

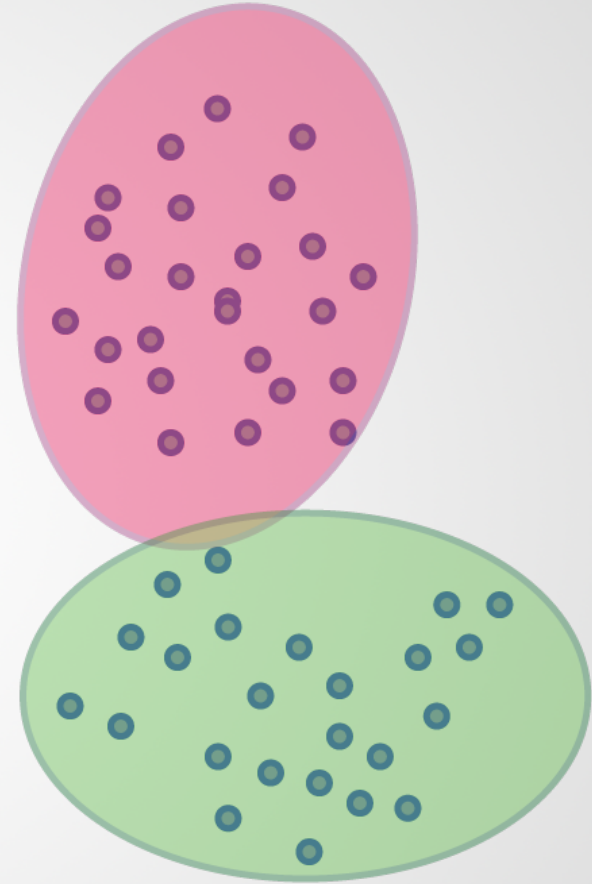
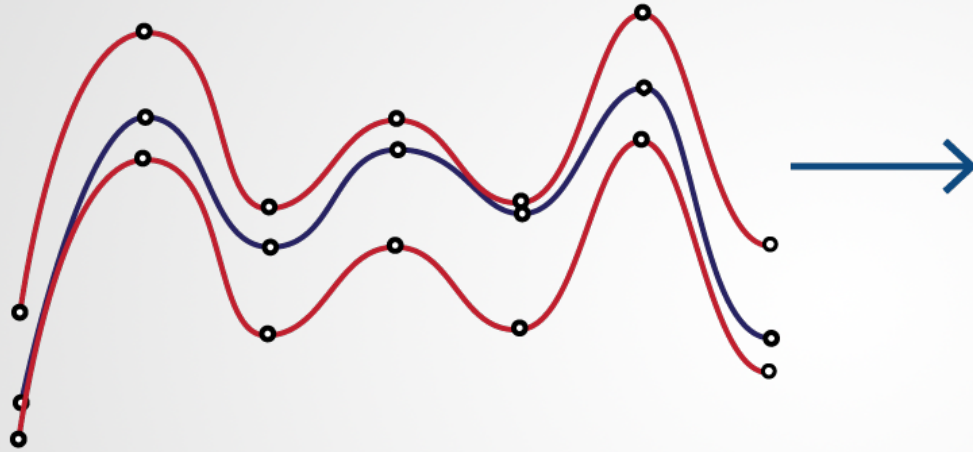
Does Training Affect Match Performance?

A Study Using Data Mining And Tracking Devices





From Training Variation to Match Performance



Daniel Kahneman's and Aaron Coutts “Thinking, Fast and Slow”



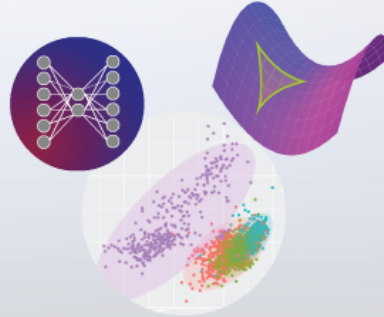
**Data
Collection**



**Storage and
structuring**



**Building Dataset for
Specific Purpose**



**Adaptation of Statistical Methods
and Machine Learning**

Slow-Thinking

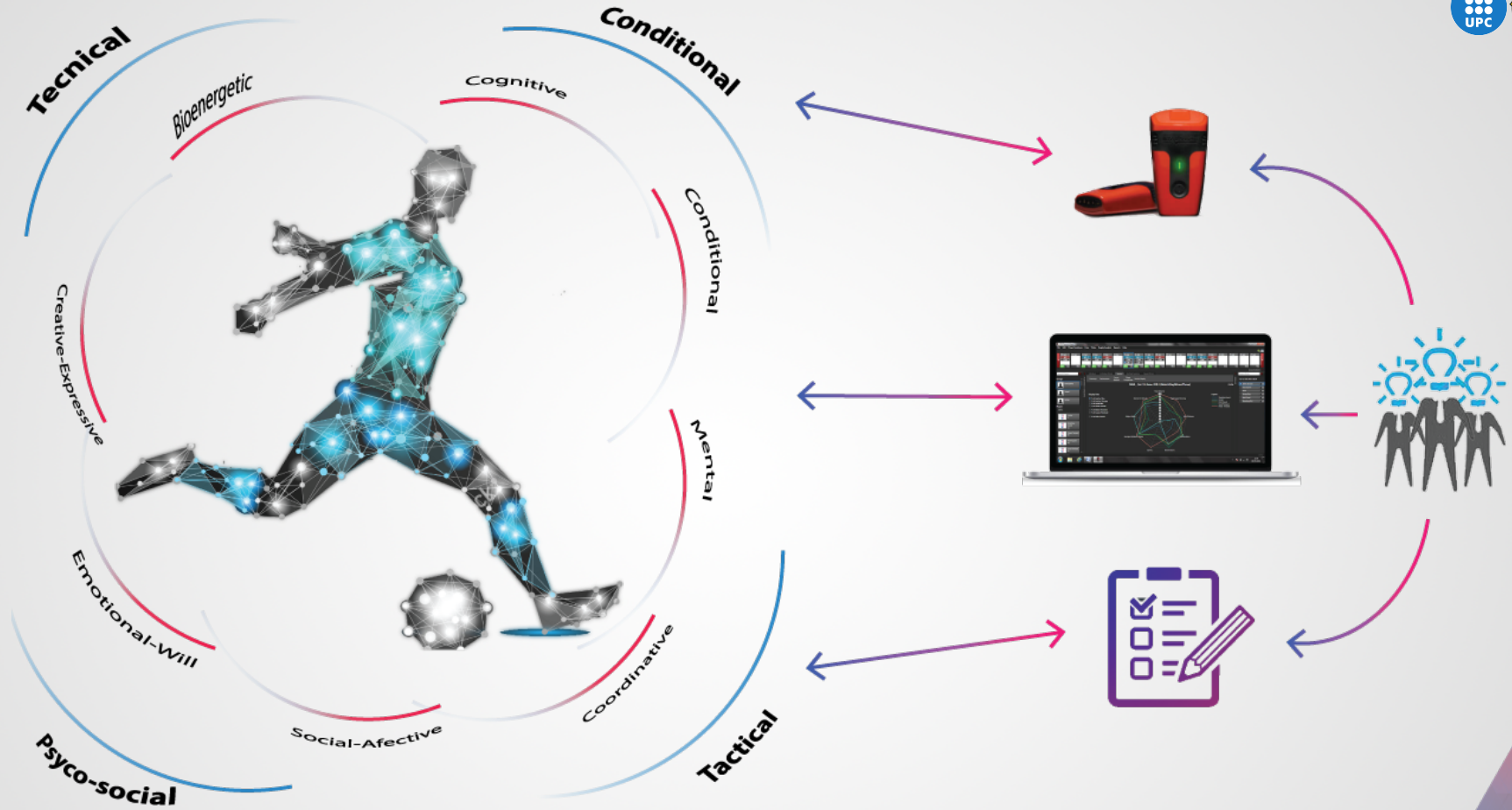
Validation of beliefs
and observations

Findings and new
observations

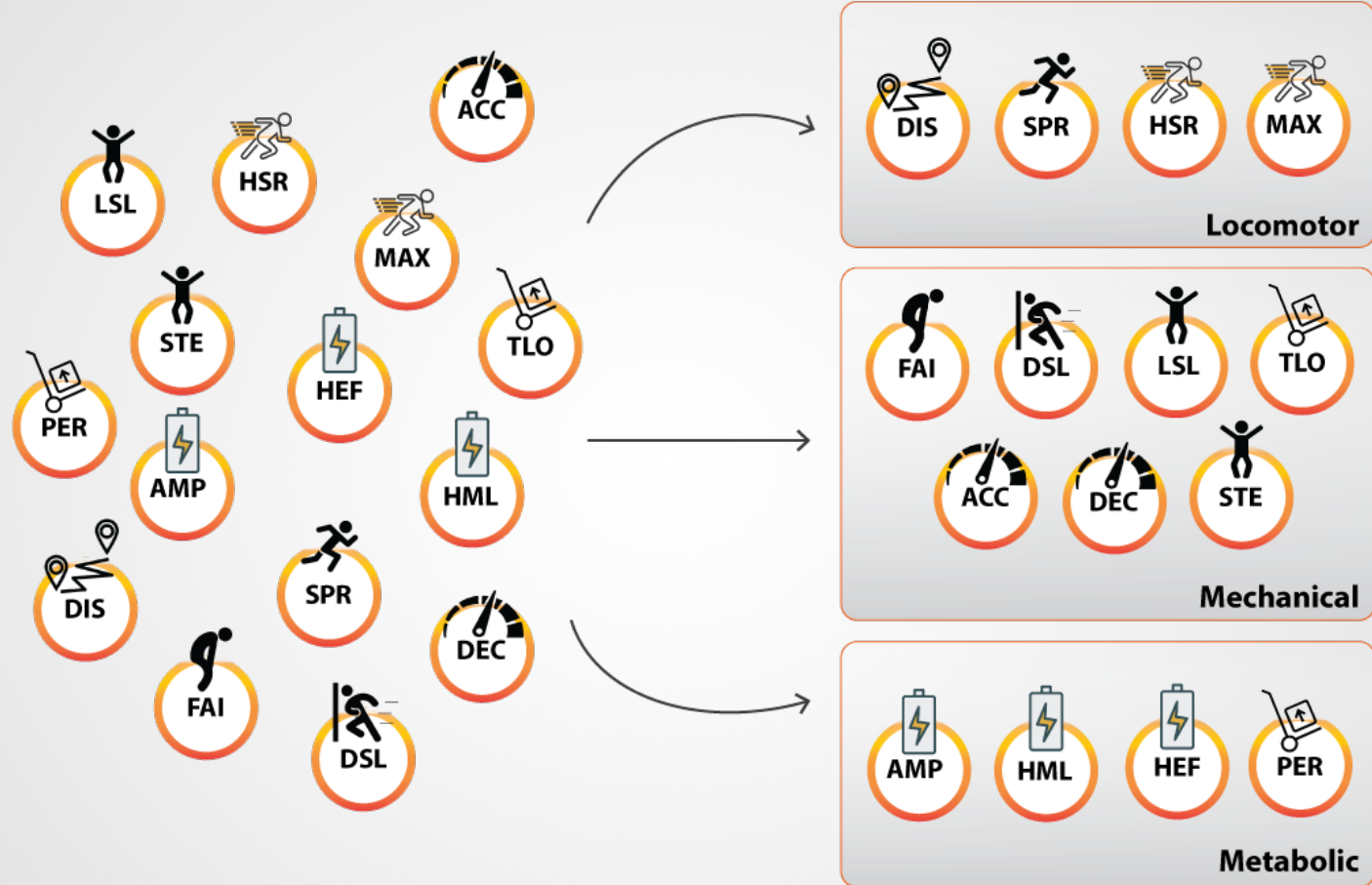
Creation of practical
methods and software

Applicable Results

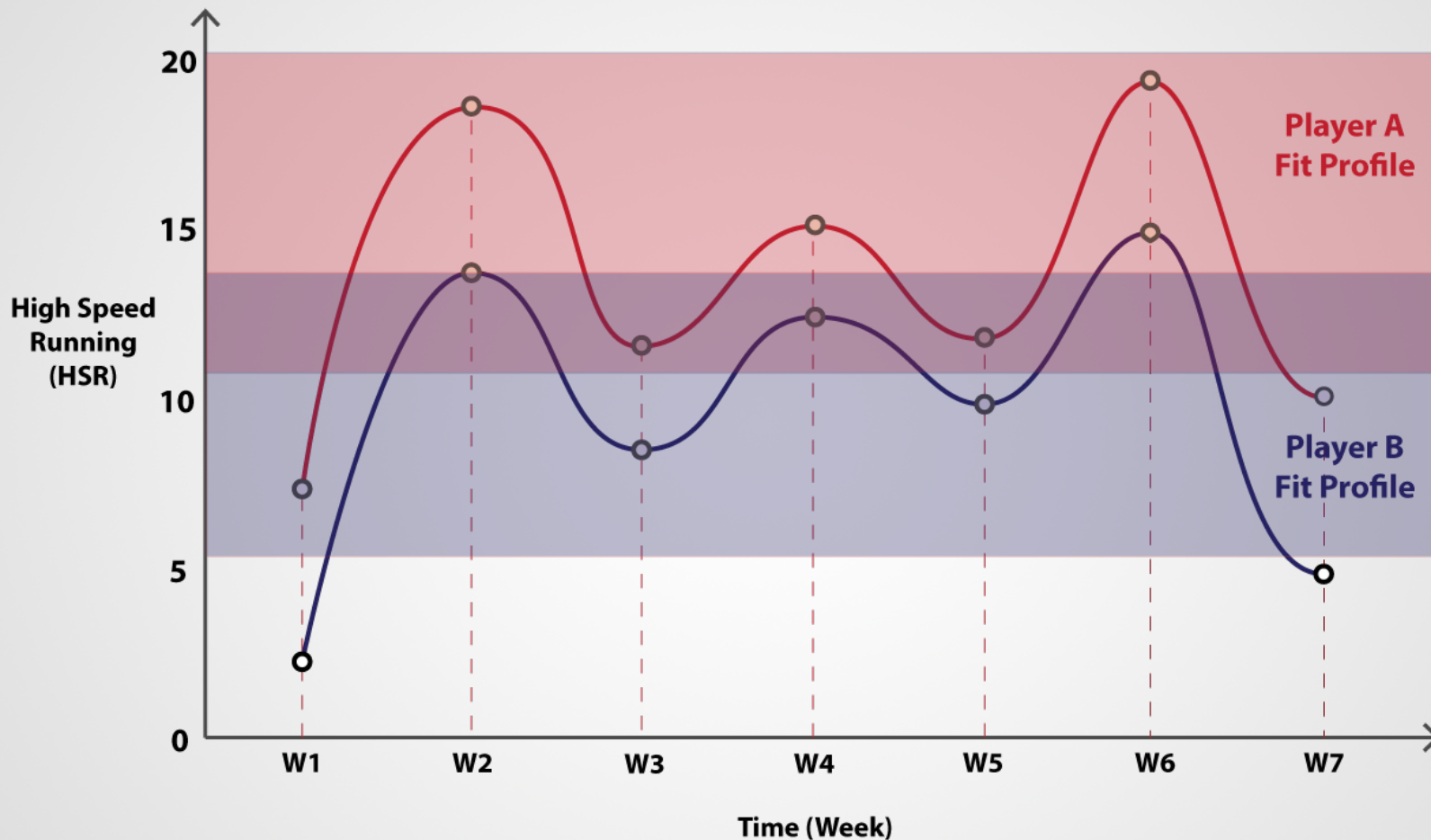
Fast-Thinking



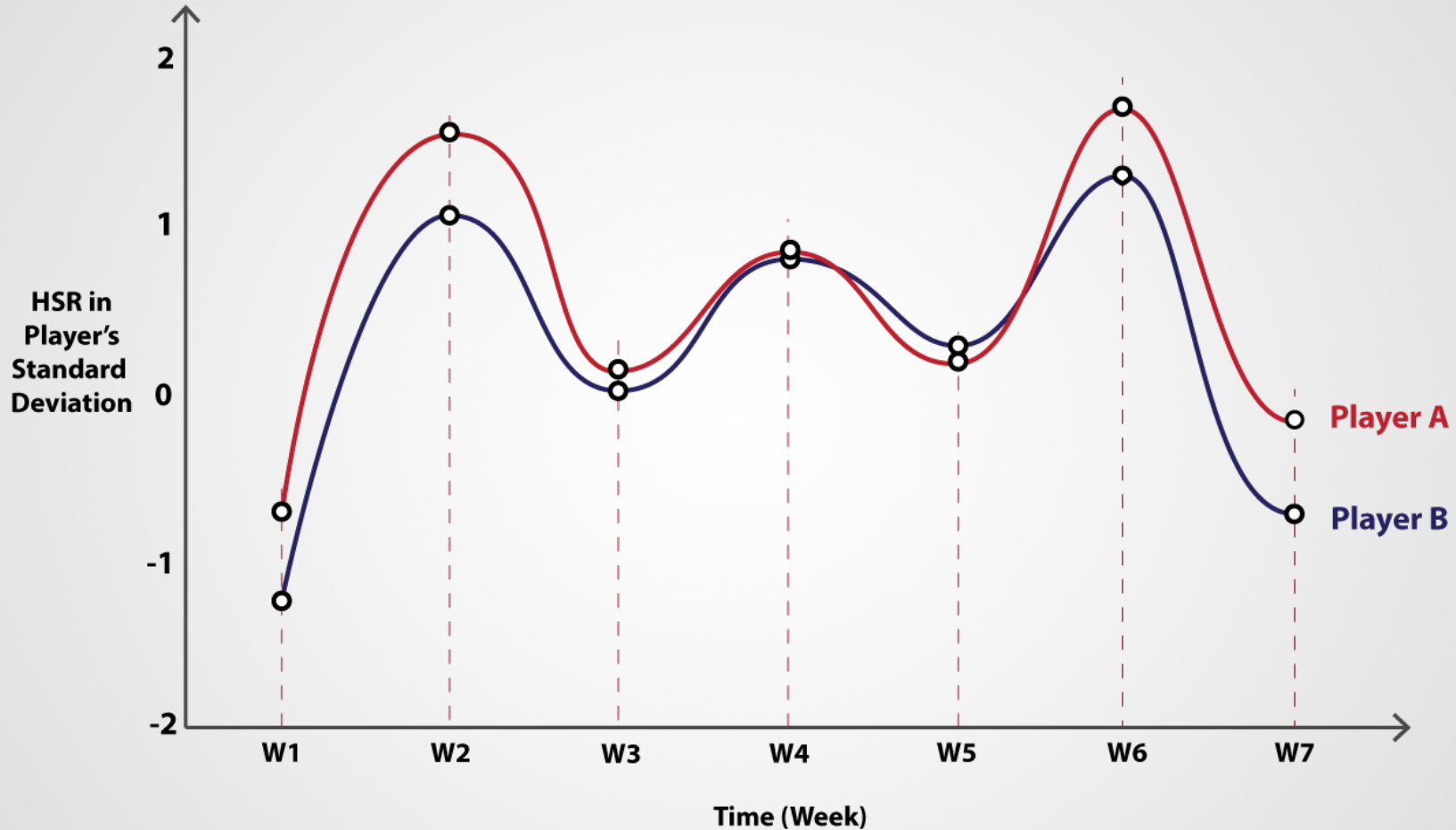
Structuring Physical Variables



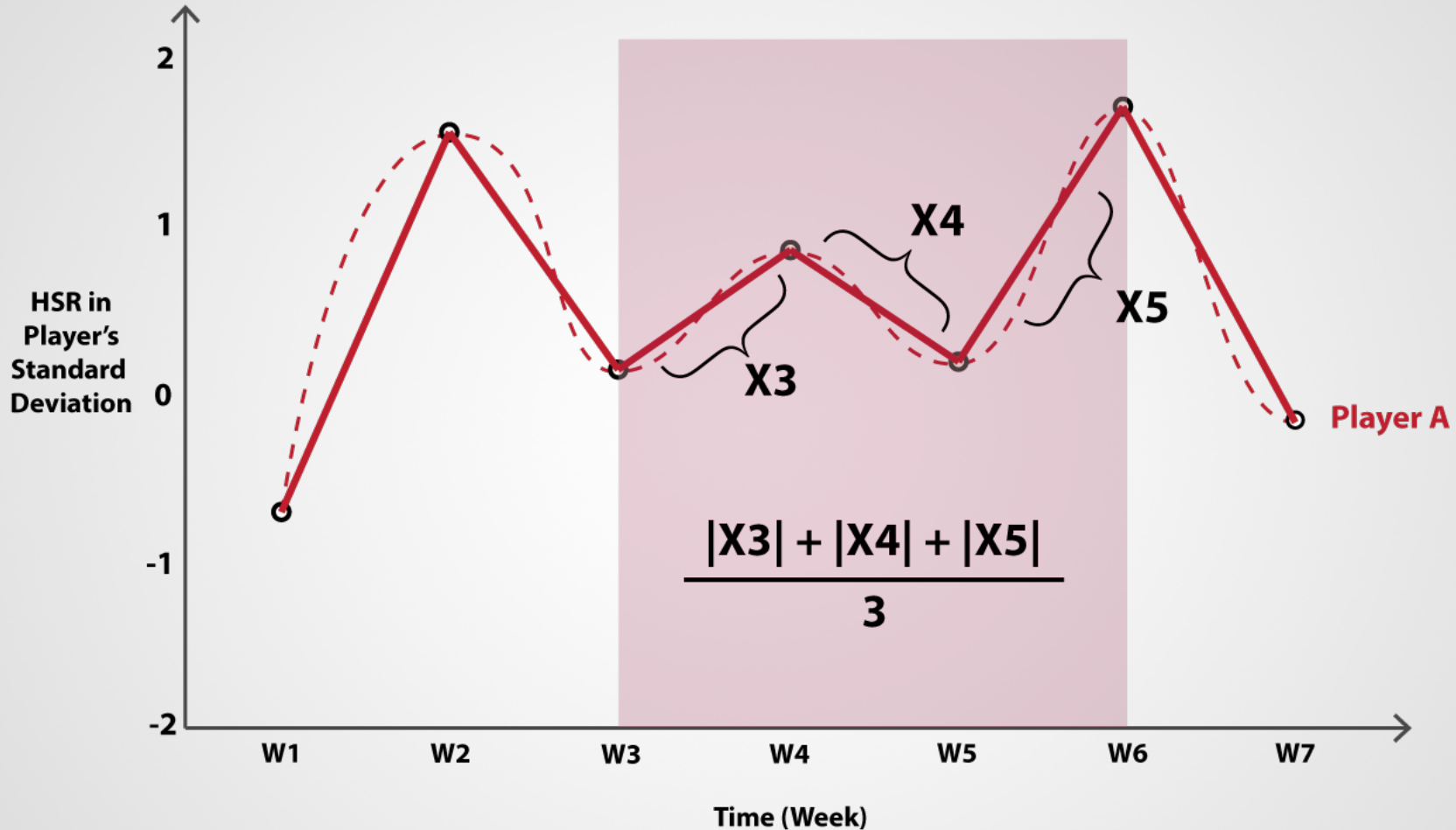
Observing Physical Variables in Time



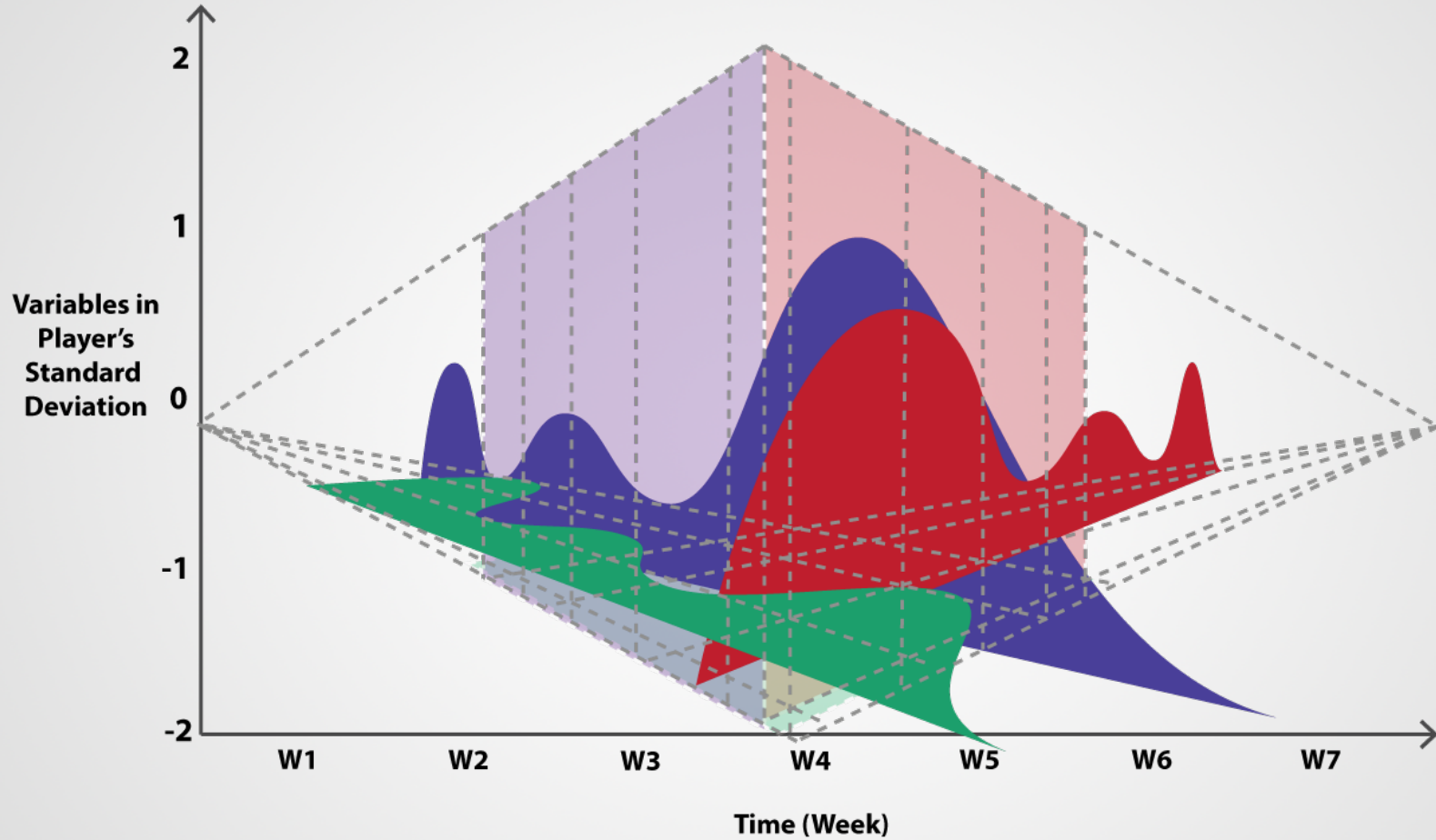
Normalizing to Compare Players Fairly



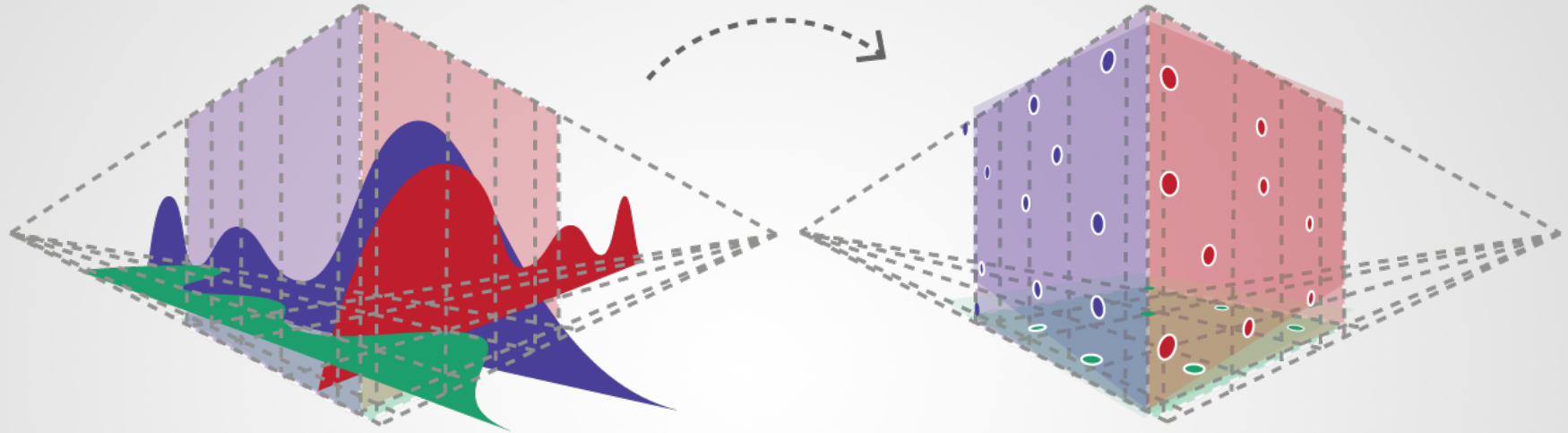
Calculating Magnitude of Variation/Oscillation



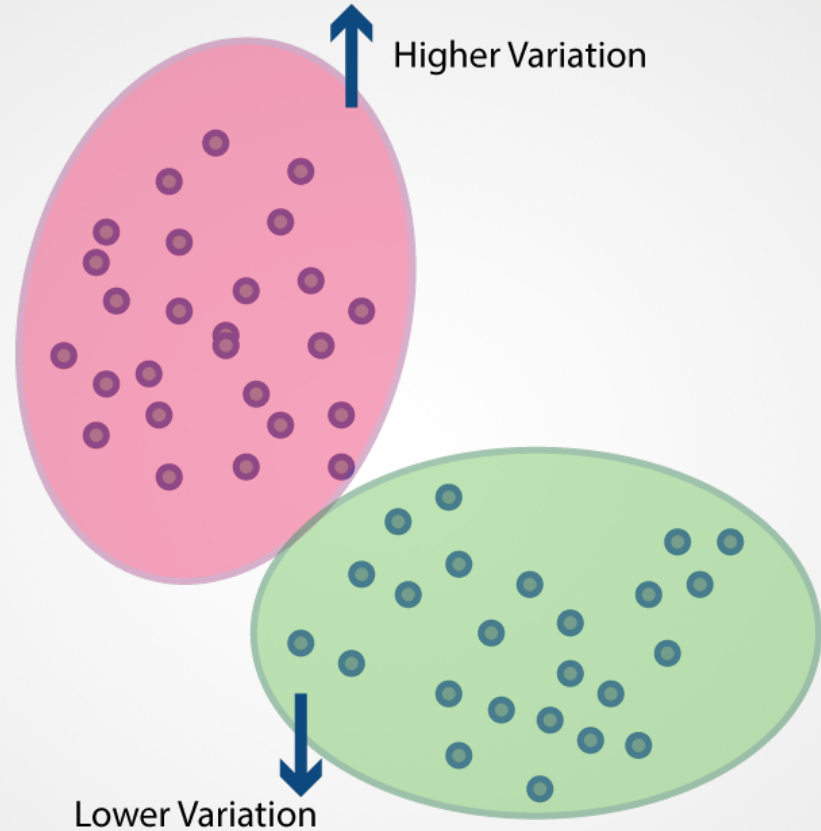
Multidimensional Space



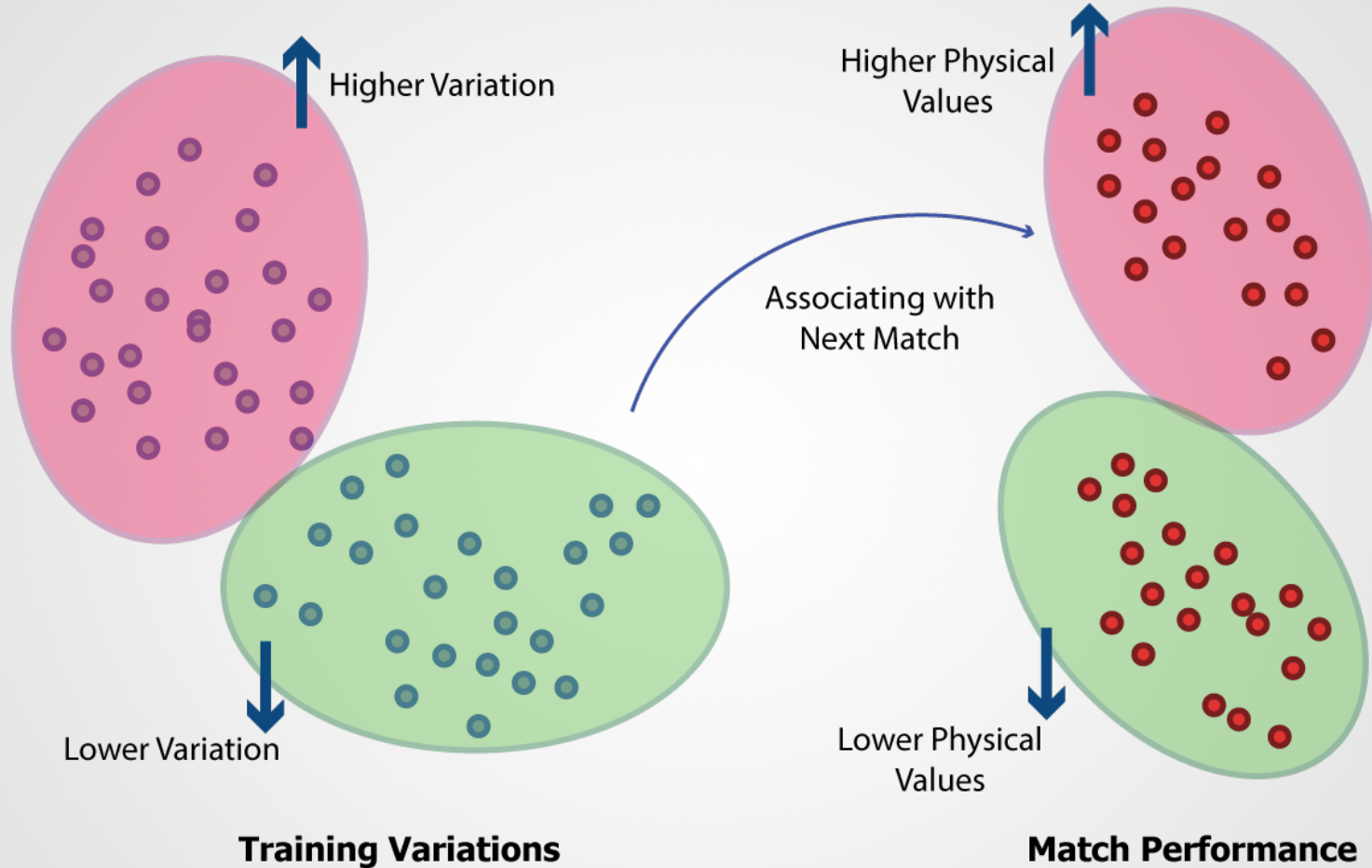
Variations are Transformed into Data Points in 15-dimensions



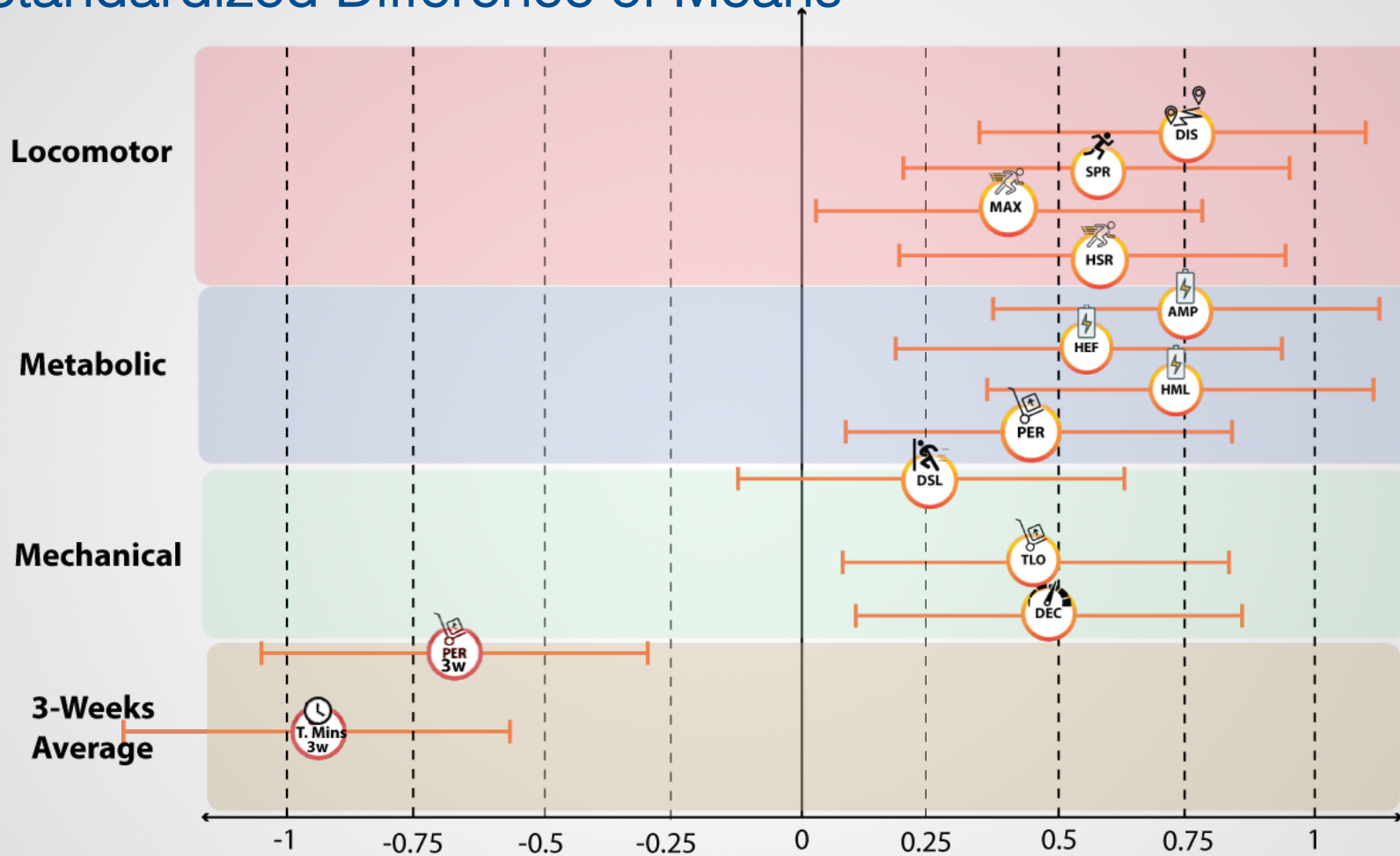
Cluster Analysis Over Training Physical Variables



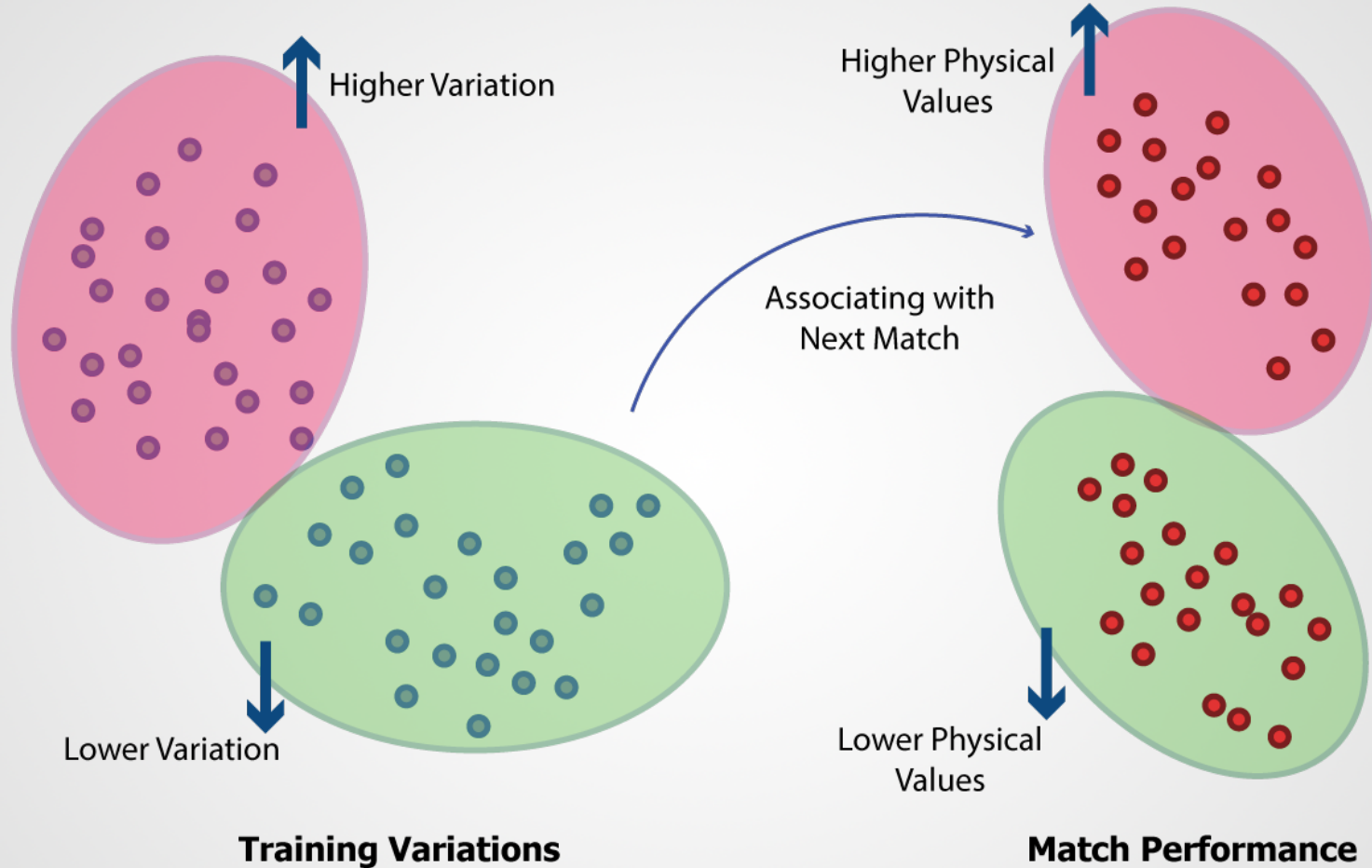
Associating with Player's Next Match Physical Variables



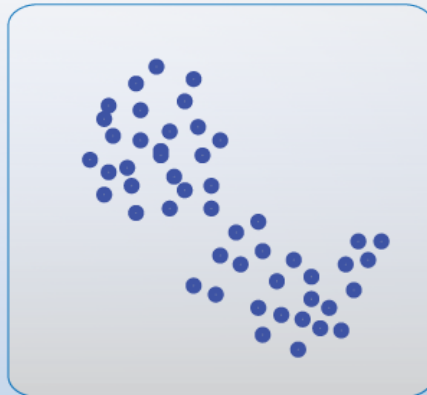
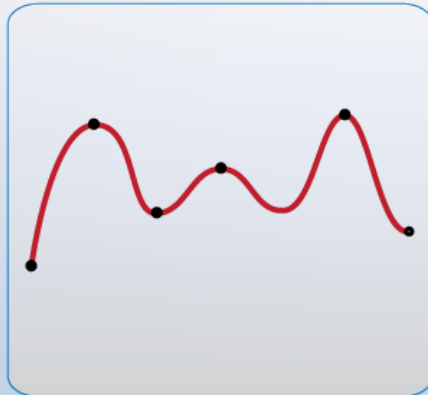
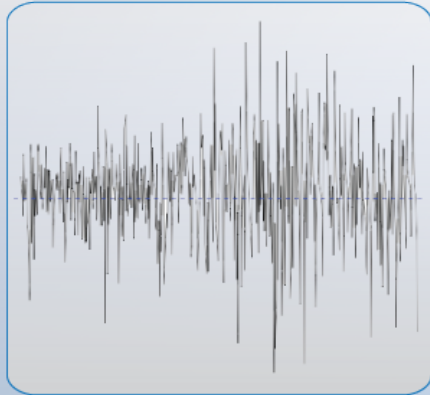
Standardized Difference of Means



Good News (1)



Good News (2)



Slow-Thinking Process

$$\frac{\sum_{i=2}^{W+1} \|S_i - S_{i-1}\|}{W}$$



Fast-Thinking Process

Thank you! Questions?

