Pyramidal Systems in Resistance Training

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Contributor: Grégoire CATTAN

Pyramidal systems refer to a particular type of resistance training in which sets are performed with increasing (or decreasing) weight, in such a way that the number of repetitions is low when the weight is high (and vice versa). Multiple implementations exist such as the light-to-heavy, triangle or asymmetric triangle system. They are similar to traditional training, but with slightly different impact on training volume, endurance or power outcome. Therefore, pyramidal systems are ideal candidates for practitioners willing to tune their training routine.

Resistance Training | Pyramidal systems | Pyramidal training | Comparison | Heavy-to-Light Pyramid | Light-to-Heavy Pyramid | Asymmetric Pyramid.

Resistance training refers to a specialized method of conditioning which involves the progressive use of a wide range of resistive loads and a variety of training modalities designed to enhance health, fitness, and sports performance [1]. Muscular resistance exercises usually consist of one or multiple sets of repetitions spaced by resting time using the same or different resistance. Although one set requires less time to be executed than multiple sets, performing multiple sets results in greater strength and hypertrophy [2][3]. Fitness enthusiasts and researchers have created several multiset training systems, such as circuits, drop and strip, superset, and pyramidal training. A ubiquitous recommendation from domain references, such as the American College of Sports Medicine (ACSM) or National Strength and Conditioning Association (NSCA), is to perform two to three sets with 8 to 12 repetitions at 67–85% of the one-repetition maximum (1RM) [4][5]. The present research refers to such a style of training as traditional training. Traditional training varies according to athletes' level and trainability, such as age and previous training experience. In particular, regular variation of the training program, such as changing the training method or volume, is necessary to maintain the progression. This is because the body quickly adapts to resistance training, and thus changes are necessary for continual progression to occur [6]. Regarding age, experts recommend tailoring the physical activity to the subject's limitations and chronic conditions [7]. Having several resistance training methods to draw on allows the routine to be adapted to the practitioner's physical condition and avoids a plateau in progression. The pyramidal system of training refers to methods in which sets are performed with increasing (or decreasing) weights and repetitions, in such a way that the number of repetitions is low when the weight is high (and vice versa) [8]. In this article, we conduct a narrative review of the pyramidal method.

References

1. Faigenbaum, A.D.; Kraemer, W.J.; Blimkie, C.J.R.; Jeffreys, I.; Micheli, L.J.; Nitka, M.; Rowland, T.W. Youth Resistance Training: Updated Position Statement Paper From the National Strength

and Conditioning Association. J. Strength Cond. Res. 2009, 23, S60–S79.

2. Peterson, M.D.; Rhea, M.R.; Alvar, B.A. Maximizing Strength Development in Athletes: A Meta-Analysis to Determine the Dose-Response Relationship. J. Strength Cond. Res. 2004, 18, 377–382.
3. Krieger, J.W. Single vs. Multiple Sets of Resistance Exercise for Muscle Hypertrophy: A Meta-Analysis. J. Strength Cond. Res. 2010, 24, 1150–1159.
4. Westcott, W. Acsm strength training guidelines: Role in Body Composition and Health Enhancement. ACSM's Health Fit. J. 2009, 13, 14–22.
5. National Strength & Conditioning Association NSCA's Guide to Program Design; Hoffman, J. (Ed.) Human Kinetics: Champaign, IL, USA, 2011; ISBN 978-1-4925-8277-9.
6. Ratamess, N.; Alvar, B.; Evetoch, T.; Housh, T.; Kibler, W.; Kraemer, W. Progression Models in Resistance Training for Healthy Adults . Med. Sci. Sports Exerc. 2009, 41, 687–708.
7. Nelson, M.E.; Rejeski, W.J.; Blair, S.N.; Duncan, P.; Judge, J.O.; King, A.C.; Macera, C.A.; Castaneda-Sceppa, C. Physical Activity and Public Health in Older Adults. Med. Sci. Sports Exerc. 2007, 39, 1435–1445.
8. Fleck, S.J.; Kraemer, W.J. Designing Resistance Training Programs, 4th ed.; Human Kinetics: Champaign, IL, USA, 2014; ISBN 978-0-7360-8170-2.