# English Assignment 1-3

**Criteria**:

Assignment 1-3 is an exercise that focuses upon the ability to translate professional jargon and terms into a simpler format. This exercise is useful as professionals of all industries will interact with consumers or individuals from other industries. The objective of this assignment is to practice strategies that we could employ in different professional situations. I chose a term that is from my major and is also commonly explained to consumers.

**Term**:

Post-activation potentiation

**Situation**:

A personal trainer explaining the term ‘post-activation potentiation’ to a client.

**Parenetical definition:**

Implementation of post-activation potentiation (the increased muscle performance that occurs after recent exercise) in resistance training allows for the maximization of muscle stimulation.

**Sentence Definition:**

Post-activation potentiation is a concept that increases muscle performance caused by recent near-maximal to maximal force contractions.

**Expanded Definition:**

Post-activation potentiation (PAP) is a concept that allows for an increase in the amount of force generated during muscle performance following utilization of the muscle to a near-maximal to maximal point. Muscles under the effects of PAP generate force quicker, as well as reach maximal force faster (Tillin & Bishop, 2009). These changes in performance are beneficial to explosive type movements like plyometrics. PAP generally consists of an initial muscle contraction, a recovery period, and the subsequent enhanced muscle contraction (Tillin & Bishop, 2009).

There are several factors that affect the optimization of force production from PAP. These factors include exercise intensity, recovery duration, and fatigue (Gołaś, Maszczyk, Zajac, Mikołajec, & Stastny, 2016). Potentiation force is the greatest immediately following muscle contraction, but so is fatigue, which has a debilitating effect on muscle performance. However, enhanced muscle performance (PAP) is able to occur as the rate of recovery from fatigue is faster than the rate of potentiation dissipation (Lowery, et al., 2012).

The mechanisms that cause PAP are unconclusive; however, there are three main theories that attempt to explain it. The first is that due to the previous muscle contraction, the muscle fibers are more sensitive to the catalysts that cause muscle contractions, allowing for quicker contractions (Gołaś, Maszczyk, Zajac, Mikołajec, & Stastny, 2016). The second is that there is an increase in the recruitment of higher order motor units, which are generally responsible for faster, explosive movements (Gołaś, Maszczyk, Zajac, Mikołajec, & Stastny, 2016). The last main theory is that due to the initial contraction, the muscle fibres are then angled in a manner that is more optimal for force production (Tillin & Bishop, 2009).

# References

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Lowery, R. P., Duncan, N. M., Loenneke, J. P., Sikorski, E. M., Naimo, M. A., Brown, L. E., . . . Wilson, J. M. (2012). The effects of potentiating stimuli intensity under varying rest periods on vertical jump performance and power. *Journal of Strength and Conditioning Research, 26*(12), 3320 - 3325. doi:10.1519/JSC.0b013e318270fc56

Tillin, N. A., & Bishop, D. (2009). Factors Modulating Post-Activation Potentiation and its Effect on Performance of Subsequent Explosive Activities. *Sports Medicine, 39*(2), 147 - 166. doi:10.2165/00007256-200939020-00004