Test methods and performance standards for sports surfaces – an overview

By

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Why do we need to be able to test sports surfaces?

- To control the way the game is played
- To provide a safe playing environment
- To ensure adequate durability
- To provide reassurance to players
- To allow consumers to compare surfaces objectively
- To aid product development
Who develops standards?

- International sports governing bodies
- National sports governing bodies
- National / International standards bodies (ASTM, BSI, DIN, CEN etc.)
- Trade associations (SAPCA, STC etc)
<table>
<thead>
<tr>
<th>Year</th>
<th>Body</th>
<th>Sport</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>FIH</td>
<td>hockey</td>
</tr>
<tr>
<td>1990</td>
<td>IAAF</td>
<td>track &amp; field</td>
</tr>
<tr>
<td>1995</td>
<td>WBB</td>
<td>bowls</td>
</tr>
<tr>
<td>1997</td>
<td>ITF</td>
<td>tennis</td>
</tr>
<tr>
<td>2001</td>
<td>FIFA</td>
<td>football</td>
</tr>
<tr>
<td>2002</td>
<td>UEFA</td>
<td>soccer</td>
</tr>
<tr>
<td>2003</td>
<td>IRB</td>
<td>rugby</td>
</tr>
<tr>
<td>2005</td>
<td>FIFA – UEFA</td>
<td>football</td>
</tr>
</tbody>
</table>
National standards

EN 14904 Indoor surfaces for multi-sports use

EN 14877 Synthetic surfaces for outdoor sports areas

EN 15303-1 Synthetic turf surfaces intended primarily for outdoor use

**Ball - surface interaction**
- Ball rebound
- Angle ball rebound
- Ball roll
- Pace
- Spin

**Player - surface interaction**
- Shock absorption
- Deformation
- Head Injury Criterion
- Gmax
- Friction
- Traction
- Skin friction/abrasion
Durability

- Wear resistance
- Artificial weathering
- Simulated wear
- Environmental impact
- Joint strength
What is missing?

- Spin (cricket & tennis)
- Slide (tennis)
- Linear friction (football, hockey, rugby)
- Surface pace – football
- Energy restitution (all sports)
Criteria for new tests

- Fully described specifications
- Reproducible
- Repeatable
- Ideally suitable for use in lab and site
- Commercially viable