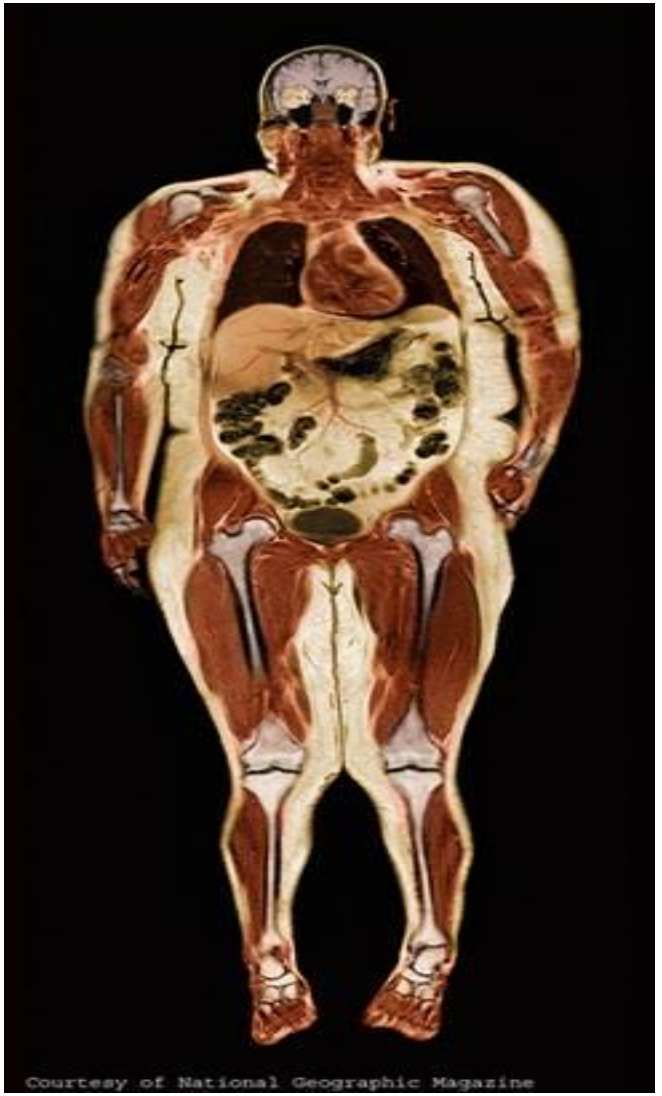
Summary of level of evidence on factors that might promote or protect against weight gain and obesity

Evidence	Decreases risk	No relationship	Increases risk
Convincing	Regular physical activity. High dietary NSP (fibre) intake		High intake of energy-dense nutrient-poor foods. Sedentary lifestyles
Probable	Home & school environments that support healthy food choices for children **. Promoting linear growth Breastfeeding ** Associated evidence and expert opinion		Heavy marketing of energy-dense foods** and fast-food outlets. Adverse social and economic conditions (in developed countries, especially for women) Sugar-sweetened soft drinks and fruit juices
Possible	Low glycaemic index foods	Protein content of the diet	Large portion sizes High proportion of food prepared outside the home (western countries) "Rigid restraint / periodic disinhibition" eating patterns
Insufficient	Increasing eating frequency		Alcohol

Table taken from Diet, Nutrition and the Prevention of Chronic Diseases, WHO 2003, TRS 916.

Consequences of obesity



OBESITY

- Complex, multifactorial disorder
- An excessive accumulation of body fat sufficient to impair health
- **Great battle in life is the battle of bulge**
- Middle life: Middle part of body


DIABETES
HEART DISEASE
SLEEP APNEA
OBESITY
CANCER
GERD (ACID REFLUX)
High Blood Pressure

Relative risks of health problems associated with obesity

Slightly ↑sed(RR-1-2)

- **CANCER, breast cancer (in post menopausal women), endometrial, colon**
- **Reproductive hormone abn**
- **PCOS**
- **Impaired fertility**
- **Low back pain**

- **Moderately increased (RR 2-3)**
- **CHD**
- **Hypertension**
- **Osteoarthritis**
- **Hyperuricaemia and gout**

Greatly increased RR >3

NIDDM

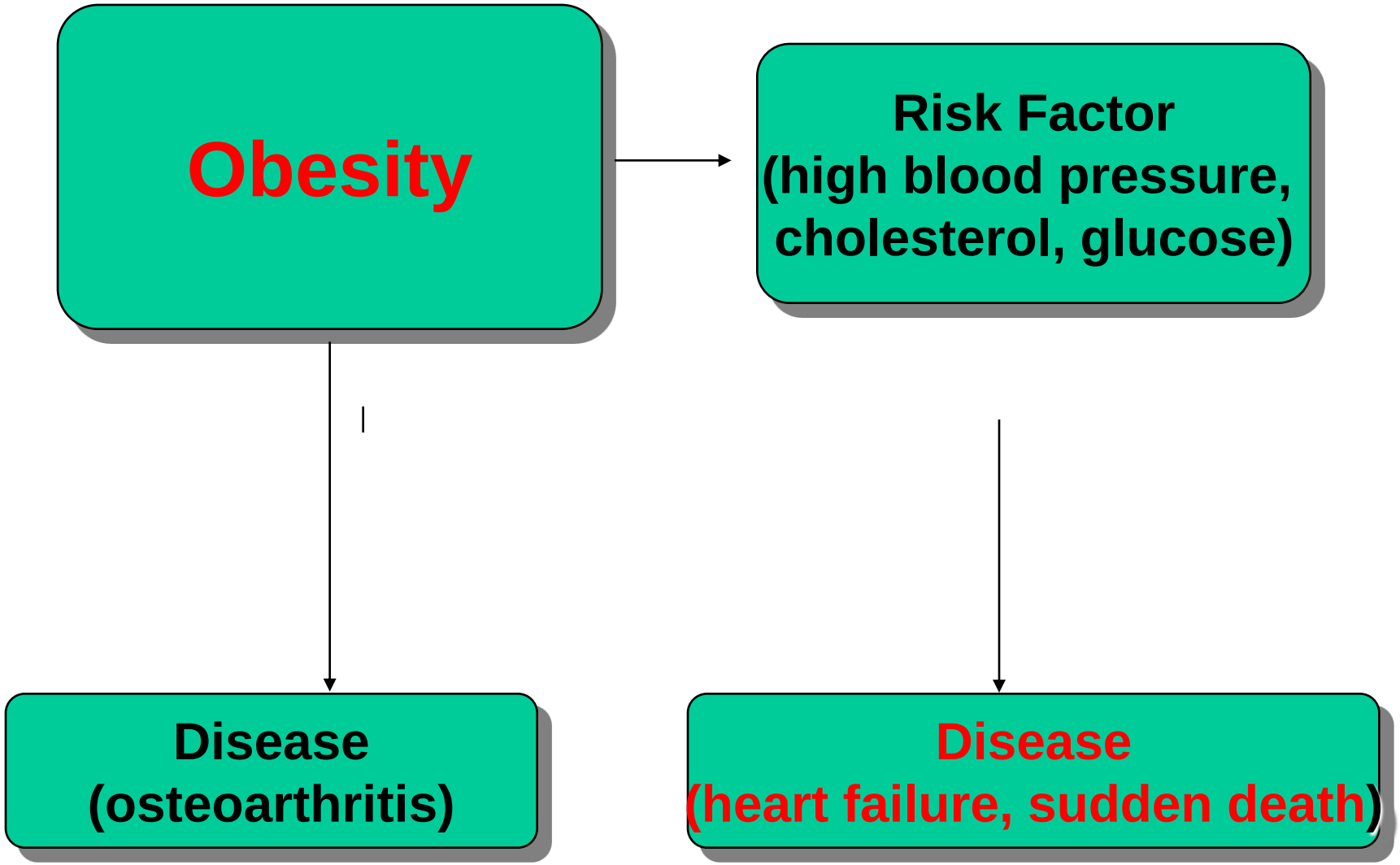
Gallbladder disease

Dyslipidaemia

Insulin Resistance

Breathlessness

Sleep apnoea



- 2nd leading cause of preventable death

Co-Morbid Conditions of Obesity

- Cardiovascular
  - CAD, HTN, CHF, RHF, DVT, PE, CVA
- Respiratory
  - OSA, asthma, hypoven… syndrome
- Endocrin…
  - …
- Malig…
  - Bre… …, pancreas, prostate, uterine
- Gastrointestinal
  - GERD… …es
- …
  - …UTI
  - Venous stasis, cellulitis, panniculitis, skin infections
- Psychologic/Neurologic
  - Depression, migraine, pseudotumor cerebri

80% of people with a BMI >30 have at least one debilitating co-morbid illness

Prevention-Rationale

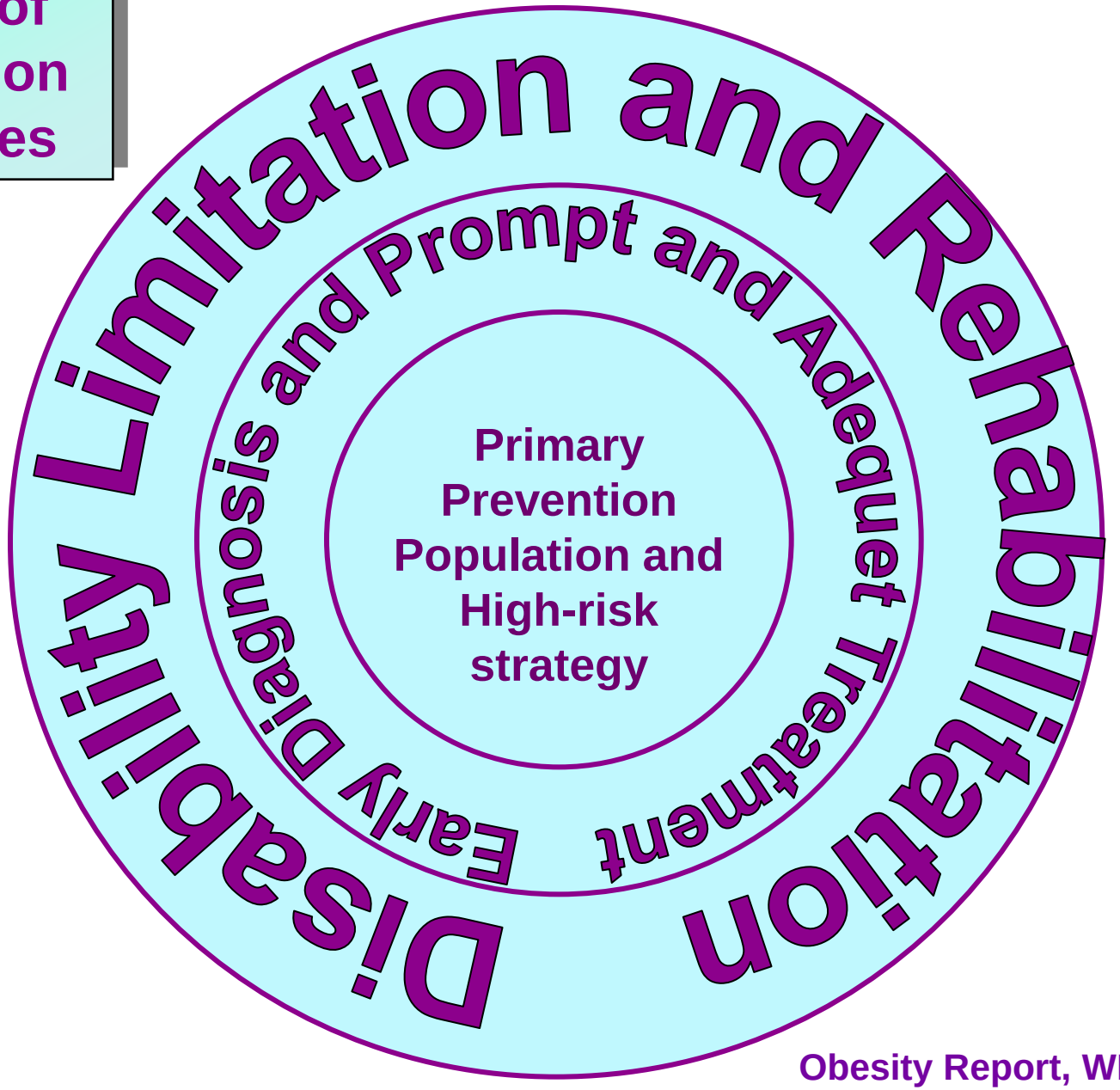
- Obesity develops over a period of time, once it has , is difficult to treat

Prevention-Rationale

- Health consequences develop due to excess of weight over a long time and may not be reversible with loss of weight.

- Proportion of overweight/ obese is large and health care resource scare.

Levels of prevention measures



Obesity Report, WHO 2000.

- **AT COMMUNITY LEVEL**:
- Reduce mean weight in population and maintain BMI between 21-23.
- Improve quality of available diet

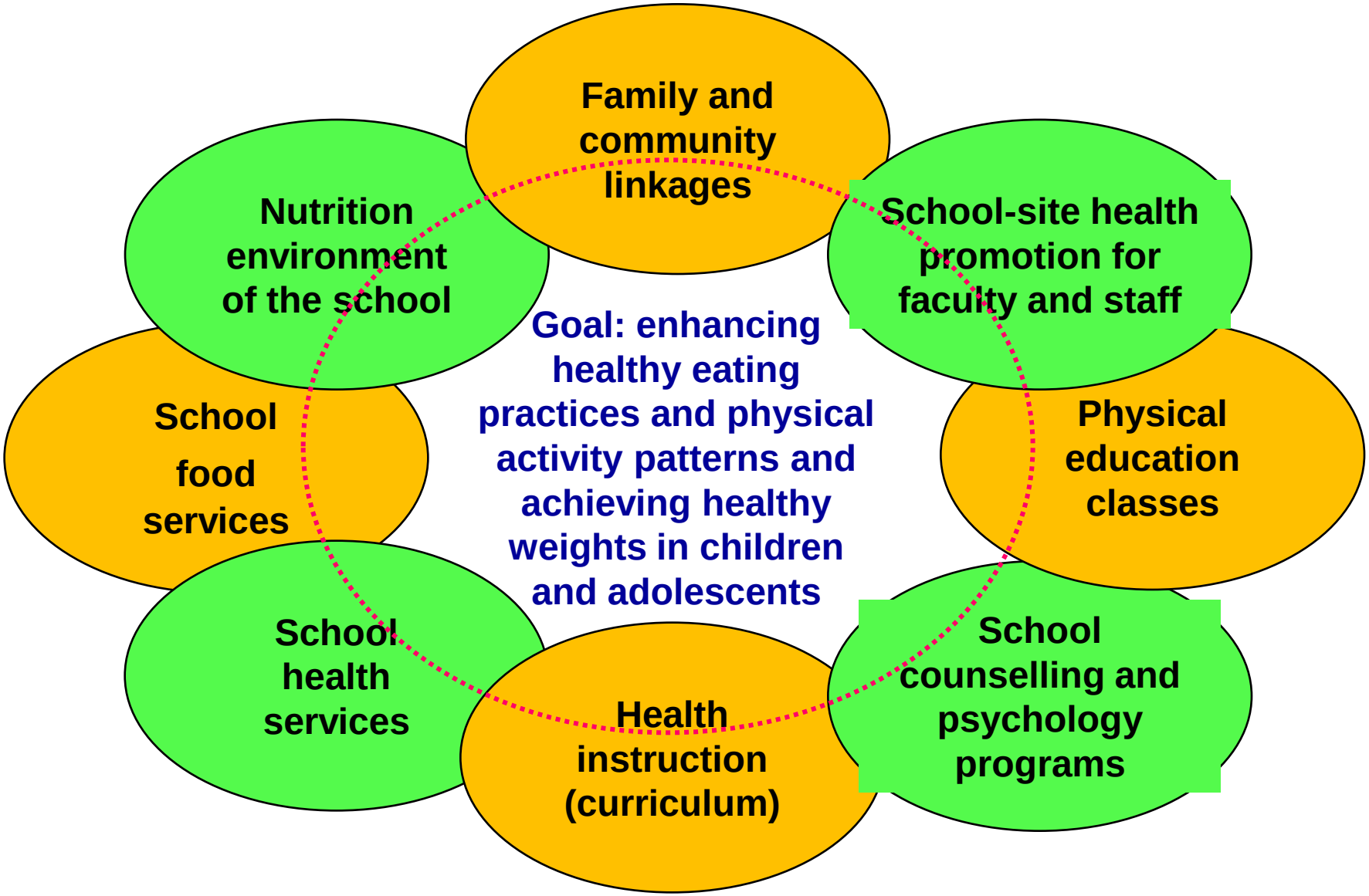
- Improving knowledge regarding obesity.
- Increasing physical activity patterns.
- Promote healthy life style at all ages.

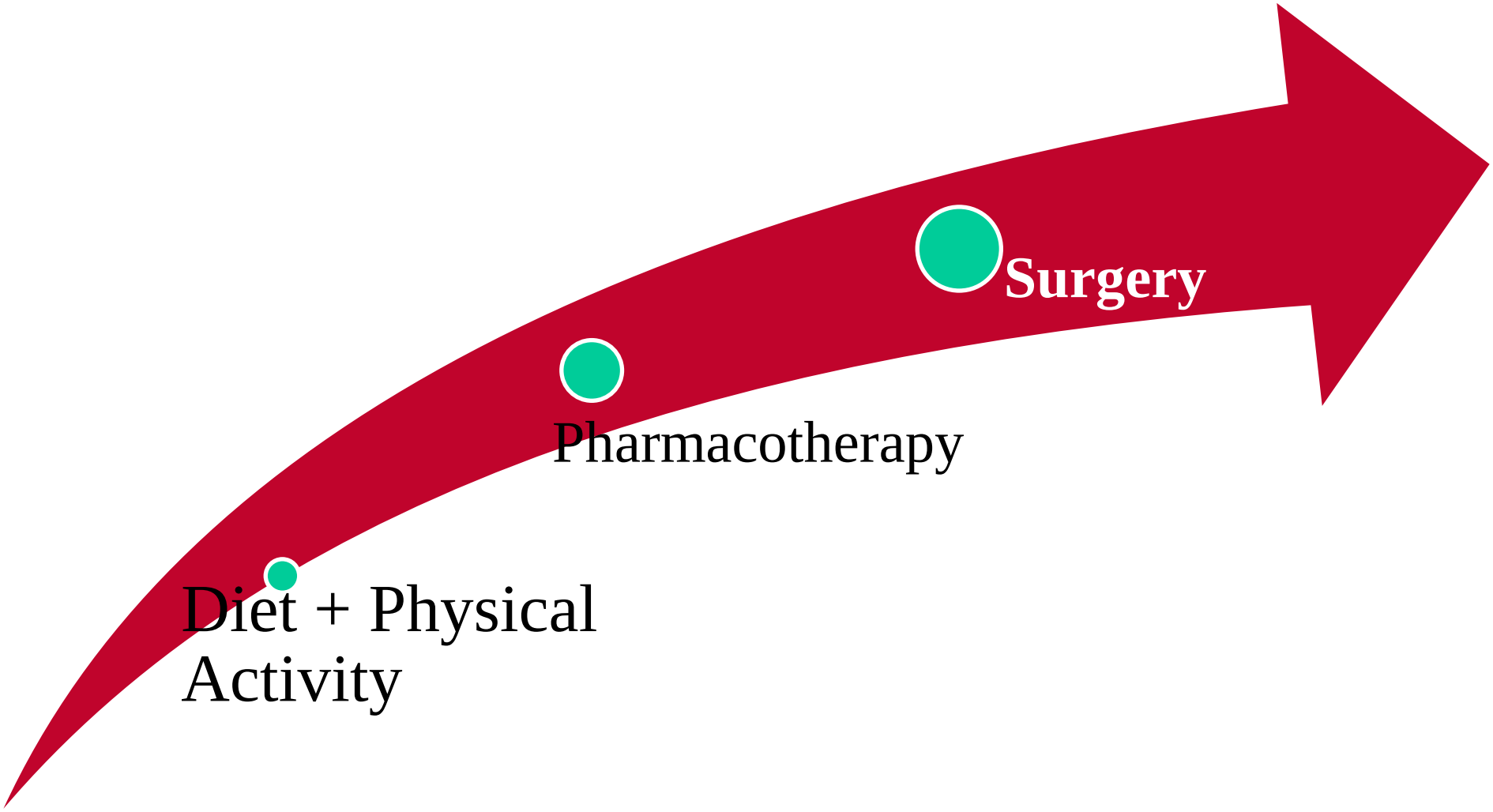
AT RISK APPROACH

- Selective Prevention: For those with above average risk of developing obesity .

- Targeted Prevention: High risk individuals with excess weight but are yet not obese

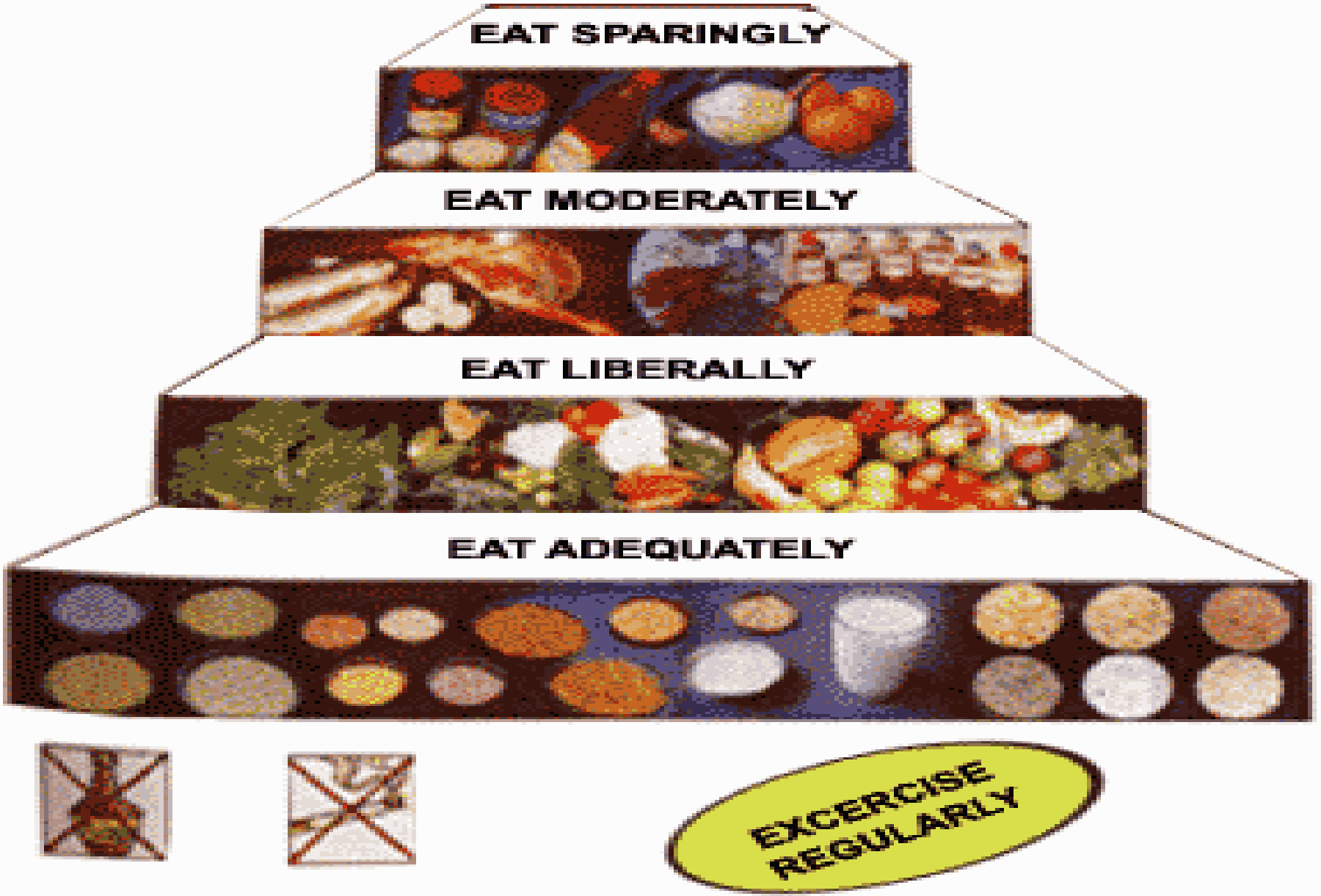
Primordial and Primary Prevention




Surgery
Pharmacotherapy
Diet + Physical Activity

DIETARY GUIDELINES FOR INDIANS

FOUNDATION TO NUTRITION AND HEALTH



Secondary Prevention

Primary goal of obesity treatment is to improve the patient's health.

Treating Overweight and Obesity

- Measure ht and wt (BMI), Measure WC, Assess co morbidities
- Should the patient be treated?
- Is the patient ready and motivated to lose weight?
- Which diet should you recommend?
- Discuss a physical activity goal.

Rate of Weight Loss

- A realistic goal is usually a loss of 5% to 15% from baseline in 6 months of obesity treatment.
- Weight should be lost at a rate of 1 to 2 pounds per week, based on a caloric deficit between 500 and 1,000 kcal/day.

Effects of 5-10% decrease in body weight

1. Decrease in blood pressure

   MacMahon S, *Eur. Heart J.* 1987; 8(Suppl B): 57-70

2. Improve serum lipid profile

   Dengel JL, *Am. J. Clin. Nutr.* 1995; 62:715-21

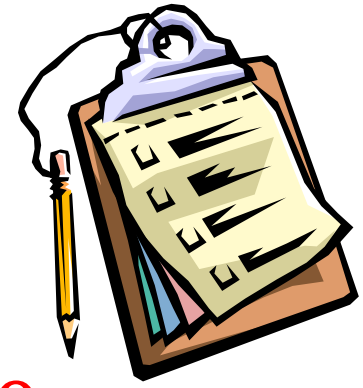
3. Improve glucose tolerance and decrease insulin resistance

   Agurs-Collins TD, *Diabetes Care.* 1997; 20:1503-11

4. Improves symptoms of depression and anxiety.

OBESITY MANAGEMENT

Dieting



- Select an energy intake below maintenance levels:500 to 1,000 kcal/day reduction from usual intake.
- Women should consume at least 1,200 kcal/day; men --1,500 kcal/day.
- Select a diet that has more than 75 g/d of high-quality protein (~15% of total calories).

- Adequate carbohydrate (complex) intake (55% or more of total calories).
- Reduce the intake of foods with high levels of saturated fats (Total fat – 30% or less of total calories).
- No fewer than 3 meals and preferably five or more meals a day, including breakfast.
- High fiber foods, with a preference for fresh fruits and vegetables, as well as cereals and whole-grain products (fiber – 20-30 g/day).

How to Save Calories and Fat

- Cooking Methods : bake
  microwave
  roast
  steam
  grill

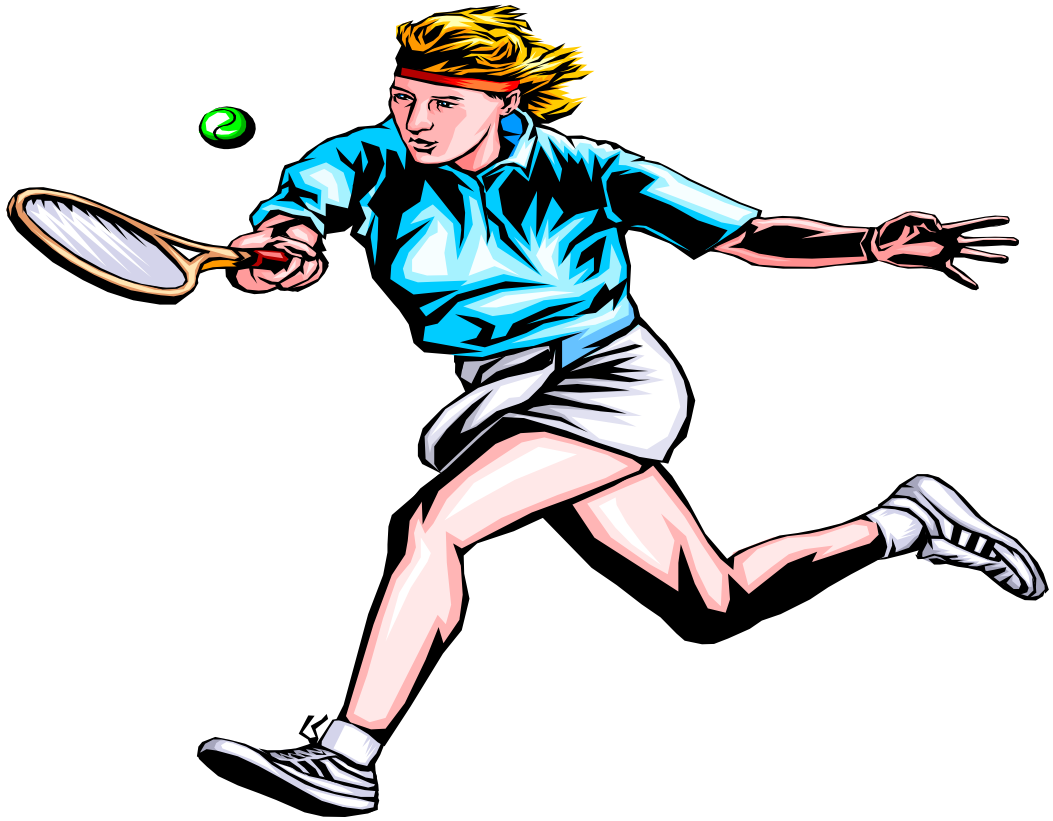
How to Recognize a Fad Diet

- Is the author credible?
- Diets that advocate:
  - Miracle foods
  - Rapid weight loss
  - No exercise
  - Rigid menus (good vs. bad)
  - Recommendations based on single foods

Problems with Dieting

- high recidivism
- increase risk for future weight gain (i.e., dieting may cause the thing it's supposed to cure)

2.Physical Activity

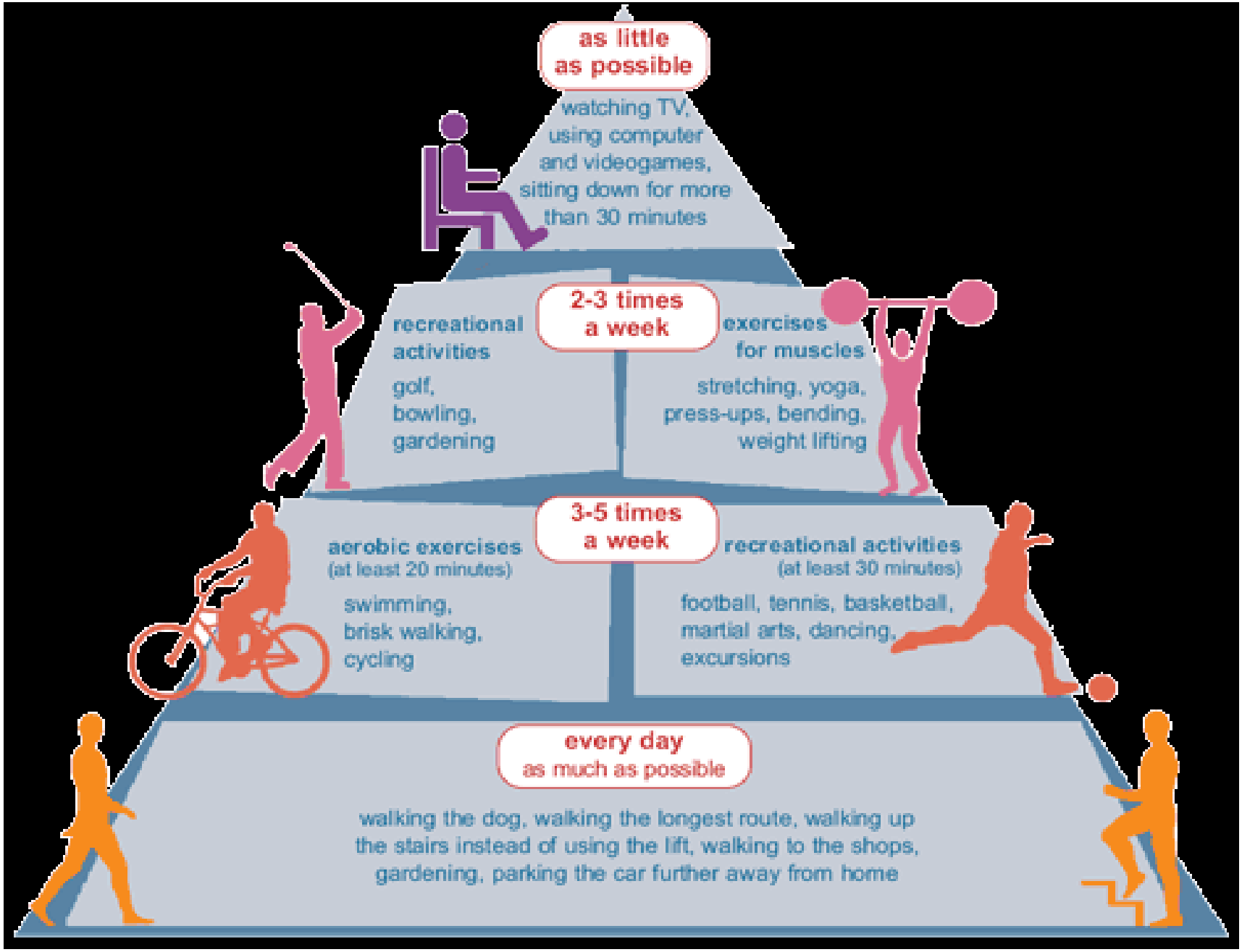


Some old outdoor calorie burning games

- Moderate-intensity physical activity for 30 minutes or more on most, and preferably all, days of the week.
  - Prevention of weight gain
  - Reducing risks for cardiovascular disease and type 2 diabetes
- Reducing sedentary time is another approach to increasing activity.

How to burn 100 calories?

Tidying your room	40 minutes
Gardening	1 hour and 7 minutes
Dancing	23 minutes
Trekking	17 minutes
Brisk walk	25 minutes
Cycling	25 minutes
Pullups, pushups, situps	12.5 minutes
Weight lifting	34 minutes
Yoga and stretching	25 minutes
Aerobics	17 minutes
Climbing stairs	20 minutes
Jogging	14 minutes
Badminton	23 minutes
Cricket	20 minutes
Golf	23 minutes
Table tennis	25 minutes
Lawn tennis	14 minutes
Swimming	17 minutes


as little as possible
watching TV, using computer and videogames, sitting down for more than 30 minutes
2-3 times a week
recreational activities
golf, bowling, gardening
exercises for muscles
stretching, yoga, press-ups, bending, weight lifting
3-5 times a week
aerobic exercises
(at least 20 minutes)
swimming, brisk walking, cycling
recreational activities
(at least 30 minutes)
football, tennis, basketball, martial arts, dancing, excursions
every day
as much as possible
walking the dog, walking the longest route, walking up the stairs instead of using the lift, walking to the shops, gardening, parking the car further away from home

Overcoming Obstacles to Regular Activity

- **Planning to Become More Active**
- Begin slowly.
- Set realistic goal, and plan to succeed.
- Reward yourself for reaching your goals.
- Be active the healthy way

Nutrition Facts

Serving Size 1 cup (228g)
Serving Per Container 2

Amount Per Serving

Calories 250 Calories from Fat 110

	% Daily Value*
Total Fat 12g	**18%**
Saturated Fat 3g	**15%**
Trans Fat 1.5g	
Cholesterol 30mg	**10%**
Sodium 470mg	**20%**
Total Carbohydrate 31g	**10%**
Dietary Fiber 0g	**0%**
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%

PHARMACOTHERAPY

BMI>30

- Drug that Reduces Food Intake:
- Drug that Alters Metabolism

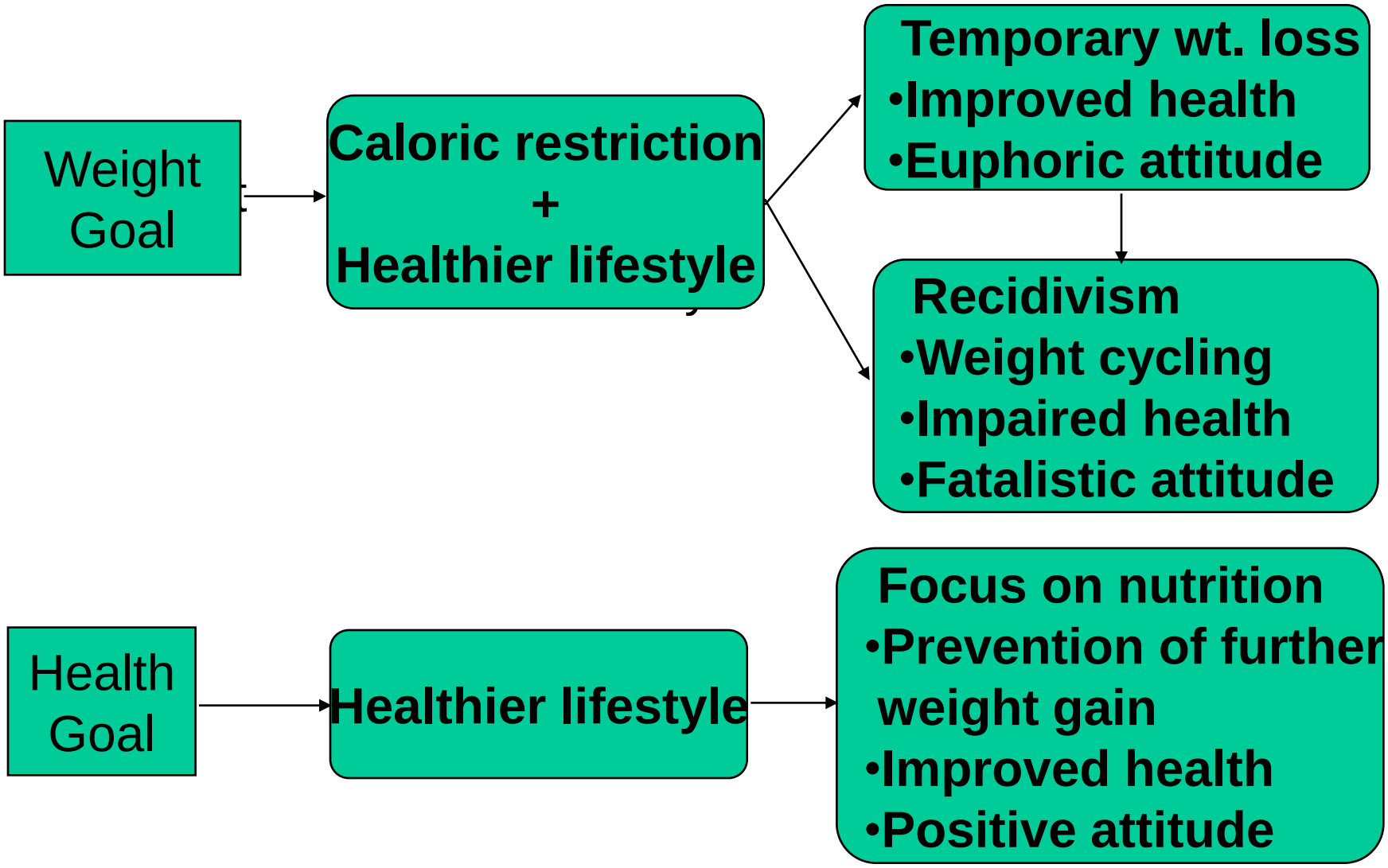
SURGICAL INTERVENTION

- BMI >40 or >35 with 2 comorbid conditions
- Failure of nonsurgical methods
- Presence of 2 or more medical conditions that would benefit by weight loss

- Malabsorptive operation (Roux-en-Y Gastric Bypass)
- Altered size of gastric pouch (Lap-Band Procedure)
- Removal of excess skin and fat

Healthy Weight Journal 1998

Which Path for the Obese?



Prevention and control

- Weight control is widely defined as approaches to maintaining weight within the 'healthy' (i.e. 'normal' or 'acceptable') range of body mass index of 18.5 to 24.9 kg/m2 throughout adulthood (WHO Expert Committee, 1995).
- It should also include prevention of weight gain of more than 5 kg in all people.
- In those who are already over-weight, a reduction of 5-10 per cent of body weight is recommended as an initial goal.

Prevention and control

Dietary changes:-

the proportion of energy-dense foods such as simple carbohydrates and fats should be reduced;

the fibre content in the diet should be increased through the consumption of common un-refined foods;

adequate levels of essential nutrients in the low energy diets *should be ensured, and reducing diets should be* as close as possible to existing nutritional patterns.

Prevention and control

Dietary changes (Contd.):-

The most basic consideration is that the food energy intake should not be greater than what is necessary for energy expenditure.

It requires modification of the patient's behaviour and strong motivanon to lose weight and maintain ideal weight.

Prevention and control

2. INCREASED PHYSICAL ACTIVITY:

- This is an important part of weight reducing programme.
- Regular physical exercise is the key to an increased energy expenditure,

Prevention and control

2. Others:

Appetite suppressing drugs have been tried in the control of obesity.

They are generally inadequate to produce massive weight loss in severely obese patients.

Surgical treatment (gastric bypass, gastroplasty, jaw-wiring) to eliminate the eating of solid food have all been tried with limited success.

Weight control is a journey, not a destination.