



RATE OF PERFORMANCE INCREASE IN AMERICAN FEMALE WEIGHTLIFTERS OVER TEN YEARS OF COMPETITION

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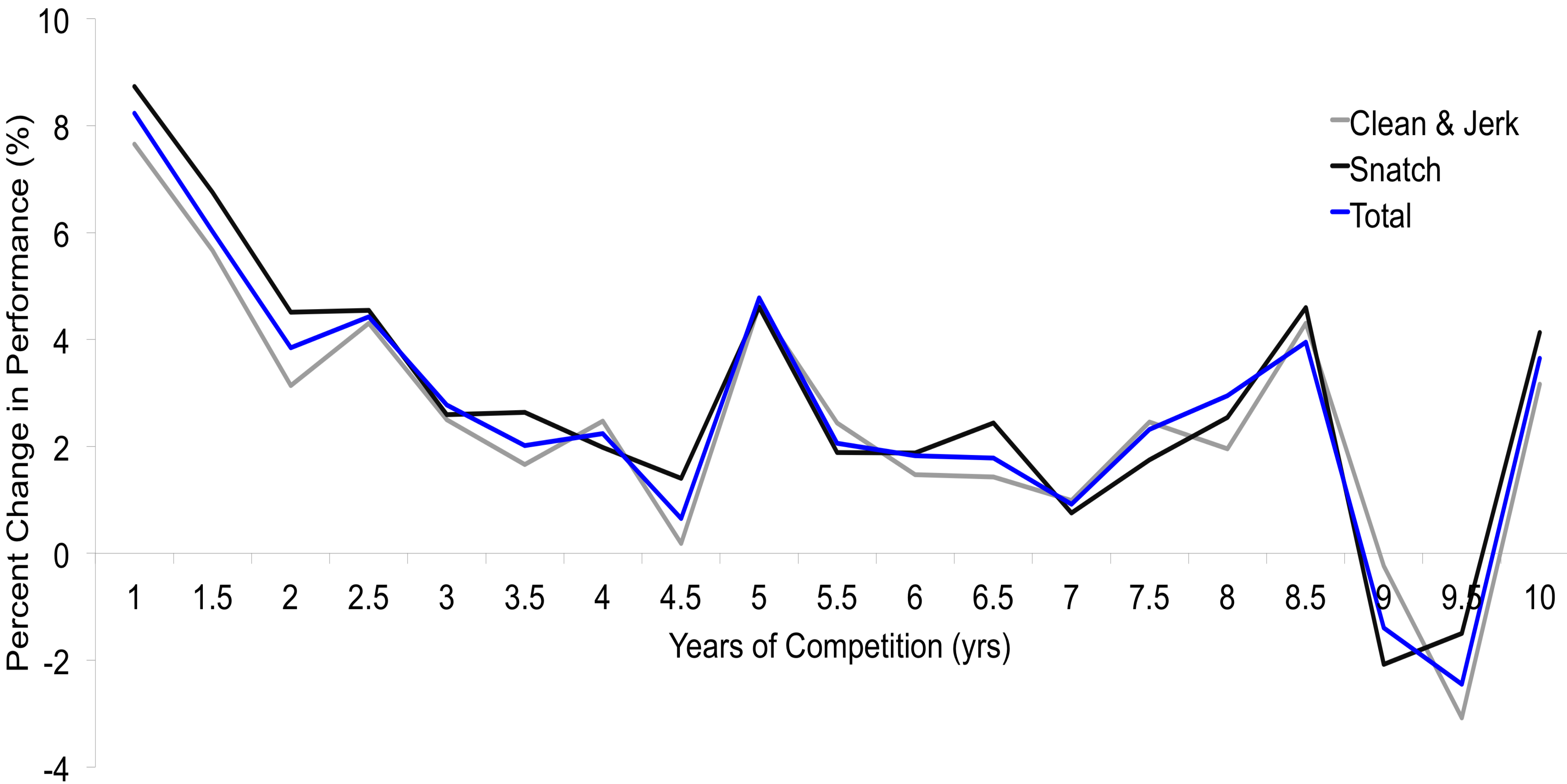


Figure 1. The percent change between each 6-month window for 10 years of competition.

Purpose

Evaluate rates of performance change for American female weightlifters over 10 years of competition. There is little data on reasonable performance increases for female Weightlifters, however, female weightlifting data can be used to assess athletes and programming.

Conclusion

The SNT was initially 75.4% of the CJ, and peaked in year 10 at 81.2%, highlighting increased technical demands of the SNT as compared to the CJ. This study quantifies the rate of performance change for American female Weightlifters over 10yrs of competition; useful for talent identification and program evaluation.

Methods

Public domain data (<http://www.teamusa.org/USA-Weightlifting>) was delimited to athletes (N ≥ 895) having competed in Youth or Junior Nationals to ensure athletes were <21yrs old at the time of the first competition. Competition results were converted to strength to mass (SM) ratios to control for the effect of bodyweight on performance. Starting with the first competition date, the highest SM for the snatch (SNT), clean and jerk (CJ) and combined total (T), within six month windows over 10 years, were recorded. The observed percentage change in SM and Cohen's d effect size (ES) between each 6-month window, for the SNT, CJ and T was determined. Each athlete's data was only included in the current window's average if the preceding window contained data for comparison.

Table 1. Descriptive data, percentage change and effect sizes for the snatch, clean and jerk and total over 10 years of competition.

	1	2	3	4	5	6	7	8	9	10
Snt										
N	900	552	362	250	156	112	92	62	49	43
S:M	0.74±0.19	0.83±0.21	0.88±0.22	0.92±0.24	0.98±0.24	1.01±0.25	1.07±0.25	1.1±0.24	1.09±0.25	1.13±0.24
Wt (kg)	59.2±17.7	60.9±18.3	62.4±18.8	65.6±20.6	65.5±20.8	65.8±19.6	67.6±21.1	68.8±22.3	69±19.6	69.7±22.6
Snt (kg)	43.5±15	49.7±16	54.1±16.9	58.8±17.6	62.4±18.1	64.8±17.5	69.5±16.9	72.8±15.7	72.9±17.2	75.3±13.5
% change (ES)	8.7 (0.33)	18.6 (0.66)	23.4 (0.77)	26.5 (0.82)	28.9 (0.90)	29.5 (0.90)	30.8 (0.97)	30.7 (0.98)	27.6 (0.92)	27.7 (0.96)
CJ										
N	897	548	359	248	156	113	91	62	50	43
S:M	0.97±0.24	1.06±0.25	1.06±0.25	1.17±0.3	1.24±0.29	1.27±0.3	1.33±0.29	1.38±0.3	1.37±0.31	1.4±0.3
Wt (kg)	59.2±17.9	61±18.3	62.5±19	65.7±20.8	65.2±20.5	65.7±19.7	67.8±21.6	69.8±23.2	68.5±19.6	69.8±22.7
CJ (kg)	56.8±18.3	63.6±19.4	68.7±20.8	74.6±21.5	78.5±22.3	81.1±21.7	86.7±20.6	92.1±19.9	91.1±21.5	93±17.1
% change (ES)	7.6 (0.30)	15.5 (0.60)	20.5 (0.71)	23.5 (0.78)	25.9 (0.86)	27.1 (0.89)	27.9 (0.94)	27.2 (0.94)	24.6 (0.86)	22.2 (0.84)
Tot										
N	894	547	358	247	156	112	91	61	48	43
S:M	1.71±0.42	1.88±0.45	2±0.5	2.09±0.53	2.21±0.53	2.28±0.55	2.39±0.54	2.48±0.54	2.45±0.55	2.53±0.53
Wt (kg)	59.2±17.8	60.9±18.3	62.5±19	65.6±20.6	65.1±20.2	65.8±19.8	67.7±21.6	69±22.4	68.8±19.9	69.7±22.6
Tot (kg)	99.9±32.8	112.8±35.1	122.5±37.3	132.9±38.8	140.5±39.9	145.7±39	155.7±37	164±34.7	163.6±38.9	168±30.4
% change (ES)	8.2 (0.32)	17 (0.63)	22 (0.75)	25 (0.80)	27.4 (0.89)	28.4 (0.90)	29.2 (0.95)	28.8 (0.97)	25.9 (0.89)	25 (0.91)

Acknowledgements

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