

23. SWACSM Abstract

Kinetic and Kinematic Analysis of the Split Jerk and the Split Jerk from the Rack

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ABSTRACT

The clean and jerk is one of the movements in the sport of weightlifting. Research has broken down the movement of the power clean and hang power clean, which is what seems to be primarily used in the field of strength and conditioning. However, by looking at the split jerk we could gain new insight into increasing power outputs in athletes by utilizing the split jerk in training. **PURPOSE:** Therefore, the purpose of this research is to analyze the power output and knee joint angles of the split jerk from two different positions, taken off the rack (SJ) and the split jerk lifted after the squat clean (C&J). **METHODS:** Five weightlifters who have competed in an USAW sanctioned weightlifting meet within the last 2 years, between 18-35 years, training 3-5 days a week and had no previous injuries within the last 6-months participated. After performing the specific warm-up, markers were placed on the athletes. The athletes then began to warm up to their working weight at 80% of 1RM by gradually performing 1 rep of their clean & jerk at 55%, 60%, 65%, 75% of their 1RM. Once the athlete had warmed up, four trials were recorded for the full clean & jerk and split jerk from the rack. The order of the movements was randomly selected for each athlete. Sagittal knee joint angles and peak power were assessed for each movement. **RESULTS:** When comparing the joint angles of the split jerk taken off the rack to the split jerk lifted after the squat clean, average peak knee flexion and average peak knee extension were similar when comparing within subjects. Average peak knee flexion for the C&J and SJ were -70.09 (+/- 12.56) degrees, and -70.70(+/-10.60) degrees, respectively, with a 0.006% difference. Average peak knee extension for both the C&J and SJ were -6.01(+/-9.40) degrees, and -6.05(+/-10.36) degrees, respectively, with a 0.0004% difference. Average peak power outputs for the C&J and SJ were 932.30(+/-278.85) watts, and 963.24(+/-267.64) watts, respectively, with a 0.31% difference between the groups. **CONCLUSION:** In conclusion the split jerk taken from the rack had a slightly greater peak power output than the split jerk performed after the clean. Interestingly, average peak knee extension values do not dictate an increase in power outputs. More research needs to be done to determine if average peak knee flexion values could determine a higher power.