

NOVEMBER 2013



STATSportsTM

The logo features the word "STATSports" in a bold, black, sans-serif font. A red line graphic starts from the top left, descends diagonally, crosses the letter "A", and then continues horizontally across the bottom of the word "Sports".

IPER
METRICS

SUMMARY OF VIPER METRICS

Total Distance

- Measured in metres

m/min

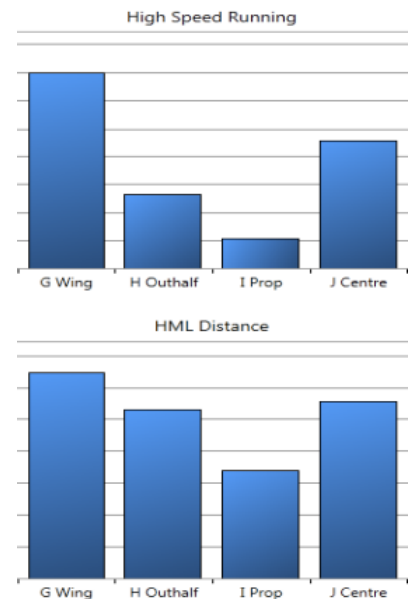
- Calculated as distance(m)/time(mins)
- Useful as an intensity measure

High Speed Running

- Measured in metres
- Distance covered in Zone 5 & 6
- Zone 5 - >5.5m/s, Zone 6 - >7m/s (default)
- This can also be viewed as High Speed Running per min (HSR/min)
- Shows high speed metres divided by time

High Metabolic Load Distance

- Measured in metres
- Includes both High Speed Running distance and also distance covered while accelerating or decelerating above 2m/s²
- Players who don't get into high speed running zones because of covering short, sharp distances are given credit in their HML score because the intensity of the work can be just as great
- The graph on the right shows a good example of high speed running versus HML distance in rugby: note the comparison between out-half and wing.
- This metric can also be viewed per min under the metric - *HML per min*
- Divides the HML distance by time.
- *HML Time* – shows the time spent during high HML distance

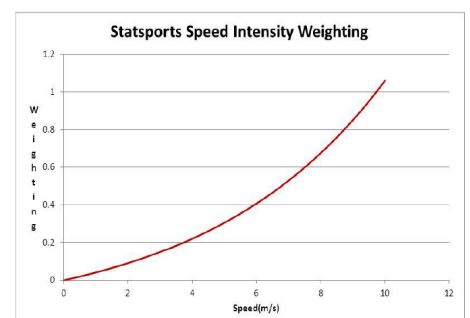


Sprints

- A number rather than a distance – number of sprint entries (default > 5.5m/s (zone 5))
- Speed must be maintained for >1sec to register as a sprint

Speed Intensity

- Measure of total exertion based on 'time at speed'
- Calculated by time at speed (secs) x weighting



- Typical Premiership football game values: 500-700
- One of the best indicators of total running exertion – basically the further and faster you run the more ‘points’ you get – all running adds up to a total ‘speed intensity’

Accelerations

- Gives a total number of accelerations based off zone preference selection.
- To count as an acceleration, the increase in speed must take place for at least half a second with an acceleration in that time period of at least 0.5/s/s.

Decelerations

- Gives a total number of decelerations based off zone preference selection.
- The decelerations are measured exactly the same way as the accelerations, meaning the decrease in speed must take place for at least half a second and measure at least 0.5m/s/s to count.

High Intensity Bursts (HIBs)

- Number of HIBs shown in table format with start time, duration (secs), distance (m) and max speed (m/s) reached during each is configured in preference configuration.
- A HIB is compiled of a number of activities performed within a set time period.
- Accelerations, decelerations, sprints and impacts all contribute towards HIB's.
- By default, 3 activities must be performed with no more than 20 seconds between activities. These settings are fully configurable.
- All of the minimum zone entry requirements are also configurable.

Average Metabolic Power (AMP)

- Based on energy expenditure by players.
- AMP is the energy expended per second per kg.
- AMP during professional football is in the region of 9-11 W/Kg.

Equivalent Metabolic Distance (EMD)

- EMD uses total energy expended and derives from it the distance the athlete would have covered by using the same amount of energy to run at constant speed of 4 m/s.
- In comparison to total distance, the difference is a measure of energy expenditure during accelerations and decelerations.

Energy Expenditure

- Gives a breakdown of energy associated with running including accels and decels and is measured in Kcal.



- does not include energy associated with jumping/heading/tackling/kicking/running backwards or sideways and does not take into account wind resistance.
- This figure is therefore suggested to account for 70-80% of the true total energy expenditure.

Dynamic Stress Load

- Total of the weighted impacts.
- In a non-collision sport such as soccer, the majority of these impacts are dominated by running steps.
- Therefore the DSL for a session gives us a representation of the loading effect on the body.
- For similar sessions, this value should be consistent.
- An unexpected increase in DSL may indicate fatigue or abnormal stress on the body.

Fatigue Index

- Calculated as Dynamic Stress Load divided by Speed Intensity.
- Can be used as a marker of fatigue for the individual.

Total Loading

- Using accelerometer data alone, gives a total of the forces on the player over the entire session without any weightings being applied.

Lower Speed Loading

- Powerful metric for isolating low speed activity and excludes activity where the speed is above a certain threshold.
- Useful for rucking and tackling in rugby and line of scrimmage activity in American football.
- The speed threshold can be configured in the preference section.

Impacts

- Shows total number of impacts.
- Number depends on active zones selected in preference configuration.

Step Balance

- Visible in the individual player summary section.
- Uses the accelerometer and determines the average peak impact on each step for the left and right feet.
- The pie chart displays the ratio between left & right impacts and any significant imbalance during a controlled liner running drill may highlight poor running gait or perhaps injury.



Metabolic Distance

- Measured in metres and shows distance covered in selected metabolic zones within preference section.
- I.e. with all zones (1-6) selected, this distance should be equal to total distance.

Metabolic Time

- Measured in minutes.
- Shows time spent in selected metabolic zones.
- With all zones (1-6) selected, this time should be equal to total duration.

Heart Rate Exertion

- Similar to speed intensity but instead of the speed values, heart rate values are used and given a weighting.
- Calculated by time given HR (secs) x weighting.

Time in Red Zone

- Measured in minutes and seconds.
- A measure of the total time spent above 85% of max heart rate (set on player profile page).

Accelerometer

- Shows the exact movements of the unit during the session in all three planes:
 - X plane: Left and right movements.
 - Y plane: Up and down movements.
 - Z plane: Movements back and forwards.

