



## BASELINE CONCUSSION TESTING

Lucan Minor Hockey is implementing a baseline testing program for the 2016-2017 season as part of the Lucan Minor Hockey Concussion Management Program.

### Why is baseline testing necessary?

In 2014, 59% of sports organizations in the USA did not have a concussion protocol in place

- Concussions are 3-6 times more likely to be detected in an environment with a protocol in place.
- 80-90% of concussions resolve in 7-10 days as long as the brain is given the proper time to heal
- Protocol would reduce the risk of second-impact situation that could have been prevented by early detection

Baseline testing data is used to aid the coaching / training staff / medical professionals in the post-injury management process by providing data that represents the cognitive status (brain function / memory / orientation) and motor status (balance and reaction time) of the athlete in an uninjured state. The baseline data collected provides a non-biased, emotion-free analysis of the athlete's cognitive and motor status to assist with guiding removal from play and the return to play process.

If a concussion is suspected, the athlete is re-tested and the data obtained is compared to the baseline values. If the athlete's scores fall below the pre-season baseline, the player is removed from play. The athlete's retest values must be at baseline levels or above to allow the athlete to return to play following a concussion.

### BASELINE TESTING PROCESS

The baseline testing process involves 3 components:

1. **MOTOR CONTROL COMPONENT** (4 minutes): SWAY balance testing and reaction time testing.

SWAY balance testing is an iPhone app that measures 3 dimensional standing balance in a variety of standing postures which then provides a composite balance score for each athlete. Additional information is available at [swaymedical.com](http://swaymedical.com).

## 2. **MENTAL-STATUS COMPONENT** (6 minutes)

- (i) If concussion is suspected the traditional questions of mental status involving questions of orientation about time, location, person (birthday?) are ineffective in a sporting environment
- (ii) Standardized Assessment of Concussion (SAC) was developed as a brief mental-status screening tool and is recommended for sideline use when comprehensive neurocognitive testing is not available or not applicable
- (iii) SAC is a 5 minute test that evaluates domains of orientation, immediate memory, concentration and delayed memory recall.
- (iv) SAC used immediately after injury is highly sensitive to injury (ie. it is effective at correctly determining if a concussion has occurred)

Additional information regarding the Standardized Assessment of Concussion is available at:  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC155418/>

## 3. **PARENT / GUARDIAN EDUCATION**

While the athletes are going through the testing procedures, the parents / guardians will attend a 10-15 minute information session to improve their understanding of concussions, signs and symptoms of concussions, the post-injury and return to play procedures

Pre-season education of athletes, parents, coaches and trainers regarding signs and symptoms has been found to:

1. Increase the self-reporting of concussions symptoms by the athlete
2. Behaviour and attitudes related to concussions improved for coaches
3. Improved overall injury recognition
4. Decrease parent anxiety with regards to concussions and the post-concussion process
5. Increased compliance with the post-concussion return to play protocol by the athlete, parents and coaches/

## **HOW IS THIS BASELINE INFORMATION USED**

The SWAY balance information is stored in a password protected iCloud application.

Craig Irwin, LMH Director of Trainers, is the information guardian of this application.

Each trainer will only have access to the athletes information for that particular team.

In the event that a concussion is suspected, the athlete is removed from play and taken to the dressing room. The SWAY balance test is re-administered and these results are compared to the baseline values. If the athlete's score is below baseline, which indicates a deterioration of motor function, the athlete is removed from play, the athlete is advised to seek medical attention and the Lucan Minor Hockey Return to Play Protocol is implemented.