# IN GOD WE TRUST

Primary Prevention in Cardiovascular Disease

LIVE WEBINAR

# Medical Nutrition Therapy for Cardiovascular Disease


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# Primary Prevention in Cardiovascular Disease


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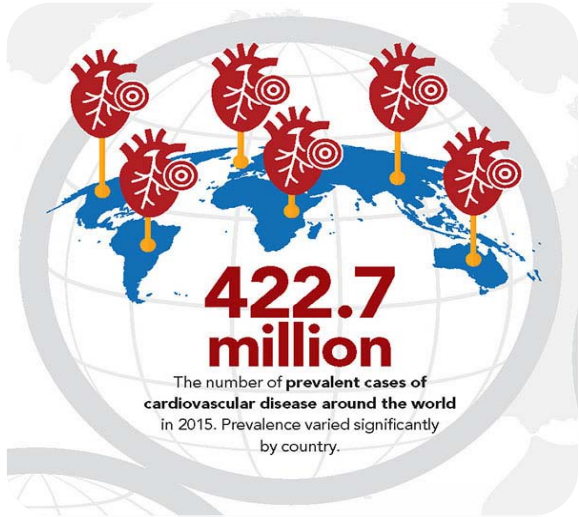
## Introduction and Prevalence

- *Heart disease remains the number 1 killer of men and women globally*

- *Three quarters of CVD deaths take place in low- and middle-income countries*

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WHO, 9 December 2020

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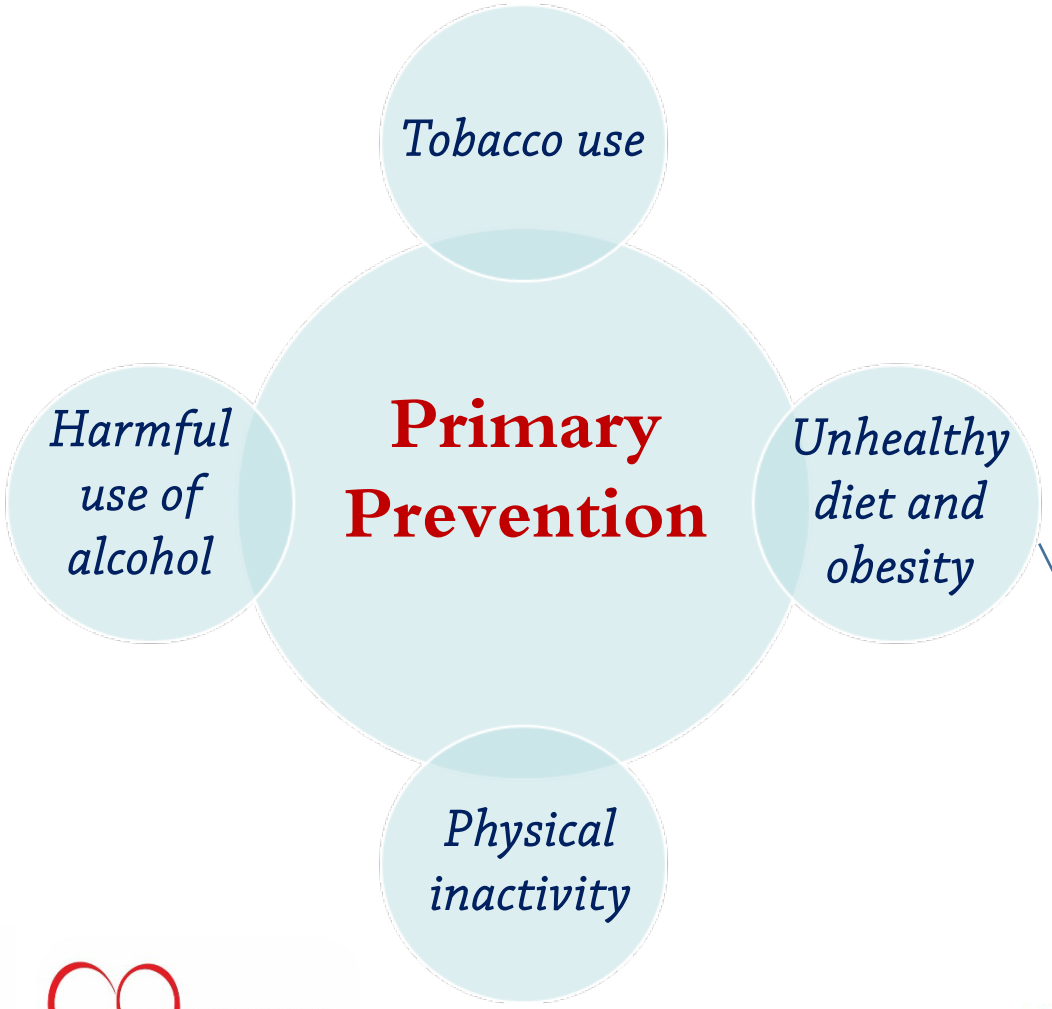


Nutrition (the quality of the diet) is classified as one of the main and changeable risk factors

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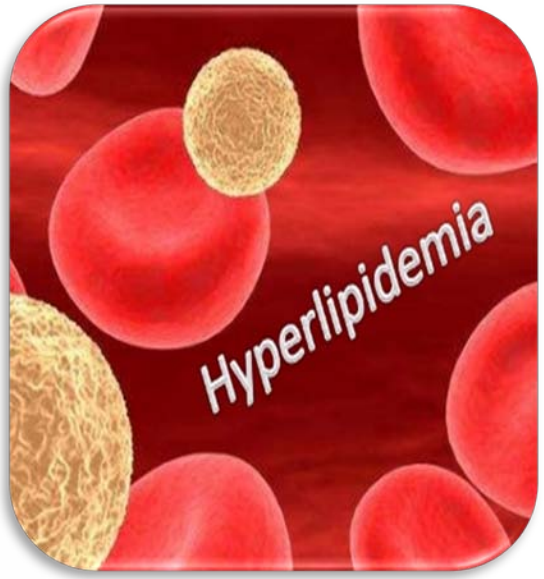
## Medical Nutrition Therapy for Management of ASCVD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- TLC diet
- Mediterranean diet
- **Diet**
- DASH diet
- Vegan diet


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# TLC diet

## Therapeutic Lifestyle Changes (TLC) Diet for High Cholesterol

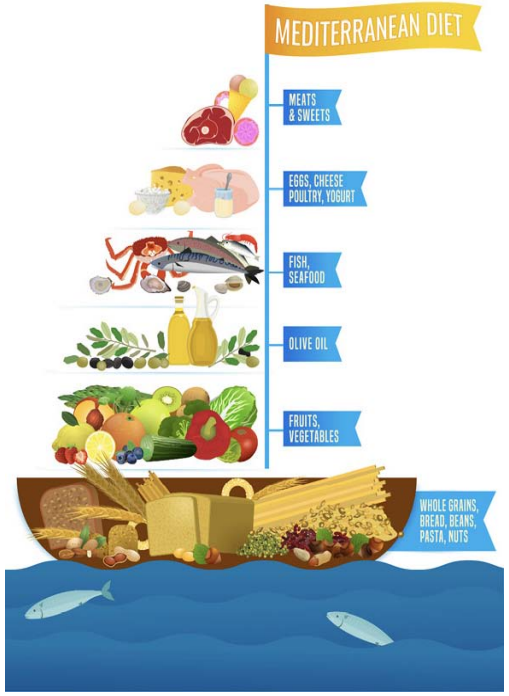
- ✓ *Reduce the amount of saturated fat*
- ✓ *Replace most of the animal fat in the diet with unsaturated fat, especially monounsaturated oils, such as olive and canola*



doi.org / 10.12997/jla.2019.8.2.192 , 2019

# Mediterranean Dietary Pattern

- *Mediterranean dietary pattern: as a cardioprotective dietary pattern*
- *Largely plant-based, high intake of wholegrain cereals, legumes, nuts, fruits, vegetables, and extra virgin olive oil*
- *Animal foods include fish and seafood, moderate amounts of poultry, eggs and dairy foods (particularly yoghurt and cheese) and limited red meat*
- *Processed foods are limited, home cooking, social eating and physical activity are encouraged, and wine is consumed with meals*



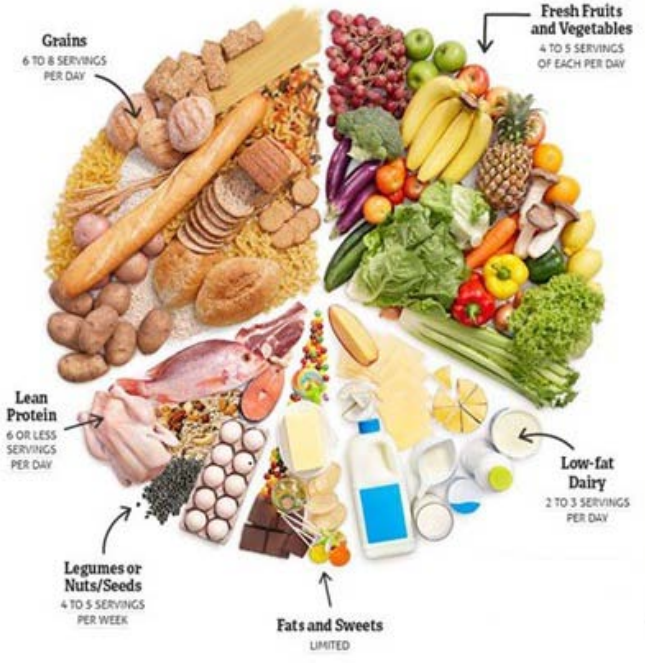



Krause and Mahan's Food & the Nutrition Care Process, 15th, 2020

# DASH diet

*Three variants of the DASH diets:*

- *Rich in carbohydrate (58% of total calories)*
- *Rich in protein (about half from plant sources)*
- *Rich in UFAs (predominantly MUFAs)*



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## DASH diet…

- *It is not the traditional low-salt diet. DASH uses foods high in the minerals calcium, potassium, and magnesium…*
- *DASH diet: A significant SBP and DBP reduction (–6.7/–3.5 mm Hg)*

# Vegan diet

*A vegan diet is a strict vegetarian diet that includes no dietary sources from animal origins. There is ongoing research to suggest only this type of very restricted diet can actually reverse ASCVD.*



doi.org/ 10.7812/TPP/14-036, 2015

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## Food and Food Components on CVD Risk

- *Whole grain*
- *Legumes*
- *Nuts (low SFA and high MUFA & PUFA)*
  - **Beneficial effects on lipid markers and BP**
- *Fruits and vegetables: at least 5 portions*
- *Dairy*
- *Tea (green tea: ↓ LDL-c)*
- *Egg (higher consumption of eggs (more than 1 egg/day) was not associated with increased risk of cardiovascular disease)*



Doi.org/10.1016/j.amjmed.2020.05.046: 2020
https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf

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## Food and Food Components on CVD Risk…

- **Fatty acids**
  - ✓ Oleic acid: the most prevalent monounsaturated fatty acid (olive oil)
  - ✓ Omega-3 fatty acids lower triglyceride
  - ✓ Omega-3 supplements: ↑ production of NO, ↑vasodilation blood vessel wall, ↑ bleeding time
  - ✓ Therapeutic doses (2-3g EPA/DHA)
  - ✓ Fish high in omega-3 fatty acids (salmon, mackerel, sardines) decreased ASCVD risk

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## ➢ Fatty acids …

- ✓Polyunsaturated fatty acids (PUFA)
- ✓High intakes of omega-6 PUFAs may exert adverse effects on the function of vascular endothelium or stimulate production of pro-inflammatory cytokines

**Flaxseed, Soybean, Corn, Sunflower**

- ✓ A low ratio of omega-6:omega-3 PUFA is recommended



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## ➢ Fatty acids…

✓*Saturated fats were replaced by unsaturated fats such as omega-3: significant reduction in the CVD incidence*

✓*Saturated fats were replaced by carbohydrates: no significant reduction in the CVD incidence*

✓*Saturated fats increase the concentration of both HDL-C and LDL-C*

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Doi.org/10.1002/14651858, 2020

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## Complementary and Integrative Approaches for Cardiovascular Health

| Common Name | Scientific Name | Effect on Cardiac Health | Side Effects and Risks |
|---|---|---|---|
| Coenzyme Q10 | Ubiquinone | Decreases SBP and DBP | May cause Gastrointestinal discomfort, nausea, flatulence, and headaches |
| Vitamin C and vitamin E | Ascorbic acid α-tocopherol | Decreases SBP and DBP | Vitamin E may increase bleeding time with anticoagulants and reduce blood pressure. Vitamin C my cause diarrhea at high doses |
| Vitamin D | 1,25-dihydroxy vitamin D3 | Decreases SBP | Hypercalcemia may occur depending on level of supplementation |
| Fish oil | Omega-3 polyunsaturated fatty acid | Therapeutic doses (2-3g EPA/DHA) lowers triglycerides. | May cause Gastrointestinal discomfort, belching, bad breath, and increased bleeding time above 3g EPA/DHA |
| Garlic | Allium sativum | Reduces SBP and DBP | May cause bad breath and body odor may increase bleeding time with anticoagulants |
| Vitamin B3 | Niacin | Lowers total cholesterol and raises HDL at doses above 1,000 mg/d | Causes flushing, itching and may raise liver enzymes. Coordination of care with a physician is necessary |
| Red Yeast Rice | Monascus purpureus | Lowers cholesterol | Banned by the FDA in standardized quantities. May cause myalgias. |



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Important

Extreme sodium reduction (20 mmol/day) could potentially cause adverse effects on blood lipids and insulin resistance; however, moderate sodium reduction has no such effects

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## Conclusion

- Weight management in obese patients
- Lifestyle modification
- Dietary approaches
- Medical care

# THANKS FOR YOUR ATTENTION