An Analysis of Hurling

Does training meet the demands of the game?

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Does Training Meet the Demands of the Game?

- Movement Analysis

- Time Analysis

- Skill Analysis

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Principles of Training

- Adaptation
- Overload
- Specificity
- Individual Difference
- Rest & Recovery
- Reversibility/Detraining
- Interference
- Variety

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Specificity

States that the body will adapt to the stimulus imposed in a very specific manner

M - Muscles involved

E – Energy systems

R – Range of movement completed

C – Contraction type

S – Skill & speed

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"Does your training meet the demands of the game?"

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Hurling

What does the game demand of our players?

Need to know:

Ingredients needed

Time

How much of each?

Who we are cooking for

Now Think of your own player at home in your club

- What ingredients does he require to perform?

- How much of each ingredient does he need

- How long in your training session will he spend developing each?

- Do you cater for individual differences

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Hurlers Ingredients

OTú Coaching Model

Questions

- How fit do our players have to be to play hurling?

- If we don't know the demands of the game – then how do we know how much is enough??
  - Yet the 1st component to be blamed when we lose – fitness!!

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The purpose of this study is to investigate the various time and motion specific demands made on inter-county hurling players during a championship match

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Be Specific to Hurling!!

Time and Motion Analysis:
- Total distance covered
- Time spent in each speed zone
- Number of accelerations & decelerations
- Number of possessions per player
- Time in possession

(Young, D. 2007)

AVENIR
Digital Analysis

SportsCode - Track Performance
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Method

- Subjects taken from 2006 All-Ireland Semi & Final
  - (Back, Midfielders & Forward)
- Subjects were videoed for the total duration of the game.
- Full Matches were obtained from TG4
- Data was transferred to SportsCode to be analysed
  - Match activities were coded
  - Work to rest ratios
  - Skill analysis
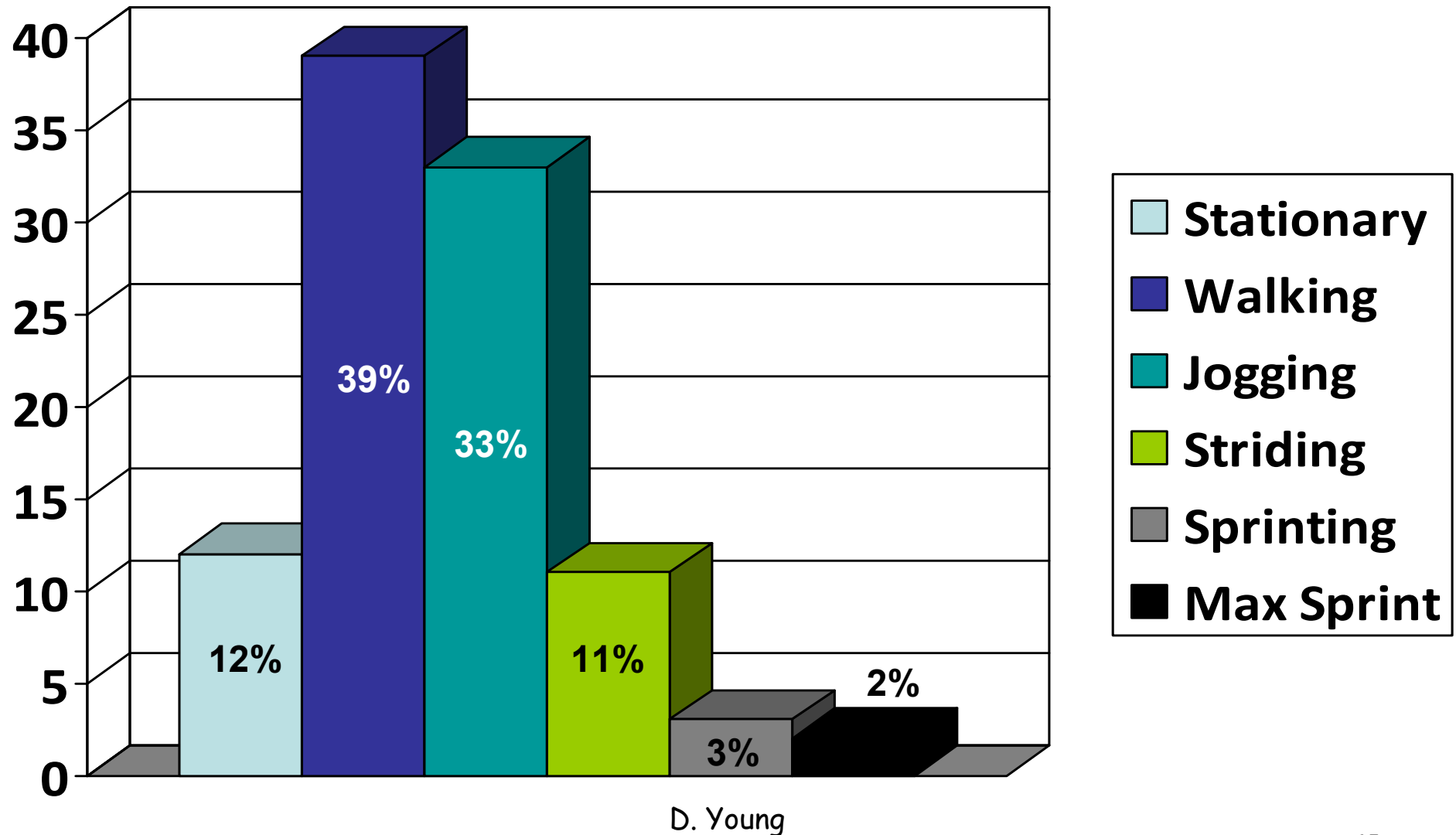 - Amount of possessions & time in possession

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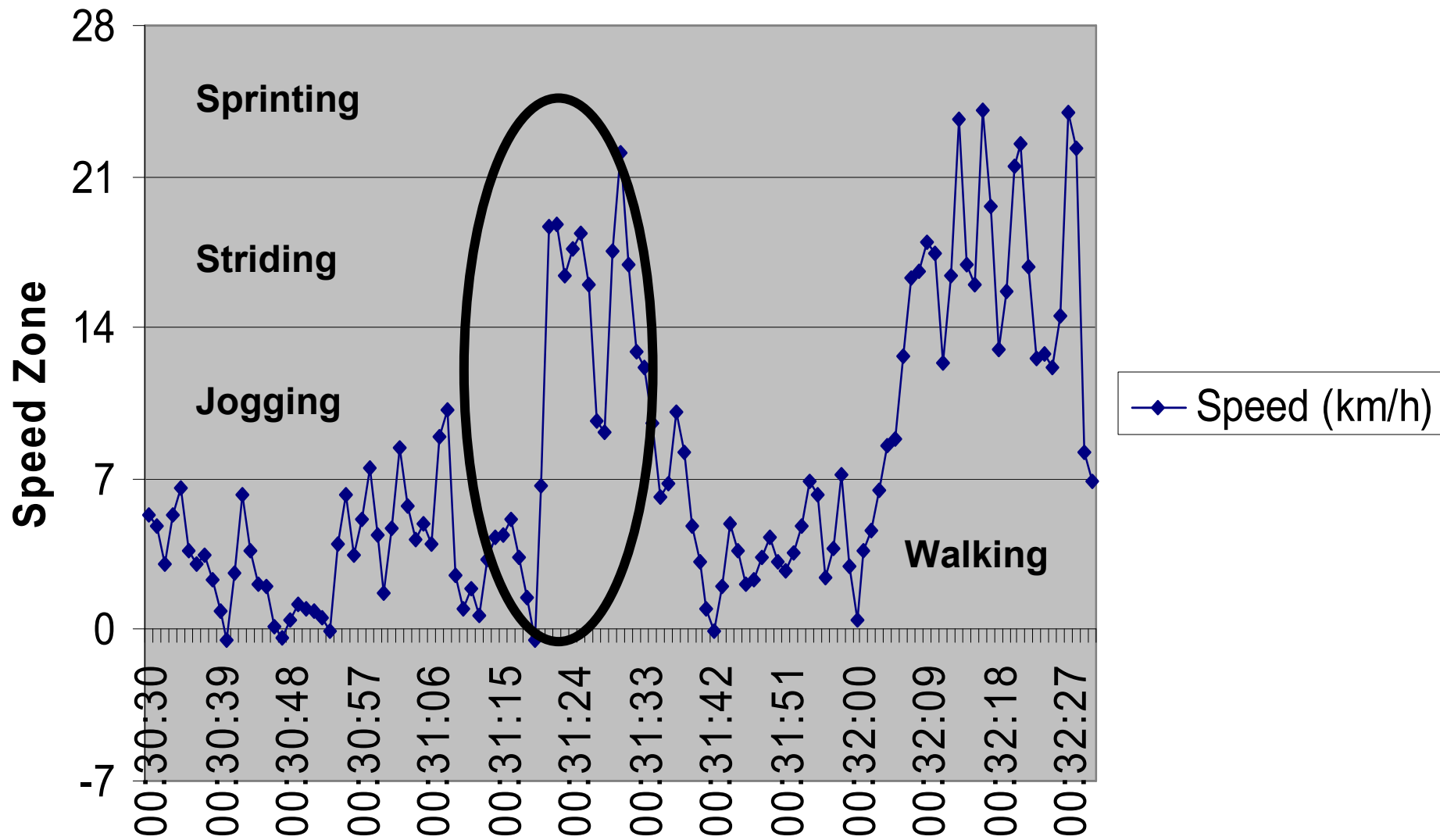# Results

Average Total Distance covered per player

9.99 Km

No Significant difference between positions

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Time spent in each speed zone:

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Accelerations Between Speed Zones

Accelerations	Analysed 2 mins x 35 mins
Walk to Jog	245
Jog to Stride	175
Stride to Sprint	105
Sprint to Max Sprint	18
Walk to Stride	49
Jog to Sprint	7
Total	**598**

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Decelerations between Speed Zones

Decelerations	Average 2 mins x 35 mins
Jog to Walk	315
Stride to Jog	181
Sprint to Stride	99
Max Sprint to Sprint	14
Stride to Walk	29
Sprint to Jog	23
Max Sprint to Stride	5
Total	**666**

2 Minute Speed Analysis

- The player is constantly being challenged to accelerate and decelerate from various positions

- Players are not required to run at the same pace for any length of time.

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2 Minute Speed Analysis

- Players gained possession while standing, walking, jogging and striding.
- None of the six players received the ball while sprinting

- Further analysis shows certain activities;
    - Crouch into position to clash and perform a skill,
    - ability to move sideways,
    - change direction and to turn 180 degrees,
    - Walk backwards, skip sideways & backwards and an ability to stop & start.

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Movement Analysis
All-Ireland Club Semi Final

Direction Change

- Turn to left   10.6
- Turn to right   12.2
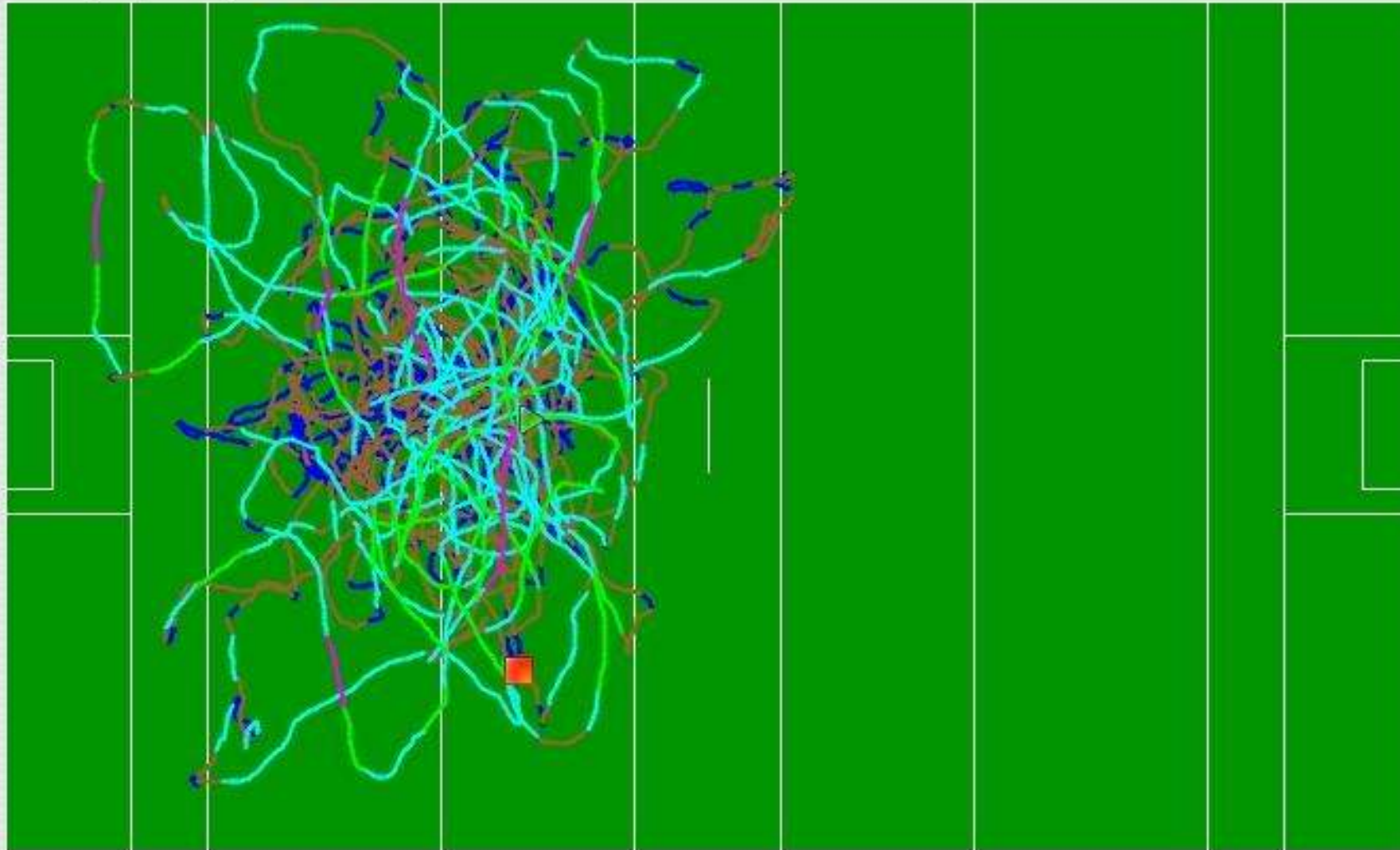- Backwards   7.4

- Total   30.2

Accelerations (in steps)

- < 5   8
- 5-10   3
- 10-15   2
- 15-20   1
- 20+   1

- Total   15

30 changes of direction in 5 min

70% of Accelerations under 10 steps (i.e. <15m approx)

(Young, D. 2002)

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Movement Patterns Performed by the Players

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Centre Back 1ˢᵗ half movement analysis

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Speed Zones			Time (h:m:s)	
Stationary:		8.5%	Game:	1:15:11
Walk:	■	44.9%	Selected:	0:36:23
Jog:	■	32.9%		
Stride:	▮	11.1%		
Sprint:	ǀ	2.3%	**Distance (km)**	
Max:	ǀ	0.4%	Game:	9.699
			Selected:	4.669

Centre Back 2nd half movement analysis

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Speed Zones			Time (h:m:s)	
Stationary:		7.0%	Game:	1:15:11
Walk:	■	45.9%	Selected:	0:38:46
Jog:	■	35.5%		
Stride:	▮	8.4%		
Sprint:	▮	2.0%	**Distance (km)**	
Max:		1.2%	Game:	9.699
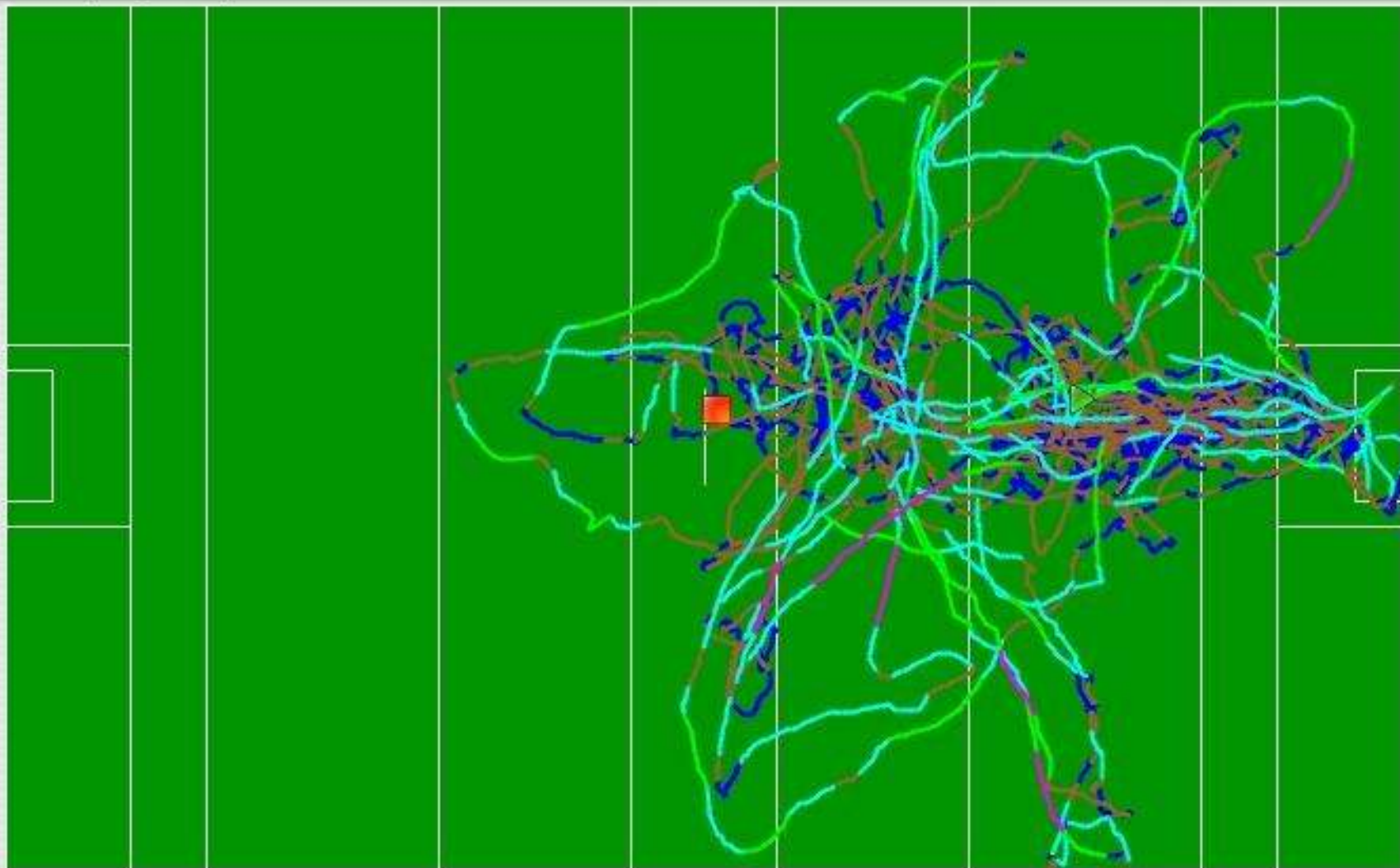
Speed Zones		
Stationary:		9.5%
Walk:		54.5%
Jog:		25.7%
Stride:		7.9%
Sprint:		2.0%
Max:		0.3%

Time (h:m:s)	
Game:	1:15:15
Selected:	0:37:23

Distance (km)
Game: 8.675

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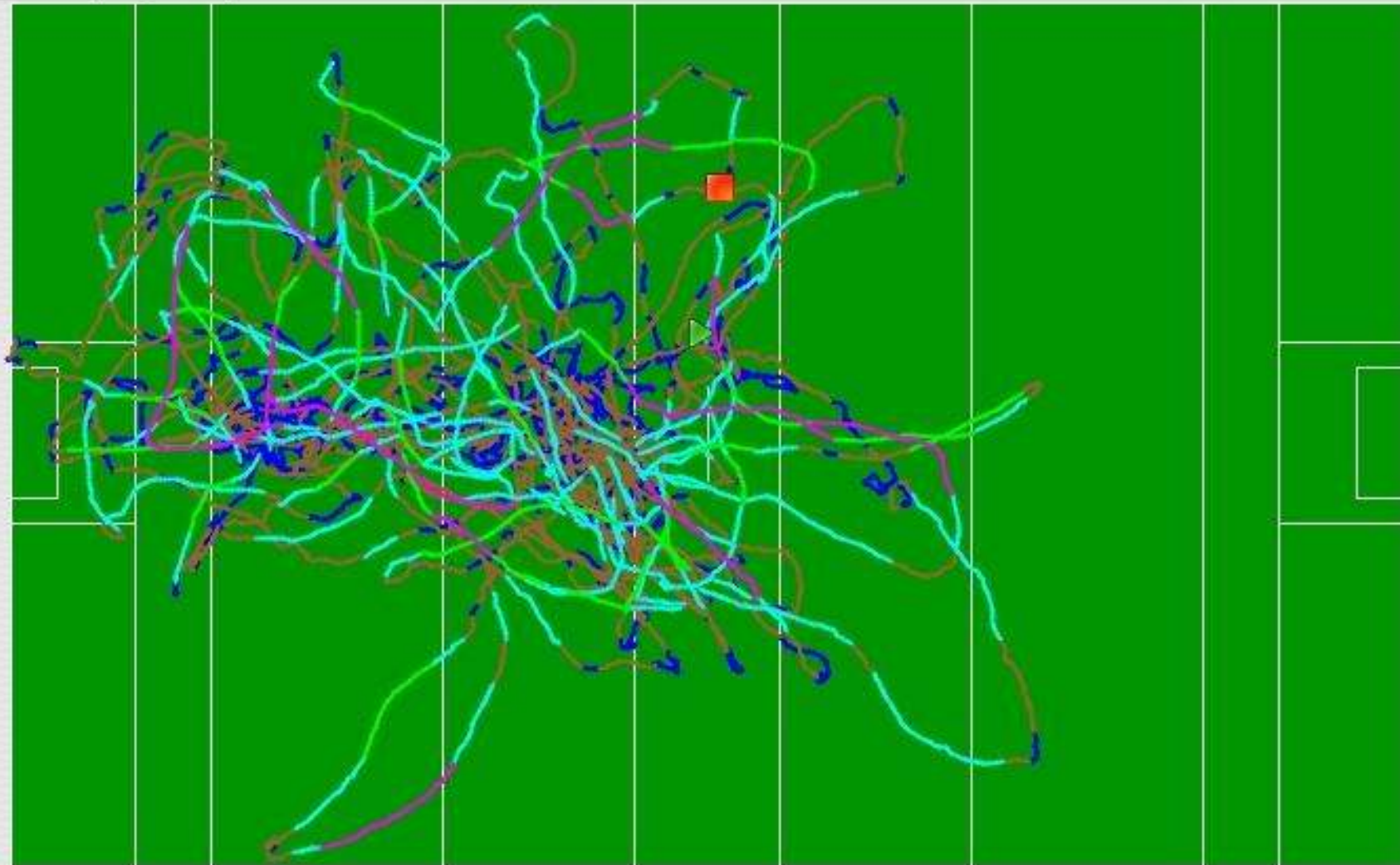
Speed Zones			Time (h:m:s)
Stationary:	▌	12.1%	Game: 1:15:15
Walk:	🟦	45.6%	Selected: 0:37:50
Jog:	🟫	30.3%	
Stride:	🟦	9.0%	
Sprint:		1.8%	Distance (km)
Max:		1.1%	Game: 8.675
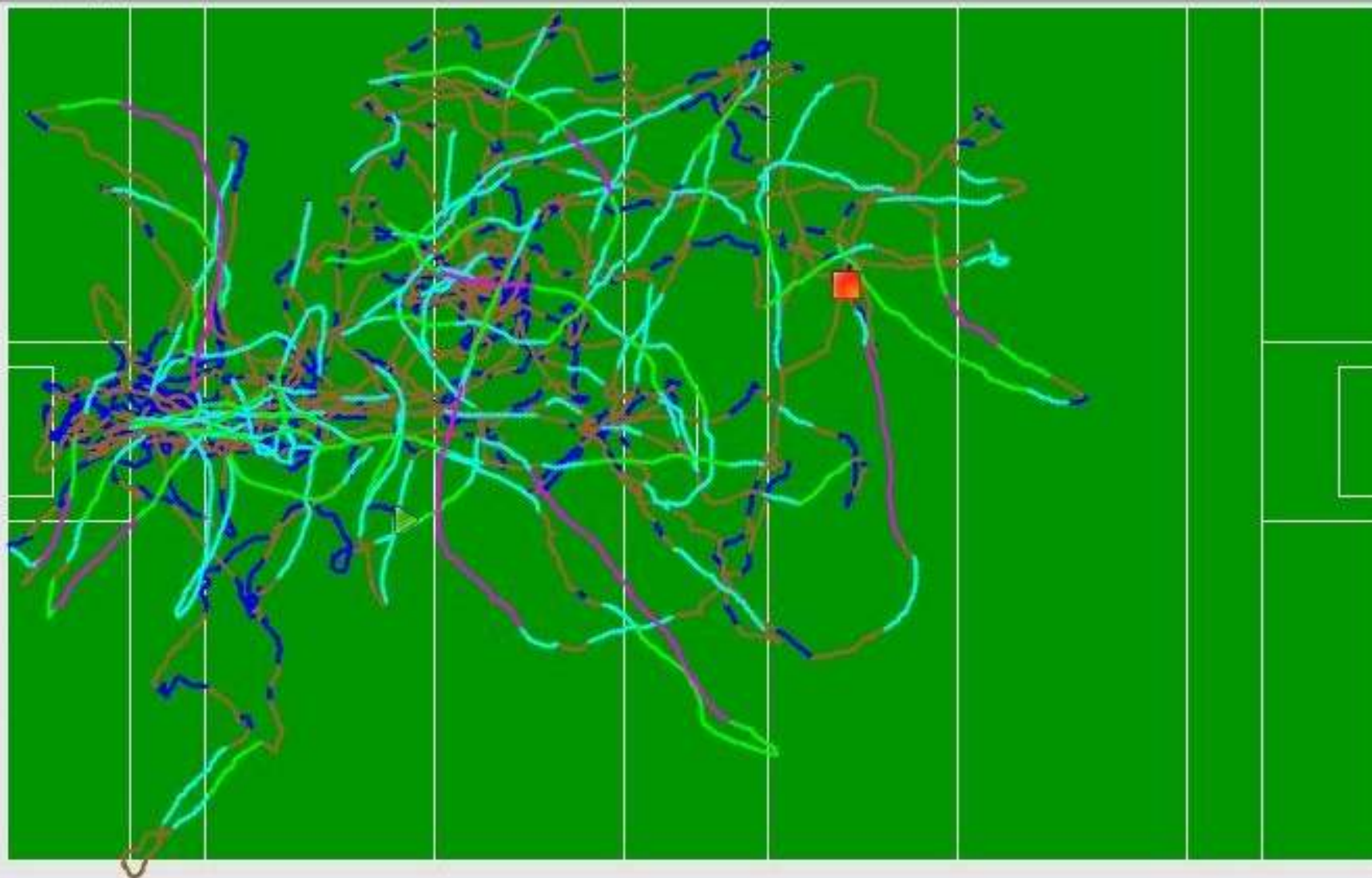
Speed Zones		
Stationary:		9.8%
Walk:		46.6%
Jog:		32.3%
Stride:		8.0%
Sprint:		2.4%
Max:		0.8%

Time (h:m:s)	
Game:	1:16:15
Selected:	0:36:11

Distance (km)	
Game:	10.322

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Speed Zones			Time (h:m:s)	
Stationary:		9.1%	Game:	1:16:15
Walk:		36.2%	Selected:	0:40:02
Jog:		36.8%		
Stride:		12.3%		
Sprint:		4.0%	Distance (km)	
Max:		1.5%	Game:	10.322

Straight Line Speed vs Agility

purpose of the study was to determine if straight sprint training transferred to agility performance

- Subjects tested on
  - a 30-m straight sprint and
  - 6 agility tests with 2-5 changes of direction at various angles.

2 training sessions per week for 6 weeks
  - 20-40-m straight sprints
  - 20-40-m change-of-direction sprints

D. Young   (Young et al 2001)

Results

- Speed training group sig improved in straight sprinting speed but limited gains in the agility tests.
  - Generally, the more complex the agility task, the less the transfer from the speed training to the agility task.

- Agility group had sig improvements in the change-of-direction tests ($p < 0.05$) but no sig improvement ($p > 0.05$) in straight sprint performance.

Therefore the researchers concluded that straight speed and agility training methods are specific and produce limited transfer to the other.

D. Young   (Young et al 2001)

Time Analysis

| Activity	1st Half	2nd Half	Overall
Game time	36m 54s	37m 40s	74m 34s
Ball in play time	13m 53s	17m 15s	31m 8s
Ball out of play time	23m 01s	20m 25s	43m 26s

(Young, D. 2003)

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Time Analysis

Average Amount of Phases of play = 90

Duration of each phase
– Ball in play ranged 3-103 sec

– Ball out of play, ranged 2-125 sec

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Average Time Ball In & Out of Play

20.68

30.13

■ Duration of ball in play phase

■ Duration of ball out of play phase
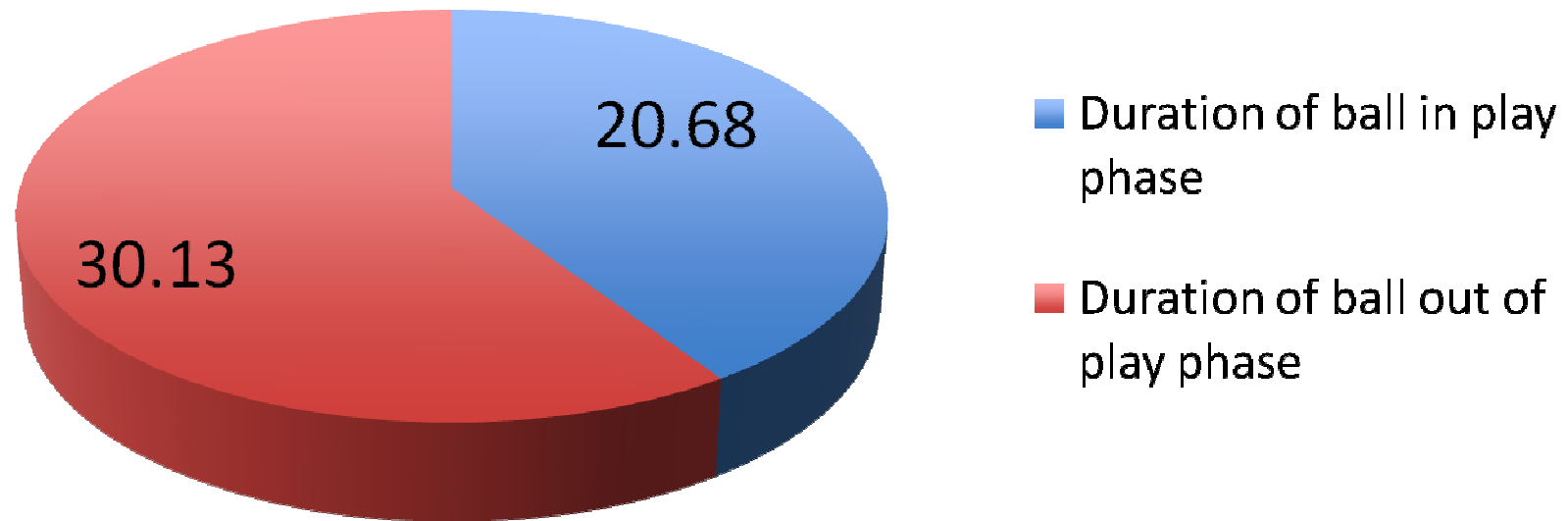
Hurling is a Stop Start Sport

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Implication for Training Sessions

Training, practice drills and conditioned games should reflect this limited ball in play time, and include rest periods aligned with the ball out of play

Skill Demands

What are the skill demands of the game?
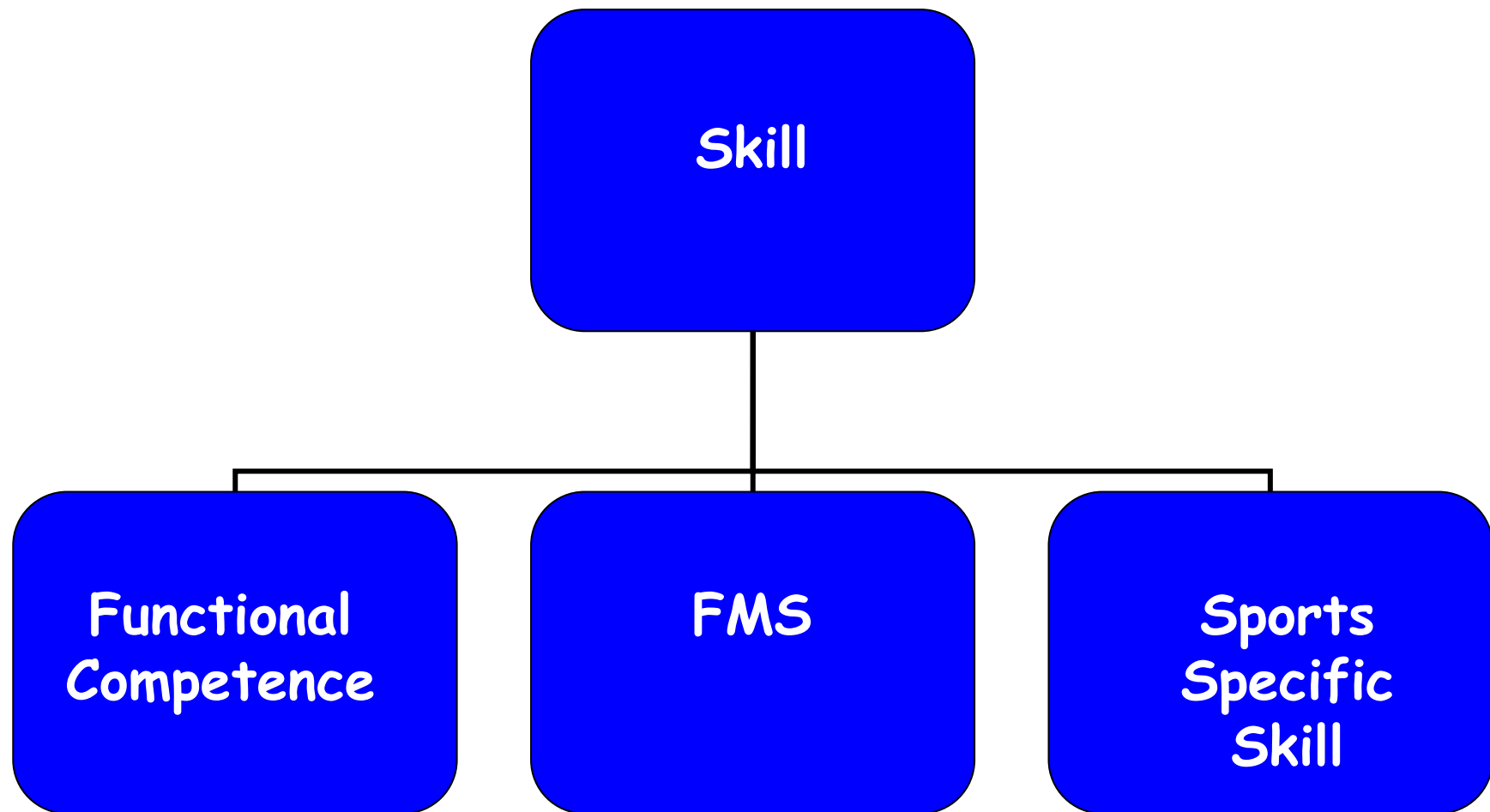
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Functional Competence

- Refers to the players level of mobility & stability about his joints
- Has the player developed imbalances?
  - Tight Muscles
  - Weak & overstretched Muscles

If so they must stretch the tight muscles & strengthen the weak muscles

Eg having the flexibility in hip flex to lunge to blockdown is vip
Stability in ankle & knee when landing after catching high ball is vip

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Fundamental Movement Skills

- Locomotion
- Balance
- Awareness
- Manipulation

(GAA FunDo pack)

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Sports Specific Skills

- Strike
- Catch
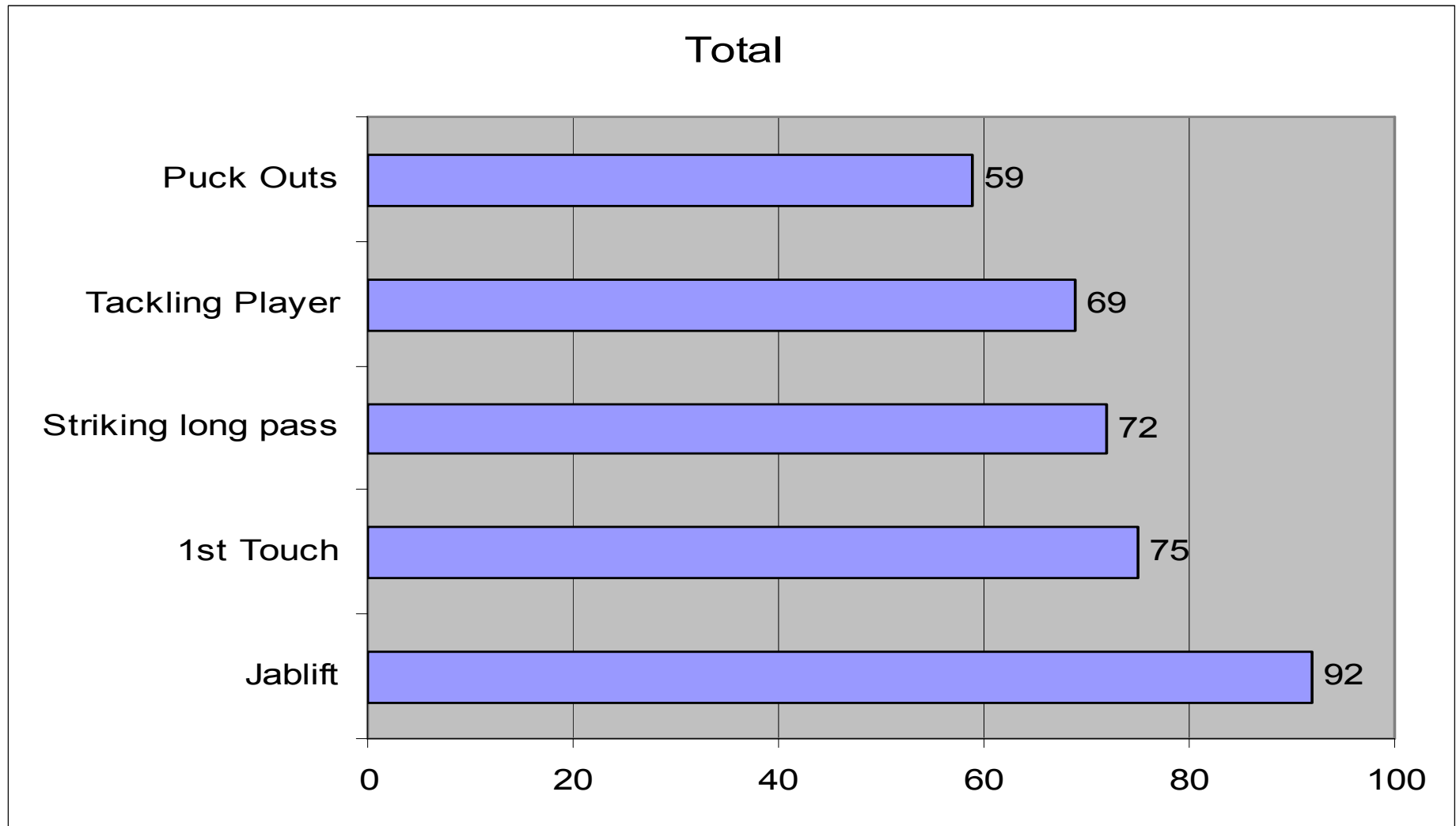- Solo
- Block
- Hook

Level of Dependency

(Cook, 2003)

Sports Skills

FMS

Functional Capacity
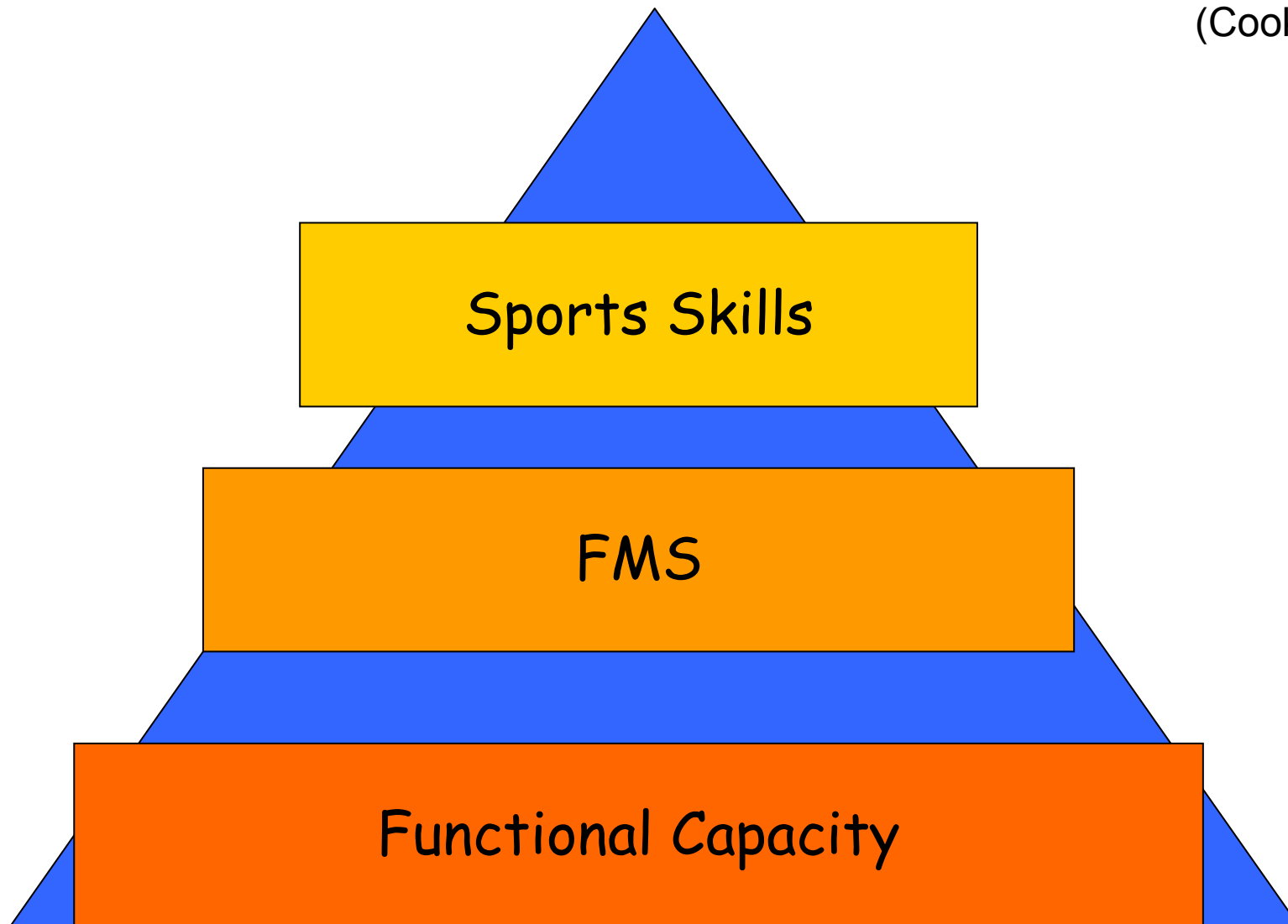
What are the most frequent skills that occur in hurling?

Name the top 5 skills

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5 Most Frequent Skills

Total

Skill	Value
Puck Outs	59
Tackling Player	69
Striking long pass	72
1st Touch	75
Jablift	92

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(www.GAASats.com)

Most Frequent Skills

	Jablift	1st Touch	Striking long pass	Tackling Player	Handpass
Running	76	48	34	45	34
Standing	16	27	38	24	19
Total	92	75	72	69	53
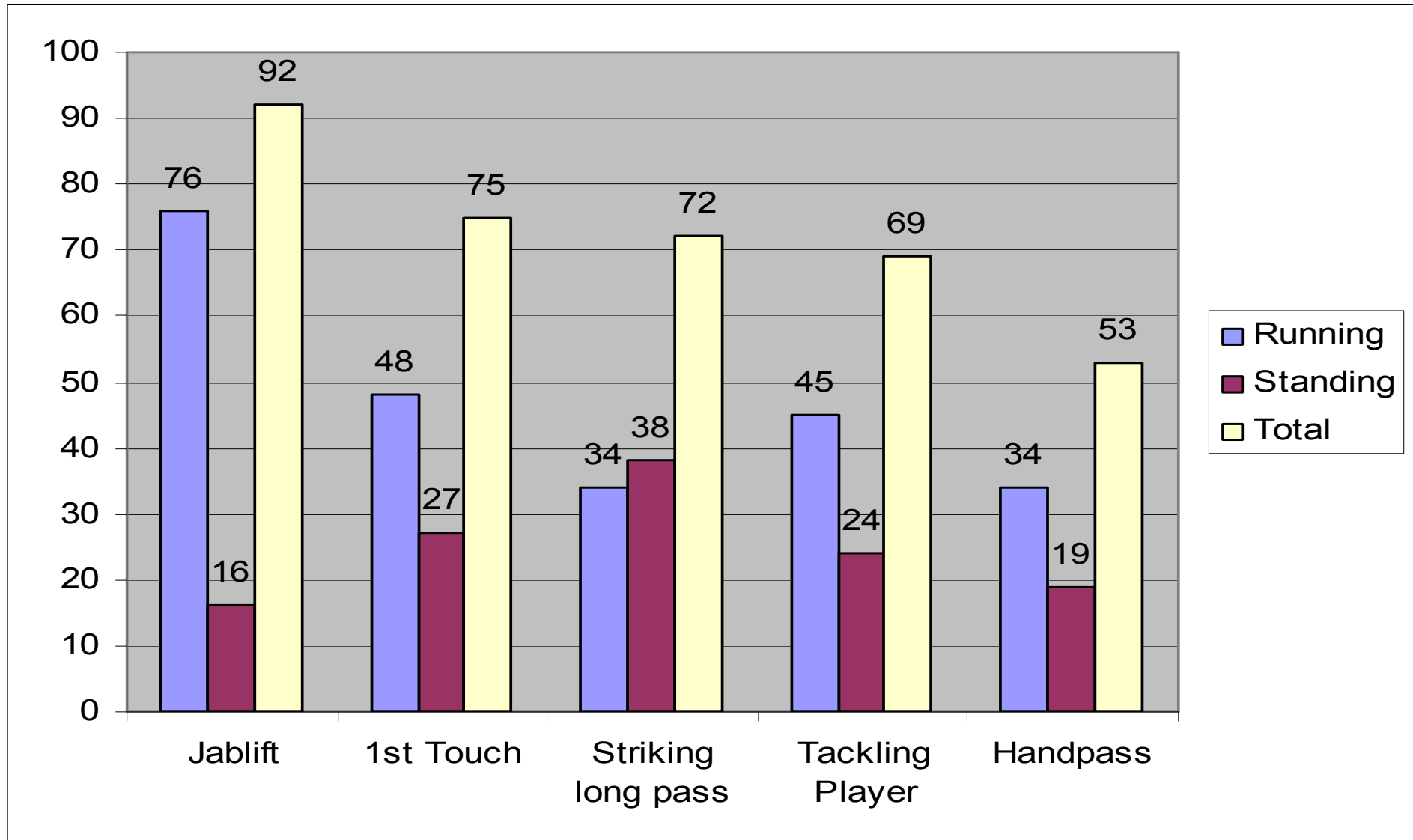
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(www.GAASats.com)

Further Skill Analysis

- Ryan Cushnahan – GAAStats.com

- Hugh Gilmore – gaelicperformance.com

- Gregory Hughes - gaelicperformance.com

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Options

Do you as a coach practice the skills:

- – that happen the most
- – to counter act these
- – that occurs just once in a match but occurs at a critical time

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Skill

Inter-County Hurling
- Number of ball possessions – average 10
- Duration of ball possession – average 27 sec

The challenge for your players is
skill efficiency

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Implications for Training

- Cover the areas of the OTú model
- Develop the skills of the game
  - Hurling skills, FMS, FC
- How
  - Mini/conditioned Games, general movement development, Individual skills practice & individual Functional competence training
- Be guided by the demands of the game
  - Movement demands
  - Different paces
  - Work rest ratio

And finally

Don't overcook?

Extra Slides

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Frequency of Highest Occuring Skills Throughout an Average Game Per Team
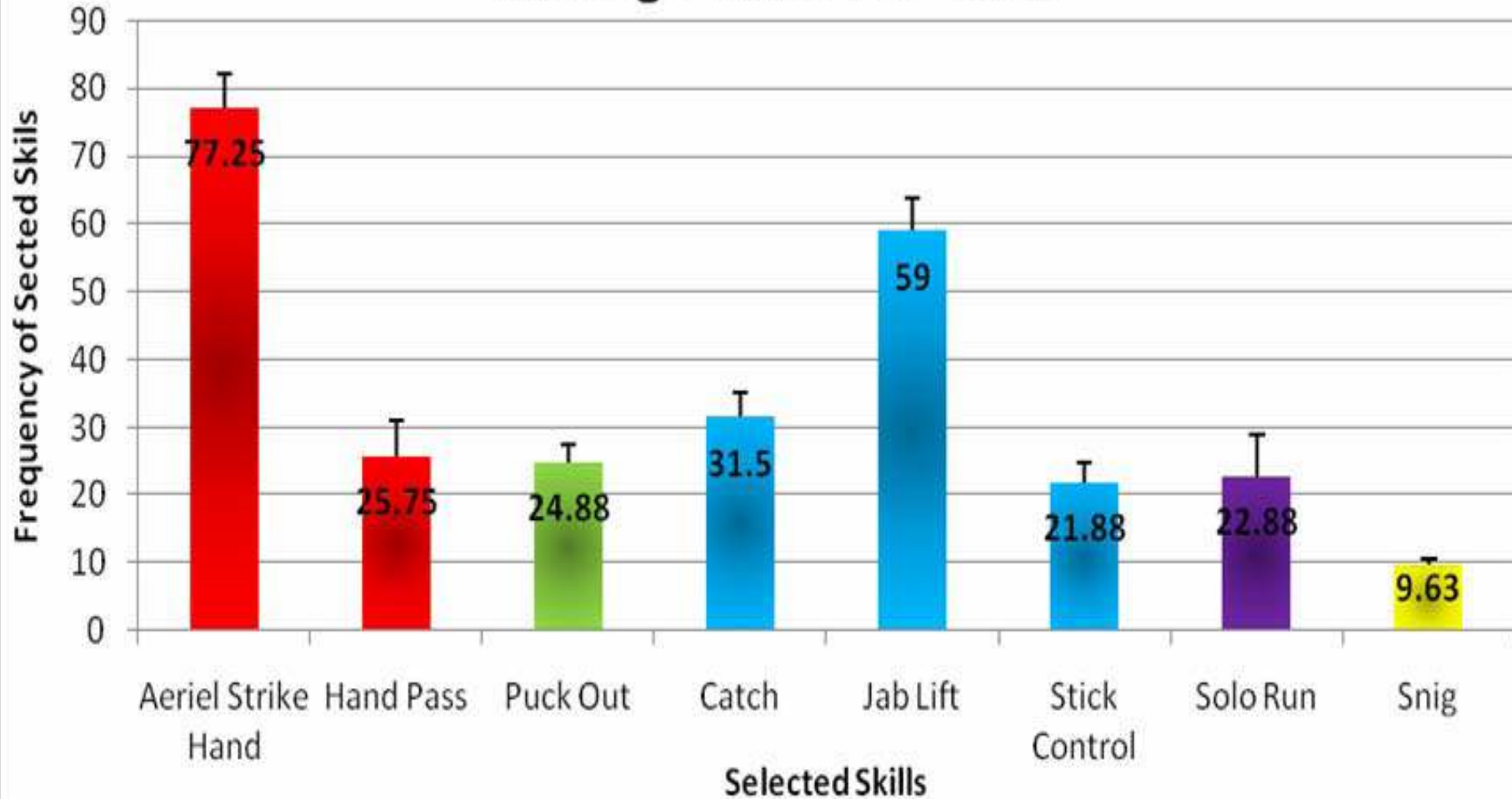
Most Significant Goalkeeper Skills
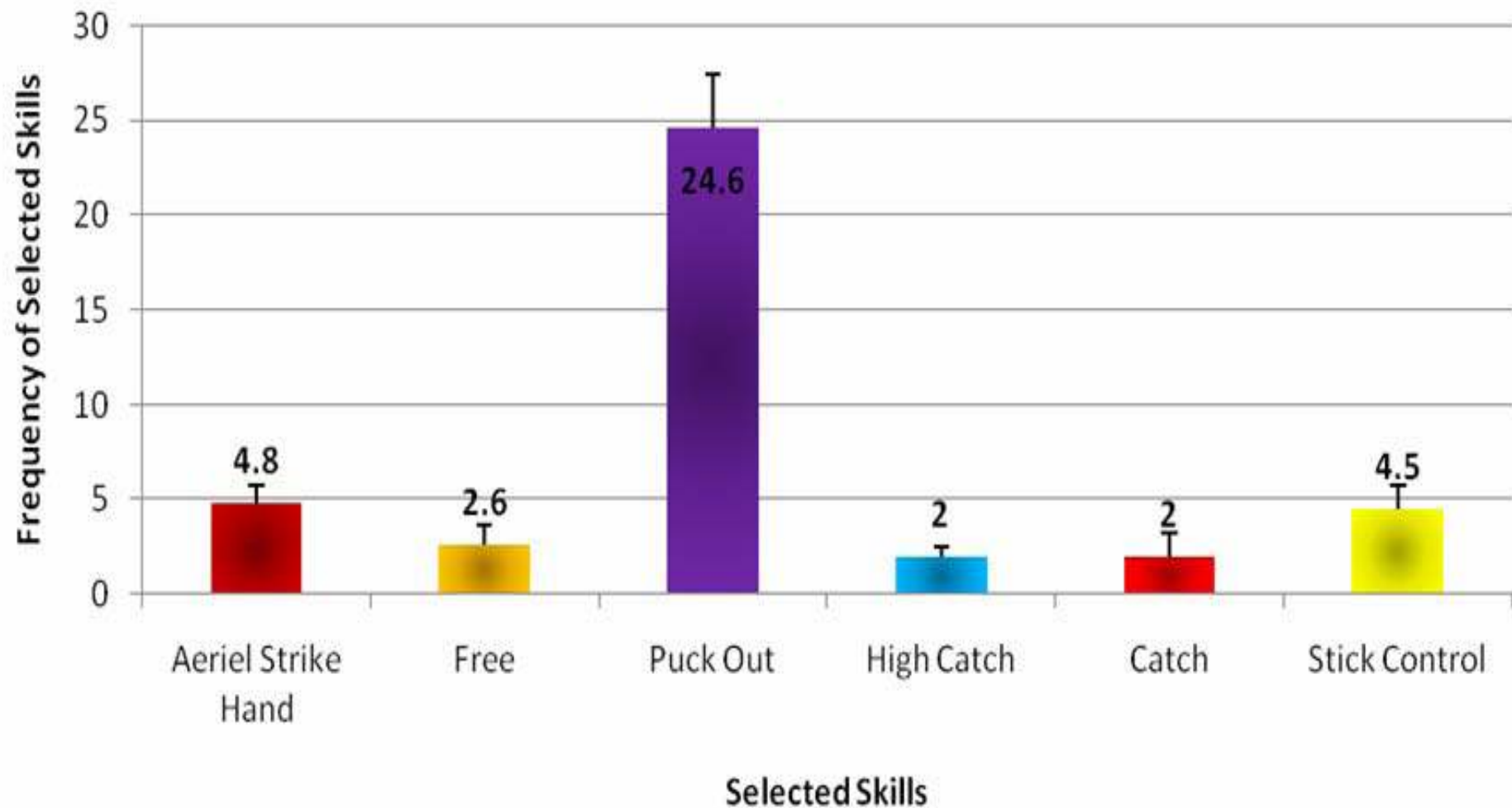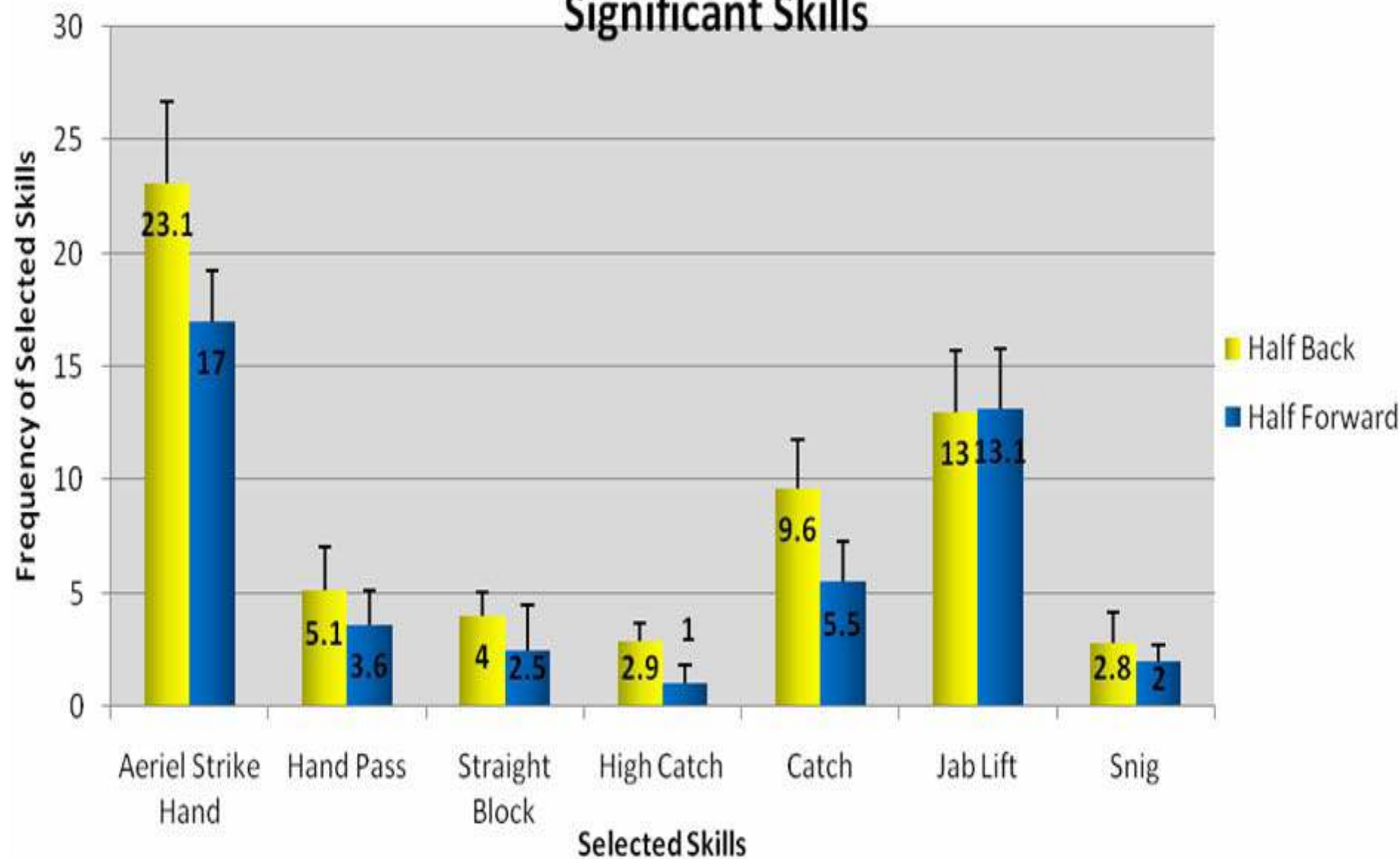
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Comparison of Full Backs and Full Forwards Most Significant Skills
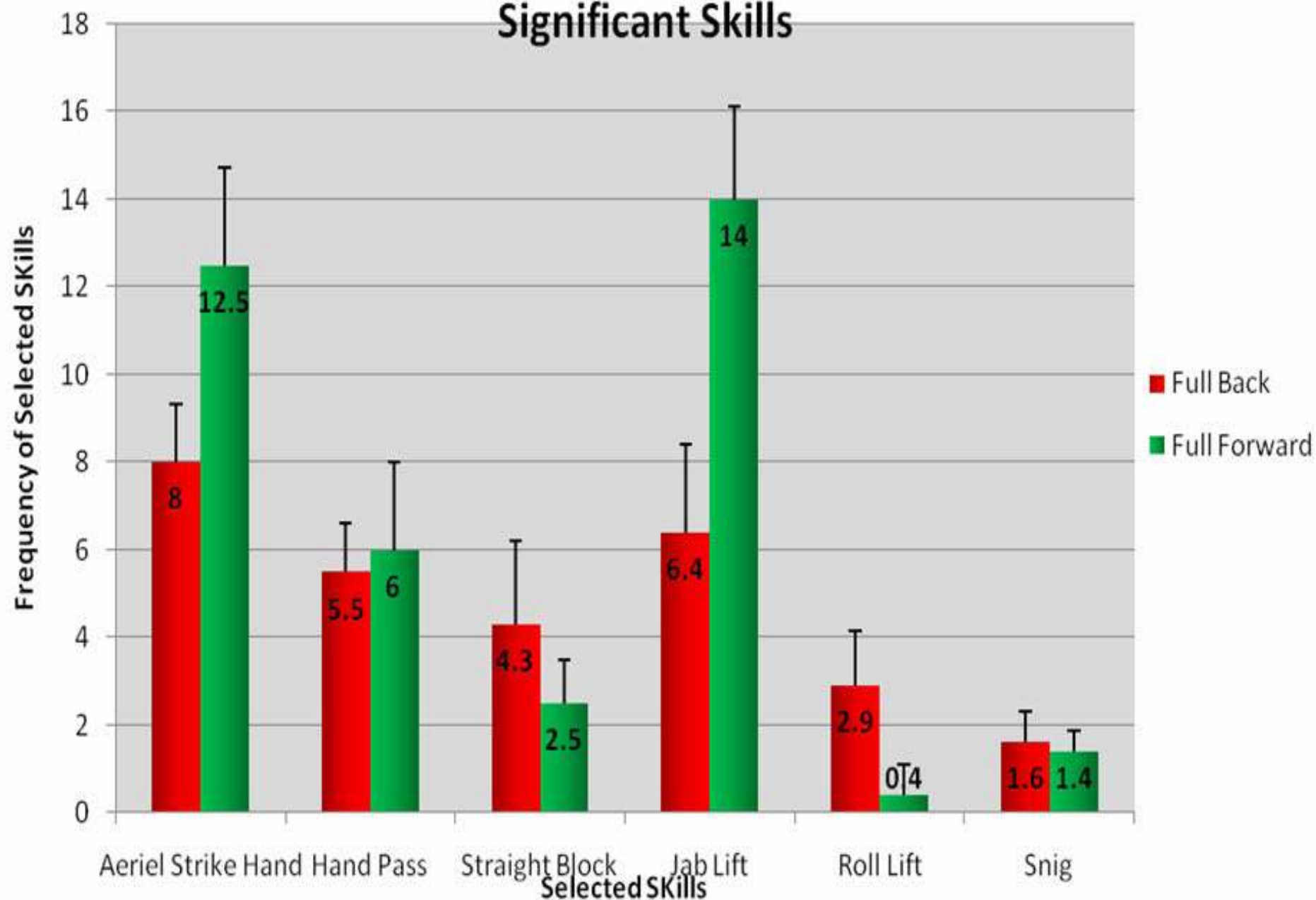
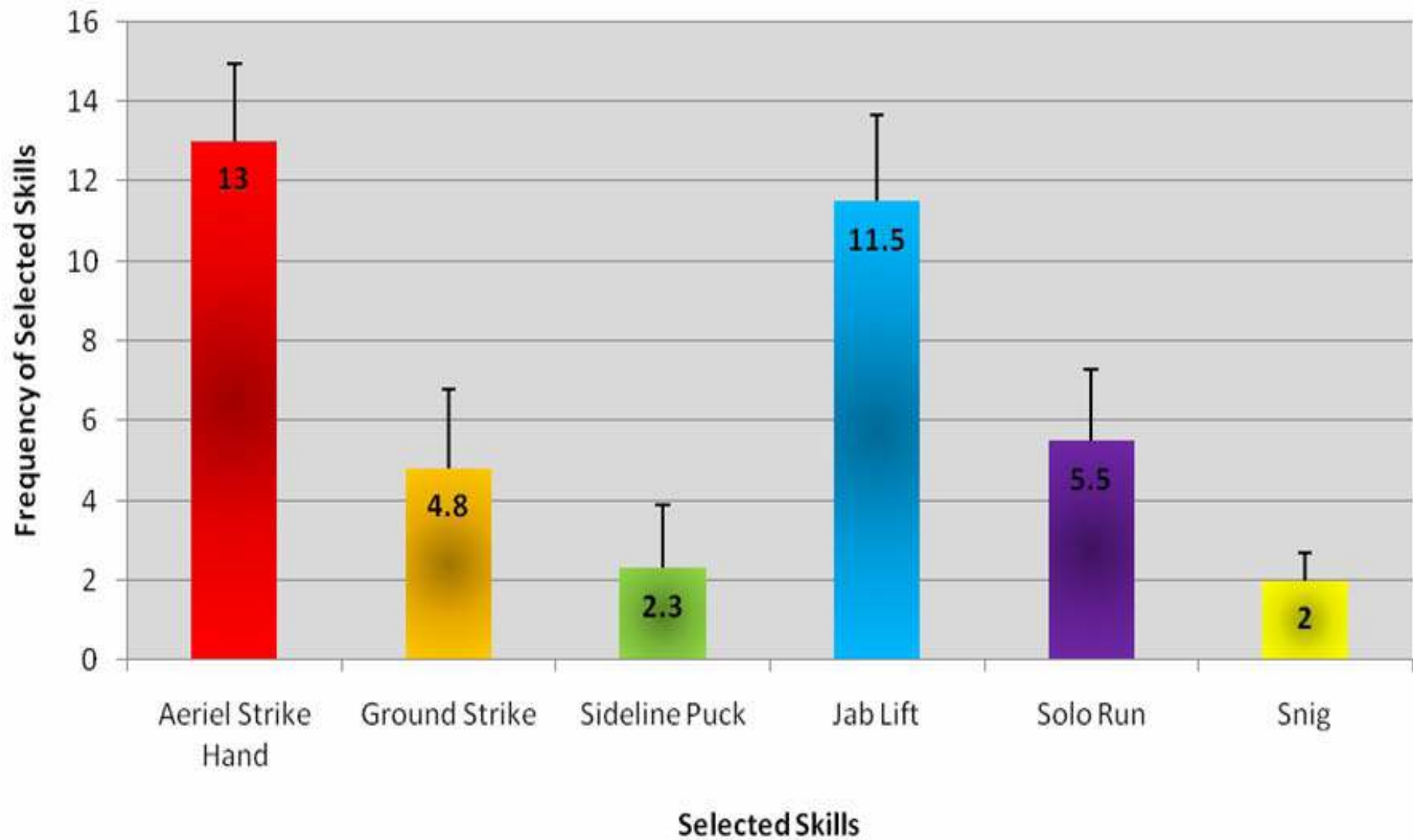Comparison of Half Backs and Half Forwards Most Significant Skills

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