

## Clegg Impact Device Q & A

### What is GMAX testing?

- GMAX testing, also known as impact testing is done on sports surfaces. When a player falls on the field, the impact is either absorbed by the playing surface or the player body. A device known as the Clegg impact is used to measure the surface compaction force or the GMAX force. A weighted missile shaped device measures this impact when it hits the surface  $G =$  Acceleration due to gravity.  $M =$  Measures the magnitude of impact at peak deceleration. The less absorption of the surface = a higher injury to the athlete.
- The American Society of Testing Materials (ASTM) has a set of standards and devices to use. We use standard ASTM F1936 (procedure) and ASTM 1702 (Clegg Device)
- Ideally you should have your field tested once a year.

### Why should I test my fields?

- As an owner, manager, coach, or athletic director you have an obligation to provide a safe playing surface for athletes. Testing demonstrates your proactive commitment to safety.
- To make sure the field was built in accordance and compliance with set standards
- To make sure your facility/field is not exposed to unwanted liabilities if athletic injury occurs
- An independent testing becomes critical in providing necessary information if warranty or liability issues do arise
- Assistance in determining if a field is overused or overscheduled.
- Assistance in determining maintenance programs, prioritizing efforts, and efficiently using manpower
- The NFL now requires fields be tested by field managers with such devices before every game

### Why wouldn't I have my manufacturer test my field?

- It is important to have an independent testing done as testing done with a manufacturer may present a conflict of interest.
- Independent testing can also identify other hazards and risk factors that can be overlooked by a manufacturer such as improper field installation, defective materials, surface uniformity, seaming issues, drainage issues, and excessive compaction.

### How does the test work? What is the process, and how do I get results?

- The Clegg device looking much like a bike pump has a 5lb missile or hammer that is dropped from a tube. A device on the side of the tube (accelerometer) measures how fast the hammer comes to a stopping point after it is dropped. The faster the hammer comes to a stop, the harder the surface.
- There are 10 test points on the field, as indicated by the ASTM. Three drops at each test point are taken in one minute intervals. Temperature of the air and infill, height of the infill and carpet pile are all recorded at each test point.
- After test points are taken, the data is downloaded into a computer program showing in a diagram the results of each test spot. You will receive a full report. A program can then be devised on how to best treat compacted areas.

### What do the numbers mean?

- When a field is installed, have a GMAX value between 54 and 90. As a field ages, its GMAX value will increase. Anything testing over a 135 GMAX force qualifies for the expectation that life threatening injuries may occur. Testing below a 105 GMAX is accepted as safe by the synthetic turf council.
- The NFL requires that all teams test both natural and synthetic fields 72 hours prior to each game with the Clegg impact soil tester. If the readings are outside 60-100 GMAX, they must address the problem and retest.

