ALCOHOL

• NEGATIVE CORRELATION BETWEEN 1-2 DRINKS PER DAY AND THE INCIDENCE OF CARDIOVASCULAR DISEASE

• SOME HAVE SHOWN THAT EVEN 3-4 DRINKS PER DAY CAN BE BENEFICIAL - WHILE OTHERS HAVE FOUND IT TO BE HARMFUL
FRENCH PARADOX

- FRENCH EAT SIGNIFICANT AMOUNTS OF SATURATED FATS, BUT HAVE LOW INCIDENCE OF CARDIOVASCULAR DISEASE MORTALITY
- THOUGHT TO BE DUE TO THE HIGH INTAKE OF RED WINE
STUDY (Gronbaek)

- 13,000 MEN AND WOMEN
- 30-79 YEARS OF AGE
- RELATIVE RISK OF DEATH FROM CARDIOVASCULAR DISEASE 0.4 FOR PATIENTS WHO DRANK 3-5 GLASSES OF WINE PER DAY
- 1.0 IN NONDRINKERS
• THE SAME EFFECT WAS NOT FOUND WITH SPIRITS
• 3-5 DRINKS OF SPIRITS PER DAY WAS ASSOCIATED WITH INCREASED MORTALITY
STUDY

• RENAUD - EASTERN FRANCE
• 34,000 MEN AGED 40-60
• DECREASED RISK OF 27% - 39% FOR BOTH CARDIOVASCULAR DISEASE AND CORONARY HEART DISEASE
• LEVEL OF INTAKE WAS 2-3 GLASSES OF WINE PER DAY
ALCOHOL AND STROKES

• TRUELSON - DANISH STUDY
• SUBJECTS WHO DRANK WINE WEEKLY HAD LOWER RISK OF STROKE
• DAILY CONSUMPTION OF WINE WAS ALSO SIGNIFICANT
• NO EFFECT WITH DRINKING SPIRITS OR BEER
GRAPE JUICE

• CONTAIN RESVERATROL AND FLAVONOIDS
• STEM, LEAF AND SEEDS ARE BENEFICIAL RATHER THAN PULP
• AMOUNT OF ANTIOXIDANTS DEPENDS ON – KIND OF GRAPE – GEOGRAPHIC ORIGIN – HOW ITS PROCESSED
• DARK RED AND PURPLE GRAPES HAVE HIGHER ANTIOXIDANTS THAN WHITE OR GREEN GRAPES
FUNCTIONS

• REDUCE RISK OF BLOOD CLOTS
• REDUCE LDL CHOLESTEROL
• MAINTAINS NORMAL BLOOD PRESSURE
• PREVENTS CARDIOVASCULAR DAMAGE
• COMPONENTS OF GRAPE PRODUCTS INHIBIT COLLAGEN-MEDIATED PLATELET AGGREGATION
• MAY POSSIBLY PREVENT CARDIOVASCULAR DISEASE BY PREVENTING LDL OXIDATION AND IMPROVING ENDOTHELIAL FUNCTION
• ENDOTHELIAL DYSFUNCTION ACCELERATES DEVELOPMENT OF ATHEROSCLEROSIS
• FLAVONOID COMPONENTS OF PURPLE GRAPE JUICE IN VITRO INDUCE ENDOTHELIUM DEPENDENT VASODILATION OF ARTERIAL RINGS
GRAPE JUICE STUDY (1999)

- 15 PATIENTS WITH ANGIOGRAPHICALLY DOCUMENTED CORONARY ARTERY DISEASE
- 7.7 ML/KG/DAY PURPLE GRAPE JUICE FOR 14 DAYS
- FLOW MEDIATED VASODILATION IMPROVED AND REDUCED LDL SUSCEPTIBILITY TO OXIDATION
STUDY 2013


- 26 HEALTHY SMOKERS

- RANDOMIZED, PLACEBO-CONTROLLED, DOUBLE-BLIND, CROSSOVER DESIGN

- 2 WEEKS OF CONCORD GRAPE JUICE (472.8 mg total polyphenols per 8 oz (240ml)

- CONCLUSION – “CGJ IMPROVED ENDOTHELIAL FUNCTION AND VASCULAR ELASTIC PROPERTIES OF THE ARTERIAL TREE IN HEALTHY SMOKERS AND ATTENUATED ACUTE SMOKING INDUCED IMPAIRMENT OF ARTERIAL WALL PROPERTIES”
NUTS

• ALMONDS, WALNUTS, PECANS, AND EVEN PEANUTS
• EPIDEMIOLOGICAL STUDIES DEMONSTRATE FREQUENT NUT CONSUMPTION CAN PROTECT AGAINST CORONARY HEART DISEASE DUE TO EFFECTS ON BLOOD LIPIDS
NUTS

• HAVE HIGH CONTENTS OF:
  – VITAMIN E
  – MAGNESIUM
  – COPPER
  – FOLIC ACID
  – PROTEIN
  – POTASSIUM AND FIBER
MECHANISM

• RICH IN ARGinine

• PRECURSOR OF NITRIC OXIDE
  – NITRIC OXIDE IS AN ENDOThelial DERIVED RELAXING FACTOr
  – POTENT VASODILATOR AND CAN INHIBIT PLATELET ADHESION AND AGGREGATION
MECHANISM?

• NUTS, PARTICULARLY WALNUTS HIGH IN ALPHA LINOLENIC ACID
• HIGH INTAKES OF THIS ACID REDUCE THE RISK OF CORONARY ARTERY DISEASE
1998 STUDY

- PROSPECTIVE COHORT STUDY
- 86,000 WOMEN AGED FROM 34-59
- NURSES HEALTH STUDY
- WOMEN WHO CONSUMED NUTS >5 TIMES PER WEEK HAD A 35% DECREASED RISK OF CORONARY HEART DISEASE
ADVENTIST HEALTH STUDY

• 50% REDUCED RISK OF CORONARY HEART DISEASE WITH NUT CONSUMPTION OF 5 TIMES PER WEEK
IOWA WOMEN’S HEALTH STUDY

• RELATIVE RISK OF DEATH FROM A CORONARY EVENT IN WOMEN WHO ATE NUTS 2-4 TIMES PER WEEK WITH THOSE WHO ALMOST NEVER ATE NUTS WAS 0.43 (LOWERED RISK IN THOSE WHO CONSUMED NUTS)
STUDY - 2014 - TRIGLYCERIDES AND METABOLIC SYNDROME


• REVIEW OF LITERATURE

• 50g OF NUTS/DAY (1-1/2 servings) One SERVING = ¼ cup or 30g

• MODEST DECREASES IN TRIGLYCERIDES AND FASTING BLOOD GLUCOSE AMONG PEOPLE WHO ADDED TREE NUTS TO THEIR DIETS COMPARED TO THOSE WHO ATE A CONTROLLED DIET
AMERICAN HEART ASSOCIATION DIET - 2013

• RICH IN VEGETABLES AND FRUITS: BRIGHTLY COLORED REDS, ORANGES AND YELLOWS
• CONSUME A VARIETY OF ALL FOODS
• RICH IN WHOLE-GRAIN AND HIGH FIBER FOODS
• AHA RECOMMENDS AT LEAST HALF OF GRAIN INTAKE COMES FROM WHOLE GRAINS
• LIMIT TOTAL FAT INTAKE TO <25%–35% OF TOTAL CALORIES/DAY
• LIMIT INTAKE OF SATURATED FAT TO <7% OF CALORIES
• LIMIT TRANS FATS TO <1% OF CALORIES
• REMAINING FAT SHOULD COME FROM MONOUNSATURATED AND POLYUNSATURATED FATS

• NUTS – SEEDS – FISH – VEGETABLE OILS

• EXAMPLE - 2,000 CALORIE DIET SHOULD HAVE < 15 g SATURATED FAT, < 2 g TRANS FAT AND BETWEEN 56 TO 77 g OF TOTAL FAT
• LIMIT CHOLESTEROL TO <300 mg/day FOR MOST PEOPLE

• IF HAVE CORONARY HEART DISEASE OR LDL CHOLESTEROL LEVEL OF 100 mg/dL OR GREATER - LIMIT CHOLESTEROL INTAKE TO <200 mg/day
• FISH, ESPECIALLY OILY FISH, AT LEAST TWICE A WEEK (FOR FAT AND PROTEIN CONTENT)
• FAT FREE AND LOW FAT DAIRY FOODS
• CHOOSE FATS THAT GIVE AN APPROPRIATE OMEGA 3 INTAKE
• CONSUME LEGUMES, POULTRY AND LEAN MEATS

• LIMIT INTAKE OF BEVERAGES AND FOODS WITH ADDED SUGARS

• CHOOSE AND PREPARE FOODS WITH LITTLE SALT
MEDITERRANEAN DIET

• FOUND TO BE BENEFICIAL
• THERE ARE SEVERAL VARIANTS
• THE TRADITIONAL VERSION HAS EIGHT COMPONENTS
• HIGH QUANTITIES OF FLAVONOIDS, FRUITS, VEGETABLES AND GRAINS
8 COMPONENTS

• HIGH MONounsaturated TO SATURATED FAT RATIO
• HIGH CONSUMPTION OF LEGUMES
• HIGH CONSUMPTION OF CEREALS (INCLUDING BREAD)
• HIGH CONSUMPTION OF FRUITS
• HIGH CONSUMPTION OF VEGETABLES
8 COMPONENTS - CONT

• LOW CONSUMPTION OF MEAT AND MEAT PRODUCTS
• MODERATE CONSUMPTION OF MILK AND DAIRY PRODUCTS
• MODERATE ETHANOL CONSUMPTION
OLIVE OIL

• MONOUNSATURATED FATS SUCH AS OLIVE OIL AFFECTS BLOOD LIPID LEVELS MORE FAVORABLY THAN EITHER POLYUNSATURATED LIPIDS OR CARBOHYDRATES
MEDITERRANEAN DIET

• STUDIES HAVE SHOWN THAT
• THE DIET IS VALUABLE FOR THE SECONDARY PREVENTION OF CORONARY HEART DISEASE RECURRENCE AND/OR COMPLICATIONS
DEEP FRYING

• MINIMIZE THE HEATING OF FATS
• HEATING APPEARS TO OXIDIZE CHOLESTEROL TO FORM 25-HYDROXY CHOLESTEROL
  – THIS ACCELERATES DEGENERATION OF SMOOTH MUSCLE CELLS IN ARTERIAL TISSUE
• HEATED AND PARTIALLY SATURATED FATS INTERFERE WITH NORMAL FATTY ACID METABOLISM AND ARE INCORPORATED INTO THE CELL MEMBRANES

• MEMBRANE STRUCTURE AND FUNCTION IS NOW ALTERED
HYDROGENATED OILS

• CONTAIN HIGH AMOUNTS OF TRANS FATTY ACIDS
  – MARGARINE AND VEGETABLE SHORTENING

• MAY ELEVATE CHOLESTEROL AND ARE AS ATHEROGENIC AS SATURATED FATS AND PERHAPS MORE
SUGAR

• CAN RAISE TRIGLYCERIDE LEVELS
• RESTRICT REFINED SUGARS BELOW 10% OF DIET CALORIES
• HOWEVER - 71% CONSUME > 10% AND ABOUT 10% OF ADULTS CONSUME 25% OR MORE OF DAILY CALORIES FROM ADDED SUGARS (Quanhe, 2014)
STUDY 2014

• Quanhe, Yang et al. Added Sugar Intake and Cardiovascular Diseases Mortality Among US Adults. JAMA INTERN MED 2014; 174(4) 516-524

• 31,000 PEOPLE – THOSE WHO CONSUMED BETWEEN 17% to 21% OF DAILY CALORIES FROM ADDED SUGAR HAD A 38% HIGHER RISK OF DEATH FROM HEART DISEASE THAN THOSE WHO CONSUMED < 10%
• PEOPLE WHO CONSUMED 7 OR MORE SERVINGS A WEEK OF SUGAR SWEETENED BEVERAGES WERE AT A 29% HIGHER RISK OF DEATH FROM HEART DISEASE THAN THOSE WHO CONSUMED 1 SERVING OR LESS
PROTEIN

• CHOOSE VEGETABLE PROTEIN -SOY
  – DECREASES LDL AND TOTAL CHOLESTEROL
  – EVEN AMOUNTS AS LOW AS 25g/day WAS PROVEN TO BE EFFECTIVE IN PERSONS WITH THE HIGHEST RISK
• COMPARED TO VEGETABLE PROTEIN, ANIMAL PROTEIN RAISES SERUM LIPIDS

• ADDITIONALLY - VEGETABLES CONTAIN SAPONINS
SAPONINS

• PLANT STEROID OR TRITERPENE GROUP LINKED TO ONE OR MORE SUGAR MOLECULES
• THEY DECREASE CHOLESTEROL ABSORPTION IN THE SMALL INTESTINE BY COMPETING FOR CHOLESTEROL BINDING SITES
• MOST SAPONIN PLANTS ARE LEGUMBES (BEANS)
LIFESTYLE FACTORS

- **SMOKING** - SMOKERS HAVE A MEAN INCREASE OF 70% DEATH RATE AND A 3x-5x INCREASE OF CORONARY ARTERY DISEASE COMPARED TO NON-SMOKERS

- **WOMEN > 35 YEARS OF AGE WHO SMOKE AND USE BIRTH CONTROL PILLS ARE AT EXTREME RISK OF CORONARY HEART DISEASE**
BODY WEIGHT

• OBESITY IS AN INDEPENDENT RISK FACTOR FOR CVD
• HEALTHY BODY WEIGHT = A BODY MASS INDEX (BMI) OF 18.5 TO 24.9 kg/m²
• OVERWEIGHT IS A BMI BETWEEN 25 AND 29.9 kg/m²
• OBESITY IS A BMI ≥30 kg/m²
• IN THE US, 33% ARE OVERWEIGHT AND AN ADDITIONAL 33% ARE OBESE
• THE PREVALENCE OF OVERWEIGHT AND OBESITY HAS INCREASED DRAMATICALLY OVER THE PAST 20 YEARS AND HAS NOW REACHED EPIDEMIC PROPORTIONS

• AVOID OBESITY - A MODERATELY OBESE INDIVIDUAL WILL DEVELOP HEART DISEASE 7 YEARS SOONER THAN A NON OBESE PERSON
PHYSICAL ACTIVITY

• 61% OF US ADULTS DO NOT ENGAGE IN ANY REGULAR PHYSICAL ACTIVITY
• ADULTS NEED \( \geq 30 \) MINUTES MOST DAYS OF THE WEEK - ADDITIONAL BENEFITS IF TIME EXCEEDS THIS MINIMUM
• AT LEAST 60 MINUTES MOST DAYS OF THE WEEK FOR ADULTS TRYING TO LOSE WEIGHT OR MAINTAIN WEIGHT LOSS AND FOR CHILDREN
• PHYSICAL ACTIVITY CAN BE ADDED THROUGHOUT THE DAY
• REDUCE SEDENTARY ACTIVITIES SUCH AS COMPUTER, GAMING AND TELEVISION TIMES
EXERCISE

- AEROBIC EXERCISE 5x/week
- 30 MINUTES
- DECREASES BODY FAT
- INCREASES HDL CHOLESTEROL
AS WE AGE

• AEROBIC CAPACITY IS AFFECTED
  – A LOSS OF 10% OR MORE PER DECADE OCCURS
  – CIRCULATORY CAPACITY DECLINES BETWEEN 5%-22% PER DECADE
• EXERCISE HAS BEEN FOUND TO HAVE A FAVORABLE EFFECT ON THE CARDIOVASCULAR SYSTEM IN OLDER MEN WITH MINIMAL LOSS OF OXYGEN UPTAKE
QUESTION

• WHAT WOULD BE THE BEST EXERCISE INTENSITY LEVEL FOR AN INDIVIDUAL WHO WISHES TO INCREASE HDL LEVELS?
  – MILD?
  – MODERATE?
  – INTENSE?
EXERCISE INTENSITY

• REDUCTION IN BLOOD PRESSURE
  – LOW TO MODERATE INTENSITY
• CORRECT COAGULATION ABNORMALITIES, DECREASE TRIGLYCERIDES AND DECREASE LDL
  - MODERATE
• INCREASE HDL
  - MODERATE/HIGH