



PICO Question

The **population** being look at is adults with hypertension.

Interventions that will be looked at are the D.A.S.H. diet and programs that have shown to increase the consumption of fruits and vegetables.

Comparison: No intervention

Outcome: To determine if nutrition, particularly the D.A.S.H. diet and an increase in the intake of fruits and vegetables can impact the high rates of hypertension that lead to cardiovascular disease.

Background/Significance

Intake of added salt

- 97.8% of people often add salt when cooking food at home

Average intake of fruits every day

- 0.5 number of servings

Average intake of vegetables every day

- 1.4 number of servings

- 21.9% eat no fruit and/or vegetables per day

- 98.9% eat less than the suggested five (5) servings of fruit and/or vegetables per day

Search Technique/Methods

Search Databases: CINAHL, Cochrane, Google Scholar

Key Words: Dash diet, hypertension, Nepal, fruit and vegetables, USDA Myplate, lifestyle

Recommendations Based on Quality of Evidence

Hypertension: All three dietary guidelines are similar, but strength A evidence shows that the DASH diet is the better guideline to implement to help lower blood pressure in people with hypertension. It is recommended to promote the DASH diet guidelines as a method to lower blood pressure.

Fruits and Vegetables: Based on the previous and ongoing studies of fruit and vegetable consumption intervention programs in place, it is recommended that implementing similar programs all over Nepal would be very beneficial for the increased consumption of fruits and vegetables.



Findings/ Chart

Title of Article	Level of Evidence	Findings
A clinical trial of the effects of dietary patterns on blood pressure	2A	In a study done on 459 adults by The New England Journal of Medicine, the DASH diet was shown to reduce the systolic blood pressure by 5.5 mm Hg and the diastolic blood pressure by 3.0 mm Hg more than the control diet in the study.
The effect of dietary patterns on blood pressure control in hypertensive patients: results from the Dietary Approaches to Stop Hypertension (DASH) trial	2A	After eight weeks of interventions, 70% of participants on the DASH diet had a normal blood pressure, 45% on the fruit and vegetable diet, and 23% of those on the control diet.
Home gardening in hilly and Terai areas in Nepal: Impact on food production and consumption	4	Results after one year of the program intervention showed an increased consumption of vegetables and fruits and increased family income by selling the surplus of food grown.
Homestead food production in Nepal for improving micronutrient status of women and children, poverty reduction and promotion of gender equality.	4	Results showed an increased production of and access to micronutrient rich foods from animal and plant sources, an increased family income, and better utilization of local resources.
Homestead food production program in central and far-western Nepal increases food and nutrition security: An overview of program achievements.	4	Results from the study showed an increase consumption of fruits and vegetables, an increase in family income, and improved gardens (type of garden, size, varieties grown, and income earned).
Effects of Comprehensive Lifestyle Modification on Blood Pressure Control: Main Results of the PREMIER Clinical Trial	2A	Results showed the intervention and DASH diet group had a significant increase in fruit and vegetable consumption and had a 4.3 mm Hg reduction in systolic blood pressure compared to the other groups.
Effectiveness of interventions and programmes promoting fruit and vegetable intake	1A	This systematic review, looked at the effectiveness of interventions and programmes promoting fruit and vegetable intake. It was also concluded that interventions can be more cost effective over time.
Global Burden of Disease Project: Low fruit and vegetable consumption	4	Results showed that up to 2.7 million deaths worldwide, and 1.8% of the total global disease burden may be attributed to inadequate levels of fruit and vegetable consumption.

Observations

Fruits and vegetables seemed to be widely available in markets all over in the areas of Nepal that we visited. But they can be expensive for a Nepali family to purchase on a daily basis. It did look like in the countryside that a lot of families had some sort of vegetable garden at their home but it wasn't clear what they were growing, if they grew for consumption or for selling at the market.



Recommendation based on directness (applicability – culture, values versus those of the study sample) and certainty of wise use of resources)

•Hypertension: The Dash diet has been proven to work well but based on the culture and resources available, there is a low level of certainty that implementing a dietary program would be very effective in Nepal.



•Fruits and Vegetables: Based on the evidence of the programs implemented and in progress in Nepal, they are very possible to continue and implement in more areas in Nepal.



References

Appel, L., Moore, T., Obarzanek, E., Vollmer, W., Svetkey, L., Sacks, F., & ... Karanja, N. (1997). A clinical trial of the effects of dietary patterns on blood pressure. *New England Journal Of Medicine*, 336(16), 1117-1124.

Conlin, P., Chow, D., Miller, E., Svetkey, L., Lin, P., Harsha, D., Moore, T., Sacks, F., Appel, L. The effect of dietary patterns on blood pressure control in hypertensive patients: results from the Dietary Approaches to Stop Hypertension (DASH) trial. *American Journal of Hypertension*, 2000, 13(9):949-955.

Lock, K., Pomerleau, J., Causser, L., Altmann, D. R., & McKee, M. (2005). The global burden of disease attributable to low consumption of fruit and vegetables: implications for the global strategy on diet. *Bulletin of the World Health Organization*, 83(2), 100-108.

Pomerleau, J., Lock, K., Knai, C., & McKee, M. (2005). Effectiveness of interventions and programmes promoting fruit and vegetable intake (pp. 1-133). WHO. http://cdrwww.who.int/dietphysicalactivity/publications/f&v_promotion_effectiveness.pdf

Talukder, A. (2004). Homestead food production program in central and far-western Nepal increases food and nutrition security: An overview of program achievements. *Nepal Nutrition Bulletin*, 2(1)

Talukder, A. (2001). Home gardening in hilly and Terai areas in Nepal: Impact on food production and consumption. *Nepal Nutrition Bulletin*, 1(1).

Talukder, A. (2004). Homestead food production in Nepal for improving micronutrient status of women and children, poverty reduction and promotion of gender equality. *Nepal Nutrition Bulletin*, 2(2).

Writing Group of the PREMIER Collaborative Research Group. Effects of Comprehensive Lifestyle Modification on Blood Pressure Control: Main Results of the PREMIER Clinical Trial. *JAMA*. 2003;289(16):2083-2093. doi:10.1001/jama.289.16.2083.

The Dash Diet (2014) Accessed at http://dashdiet.org/what_is_the_dash_diet.asp

The Harvard Healthy Eating Pyramid (2014) Accessed at <http://www.hsph.harvard.edu/nutritionsource/>