
LTA
TENNIS
FOR BRITAIN

DEMANDS OF THE GAME

October 2019

LTA TENNIS FOR BRITAIN


data won't save you from having zero imagination.
(Mediocrity howls in protest.)
@gapingvoid

Purposeful training..... everyday

Coaches
Climate
Clarity

LTA TENNIS FOR BRITAIN

All paths up are different.
All paths down are the same

DEMANDS OF THE GAME

FLOW OF THE SESSION

1. DEMANDS OF THE GAME

- ❑ How the game has evolved and changed of the last 20 – 30 years and the implications for us
- ❑ Career
- ❑ Grand Slam / Tournament
- ❑ Match
- ❑ Point

2. UNDERSTANDING THE INDIVIDUALS

3. OPPORTUNITIES FOR IMPACT?

THRIVING IN THE PRESENT

ABILITY TO ADAPT TO CURRENT TRAINING

PREPARING THE FOR THE FUTURE

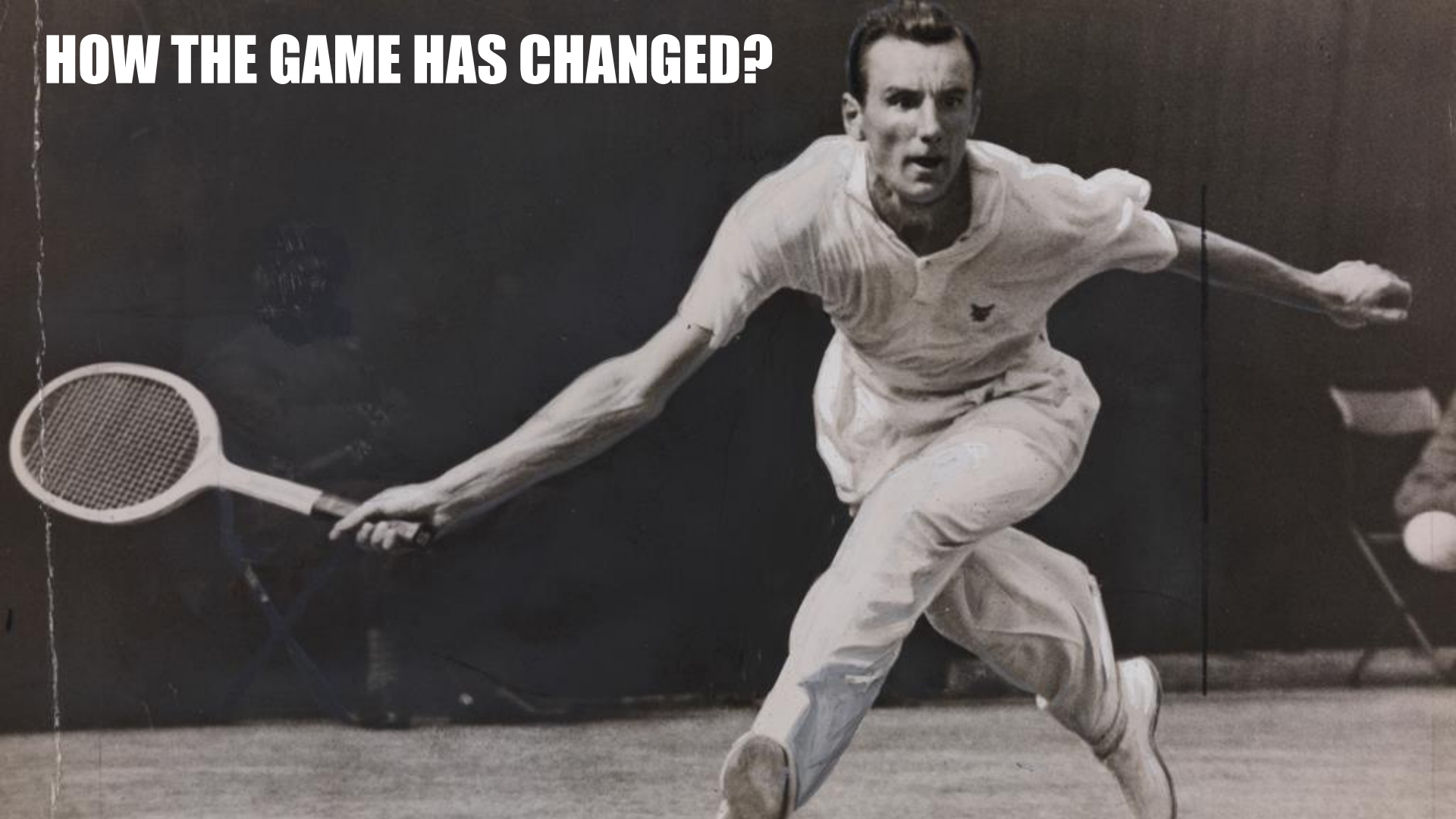
DEVELOPING IN A WAY THAT PREPARES THEM FOR THE DEMANDS OF THE FUTURE ELITE GAME

Explore

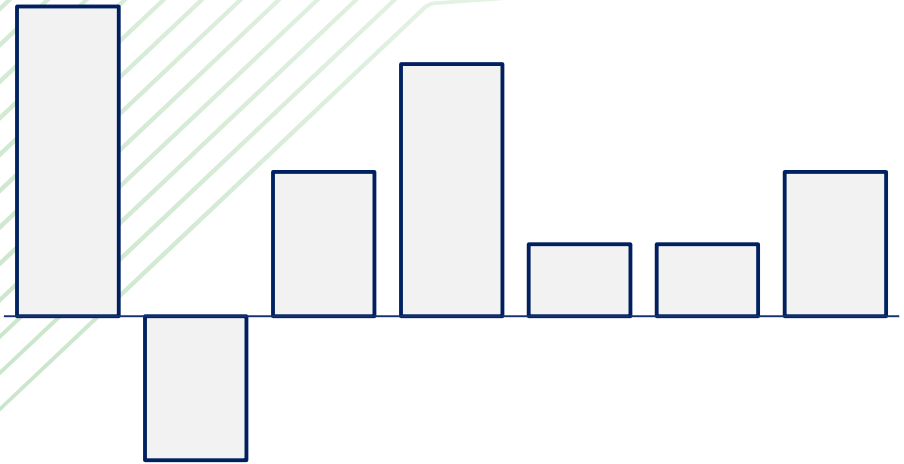
HOW CONFIDENT ARE YOU THAT YOUR PLAYERS HAVE THE CAPACITY TO THRIVE AND ADAPT TO THE CURRENT ‘REQUIRED’ TRAINING ?

HOW CONFIDENT ARE YOU THAT THEIR TRAINING PREPARES PEOPLE FOR THE FUTURE DEMANDS OF THE GAME?

HOW THE GAME HAS CHANGED?



SINCE 1990.....



Match length | Total points per match | Match duration | Minutes per point | Time on hard | Time at baseline | time to 10k matches

Pre 1990 average age when 10000 matches reached was 30. By 2010 this had dropped to 26

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THE CHANGING SHAPE SINCE 1990....

BIGGER (4–5KG / 6CM)

FASTER (????)

STRONGER

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THE DEMANDS OF OUR GAME

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THE PLAYER JOURNEY

CAREER...GAMES PLAYED AT 26

Del Potro	13000
Murray	15000
Federer	18500
Nadal	19000

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THE PLAYER JOURNEY

SEASON...

Women (jnr)	*48 matches 535 games*
Women (snr)	*54 matches 590 games*
Men (jnr)	*56 matches 652 games*
Men (jnr)	*60 matches 711 games*

LTA TENNIS FOR BRITAIN

MACRO *TO* MICRO

TENNIS *TO* PHYSICAL

STATS *TO* THEMES

LTA TENNIS FOR BRITAIN

AVERAGE SHOTS PER RALLY

CAREER AVERAGE

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AUS

5.8

FRENCH

7

WIMBLEDON

3.4

US

5

55 – 70%
Baseline rally

AVERAGE SHOTS PER RALLY

CAREER AVERAGE

Graf	4.9 (73)
S Williams	3.6 (168)
Halep	4.6 (362)
Kerber	4.7 (121)
Pliskova	3.8 (109)
Konta	3.8 (56)

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AUS

7.1

FRENCH

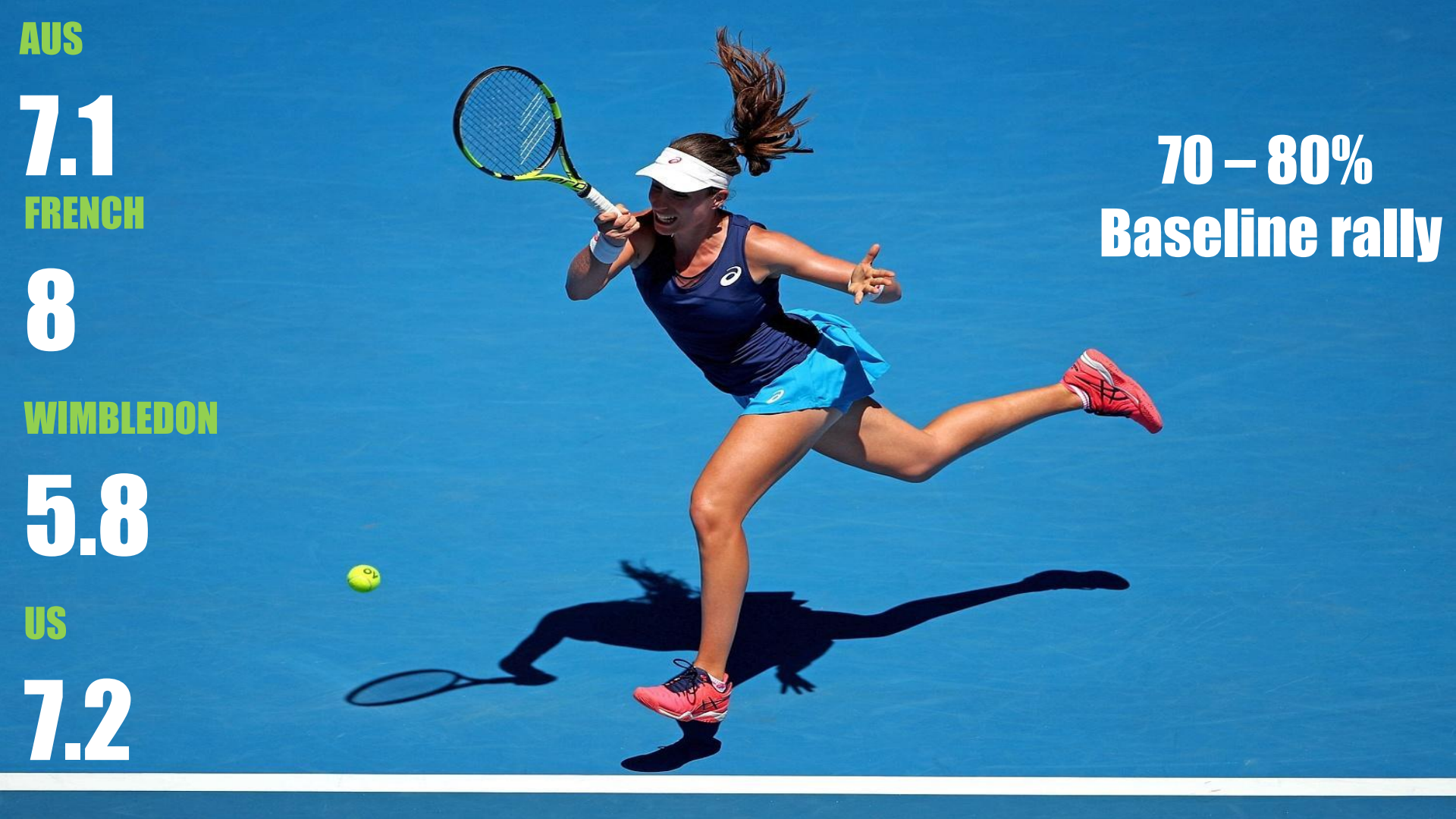
8

WIMBLEDON

5.8

US

7.2



70 – 80%
Baseline rally

% 0 – 4 RALLIES

PATHWAY

	12s	14s	16s	18s	COLLEGE
Male	55%	59%	56%	61%	62%
Female	57%	59%	58%	61%	61%

US National level (Male 200,211 / Female 177,612 data points)

SPECIFICS

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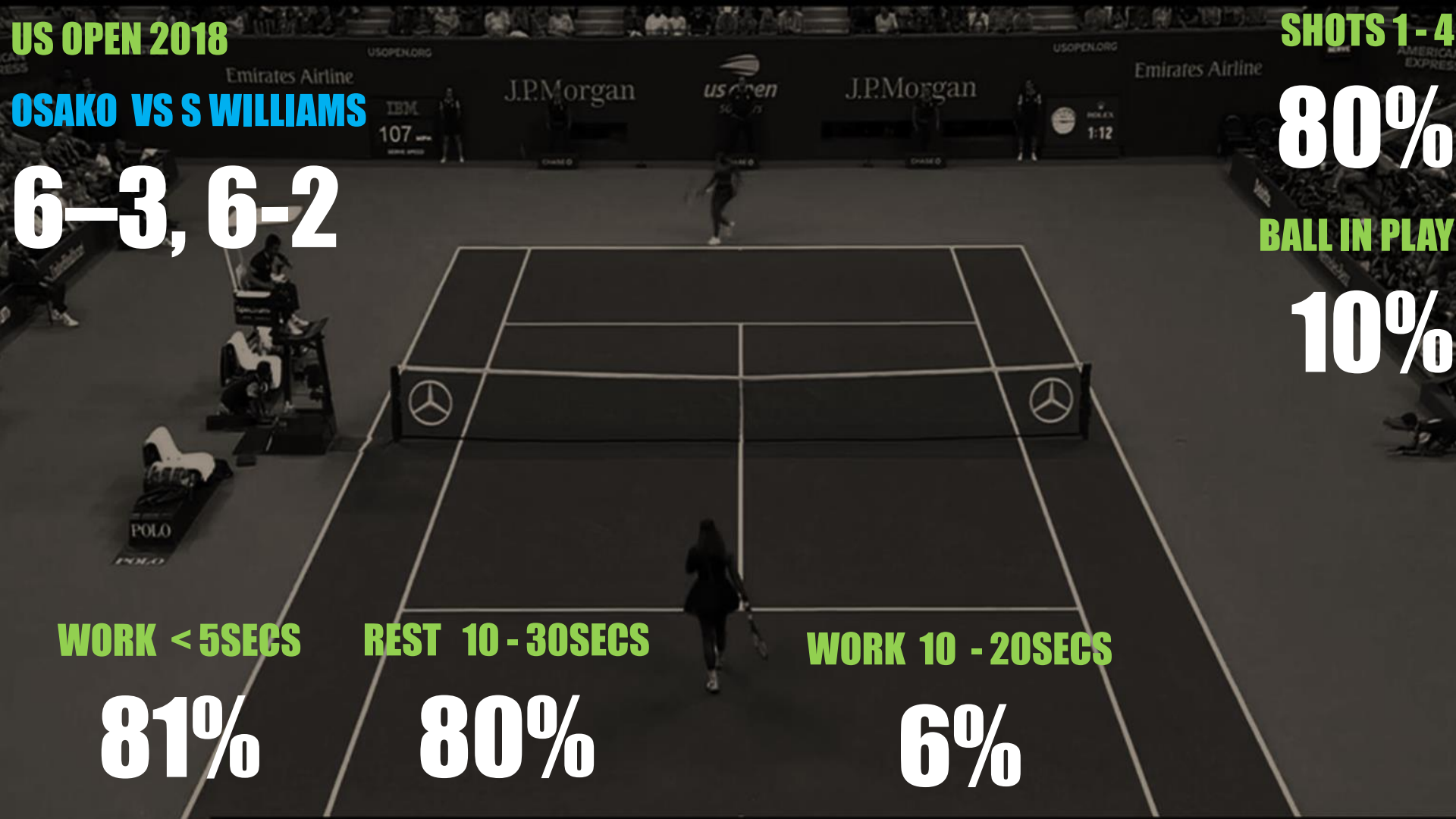
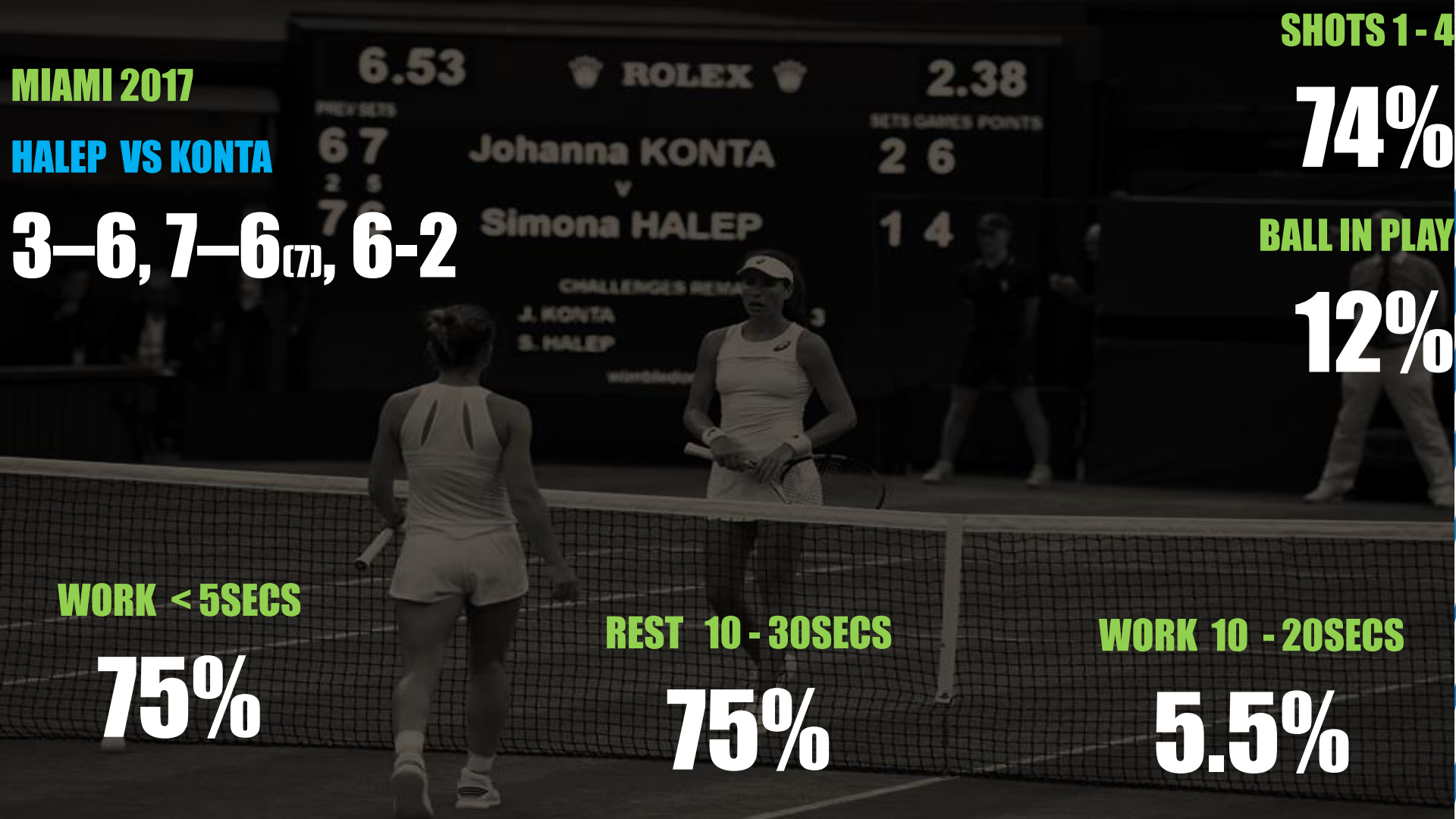
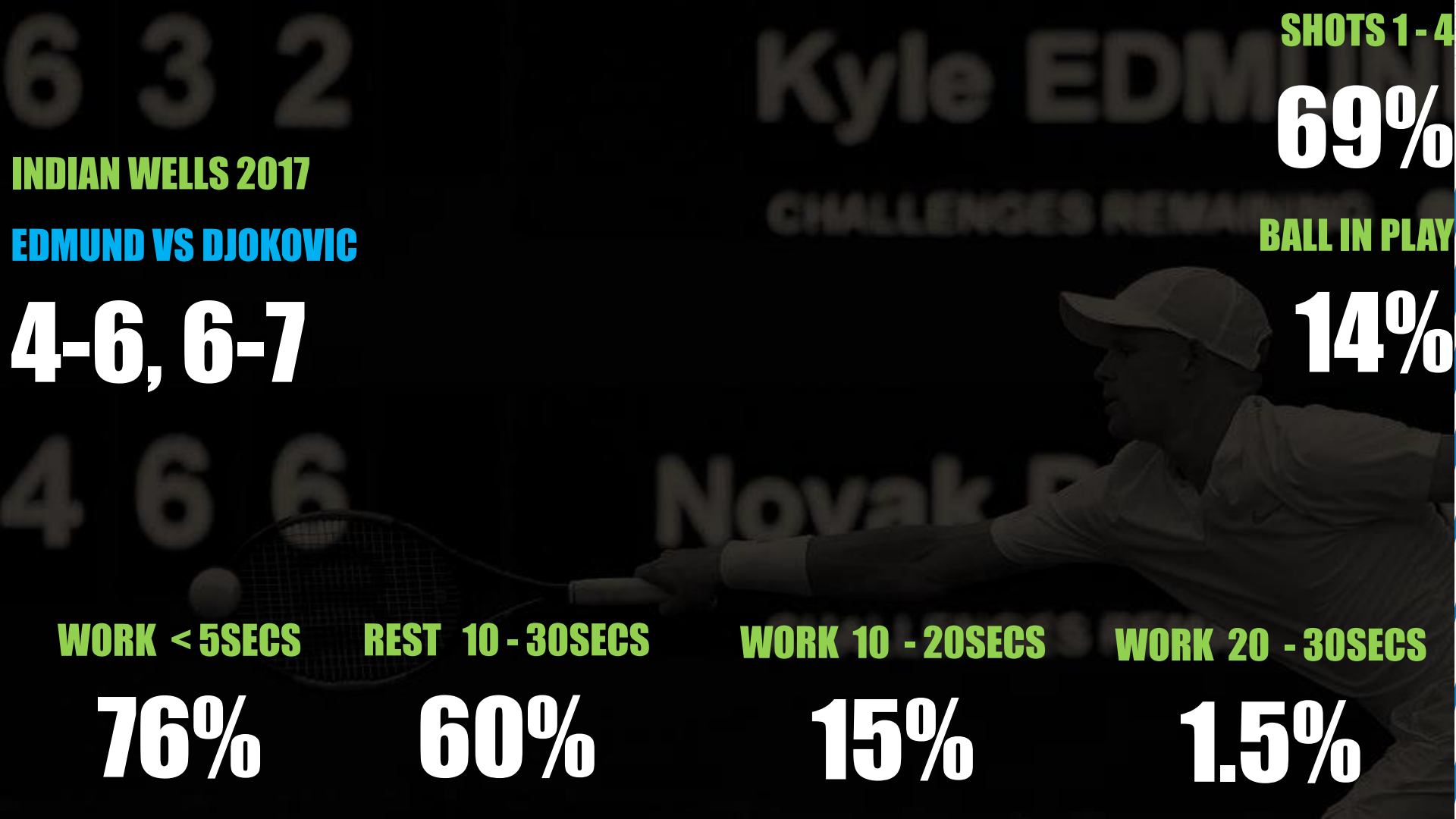

US OPEN 2018
OSAKO VS S WILLIAMS
6–3, 6-2
SHOTS 1 - 4
80%
BALL IN PLAY
10%
WORK < 5SECS
81%
REST 10 - 30SECS
80%
WORK 10 - 20SECS
6%


MIAMI 2017
HALEP VS KONTA
3–6, 7–6(7), 6-2
SHOTS 1 - 4
74%
BALL IN PLAY
12%
WORK < 5SECS
75%
REST 10 - 30SECS
75%
WORK 10 - 20SECS
5.5%
6.53
ROLEX
2.38
Johanna KONTA
Simona HALEP



INDIAN WELLS 2017

EDMUND VS DJOKOVIC

4-6, 6-7

SHOTS 1 - 4

69%

BALL IN PLAY

14%

WORK < 5SECS

76%

REST 10 - 30SECS

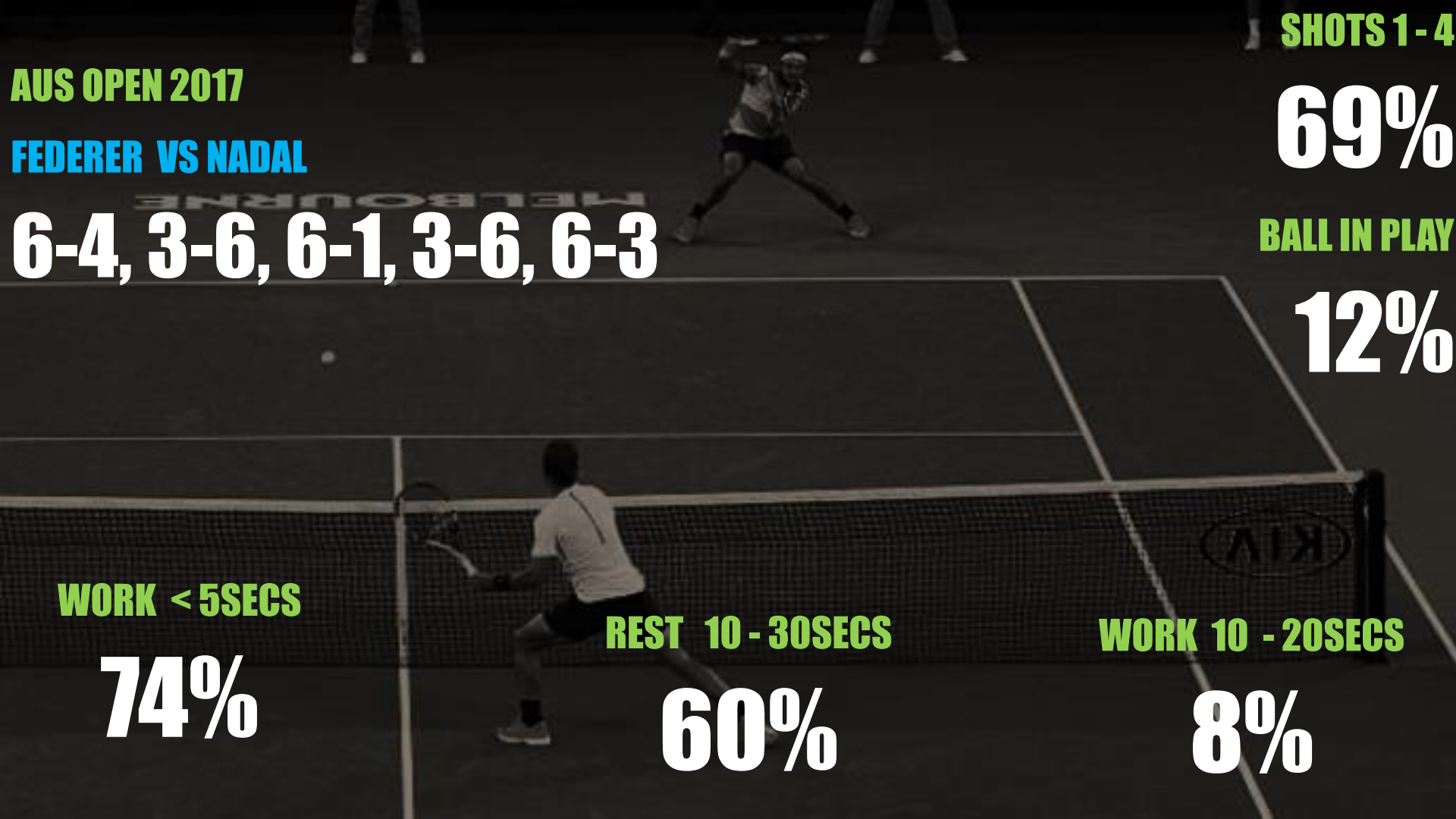
60%

WORK 10 - 20SECS

15%

WORK 20 - 30SECS

1.5%


AUS OPEN 2017
FEDERER VS NADAL
6-4, 3-6, 6-1, 3-6, 6-3
SHOTS 1 - 4
69%
BALL IN PLAY
12%
WORK < 5SECS
74%
REST 10 - 30SECS
60%
WORK 10 - 20SECS
8%

OPEN SUPER 12 AURAY 2019

SHOTS 1 - 4

49%

6-2, 2-6, 6-3

BALL IN PLAY

39%

WORK < 5SECS

75%

REST 10 - 30SECS

75%

WORK 10 - 20SECS

5.5%

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SUMMARY

- Across Mens, Womens and JNRs ‘the majority’ of points are between 1 – 4
- More than 70% of the work is done in <5 seconds
- Across analysed games <3% is over 30 seconds in length
- There is ‘always’ more rest than work

CAVEAT #1

NOT OFTEN IS NOT THE SAME AS NOT IMPORTANT

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CAVEAT #2

THE SPACE BETWEEN

NOT ALL WORK CAN BE MEASURED AND ALL WORK IS RELATIVE

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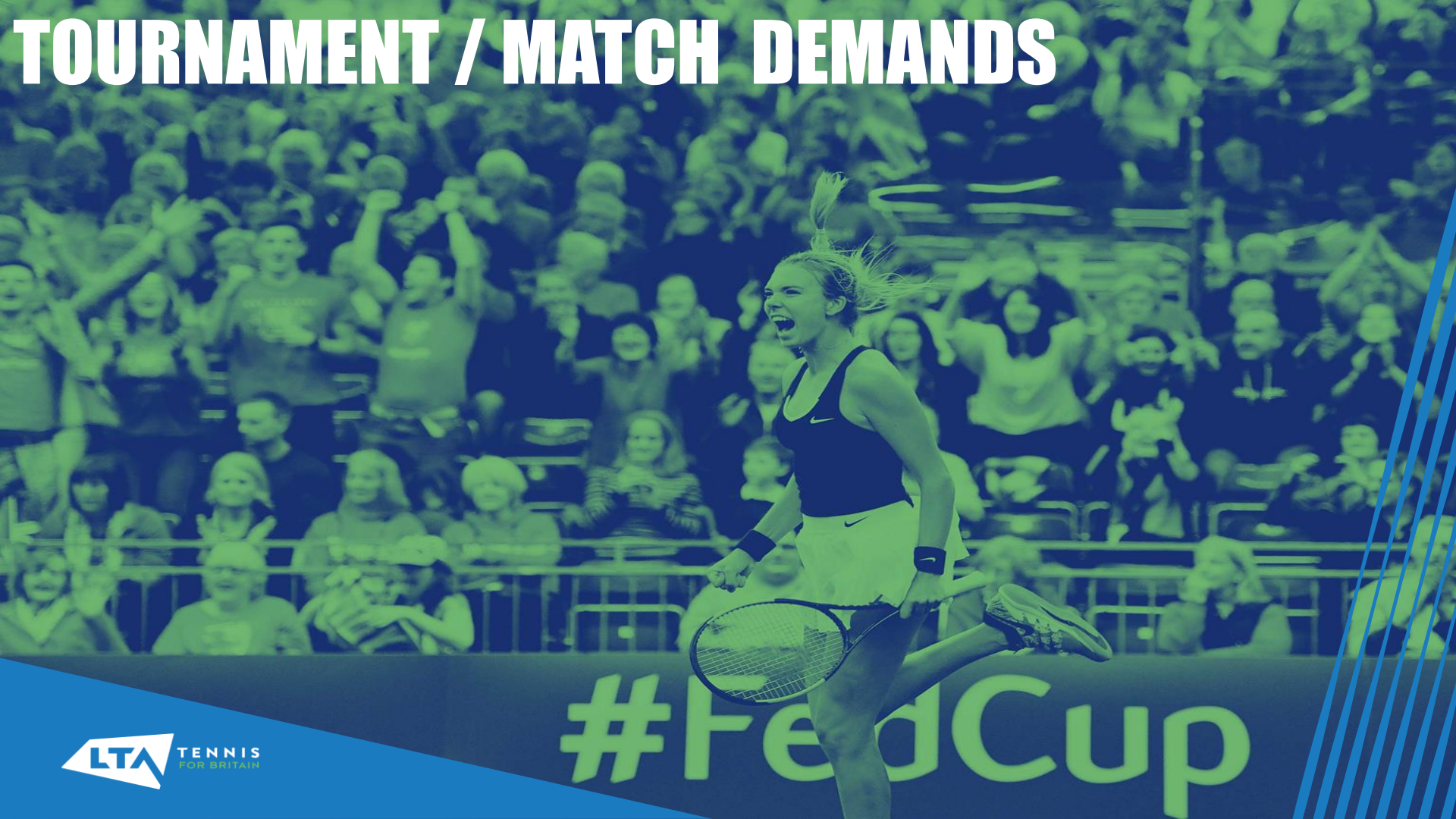
TOURNAMENT / MATCH DEMANDS



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TOURNAMENT DEMANDS - EASTBOURNE

WOZNIACKI

Time on court	8 hrs 58mins
Work time on court	2hrs 4 mins
Distance travelled	6.42km

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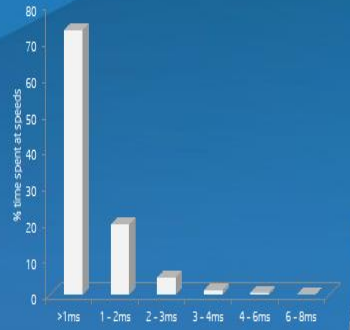
TOURNAMENT DEMANDS - EASTBOURNE

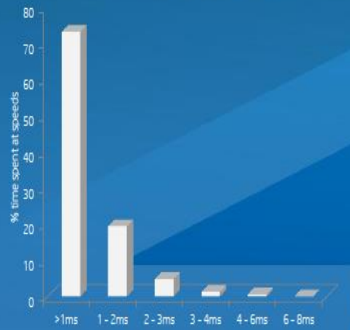
June 25th
vs Giorgi
6-2 ,6-3,

1hr 15 mins
19 mins of work
840m travelled



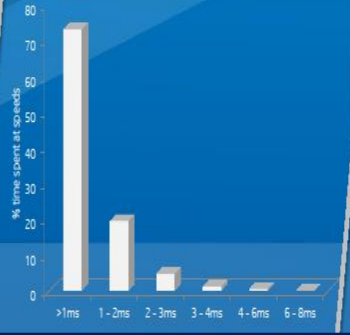
June 27th
vs Konta
4-6 ,6-1, 6-4

2hr 10 mins
33 mins of work
1.4km travelled



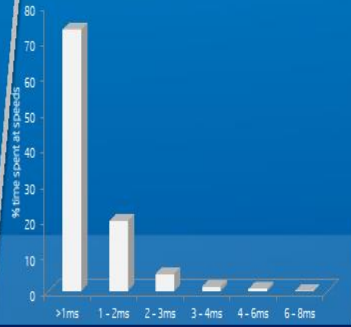
June 28th
vs Barty
6-4, 6-3,

1hr 19 mins
22 mins of work
1.06km travelled



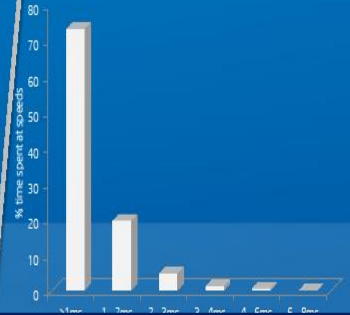
June 29th
vs Kerber
2-6 , 7-6(4) , 6-4

2hr 17 mins
41 mins of work
1.82km travelled



June 30th
vs Sabalenka
7-5 7-6(5)

1hr 57 mins
31 mins of work
1.3km travelled



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DEMANDS OF A TOURNAMENT

WIMBLEDON

6869 metres

4.0ms av accel

-4.2ms av decel

63% <1ms

	Quarter final					Semi Final			Final		
Score	7-6,	6-1,	3-6,	4–6,	6-1	6-3,	6-3,	6-3	6-4,	7-6,	7 - 6
Distance per set (m)	998	300	573	692	429	515	585	507	557	913	800
Total distance (m)	2992					1607			2270		
Mean =ve Acceleration (ms-2)	4.3					4.4			4.5		
Mean -ve Acceleration (ms-2)	-4.1					-4.1			-4.3		
Point Duration (mins)	83	24	39	57	31	39	46	34	44	69	55
Work Duration (mins)	16	6	10	12	8	8	9	8	10	14	14
<1ms [%]	61	68	64	63	65	62	62	61	64	61	63
1-2ms [%]	25	24	24	25	25	25	25	25	24	25	25
2-3ms [%]	8	5	6	7	6	7	8	8	7	8	7
3-4ms [%]	3	2	3	3	2	3	3	4	3	3	3
4-6ms [%]	2	1	2	2	1	2	2	2	1	2	1
6-8ms [%]	0	0	0	0	0	0	0	0	0	0	0

LTA TENNIS FOR BRITAIN

DEMANDS OF A TOURNAMENT

JNR WIMBLEDON

7049 metres

4.0ms av accel

-5.2ms av decel

66% <1ms

	Quarter final			Semi Final			Final		
Score	6 - 7,	6 - 3,	6 - 1	7-6,	6-7,	19-17	1-6,	7-6,	6 - 4
Distance per set (m)	735	623	334	549	724	1961	503	856	764
Total distance (m)	1692			3233			2123		
Mean =ve Acceleration (ms-2)	3.5			3.6			5.0		
Mean -ve Acceleration (ms-2)	-5.0			-4.8			-5.8		
Point Duration (mins)	49	55	19	46	67	151	29	51	46
Work Duration (mins)	14	13	6	11	15	39	9	15	13
<1ms [%]	67	70	68	68	70	68	61	62	63
1-2ms [%]	23	20	22	22	21	23	27	26	25
2-3ms [%]	7	6	6	6	6	6	9	8	9
3-4ms [%]	2	2	2	2	1	2	2	2	2
4-6ms [%]	1	1	2	1	1	1	1	1	1
6-8ms [%]	0	0	0	0	0	0	0	0	0

LTA TENNIS FOR BRITAIN

TOURNAMENT DEMANDS

WIMBLEDON

JNR	SNR
7049 metres	6869 metres
4.0ms av accel	4.0ms av accel
−5.2ms av decel	−4.2ms av decel
66% <1ms	63% <1ms

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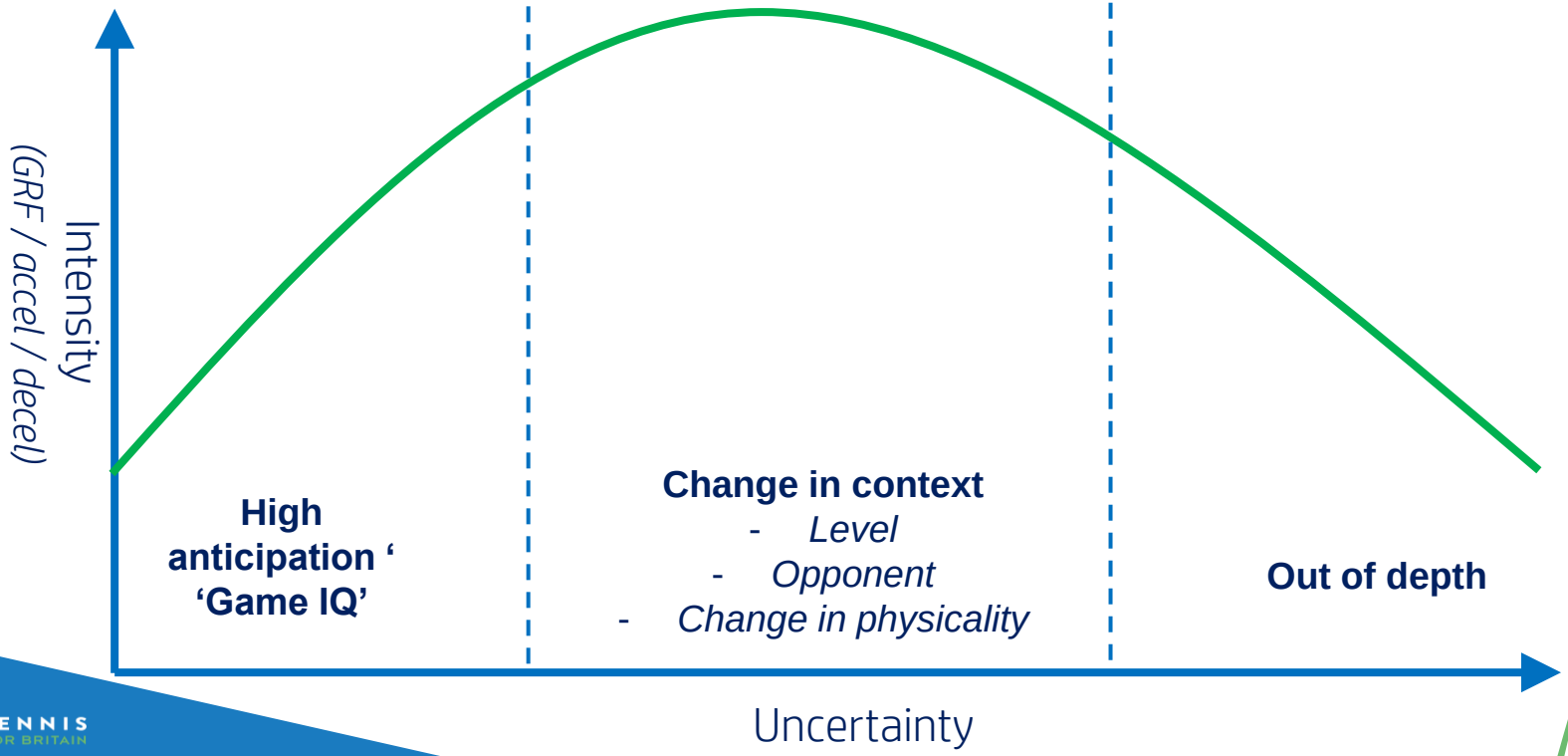
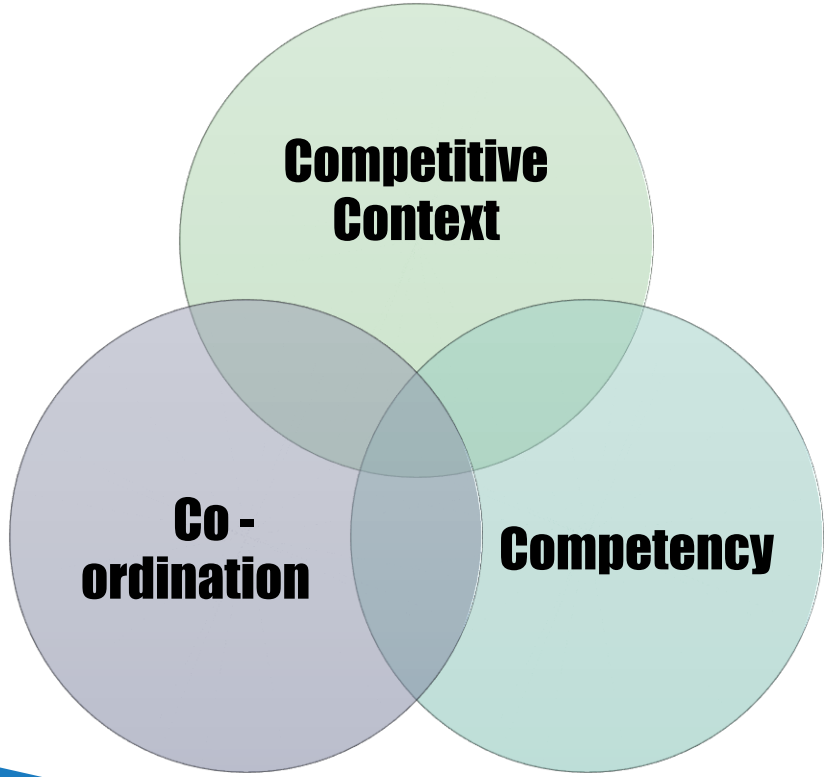
	JNR Boys (12)	Men (21)	JNR Girls (6)	Women (21)
Average rally length (sec)	4.8	5	4.4	4.6
Distance per point (m)	6.9	7.4	6.3	5.9
Distance travelled per match	993	1990	798	881
Peak foot speed (kph)	12 (max 21.6)	10.5 (max 24.2)	11.9 (max 21.1)	9.1 (max 16.3)
Changes of direction per point	6	5	6	4.5
Work per point	2236	1761	1690	917
Work per match (per 1000 units)	320	475	216	138


Intensity
(GRF / accel / decel)
High anticipation ‘ ‘Game IQ’
Change in context
- Level
- Opponent
- Change in physicality
Out of depth
Uncertainty

MOST 'AT RISK' PERIOD – THE PERFECT STORM

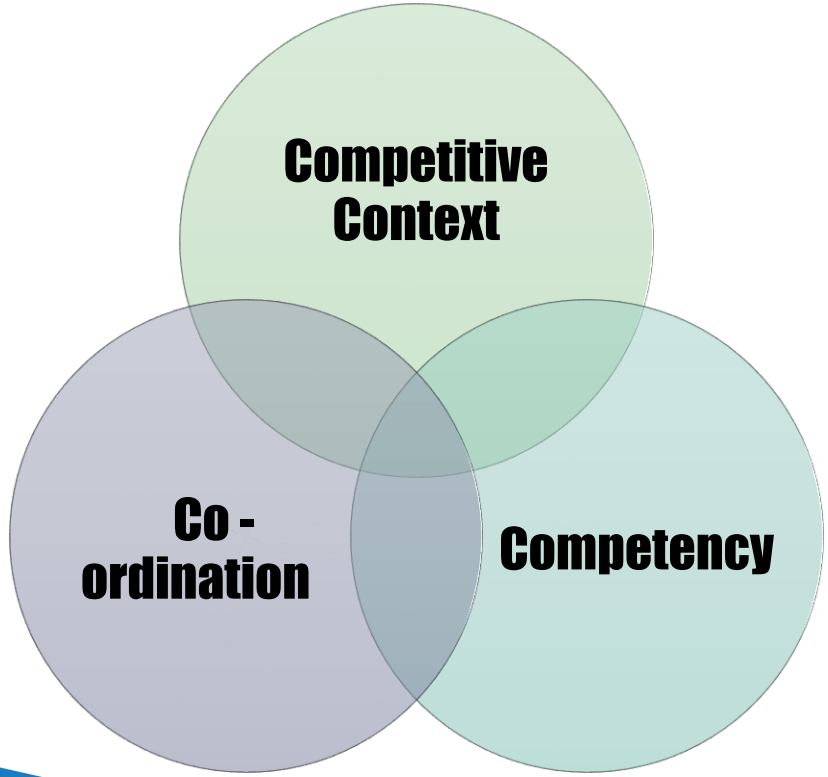


Competitive context
Change in environment where the playing is trying to win

Co – ordination
Rapid shift in how the athlete is moving

Competency
Rapid shift in athletes physical competency / qualities

MOST ‘AT RISK’ PERIOD / THE PERFECT OPPORTUNITY



Changing constraints

Outcome Intent

Emotional response

POINT DEMANDS – MOVEMENT(S)

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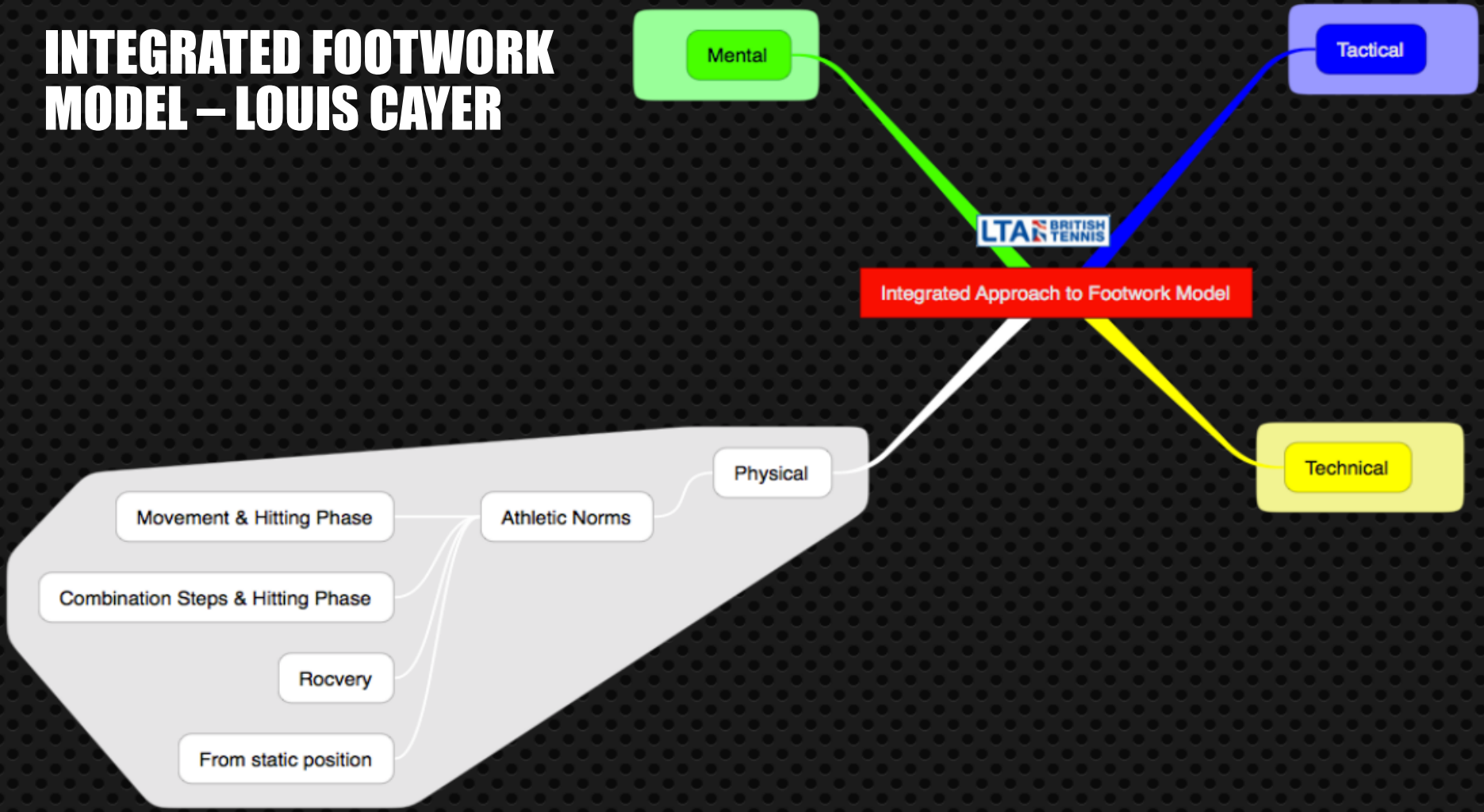
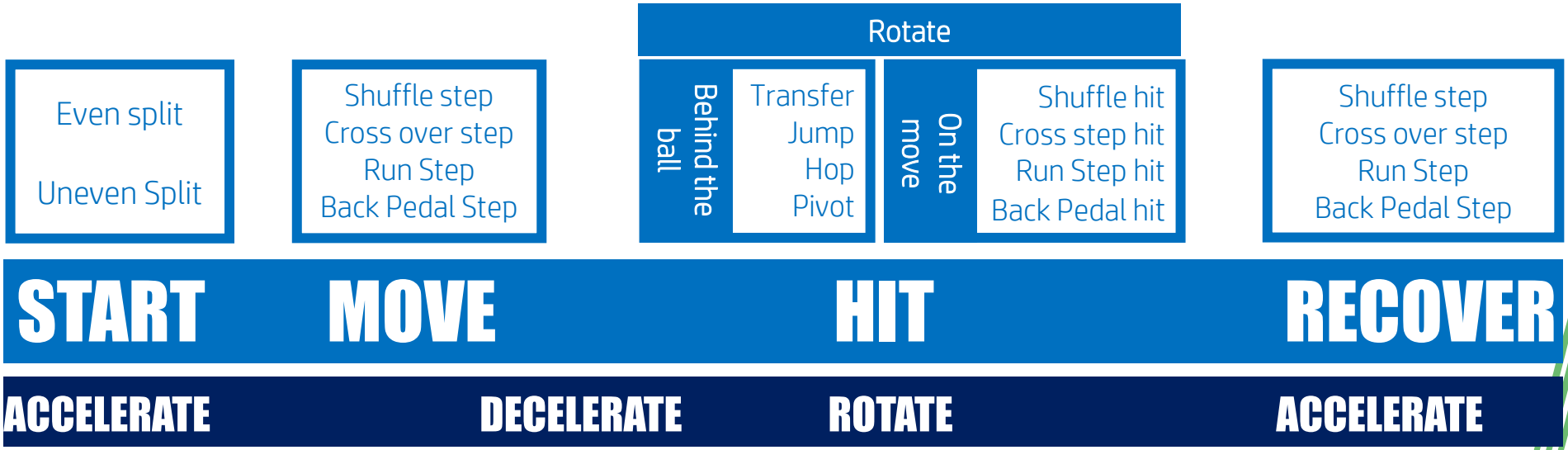
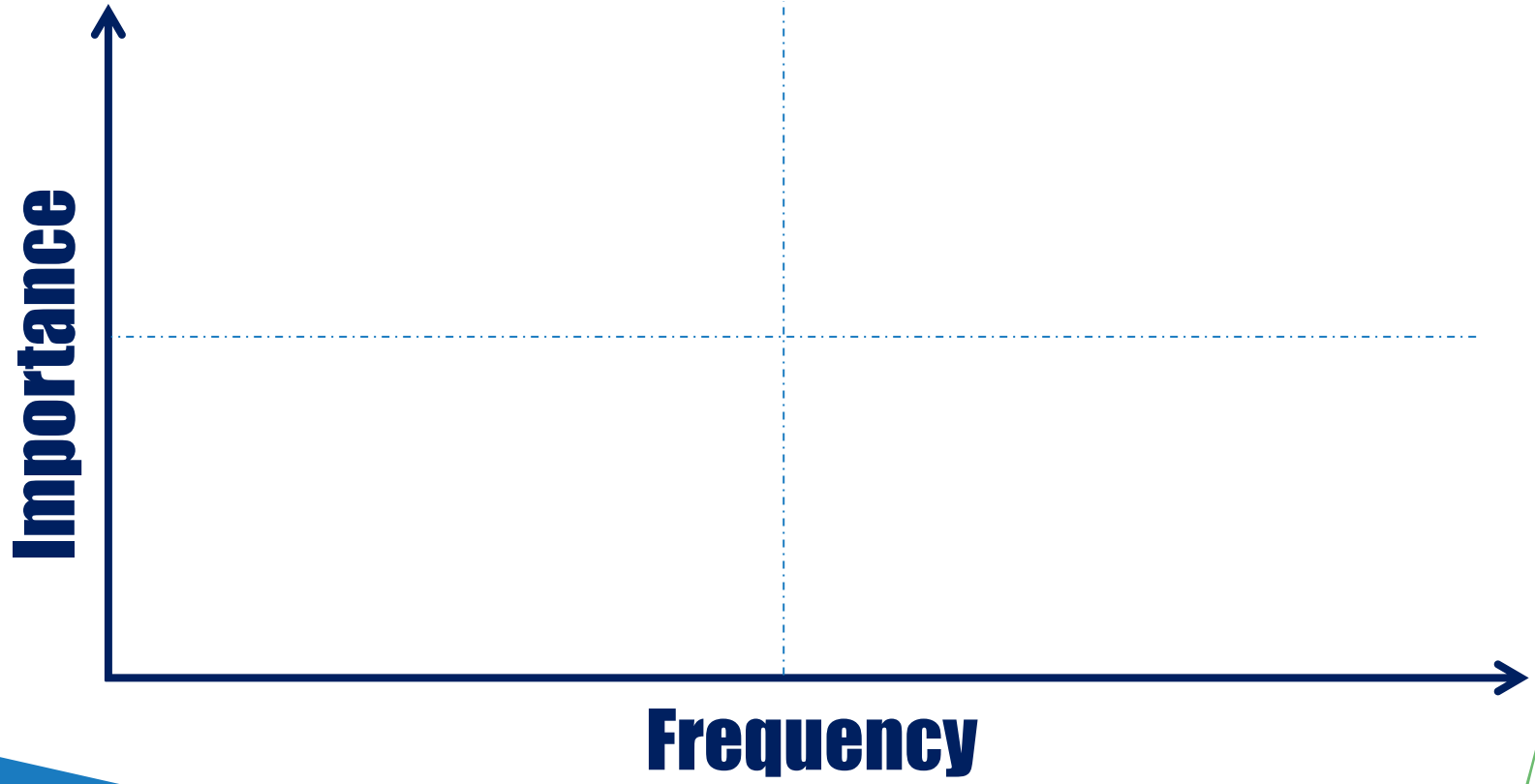
INTEGRATED FOOTWORK MODEL – LOUIS CAYER



MOVEMENT FRAMEWORK



IMPORTANT VS FREQUENT



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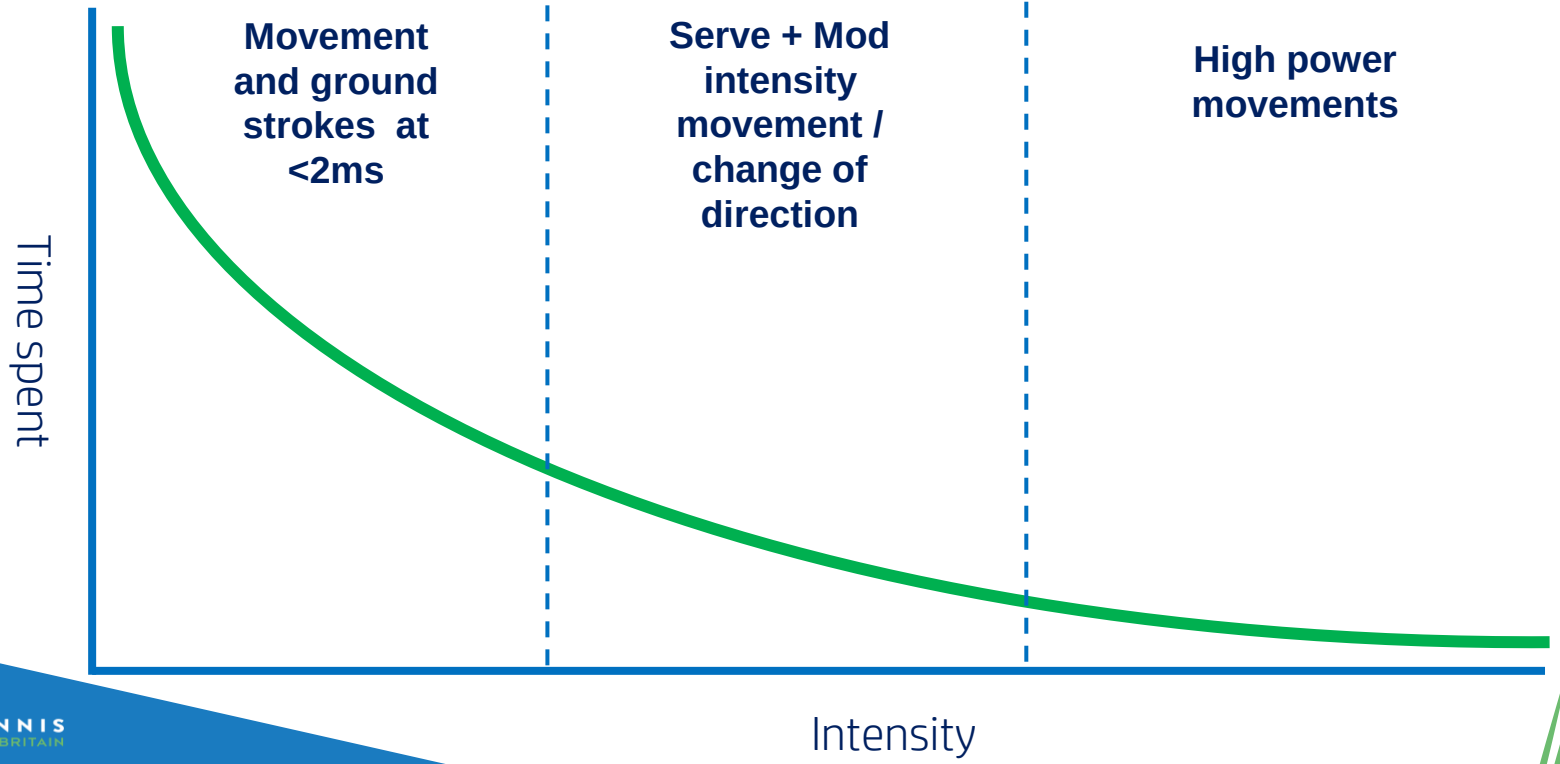
Matt Little

MOST OF THE GAME IS DOING THIS A LOT AT >70%

START	MOVE	HIT		RECOVER
		Rotate		
Even split Uneven Split	Shuffle step Cross over step Run Step Back Pedal Step	Behind the ball: Transfer, Jump, Hop, Pivot	On the move: Shuffle hit, Cross step hit, Run Step hit, Back Pedal hit	Shuffle step Cross over step Run Step Back Pedal Step
ACCELERATE	DECELERATE	ROTATE		ACCELERATE

LTA TENNIS FOR BRITAIN

WHAT ARE HIGH POWER MOVEMENT?



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WHAT ARE THE TOP ‘ HIGH POWER’ MOVEMENTS IN THE ELITE GAME?

HIGH ‘POWER’ MOVEMENTS IN ELITE TENNIS

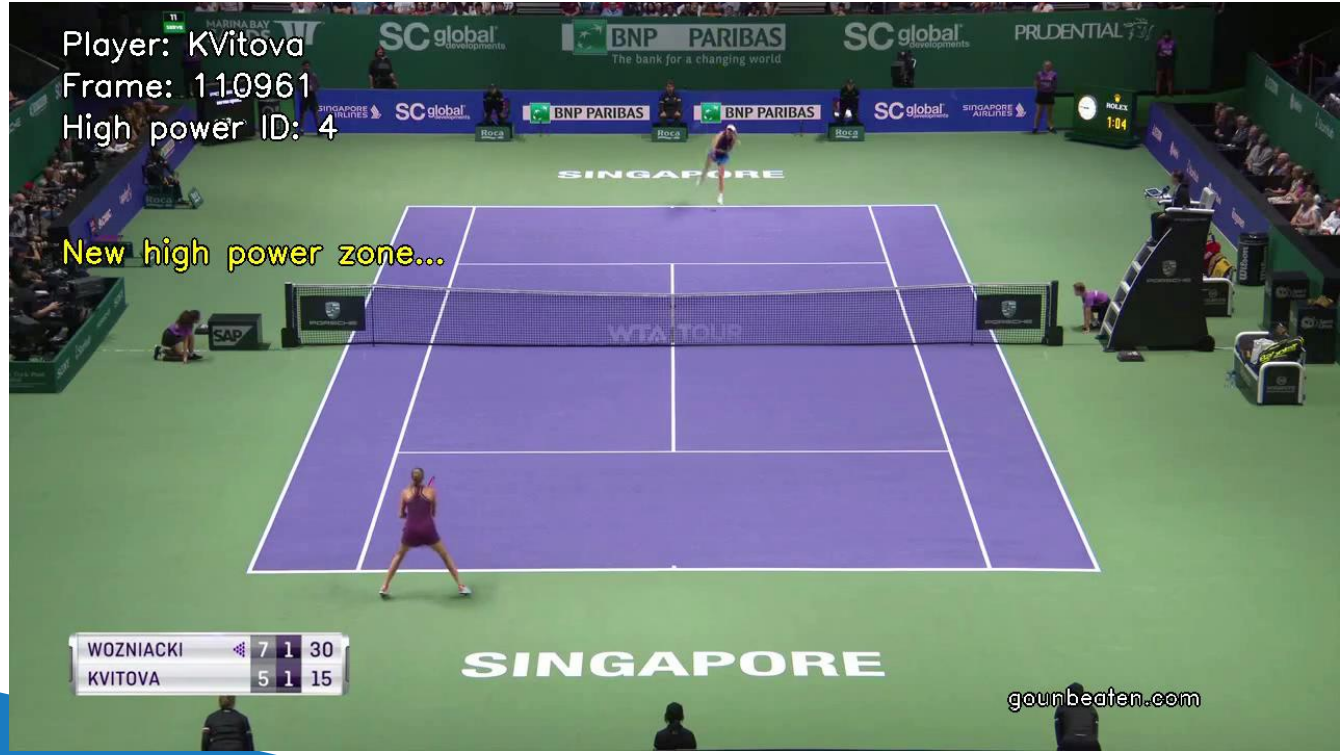
Wide serve (Deuce) and wide ball 3 (Ad)	25%
Baseline running FH	26%
Baseline running BH	28%
Drop Shot / Movement to net	20%
Serve	0.55%
Backwards movement	0.55%

HIGH 'POWER' MOVEMENTS IN ELITE TENNIS

	Men	Women
Wide serve (Deuce) and wide ball 3 (Ad)	26%	25%
Baseline running FH	17%	33%
Baseline running BH	33%	24%
Drop Shot / Movement to net	21%	19%
Serve	1.2%	
Backwards movement	1.2%	

LTA TENNIS FOR BRITAIN

WIDE SERVE AND CROSS COURT - 25 % OF HIGH POWER MOVEMENTS



LTA TENNIS FOR BRITAIN

PLAY THE SHOT YOU WANT TO PLAY INSTEAD OF THE ONE YOU HAVE TO

(MATT LITTLE)

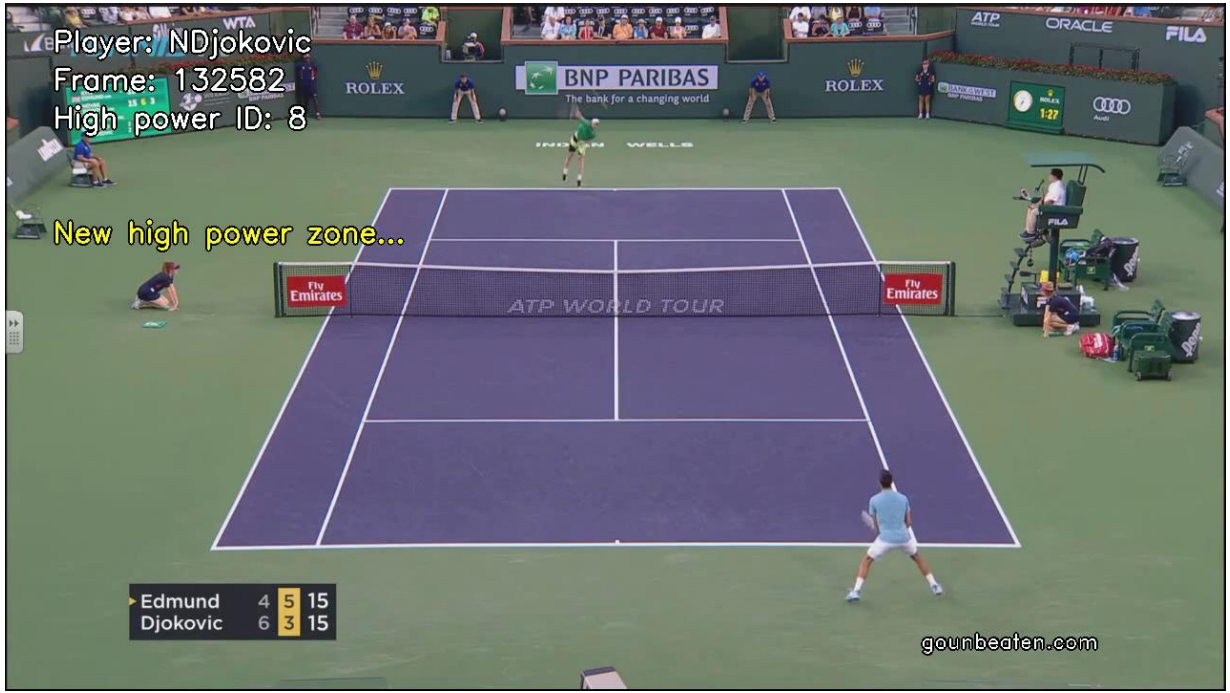
1. Play the Shot they want to play
2. Do so in a safe and effective way
3. Repeat this

- Declaration from 5 – 6m/s

- 3 – 6 B/W on penultimate and change of direction leg

LTA TENNIS FOR BRITAIN

WIDE SERVE AND CROSS COURT - 25 % OF HIGH POWER MOVEMENTS



Reference earlier

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DROP SHOT / NET - 19 % OF HIGH POWER MOVEMENTS

Approx. 1 – 2 % all shots

6 m/s at step 4
(1.75 – 1.8ish 10m speed)

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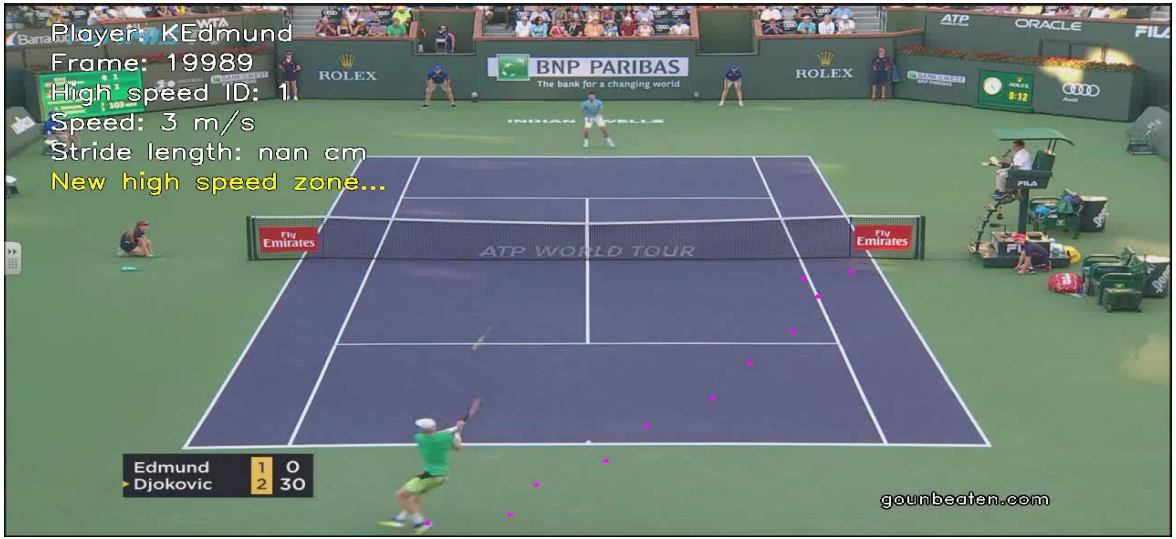
DROP SHOT / NET - 21 % OF HIGH POWER MOVEMENTS

1.76 secs

to run 10.3 metres and run and play a shot



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BASELINE RUNNING FH / BH - 50 % OF HIGH POWER MOVEMENTS

2.7 sec

Time taken for elite male player to get from the middle of the baseline to outside the tramlines, play a shot and get back to the middle of the court

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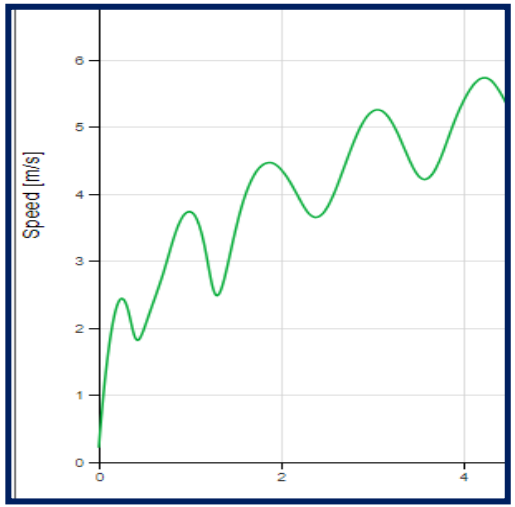
BASELINE RUNNING FH / BH - 57 % OF HIGH POWER MOVEMENTS

LTA TENNIS FOR BRITAIN

BASELINE RUNNING FH / BH - 50 % OF HIGH POWER MOVEMENTS

PSP player – 2.43sec 505

5.2 ms @ 3.6m



Elite women's player

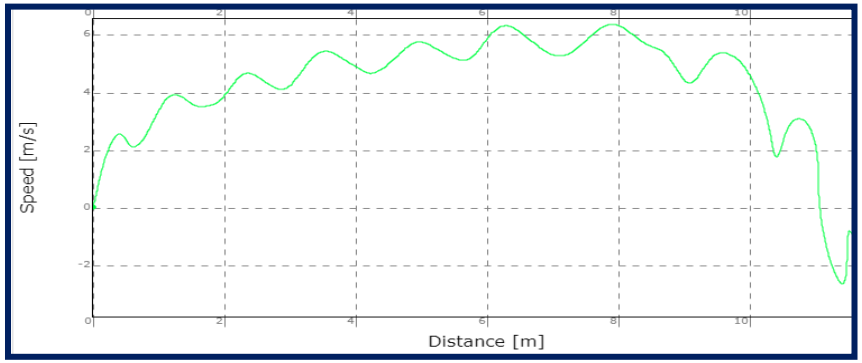
6 ms @ 3.6m – Laterally
(1.7ish 10m time)

LTA TENNIS FOR BRITAIN

BASELINE RUNNING FH / BH - 50 % OF HIGH POWER MOVEMENTS

PSP player – 2.43sec 505

6 m/s to stop in 3.5 metres



Elite women's player

6 m/s to stop in 2 metres

LTA TENNIS FOR BRITAIN

ELITE NORMS

Relate to physical qualities that are ‘relatable’ to what top players **CAN DO** on court

They are not cause and effect

They do answer the question(s) – Has this player got the physical capability to meet the demands of the elite game

ELITE NORMS

FEMALE

	Strength / Power			Speed	CoD		Shuttle	
	MTIP (N/BW)	CMJ (PP/BW)	RSI	10m (s)	(Left)	(Right)	Set 1 (s)	Total (s)
Super Strength	>4.2	>56.7	>3.3	<1.81	<2.40	<2.40	<46.6	<148
Strength	3.7	50.0	3.0	1.93	2.50	2.50	>49.7	<156
Average	3.4	46.7	2.8	2.02	2.55	2.55	51.2	160
Below Average	<3.4	<46.7	<2.8	>2.12	>2.55	>2.55	<51.2	<160
Potential Limitation	<2.3	<33.3	<2.2	>2.24	>2.75	>2.75	<57.4	<176

MALE

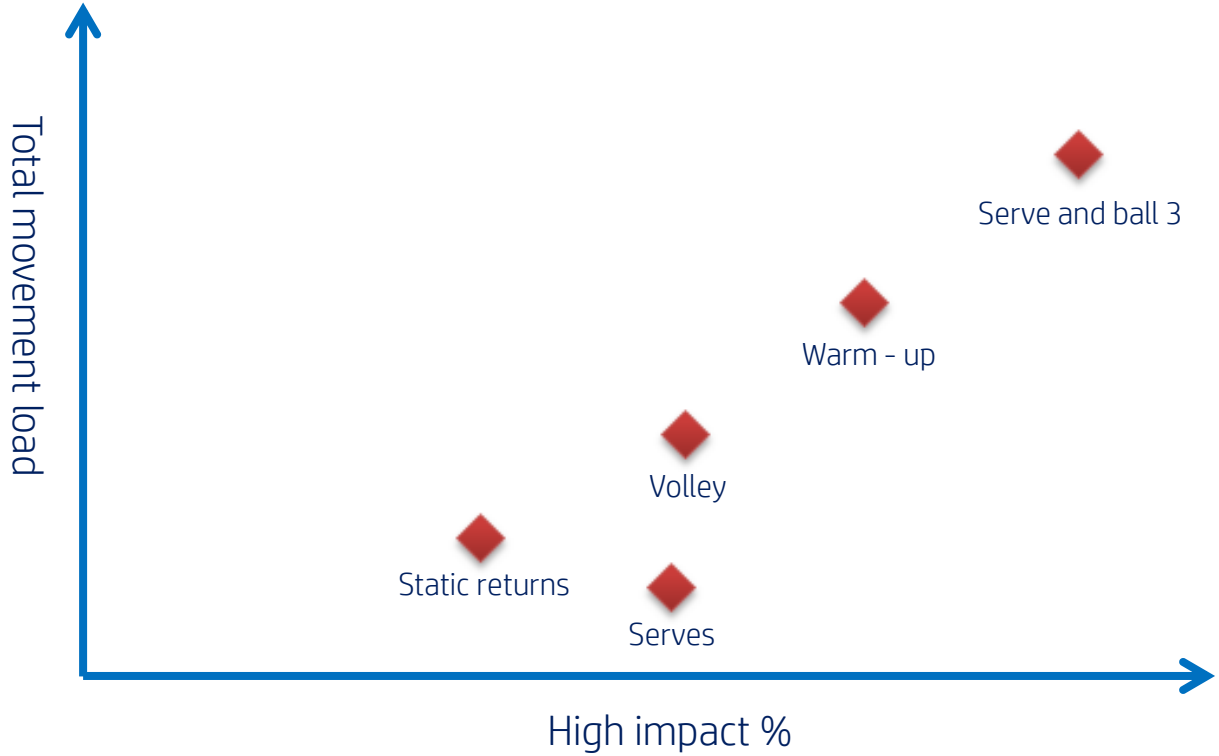
	Strength / Power			Speed	CoD	
	MTIP (N/BW)	CMJ (PP/BW)	RSI	10m (s)	Left (s)	Right (s)
Super Strength	>4.7	>61.	>3.3	<1.70	<2.30	<2.30
Strength	>4.0	>54	>3.0	<1.80	<2.40	<2.40
Average	3.7	49.4	2.8	1.87	2.45	2.45
Below Average	<3.0	<42	<2.5	>1.95	>2.55	>2.55
Potential Limitation	<2.3	<34	<2.2	>2.05	>2.65	>2.65

WHAT DOES THIS LOOK LIKE IN TRAINING? MOVEMENT INTENSITY?

Serve
Serve and ball three
Generic warm up
Volley
Baseline returns (<2m)

Movement load vs % high impact

DEMANDS OF TRAINING



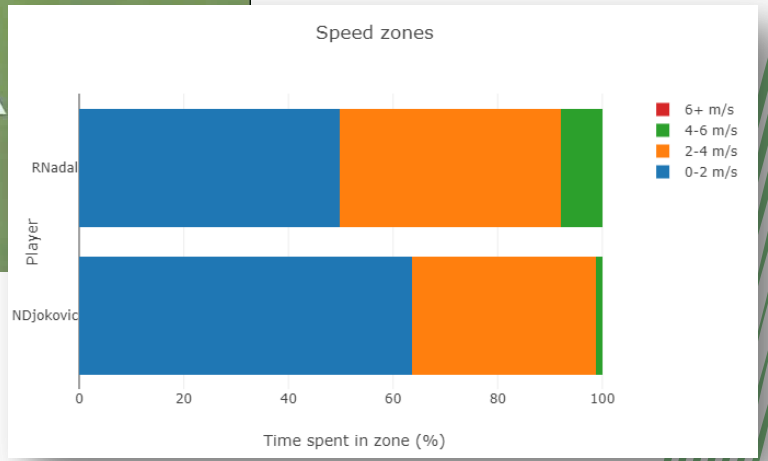
CAVEAT #1

NOT OFTEN IS NOT THE SAME AS NOT IMPORTANT

LONG RALLIES

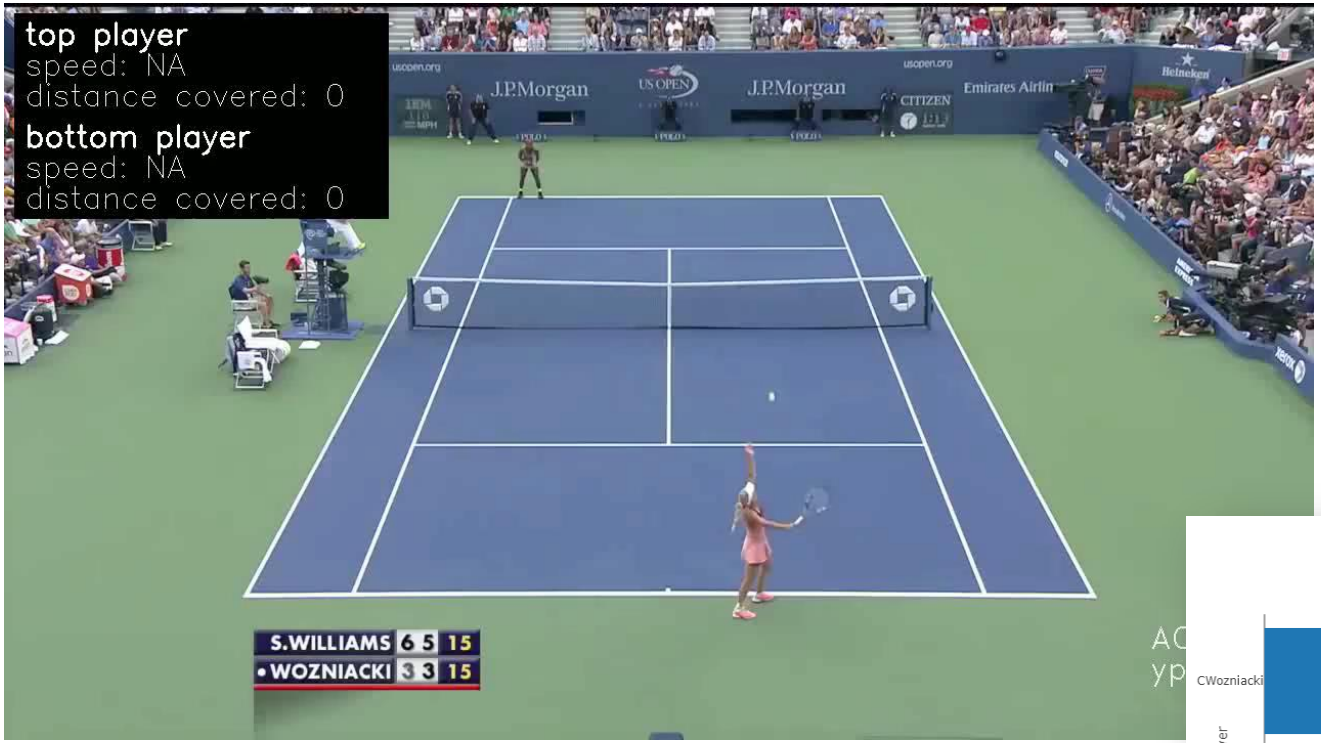
LTA TENNIS FOR BRITAIN

THE LONG POINTS – LESS THAN 5% >20SECS



LTA TENNIS FOR BRITAIN

THE LONG POINTS - BETWEEN 1 – 3% >20SECS



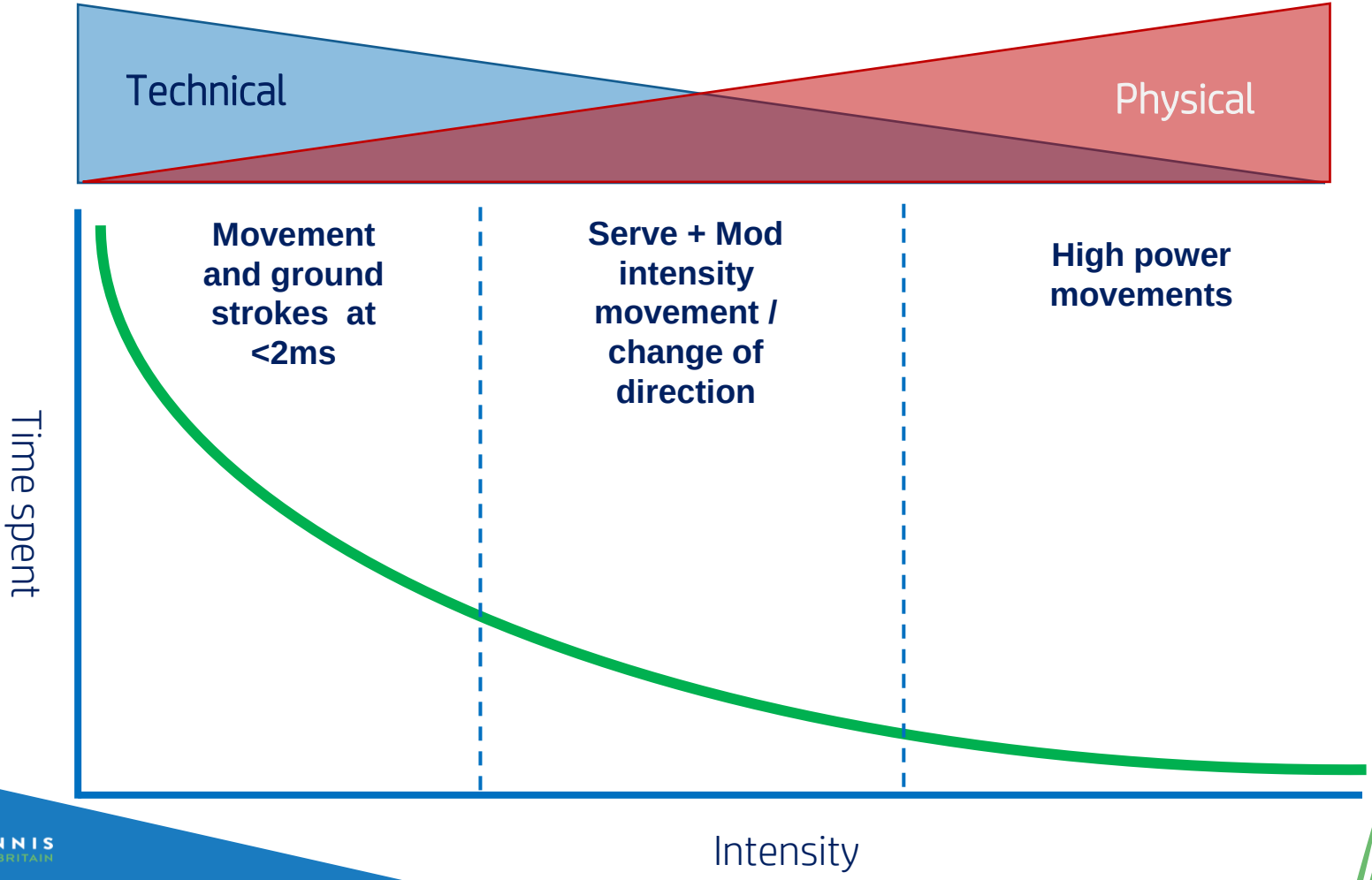
LTA TENNIS FOR BRITAIN

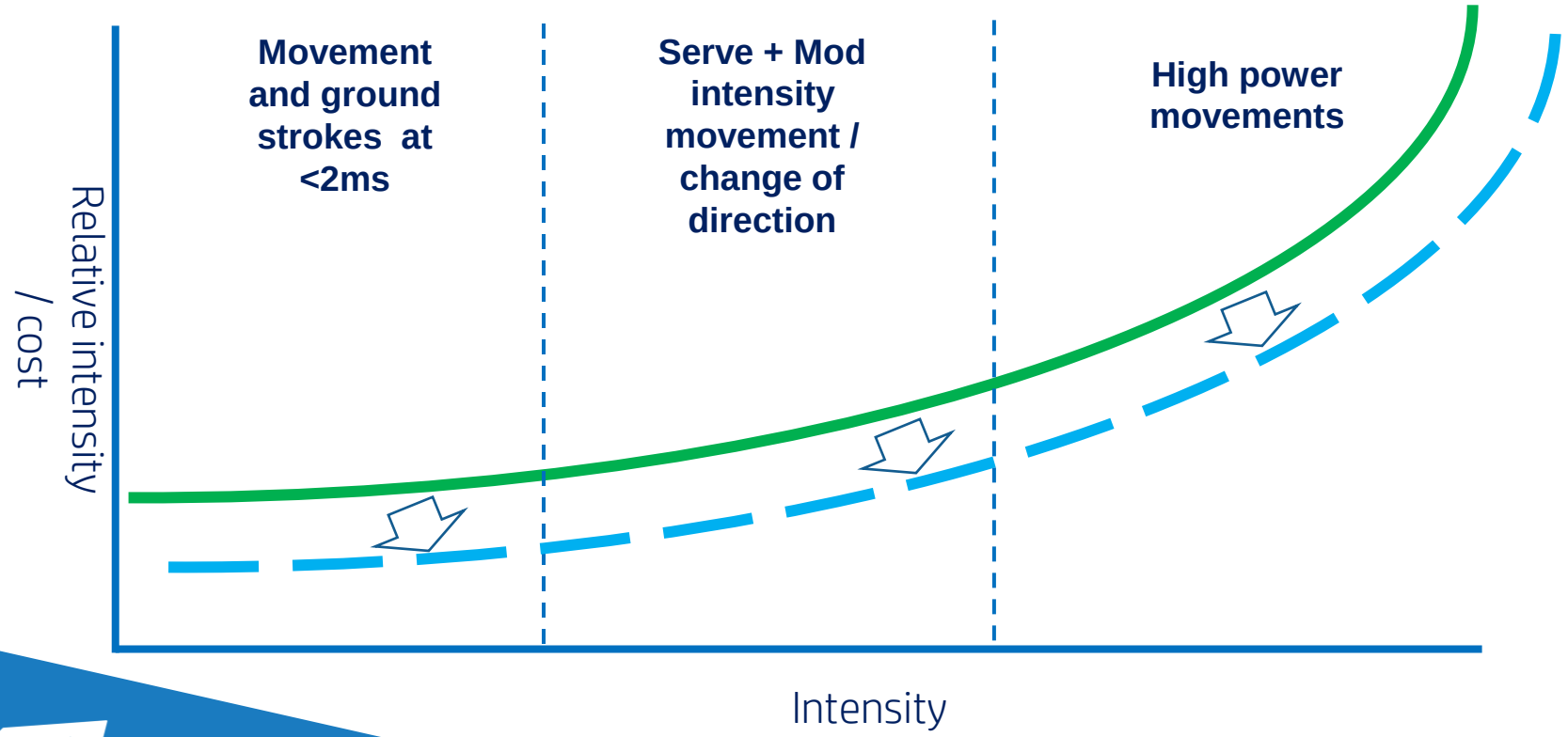
SUMMARY

- Across Mens, Womens and JNRs ‘the majority’ of points are between 1 – 4
- More than 70% of the work is done in <5 seconds
- Across analysed games <3% is over 30 seconds in length
- There is ‘always’ more rest than work

OPPORTUNITIES FOR IMPACT?

LTA TENNIS FOR BRITAIN


Technical
Physical
Movement and ground strokes at <2ms
Serve + Mod intensity movement / change of direction
High power movements
Time spent
Intensity


Movement and ground strokes at <2ms
Serve + Mod intensity movement / change of direction
High power movements
Relative intensity / cost
Intensity

TENNIS ATHLETE OF FUTURE

Excellent co – ordination in cross over, start , stop in all directions in variety of conditions

Capacity to rotate in multiple ways at multiple speeds

Enough endurance – (Vo2 max at of 45 – 55)

Strengths in acceleration, change of direction , hop and bounds in all directions

Physical super strengths aligned to game identity