

The Tendo and its use for Autoregulation

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The Fitrodyne Powerlyzer by Tendo is a piece of equipment that is used to measure the speed of the bar. This will allow the coach to know several things, such as if the athlete is training what the actual intention is to train, when the bar speed begins to drop, etc. In this article, we will discuss how to use the Tendo unit as a means of Autoregulation.

The tendo also gives objective feedback to the athlete. A coach just simply saying “move faster, that wasn’t quick enough,” is subjective. The athlete may reply, I am moving it fast enough, your eyes are too slow. However, the tendo gives objective feedback in that it relays their speed. If the athlete is only moving the bar at .6m/s, they know they need to move .2m/s faster. It is no longer the coaches opinion, it is a measurable fact.

The main premise of the use of the Tendo in Autoregulation is monitoring the speed of the bar and adjusting the weight from this. All of the following methods of the Tendo in Autoregulation are based upon this.

Autoregulation

First, a quick note about Autoregulation of training; Autoregulation is where the athlete is allowed to perform at their best for that given day and progress from week to week at their own pace. Autoregulation is effective as it allows for all stressors to be

accounted for. For the student-athlete, many things other than just the training itself will affect them. Long nights of studying for class will affect the athletes' nervous system, among other things. For instance, say we have an athlete named Johnny. Well, Johnny has a big test and he is studying until midnight when his girlfriend calls him up and breaks up with him. Johnny calls up his best friend and they go out and get completely trashed on Jack Daniels until 2:30 in the morning. At 7:30 a.m., Johnny has a lift and they are supposed to do heavy squats at 92%. Well, for Johnny, 92% is not 92% anymore, it's actually 115% and he may hear himself trying to lift that weight.

While this is an extreme example, it is one that demonstrates how all stress effects the body the same. The stress from studying, emotional from the break up, physical from the workout, etc, all has the same reaction on the body; there is a considerable enlargement of the adrenal cortex, there is an intense atrophy of the thymus, spleen, lymph nodes and all other lymphatic structures of the body, deep ulcers in the stomach lining and duodenum will occur when the exhaustion stage occurs, with the first two occurring more rapidly (Selye).

Since Autoregulation allows the athlete to perform to their best for that day, it will help prevent the athlete from entering the stage 3 stress response of exhaustion, hence preventing overtraining.

Strengths by speed

Before going further, it should be noted that different lifts and different types of strength will have different speeds as found by the Tendo. For example, speed-strength

on the squat or bench would be at .8-1.0m/s, strength speed .6-.7m/s, and absolute strength of .3-.5m/s.

For one desiring to develop speed strength, if the athlete is moving the bar at 1.2m/s, the athlete does not have sufficient weight on the bar to develop speed-strength. If the athlete is moving the bar at .5m/s, they are going too heavy, working more absolute strength and the bar speed is insufficient to develop speed-strength by training the nervous system to sustain a maximal rate of force development (RFD).

Speeds by Olympic Lift

For Olympic lifts, it is all about the speed of the bar and triple extension. The faster the bar moves with hip extension, the better. However, there are minimum speed guidelines for the lifts. Any lift should be performed at the listed speed or higher, anything lower is too slow to have a positive effect for RFD. The speed for the power clean is 1.25m/s, the hang clean is 1.35m/s, the power snatch is 1.5m/s, and the hang snatch is 1.6m/s.

Failure prevention

Another method with the tendo is preventing failure. Failure has been found to be very taxing on the CNS. So in order to better manage training, it would be wise to train up to the limit, but not exceeding the limit and achieving failure. An example of this would be on the 225 Bench Press Rep Test. Hook the bar up to the tendo unit, and if the

velocity drops below .35m/s, stop as the athlete typically has 1-2 more repetitions left in them. By not performing the last 1-2 reps, the nervous system doesn't achieve the same fatigue, allowing the athlete to recuperate more quickly.

Time vs reps

There have been some debates about what is the best way to increase dynamic strength. Some will say that Louie Simmons has it right with 3 reps for the upper body and 1-2 for the lower body. Others will argue that you have to train the energy system and go for 10 seconds in order to optimally produce force. This is solely my opinion, but it seems to me that the athlete should do what is best for them.

Athletes vary due to many reasons, and one of them is fiber type. If an athlete is slower twitch, the 10 seconds may be better for them. If the athlete is predominantly fast twitch, they may not be able to produce an optimal RFD for longer than 3 reps. If the athlete is predominantly slower twitch, they may be able to produce an optimal RFD for 10 or more seconds.

I personally have had good experience with hooking up the tendo to the bar and telling the athlete to complete repetitions until they can no longer achieve the speed. Faster twitch athletes do fewer fast reps than slower twitch athletes at the same intensity.

Beginning set weight

Yet another way to use the tendo is to begin with a set weight, say 50% on any given lift. They will perform a prescribed number of sets and the weight is determined by their speed on the tendo. For example, say we are doing 4 sets of 5 reps on the hang clean and our speed is 1.35m/s with a first set weight of 177lbs. During the first set, all of the reps speeds are in excess of .165m/s so the athlete increases 22lbs for set 2. At 199lbs, the athlete moves all 5 reps in excess of 1.55m/s, so the athlete decides to make a bigger jump to 265lbs for the 3rd set since set 2 was so fast. At 265lbs the athlete only achieves 1 rep at 1.35, and the other 4 were below 1.2m/s. The athlete realizes they must drop some weight to achieve the desired speed and drops down to 250lbs. For set 4 with the 250lbs the athlete achieves all 4 reps in excess of 1.35m/s.

Conclusion

Many people have heard over and over that there's more than one way to skin a cat. That's right, and you know, every way must work, because regardless of how you do it, the cat doesn't have any skin. The point of this article was to show multiple ways to use the tendo and introduce Autoregulation. It is now up to you to take this and make it your own. There are many other ways to use the tendo and autoregulation that discussed here. Find what works best for you and your athletes, and then have fun. Don't be afraid to think outside the box, it may be a big scary world out there, but once you're in it, it's well worth it.

Bio

Bryan Mann is currently the Assistant Director of Strength & Conditioning at the University of Missouri. He has been in the profession for 7 years and is currently pursuing his PhD. He can be reached by e-mail at jbmn69@mizzou.edu.

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