





# Startpositionen Leistungsübungen

	<p><b>High Hang/Power Position</b></p> <ul style="list-style-type: none"> <li>- Schulter über der Stange</li> <li>- Knie und Hüfte in leichter Flexion</li> <li>- Stange an Oberschenkel</li> <li>- Füße flach</li> </ul> <p>Schwierigkeit/Technik</p> <ul style="list-style-type: none"> <li>- Leicht</li> </ul> <p>Phase: Wettkampf- Vorwettkampfphase, Explosivität</p>
	<p><b>Hang Position</b></p> <ul style="list-style-type: none"> <li>- Schulter leicht vor der Stange</li> <li>- Gewicht über ganzen Fuss verteilt</li> <li>- Stange oberhalb Knie</li> <li>- Knie in leichter Flexion</li> <li>- Hüfte in Flexion</li> </ul> <p>Schwierigkeit/Technik</p> <ul style="list-style-type: none"> <li>- Mittel</li> </ul> <p>Phase: Wettkampf- Vorwettkampfphase, Explosivität,</p>
	<p><b>Low Hang Position</b></p> <ul style="list-style-type: none"> <li>- Schulter vor der Stange</li> <li>- Knie und Hüften in Flexion</li> <li>- Stange unterhalb Knie an Schienbein</li> <li>- Rücken gerade</li> </ul> <p>Schwierigkeit/Technik</p> <ul style="list-style-type: none"> <li>- Eher schwierig</li> </ul> <p>Phase: Vorbereitungsphase, Technik</p>
	<p><b>Boden</b></p> <ul style="list-style-type: none"> <li>- Schulter vor der Stange</li> <li>- Vorspannung</li> <li>- Stange am Schienbein</li> <li>- Knie nach aussen rotiert</li> </ul> <p>Schwierigkeit/Technik</p> <ul style="list-style-type: none"> <li>- Schwer</li> </ul> <p>Phase: Vorbereitungsphase, Technik</p>



# Landepositionen Leistungsübungen

## Power Clean (Umsetzen)/Power Snatch (Reissen)



Phase  
Vorwettkampf/Wettkampf  
Power Output

## Deep Power Clean (Umsetzen)/Deep Power Snatch (Reissen)



Phase  
Vorwettkampf/Wettkampf  
Max Kraft < Power Output

## Squat Clean (Umsetzen)/Squat Snatch (Reissen)



Phase  
Vorbereitung/Vorwettkampf  
Mobilität/Full Range



# Variationen Leistungsübungen



## Umsetzen/Reissen von Blocks

- Startpositionen variabel
- Explosivität als Fokus

### Unterschiede

- kein DVZ

### Phase

Wettkampfphase, Explosivität



## Anreissen (Snatch/Clean Pulls)

- Ganzkörperstreckung als Fokus

### Unterschiede

- Braucht weniger Mobilität
- Mehr Gewicht möglich

### Phase

Wettkampf- Vorwettkampfphase, Explosivität



## Kraftumsetzen/Kraftreissen (Muscle Clean/Muscle Snatch)

- Explosive Streckung im Fokus

### Unterschiede

- Technisch weniger anspruchsvoll
- Weniger Gewicht möglich

### Phase

Variabel, Warm-up



# VELOCITY BASED TRAINING (VBT)



## What is it?

This form of training typically uses technology such as wearable accelerometers or linear position transducers to measure movement velocity during an exercise.



## Why is it important?

Velocity based training (VBT) allows coaches to accurately measure the velocity of a lift, and therefore make alterations to their programming based on the results.



## Uses of VBT

There are many potential uses of VBT which could enhance performance

### Velocity vs % of 1RM



As strength (1RM) can fluctuate by as much as 18% per day, velocity could be used as an alternative measure of exercise intensity.

### Exertion-Load Profiling



Using the mean concentric velocity of a lift can allow coaches to accurately predict the number of reps 'left in the tank'.

### Minimum Velocity Threshold



This 'failure speed' is consistent regardless of the number of repetitions performed.

### Load-Velocity Profiling



It is possible to predict an athlete's 1-RM in various exercises using a linear regression.

### Specific Training



As load increases, velocity slows. Therefore velocity can be prescribed to train specific goals e.g. absolute strength.

### Feedback



Coaches can use the velocity data to direct feedback more accurately and also drive athlete's motivation.



## Our Summary

Thanks to recent developments in technology, velocity based training has evolved strength and conditioning. Although this technology may benefit the industry, it may also do harm if it distracts coaches and subtracts from their session delivery.

### Load-Velocity Profiling Protocol

First, the coach must use the athlete's predicted or actual 1RM. Once this has been done, the coach can then perform the test procedure on the right. Note: allow for 2-3 minutes of rest between each set.

*This protocol is based upon the work of Laturco, 2017 (17)*

**Set 1:** 4 repetitions at 45 % of 1RM

**Set 2:** 3 repetitions at 55 % of 1RM

**Set 3:** 1-2 repetitions at 65 % of 1RM

**Set 4:** 1-2 repetitions at 75 % of 1RM

**Set 5:** 1-2 repetitions at 85 % of 1RM

**Set 6:** 1-2 repetitions at 95 % of 1RM

**Table 2.** Minimal velocity thresholds for the back squat.

<b>The exercise</b> <b>Strength capacity and bodyweight of the athletes</b> <b>Reference</b>	<b>Velocity at 1-RM</b> (i.e. MVT [m/s])
Smith Machine Paused Squat 1-RM = 90.3 kg @ 81.4 kg Bodyweight Pallares et al. [25]	0.37
Smith Machine Squat 1-RM = 97.2 kg @ 81.4 kg Bodyweight Pallares et al. [25]	0.39
Average Squatters 1-RM = 91.2 kg @ 80.3 kg BWT Zourdos et al. [29]	0.34
Experienced Squatters 1-RM = 171.9 kg @ 91.6 kg BWT Zourdos et al. [29]	0.24
Male NZ IPF powerlifters 1-RM = 202.5 @ 87.9 kg Bodyweight Helms et al [27]	0.23

*Table expanded from [28]*

**Table 5.** The Strength-Velocity Continuum and associated velocity ranges from various exercises.

Percentage of 1-RM (%)										
0	10	20	30	40	50	60	70	80	90	100
None	Starting Strength		Speed-Strength		Strength-Speed		Accelerative Strength		Absolute Strength	
Original and arbitrary velocity ranges (m/s; [40])										
	>1.3		1.3-1		1-0.75		0.75-0.5		<0.5	
Research Supported Velocity Ranges (m/s)										
Back Squat [26]	-		-		-		-		<0.54	
Bench Press [10, 41]	>1.3		1.3-0.9		0.95-0.63		0.63-0.32		<0.32	
Prone Pull [41]	>1.52		1.52-1.23		1.23-0.94		0.94-0.67		<0.67	

**Comparison of 2 athletes Load Velocity Profiles for the Bench Press. Blueline athlete has a steeper slope (-1,506) which means he is more efficient than the Redline athlete (-1,2345) in expressing higher velocities with lighter loads.**

