

BACKGROUND

With increased youth participation in strength and conditioning programs, research suggests that they should not be treated as miniature adults. According to Lloyd et al., 2012 Youth Physical Development Model (YPD), there are specific training emphasis for different chronological ages. The YPD model suggests that resistance exercise for youth aged 12-13 should focus primarily on muscular strength and power, sprinting speed, agility, and sport-specific skill development. There is limited information on periodization for youth at the mesocycle level that can be incorporated with the YPD model for training youth.

PURPOSE

The purpose of this study was to quantify mesocycle periodization characteristics, specifically percent changes from mesocycle to mesocycle, average sets and repetitions performed in each mesocycle, average reps per set, average sets per exercise, and total reps and sets performed in each specific mesocycle for a resistance training program that was specifically designed for youth baseball athletes.

METHODS

Mesocycle characteristics, specifically total reps and sets completed in each individual cycle and percent change from cycle to cycle in a resistance training program designed specifically for middle school aged youth athletes that trained twice per week for one hour each day and performed exercises focused on increasing muscular strength and power, foundational movement patterns, linear speed, and change of direction speed were analyzed.

RESULTS

- Mesocycle 1's weekly repetitions and sets ranged between 330 to 360 repetitions and 30 to 39 sets. The average repetitions and sets were 345 repetitions and 35 sets. The average repetitions per set and average sets per exercise were 10 repetitions and 2.3 sets.
- Mesocycle 2's weekly repetitions and sets ranged between 340 to 357 repetitions and 39 to 53 sets. The average repetitions and sets were 345.67 repetitions and 48.33 sets. The average repetitions per set and average sets per exercise were 8 repetitions and 3.72 sets.
- Mesocycle 3's weekly repetitions and sets ranged between 410 to 570 repetitions and 42 to 46 sets. The average repetitions and sets were 463.33 repetitions and 44.67 sets. The average repetitions per set and sets per exercise were 10.71 and 3.19.
- Percent change in sets and repetitions from mesocycle to mesocycle included (mesocycle 1-mesocycle 2=38.10% sets, 0.19% reps; mesocycle 2-mesocycle 3=-7.59% sets, 34.04% reps) differed.

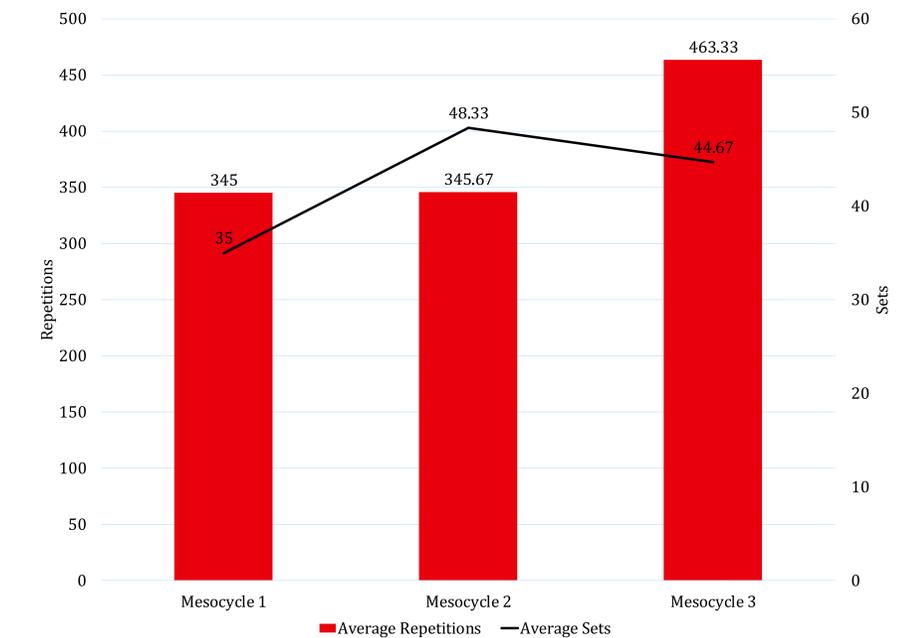


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Table 1. Weekly Sets and Repetitions Completed in Each Mesocycle and Percent Change From Mesocycle to Mesocycle

Mesocycle 1		
Week	Sets	Repetitions
1	39	345
2	36	330
3	30	360
4	39	345
5	36	330
6	30	360
Mesocycle 2		
Week	Sets	Repetitions
1	53	340
2	53	340
3	39	357
4	53	340
5	53	340
6	39	357
% Change Mesocycle 1 – Mesocycle 2	38.10%	0.19%
Mesocycle 3		
Week	Sets	Repetitions
1	46	410
2	46	410
3	42	570
4	46	410
5	46	410
6	42	570
% Change Mesocycle 2 - Mesocycle 3	-7.59%	34.04%

Figure 1. Average Sets and Repetitions Performed Each Mesocycle



CONCLUSIONS

- The present study's findings quantified the mesocycle periodization characteristics designed to increase muscular strength and power, linear speed, and change of direction speed in youth baseball populations.
- Unique differences between mesocycles were observed for repetition and set volume. However, similarities between average repetitions per set and sets per exercise were observed.

PRACTICAL APPLICATIONS

- Quantifying resistance training program periodization characteristics for youth athletes may assist with the development of muscular strength and power, linear speed, and change of direction speed as the resistance training program progresses.
- Practitioners may note that maintaining consistency in average repetitions per set and sets per exercise may be beneficial.

ACKNOWLEDGEMENTS

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REFERENCES

1. Lloyd, R. S., & Oliver, J. L. (2012). The youth physical development model: A new approach to long-term athletic development. *Strength & Conditioning Journal*, 34(3), 61-72.