

# Body Composition Changes from Strongman Training and High-Intensity Interval Training

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## Abstract

- Strongman training (ST) is slowly becoming one of the more polarizing training styles. ST has been pushed to the forefront by athletes such as Brian Shaw and Eddie Hall. Strongman has reached a level of popularity that rivals high-intensity interval training (HIIT). With this rise in popularity, there has been a noticeable deficit in the understanding of the implications such training programs have on the body. There is a need to understand if a ST program is worth the time and the effort put in. College-aged participants completed a BodPod assessment, one of two exercise programs, a HIIT program or a ST program. The programs were implemented over the course of twelve weeks, but the entire study was done in sixteen-weeks. The ST program consisted solely of events seen in strongman competitions. The results were analyzed to determine if there are positive changes in body composition in both HIIT and ST, and to determine if there is more uses for a ST program outside of professional Strongman competitors. The analysis was done by comparing fat mass (FM) loss, fat free mass (FFM) gain, comparing the percentages of both measures, and by comparing beginning and ending body masses.

## Introduction

- ST is a combination of weight training and some sport-transferable functional movements.
- Alongside ST, if not ahead of it in a time perspective, HIIT has become one of the most popular and easy to perform methods of exercise.
- ST has several events and or lifts added into the program that focus on the ability to functionally move certain objects and or equipment. Those events are Farmer's Walk (FW), Atlas Stone Lift (ASL), Super Yoke (SY), Keg Walk Left Leg (KWLL), Kew Walk Right Leg (KWRL), Tire Flip (TF), and Log Lift (LL).
- HIIT is a form of training that uses multiple bouts of high intensity anaerobic exercises alternating with bouts of either rest or low intensity recovery periods

## Purpose Statement

- The purpose of this study is to determine the body composition changes that occur from ST and HIIT.
- The hypothesis for this research is that there will be positive body composition changes for both ST and HIIT. Positive meaning reduced FM and/or gain in FFM.

## Methods

### BODY COMPOSITION CHANGES FROM STRONGMAN TRAINING AND HIGH-INTENSITY INTERVAL TRAINING

#### Two-Weeks Prior to Study

20 college-aged individuals were with one-years worth of weight training experience were recruited from the same university. Participants went through 3 phases in the study. After this meeting the participants came in to conduct a BodPod assessment in the Carolina Chiropractic Plus Human Performance Lab in the Health Science building.

#### One-Week Prior to Study

In the week prior to the beginning of the study, the participants came into their respective locations and practiced and became comfortable with the exercises/events that were to be done during their respective programs.

#### ST

The ST program was conducted at Matthew's Gym in Forest City, North Carolina. The participants completed a twelve week program with a set exercise program. The program is listed below in Figure 1.

#### HIIT

The HIIT program was conducted in Suttle Wellness Center's CrossFit Gym on Gardner-Webb University's campus. The participants completed a twelve week program with a set exercise program. The program is listed below in Figure 2.



#### Two-Week Post Study

Two weeks after the completion of the study, participants came back to the Carolina Chiropractic Plus Human Performance Lab in the Health Science building to conduct the post exercise program BodPod assessment.

### Analysis of Data

FM, FFM, body mass, FM percentage, and FFM percentage were collected before and after the study and they were compared. The comparison was done between the exercise programs using linear regression models.

Figure 1: Strongman Training Program

Day**	Exercises*
1	Farmer's Walk: 3 sets of down and back, total distance 100 ft. Keg Walk Left & Right Leg: 3 sets of down and back, total distance 100 ft. Atlas Stone Lift: 3 sets of 5 stone medley Super Yoke: 3 sets of 50 ft.
2	Atlas Stone Lift: 3 sets of 5 stone medley Log Lift: 3 sets of 5 full ground to press reps Tire Flip: 3 sets of 15 flips Super Yoke: 3 sets of 50 ft.
3	Farmer's Walk: 3 sets of down and back, total distance 100 ft. Super Yoke: 3 sets of 50 ft. Tire Flip: 3 sets of 15 flips Log Lift: 3 sets of 5 full ground to press reps
4	Keg Walk Left & Right Leg: 3 sets of down and back, total distance 100 ft. Atlas Stone Lift: 3 sets of 5 stone medley Log Lift: 3 sets of 5 full ground to press reps Tire Flip: 3 sets of 15 flips

\*All lifts weights are set specifically per participant. 5 minutes of rest between each set.

\*\*This chart displays one week of exercises. This same program was repeated each week.

Figure 2: High-Intensity Interval Training Program

*DAYS	STRENGTH/SKILL**	WORKOUT OF THE DAY (WOD)
DAY 1	Back squat, 3 X 5 5 @ 65% 1RM 5 @ 75% 1RM 5 @ 85% 1RM Assisted Pull-ups 5 @ 65% 1RM 5 @ 75% 1RM 5 @ 85% 1RM	For best time: 50 Air squats 3 Flights stairs 100 Double under jump rope 25 Burpees 50 Double under jump rope 25 Burpees 100 Double under jump rope
DAY 2	Deadlift, 3 X 5 5 @ 65% 1RM 5 @ 75% 1RM 5 @ 85% 1RM Ring work 10 min Pull-ups and dips	For Best Time: 30 Clean and Jerks 21 Kettle Bell Swings 21 Ring Dips 15 Kettle Bell Swings 15 Ring Dips 9 Kettle Bell Swings 9 Ring Dips
DAY 3	Overhead press, 3 sets X 3 reps 3 @ 70% 1RM 3 @ 80% 1RM 3 @ 90% 1RM Advanced: muscle 4 Sets of 1RM Beginner: ring push-ups 4 Sets of 1RM	100 Body weight air squats 100 Sit-ups 100 Push-ups 100 Pull-ups
DAY 4	Push press, 3 sets 5 @ 70% 1RM 3 @ 80% 1RM 3 @ 90% 1RM Pull-ups 5 @ 75% 1RM 3 @ 85% 1RM 1 @ 95% 1RM	21 Box jumps (24" for men, 20" for women) 30 Box Jumps 30 Burpees 15 Box jumps 15 Burpees 9 Box jumps 9 Burpees

\*This only represent one week. The listed program was completed every week.

\*\* All lifts weights are set specifically per participant. 1-2 minutes of rest between each set, unless otherwise stated.

## Discussion

- The limitations in the study were the time frame of the study and the small sample size. With more time the study could have yielded more significant results and with a larger sample size there could have been a more significant application to the overall population.
- It was assumed that the participants in the study were and accurate representation of college-aged individuals in America.
- It was assumed that the results of this study would give valuable information on the body composition changes in college-aged individuals for both HIIT and ST.
- Further research could be done to include a longer time frame, larger sample size, more anthropomorphic measures, and more training programs.

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## References

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