



Brazil

Boccia Workshop

Boccia Equipments



Boccia Equipments

Boccia Ball

Boccia Ramp

**Assitive Devices : Wheelchair,
Pointer, Repair tool, etc..**

Boccia Ball

First Question!

**Is Boccia Ball
a perfect Sphere?**

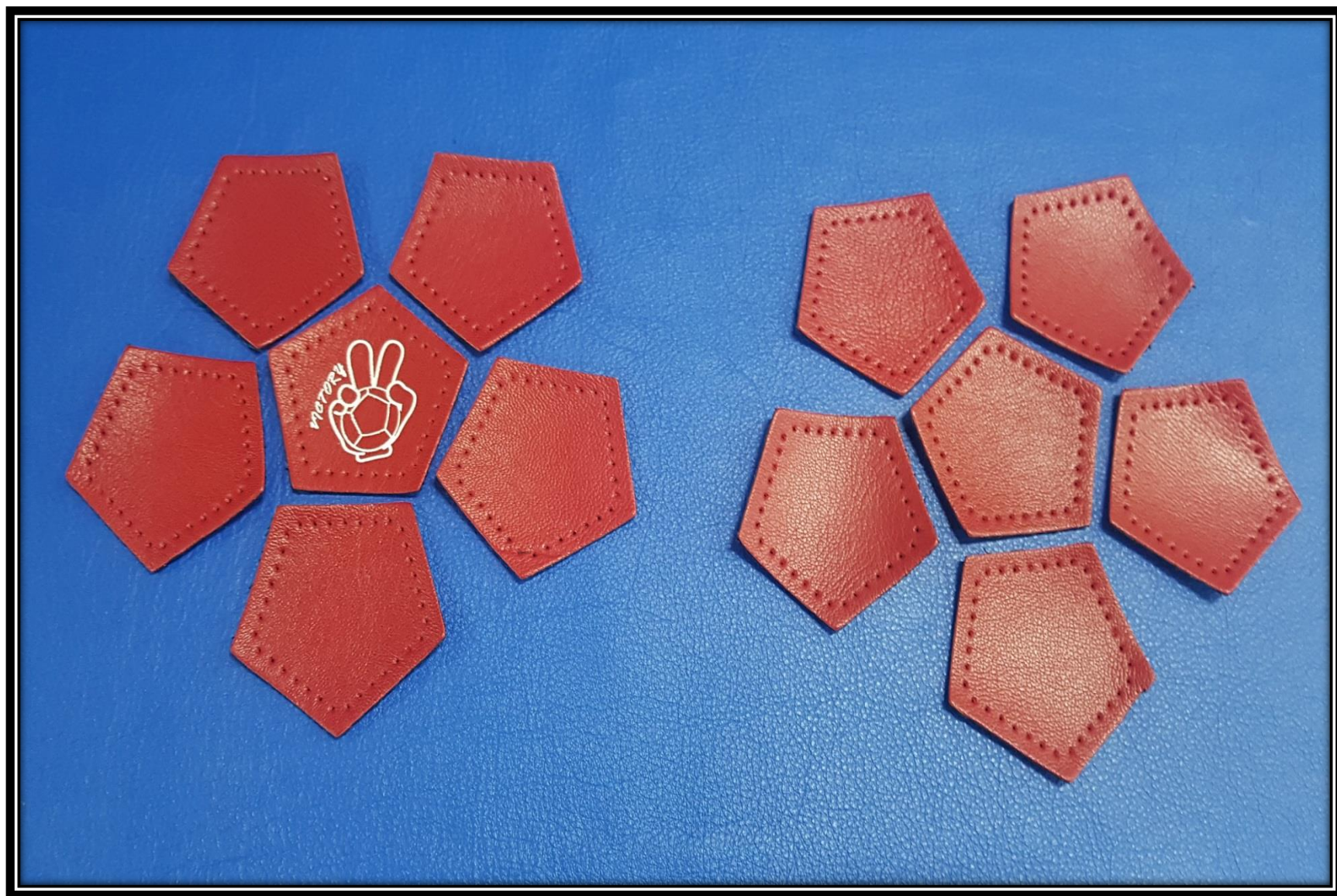
Boccia Ball

Perfect
Sphere



Boccia Ball

The **combination** of
12 Pentagonal leathers

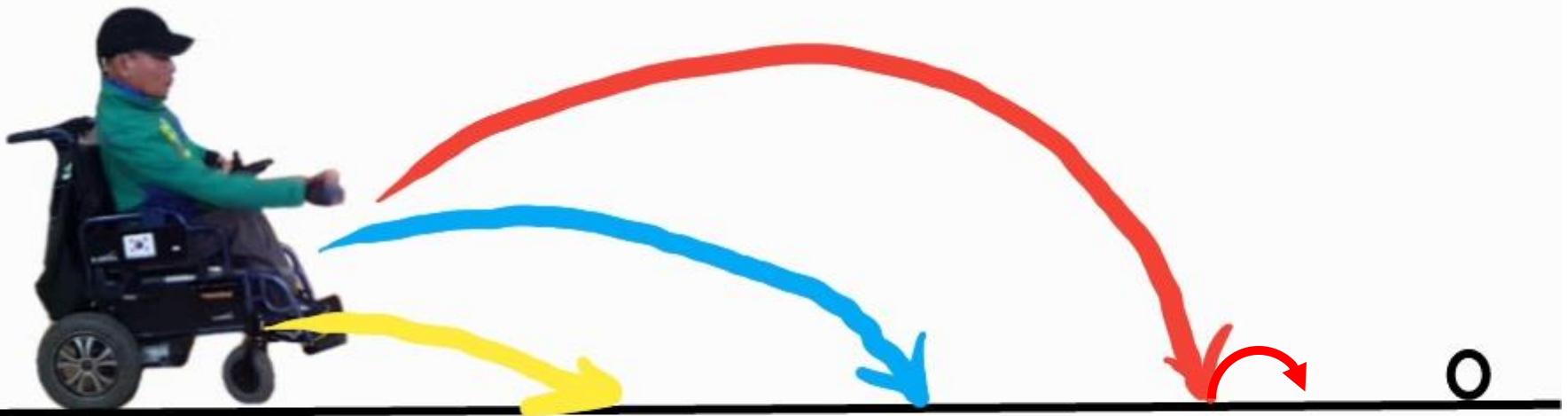


What are **Problems** in Boccia Ball

**Ball bounces to another
direction sometime**

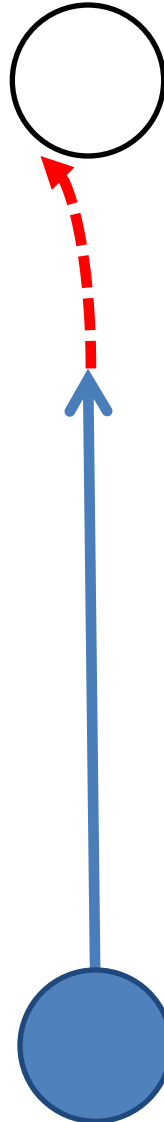
Ball rolls curved sometime

First Problem : **Bounce**



First Drop

Second Problem : Curve

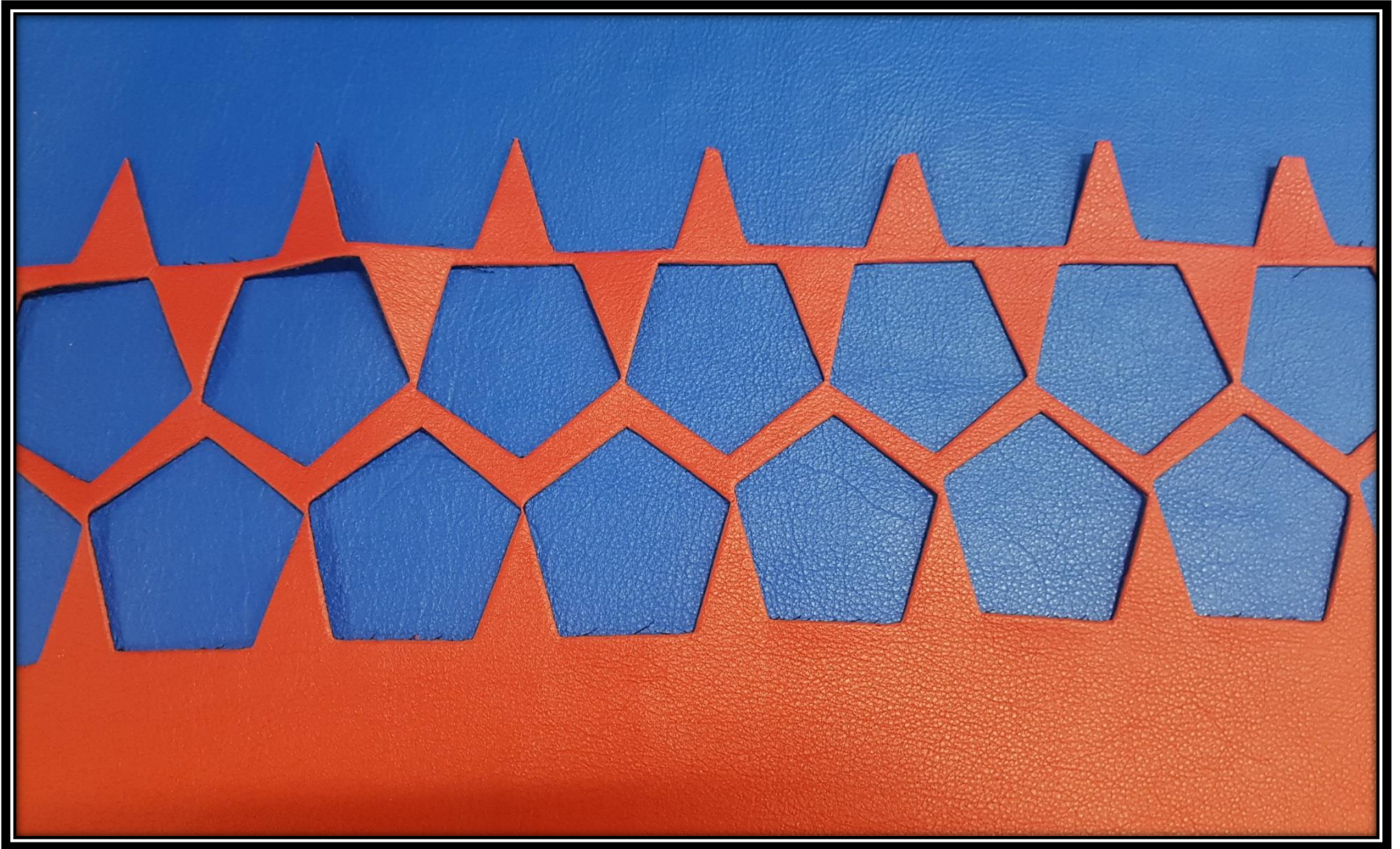


Science of Bocci Ball

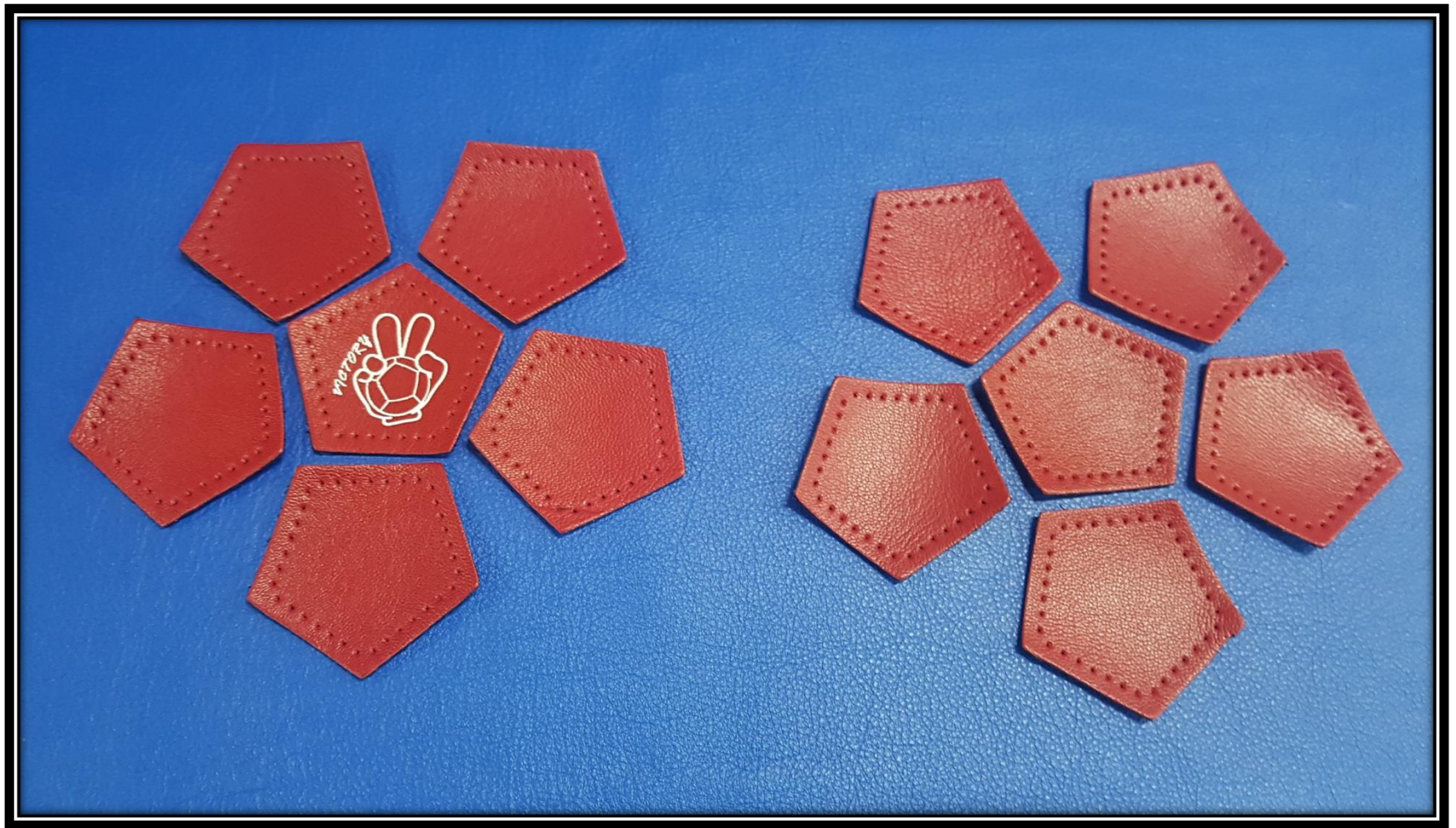
- Ball Criteria

- Weight : 275 +/- 12g (**263 ~ 287g**)
- Circumference : 270mm +/- 8mm
- Diameter : **83.4 ~ 88.5mm**

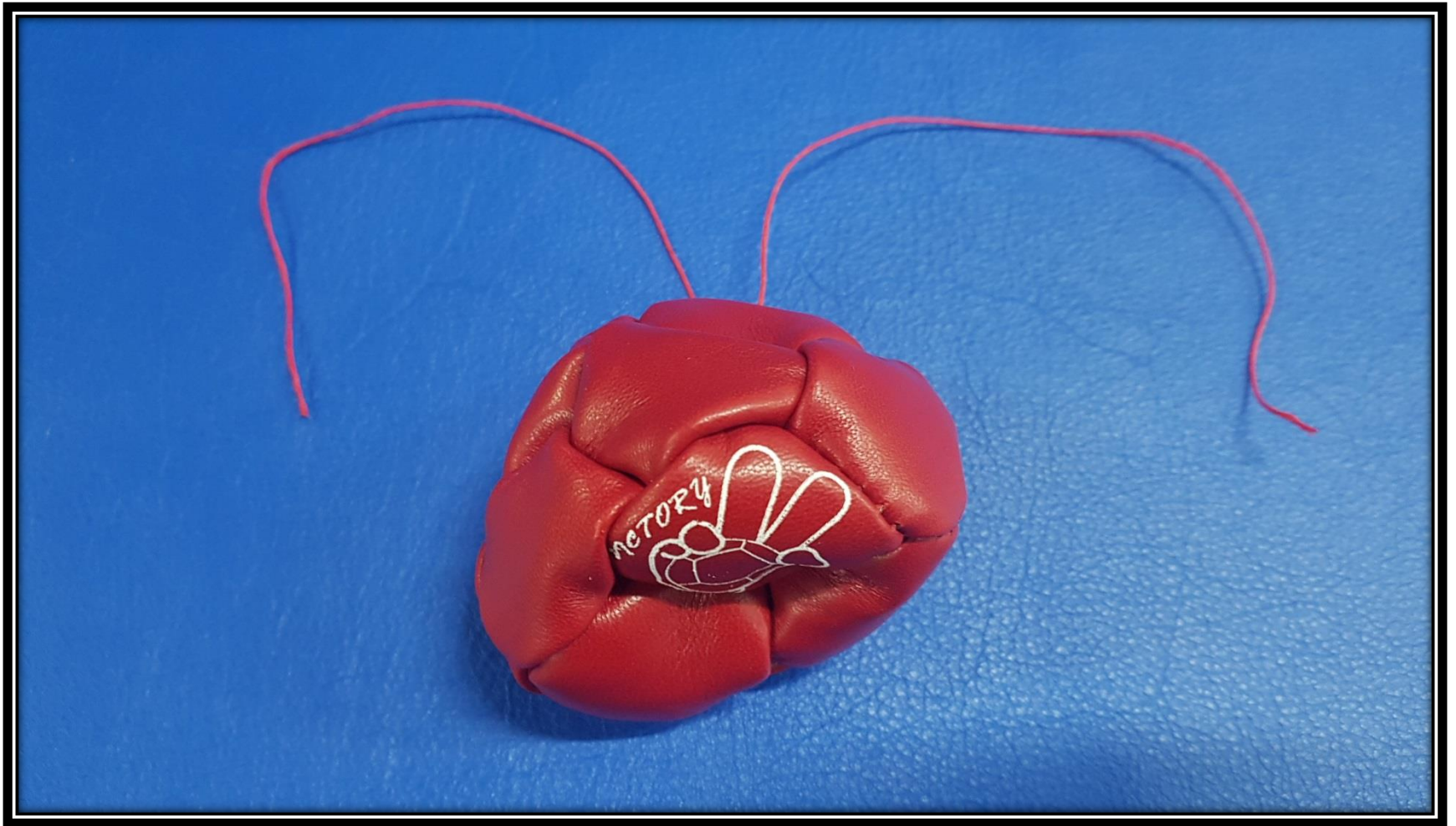
Boccia Ball Making Process



Boccia Ball Making Process



Boccia Ball Making Process



Boccia Ball Making Process



Boccia Ball Making Process



Boccia Ball Making Process



Comparison between Artificial leather and Natural leather

Artificial leather

Leahter Equlaity

Poor Durability

Natural leather

Natural Softness

Non-Equality

**Boccia shot cannot be
accurate perfectly! Why?**



Why boccia shot cannot be accurate perfectly?

Physical Factor : Unskilled shot

Ball Factor : Not Sphere

Court Factor : Not level

We can improve the accuracy and power by modifying the ball

Accuracy

Softening

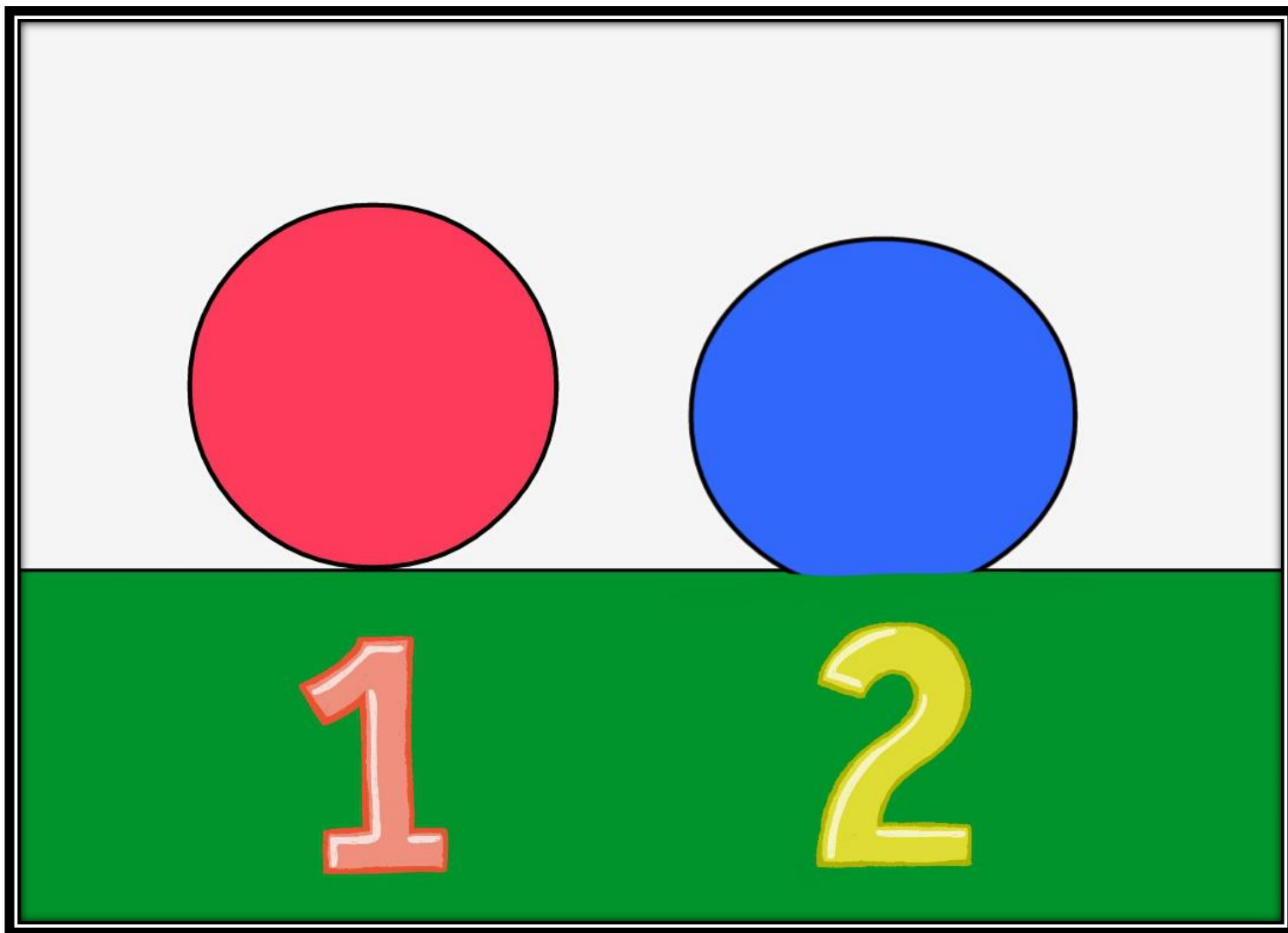
**Keep Good Shape
in the Rounder**

Power

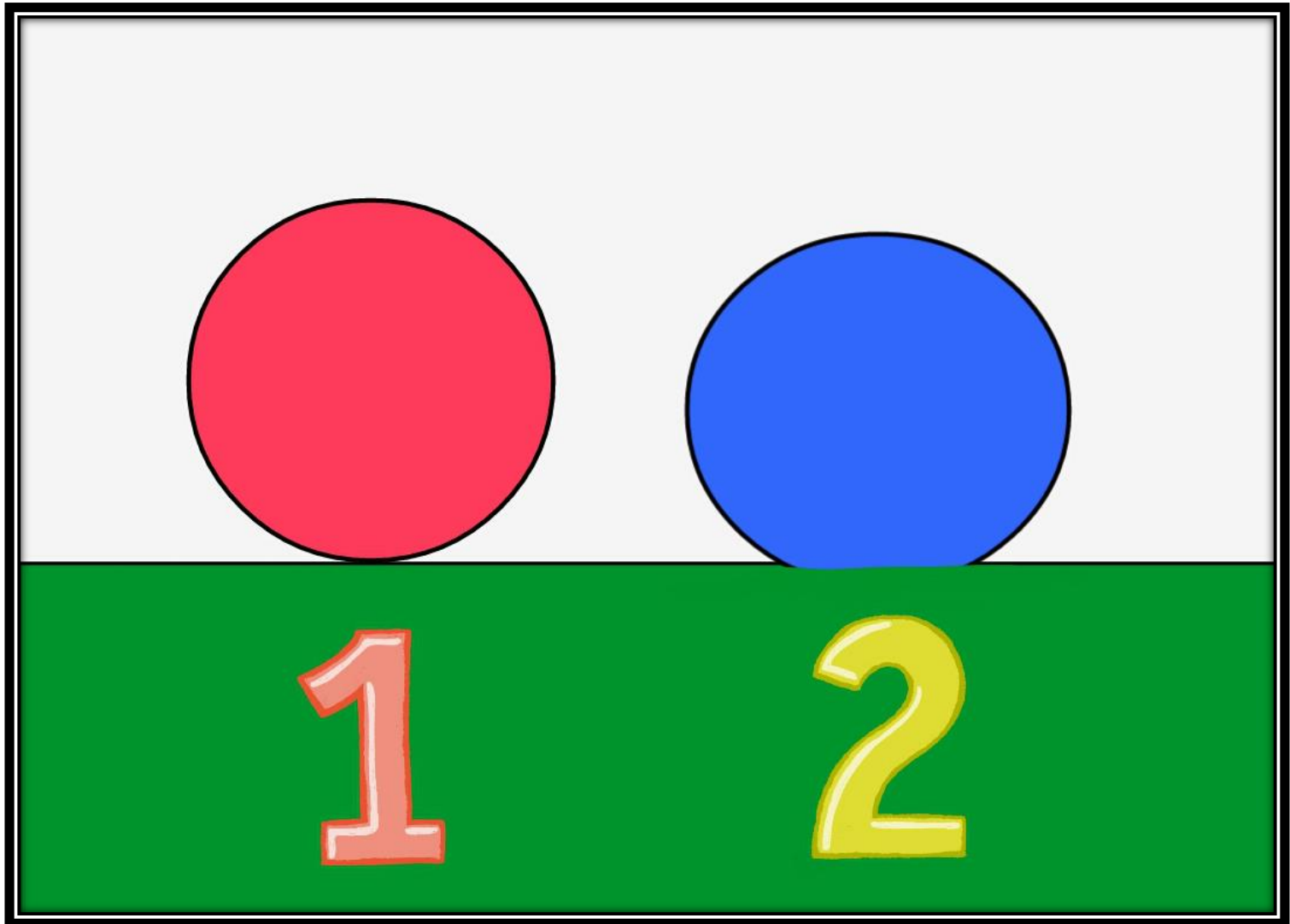
**Super Hard
ball**

**Slippery
Painting**

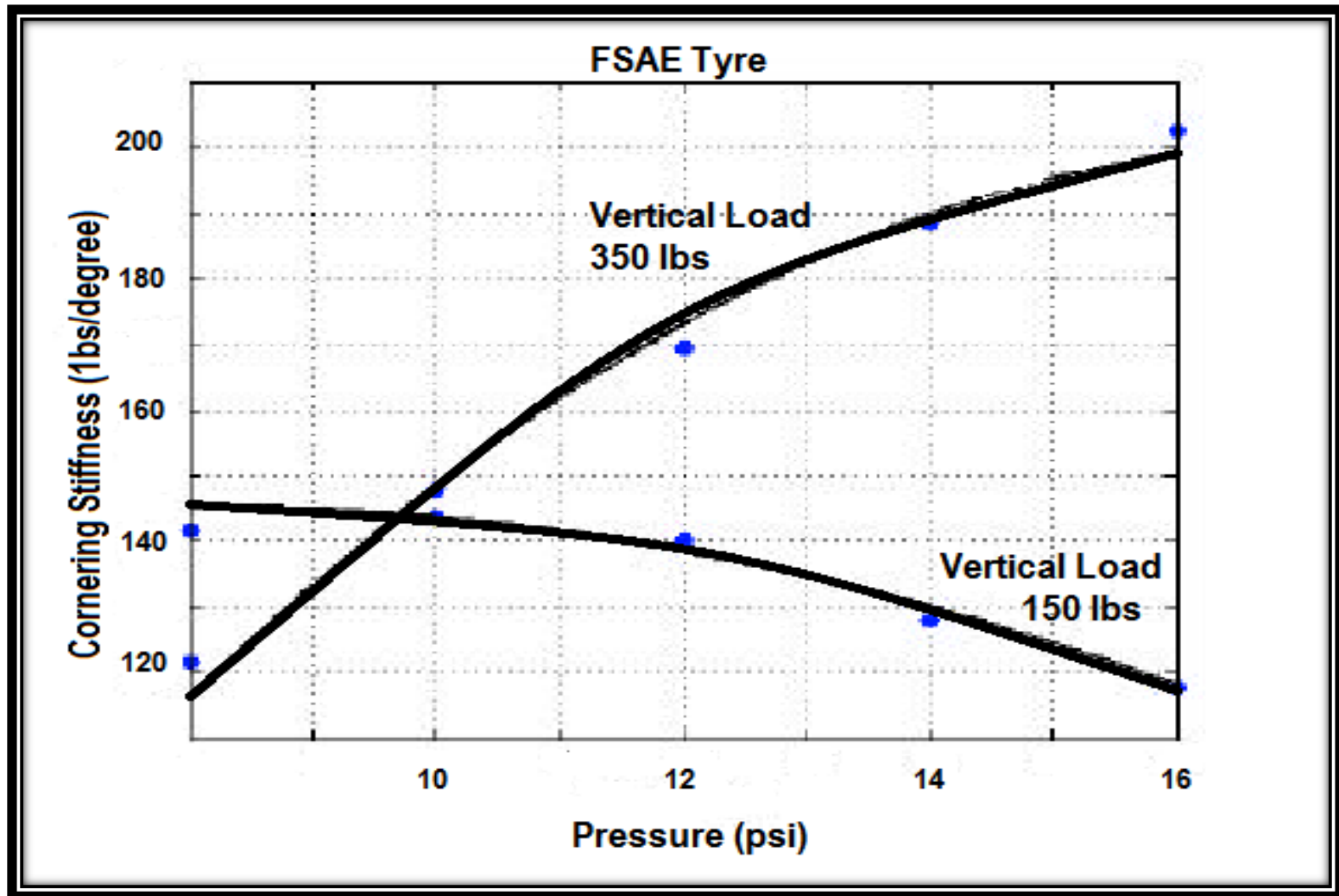
The Softer, The more accurate



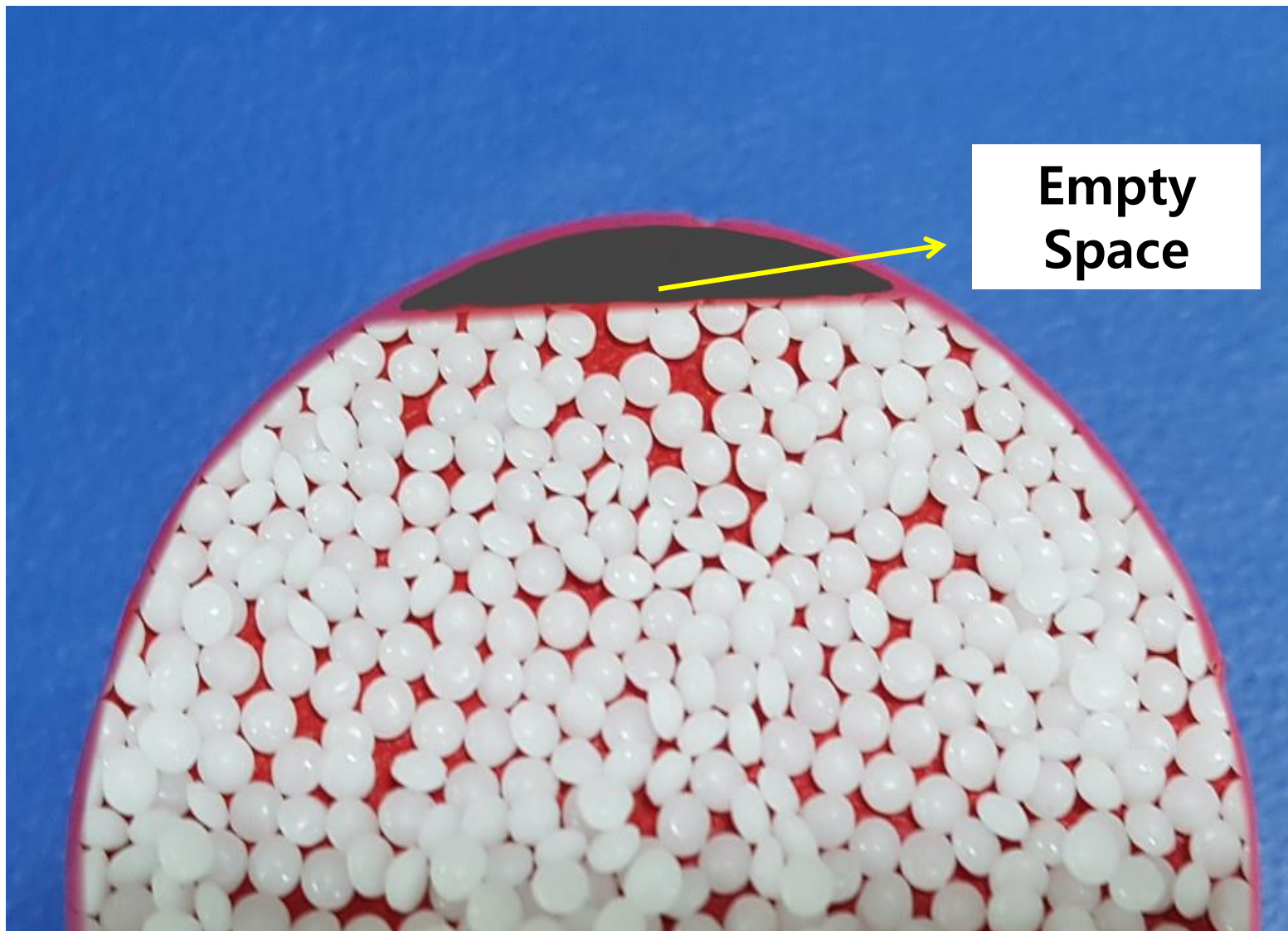
The Softer, The less curved



corelation between tyre pressure and Cornering stiffness







**Empty
Space**

**Proper Softness
for
the **Accurate** Soft ball**



Ball' s Arrangement Determinants

Athlete's Strength

Athlete's Tactics

Opponent's Tactics

Ball' s Arrangement by hardness

Type	Hardness(1~12)	Purpose
Super Soft	1, 2	Approach
Soft	2, 3	Approach, Push
Soft Medium	4, 5	Push, Rocochet
Medium	6, 7	Push, Knock off
Hard	8, 9	Knock off
Super Hard	10, 11	Knock off strongly

Ball' s Arrangement for BC3

Type	Hardness(1~12)	Number of ball
Super Soft	1, 2	
Soft	2, 3	
Soft Medium	4, 5	
Medium	6, 7	
Hard	8, 9	
Super Hard	10, 11	

Ball' s Arrangement for Thrower

Type	Hardness(1~12)	Number of ball
Super Soft	1, 2	
Soft	2, 3	
Soft Medium	4, 5	
Medium	6, 7	
Hard	8, 9	
Super Hard	10, 11	

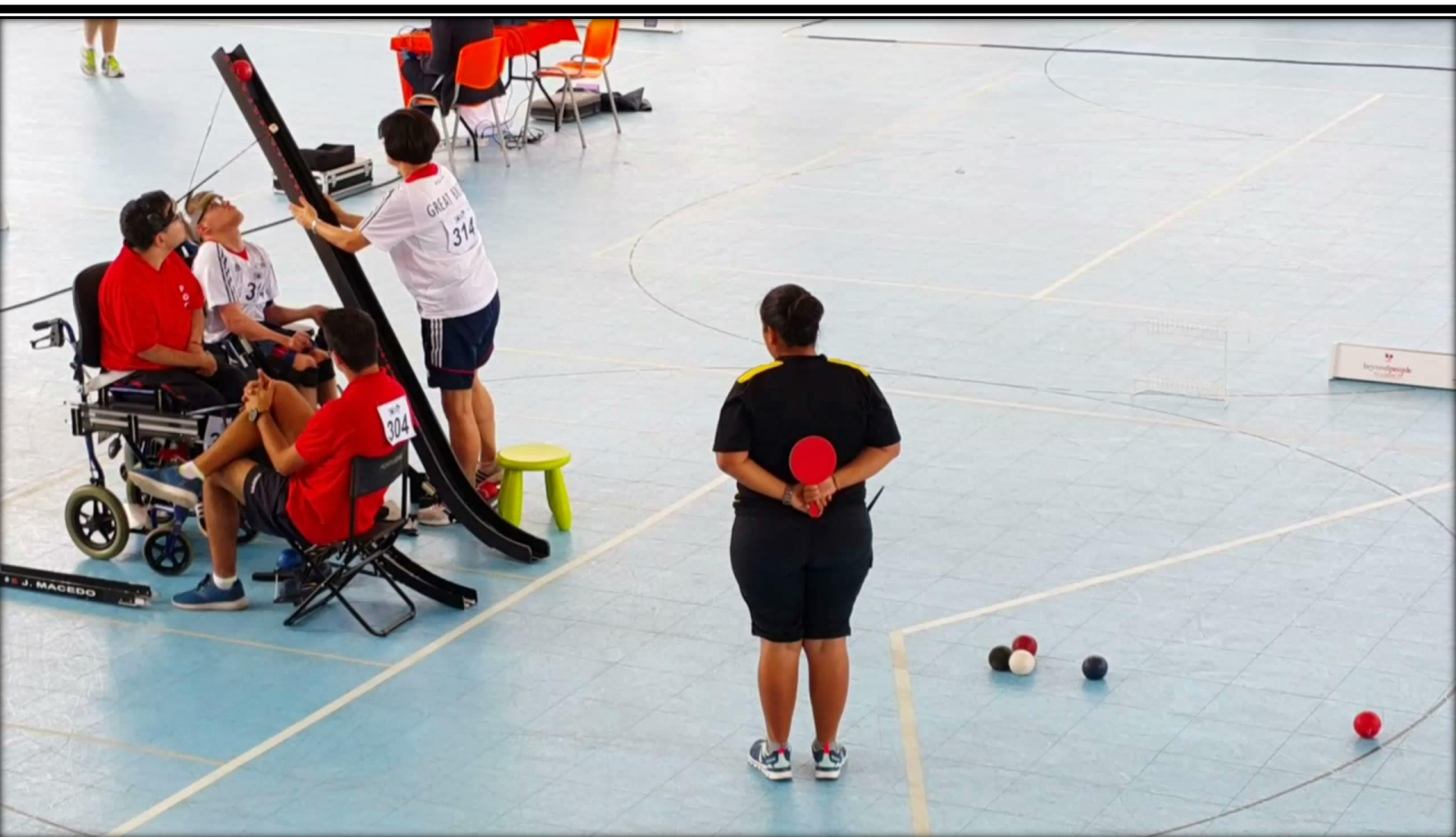
Super soft ball's Problem



Super soft ball's Problem



Problems of Super Soft ball



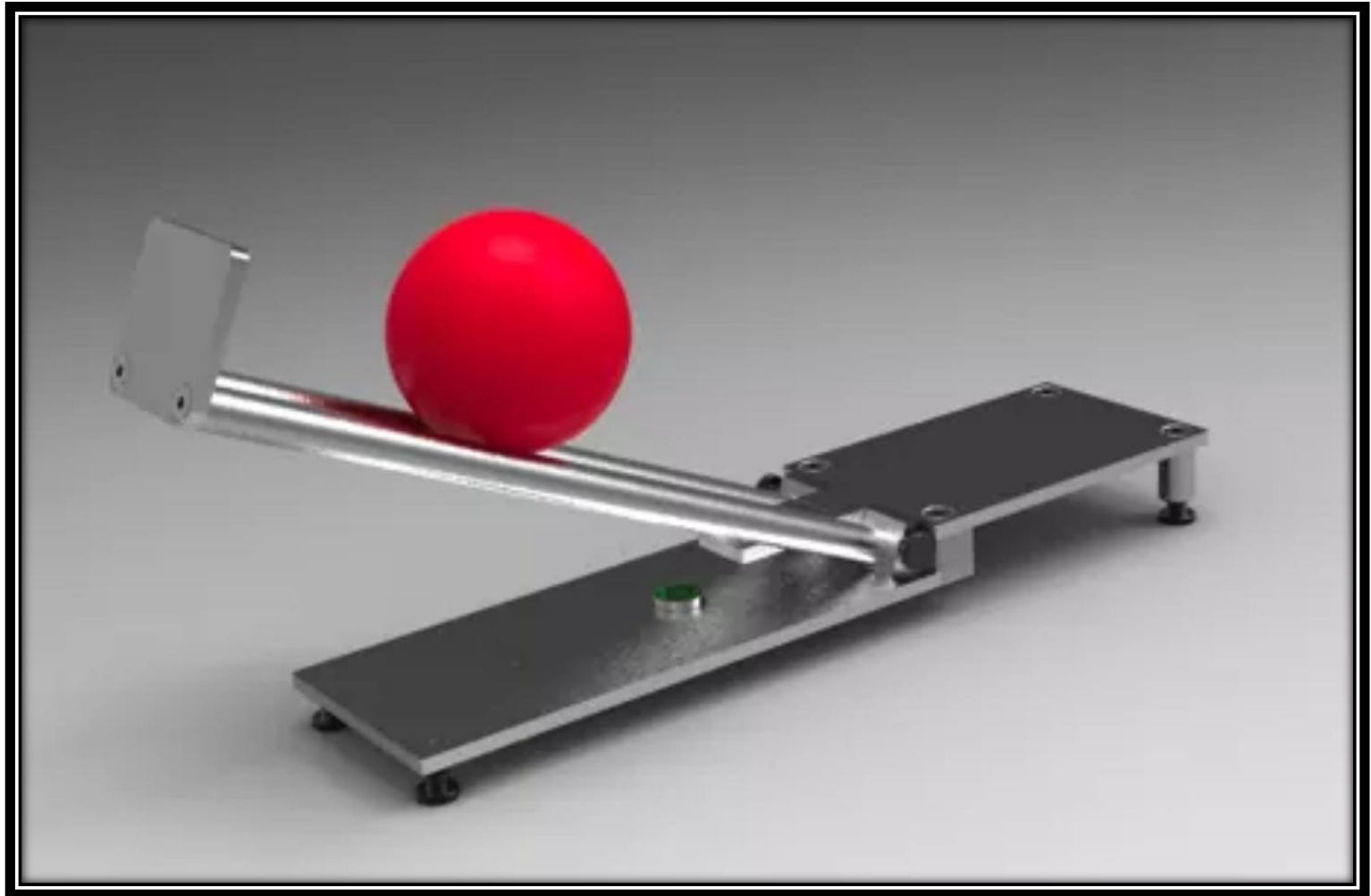
BISFed's Prototype Test device for preventing Super soft ball



BISFed's Prototype Test device for preventing Super soft ball



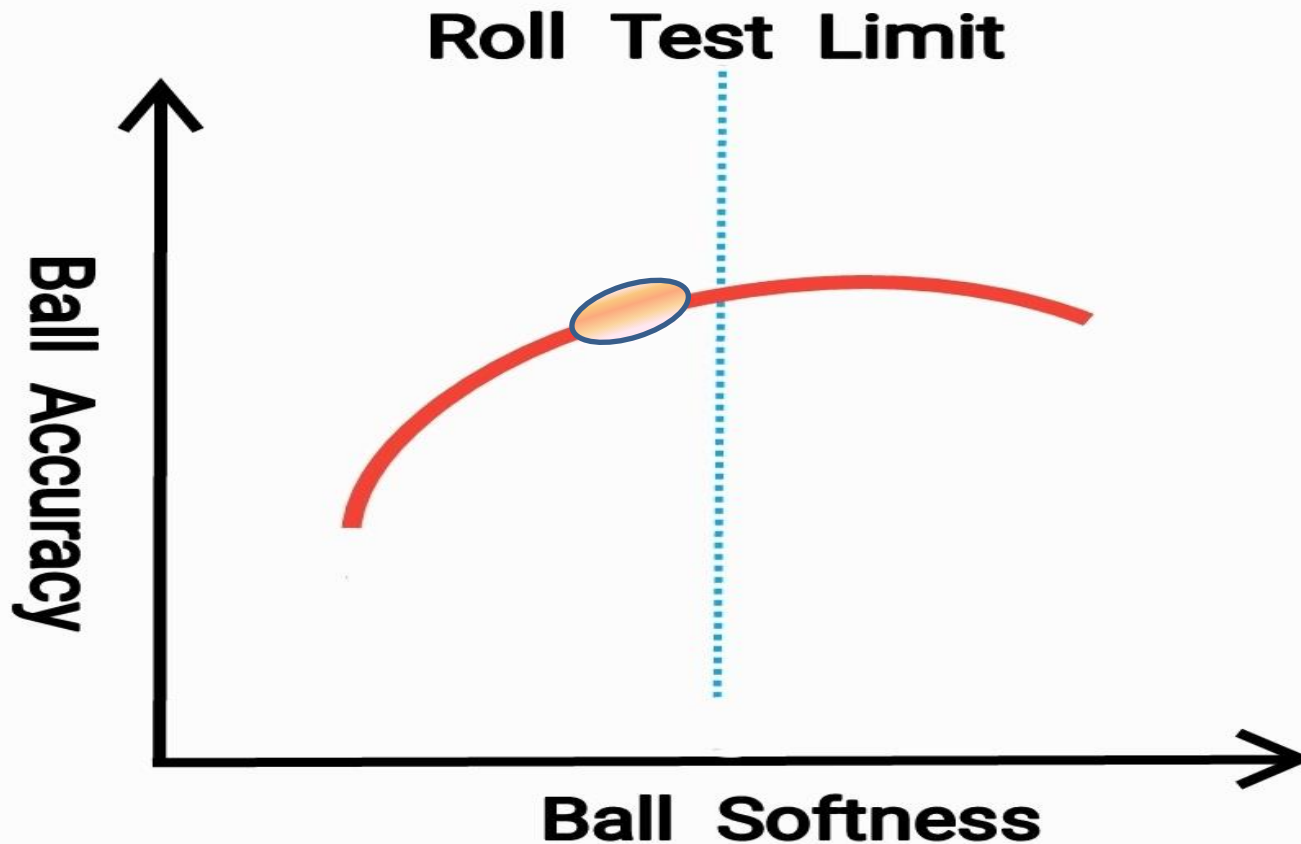
BISFed's New Test device for preventing Super soft ball



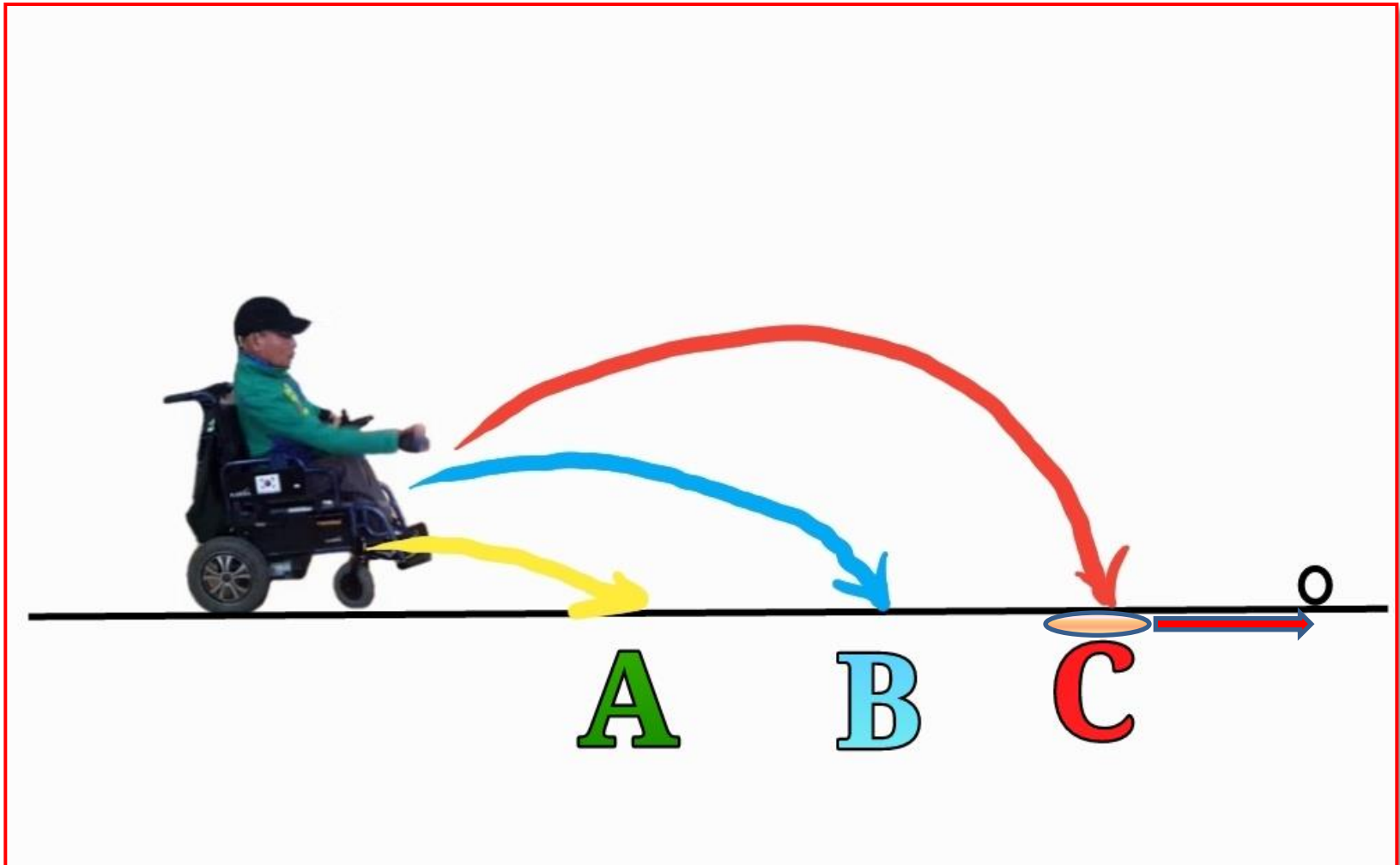
Is unmoveable Ball Problem
solved after Roll test was
adopted?



Boccia Soft Ball's Accuracy



Proper Softness of Soft ball for thrower



How to modify the Soft ball?

Drop the ball repeatedly

Sandpaper slightly

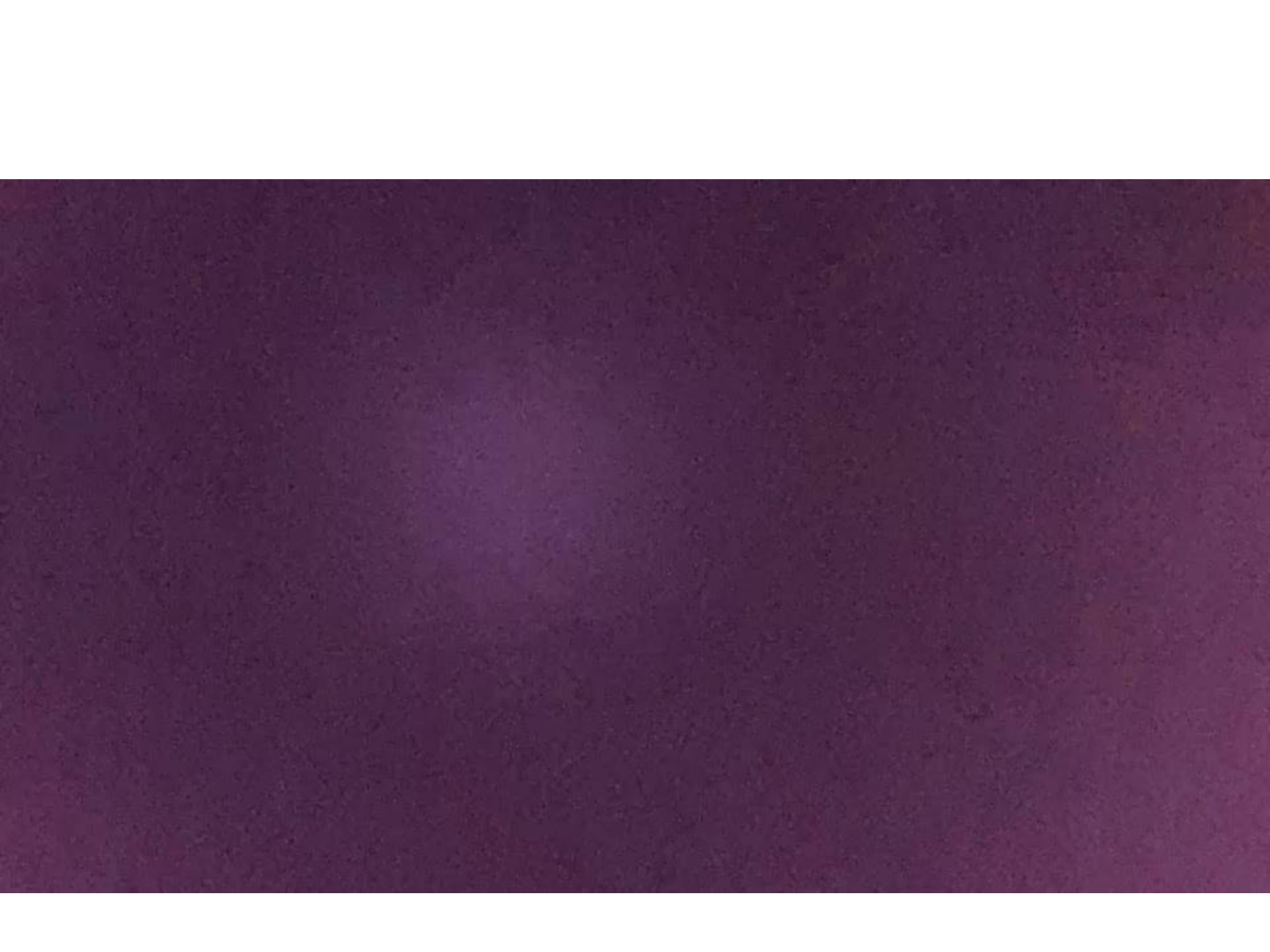
Pull some pellets out

Apply Leather Lotion

Softening (Dropping)



Softening (Change inner Pellets)



Recovery the hole(after modification)





Ball Test for Thrower's Ball



Ball Test for BC3 Athlete's Ball



Ball Rounder



Ball Rounder



Ball Rounder

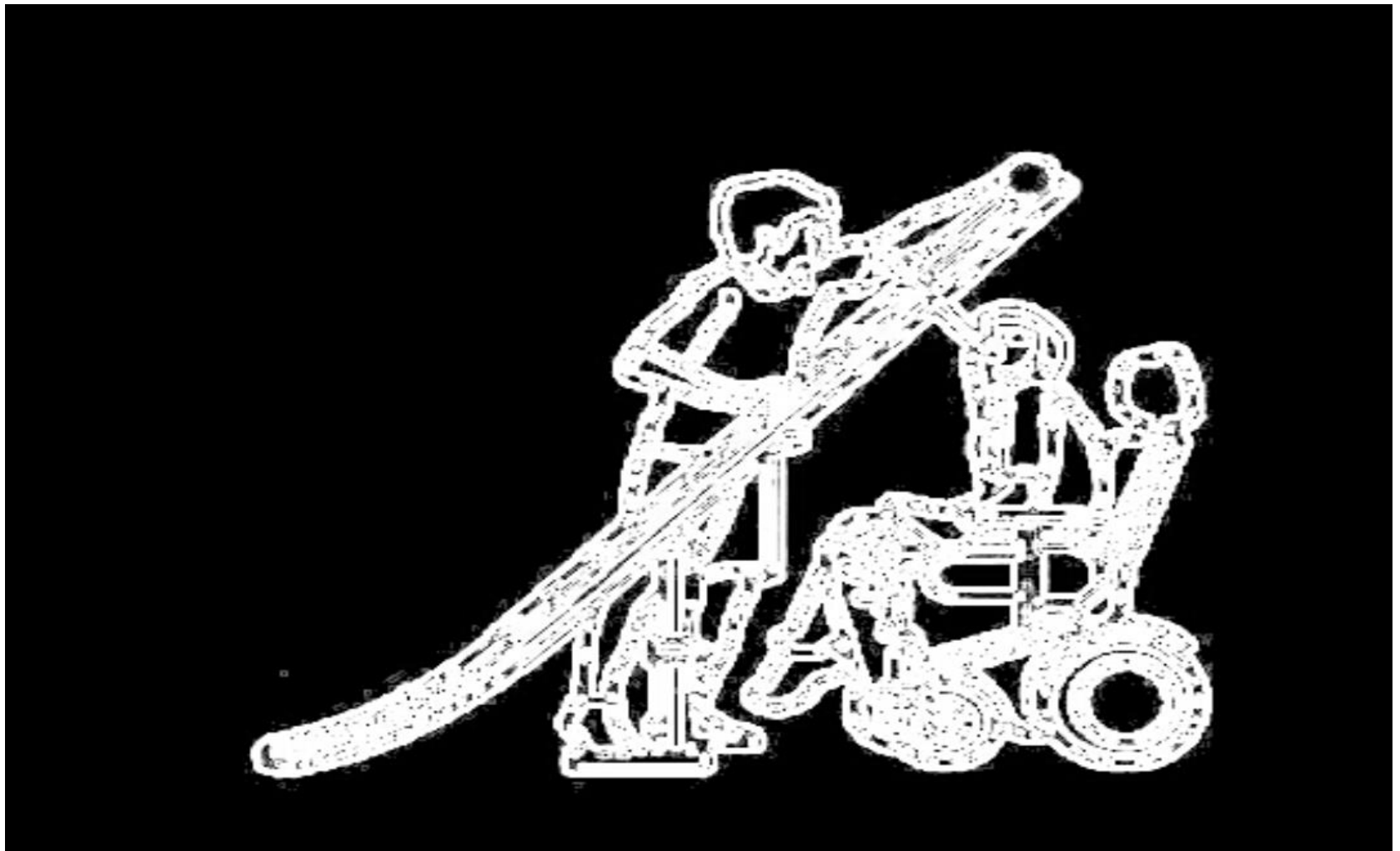


Ball Rounder





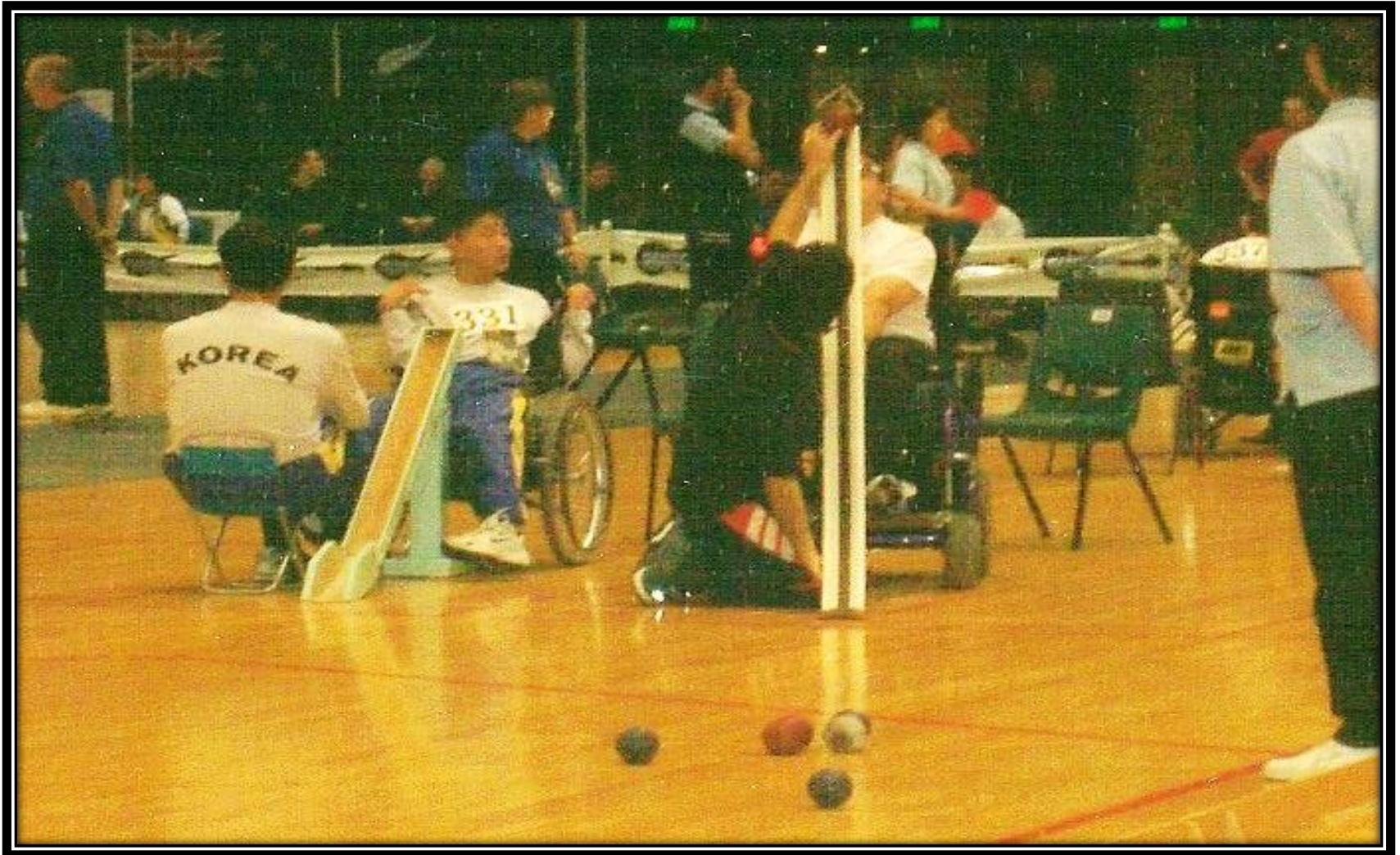
Boccia Ramp History



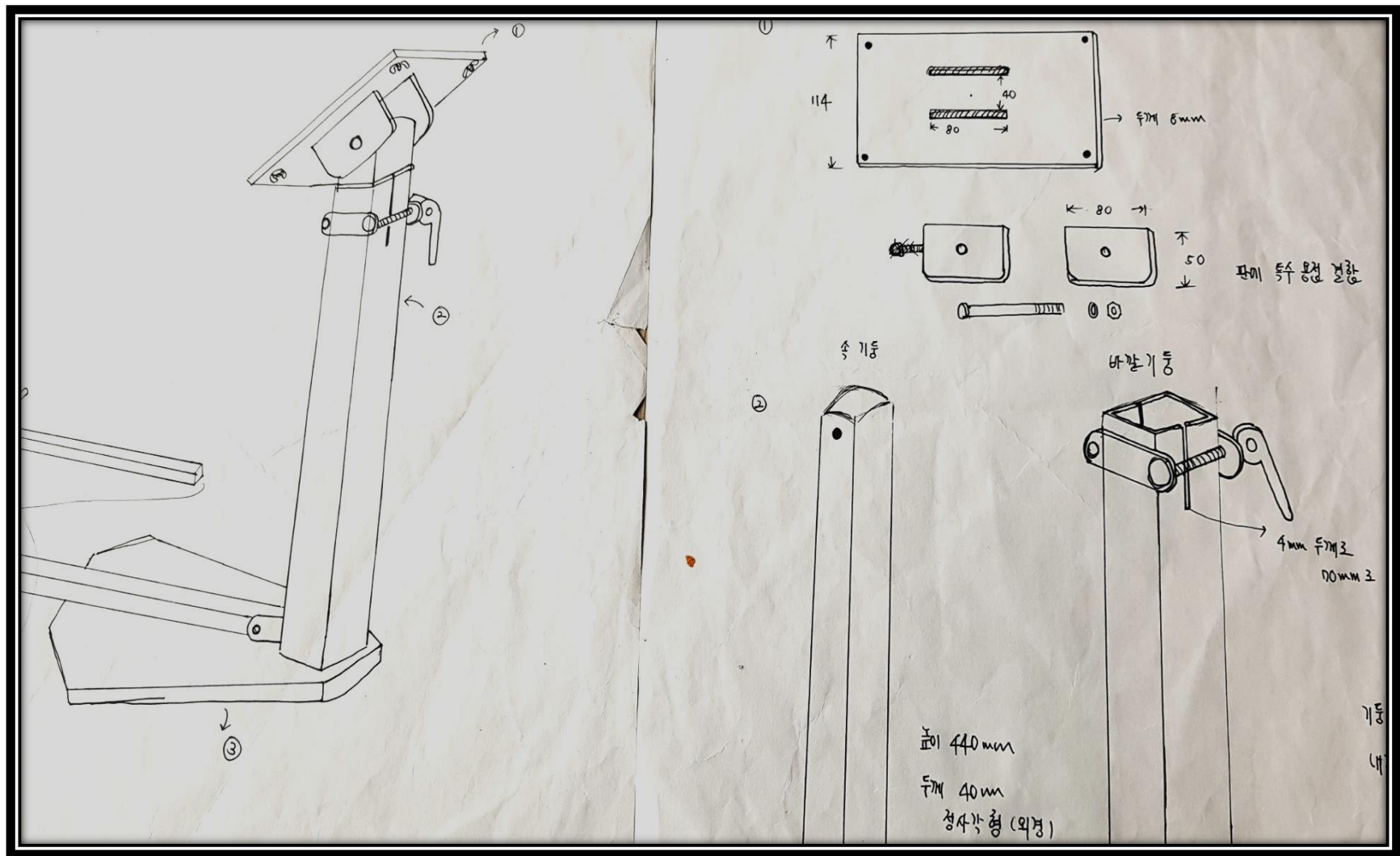
2002 Busan FESPIC



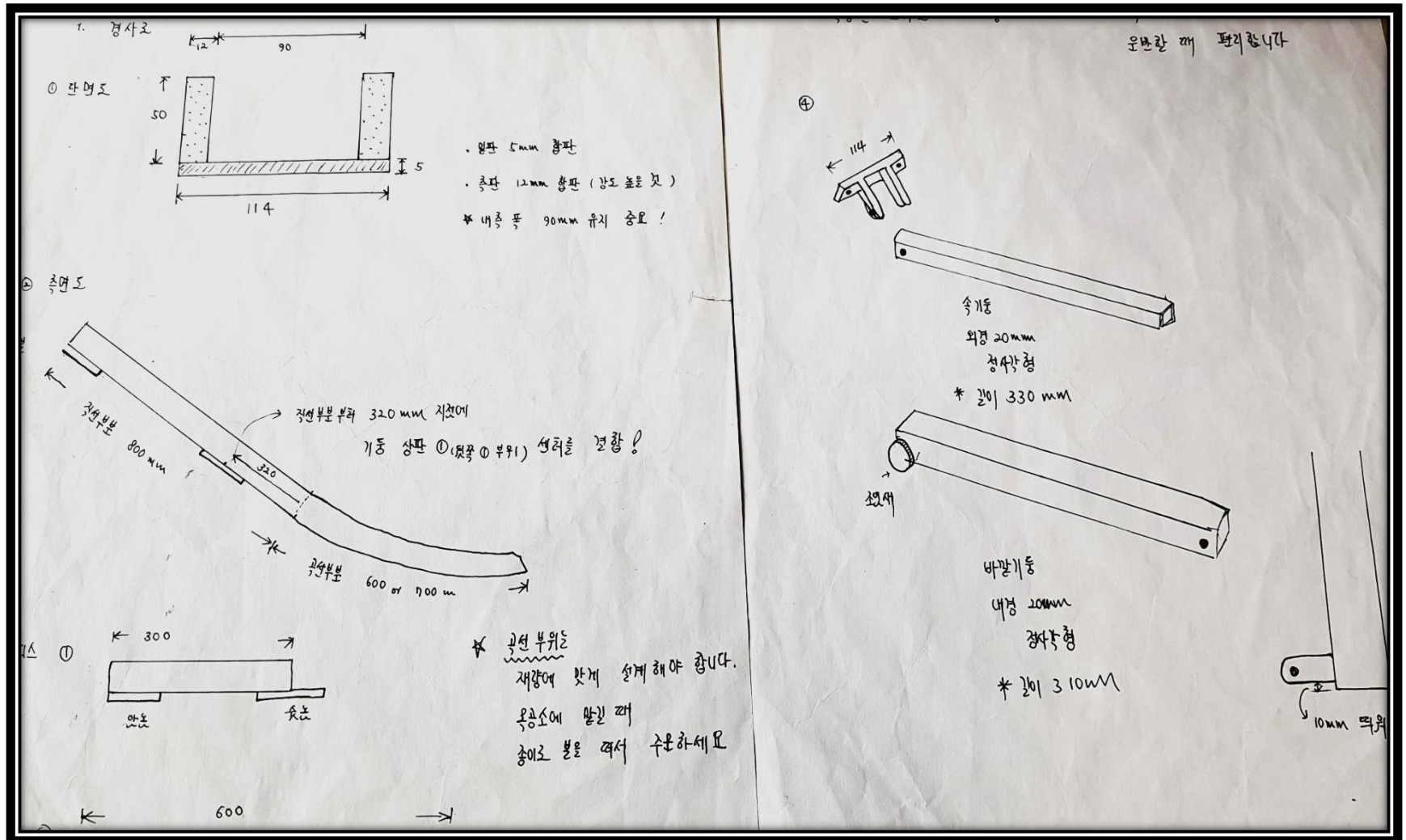
2003 Christchurch WC



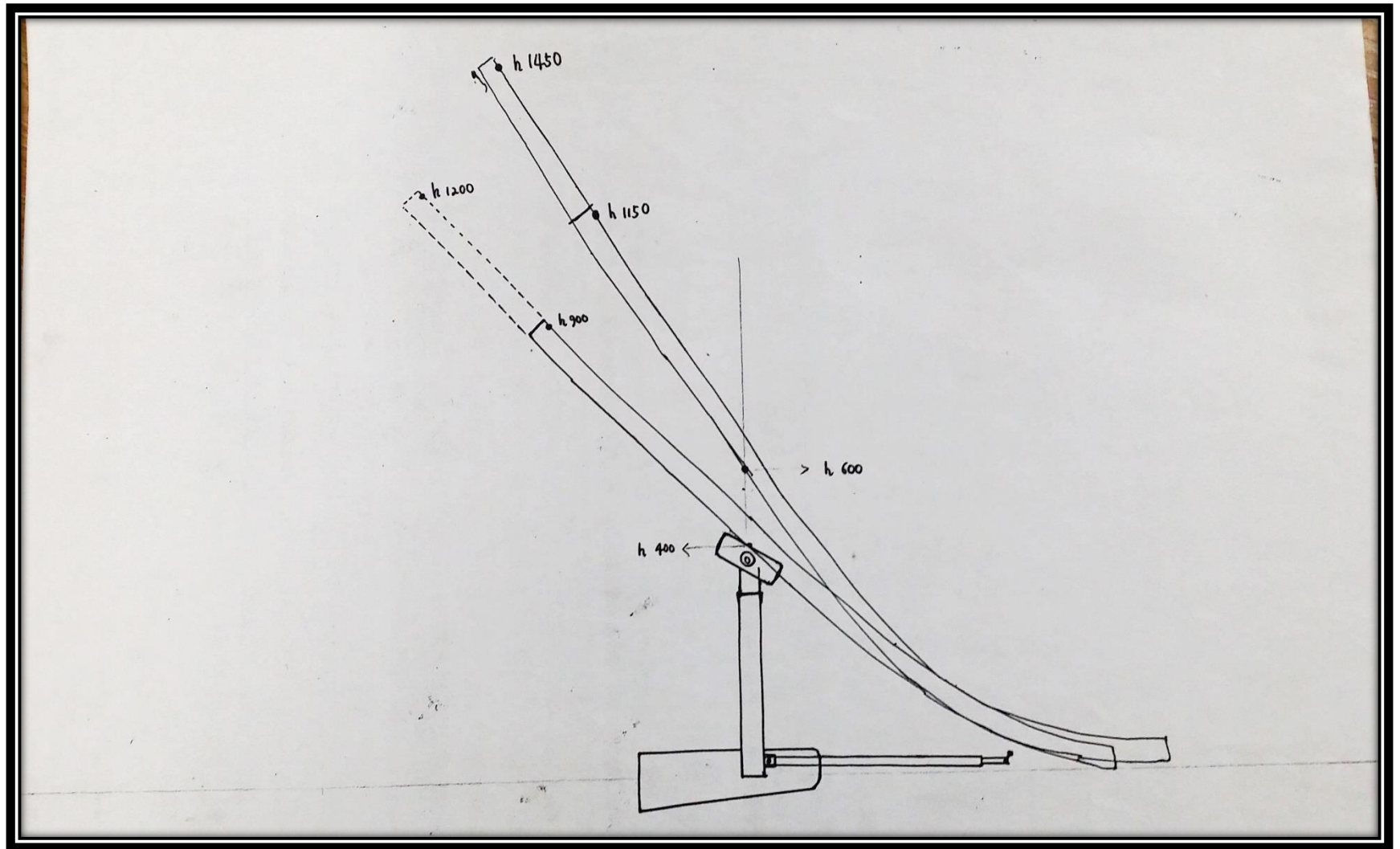
Improve Ramp



Improve Ramp



Improve Ramp



2004 Athene Paralympic



2004 Athene Paralympic



2004 Athene Paralympic



2006 Rio Worldchampions



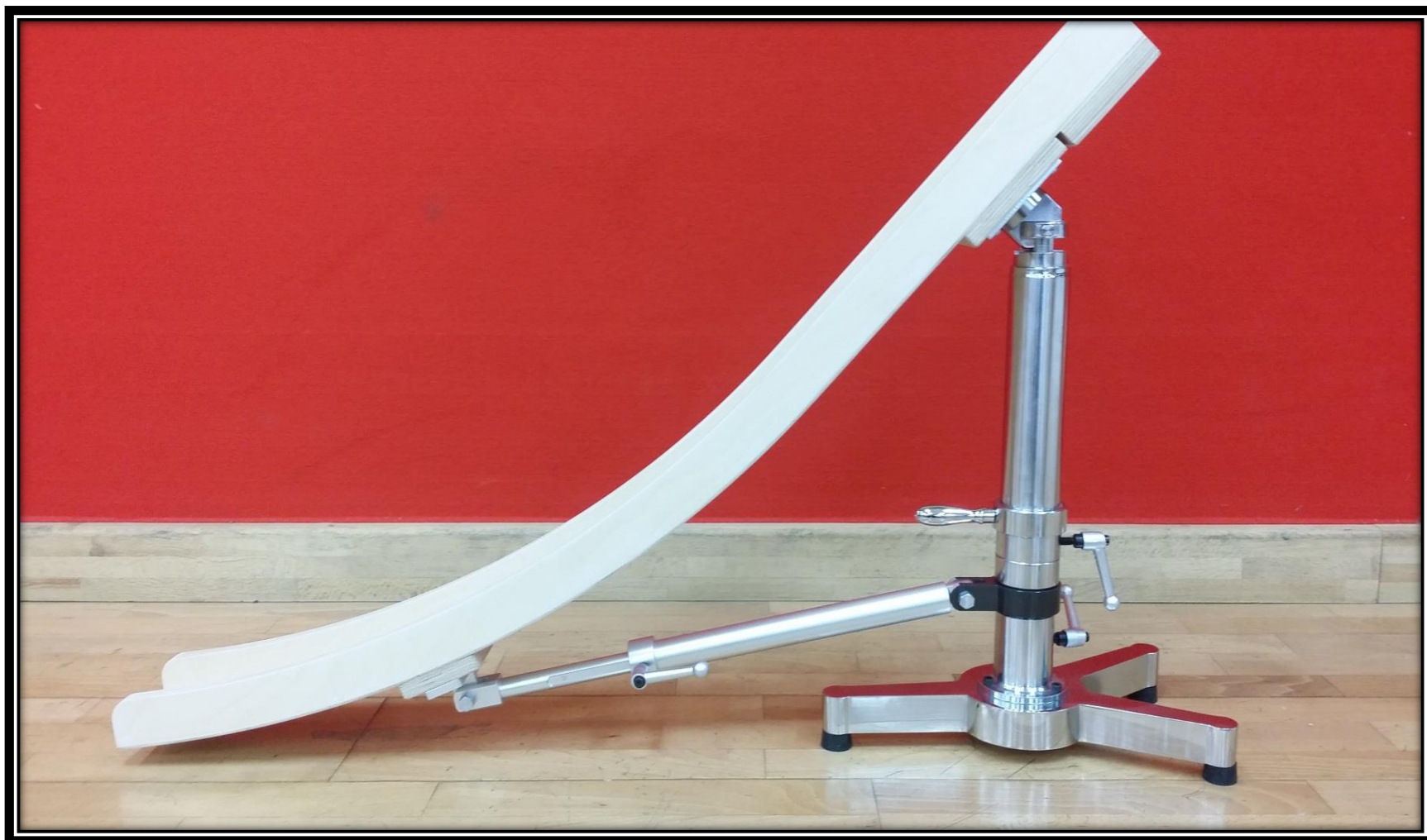
2008 Beijing Paralympic



2009 ~ 2013



2014 New version



Grigoris Polychronidis(GRE)



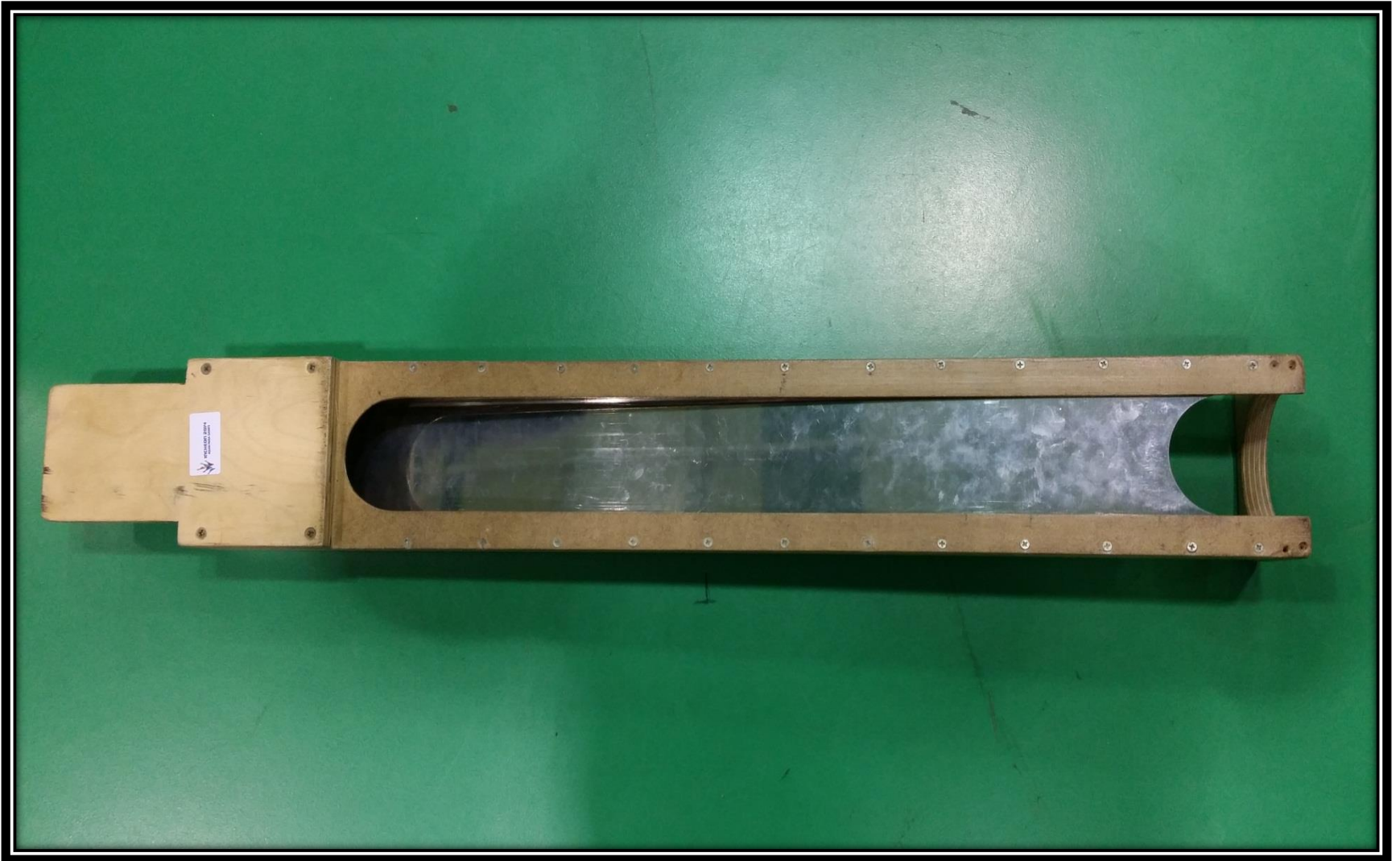
Macedo Carlos (POR)



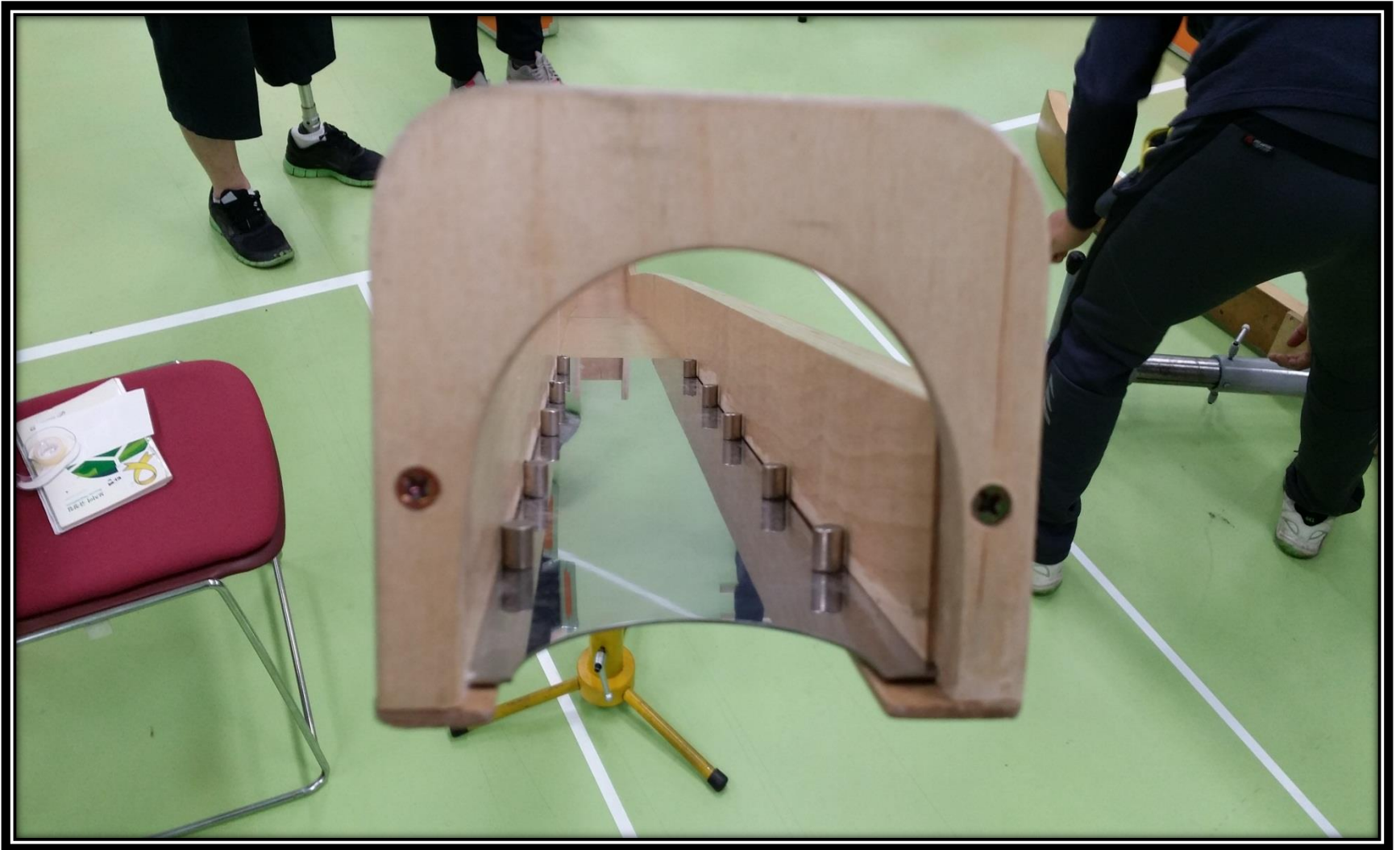
Extension Rail System



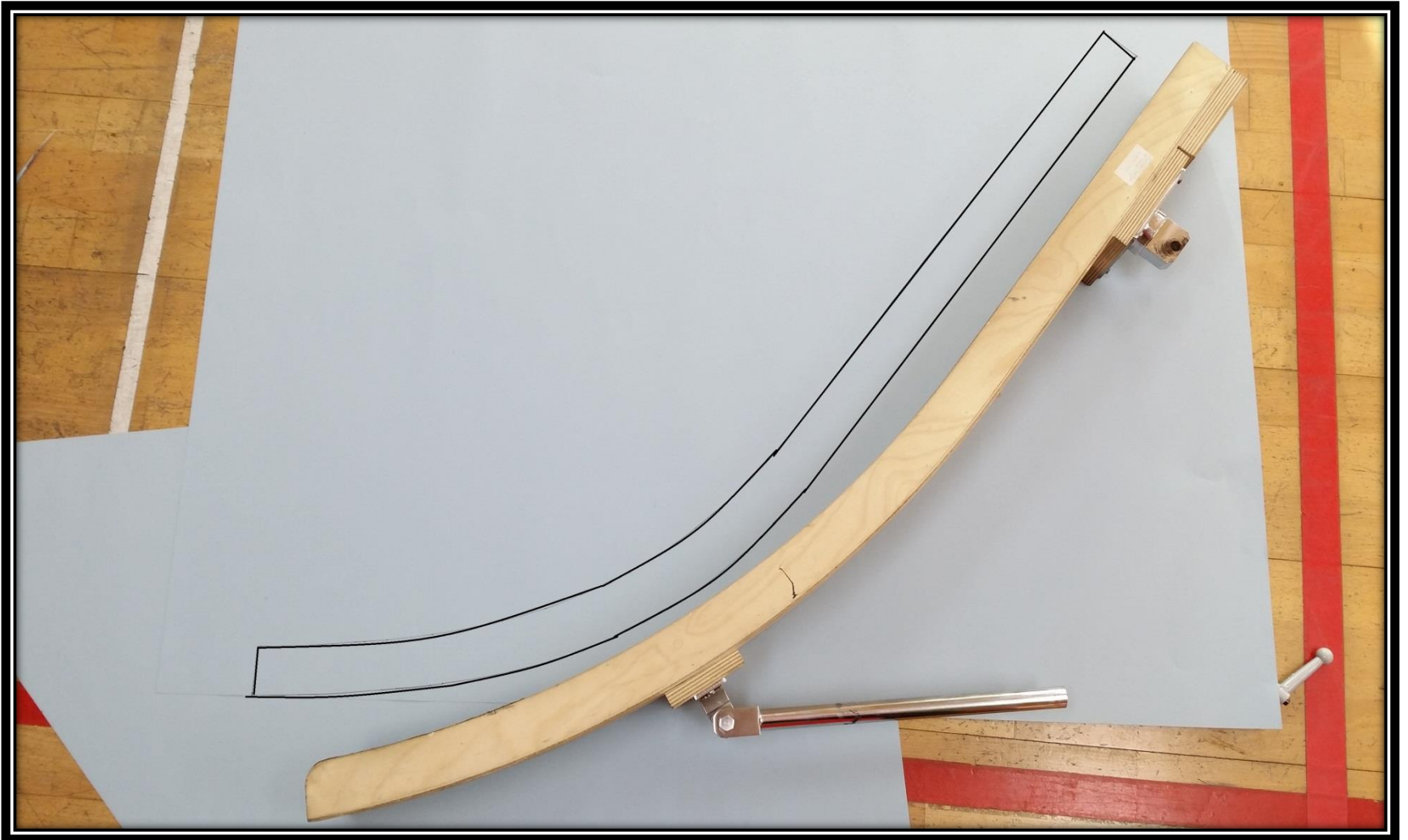
Modify the extension



Modify the extension



Modify the ramp's gradient



Singapore Boccia Workshop



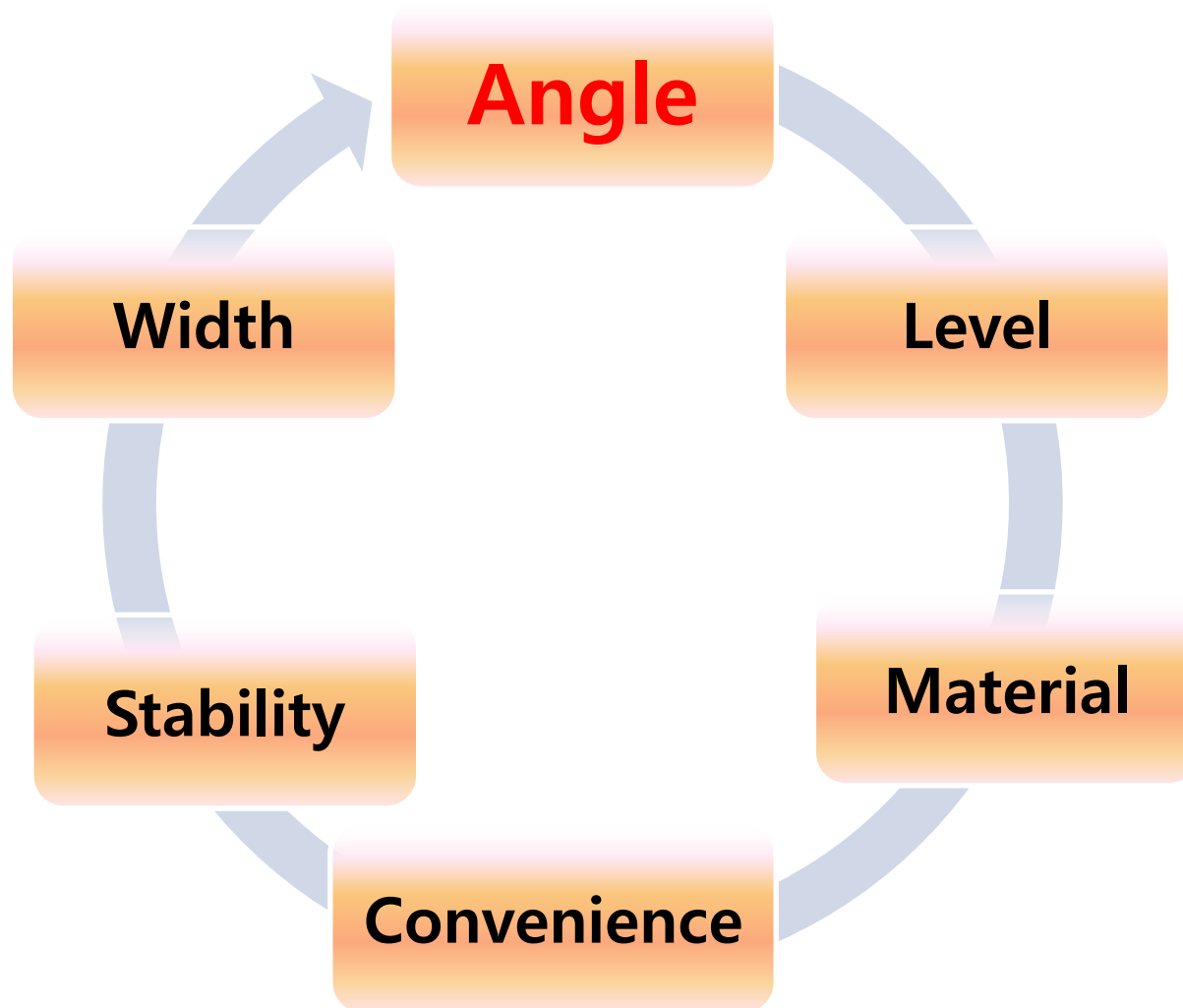
New ramp Gradient



Comparison with old ramp



Important Factors of Ramp



Ramp Angle

Slow

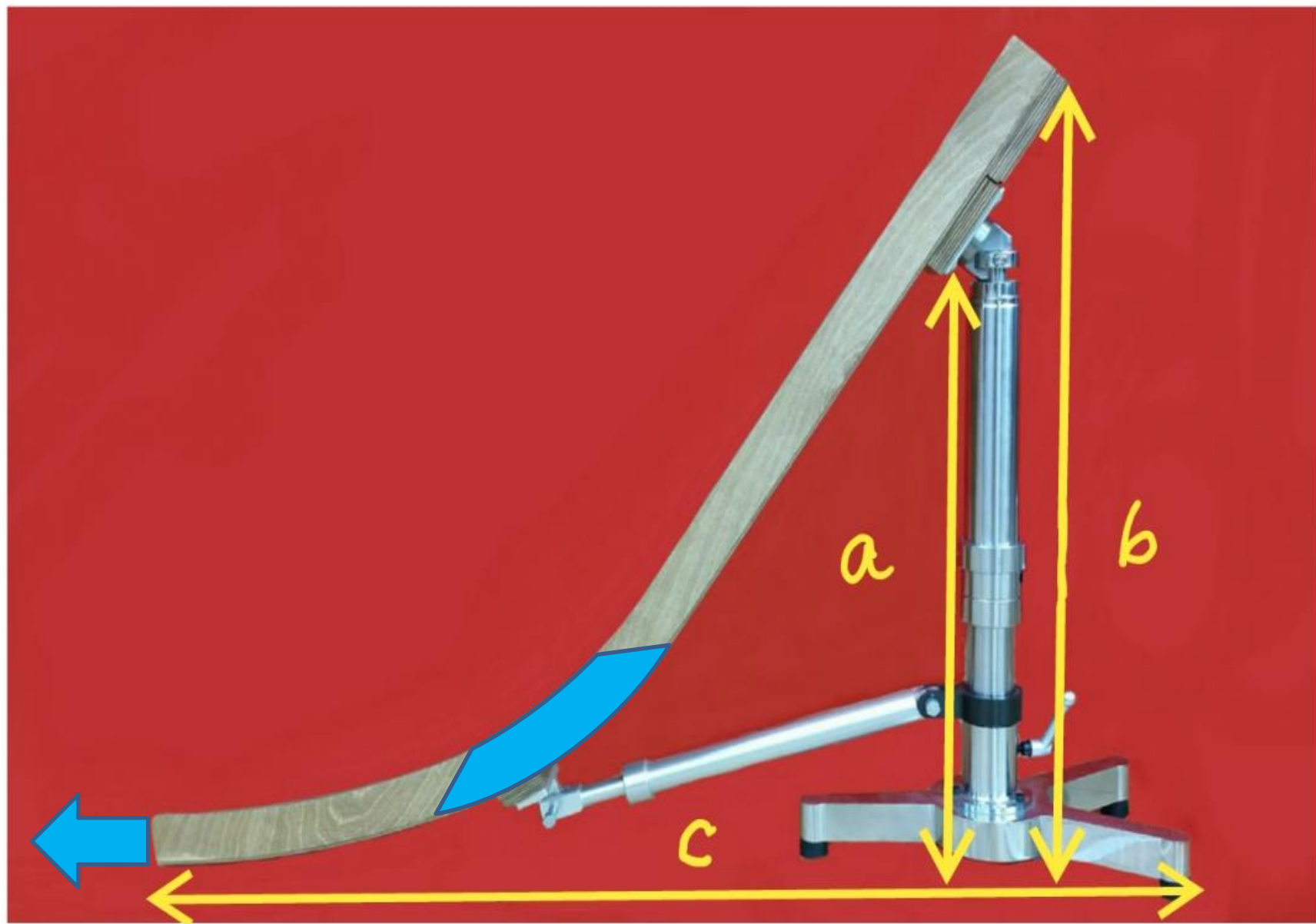
- Weak Power

Steep

- Inaccuracy

Proper

- Power and Accuracy



Ramp Inner Width

Narrow

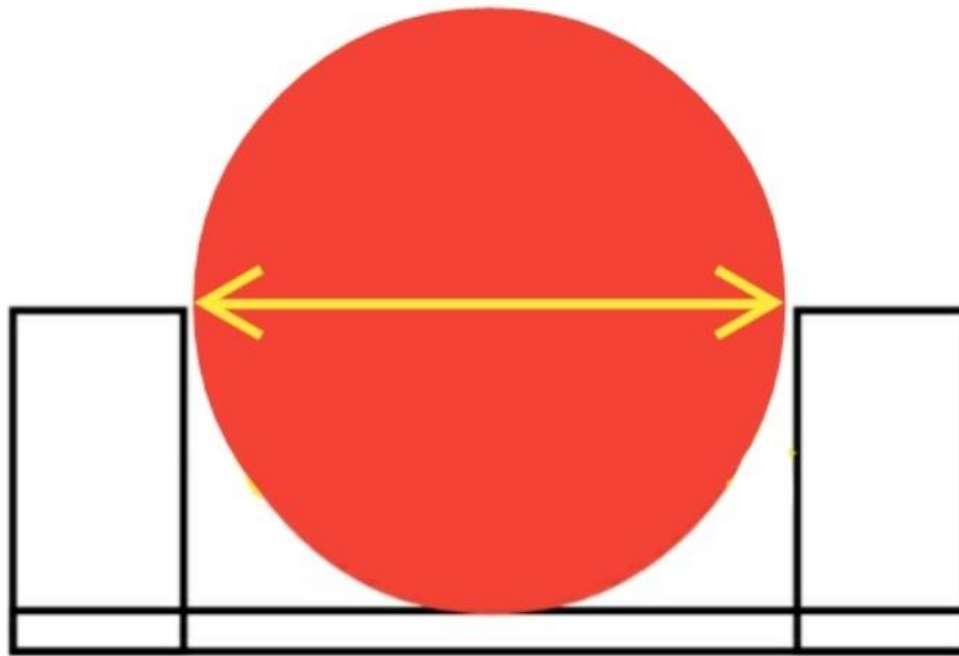
- Weak Power

Wide

- Inaccuracy

Proper

- Power and Accuracy

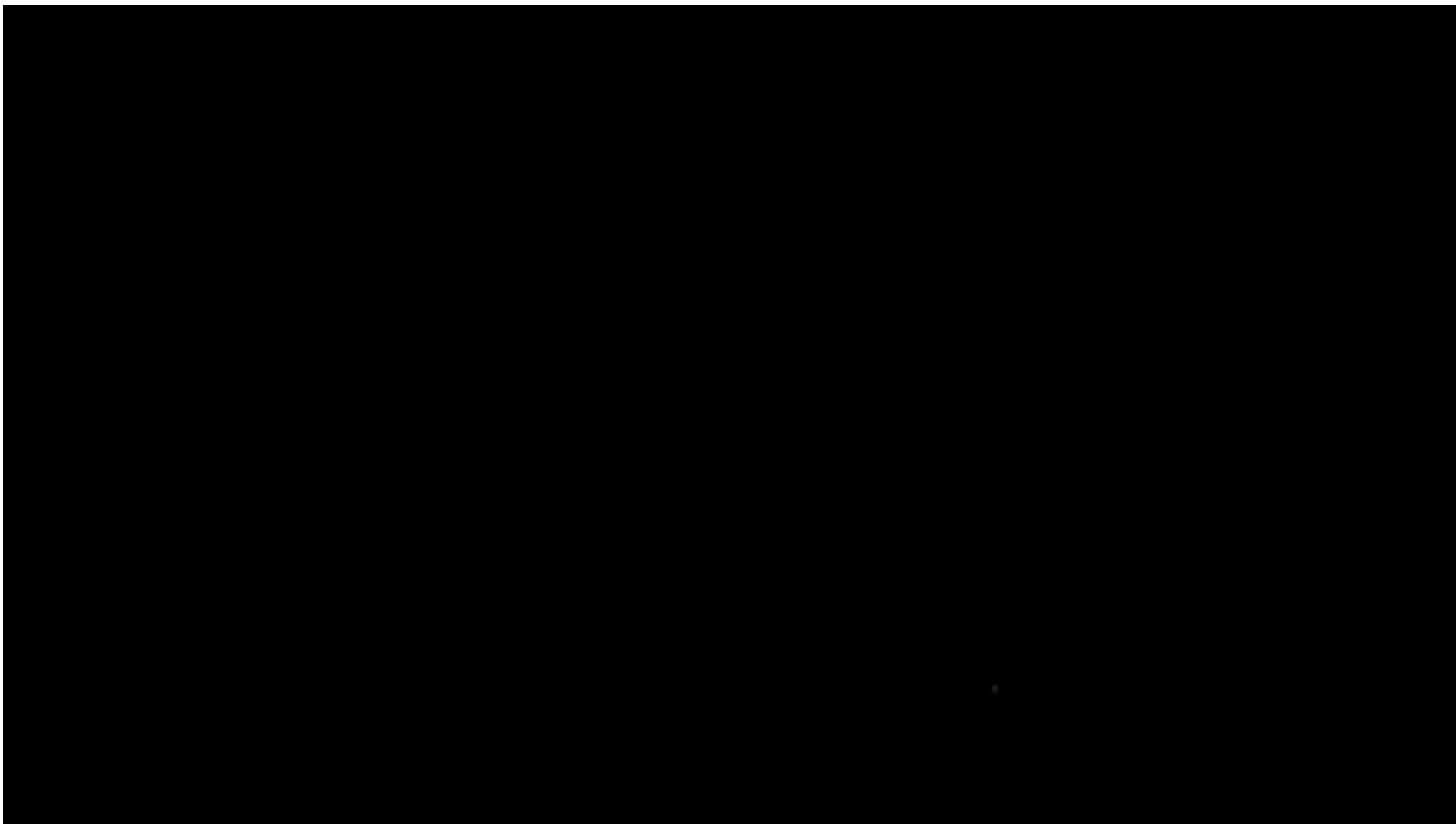


Ball circumference : 262 ~ 278 mm

Ball Diameter : 83.4 ~ 88.5 mm



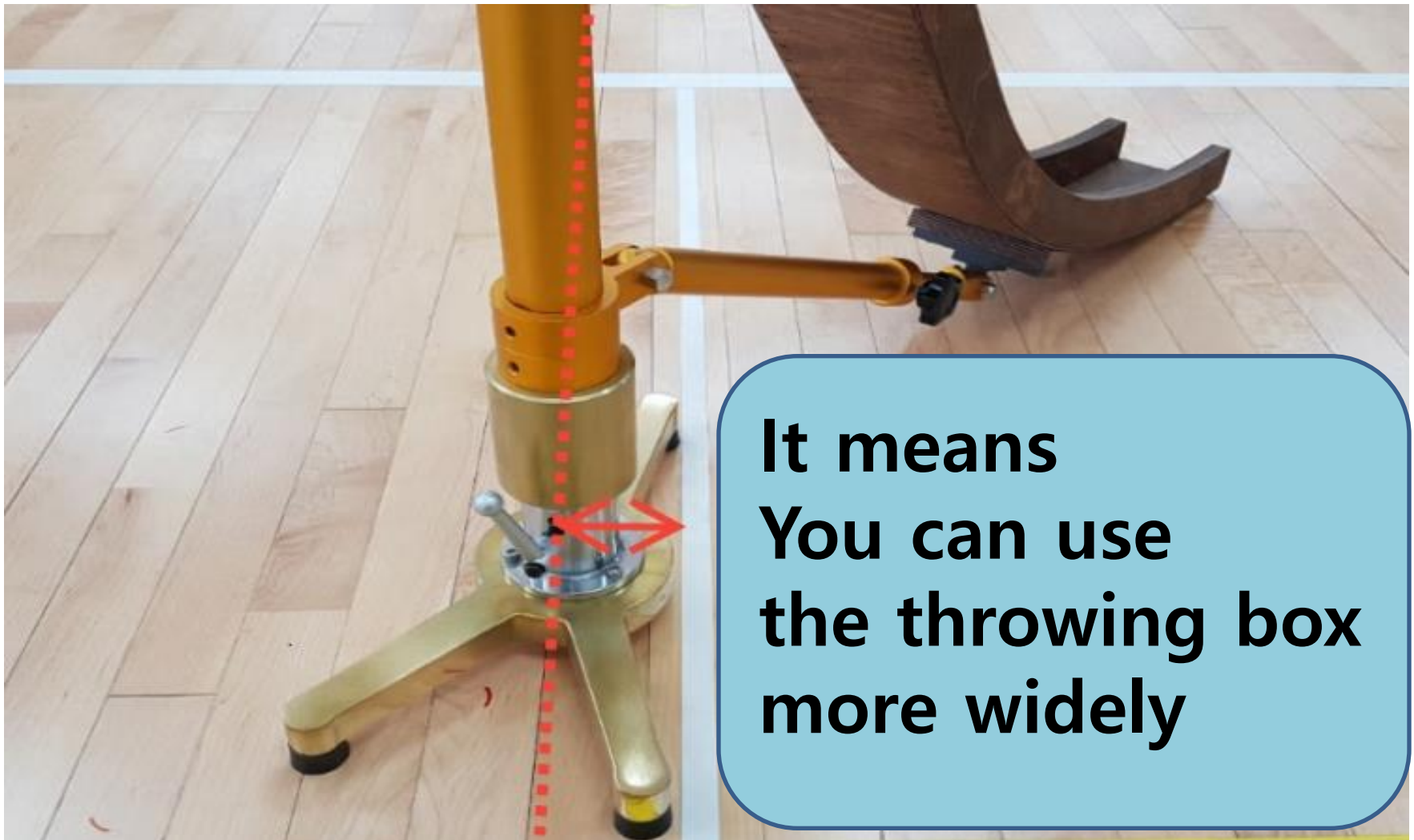
Importance of Ramp Angle



Ramp Level

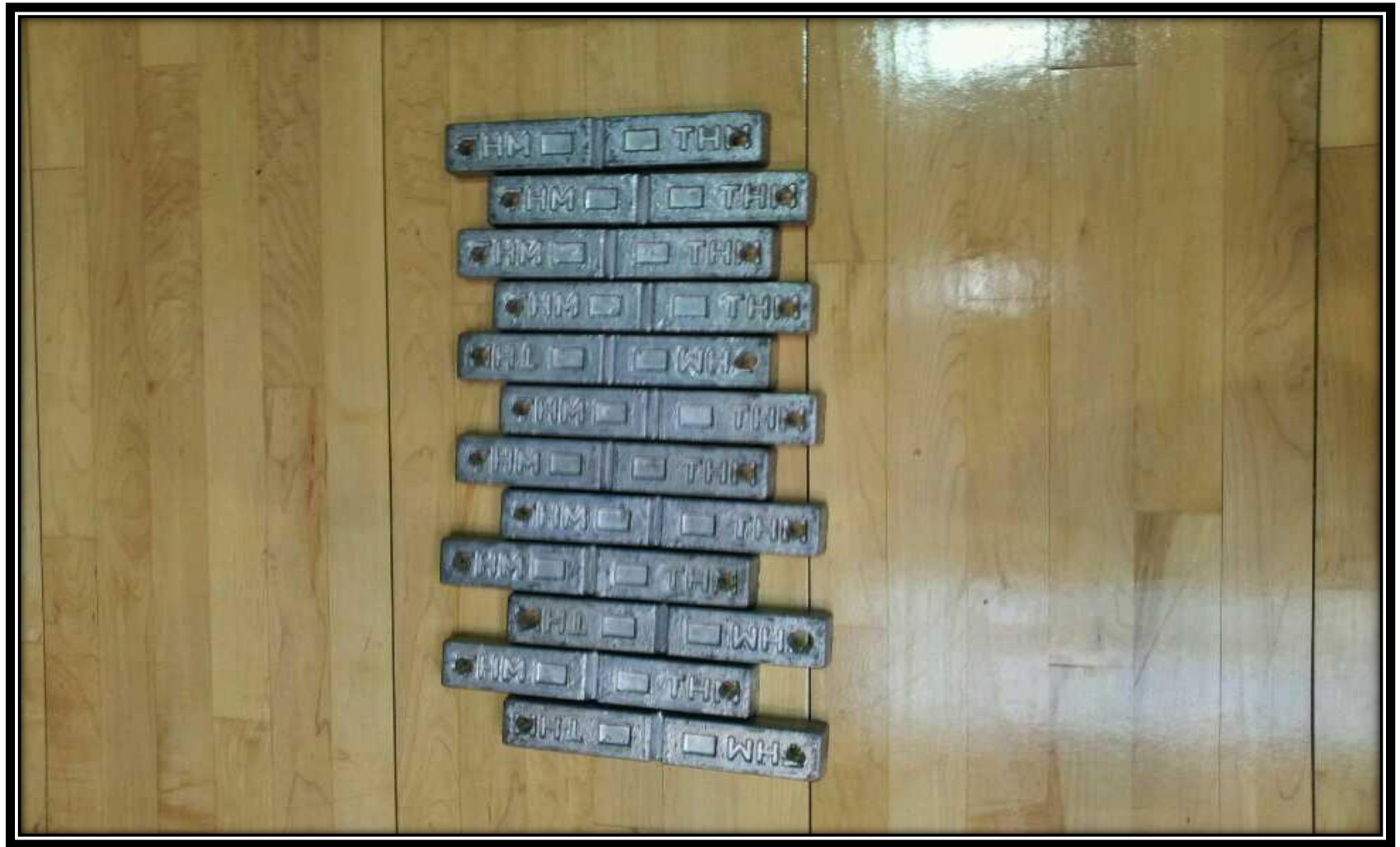


Advantage of a Narrow Base



**It means
You can use
the throwing box
more widely**

Wheelchair Stabilization Device



Wheelchair Stabilization Device



Wheelchair Stabilization Device



BC3 Head Pointer



BC3 Head Pointer



BC3 Head Pointer



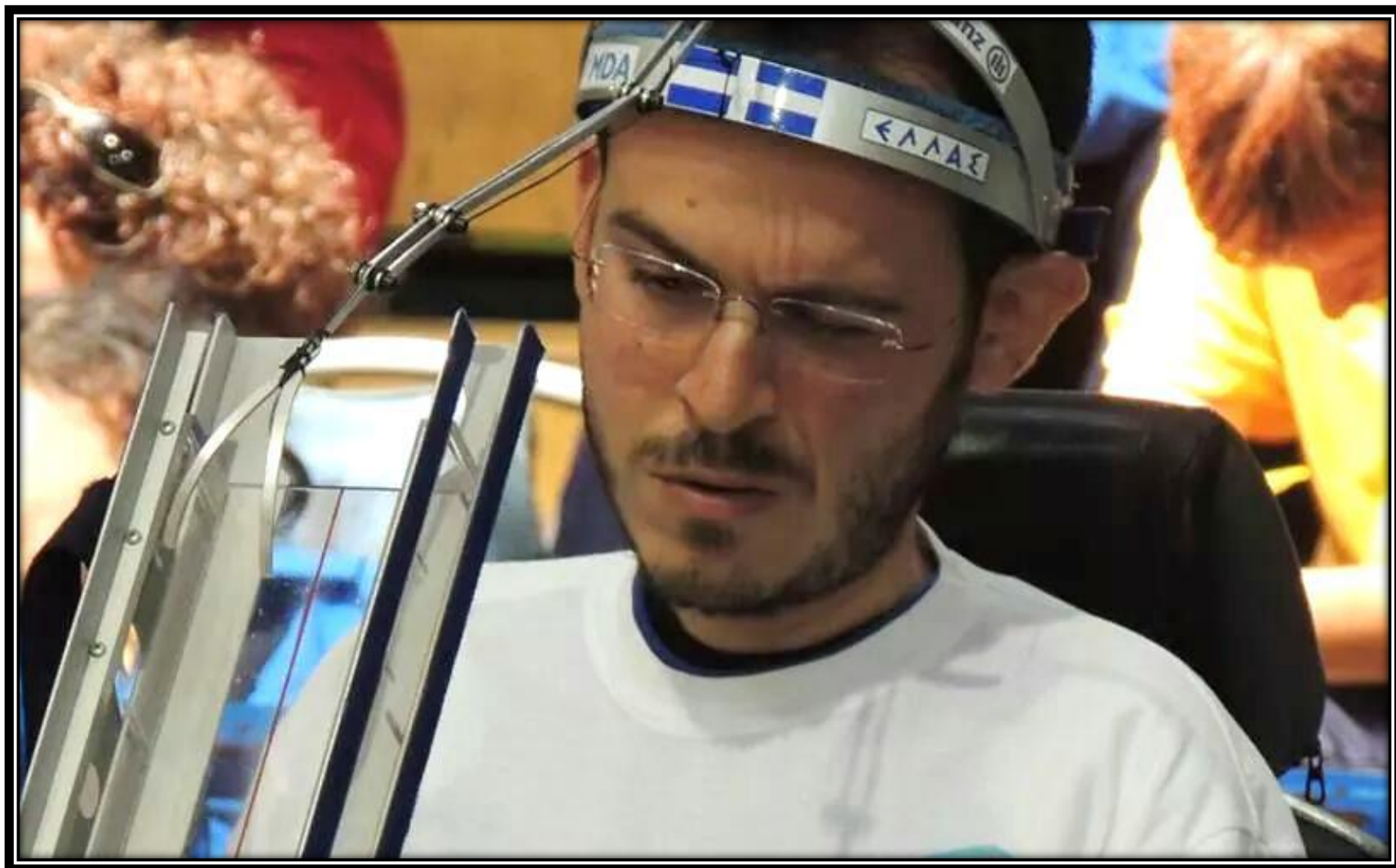
BC3 Head Pointer



BC3 Head Pointer



BC3 Head Pointer



BC3 Head Pointer





BC3 Assistant Emergency Tools



BC3 Assistant Emergency Tools



Korean Proverb

**“Rice grows up listening the
sound of a peasant footstep”**

Fate of Sisyphus and Fate of BC3 assistant

