Bishop Fenwick High School

Concussion Protocol

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Bishop Fenwick
Athletic Training & Health Services

I. School Concussion Statement & Policy

Statement: The recognition and treatment of athletes who have suffered a concussion has become a national priority. An increasing number of studies have revealed that concussions, not properly treated, can result in permanent physical and cognitive deficits.
The health and wellness of our students at Bishop Fenwick High School is priority. In order to provide a safe return to activity for all students after a concussion we have instituted the following protocol; in accordance with the recommendations from the
Center for Disease Control and Prevention.

The timeline for recovery varies for each student. Extensive missed academic time may affect the student's ability to participate in extracurricular activities despite medical clearance. All students must be academically cleared before returning to extracurricular activities. This clearance will be determined on an individual basis by the guidance department; in conjunction with administration.

II. ImPACT Testing

ImPACT (Immediate Post-Concussion Assessment and Cognitive Testing) is a computerized brain injury measurement tool for children and teens who have sustained a traumatic brain injury (concussion). ... The ImPACT test will provide a set of baseline results that can then be used to compare to post-injury results. This test is administered to all first year and third year student athletes at Bishop Fenwick High School. The CDC recommends baseline concussion testing every 2 years. Every participating student athlete is required to take the impact test before participation in a sport/activity. Once the test has been completed the athlete's score will be recorded and used as a baseline. If a student athlete suffers a concussion the ImPACT test will be administered again prior to beginning the five-step return to play protocol to compare the baseline and results after a sustained concussion.

III.Concussion Awareness/Training

A.The following persons annually shall complete one of the two free head injury on-line courses. The links to these courses can be found on the Bishop Fenwick Athletic Form located on the Athletics page.

1. Coaches
2. Certified Athletic Trainer
3. School and team physicians
4. School Nurse
5. Athletic Director
6. Directors responsible for a school marching band
7. Parents of a student who participates in an extracurricular activity
8. Students who participate in the athletic activity

B. The required training applies to one school year and must be repeated for every subsequent year.

C. All coaches will be required to read and sign the Bishop Fenwick Concussion/Return to Play Protocol at the beginning the season each year. (see attachment)

Bishop Fenwick will maintain a record of the completion of annual training for all persons.

IV. Exclusion from Play/Re-entry Process to School

Any student, who during a practice or competition, sustains a head injury or suspected concussion, or exhibits signs and symptoms of a concussion, or loses consciousness, even briefly, shall be removed from the practice or competition immediately and may not return to the practice or competition that day.

A. The student shall not return to practice or competition unless and until the student provides medical clearance and authorization as specified in 105 CMR 201.011.
B. The coach/athletic trainer shall communicate the nature of the injury directly to the parent in person or by phone immediately after the practice or competition in which a student has been removed from play for a head injury, suspected concussion, signs and symptoms of a concussion, or loss of consciousness. The coach/athletic trainer also must provide this information to the parent in writing, whether it be paper or electronic format, by the end of the next business day.
C. The coach/athletic trainer shall communicate, by the end of the next business day, with the Athletic Director and school nurse that the student has been removed from practice or competition for a head injury, suspected concussion, signs and symptoms of a concussion, or loss of consciousness.
D. Each student who is removed from practice or competition and subsequently diagnosed with a concussion must complete the return to play protocol under the direct supervision of the athletic trainer.
E. Students diagnosed with a concussion may require significant cognitive rest. Accommodations, as ordered by a physician, will be adhered to and a plan for return to full academics will be developed by the student's guidance counselor, school nurse, learning resource teacher and parent(s).
F. The student's guidance counselor, school nurse, learning resource teacher, athletic trainer and administrator, after consulting with the student's teachers, will meet on a weekly basis and as needed to discuss the student's progress in recovery.

V.5 Step Return to Play Protocol

It is important for an athlete's parent(s) and coach(es) to watch for concussion symptoms after each day's return to play progression activity**. An athlete should only move to the next step if they do not have any new symptoms at the current step. If an athlete's symptoms return, worsen, or present new symptoms, this is a sign that the athlete is pushing too hard. The athlete should stop these activities and the athlete's medical provider should be contacted. After more rest and no concussion symptoms, the athlete can start at the previous step.** The following is a 5 Step Return to Play Progression. All steps are done under the direct supervision of a Certified Athletic Trainer. The student

athlete **MUST** be at least 48 hours symptom free and have proper medical clearance prior to starting the protocol. There may be some variation in the return to play plan, as determined by the physician, depending upon the severity of concussion or the number of concussions in the past.

The return to play protocol begins once the student athlete is back to their regular activities (such as school) and has the green-light from their healthcare provider to begin the return to play process and the proper documentation is in place. An athlete's return to regular activities involves a stepwise process. It starts with a few days of rest (2-3 days) and is followed by light activity (such as short walks) and moderate activity (such as riding a stationary bike) that do not worsen symptoms.

Step 1: Light aerobic activity

Begin with light aerobic exercise only to increase an athlete's heart rate. This means about 5 to 10 minutes on an exercise bike, walking, or light jogging. No weight lifting at this point.

Step 2: Moderate activity

Continue with activities to increase an athlete's heart rate with body or head movement. This includes moderate jogging, brief running, moderate-intensity stationary biking, or moderate-intensity weightlifting (less time and/or less weight from their typical routine).

Step 3: Heavy, non-contact activity

Add heavy non-contact physical activity, such as sprinting/running, high-intensity stationary biking, regular weightlifting routine, non-contact sport-specific drills (in 3 planes of movement).

Step 4: Practice & full contact

Student athlete may return to practice and full contact (if appropriate for the sport) in controlled practice.

Step 5: Competition

Student athlete may return to competition.

Bishop Fenwick
Athletic Training Services
Evalutaion

BJSM Online First, published on April 26, 2017 as 10.1136/bjsports-2017-097506SCAT5
To download a clean version of the SCAT tools please visit the journal online (http://dx.doi.org/10.1136/bjsports-2017-097506SCAT5)

SCAT5©

SPORT CONCUSSION ASSESSMENT TOOL – 5TH EDITION

DEVELOPED BY THE CONCUSSION IN SPORT GROUP
FOR USE BY MEDICAL PROFESSIONALS ONLY

supported by

Patient details

Name: _____

DOB: _____

Address: _____

ID number: _____

Examiner: _____

Date of Injury: _____ Time: _____

WHAT IS THE SCAT5?

The SCAT5 is a standardized tool for evaluating concussions designed for use by physicians and licensed healthcare professionals[1]. The SCAT5 cannot be performed correctly in less than 10 minutes.

If you are not a physician or licensed healthcare professional, please use the Concussion Recognition Tool 5 (CRT5). The SCAT5 is to be used for evaluating athletes aged 13 years and older. For children aged 12 years or younger, please use the Child SCAT5.

Preseason SCAT5 baseline testing can be useful for interpreting post-injury test scores, but is not required for that purpose.Detailed instructions for use of the SCAT5 are provided on page 7. Please read through these instructions carefully before testing the athlete. Brief verbal instructions for each test are given in italics. The only equipment required for the tester is a watch or timer.

Recognise and Remove

A head impact by either a direct blow or indirect transmission of force can be associated with a serious and potentially fatal brain injury. If there are significant concerns, including any of the red flags listed in Box 1, then activation of emergency procedures and urgent transport to the nearest hospital should be arranged.

Key points

- Any athlete with suspected concussion should be REMOVED FROM PLAY, medically assessed and monitored for deterioration. No athlete diagnosed with concussion should be returned to play on the day of injury.
- If an athlete is suspected of having a concussion and medical personnel are not immediately available, the athlete should be referred to a medical facility for urgent assessment.
- Athletes with suspected concussion should not drink alcohol, use recreational drugs and should not drive a motor vehicle until cleared to do so by a medical professional.
- Concussion signs and symptoms evolve over time and it is important to consider repeat evaluation in the assessment of concussion.
- The diagnosis of a concussion is a clinical judgment, made by a medical professional. The SCAT5 should NOT be used by itself to make, or exclude, the diagnosis of concussion. An athlete may have a concussion even if their SCAT5 is "normal".

Remember:

- The basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Do not attempt to move the athlete (other than that required for airway management) unless trained to do so.
- Assessment for a spinal cord injury is a critical part of the initial on-field assessment.
- Do not remove a helmet or any other equipment unless trained to do so safely.

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IMMEDIATE OR ON-FIELD ASSESSMENT

The following elements should be assessed for all athletes who are suspected of having a concussion prior to proceeding to the neurocognitive assessment and ideally should be done on-field after the first first aid / emergency care priorities are completed.

If any of the "Red Flags" or observable signs are noted after a direct or indirect blow to the head, the athlete should be immediately and safely removed from participation and evaluated by a physician or licensed healthcare professional.

Consideration of transportation to a medical facility should be at the discretion of the physician or licensed healthcare professional.

The GCS is important as a standard measure for all patients and can be done serially if necessary in the event of deterioration in conscious state. The Maddocks questions and cervical spine exam are critical steps of the immediate assessment; however, these do not need to be done serially.

Name: _____

DOB: _____

Address: _____

ID number: _____

Examiner: _____

Date: _____

STEP 1: RED FLAGS

RED FLAGS:

- **Neck pain or tenderness**
- **Double vision**
- **Weakness or tingling/ burning in arms or legs**
- **Severe or increasing headache**
- **Seizure or convulsion**
- **Loss of consciousness**
- **Deteriorating conscious state**
- **Vomiting**
- **Increasingly restless, agitated or combative**

STEP 2: OBSERVABLE SIGNS

Witnessed ☐ Observed on Video ☐

Lying motionless on the playing surface	Y	N
Balance / gait difficulties / motor incoordination: stumbling, slow / laboured movements	Y	N
Disorientation or confusion, or an inability to respond appropriately to questions	Y	N
Blank or vacant look	Y	N
Facial injury after head trauma	Y	N

STEP 3: MEMORY ASSESSMENT MADDOCKS QUESTIONS[2]

"I am going to ask you a few questions, please listen carefully and give your best effort. First, tell me what happened?"

_____

_____

Mark Y for correct answer / N for incorrect

What venue are we at today?	Y	N
Which half is it now?	Y	N
Who scored last in this match?	Y	N
What team did you play last week / game?	Y	N
Did your team win the last game?	Y	N

Note: Appropriate sport-specific questions may be substituted.

STEP 4: EXAMINATION GLASGOW COMA SCALE (GCS)[3]

Time of assessment			
Date of assessment			
Best eye response (E)			
No eye opening	1	1	1
Eye opening in response to pain	2	2	2
Eye opening to speech	3	3	3
Eyes opening spontaneously	4	4	4
Best verbal response (V)			
No verbal response	1	1	1
Incomprehensible sounds	2	2	2
Inappropriate words	3	3	3
Confused	4	4	4
Oriented	5	5	5
Best motor response (M)			
No motor response	1	1	1
Extension to pain	2	2	2
Abnormal flexion to pain	3	3	3
Flexion / Withdrawal to pain	4	4	4
Localizes to pain	5	5	5
Obeys commands	6	6	6
Glasgow Coma score (E + V + M)			

CERVICAL SPINE ASSESSMENT

Does the athlete report that their neck is pain free at rest?	Y	N
If there is NO neck pain at rest, does the athlete have a full range of ACTIVE pain free movement?	Y	N
Is the limb strength and sensation normal?	Y	N

In a patient who is not lucid or fully conscious, a cervical spine injury should be assumed until proven otherwise.

OFFICE OR OFF-FIELD ASSESSMENT

Please note that the neurocognitive assessment should be done in a distraction-free environment with the athlete in a resting state.

STEP 1: ATHLETE BACKGROUND

Sport / team / school: _____

Date / time of injury: _____

Years of education completed: _____

Age: _____

Gender: M / F / Other

Dominant hand: left / neither / right

How many diagnosed concussions has the athlete had in the past?: _____

When was the most recent concussion?: _____

How long was the recovery (time to being cleared to play) from the most recent concussion?: _____ (days)

Has the athlete ever been:

Hospitalized for a head injury?	Yes	No
Diagnosed / treated for headache disorder or migraines?	Yes	No
Diagnosed with a learning disability / dyslexia?	Yes	No
Diagnosed with ADD / ADHD?	Yes	No
Diagnosed with depression, anxiety or other psychiatric disorder?	Yes	No

Current medications? If yes, please list:

_____

_____

_____

_____

_____

_____

Name: _____

DOB: _____

Address: _____

ID number: _____

Examiner: _____

Date: _____

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STEP 2: SYMPTOM EVALUATION

The athlete should be given the symptom form and asked to read this instruction paragraph out loud then complete the symptom scale. For the baseline assessment, the athlete should rate his/her symptoms based on how he/she typically feels and for the post-injury assessment the athlete should rate their symptoms at this point in time.

Please Check: ☐ **Baseline** ☐ **Post-Injury**

Please hand the form to the athlete

	none	mild		moderate		severe	
Headache	0	1	2	3	4	5	6
"Pressure in head"	0	1	2	3	4	5	6
Neck Pain	0	1	2	3	4	5	6
Nausea or vomiting	0	1	2	3	4	5	6
Dizziness	0	1	2	3	4	5	6
Blurred vision	0	1	2	3	4	5	6
Balance problems	0	1	2	3	4	5	6
Sensitivity to light	0	1	2	3	4	5	6
Sensitivity to noise	0	1	2	3	4	5	6
Feeling slowed down	0	1	2	3	4	5	6
Feeling like "in a fog"	0	1	2	3	4	5	6
"Don't feel right"	0	1	2	3	4	5	6
Difficulty concentrating	0	1	2	3	4	5	6
Difficulty remembering	0	1	2	3	4	5	6
Fatigue or low energy	0	1	2	3	4	5	6
Confusion	0	1	2	3	4	5	6
Drowsiness	0	1	2	3	4	5	6
More emotional	0	1	2	3	4	5	6
Irritability	0	1	2	3	4	5	6
Sadness	0	1	2	3	4	5	6
Nervous or Anxious	0	1	2	3	4	5	6
Trouble falling asleep (if applicable)	0	1	2	3	4	5	6

Total number of symptoms:	of 22
Symptom severity score:	of 132
Do your symptoms get worse with physical activity?	Y N
Do your symptoms get worse with mental activity?	Y N
If 100% is feeling perfectly normal, what percent of normal do you feel?	

If not 100%, why?

_____

_____

_____

Please hand form back to examiner

3

STEP 3: COGNITIVE SCREENING

Standardised Assessment of Concussion (SAC)[4]

Name: _____

DOB: _____

Address: _____

ID number: _____

Examiner: _____

Date: _____

ORIENTATION

What month is it?	0	1
What is the date today?	0	1
What is the day of the week?	0	1
What year is it?	0	1
What time is it right now? (within 1 hour)	0	1
Orientation score		of 5

IMMEDIATE MEMORY

The Immediate Memory component can be completed using the traditional 5-word per trial list or optionally using 10-words per trial to minimise any ceiling effect. All 3 trials must be administered irrespective of the number correct on the first trial. Administer at the rate of one word per second.

Please choose EITHER the 5 or 10 word list groups and circle the specific word list chosen for this test.

I am going to test your memory. I will read you a list of words and when I am done, repeat back as many words as you can remember, in any order. For Trials 2 & 3: I am going to repeat the same list again. Repeat back as many words as you can remember in any order, even if you said the word before.

List	Alternate 5 word lists					Score (of 5) Trial 1	Trial 2	Trial 3
A	Finger	Penny	Blanket	Lemon	Insect			
B	Candle	Paper	Sugar	Sandwich	Wagon			
C	Baby	Monkey	Perfume	Sunset	Iron			
D	Elbow	Apple	Carpet	Saddle	Bubble			
E	Jacket	Arrow	Pepper	Cotton	Movie			
F	Dollar	Honey	Mirror	Saddle	Anchor			
					Immediate Memory Score			of 15
					Time that last trial was completed			

List	Alternate 10 word lists					Score (of 10) Trial 1	Trial 2	Trial 3
G	Finger Candle	Penny Paper	Blanket Sugar	Lemon Sandwich	Insect Wagon			
H	Baby Elbow	Monkey Apple	Perfume Carpet	Sunset Saddle	Iron Bubble			
I	Jacket Dollar	Arrow Honey	Pepper Mirror	Cotton Saddle	Movie Anchor			
					Immediate Memory Score			of 30
					Time that last trial was completed			

CONCENTRATION

DIGITS BACKWARDS

Please circle the Digit list chosen (A, B, C, D, E, F). Administer at the rate of one digit per second reading DOWN the selected column.

I am going to read a string of numbers and when I am done, you repeat them back to me in reverse order of how I read them to you. For example, if I say 7-1-9, you would say 9-1-7.

Concentration Number Lists (circle one)					
List A	List B	List C			
4-9-3	5-2-6	1-4-2	Y	N	0
6-2-9	4-1-5	6-5-8	Y	N	1
3-8-1-4	1-7-9-5	6-8-3-1	Y	N	0
3-2-7-9	4-9-6-8	3-4-8-1	Y	N	1
6-2-9-7-1	4-8-5-2-7	4-9-1-5-3	Y	N	0
1-5-2-8-6	6-1-8-4-3	6-8-2-5-1	Y	N	1
7-1-8-4-6-2	8-3-1-9-6-4	3-7-6-5-1-9	Y	N	0
5-3-9-1-4-8	7-2-4-8-5-6	9-2-6-5-1-4	Y	N	1
List D	List E	List F			
7-8-2	3-8-2	2-7-1	Y	N	0
9-2-6	5-1-8	4-7-9	Y	N	1
4-1-8-3	2-7-9-3	1-6-8-3	Y	N	0
9-7-2-3	2-1-6-9	3-9-2-4	Y	N	1
1-7-9-2-6	4-1-8-6-9	2-4-7-5-8	Y	N	0
4-1-7-5-2	9-4-1-7-5	8-3-9-6-4	Y	N	1
2-6-4-8-1-7	6-9-7-3-8-2	5-8-6-2-4-9	Y	N	0
8-4-1-9-3-5	4-2-7-9-3-8	3-1-7-8-2-6	Y	N	1
		Digits Score:			of 4

MONTHS IN REVERSE ORDER

Now tell me the months of the year in reverse order. Start with the last month and go backward. So you'll say December, November. Go ahead.

Dec - Nov - Oct - Sept - Aug - Jul - Jun - May - Apr - Mar - Feb - Jan	0 1
Months Score	of 1
Concentration Total Score (Digits + Months)	of 5

4

STEP 4: NEUROLOGICAL SCREEN

See the instruction sheet (page 7) for details of test administration and scoring of the tests.

Can the patient read aloud (e.g. symptom check-list) and follow instructions without difficulty?	Y	N
Does the patient have a full range of pain-free PASSIVE cervical spine movement?	Y	N
Without moving their head or neck, can the patient look side-to-side and up-and-down without double vision?	Y	N
Can the patient perform the finger nose coordination test normally?	Y	N
Can the patient perform tandem gait normally?	Y	N

BALANCE EXAMINATION

Modified Balance Error Scoring System (mBESS) testing[6]

Which foot was tested (i.e. which is the non-dominant foot) ☐ Left ☐ Right

Testing surface (hard floor, field, etc.) _____

Footwear (shoes, barefoot, braces, tape, etc.) _____

Condition	Errors
Double leg stance	of 10
Single leg stance (non-dominant foot)	of 10
Tandem stance (non-dominant foot at the back)	of 10
Total Errors	of 30

Name: _____

DOB: _____

Address: _____

ID number: _____

Examiner: _____

Date: _____

5

STEP 5: DELAYED RECALL:

The delayed recall should be performed after 5 minutes have elapsed since the end of the Immediate Recall section. Score 1 pt. for each correct response.

Do you remember that list of words I read a few times earlier? Tell me as many words from the list as you can remember in any order.

Time Started _____

Please record each word correctly recalled. Total score equals number of words recalled.

_____

_____

_____

Total number of words recalled accurately: of 5 or of 10

6

STEP 6: DECISION

Domain	Date & time of assessment:		
Symptom number (of 22)			
Symptom severity score (of 132)			
Orientation (of 5)			
Immediate memory	of 15 of 30	of 15 of 30	of 15 of 30
Concentration (of 5)			
Neuro exam	Normal Abnormal	Normal Abnormal	Normal Abnormal
Balance errors (of 30)			
Delayed Recall	of 5 of 10	of 5 of 10	of 5 of 10

Date and time of injury: _____

If the athlete is known to you prior to their injury, are they different from their usual self?
☐ **Yes** ☐ **No** ☐ **Unsure** ☐ **Not Applicable**
(If different, describe why in the clinical notes section)

Concussion Diagnosed?
☐ **Yes** ☐ **No** ☐ **Unsure** ☐ **Not Applicable**

If re-testing, has the athlete improved?
☐ **Yes** ☐ **No** ☐ **Unsure** ☐ **Not Applicable**

I am a physician or licensed healthcare professional and I have personally administered or supervised the administration of this SCAT5.

Signature: _____

Name: _____

Title: _____

Registration number (if applicable): _____

Date: _____

SCORING ON THE SCAT5 SHOULD NOT BE USED AS A STAND-ALONE METHOD TO DIAGNOSE CONCUSSION, MEASURE RECOVERY OR MAKE DECISIONS ABOUT AN ATHLETE'S READINESS TO RETURN TO COMPETITION AFTER CONCUSSION.

Davis GA, *et al. Br J Sports Med* 2017;**0**:1–8. doi:10.1136/bjsports-2017-097506SCAT5

CLINICAL NOTES:

Name: _____
DOB: _____
Address: _____
ID number: _____
Examiner: _____
Date: _____

CONCUSSION INJURY ADVICE

(To be given to the person monitoring the concussed athlete)

This patient has received an injury to the head. A careful medical examination has been carried out and no sign of any serious complications has been found. Recovery time is variable across individuals and the patient will need monitoring for a further period by a responsible adult. Your treating physician will provide guidance as to this timeframe.

If you notice any change in behaviour, vomiting, worsening headache, double vision or excessive drowsiness, please telephone your doctor or the nearest hospital emergency department immediately.

Other important points:

Initial rest: Limit physical activity to routine daily activities (avoid exercise, training, sports) and limit activities such as school, work, and screen time to a level that does not worsen symptoms.

1) Avoid alcohol

2) Avoid prescription or non-prescription drugs without medical supervision. Specifically:

   a) Avoid sleeping tablets

   b) Do not use aspirin, anti-inflammatory medication or stronger pain medications such as narcotics

3) Do not drive until cleared by a healthcare professional.

4) Return to play/sport requires clearance by a healthcare professional.

Clinic phone number: _____

Patient's name: _____

Date / time of injury: _____

Date / time of medical review: _____

Healthcare Provider: _____

Contact details or stamp

INSTRUCTIONS

Words in *Italics* throughout the SCAT5 are the instructions given to the athlete by the clinician

Symptom Scale

The time frame for symptoms should be based on the type of test being administered. At baseline it is advantageous to assess how an athlete "typically" feels whereas during the acute/post-acute stage it is best to ask how the athlete feels at the time of testing.

The symptom scale should be completed by the athlete, not by the examiner. In situations where the symptom scale is being completed after exercise, it should be done in a resting state, generally by approximating his/her resting heart rate.

For total number of symptoms, maximum possible is 22 except immediately post injury, if sleep item is omitted, which then creates a maximum of 21.

For Symptom severity score, add all scores in table, maximum possible is 22 x 6 = 132, except immediately post injury if sleep item is omitted, which then creates a maximum of 21x6=126.

Immediate Memory

The Immediate Memory component can be completed using the traditional 5-word per trial list or, optionally, using 10-words per trial. The literature suggests that the Immediate Memory has a notable ceiling effect when a 5-word list is used. In settings where this ceiling is prominent, the examiner may wish to make the task more difficult by incorporating two 5–word groups for a total of 10 words per trial. In this case, the maximum score per trial is 10 with a total trial maximum of 30.

Choose one of the word lists (either 5 or 10). Then perform 3 trials of immediate memory using this list.

Complete all 3 trials regardless of score on previous trials.

"I am going to test your memory. I will read you a list of words and when I am done, repeat back as many words as you can remember, in any order." The words must be read at a rate of one word per second.

Trials 2 & 3 MUST be completed regardless of score on trial 1 & 2.

Trials 2 & 3:

"I am going to repeat the same list again. Repeat back as many words as you can remember in any order, even if you said the word before."

Score 1 pt. for each correct response. Total score equals sum across all 3 trials. Do NOT inform the athlete that delayed recall will be tested.

Concentration

Digits backward

Choose one column of digits from lists A, B, C, D, E or F and administer those digits as follows:

Say: *"I am going to read a string of numbers and when I am done, you repeat them back to me in reverse order of how I read them to you. For example, if I say 7-1-9, you would say 9-1-7."*

Begin with first 3 digit string.

If correct, circle "Y" for correct and go to next string length. If incorrect, circle "N" for the first string length and read trial 2 in the same string length. One point possible for each string length. Stop after incorrect on both trials (2 N's) in a string length. The digits should be read at the rate of one per second.

Months in reverse order

"Now tell me the months of the year in reverse order. Start with the last month and go backward. So you'll say December, November ... Go ahead"

1 pt. for entire sequence correct

Delayed Recall

The delayed recall should be performed after 5 minutes have elapsed since the end of the Immediate Recall section.

"Do you remember that list of words I read a few times earlier? Tell me as many words from the list as you can remember in any order."

Score 1 pt. for each correct response

Modified Balance Error Scoring System (mBESS)[5] testing

This balance testing is based on a modified version of the Balance Error Scoring System (BESS)[5]. A timing device is required for this testing.

Each of 20-second trial/stance is scored by counting the number of errors. The examiner will begin counting errors only after the athlete has assumed the proper start position. The modified BESS is calculated by adding one error point for each error during the three 20-second tests. The maximum number of errors for any single condition is 10. If the athlete commits multiple errors simultaneously, only one error is recorded but the athlete should quickly return to the testing position, and counting should resume once the athlete is set. Athletes that are unable to maintain the testing procedure for a minimum of five seconds at the start are assigned the highest possible score, ten, for that testing condition.

OPTION: For further assessment, the same 3 stances can be performed on a surface of medium density foam (e.g., approximately 50cm x 40cm x 6cm).

Balance testing – types of errors

1. Hands lifted off iliac crest
2. Opening eyes
3. Step, stumble, or fall
4. Moving hip into > 30 degrees abduction
5. Lifting forefoot or heel
6. Remaining out of test position > 5 sec

"I am now going to test your balance. Please take your shoes off (if applicable), roll up your pant legs above ankle (if applicable), and remove any ankle taping (if applicable). This test will consist of three twenty second tests with different stances."

(a) Double leg stance:

"The first stance is standing with your feet together with your hands on your hips and with your eyes closed. You should try to maintain stability in that position for 20 seconds. I will be counting the number of times you move out of this position. I will start timing when you are set and have closed your eyes."

(b) Single leg stance:

"If you were to kick a ball, which foot would you use? [This will be the dominant foot] *Now stand on your non-dominant foot. The dominant leg should be held in approximately 30 degrees of hip flexion and 45 degrees of knee flexion. Again, you should try to maintain stability for 20 seconds with your hands on your hips and your eyes closed. I will be counting the number of times you move out of this position. If you stumble out of this position, open your eyes and return to the start position and continue balancing. I will start timing when you are set and have closed your eyes."*

(c) Tandem stance:

"Now stand heel-to-toe with your non-dominant foot in back. Your weight should be evenly distributed across both feet. Again, you should try to maintain stability for 20 seconds with your hands on your hips and your eyes closed. I will be counting the number of times you move out of this position. If you stumble out of this position, open your eyes and return to the start position and continue balancing. I will start timing when you are set and have closed your eyes."

Tandem Gait

Participants are instructed to stand with their feet together behind a starting line (the test is best done with footwear removed). Then, they walk in a forward direction as quickly and as accurately as possible along a 38mm wide (sports tape), 3 metre line with an alternate foot heel-to-toe gait ensuring that they approximate their heel and toe on each step. Once they cross the end of the 3m line, they turn 180 degrees and return to the starting point using the same gait. Athletes fail the test if they step off the line, have a separation between their heel and toe, or if they touch or grab the examiner or an object.

Finger to Nose

"I am going to test your coordination now. Please sit comfortably on the chair with your eyes open and your arm (either right or left) outstretched (shoulder flexed to 90 degrees and elbow and fingers extended), pointing in front of you. When I give a start signal, I would like you to perform five successive finger to nose repetitions using your index finger to touch the tip of the nose, and then return to the starting position, as quickly and as accurately as possible."

References

1. McCrory et al. Consensus Statement On Concussion In Sport – The 5th International Conference On Concussion In Sport Held In Berlin, October 2016. British Journal of Sports Medicine 2017 (available at www.bjsm.bmj.com)
2. Maddocks, DL; Dicker, GD; Saling, MM. The assessment of orientation following concussion in athletes. Clinical Journal of Sport Medicine 1995; 5: 32-33
3. Jennett, B., Bond, M. Assessment of outcome after severe brain damage: a practical scale. Lancet 1975; I: 480-484
4. McCrea M. Standardized mental status testing of acute concussion. Clinical Journal of Sport Medicine. 2001; 11: 176-181
5. Guskiewicz KM. Assessment of postural stability following sport-related concussion. Current Sports Medicine Reports. 2003; 2: 24-30

CONCUSSION INFORMATION

Any athlete suspected of having a concussion should be removed from play and seek medical evaluation.

Signs to watch for

Problems could arise over the first 24-48 hours. The athlete should not be left alone and must go to a hospital at once if they experience:

- Worsening headache
- Drowsiness or inability to be awakened
- Inability to recognize people or places
- Repeated vomiting
- Unusual behaviour or confusion or irritable
- Seizures (arms and legs jerk uncontrollably)
- Weakness or numbness in arms or legs
- Unsteadiness on their feet.
- Slurred speech

Consult your physician or licensed healthcare professional after a suspected concussion. Remember, it is better to be safe.

Rest & Rehabilitation

After a concussion, the athlete should have physical rest and relative cognitive rest for a few days to allow their symptoms to improve. In most cases, after no more than a few days of rest, the athlete should gradually increase their daily activity level as long as their symptoms do not worsen. Once the athlete is able to complete their usual daily activities without concussion-related symptoms, the second step of the return to play/sport progression can be started. The athlete should not return to play/sport until their concussion-related symptoms have resolved and the athlete has successfully returned to full school/learning activities.

When returning to play/sport, the athlete should follow a stepwise, **medically managed exercise progression, with increasing amounts of exercise.** For example:

Graduated Return to Sport Strategy

Exercise step	Functional exercise at each step	Goal of each step
1. Symptom-limited activity	Daily activities that do not provoke symptoms.	Gradual reintroduction of work/school activities.
2. Light aerobic exercise	Walking or stationary cycling at slow to medium pace. No resistance training.	Increase heart rate.
3. Sport-specific exercise	Running or skating drills. No head impact activities.	Add movement.
4. Non-contact training drills	Harder training drills, e.g., passing drills. May start progressive resistance training.	Exercise, coordination, and increased thinking.
5. Full contact practice	Following medical clearance, participate in normal training activities.	Restore confidence and assess functional skills by coaching staff.
6. Return to play/sport	Normal game play.	

In this example, it would be typical to have 24 hours (or longer) for each step of the progression. If any symptoms worsen while exercising, the athlete should go back to the previous step. Resistance training should be added only in the later stages (Stage 3 or 4 at the earliest).

Written clearance should be provided by a healthcare professional before return to play/sport as directed by local laws and regulations.

Graduated Return to School Strategy

Concussion may affect the ability to learn at school. The athlete may need to miss a few days of school after a concussion. When going back to school, some athletes may need to go back gradually and may need to have some changes made to their schedule so that concussion symptoms do not get worse. If a particular activity makes symptoms worse, then the athlete should stop that activity and rest until symptoms get better. To make sure that the athlete can get back to school without problems, it is important that the healthcare provider, parents, caregivers and teachers talk to each other so that everyone knows what the plan is for the athlete to go back to school.

Note: If mental activity does not cause any symptoms, the athlete may be able to skip step 2 and return to school part-time before doing school activities at home first.

Mental Activity	Activity at each step	Goal of each step
1. Daily activities that do not give the athlete symptoms	Typical activities that the athlete does during the day as long as they do not increase symptoms (e.g. reading, texting, screen time). Start with 5-15 minutes at a time and gradually build up.	Gradual return to typical activities.
2. School activities	Homework, reading or other cognitive activities outside of the classroom.	Increase tolerance to cognitive work.
3. Return to school part-time	Gradual introduction of school-work. May need to start with a partial school day or with increased breaks during the day.	Increase academic activities.
4. Return to school full-time	Gradually progress school activities until a full day can be tolerated.	Return to full academic activities and catch up on missed work.

If the athlete continues to have symptoms with mental activity, some other accomodations that can help with return to school may include:

- Starting school later, only going for half days, or going only to certain classes
- More time to finish assignments/tests
- Quiet room to finish assignments/tests
- Not going to noisy areas like the cafeteria, assembly halls, sporting events, music class, shop class, etc.
- Taking lots of breaks during class, homework, tests
- No more than one exam/day
- Shorter assignments
- Repetition/memory cues
- Use of a student helper/tutor
- Reassurance from teachers that the child will be supported while getting better

The athlete should not go back to sports until they are back to school/learning, without symptoms getting significantly worse and no longer needing any changes to their schedule.

Davis GA, *et al. Br J Sports Med* 2017;**0**:1–8. doi:10.1136/bjsports-2017-097506SCAT5

BJSM

Sport concussion assessment tool - 5th edition

Br J Sports Med published online April 26, 2017

Bishop Fenwick
Athletic Training Services

Parents Concussion Handout

Dear Mr. /Mrs. /Ms. _____,
Your son/daughter _____ has sustained a _____ while playing _____. The following information will give you guidelines for appropriate home care, and also signs and symptoms to watch for over the next 24-48 hours. DO NOT **give your child aspirin, Tylenol, Advil, etc., after a head injury unless directed to do so by a physician.**

If any of the following signs or symptoms **WORSENS** over time, please contact a physician **IMMEDIATELY**:

Difficulty remembering recent events or meaningful facts
Severe headache
Stiffening of the neck
Mental confusion of feeling of strangeness
Nausea, Irritability
Changes in emotional status/mood swings
Dizziness, poor balance, or unsteadiness
Abnormal drowsiness or sleeping habits
Loss of appetite
Continued ringing in the ears, Slurring of speech

If any of the following appears, contact emergency medical services IMMEDIATELY**:**

Blood or yellowish/clear fluid from nose or ears
Vomiting
Alterations in breathing patterns
Double or blurred vision, oversensitivity to light
Convulsions or seizure
Weakness in either arm or leg
Unequal pupils or uncontrolled eye movements

_____
(signature)
Taylor Downey, ATC

Bishop Fenwick
Athletic Training Services

Concussion Return to Play Protocol(Coaches)

Return to Play Protocol:

Step 1: Light aerobic activity

Begin with light aerobic exercise only to increase an athlete's heart rate. This means about 5 to 10 minutes on an exercise bike, walking, or light jogging. No weight lifting at this point.

Step 2: Moderate activity

Continue with activities to increase an athlete's heart rate with body or head movement. This includes moderate jogging, brief running, moderate-intensity stationary biking, moderate-intensity weightlifting (less time and/or less weight from their typical routine).

Step 3: Heavy, non-contact activity

Add heavy non-contact physical activity, such as sprinting/running, high-intensity stationary biking, regular weightlifting routine, non-contact sport-specific drills (in 3 planes of movement).

Step 4: Practice & full contact

Student athlete may return to practice and full contact (if appropriate for the sport) in controlled practice.

Step 5: Competition

Student athlete may return to competition.

Keys to Remember: An athlete should only move to the next step if they do not have any new symptoms at the current step. If an athlete's symptoms come back or if he or she gets new symptoms, this is a sign that the athlete is pushing too hard. The athlete should stop these activities and the athlete's medical provider should be contacted. After more rest and no concussion symptoms, the athlete can start at the previous step.

Concussion Signs and Symptoms to be aware of:

1. Thinking/Remembering:
A. Difficulty thinking clear B. Feeling slowed down C. Difficulty concentrating D. Difficulty remembering new/old information.
2. Physical:
A. Dizziness B. Headache C. Nausea/Vomiting D. Sensitivity to light or noise E. Balance problems F. Having no energy.
3. Emotional/Mood A. Irritability B. Sadness C. Nervousness/Anxiety

4. Disruption from normal sleep patterns

****Please sign and date the last page and return to the Athletic Training Room**

****If you have any questions or concerns do not hesitate to email me.**

Taylor Downey **Email: taylordowney605@gmail.com**

** I have reviewed the Concussion Return to Play Protocol and understand that it is implemented for our student athletes' health and safety. I am aware of signs and symptoms of a concussion. I understand it is my job as the coach to make sure my athletes are safely able to play and will refer the student athlete suspected of a concussion to the Athletic Trainer. I understand that importance of the student athletes being 100% before returning to play from a concussion.

_____

Sport(s)

_____

Coaches Name Date

_____

Coaches Signature Date

_____

Coaches email address

Bishop Fenwick
Athletic Training Services

Parents Concussion Compliance

CONCUSSION PROTOCOL

The concussion protocol used at Bishop Fenwick High School is in correspondence with The Massachusetts Board of Safety & Health and the Center for Disease Control and Prevention. It is aimed at appropriately and safely treating athletes that have sustained a concussion during their participation in sport/activity**.**

IMPACT TESTING: The impact test is performed to assess a baseline of each student athlete's neuro-cognitive abilities. The test is online and administered at Bishop Fenwick High School prior to their first school year (freshmen/transfer). Every participating student athlete is required to take the impact test before participation in sport/activity. Once the test has been completed the athletes score will be recorded and used as a baseline in the case that a concussion has been sustained. If a student athlete suffers a concussion the impact test will be administered again prior to beginning the five step return to play protocol (see below) to compare the baseline and results after a sustained concussion.

CONCUSSION PROTOCOL FOR SAFE RETURN TO PLAY

With much concern and emphasis on safe return to play after suffering a concussion a five step program has been set up and is integrated in the treatment process. A student athlete that has suffered a concussion will begin a 5 step return to play protocol once a physician has cleared the athlete**. **Please Note that this is a subjective process that determines on severity of concussion and how many past concussions the athlete has sustained.** The following return to play protocol is focused on student athletes that have suffered their first or second concussion.

Right after concussion: The student athlete is out of all participation for a minimum of 1 week. After the 1 week the athlete **must be symptom free and cleared by a physician before the five step program can be initiated.**

Return to Play Protocol:

Step 1: Light aerobic activity

Begin with light aerobic exercise only to increase an athlete's heart rate. This means about 5 to 10 minutes on an exercise bike, walking, or light jogging. No weight lifting at this point.

Step 2: Moderate activity

Continue with activities to increase an athlete's heart rate with body or head movement. This includes moderate jogging, brief running, moderate-intensity stationary biking, moderate-intensity weightlifting (less time and/or less weight from their typical routine).

Step 3: Heavy, non-contact activity

Add heavy non-contact physical activity, such as sprinting/running, high-intensity stationary biking, regular weightlifting routine, non-contact sport-specific drills (in 3 planes of movement).

Step 4: Practice & full contact

Student athlete may return to practice and full contact (if appropriate for the sport) in controlled practice.

Step 5: Competition

Student athlete may return to competition.

Keys to Remember: Keys to Remember: An athlete should only move to the next step if they do not have any new symptoms at the current step. If an athlete's symptoms come back or if he or she gets new symptoms, this is a sign that the athlete is pushing too hard. The athlete should stop these activities and the athlete's medical provider should be contacted. After more rest and no concussion symptoms, the athlete can start at the previous step.

Before the five-step system is implemented allow a minimum of 1 week of rest and then begin once no signs or symptoms are present.

Concussion Signs and Symptoms to be aware of:

1. Thinking/Remembering:
A. Difficulty thinking clear
B. Feeling slowed down
C. Difficulty concentrating
D. Difficulty remembering new/old information.

2. Physical:
A. Dizziness
B. Headache
C. Nausea/Vomiting
D. Sensitivity to light or noise
E. Balance problems
F. Having no energy.

3. Emotional/Mood
A. Irritability
B. Sadness
C. Nervousness/Anxiety

4. Disruption from normal sleep patterns

Concussion Rest Requirements: Home and School

Home: A home guideline sheet will be giving to the parents after a concussion has been identified. The sheet will inform the parents on what signs and symptoms to be aware of and how to best manage the situation. The following is a list of rest requirements for home.

1. **Sleep as much as you can when you can.**
2. **Limit brain stimulation from (phone, computer, music, tv, texting, gaming.)**

School: Students diagnosed with a concussion may require significant cognitive rest. Accommodations, as ordered by a physician, will be adhered to and a plan for return to full academics will be developed by the student's guidance counselor, school nurse, learning resource teacher and parent(s).

The student's guidance counselor, school nurse, learning resource teacher, athletic trainer and administrator, after consulting with the student's teachers, will meet on a weekly basis and as needed to discuss the student's progress in recovery.

**Please do not hesitate to call or email with any questions or concerns
Jennifer Faragi RN,BSN School Nurse 978-587-8307 JMF@Fenwick.org,
Taylor Downey, ATC Email: taylordowney605@gmail.com
**Please sign and date the last page and return to the Athletic Training Room/ Athletic Directors Office. Keep the Protocol for a reference.

Student Athlete Concussion Questionnaire: Please be honest and truthful when answering the following questions.

1.) Have you (athlete) ever sustained a concussion?_____
2.) If yes how many concussions have you been diagnosed with?_____
3.) If yes when was your most recent concussion?_____

**** I have reviewed the concussion protocol and understand that it is implemented for my health and safety as a participating student athlete. I read and understand the five step return to play policy. I hereby understand the importance of being 100% before returning to play from a concussion. I have truthfully and honestly answered the athlete concussion questionnaire.**

_____

Student Athlete Print Name **Date**

_____

Student Athlete Signature **Date**

**** I have reviewed the concussion protocol and understand that it is implemented for my child's health and safety as a participating athlete. I read and understand the five step return to play policy. I hereby understand the importance of my child being 100% before returning to play from a concussion. I can honestly state that my child has answered the concussion questionnaire with the utmost honesty.**

_____

Print Parent/Guardian Name **Date**

_____

Parent/Guardian Signature **Date**

Bishop Fenwick
Athletic Training Services

Athlete Concussion Watch List

High Risk 3+ Concussions

Name	Yr/Age	#Con	Sport

Medium Risk 1-2 Concussions

Name	Yr/Age	#Con	Sport