardized concussion testing administered by your athletic trainer (fees for standardized concussion testing were included in your high school athletic packet).

- ☐ This test will help identify post-injury deficits the athlete can have with brain function such as memory, vision, reaction time and balance.
- ☐ To determine pass or fail, test results will be compared to their individual baseline or to normative data if a baseline is not available.
- ☐ The student athlete will not be allowed to return to participation until a passing score is achieved.

Step 3. The student athlete must complete a five step graded exercise program under the direct supervision of your high school's Licensed Athletic Trainer.

- ☐ If at any point in the program the student athlete demonstrates worsening symptoms, the Athletic Trainer will stop the activity progression, re-evaluate, and determine the best course in the recovery/return to participation process.
- ☐ **The student athlete must be symptom free with all activities in order to pass the graded exercise phase and return to full participation.**

Concussion Consent and Parent Signature Example

As a Parent and as an Athlete it is important to recognize the signs, symptoms, and behaviors of concussions. By signing this form you are stating that you (1) understand the importance of recognizing and responding to the signs, symptoms, and behaviors of a concussion or head injury, (2) have read the concussion return-to-play policy, and (3) read the concussion return-to-learn policy. This form must be completed for every sports season and every youth athletic organization the athlete is involved with.

Parent Agreement: I _____ have read the NIAA return-to-play and the Dept. of Education return-to-learn policies, read the CDC's [parent fact sheet](#). I currently understand what a concussion is and how it may be caused. I also understand the common signs, symptoms, and behaviors. I agree that my child must be removed from practice/play if a concussion is suspected. I understand that it is my responsibility to seek medical treatment if a suspected concussion is reported to me. I understand that my child cannot return to practice/play until providing written clearance from an appropriate healthcare provider to his/her coach. I understand the possible consequences of my child returning to practice/play too soon.

Parent/Guardian Signature _____ Date _____

Athlete Agreement: I _____ have read the NIAA return-to-play and the Dept. of Education return-to-learn policies, and read the CDC's [handout](#). I understand what a concussion is and how it may be caused. I understand the importance of reporting a suspected concussion to my coaches and my parents/guardians. I understand that I must be removed from practice/play if a concussion is suspected. I understand that I must provide written clearance from an appropriate healthcare provider to my coach before returning to practice/play. I understand the possible consequence of returning to practice/play too soon and that my brain needs time to heal.

Athlete Signature _____ Date _____

Concussion Training

The state of Nevada is relying upon the expertise of the Centers for Disease Control (CDC) on training for the various individuals who will interact with concussions. This includes coaches, sports officials, parents, teachers, athletic trainers, and community members. For a full list of the trainings, please see the below link:

<https://www.cdc.gov/heads-up/communication-resources/training.html>

Please refer to your specific site for instructions or directions on which concussion training you should be pursuing.