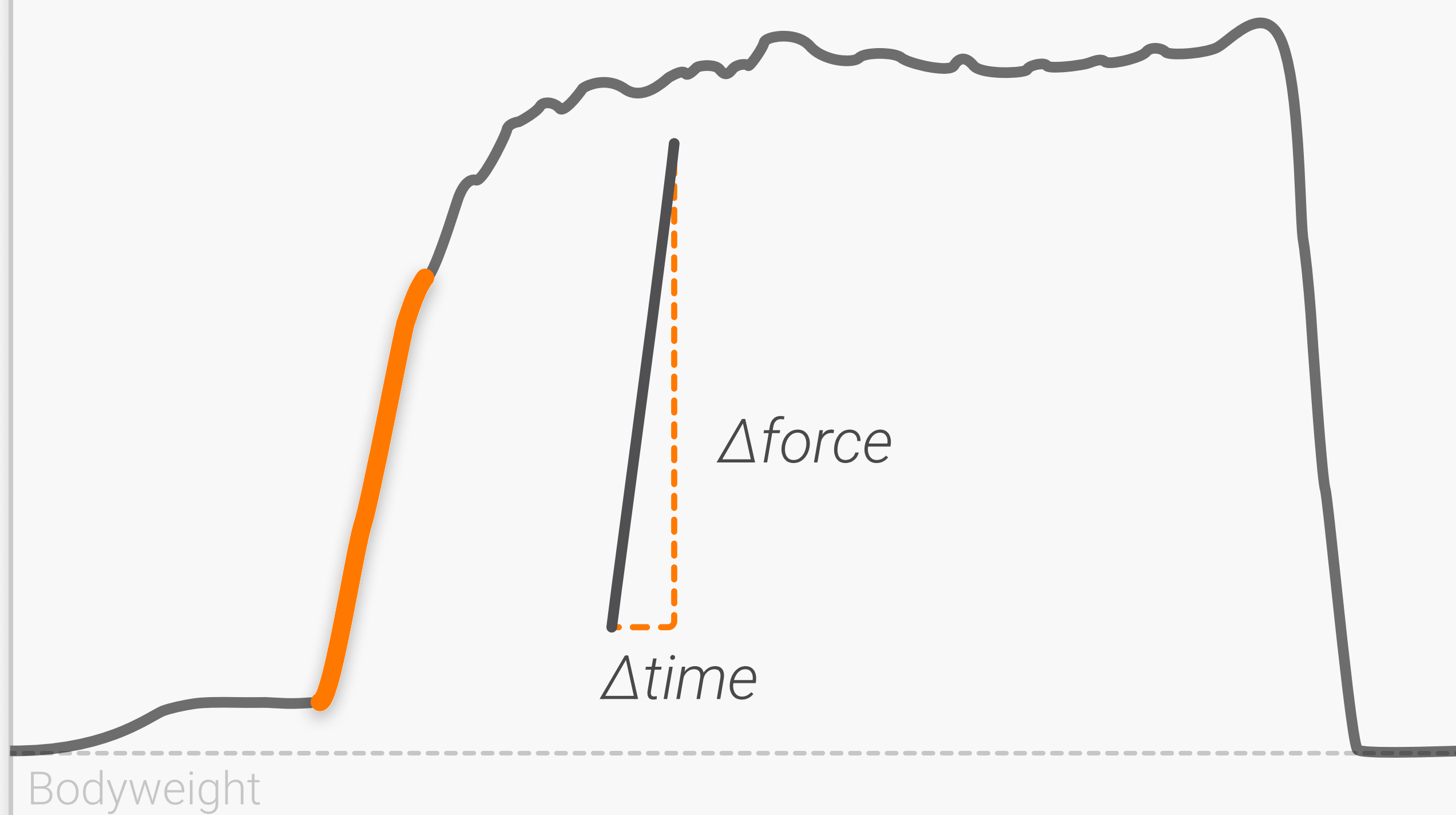


Rate of Force Development (RFD)

Understanding Explosive Strength

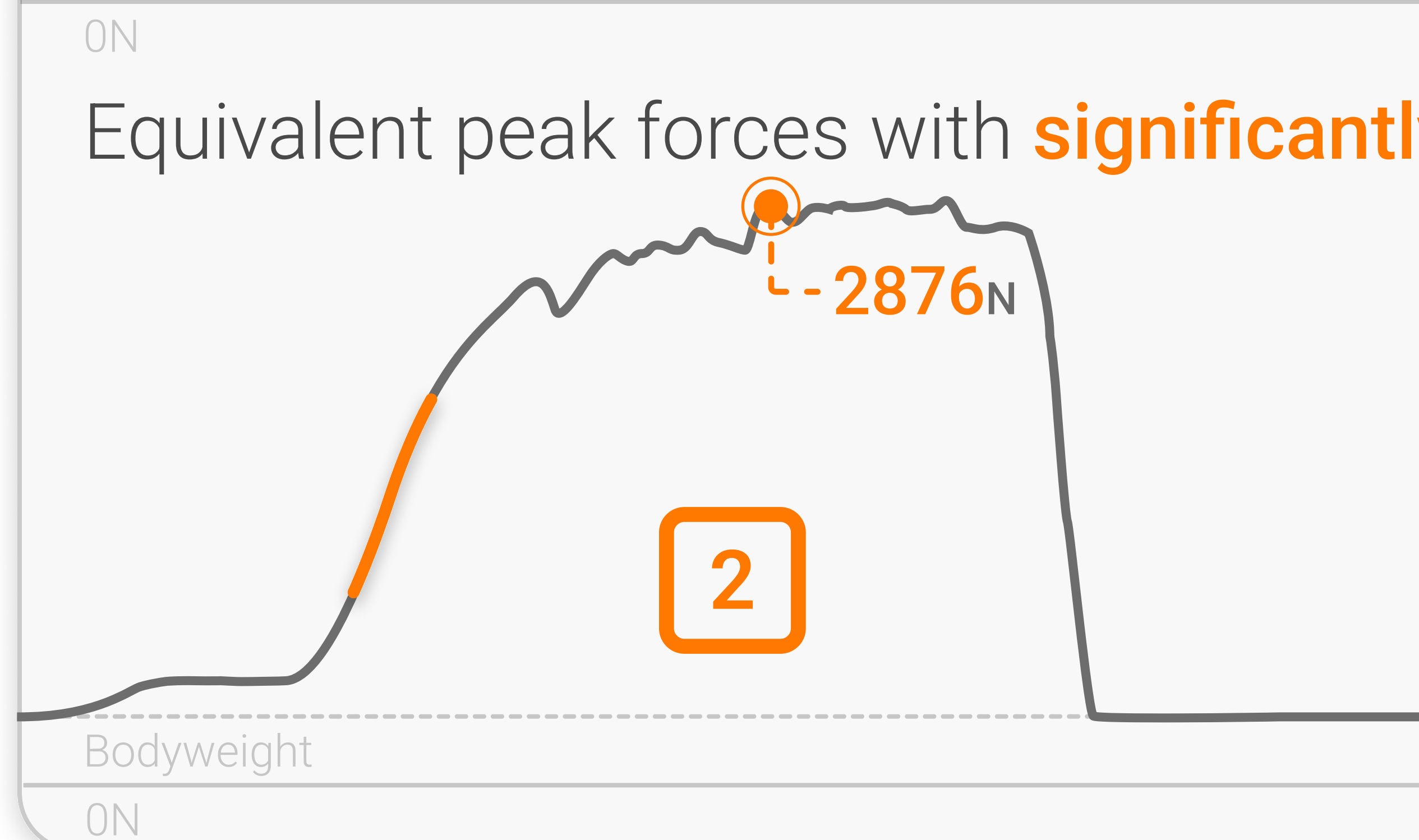
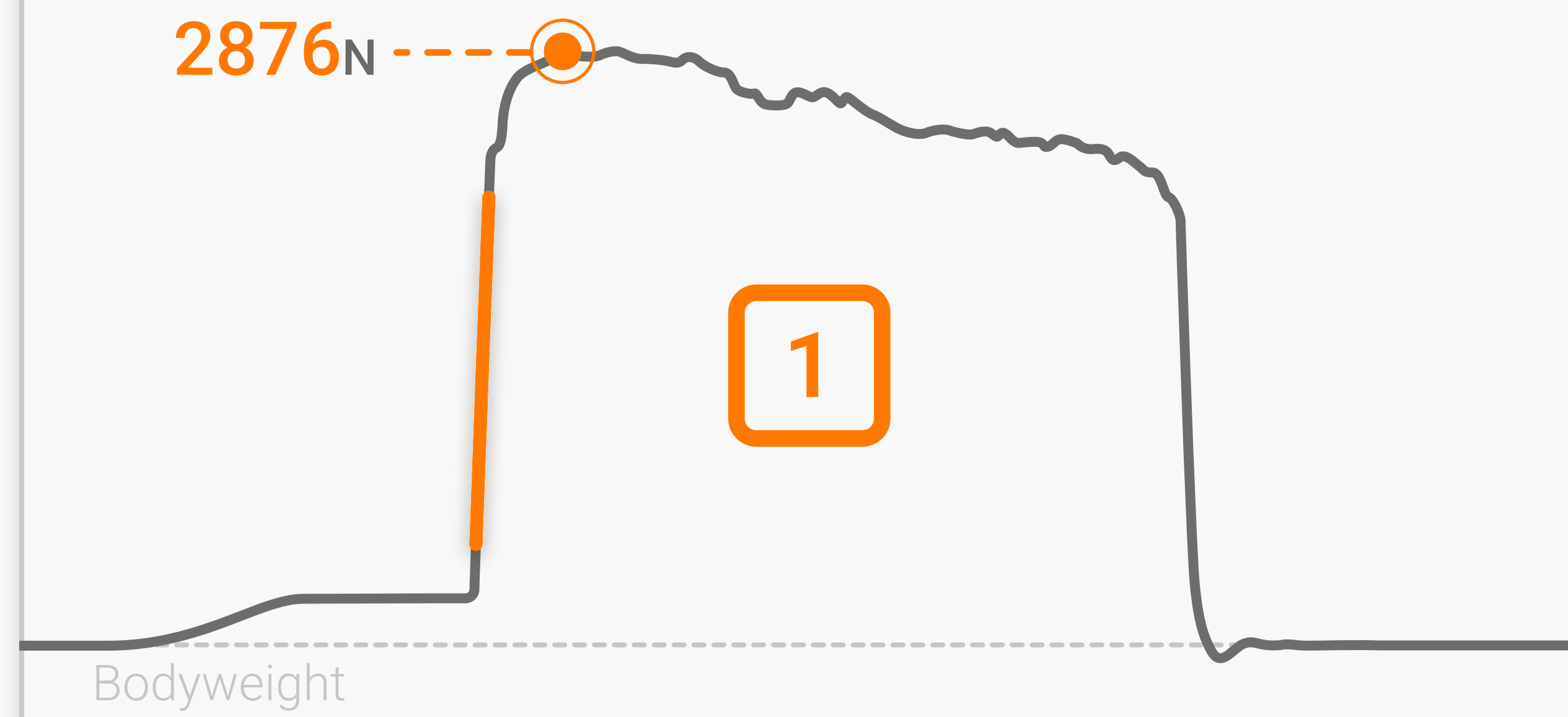
RFD is...

...a reflection of time-constrained force production that **measures how quickly force is produced** by assessing the slope of a force-time curve.



$$RFD = \frac{\Delta Force}{\Delta Time}$$

Peak force alone can miss **meaningful deficits...**

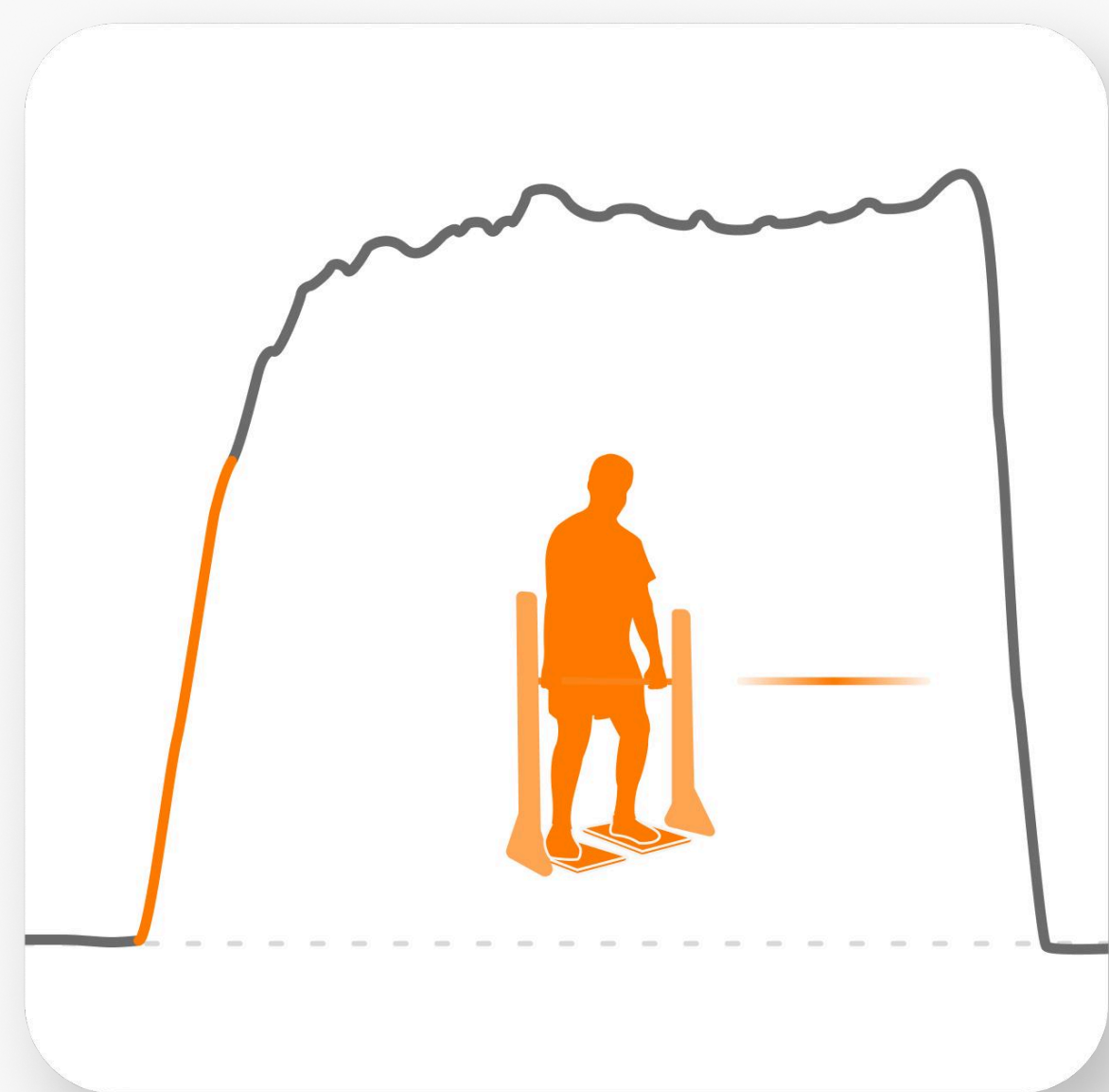


Equivalent peak forces with **significantly different slopes**

Not all RFD is **created equal...**

RFD can be measured in isometric, concentric and eccentric actions, however, measures of RFD should not be compared across different muscle actions.

Isometric RFD



IMTP

Concentric RFD



Squat Jump

Eccentric RFD



Countermovement Jump

RFD phases *

Early-Phase RFD (0-150ms):

- More indicative of neural changes and adaptations.
- Slightly less reliable due to test initiation and start of movement detection.

Late-Phase RFD (>150ms):

- Assesses neural and peak force factors.
- Slightly more reliable with cleaner slope data.

* Early- and Late-Phase RFD are only used in isometric assessments



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