

It doesn't have to be like this...

The use of synthetic turf in sports

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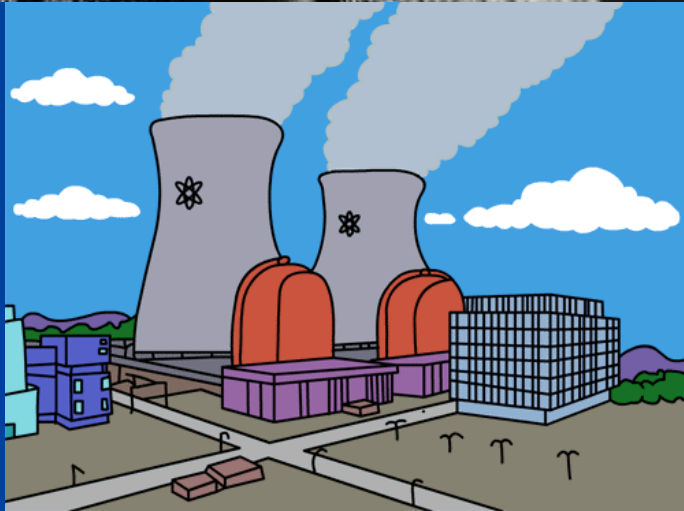
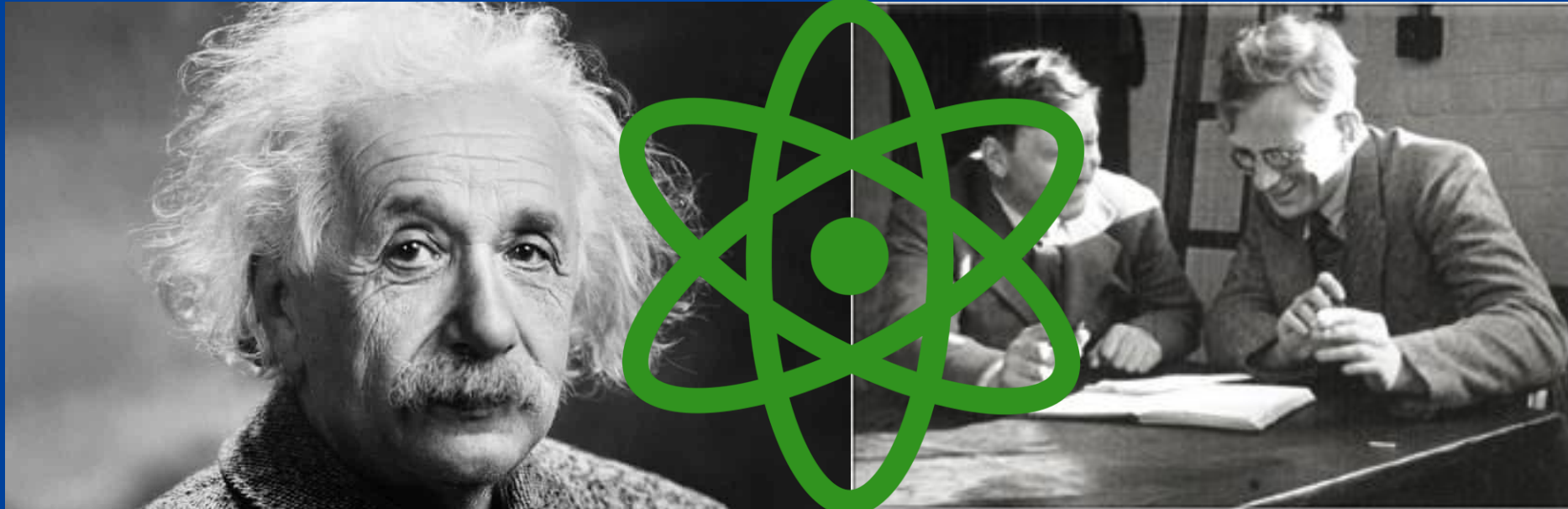


UGBY
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THE RUGBY NETWORK

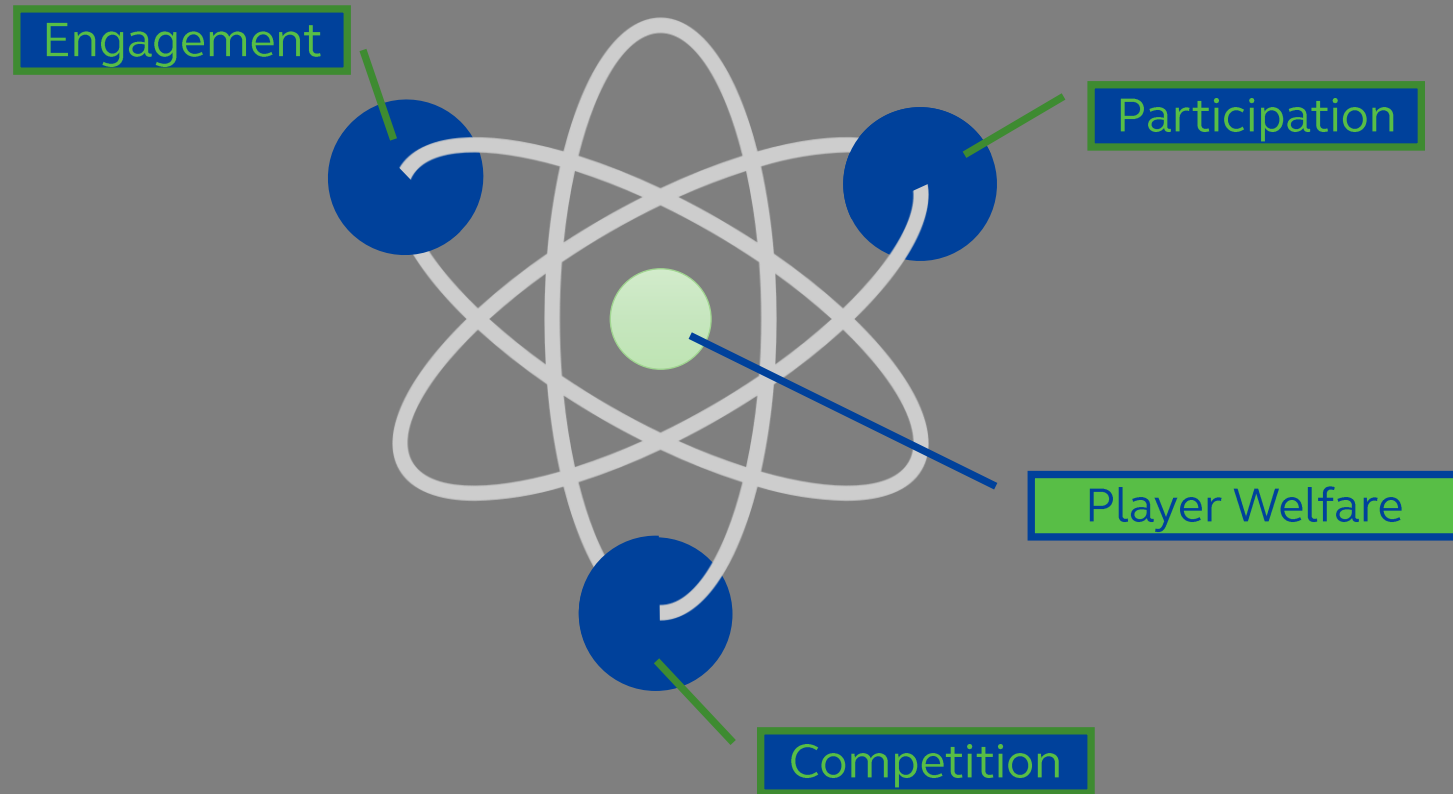


$$E = mc^2$$



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The Rugby Atom





Identify the Issue

- Measure
- Understand



Devise potential solutions

- Thorough Assessment
- Unintended consequences
- Potential reactions
- Engagement



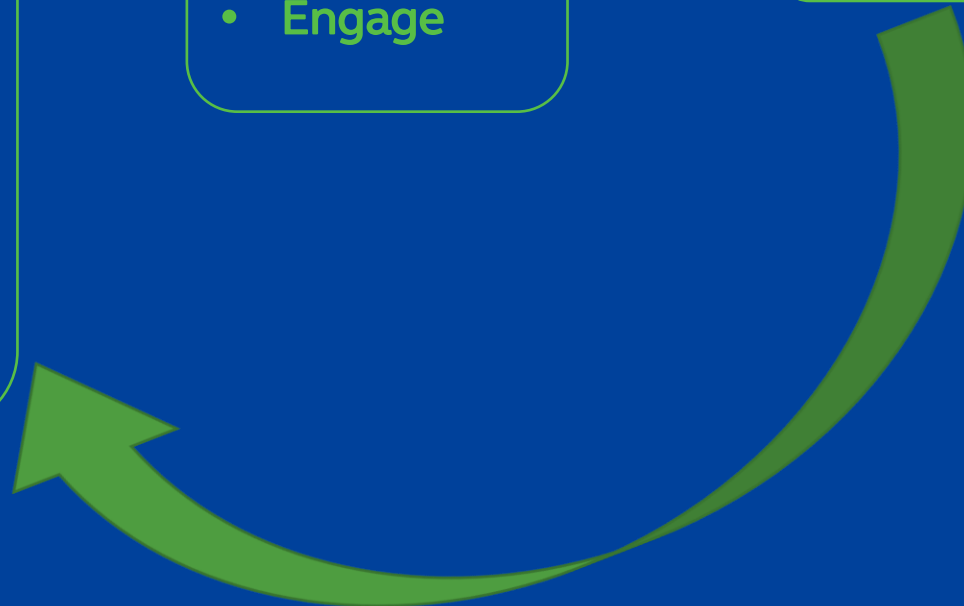
Implement a solution

- Explain
- Educate
- Engage



Review outcomes and effects

- Measure
- Understand





HIA



Identify the



Player Welfare / Medical



Injury Prevention and Risk Management



Coaching



Officiating



Devise potential solutions



Conditioning for Rugby



Match Day Staff



Protect the Game



Laws of the Game



Implement solutions



Player Eligibility

passport.world.rugby



Review outcomes and effectiveness





Identify the Issue



HIA



Training & Education

- Reports < Incident



- No guidance structure



Devise potential solutions

- Recognise and Remove Assessment

- Leave it to Unions
- Give guidance to stakeholders
- Implement comprehensive process



Implement a solution

- HIA

- World Rugby Passport



Review outcomes and effects

- Huge research resource (time and \$\$)

- Constantly updating course content based on new information



HIA



Training & Education



Global Calendar



Identify the Issue

- Reports < Incident



- No guidance structure

- Burden on elite players very high



Devise potential solutions

- Recognise and Remove Assessment

- Leave it to Unions
- Give guidance to stakeholders
- Implement comprehensive process

- Bring entirely under World Rugby
- Cooperation between competitions
- Outsource entirely



Implement a solution

- HIA

- World Rugby Passport

- Global Calendar



Review outcomes and effects

- Huge research resource (time and \$\$)

- Constantly updating course content based on new information

- Injury Surveillance will indicate if this is working



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Rugby Surfaces

Regulation 22 and Player Welfare



A (very) brief history of Regulation 22

2003

Introduction of
Regulation 22



2015/16

HIC increased
to 1.3m



2011

Player/surface
interaction test
limits reviewed

Launch of PTPs



2021

New review in
progress



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RUGBY**

ACTGLOBAL™

CCGrass

EDELGRASS®

FieldTurf®

A Tarkett Sports Company

GreenFields

LIMONTA
SPORT

polytan

SIS//Pitches



Accredited Test
Institutes



Regulation 22

What is it?

Player

Ensure that any artificial turf field used for rugby does not increase the risk of injury to players



1

Quality

Ensure that the performance aspects can be met for the likely lifetime of the carpet.



2

Application

All fields must comply -
Benchmarked against natural turf -
Retest every 2 years -

4



Proper maintenance is completed
on a regular basis



Identification

Is what was tested in the lab installed on the field?

Can the lab results be inferred on the field?



3



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PLAYER WELFARE



PERFORMANCE

Injury Rates

Dealing with the known

Natural turf has always been considered an acceptable level of risk for playing rugby and other sports.



MAINTENANCE

Usage Levels

Knowing what you have

Encouraging maintenance is performed in line with usage levels (increasing in tandem) will sustain performance



EXCEPTIONS

Managing risk

Looking at the big picture

What are the critical aspects of the benchmarking process and does meeting one jeopardise the rest?



SIMPLIFICATION

Acceptance

Barriers to compliance

Can we still achieve our aims while ensuring that meeting them is as easy and cost effective as possible?



SUCCESS

Completeness

Measuring achievement

Are the key reasons for regulating still relevant and are the milestones still being met?



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Challenges and Solutions

2003

How do we regulate?

- What does it look like?
- What does it apply to?
- How do we roll it out
- How do we support Unions
- What exceptions are there?

2011

How can we do better?

- Is the data still valid
- Are there bits missing
- Can we engage with industry

2015

Concussion?

- Can we do better?
- What does that mean?
- Can we justify it?

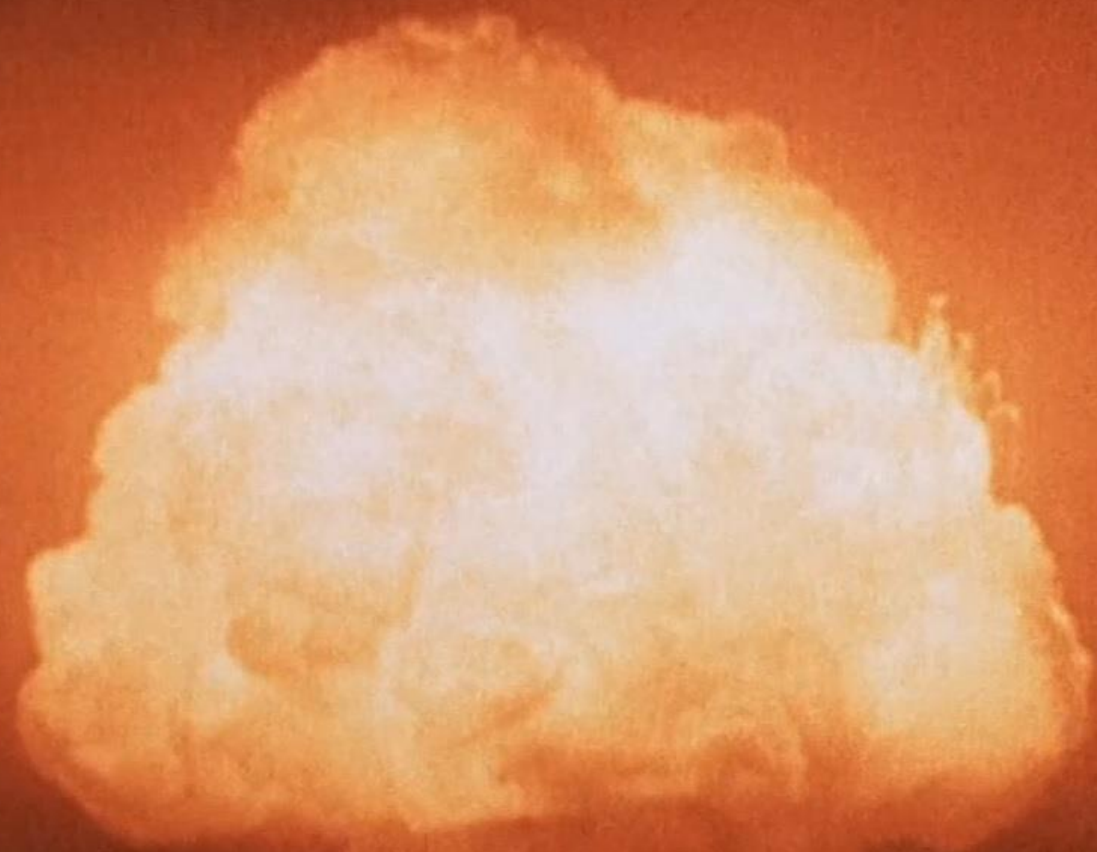
2021

Can we simplify?

- Has evolution affected agility?
- Do we still need all tests?
- Is there crossover of tests?



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The game has never been safer and without a true focus on Player Welfare in all aspects of the game, rugby risks being eradicated and its future bleak.



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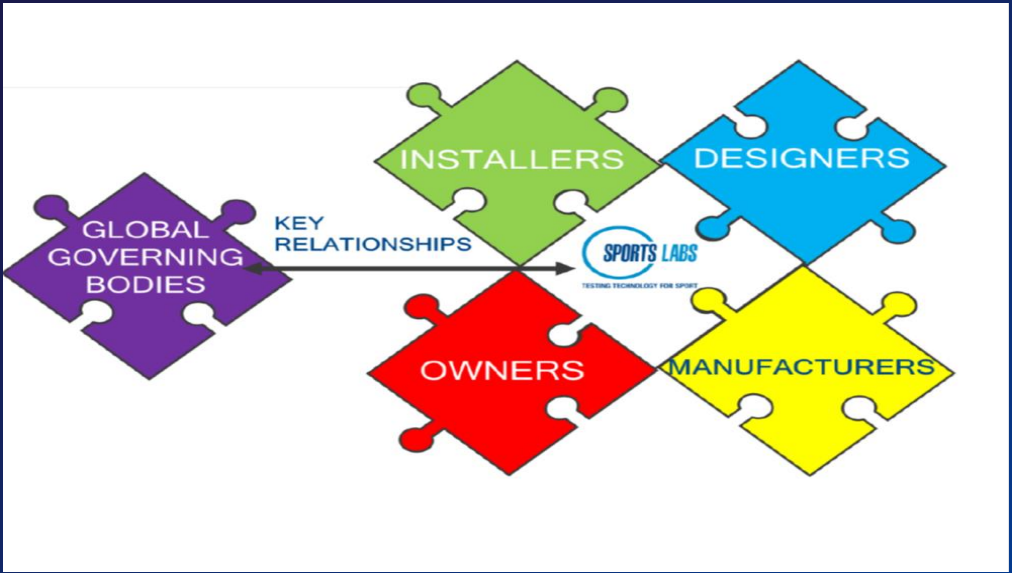
TESTING TECHNOLOGY FOR SPORT



Kieran O'Donnell
Director of Sports Labs North America

Laboratory Located in Ringgold Georgia





What is Turf 101

System over component management What can change in a system?

- Sand
- Performance Infill
- Yarn mix
- Pad or base
- Heating / Drainage layers

It is the system that performs not an individual component



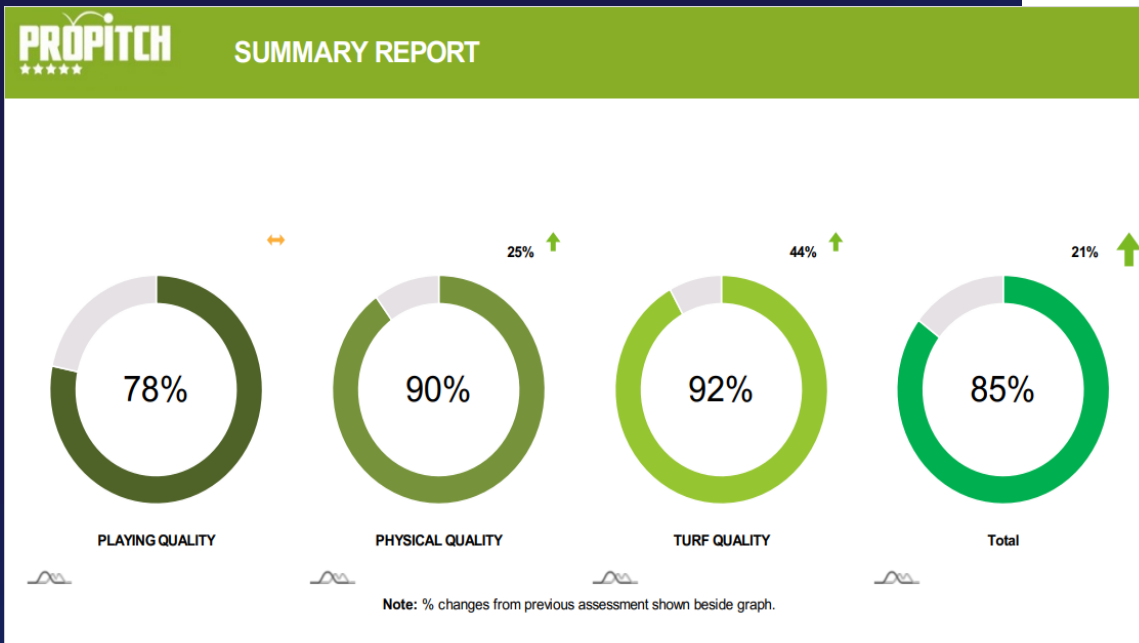
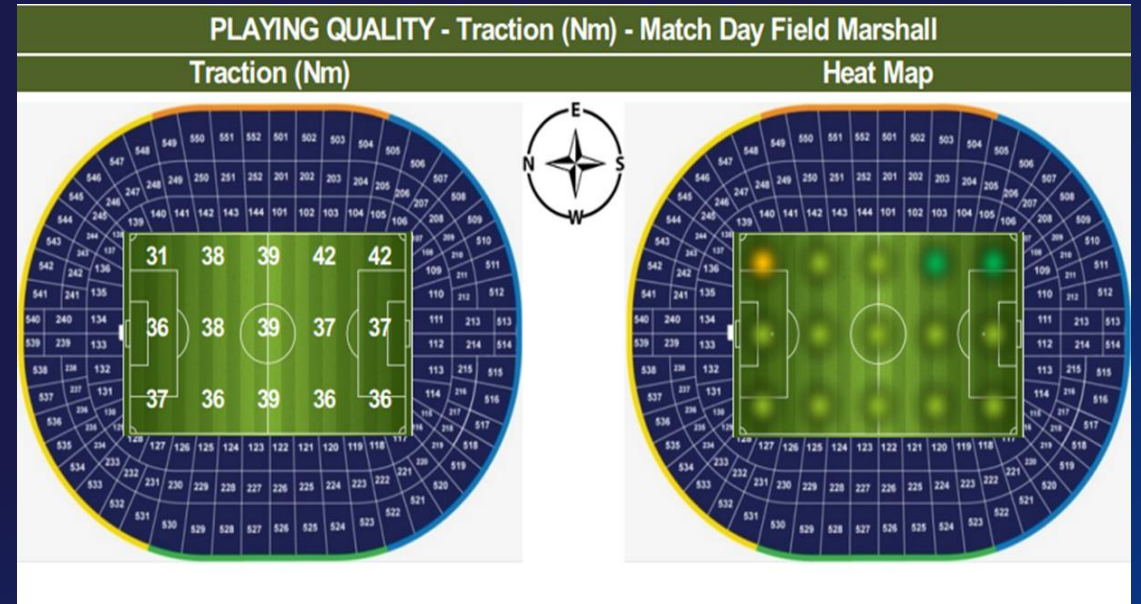
Force Reduction	55 – 70 (%)	64	<p>A horizontal bar chart with a color gradient from orange (left) to green (right). The x-axis is labeled from 42 to 74 in increments of 2. A black diamond marker is positioned at 64, with two black circles on either side at 62 and 66.</p>
Vertical Deformation	5.5 – 11.0 (mm)	8.2	<p>A horizontal bar chart with a color gradient from orange (left) to green (right). The x-axis is labeled from 3.0 to 12.0 in increments of 0.5. A black diamond marker is positioned at 8.2, with two black circles on either side at 7.5 and 8.5.</p>
Energy Restitution	20 – 50 (%)	29	<p>A horizontal bar chart with a color gradient from orange (left) to green (right). The x-axis is labeled from 12 to 60 in increments of 3. A black diamond marker is positioned at 29, with two black circles on either side at 27 and 30.</p>
Rotational Resistance	30 – 45 (Nm)	48	<p>A horizontal bar chart with a color gradient from orange (left) to green (right). The x-axis is labeled from 12 to 60 in increments of 3. A black diamond marker is positioned at 48, with two black circles on either side at 45 and 51.</p>
Ball Rebound	0.60 – 1.00 (m)	0.90	<p>A horizontal bar chart with a color gradient from orange (left) to green (right). The x-axis is labeled from 40 to 120 in increments of 5. A black diamond marker is positioned at 90, with two black circles on either side at 85 and 95.</p>
Ball Roll	4.0 – 10.0 (m)	8.5	<p>A horizontal bar chart with a color gradient from orange (left) to green (right). The x-axis is labeled from 3 to 19 in increments of 1. A black diamond marker is positioned at 8.5, with two black circles on either side at 8 and 9.</p>
HIC	≥ 1.3m	1.95	<p>A horizontal bar chart with a color gradient from orange (left) to green (right). The x-axis is labeled from 0.6 to 2.2 in increments of 0.1. A black diamond marker is positioned at 1.95, with two black circles on either side at 1.9 and 2.0.</p>
Stiffness	>200 (g)	82	<p>A horizontal bar chart with a color gradient from orange (left) to green (right). The x-axis is labeled from 40 to 120 in increments of 5. A black diamond marker is positioned at 82, with two black circles on either side at 75 and 85.</p>

Characteristic	All/warm/ cool season grass	Unacceptable quality (1 point)	Poor quality (3 points)	Satisfactory quality (5 points)	Good quality (7 points)	Excellent quality (10 points)	WEIGHTING
Vertical ball rebound	All	<0.45m or >1.15m	0.45-0.49m or 1.11-1.15m	0.50-0.59m or 1.01-1.10m		0.60-1.00m	4
Vertical ball rebound – consistency	All	>±25%	±25%	±20%	±15%	±10%	0.5
Ball roll	All	<3.0m or >15.0m	3.0-3.9m or 12.1- 15.0m	10.1-12.0m		4.0-10.0m	4
Ball roll – consistency	All	>±25%	±25%	±20%	±15%	±10%	0.5
Shock absorption	All	<40.00%FR or >80.0%FR	40.0-44.9%FR or 75.1-80.0%FR	45.0-49.9%FR or 70.1-75.0%FR	50.0-54.9%FR	55.0-70.0%FR	9
Shock absorption – consistency	All	>±25%	±25%	±20%	±15%	±10%	0.5
Vertical deformation	All	<3.0mm or >14.0mm	12.1-14.0mm	3.0-4.0mm or 11.1-12.0mm		4.0-11.0mm	4
Vertical deformation – consistency	All	>±25%	±25%	±20%	±15%	±10%	0.5
Rotational resistance	All	<15.0Nm or >60.0Nm	15.0-19.9Nm or 55.1-60.0Nm	20.0-24.9Nm or 49.9-55.0Nm		25.0-50.0Nm	6
Rotational resistance – consistency	All	>±25%	±25%	±20%	±15%	±10%	0.5

Characteristic	All/warm/ cool season grass	Major concerns with the pitch under consideration (1 point)	Minor concerns with the pitch under consideration (5 points)	No concerns with the pitch under consideration (10 points)	WEIGHTING
Evenness (10mm)	All	No deformation >30mm	No deformation >20mm	No deformation >10mm	5

Reporting

Visualising Results



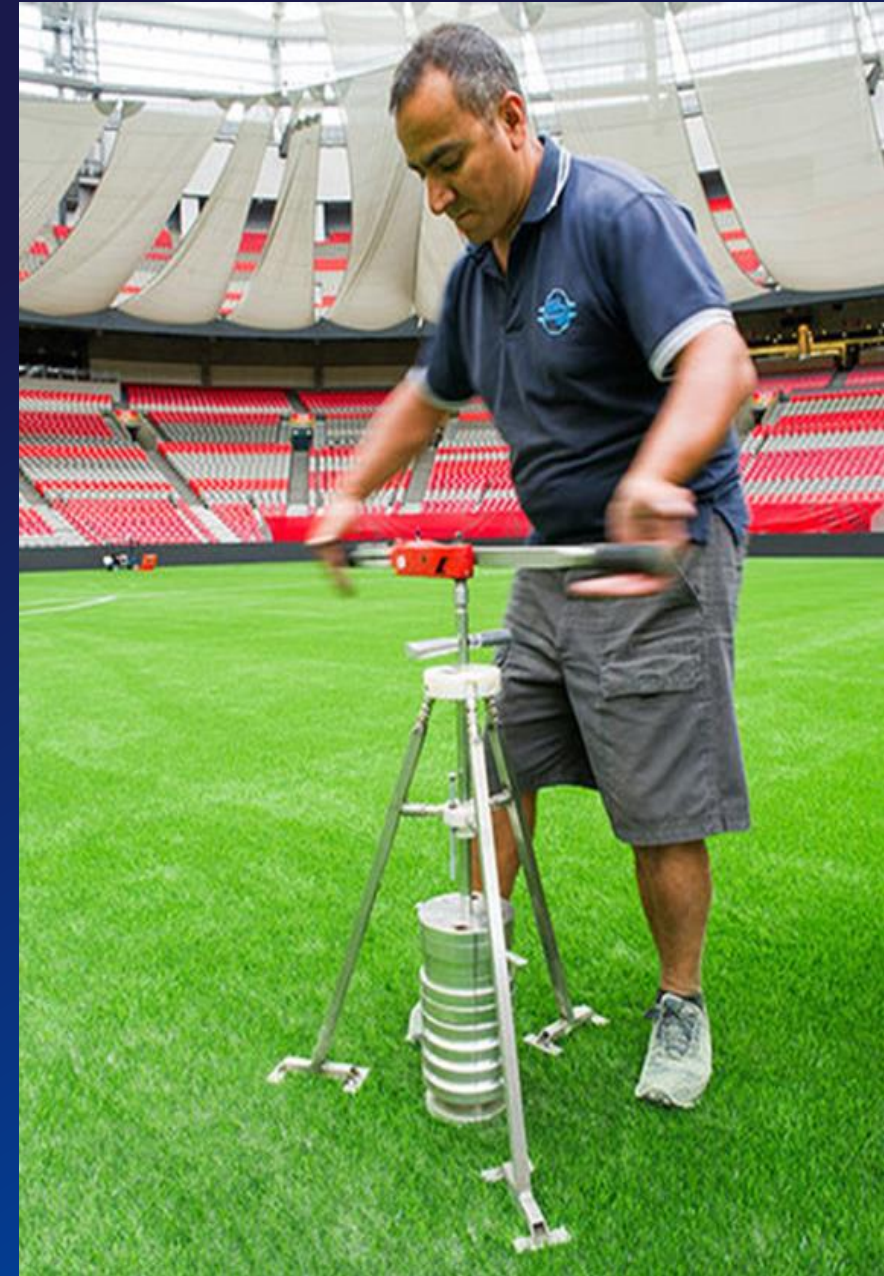
Ranges	Description	Average Total Pitch Score	Possible Rating	Awarded Rating	Awarded Score (%)
40 - 50	Underfoot traction a player will experience when changing direction.	38	5	4	80
35-39/51-55			4		
25-34 /56-60			3		
>60 /<25			2		

Devices & Test Methods

Rotational Resistance

Improvements:
7.8Kg rather than 49Kg
Digital Transducer
Better Stability

Still only a single data
point.....Missing the
Three V's



Devices & Test Methods

Field Marshal

Multiple Measurements in Single Device

- ✓ G-Max
- ✓ Clegg Impact Value
- ✓ Advanced Artificial Athlete Data
 - Force Reduction / Shock Absorption
 - Energy Restitution
 - Deformation

Award Winning Design

- ✓ Sport & Play Construction Association – Innovation Awards Winner
- ✓ STC Innovations Award Winner
- ✓ SFMA Innovation Award Winner

Fully Wireless App-Base operation



THE SPORTS LABS

FIELD MARSHALL

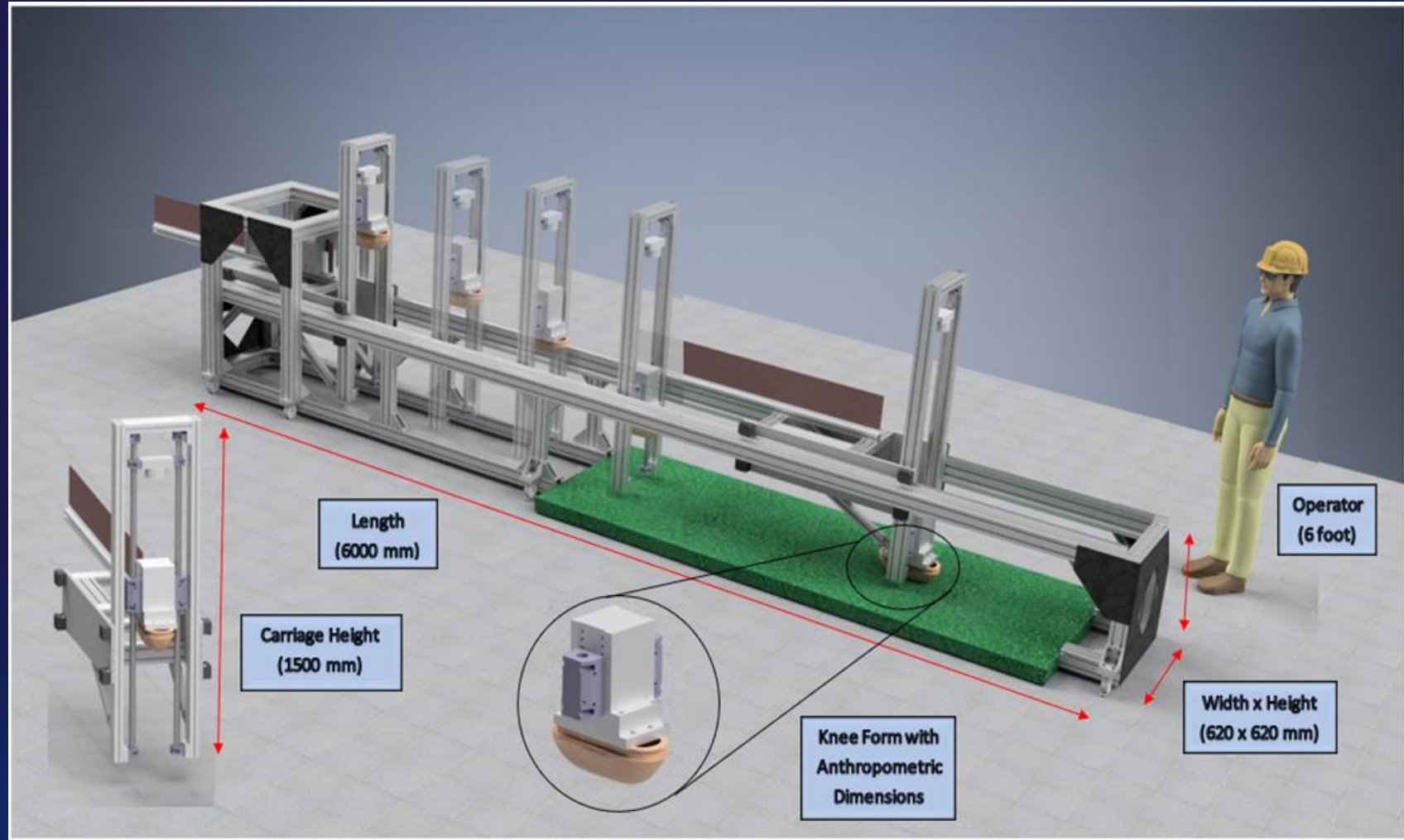
Devices & Test Methods

Field Marshal



Devices & Test Methods

Skin Injury Device



Devices & Test Methods

Skin Injury Device



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Thank You

QUESTIONS?

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