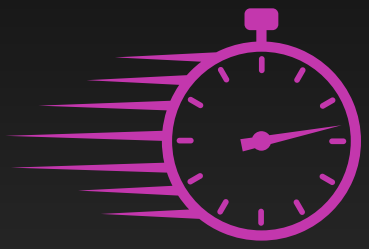
SPEED SKATING DATA

SLOW MOTION ANALYSIS

START OVERVIEW

TIME TO COMPLETE 10 METERS



YOU	THE BEST*
2.063s	2.063s

STARTING POSITION

YOU
FRONTAL

Selected by
75%
of the best**

MEAN ACCELERATION

YOU	AVERAGE SPRINTER
3.63 m/s/s	3.11 m/s/s

MEAN PUSH FREQUENCY

YOU	AVERAGE SPRINTER
3.86 Hz	3.74 Hz

*Best time recorded over the 10m distance with video analysis.

**Sub 9 seconds athletes over the 100m distance.

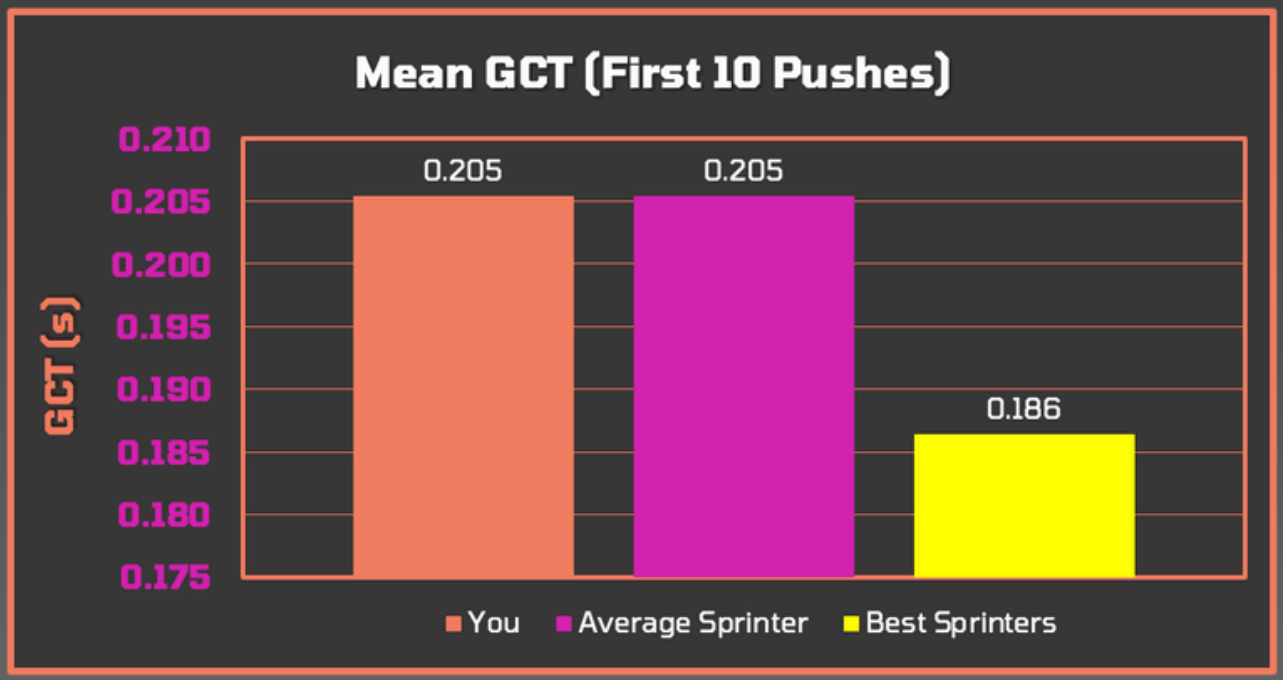
GROUND CONTACT TIME

WHAT IS IT?

THE GROUND CONTACT TIME IS THE TIME SPENT ON THE GROUND BY A SKATE DURING THE PUSHING PHASE. IT STARTS AS SOON AS ALL THE WHEELS TAKES CONTACT WITH THE GROUND AND ENDS WHEN THE LAST WHEEL OF THE SKATE LEAVES THE GROUND.

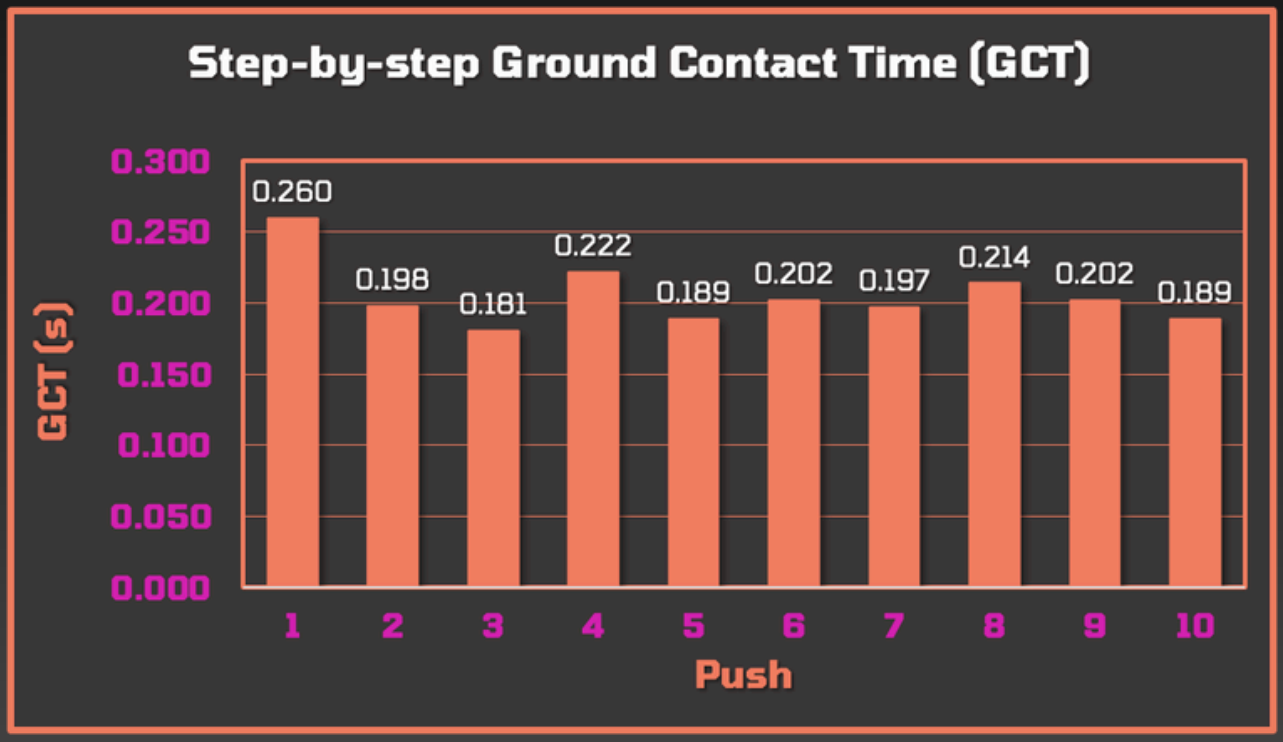
MEAN GROUND CONTACT TIME*

YOU	THE BEST*
0.205s	0.186s



*Average values for the first 10 pushes.

GROUND CONTACT TIME STEP-BY-STEP ANALYSIS



THE IMPORTANCE OF A STEP-BY-STEP ANALYSIS

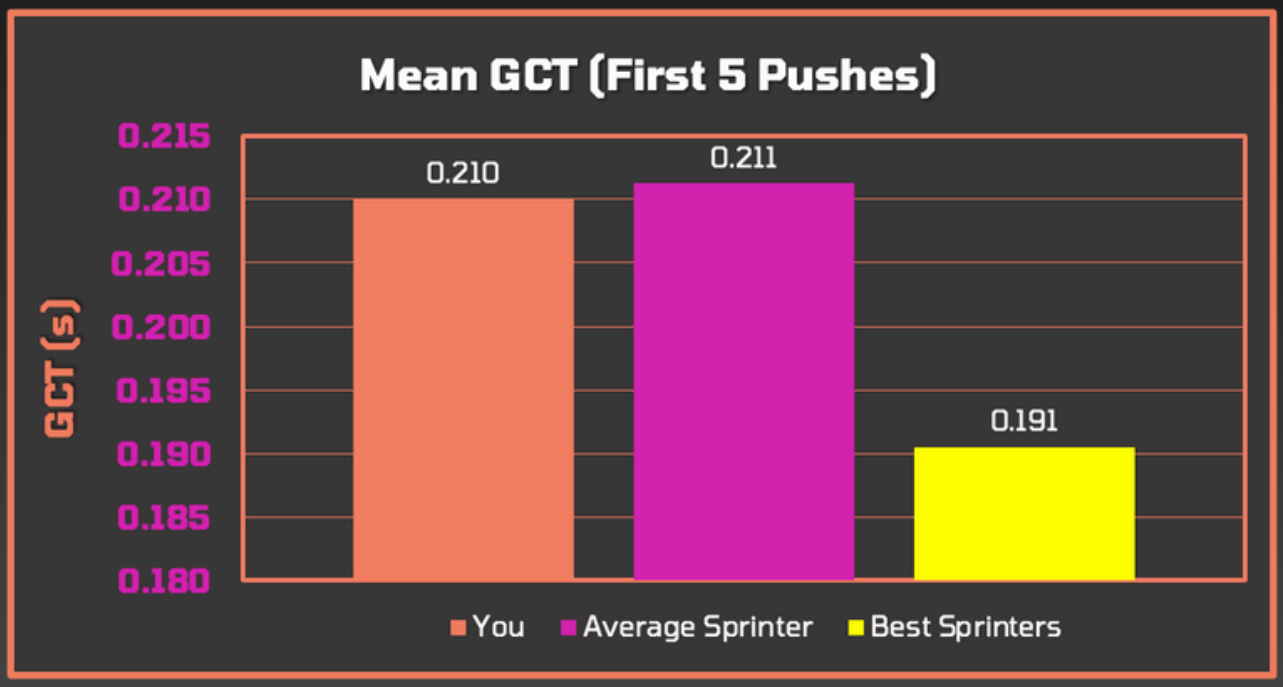
THE WORK CONDUCTED BY THE SSD TEAM SHOWED THAT A STEP-BY-STEP ANALYSIS CAN GIVE IMPORTANT INSIGHTS ON ATHLETES' TECHNIQUE AND PERFORMANCE.

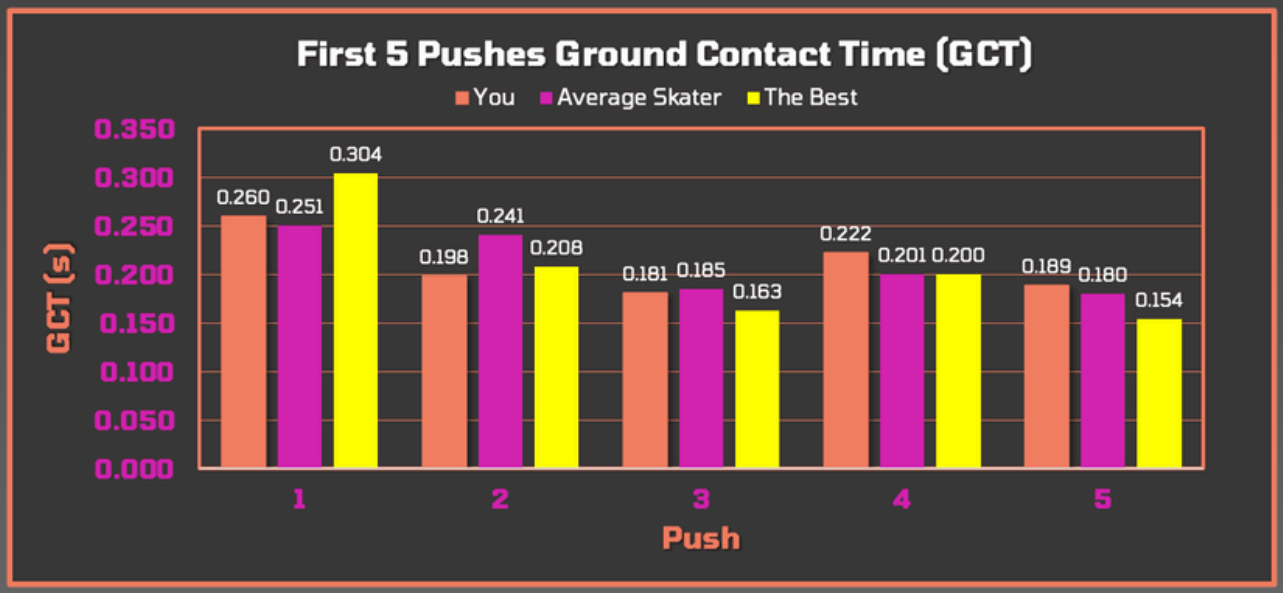
MORE SPECIFICALLY, THE FASTEST SKATERS OVER THE FIRST 10 METERS OF A STANDING START USUALLY SPEND LESS TIME ON THE GROUND DURING THE FIRST 5 PUSHES.

IF WE LOOK AT THE 100M PERFORMANCE, THE SKATERS THAT ARE ABLE TO REDUCE THE GCT OF THE LATTER PUSHES (PUSHES 5-10) ARE USUALLY THE FASTEST.

GROUND CONTACT TIME STEP-BY-STEP ANALYSIS

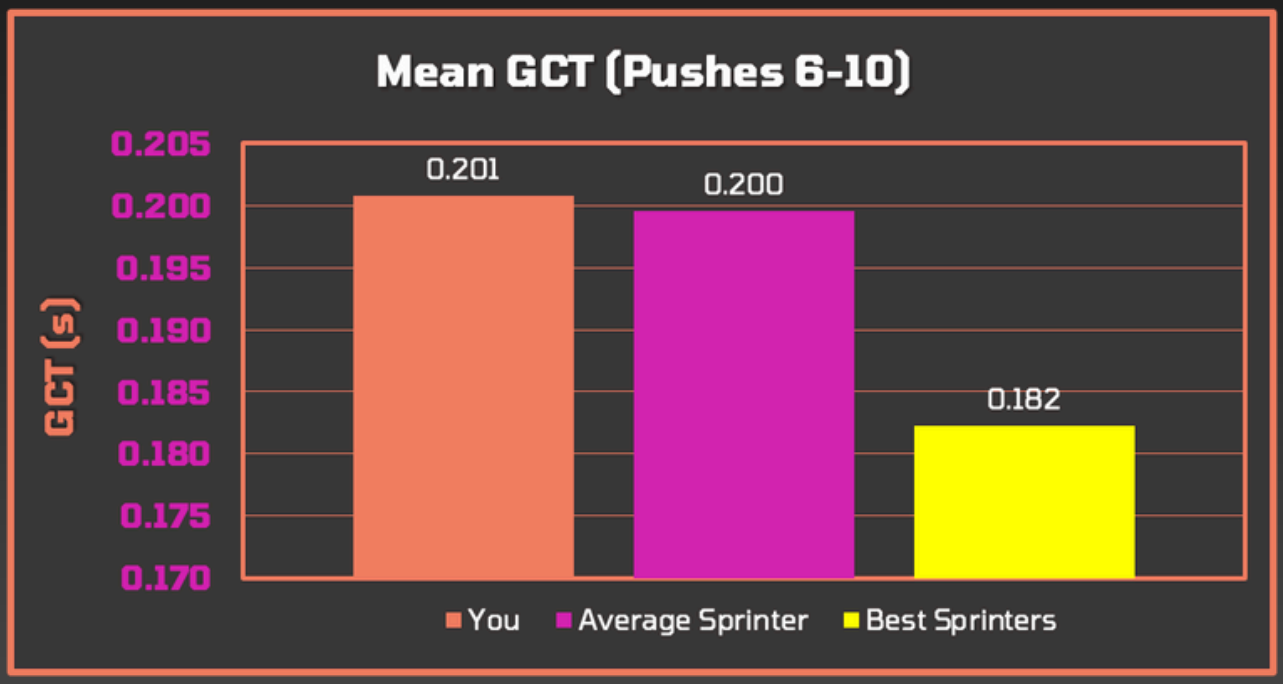
FIRST 5 PUSHES

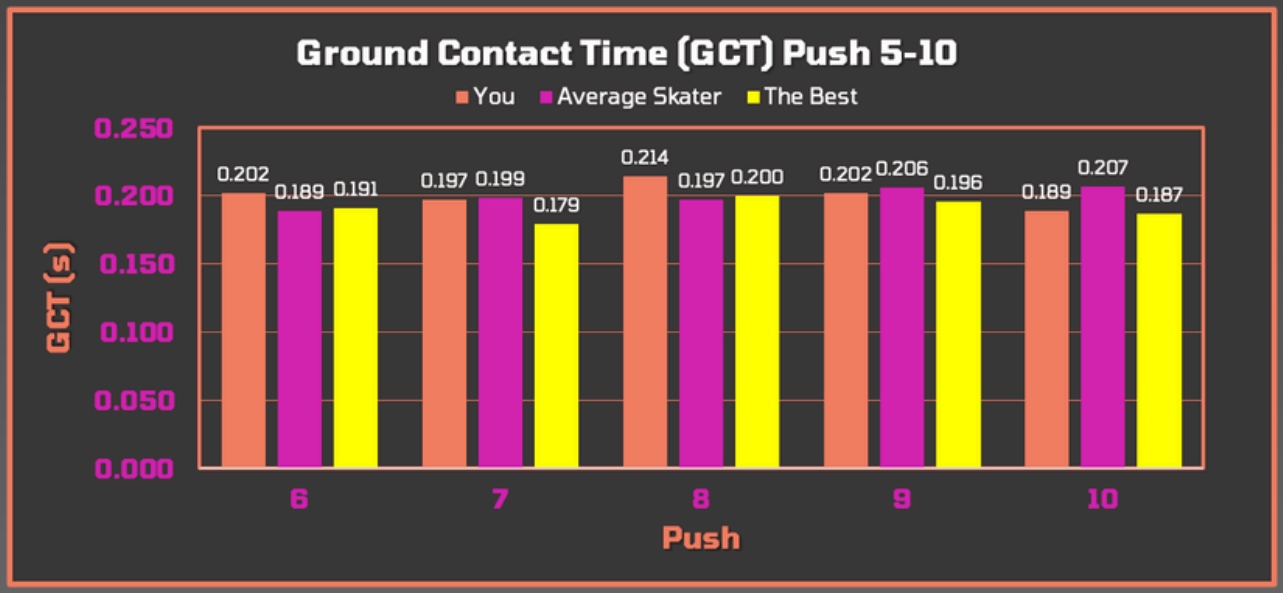




GROUND CONTACT TIME STEP-BY-STEP ANALYSIS

PUSH 6-10

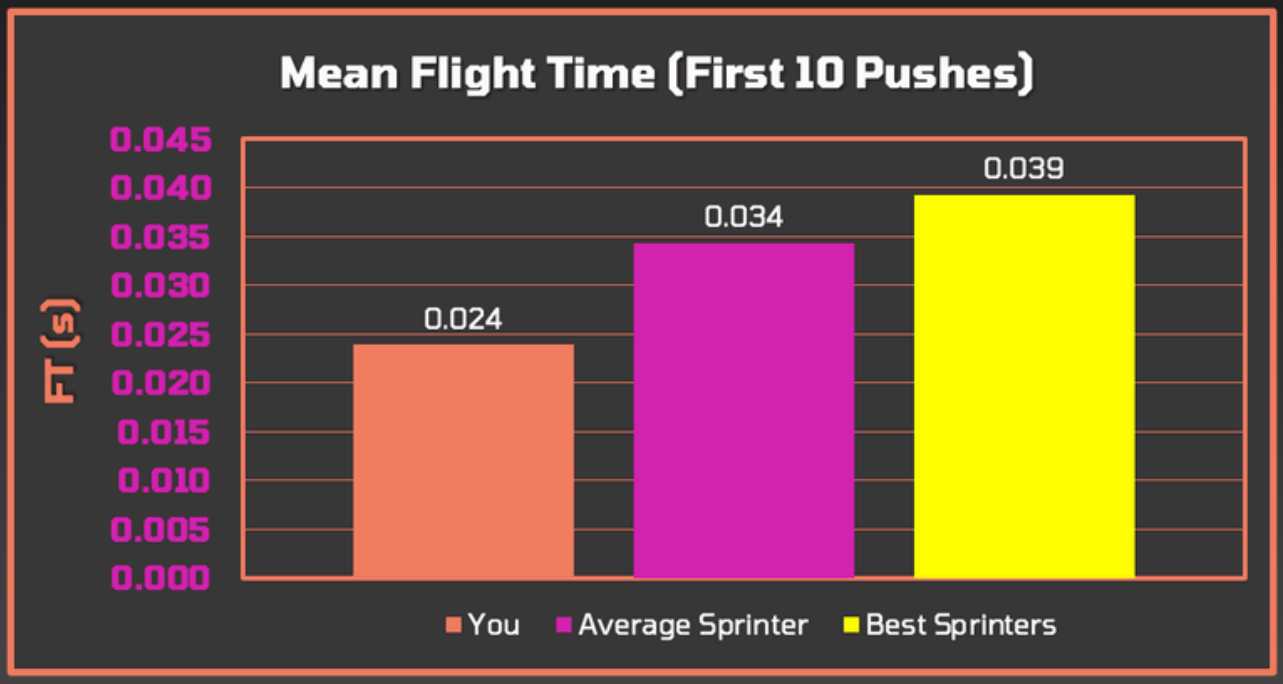


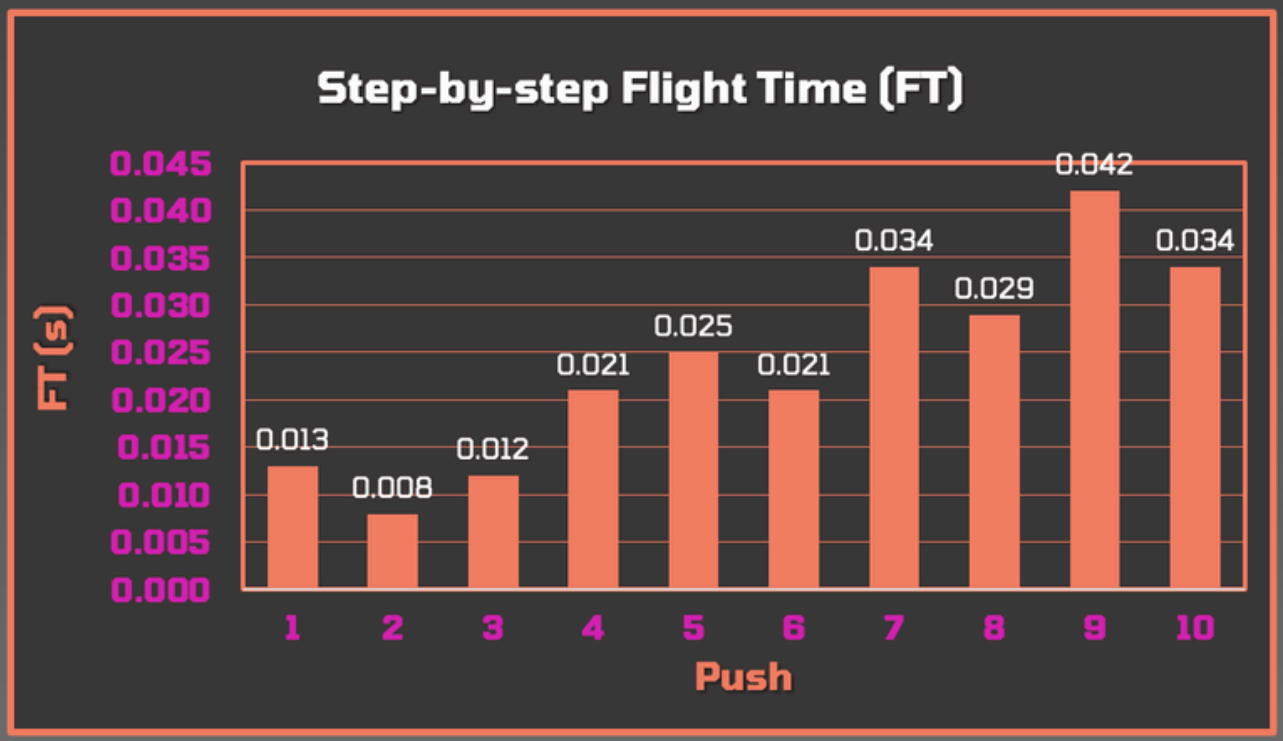


FLIGHT TIME

WHAT IS IT?

THE FIGHT TIME IS THE TIME DURING WHICH NO SKATE IS IN CONTACT WITH THE GROUND.
IT STARTS WHEN THE LAST WHEEL OF THE BACK FOOT LEAVES THE GROUND AND IT ENDS WHEN THE FIRST WHEEL OF THE FRONT FOOT TAKES CONTACT WITH THE GROUND.

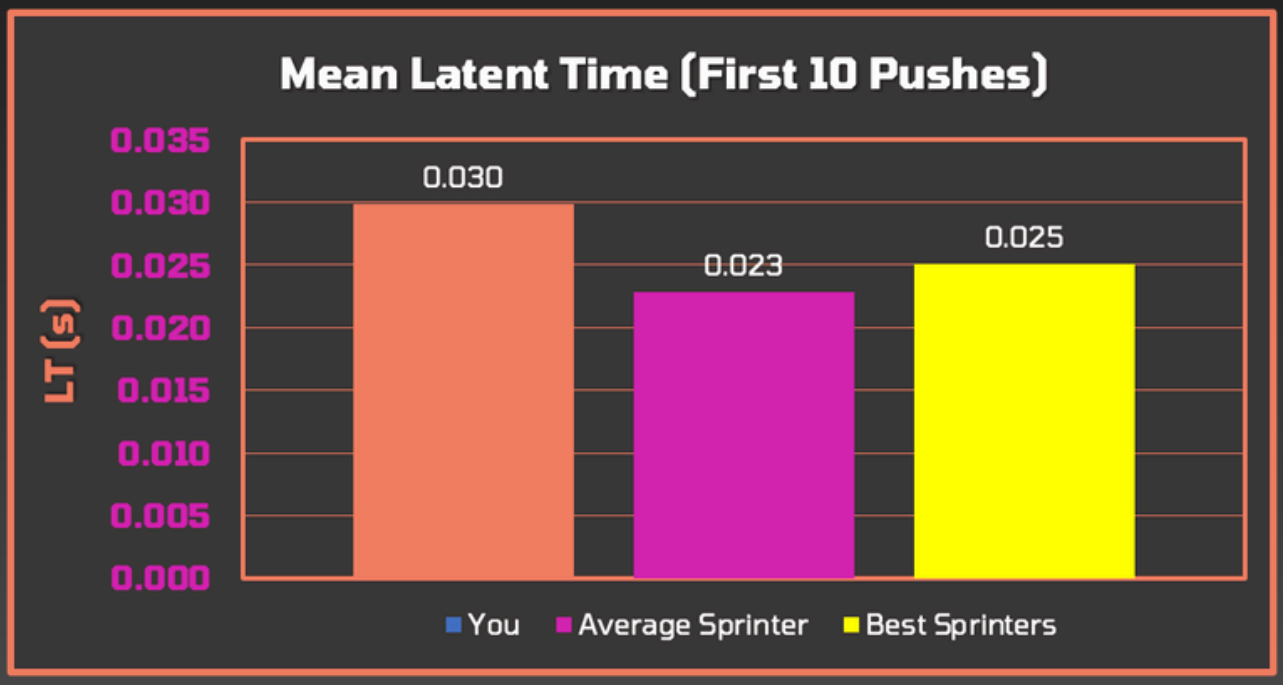


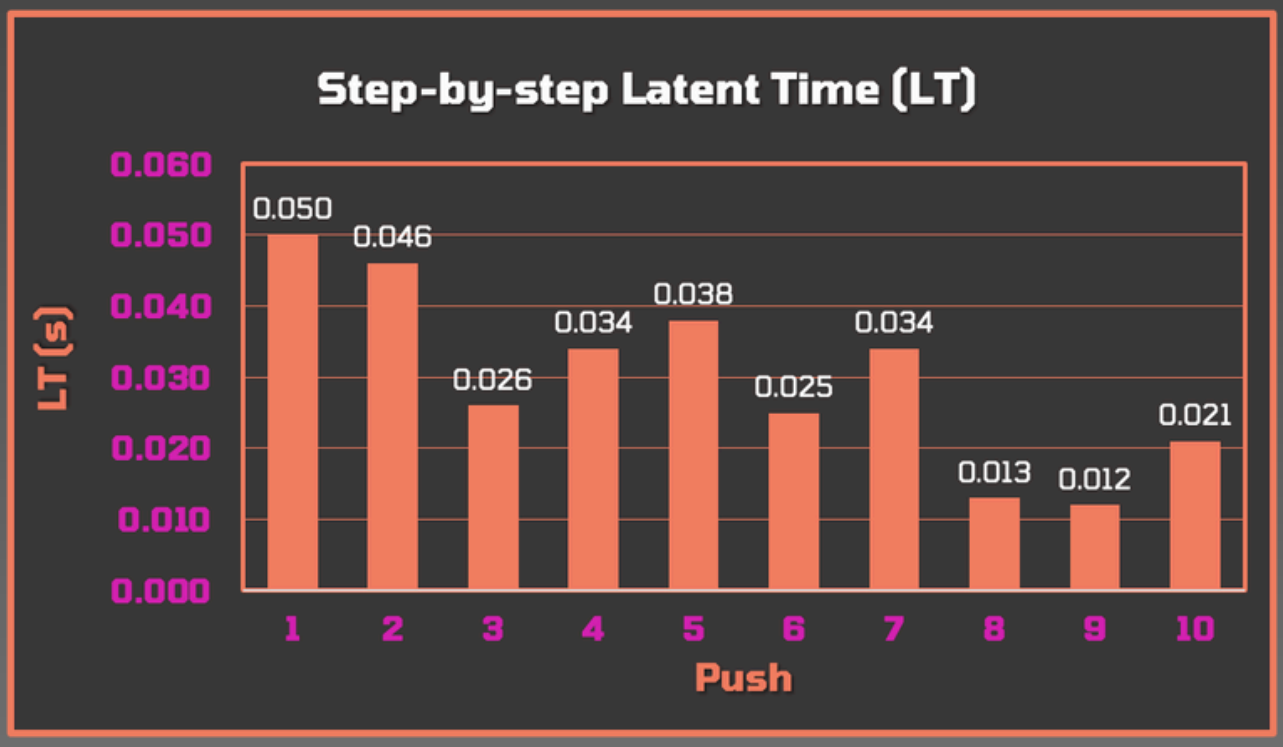


LATENT TIME

WHAT IS IT?

THE LATENT TIME IS THE TIME DURING WHICH THE SKATE TAKES CONTACT WITH THE GROUND BUT THE PUSH IS STILL NOT EFFECTIVE. IT SPANS FROM WHEN THE FIRST WHEEL TOUCHES THE GROUND (EITHER THE FRONT OR BACK WHEEL) AND ENDS WHEN ALL THE FOUR WHEELS TOUCH THE GROUND.



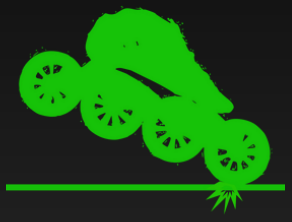


LATENT TIME

LANDING TOUCH ANALYSIS

NEGATIVE
BACK WHEEL FIRST

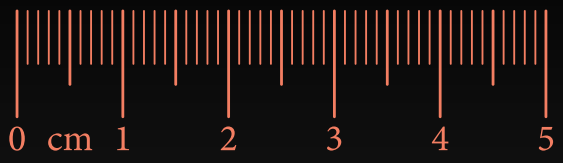
NEUTRAL
ALL WHEELS TOGETHER



POSITIVE
FRONT WHEEL FIRST

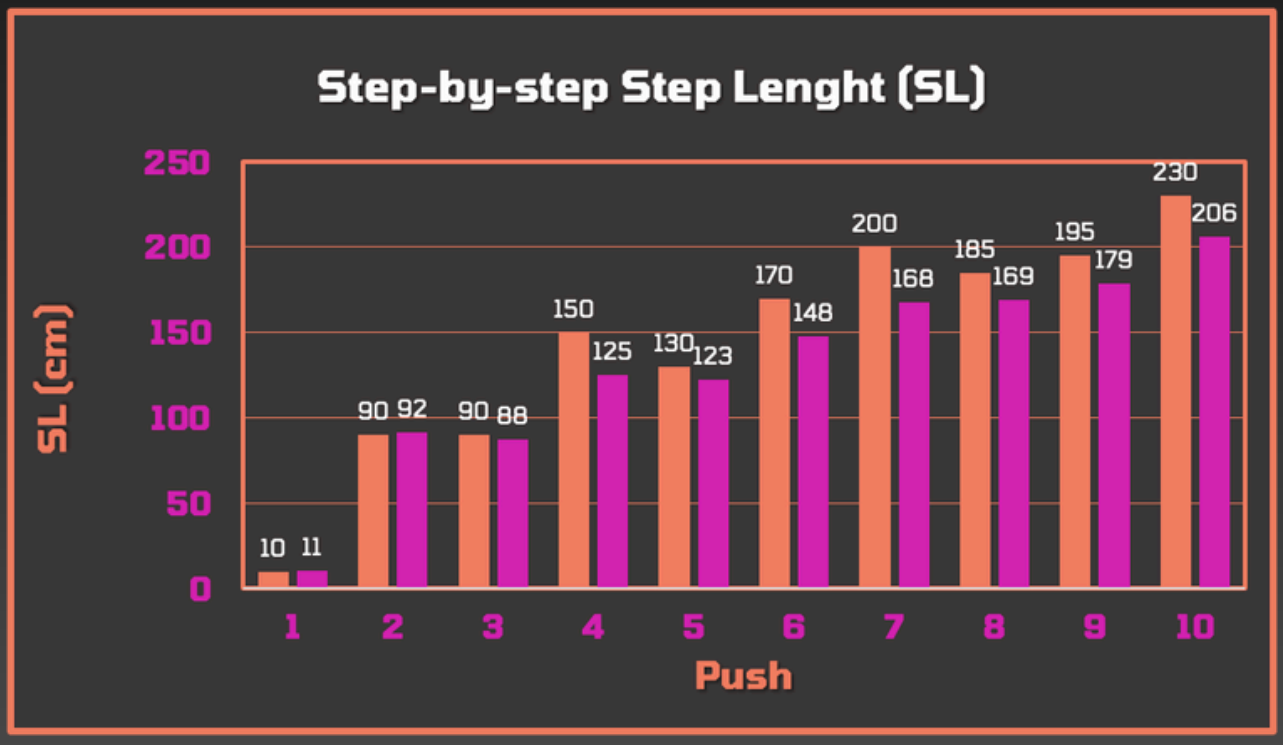
PUSH	LANDING TOUCH
Push 1	Positive
Push 2	Positive
Push 3	Positive
Push 4	Positive
Push 5	Positive
Push 6	Positive
Push 7	Positive
Push 8	Positive
Push 9	Neutral
Push 10	Negative

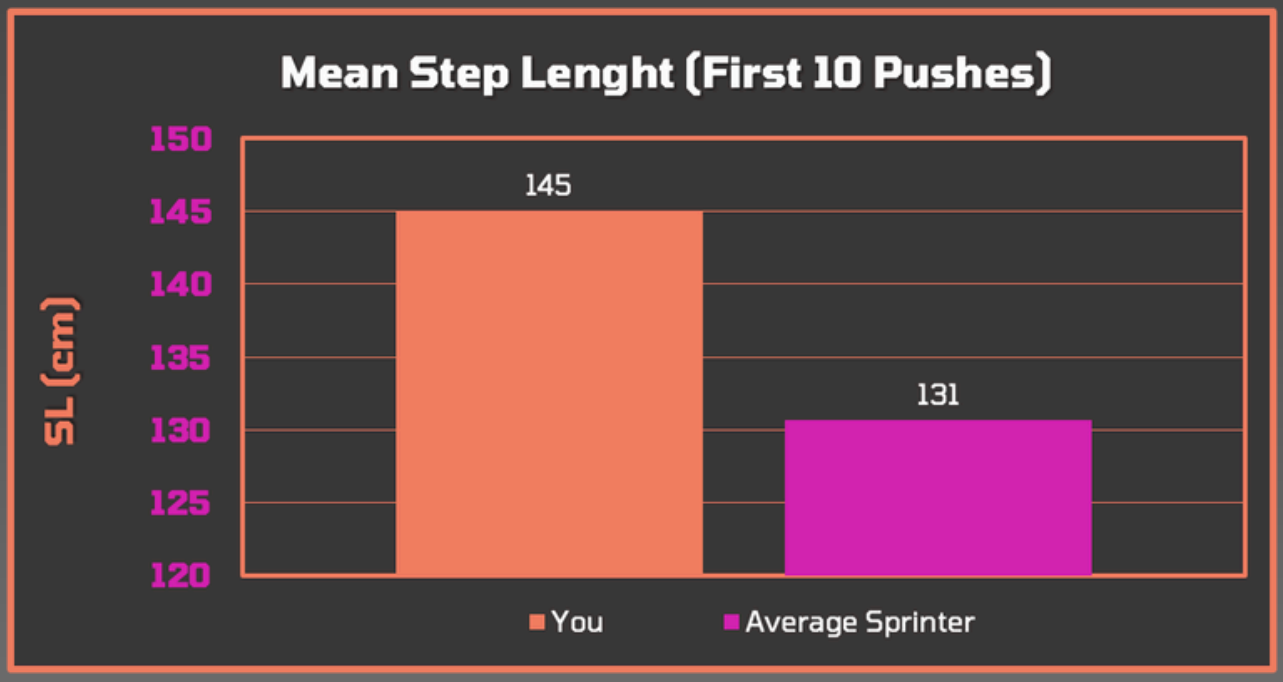
STEP LENGTH



WHAT IS IT?

STEP LENGHT IS THE SINGLE MOST IMPORTANT PARAMETER WITH THE BEST TIMES RECORDED OVER THE 10M DISTANCE BY THE ATHLETES THAT ARE ABLE TO COVER THE GREATER DISTANCES WITH EACH STEP.

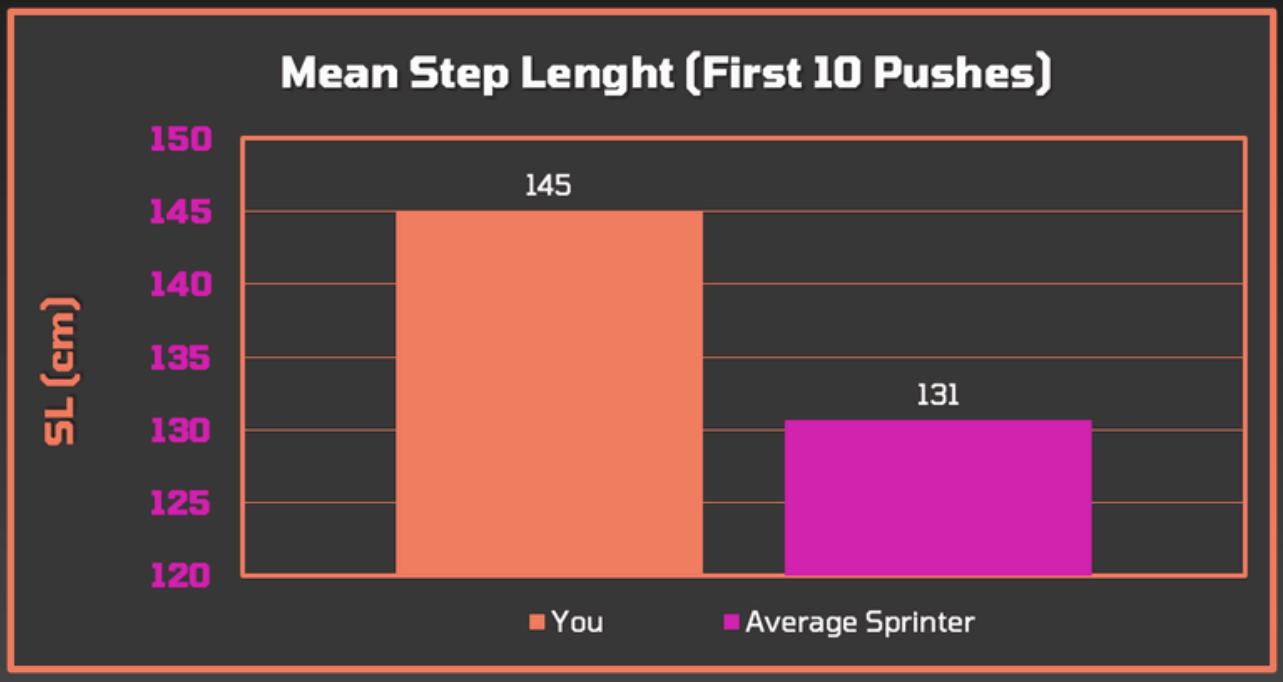


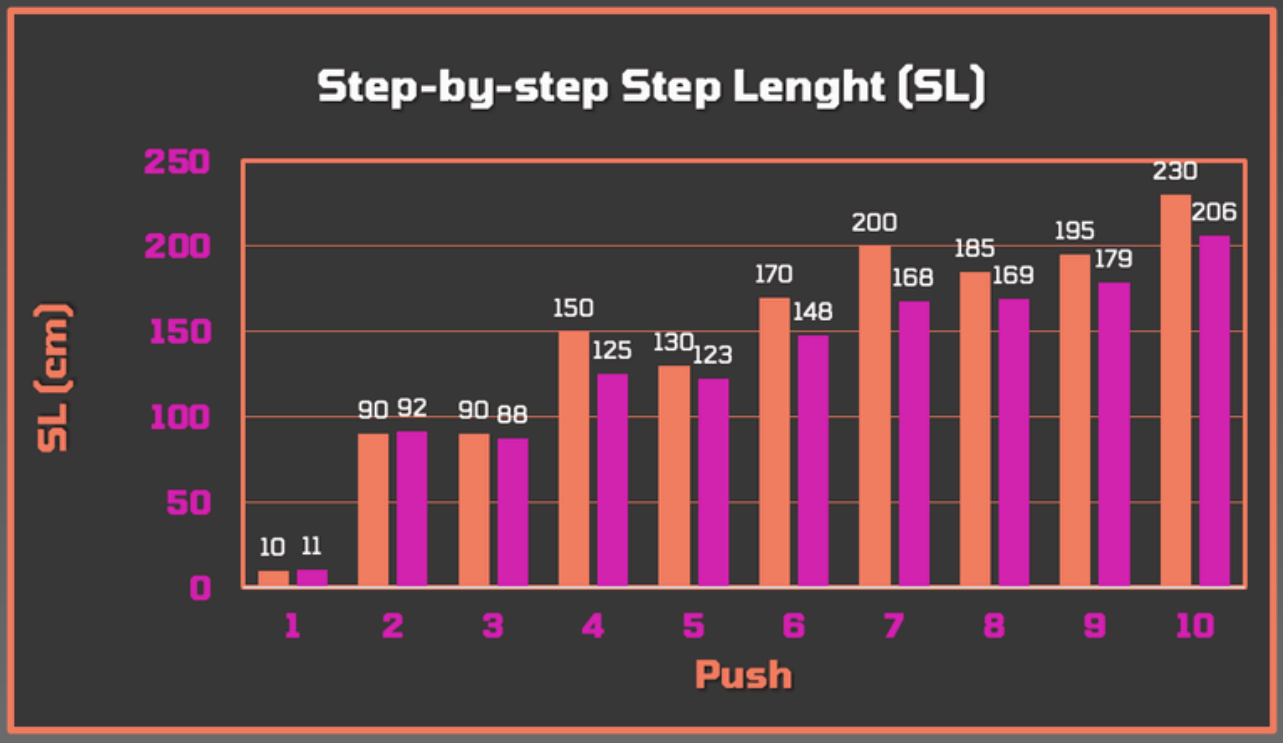


STEP LENGTH

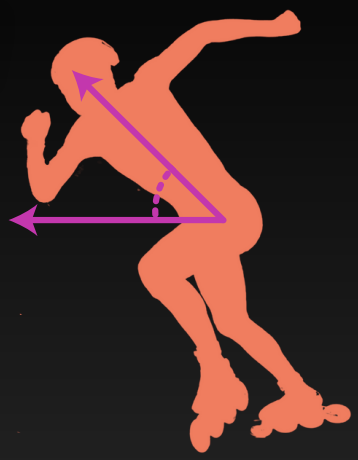
WHAT IS IT?

STEP LENGHT IS THE SINGLE MOST IMPORTANT PARAMETER WITH THE BEST TIMES RECORDED OVER THE 10M DISTANCE BY THE ATHLETES THAT ARE ABLE TO COVER THE GREATER DISTANCES WITH EACH STEP.



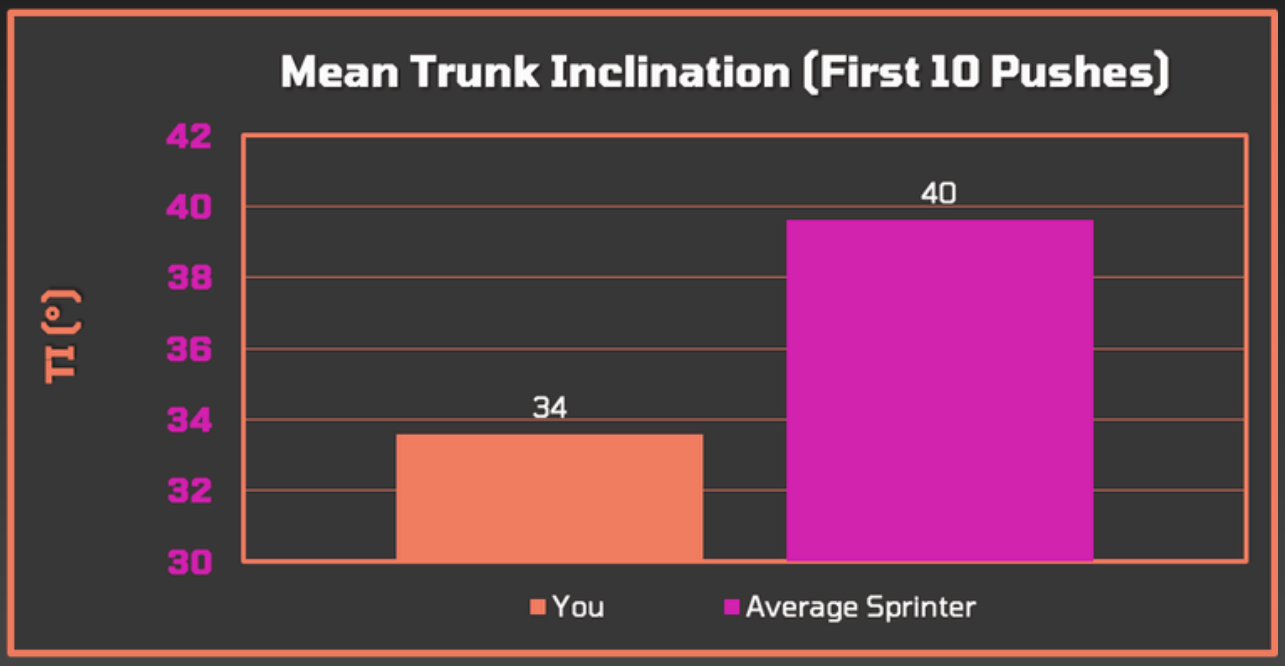


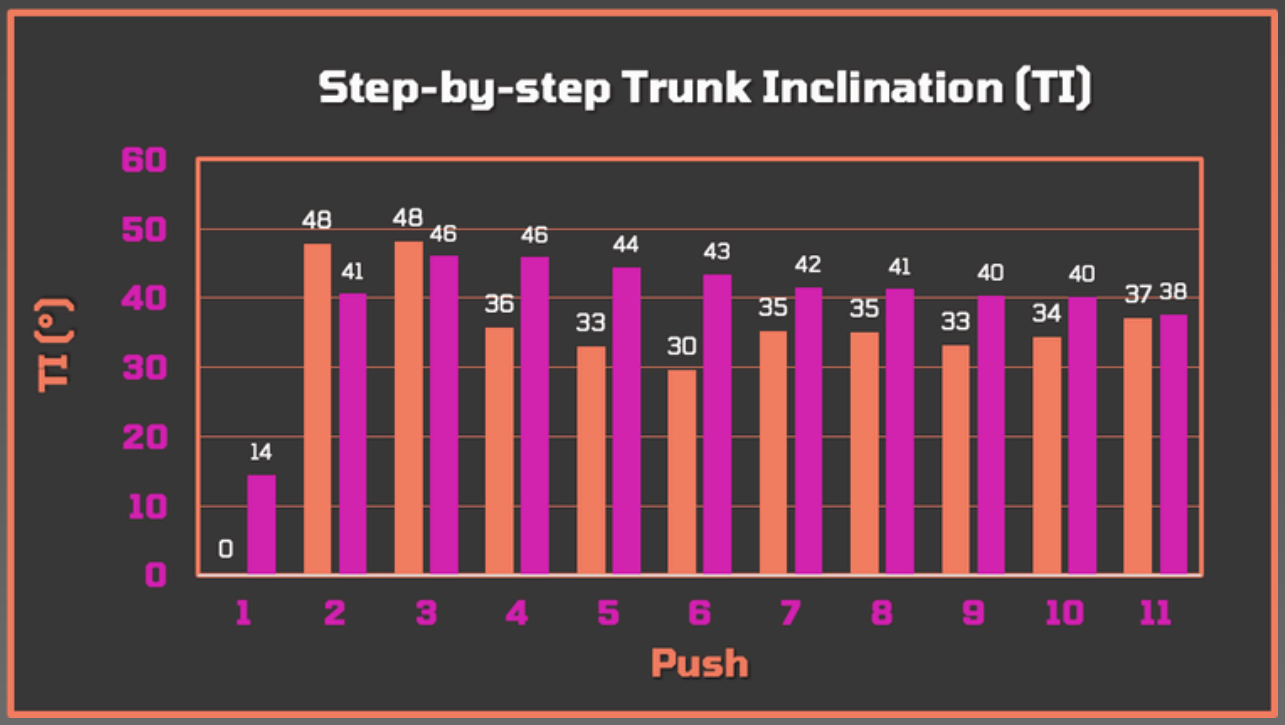
TRUNK INCLINATION



WHAT IS IT?

TRUNK INCLINATION IS CALCULATED AS THE ANGLE BETWEEN THE ATHLETE'S TORSO AND THE GROUND. A SMALLER ANGLE IS USUALLY CORRELATED TO A BETTER PERFORMANCE OVER THE 10M DISTANCE.

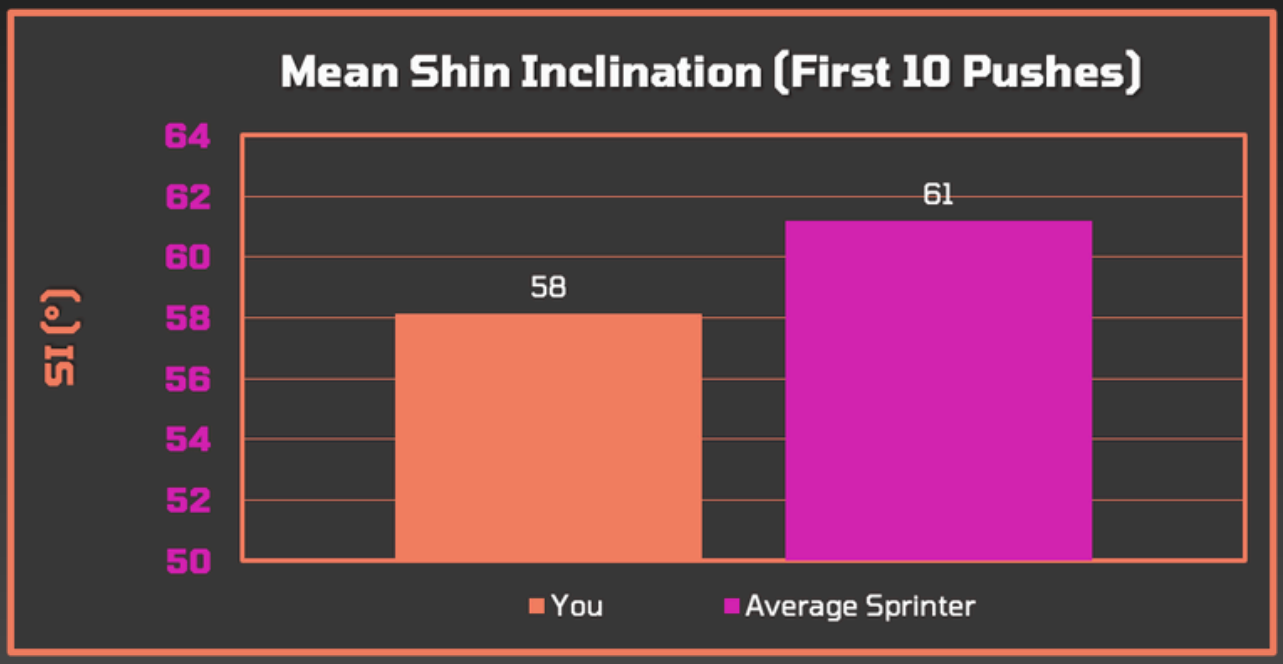


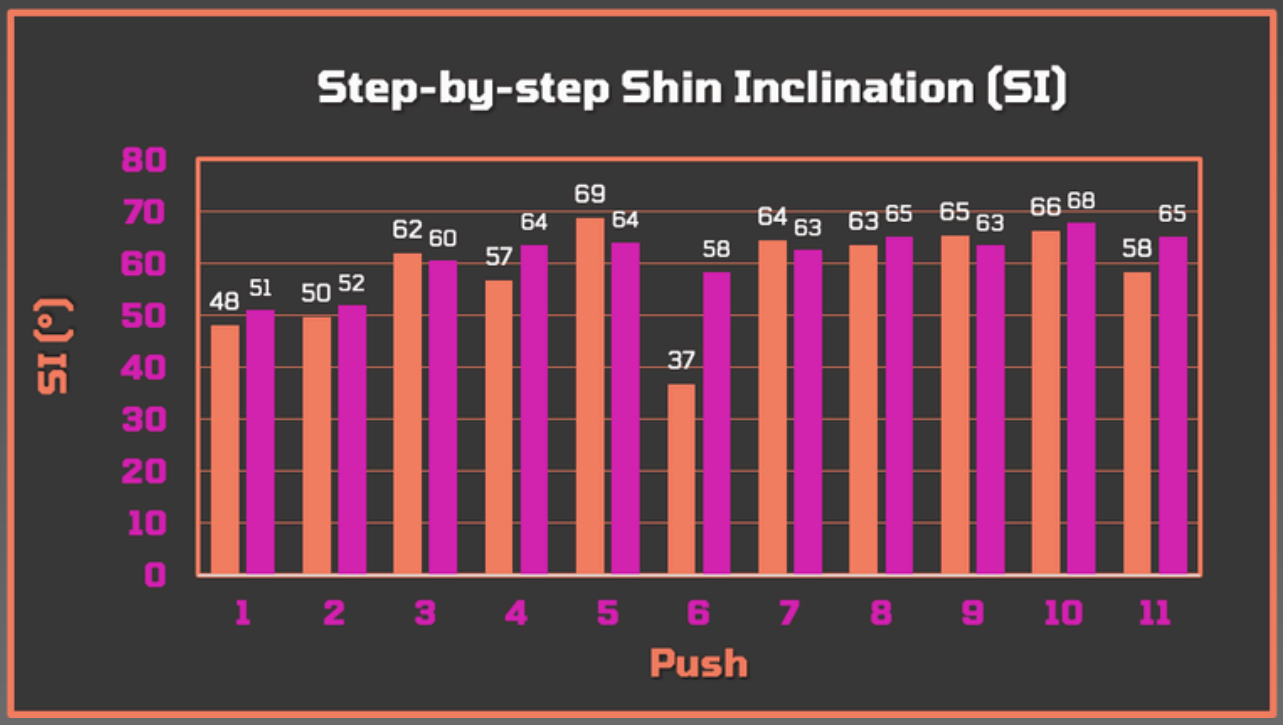


SHIN INCLINATION

WHAT IS IT?

SHIN INCLINATION IS CALCULATED AS THE ANGLE BETWEEN THE ATHLETE'S SHIN (AT TOUCH DOWN) AND THE GROUND. A SMALLER AVERAGE ANGLE OVER THE FIRST 10 PUSHES IS STRONGLY CORRELATED TO A BETTER PERFORMANCE OVER THE 10M DISTANCE.

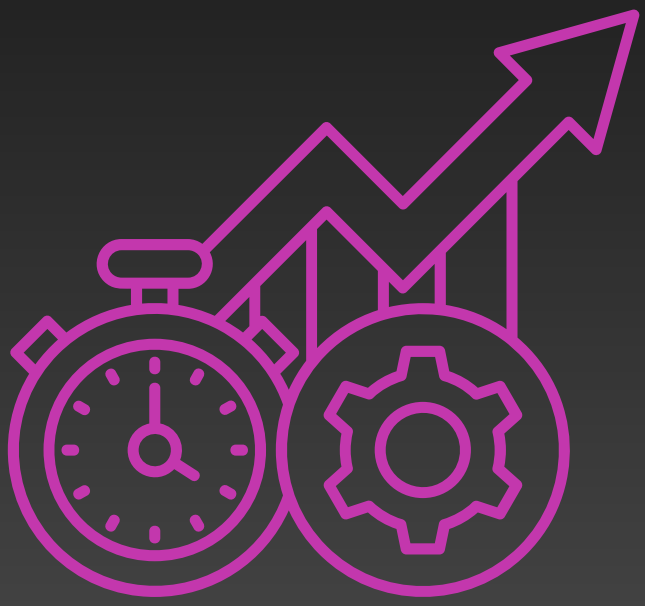


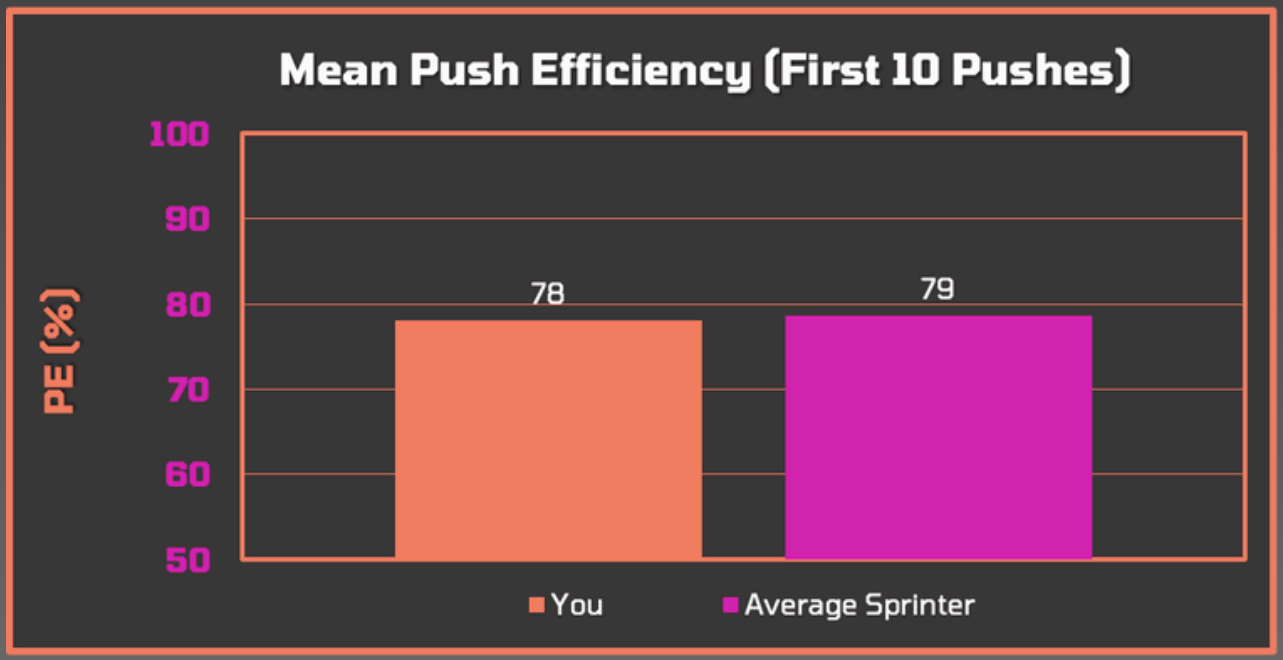


PUSH EFFICIENCY

WHAT IS IT?

PUSH EFFICIENCY IS A MEASURE OF THE COHERENCE BETWEEN THE TRUNK INCLINATION AND THE SHIN INCLINATION. IT IS EXPRESSED AS A PERCENTAGE. A GREATER PUSH EFFICIENCY IS STRONGLY CORRELATED WITH SHORTER TIMES OVER THE 10M DISTANCE.

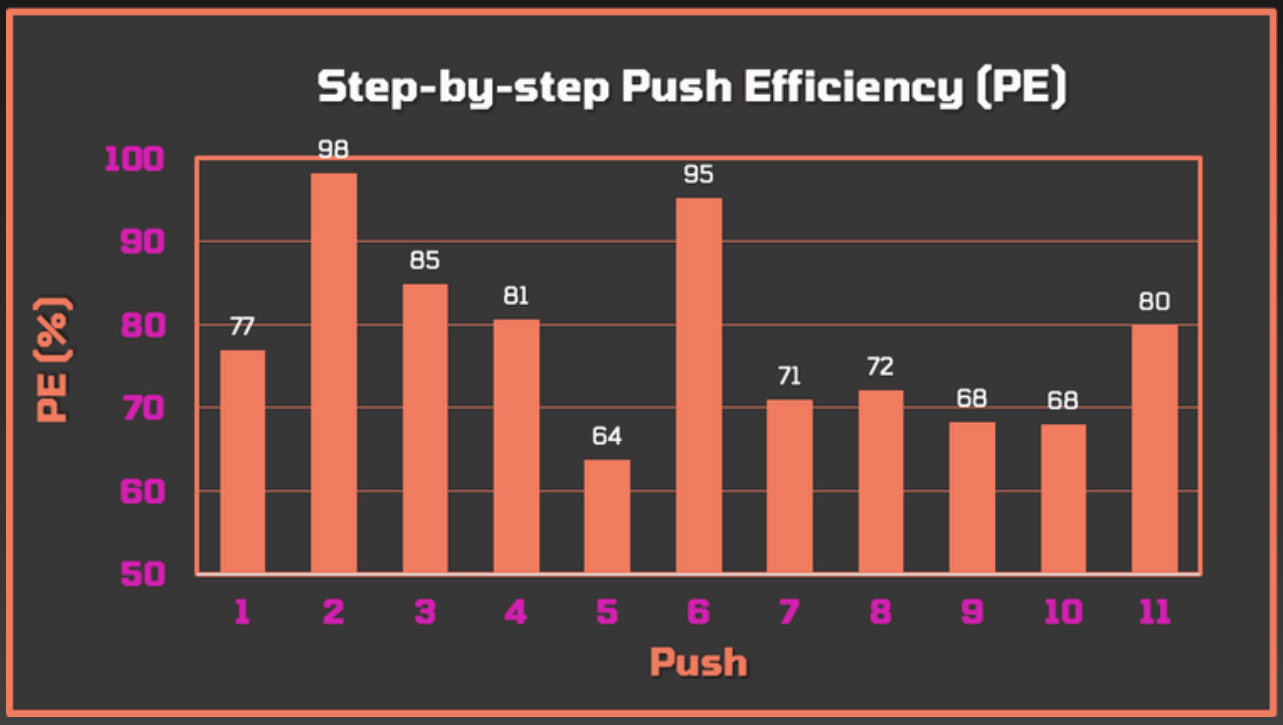




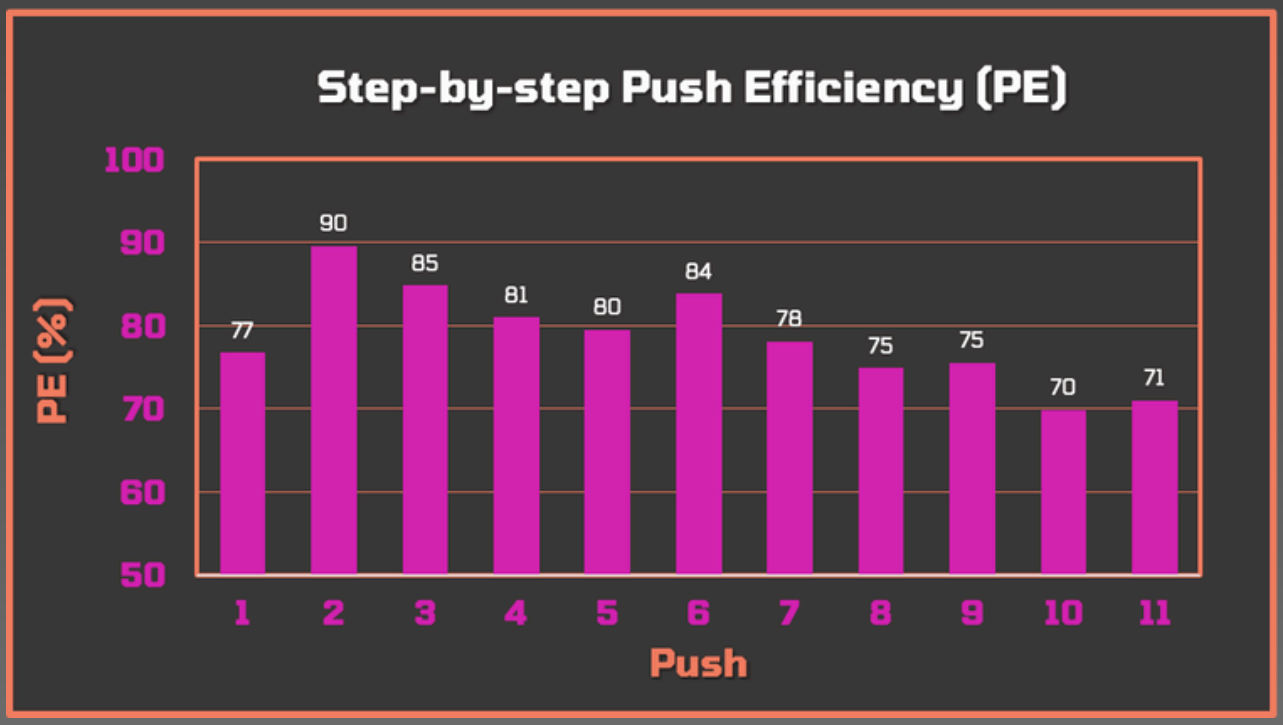
PUSH EFFICIENCY

STEP-BY-STEP ANALYSIS

YOU



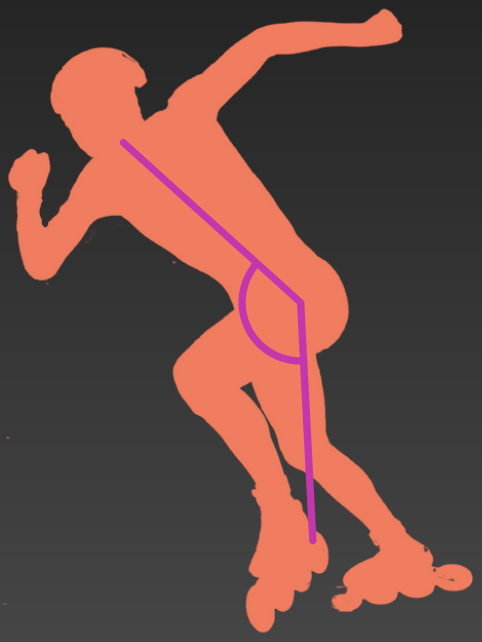
AVERAGE SPRINTER

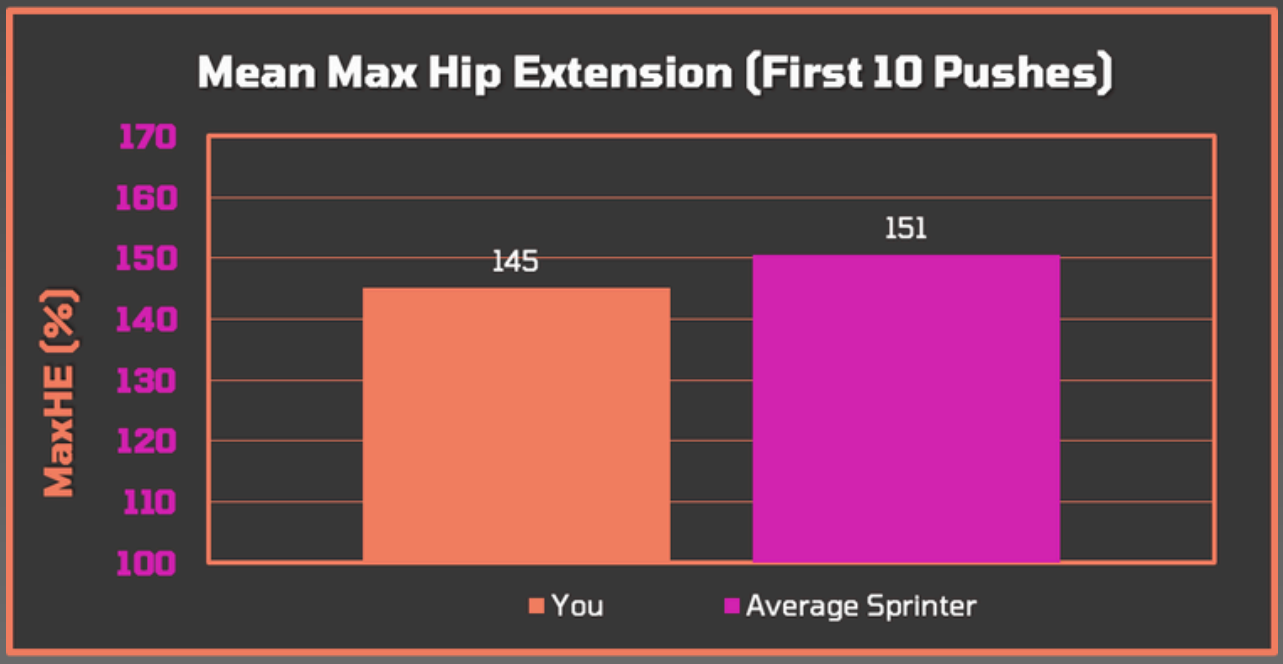


MAXIMUM HIP EXTENSION

WHAT IS IT?

MAXIMUM HIP EXTENSION (MAXHE) IS THE ANGLE BETWEEN THE TRUNK AND THE THIGH AT THE END OF A PUSH. A GREATER MEAN MAXIMUM HIP EXTENSION IS SLIGHTLY CORRELATED TO BETTER PERFORMANCES OVER THE 10-M DISTANCE. A GREATER HIP EXTENSION OVER THE FIRST 3 STEPS SEEMS TO BE OF AN EVEN GREATER IMPORTANCE.

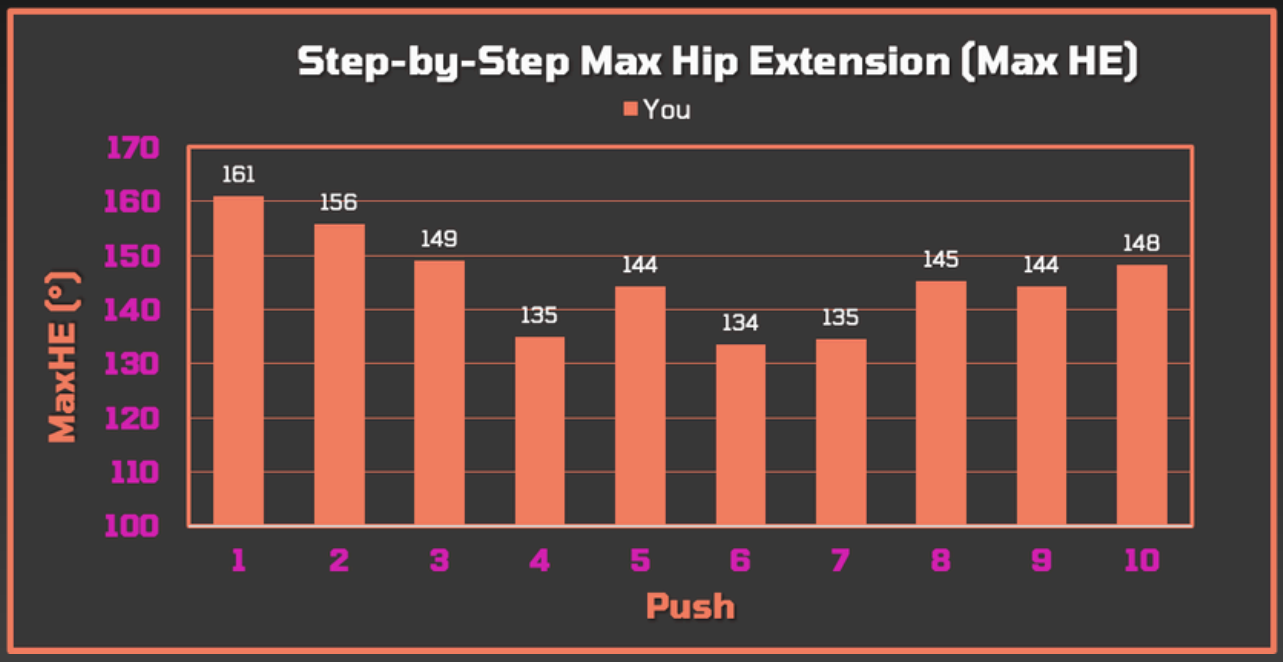




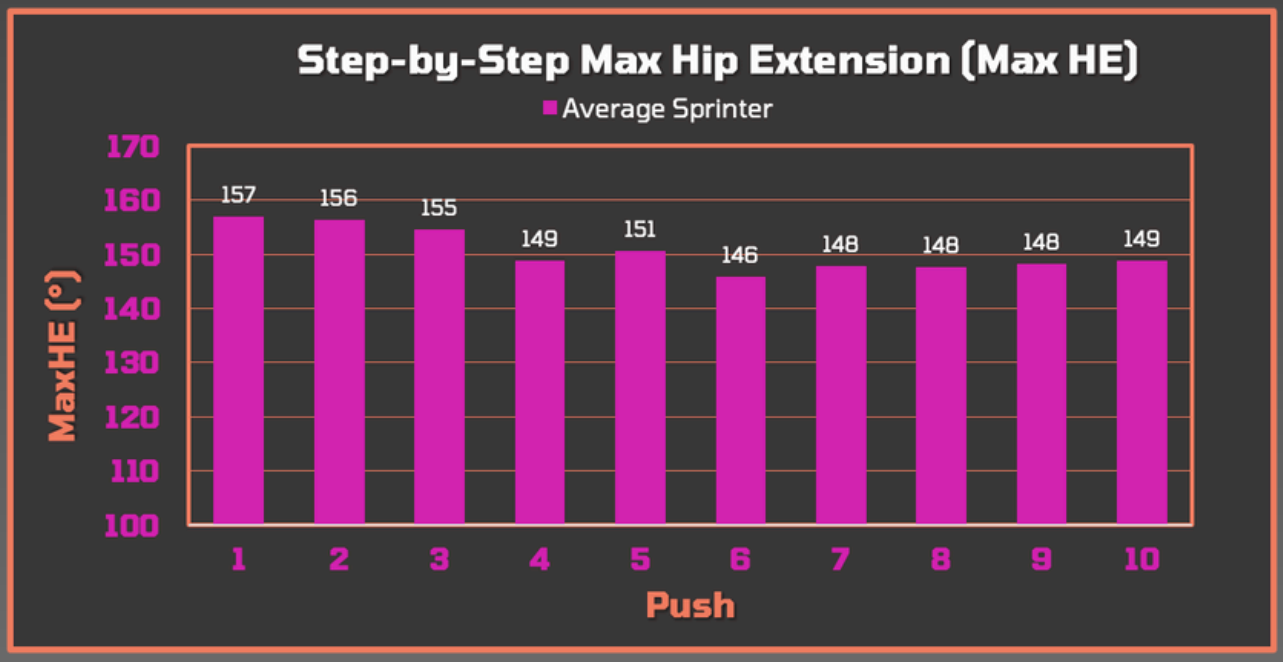
MAXIMUM HIP EXTENSION

STEP-BY-STEP ANALYSIS

YOU



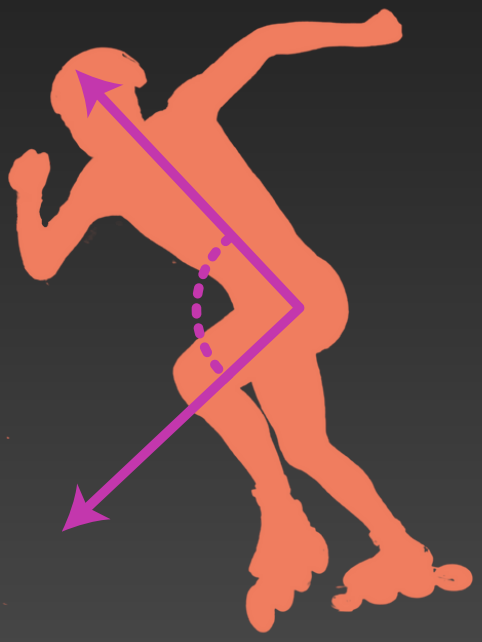
AVERAGE SPRINTER

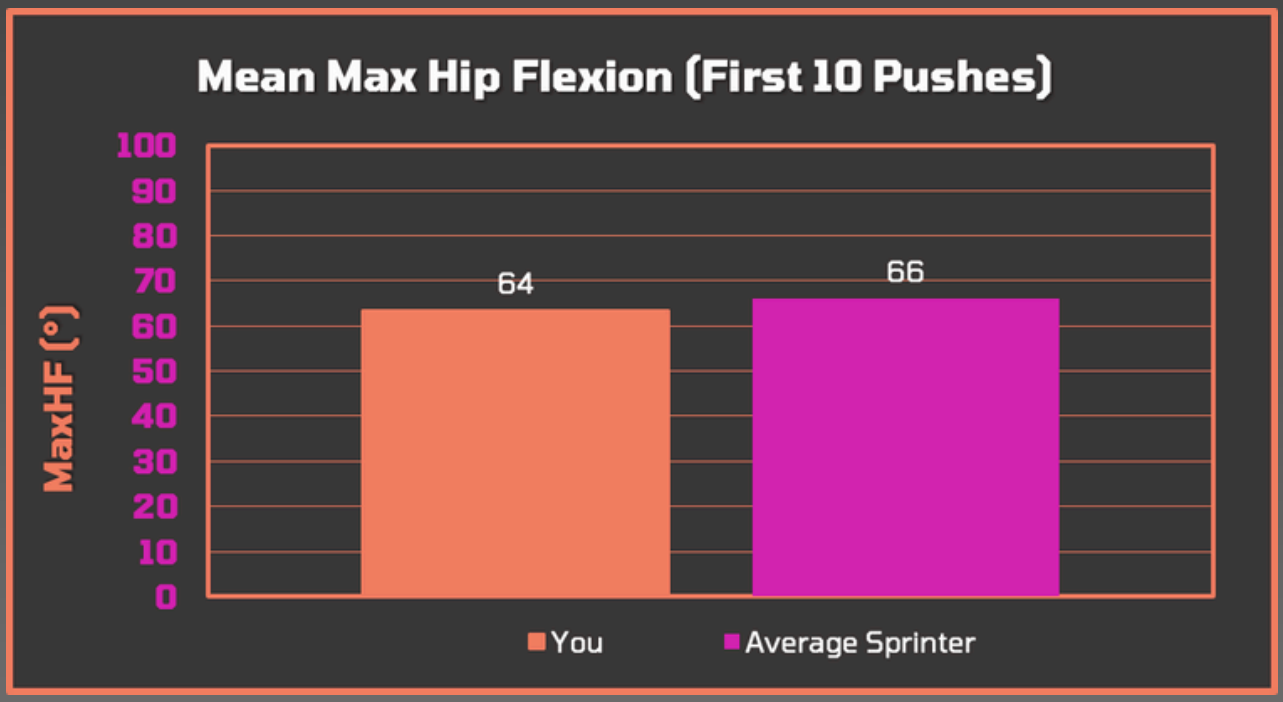


MAXIMUM HIP FLEXION

WHAT IS IT?

MAXIMUM HIP FLEXION (MAXHF) IS THE ANGLE BETWEEN THE TRUNK AND THE FRONT (RECOVERY) THIGH AT THE END OF A PUSH. GRATER MEAN MAXIMUM HIP FLEXION (SMALLER ANGLE) IS CORRELATED TO BETTER PERFORMANCES OVER THE 10M DISTANCE. INCREASING HIP FLEXION IS EXTREMELY IMPORTANT FROM STEP 5 TO STEP 10.

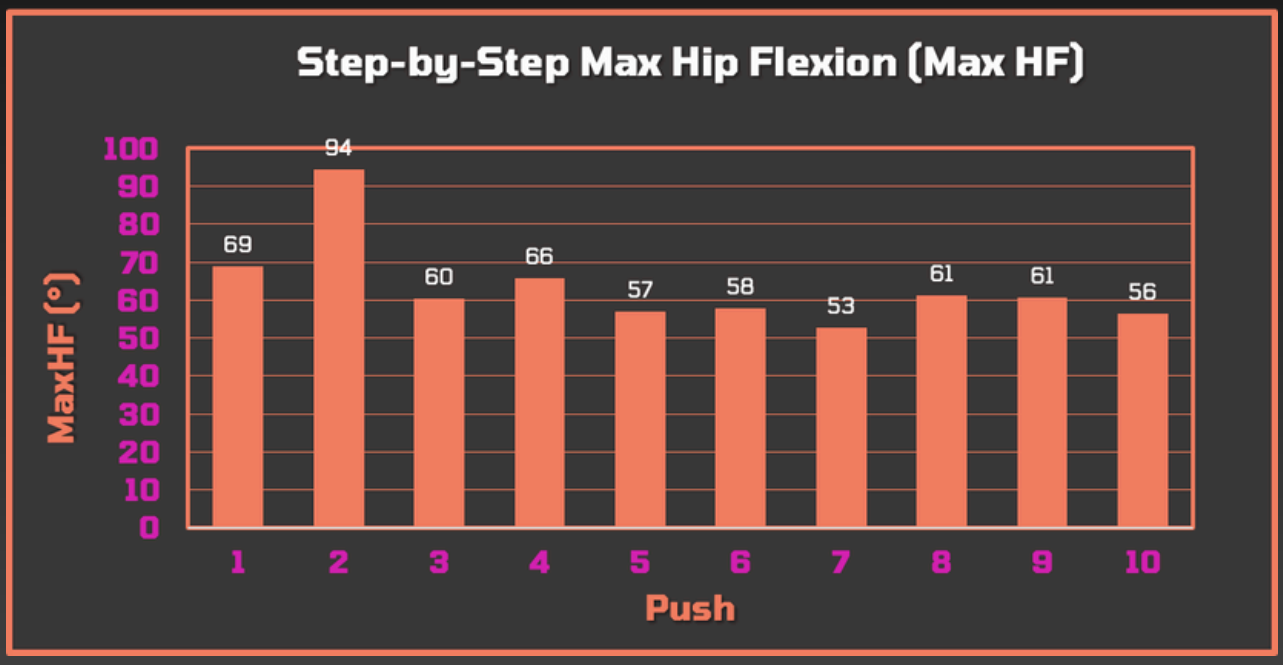




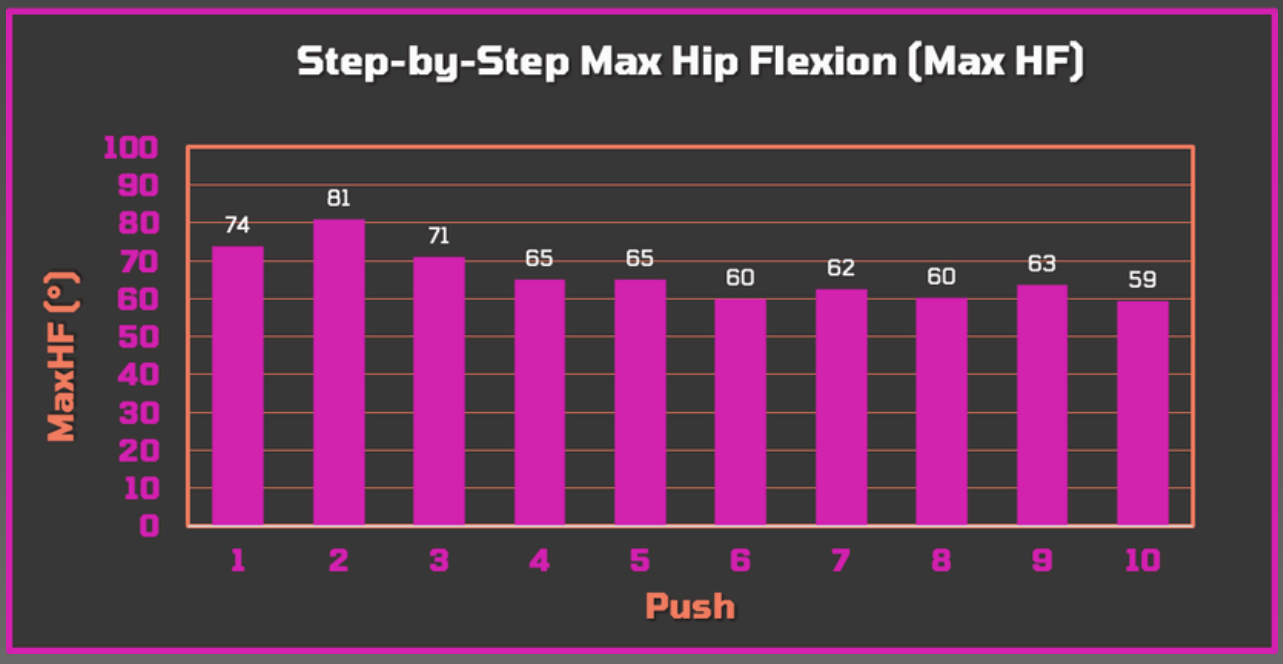
MAXIMUM HIP FLEXION

STEP-BY-STEP ANALYSIS

YOU



AVERAGE SPRINTER



MAXIMUM HIP FLEXION

STEP-BY-STEP ANALYSIS (STEP 5-10)