

DASH DIET- A REVIEW ON ITS SCIENTIFICALLY PROVEN HEALTH BENEFITS AND EATING PLAN

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Abstract-

DASH Diet, the full form is ‘Dietary Approaches to Stop Hypertension’. This is a non-pharmacological strategy to mitigate the hypertension and its adverse potential complications. It also lowers the risk of developing Obesity, Cancer, Diabetes, Hyper-cholesterolemia. It is an endorsed dietary strategy by American Heart Association and National Heart, Lung and Blood Institute, US. DASH Diet was originally formulated by National Institute of Health (NIH). It encourages comprehensive intake of nutrient-dense foods along with minimally processed and fresh foods. Foods that are included in DASH Diet are rich in Magnesium, Calcium and Potassium, as well as protein and Dietary Fibres. It limits Sodium intake from 1500-2300 mg/day, sugary beverages and processed foods. Fruits, vegetables, whole grains, lean proteins and low-fat dietary products are essential components of this diet. DASH diet has been considered to be the first-line pharmacologic and therapeutic strategy along with lifestyle modification.

Key-words-DASH, Dietary, Strategy, Hypertension.

Introduction-

The word “DASH” stands for “Dietary Approaches to Stop Hypertension”. This diet is a recognized treatment for hypertension, heart and kidney diseases. Patients who are undergoing kidney dialysis treatment must not use the DASH diet. This diet is also helpful for people who are suffering from diabetes or who want to lose or manage their body weight, lower cholesterol.

This diet was promoted by the National Heart, Lung and Blood Institute, US. The DASH diet is rich in vegetables, fruits, whole grains, low fat dairy foods, meat, fish, poultry, nuts and beans. It limits the intake of sweets, sugar-sweetened beverages, alcohol intake, foods high in saturated fats e.g. full fat dairy, fatty meat, tropical oils, processed and packaged foods.

In addition to its effect on lowering blood pressure, it is considered to be a well balanced approach to eating for general public. DASH diet has been considered by the American Heart Association as a specific and well-documented diet across age, sex and ethnically diverse groups.

DASH diet was originated in the 1990s. In 1992, NIH (The National Institute of Health) started to conduct different research projects to see whether specific dietary interventions were helpful to treat hypertension. Subjects participated in those projects were advised to follow just the dietary intervention and not to include any other lifestyle modifications. At the end, it was found that only the dietary intervention alone could reduce the systolic blood pressure by about 6-11 mm Hg in both hypertensive and normotensive people. Based on those results, DASH diet has been considered to be the first-line pharmacologic therapy along with lifestyle modification.

Aims of DASH diet-

The DASH diet focuses on reducing blood pressure as well as obesity, cholesterol and preventing diabetes. It emphasizes on –

1. Portion size,
2. Consumption of various colorful healthy foods,
3. Maintaining of optimal balance of nutrients in diet.

Depending on health requirement DASH diets can be of two types-

- A) Standard DASH Diet Plan- It limits sodium consumption to 2300 mg/day.
- B) Lower-Sodium DASH Diet Plan- It limits sodium intake to 1500 mg/day.

DASH diet encourages a person to increase their intake of magnesium, calcium and potassium. This diet is not a vegetarian diet, since it adds lots of nutritious items such as-

- Fruits and vegetables,
- Non-fat and Low-fat dairy foods,
- Whole cereals,
- Nuts, seeds and beans,
- Fish and poultry,
- Vegetable oil.

This diet emphasizes the consumption of fresh and minimally processed foods.

Mechanism of action of DASH Diet-

1. Various factors like gender, age, lifestyle, dietary habits influence our blood pressure. High blood pressure is related with greater risk of developing cardiovascular diseases, heart attacks, strokes etc.
2. DASH diet is rich in foods who are good sources of minerals known to reduce blood pressure such as potassium and magnesium.
3. DASH diet limits the consumption of sodium rich foods, saturated fats, added sugar, processed and salty foods and all the foods which tend to contribute to high blood pressure.
4. High sodium level promote fluid retention in the blood which may cause greater pressure against the arterial walls.

5. When sodium level is high in blood, the heart has to pump more blood leading to high blood pressure.
6. On the contrary, potassium reduce blood pressure. The more potassium you take through diet, the more sodium will be excreted by kidneys.

DASH eating plan-

This eating plan requires no special foods, but needs weekly and daily nutritional goals. This eating plan includes –

- Eating fruits, vegetables and whole grains.
- Including low-fat or fat-free dairy products, fish, poultry, beans, nuts and vegetables oils.
- Limiting processed and salty foods, foods high in saturated and trans-fatty acids e.g. full fatty meat, full-fat dairy products, and tropical oils such palm oil, coconut oil, palm kernel oil etc.
- Limiting sugar and sugar-added or sweetened beverages and sweets.

Food Group	Daily Serving
Grains	6-8
Meat, Poultry, Fish	6 or less
Fruits and Vegetables	4-5
Fats and Oils	4-5
Low-fat or fat-free dairy items	2-3
Sodium	2300 mg
Food Group	Weekly Servings
Nuts, Seeds, Beans	4-5
Sweets	5 or less

Daily Nutrient Goals Used in the DASH Studies (for a 2,100 Calorie Eating Plan)

Total fat	27% of calories	Sodium	2,300 mg*
Saturated fat	6% of calories	Potassium	4,700 mg
Protein	18% of calories	Calcium	1,250 mg
Carbohydrate	55% of calories	Magnesium	500 mg
Cholesterol	150 mg	Fiber	30 g

* 1,500 mg sodium was a lower goal tested and found to be even better for lowering blood pressure. It was particularly effective for middle-aged and older individuals, African Americans, and those who already had high blood pressure.
g = grams; mg = milligrams

Carbohydrates-

- DASH diet mainly includes complex carbohydrates such as starch and cellulose. Healthy starches or cellulose not only supply energy but also provide protective micronutrients.
- The DASH diet includes-
 1. Green leafy vegetables like spinach, broccoli, mustards, kale etc.
 2. Whole cereals e.g. wheat, millet, ragi, oats.
 3. Low glycemic fruits e.g. apples, pears, oranges, pomegranate, cherries.
 4. Legumes, peas, beans.

Fats-

Fats are classified as good and bad fats. Good fats are low in saturated and trans fatty acids, good fats prevent inflammation, provide essential fatty acids in diet and prevent cardiovascular diseases by lowering LDL level and increasing HDL level, Some important sources of good fats are-

Olive oil, flax seeds, nuts, eggs, chia seeds, dark chocolate, avocado, cheese, oily fish, coconut etc.

Proteins-

In DASH diet, plant proteins like legumes, soy-products, beans, peas, seeds are recommended. If animal proteins are taken in the diet, they should be mainly composed of lean meats, low-fat dairy products, fish and eggs. Processed and cured meat are excluded since they may cause hypertension and also contain carcinogens.

Minerals-

This diet also includes foods rich in potassium, calcium and magnesium which promote endothelial smooth muscle relaxation and prevent endothelial dysfunction.

Sources of potassium are-banana, sweet potatoes, coconut water, beans, legumes, spinach, oranges.

Magnesium is present in whole grains, legumes, peas, nuts, seeds, leafy vegetables.

Calcium is present in dairy products and green leafy vegetables.

Significance of DASH Diet-

- Several studies were conducted on DASH diet to find out its effects on multiple other diseases.
- This diet reduces the insulin resistance, lowers blood glucose level, triglyceride, LDL-C.

- Studies proved DASH diet's efficiency to control type 2 diabetes.
- This diet has shown a reduction in the incidence of colorectal cancer. This diet also has been proved to be helpful in chronic liver disease, celiac disease and diverticular disease.
- Observational studies have shown that DASH diet reduces the prevalence of heart disease and heart failure.
- A study reported that DASH diet reduces the risk of developing gout also.
- DASH diet has been shown to reduce BMI and Waist Circumference significantly.
- Due to its exclusion of processed foods, high fat foods, DASH diet can support weight loss.
- Study Findings support the ability of DASH diet to lower blood pressure level. Combining the DASH diet with a daily sodium restriction in diet have shown to be more effective in lowering blood pressure levels rather than restriction of salt alone in diet.
- Since DASH diet clearly mentions the serving sizes and food groups, it has become easier for the physicians to prescribe DASH diet and monitor the improvement of patients.
- Thus DASH diet when combined with pharmacological interventions can be very useful tool to tackle metabolic diseases more efficiently.

Drawbacks-

- Though DASH diet is generally well tolerated and not as restrictive as other popular dietary plans, but there is a need to be more conscious about buying ready-to-eat food and eating out at restaurants.
- Many convenience foods and restaurant made foods are high in sodium, which conflicts with the DASH diet's eating plan.
- The diet need to be modified according to certain health conditions-
 1. With a peanut allergy, peanuts should be avoided, seeds can be included instead of peanuts.
 2. With Celiac disease, gluten-free foods e.g. rice, corn should be included instead of gluten-containing grains (e.g. wheat, rye, barley).
 3. With Lactose Intolerance, lactose containing foods should be avoided.
 4. With Type-2 Diabetes, foods with low GI should be chosen and a low-carbohydrate version of DASH diet should be planned.

- DASH diet includes many high fibre containing foods that may cause bloating. So, fibre rich foods like fruits, vegetables, whole grains should be incorporated into the diet over several weeks to avoid this digestive discomfort.

Conclusion-

- DASH diet is an useful strategy to reduce blood pressure. It has potential effects on losing weight, protecting heart diseases and type-2 diabetes.
- It emphasizes on eating a specific number of servings from different food groups. This diet is rich in high fibre foods e.g. fruits, vegetables, whole grains, meat and fish, plant proteins like legumes, beans, nuts and seeds.
- It limits the intake of processed and salty foods, red meats, soda, sweetened beverages, sweets etc, foods rich in saturated and trans fatty acids.
- It is considered to be a safe diet for most people, but before starting a new diet, one should consult the dietitian.

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