A Randomized, Prospective Analysis of 4 Strength Training Regimens in a Collegiate Football Team

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It has been proposed that weightlifting regimens that emphasize graduated isotonic force generation minimize myofibril fatigue and therefore improve muscle strength most efficiently. The purpose of this study was to compare the efficacy of 4 weight-training regimens, each with a unique isotonic force profile, on maximal force generation. During a consecutive 7-week period beginning January 1998, male NCAA Division III football players (n = 36) were randomly divided into 4 experimental programs and then were randomly reassigned to a different program for another 7-week period after a 1-week break. Program A emphasized systematic addition and subtraction of weight with maximal isotonic force generation during the midpoint of 5 sets. Program B consisted of randomized force generation throughout all sets. Program C used constant isotonic force generation with no weight variation between sets. Program D, modeled after the Bigger, Faster, Stronger method, emphasized systematic graduated addition of weight, with maximal force generation during the final set phase. Maximum strength of 4 core lifts (bench press, parallel squat, power clean, and trap-bar deadlift) was determined by a 1 repetition maximum (1RM) at the beginning and end of each program period. All programs resulted in an increase in 1RM by the end of both the first and second training periods. However, program A improved 1RM significantly more than did the rest of the programs for all core lifts during the first period and for the bench press and power clean during the second period (p < 0.05). Hence, a strategic method of weightlifting that maximizes isotonic force generation during the midpoint of 5 sets may be the most effective approach for improving muscle strength in this group of college athletes.