

# The Effect of Weight Loss Programs on Physical Performance in Obese Population

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Obesity, defined as excessive fat accumulation within the body with body mass index (BMI; weight in kg/height in m<sup>2</sup>) >30.0 kg/m<sup>2</sup>), is considered a major health risk factor across the U.S. According to the Center of Disease Control, in 2019 North Carolina had a 34% prevalence of adult obesity, indicating more than one-third of North Carolina residents were considered to be obese. The purpose of this study was to examine the efficacy of three weight loss programs: Essential, Optifast, and Surgical used in Wake Forest Baptist Health Weight Management Center (WFBH WMC) on weight loss and measures of physical function. Impaired physical function with mobility disability is a major health concern in obesity. This analysis was conducted on 500 obese individuals in the real-world clinical environment over six months. The programs consist of surgical weight loss (bariatric surgery), meal replacements (including commercial meal replacement products and self-prepared regular foods), prescribed exercises, and modification of lifestyles, while each program is respectively focused on different aspects of the weight management approaches. Statistically significant improvements in physical function were detected. The analysis exhibited that Optifast appears to have the best efficacy on improving gait speed (1.15m/s – 1.28 m/s); Essential has the best efficacy on improving chair rising time (9.86s – 8.29s) and grip strength (64.87kg-122.57kg), indicating the moderate effects of three weight loss programs toward weight loss and improvement on physical function in the obese population.

\*Data are average values

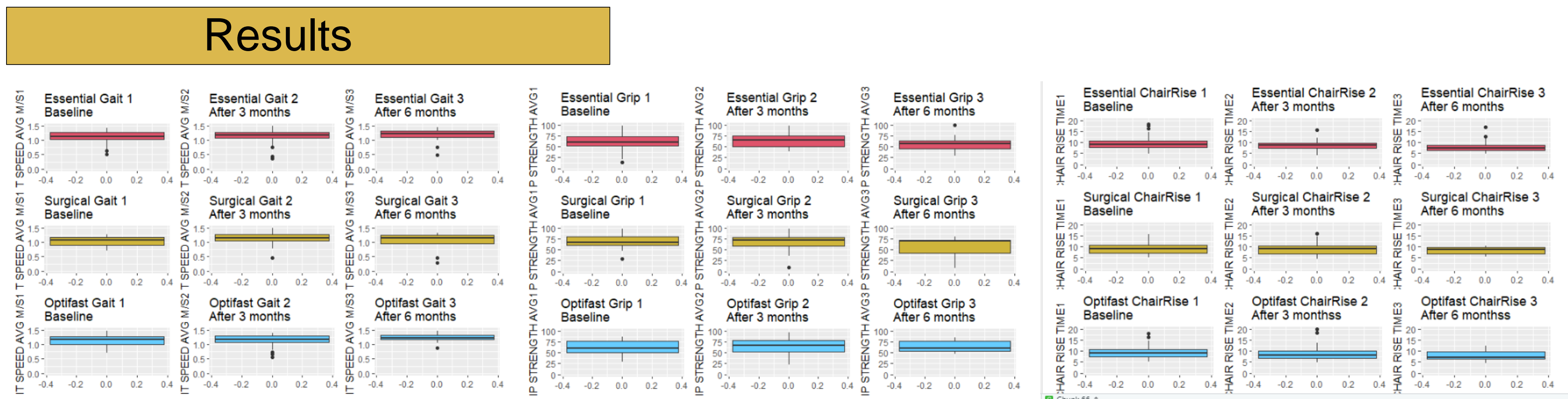
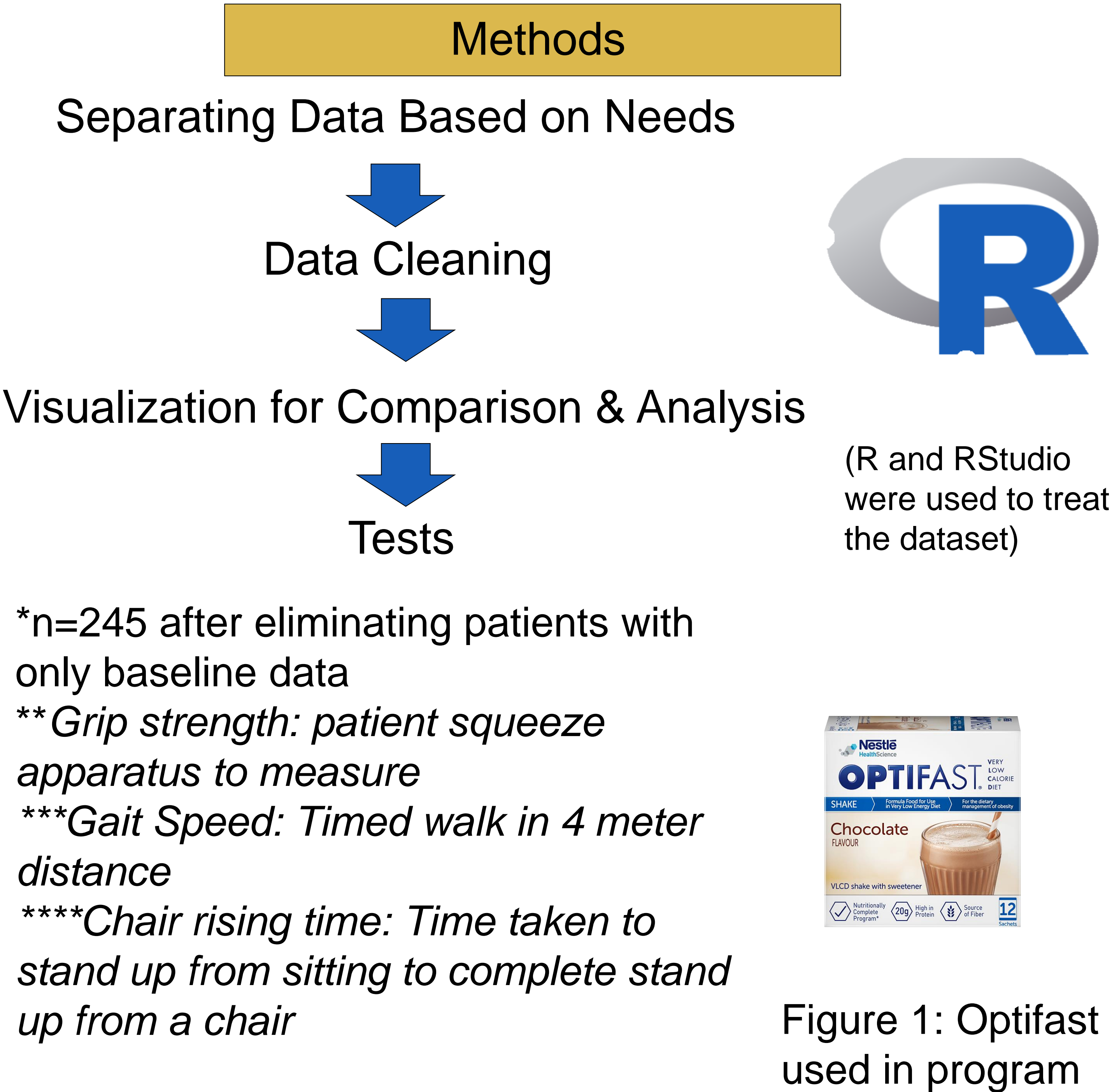


Figure 2: Gait Speed Improvement

Figure 3: Grip Strength Improvement

Figure 4: Chair Rising time Improvement

Program	Essential	Optifast	Surgical
Weight Loss (lb.)/(kg)	-8.622/-3.91	-22.81/-10.35	-37.4704/-17
Gait Speed Improvement (m/s)	0.0345	0.1256	-0.016
Chair Rising Improvement (s)	1.574	0.029	-2.72
Grip Strength Improvement (kg)	5.390	57.710	-9.020

Figure 6: Key Measures Improvement

Program	Essential	Optifast	Surgical	Essential	Optifast	Surgical	Essential	Optifast	Surgical
Measures	Gait Speed			Grip Strength			Chair Rising		
P-value	0.577	0.0196	0.00247	0.805	0.752	0.691	0.0708	0.0204	0.0294

Figure 5: P-values for 3 programs

## Next Steps

- Seek to conduct a Randomize Controlled Trial
- Utilizing additional statistical techniques to analyze the data for further investigation

## Reference

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## Acknowledgements

Wake Forest Research Fellowship Program, Dr.Gary Miller, Kelsey Cuzzupe, Sophia Fang, Yixin Zhang, the MSCCC.WFSF. Sixuan Liu

