

## 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  $G = \text{Acceleration due to gravity}$ .  $M = \text{Measures the magnitude of impact at peak deceleration}$ . 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.

