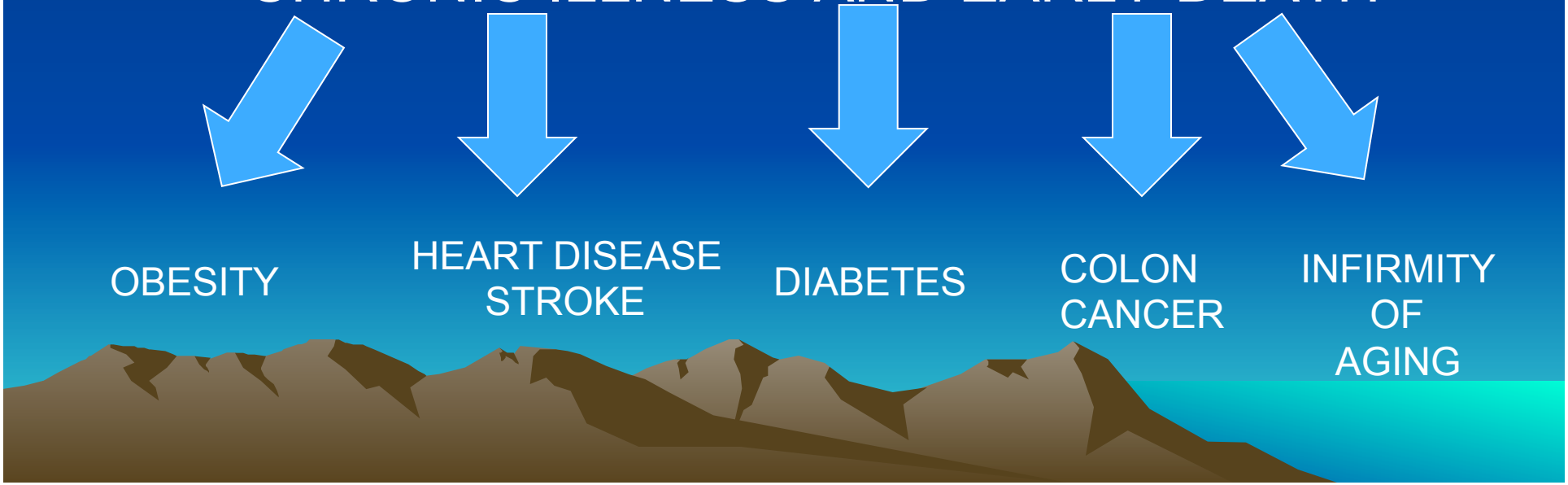
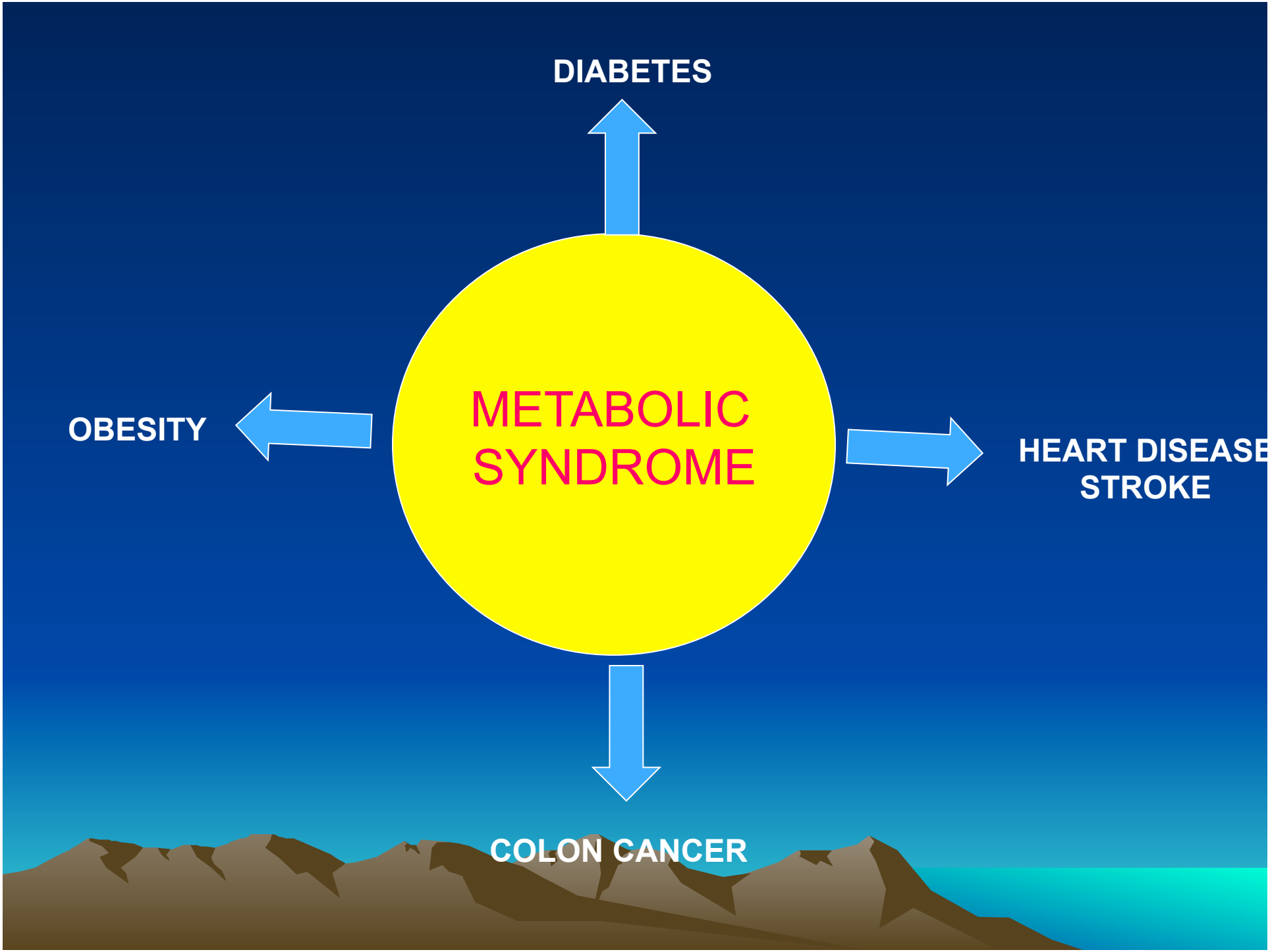
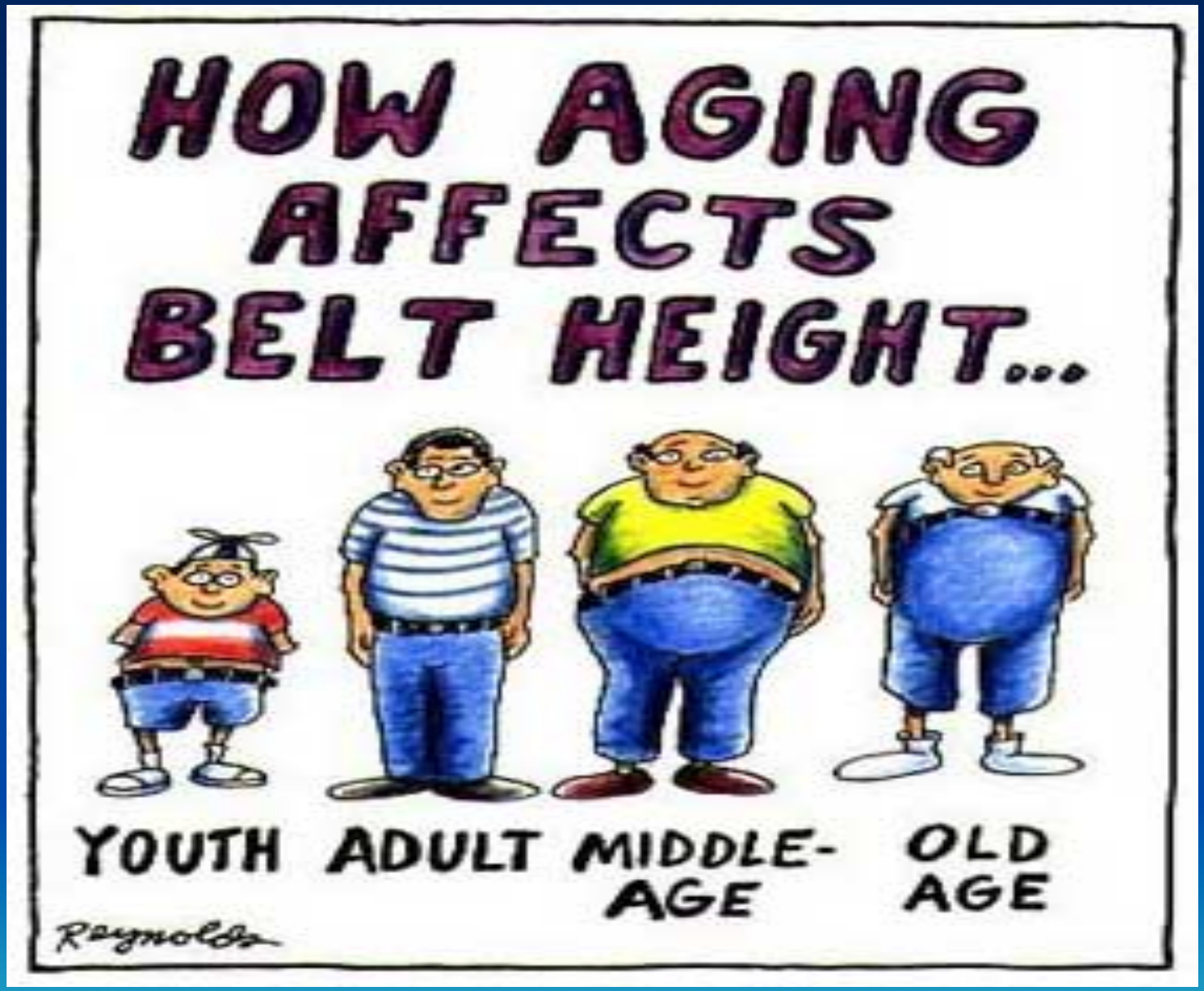
NUTRITION OBESITY AND PREVENTION

WHAT SHOULD WE PREVENT?

- DISEASES THAT ARE THE MAJOR CAUSES
- OF
- CHRONIC ILLNESS AND EARLY DEATH




DIABETES
OBESITY
METABOLIC SYNDROME
HEART DISEASE
STROKE
COLON CANCER


HOW AGING AFFECTS BELT HEIGHT...
YOUTH
ADULT
MIDDLE-AGE
OLD AGE
Raynolds

IS LIFESTYLE INTERVENTION BETTER THEN DRUGS?

REDUCTION IN THE INCIDENCE OF TYPE 2 DIABETES WITH LIFESTYLE INTERVENTION OR METFORMIN : NEJM 2002:346:393-403

- 3234 nondiabetic persons with elevated fasting and post-load plasma glucose concentrations
- Randomized to placebo,
  - metformin (850 mg twice daily)
  - lifestyle-modification program
    - Goals of at least a 7 percent weight loss and
    - At least 150 minutes of physical activity per week.

REDUCTION IN THE INCIDENCE OF TYPE 2 DIABETES WITH LIFESTYLE INTERVENTION OR METFORMIN : NEJM 2002:346:393-403

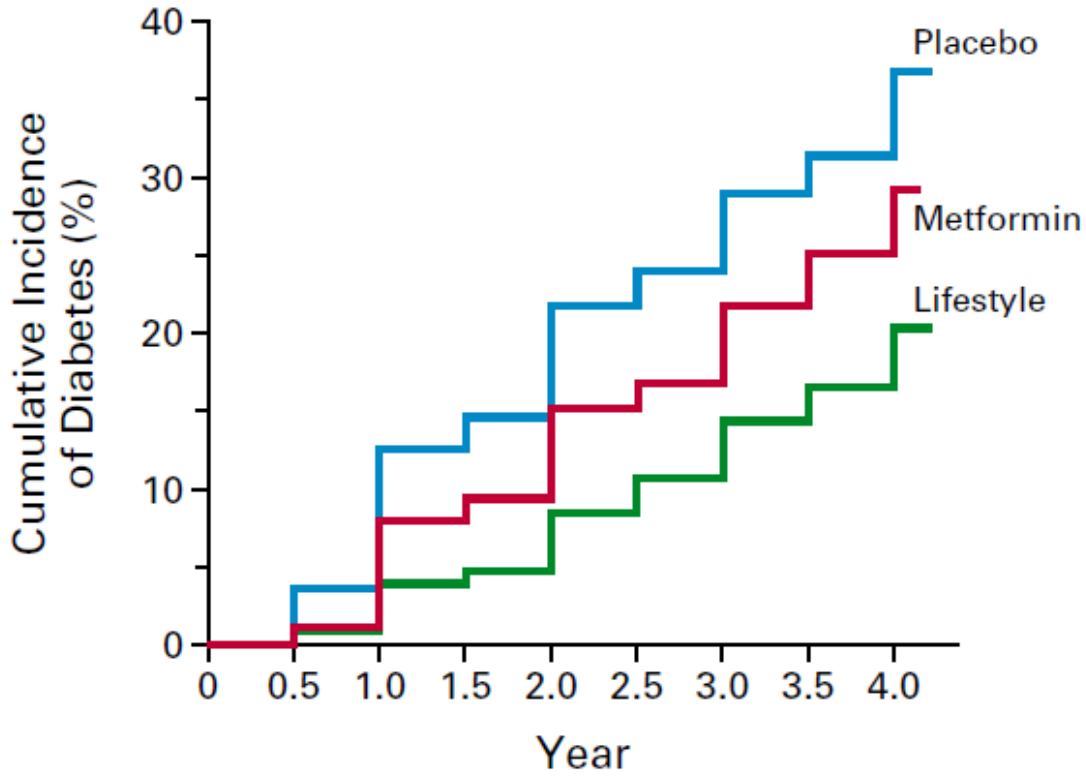
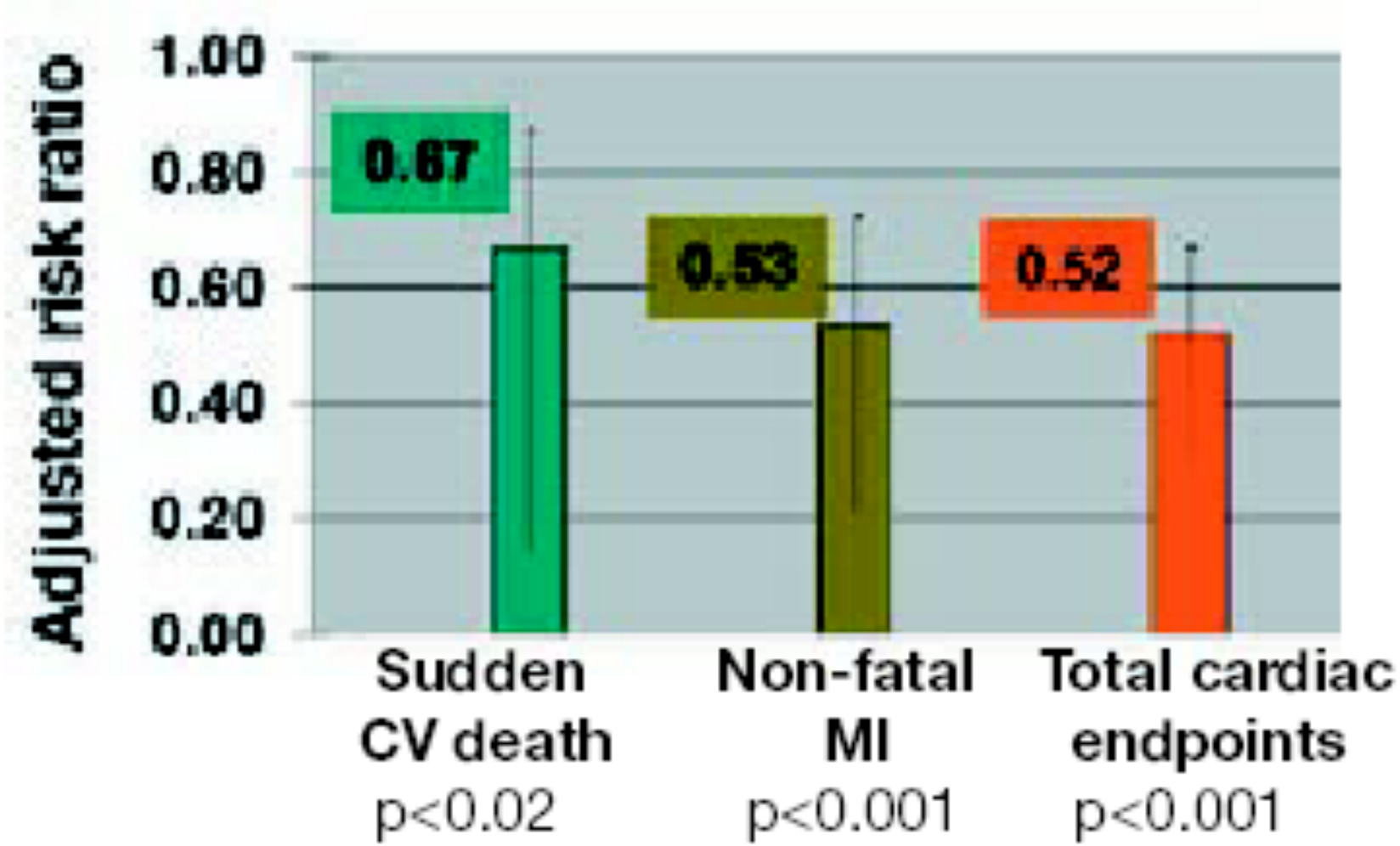


Figure 2. Cumulative Incidence of Diabetes According to Study Group.

Mediterranean Diet: Lancet 2002;360:1455-61

- **Control group Cholesterol Education Program step I diet,**
- **exercise, stress relief and other lifestyle measures.**
- **Intervention group had the same advice+:**
- **400 gm/day of fruits, vegetables, and nuts.**
- **400 g/day of whole grains and legumes**
- **3-4 servings of mustard seed or soybean oil (rich in alphalinolenic**
- **acid).**
- **Follow-up was for 2 years, dietary compliance was assessed regularly.**



Graph: Risk ratio for cardiac outcomes at 2 years
(adjusted for selected baseline characteristics)

PARADOX OF OBESITY TREATMENT

- HOW TO EAT AD LIB WITHOUT WEIGHT GAIN?

1. It is well established that weight loss and loss of body fat will reduce the risk of CAD
2. Can diet composition :
    a. Promote weight loss when eaten ad lib ?
    b. Can diet have specific effect on risk factors?

CARMEN TRIAL

Saris et al Int J Obesity 2000;24:1310-1318

- **290 subjects overweight only with BMI 26-35 kg/m2**
- **Randomized to:**
  - **control**
  - **Low-fat high COMPLEX CHO (HCC)**
  - **Low-fat high SIMPLE CHO (HSC)**

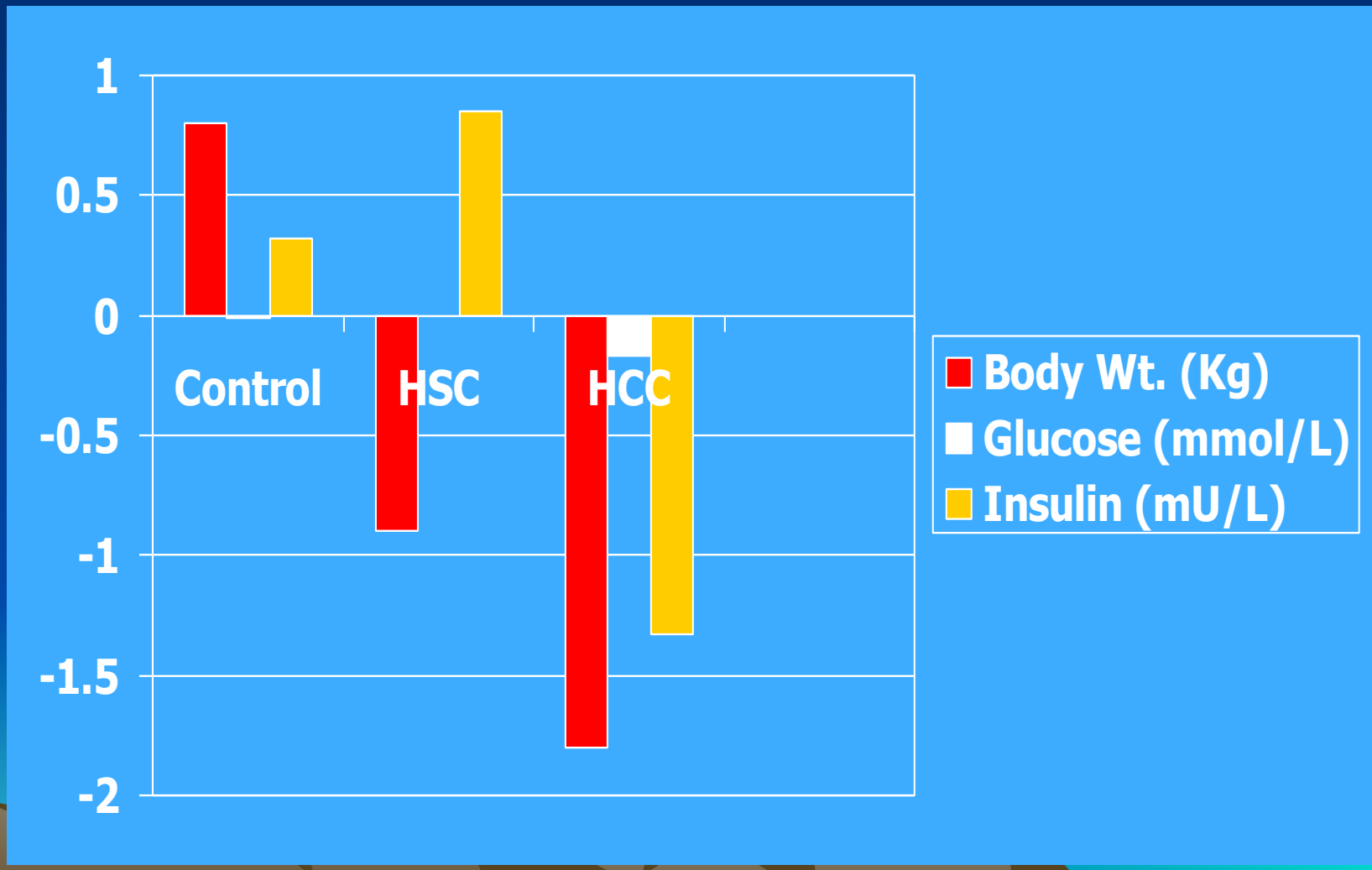
CARMEN TRIAL

Saris et al Int J Obesity 2000;24:1310-1318

- **Energy intake:**
  - **Control 10300 kJ**
  - **HSC 10400 kJ**
  - **HCC 9300 kJ P=0.0031**

CARMEN TRIAL

Saris et al Int J Obesity 2000;24:1310-1318



CHO restricted vs Fat restricted diet
Metabolic syndrome
Lipids (2009) 44:297–309

A5 Polymorphism and Diet

DIET CHANGE = Total Energy -135 kcls/day, CHO - 5.8% , FAT +3.9%, Protein + 2%

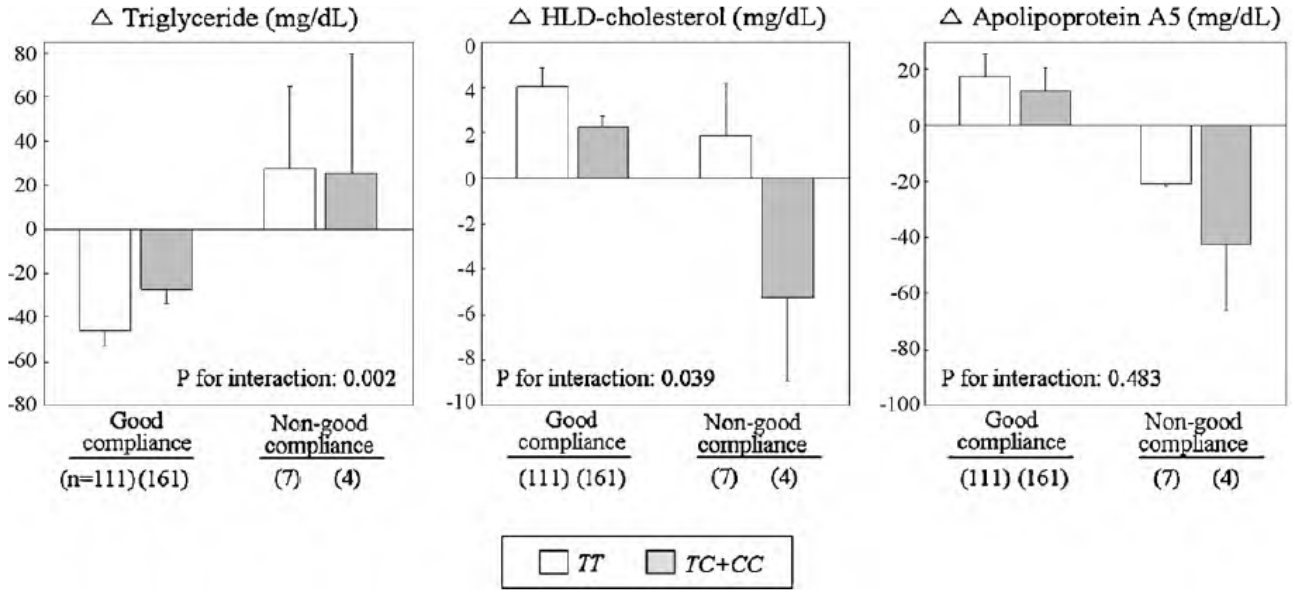
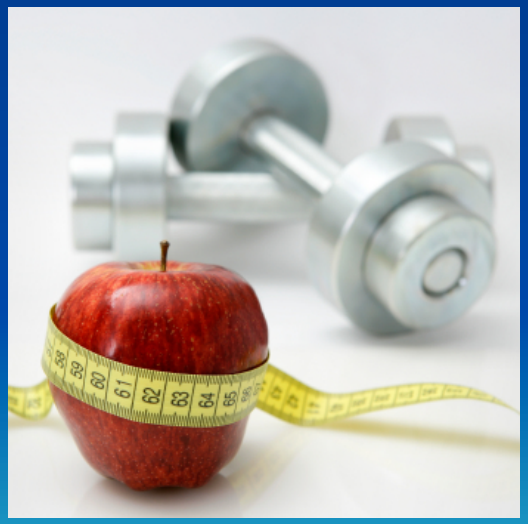


Fig. 1. Changed levels of triglyceride, HDL cholesterol, and apolipoprotein A5 before and after the diet- and exercise-mediated treatment depending on the –1131*T*>*C*

Comparison of Low Carbohydrate vs Low Fat diet on Metabolic syndrome

CHANGE

Canadian **H**ealth **A**dvanced By **N**utrition and **G**raded **E**xercise CHANGE Health Paradigm



EDMONTON

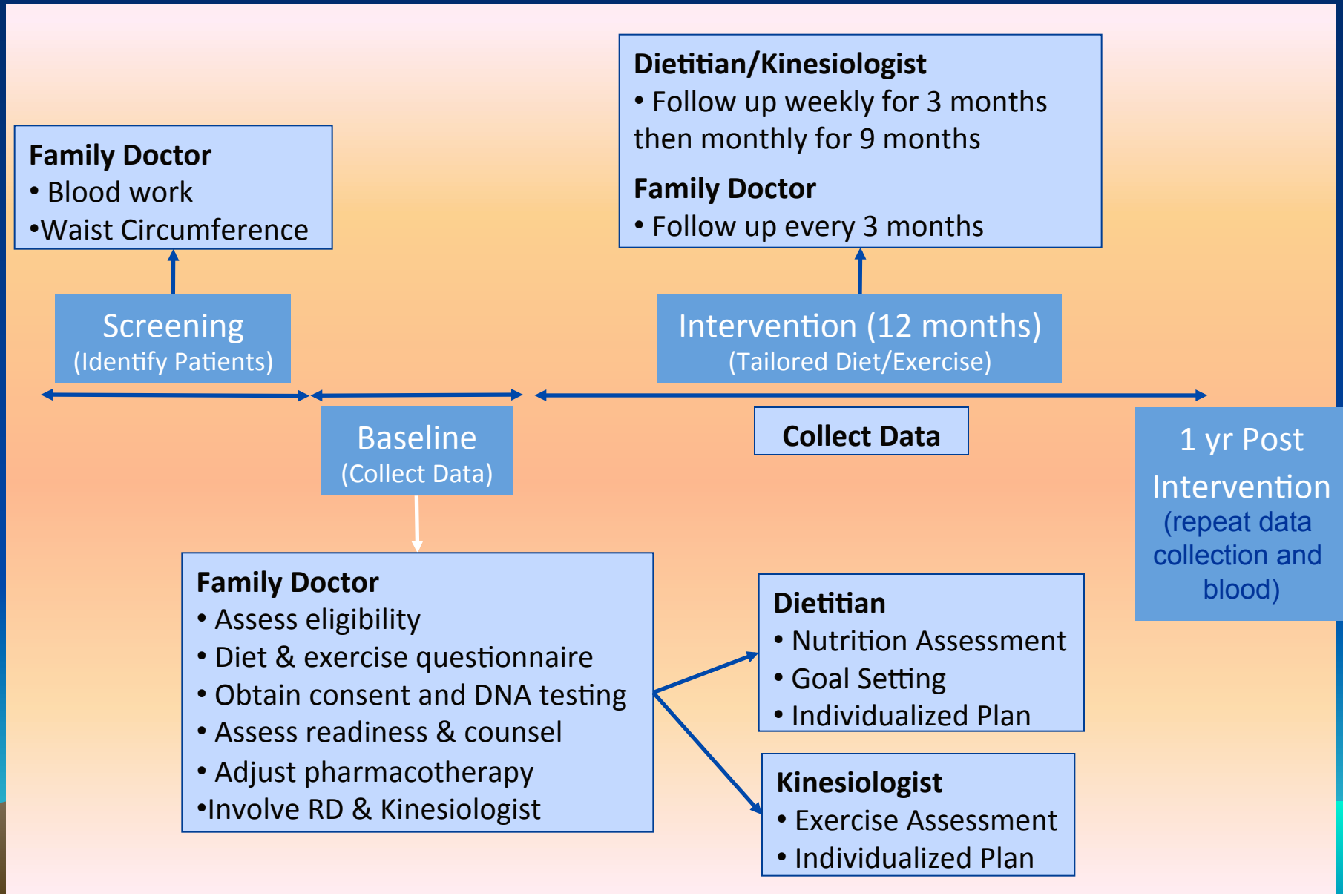
LAVAL

TORONTO

Project Objectives

- Develop and implement a program through FDs supported by kinesiologists and dietitians to show that a regimen of nutritional modification and graded exercise over a 1 year period will:
  - Reduce components of the Metabolic syndrome
  - Reduce reliance on pharmacological drug use
  - Evaluate the feasibility of team-based approach to manage MetS
- Explore the relationship of the response to lifestyle changes on cardiometabolic risk according to genotype.

Study Overview



Conclusions

- Diet recommendations need to consider the genetic status of the individual
- Diet composition influences risk factors by:
  - Altering satiety
  - Altering cholesterol status
  - Altering thrombogenicity
  - Reducing blood pressure
- Complemented by individualized exercise
- Both have powerful effects on risk factors

Conclusions

- Totally neglected in practice except for platitudes like
  - "Balanced intake of all food groups"
  - "Go for long walks"

  INDIVIDUALLY TAILORED PROGRAM NEEDS TO BECOME PART OF MEDICAL CARE