

Effect of weight loss on blood pressure in low-fat vegan and low-fat omnivorous diets

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INTRODUCTION

African Americans (AA) have the highest prevalence of hypertension in the United States but are underrepresented in nutrition intervention studies.

The Nutritious Eating With Soul (NEW Soul) Study is a 2 year intervention using a healthier soul food diet, vegan or omnivorous (omni) to help participants lose weight and decrease risk factors, such as hypertension, related to cardiovascular disease (CVD).

Weight loss is believed to be a clinically significant method of prevention and treatment for hypertension and hypertension-related CVD. **The purpose of this project was to determine the correlation between weight loss and blood pressure (BP) after participants had been in the intervention for 6 months.**

METHODS

- 67 AA participants enrolled and 58 (87%) completed 6-month assessment (mean age 47.7±11.2 years; mean BMI 36.6 ±8.0 kg/m²)
- Participants were randomized into a low-fat vegan or low-fat omni diet.
- Participants attended weekly meetings for 6 months, which included: cooking demonstrations, recipes, educational presentations, and social support.
- Weight (digital scale) and blood pressure (digital monitor) were taken at baseline and 6 months.

Take a picture to access the research at BRIE Lab.



Weight loss was achieved on both the low-fat vegan and omnivorous diets.

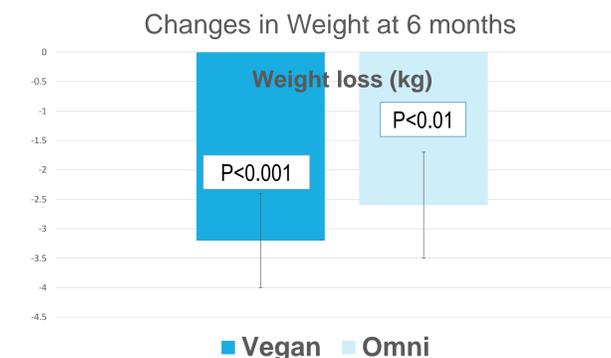
Potential factors that may impact blood pressure other than weight loss will need to be studied.

REFERENCES

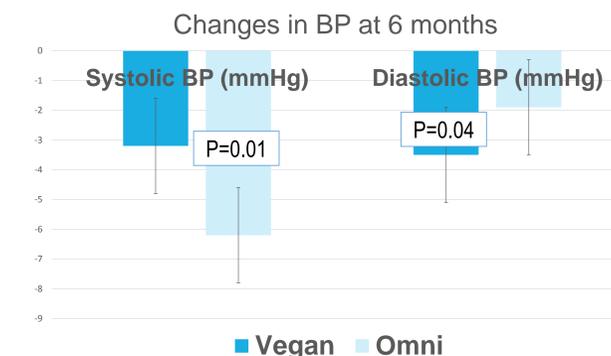
- Hovell M. F. (1982). The experimental evidence for weight-loss treatment of essential hypertension: a critical review. *American journal of public health*, 72(4), 359-68.
- Muntner, P., Abdalla, M., Correa, A., Griswold, M., Hall, J. E., Jones, D. W., Mensah, G. A., Sims, M., Shimbo, D., Spruill, T. M., Tucker, K. L., ... Appel, L. J. (2017). Hypertension in Blacks: Unanswered Questions and Future Directions for the JHS (Jackson Heart Study). *Hypertension (Dallas, Tex. : 1979)*, 69(5), 761-769.
- Sbrocco, T., Carter, M. M., Lewis, E. L., Vaughn, N. A., Kalupa, K. L., King, S., Suchday, S., Osborn, R. L., ... Cintrón, J. A. (2005). Church-based obesity treatment for African-American women improves adherence. *Ethnicity & disease*, 15(2), 246-55.
- Stevens, V. J., Obarzanek, E., Cook, N. R., Lee, I. M., Appel, L. J., Smith West, D., ... Cohen, J. (2001). Long-term weight loss and changes in blood pressure: results of the Trials of Hypertension Prevention, phase II. *Annals Of Internal Medicine*, 134(1), 1-11.
- Tyson, C. C., Appel, L. J., Vollmer, W. M., Jerome, G. J., Brantley, P. J., Hollis, J. F., Stevens, V. J., Ard, J. D., Patel, U. D., ... Svetkey, L. P. (2013). Impact of 5-year weight change on blood pressure: results from the Weight Loss Maintenance trial. *Journal of clinical hypertension (Greenwich, Conn.)*, 15(7), 458-64.

RESULTS

Participants in both the vegan and omni groups lost significant weight at 6 months (-3.2±3.9 kg, p<0.001 vegan; -2.6±4.9 kg, p<0.01 omni).



Significant reductions in systolic BP were achieved in the omni group (-6.2±13.2 mmHg, p=0.01), and not in the vegan group (-3.2±14.3 mmHg, p=0.25). Significant reductions in diastolic BP were achieved in the vegan group (-3.5±8.5 mmHg, p=0.04), and not in the omni group (-1.9±6.5 mmHg, p=0.10).



There was no significant correlation between weight loss with systolic BP (r=0.07, p=0.62) or diastolic BP (r=0.18, p=0.17).

CONCLUSIONS

- Both groups lost significant amounts of weight at 6 months.
- Vegan group significantly reduced diastolic BP; Omni group significantly reduced systolic BP
- Factors outside of weight loss could be responsible for reductions in BP. Future studies should examine factors such as physical activity, reduced sodium intake, or increased potassium intake.

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