Velocity-based training: the good, the bad, and the alternatives

Ivan Jukic, 11th November 2022



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RESEARCH &

Background







Background







Background



Real 1RM

		150 kg	180 kg
Predicted 1RM	150kg	Correct	Error I (undershooting)
	180kg	Error II (overshooting)	Correct

VELOCITY BASED TRAINING







Load-velocity profiling should be done for daily readiness to train assessments, load adjustments, and monitoring progress



Banyard, H. G., Tufano, J. J., Weakley, J. J., Wu, S., Jukic, I., & Nosaka, K. (2020). Superior changes in jump, sprint, and change-of-direction performance but not maximal strength following 6 weeks of velocity-based training compared with 1-repetition-maximum percentage-based training. *International journal of sports physiology and performance*, *16*(2), 232-242.





Pareja-Blanco, F., et al. (2017). Effects of velocity loss during resistance training on athletic performance, strength gains and muscle adaptations. Scandinavian Journal of Medicine & Science in Sports, 27(7), 724-735.



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Jukic, I., Castilla, A. P., Ramos, A. G., Van Hooren, B., McGuigan, M. R., & Helms, E. R. (2022). The acute and chronic effects of implementing velocity loss thresholds during resistance training: A systematic review, meta-analysis, and critical evaluation of the literature. *Sports Medicine*, ahead of print.



Jukic, I., Prnjak, K., McGuigan, M. R., & Helms, E. R. (2022). One velocity loss threshold does not fit all: consideration of sex, training status, history, and personality traits when monitoring and controlling fatigue during resistance training. *Sports Medicine - Open*, under review (preprint available).

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Pareja-Blanco, F., et al. (2017). Effects of velocity loss during resistance training on athletic performance, strength gains and muscle adaptations. Scandinavian Journal of Medicine & Science in Sports, 27(7), 724-735.

Jukic, I., Helms, E. R., McGuigan, M. R., & García-Ramos, A. (2022). Using cluster and rest redistribution set structures as alternatives to resistance training prescription method based on velocity loss thresholds. *PeerJ*, *10*, e13195.

Jukie, I., Memuly eren, Riceangen, M. R., He barch-Rai Mos Wisero 20). Pus Mg elaster Jail di 2021 de Alternationa a festi steustes a stationalise en reasonalise dentation presentation ce freition: based en adircaviques and reactates aveig, scores Most cine, 51(5), 1061-1086.

Izquierdo, M., Ibañez, J., González-Badillo, J. J., Häkkinen, K., Ratamess, N. A., Kraemer, W. J., ... & Gorostiaga, E. M. (2006). Differential effects of strength training leading to failure versus not to failure on hormonal responses, strength, and muscle power gains. *Journal of Applied Physiology*.

70%	RIR	80%	RIR	90%	RIR
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	14 13 12 11 10 9 8 7 6 5 4 3 2 1 0	1 2 3 4 5 6 7 8 9 10	9 8 7 6 5 4 3 2 1 0	1 2 3 4 5	4 3 2 1 0

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(Only) velocity loss should not be used for set volume prescription

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If knowing the actual volume of work is not essential and finances are an issue, doing fewer reps at a time with shorter, but more frequent rest periods is the way to go for maximising resistance training-induced adaptations which will also avoid excessive fatigue accumulation

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If knowing the actual volume of work is essential, and finances are not an issue, establishing individualised repetitions in reserve-velocity profile is the way to go for optimising resistance training monitoring and prescription

Thank you – questions?

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