Approach to **Obese Patient**

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Objectives

- To define obesity and classify the degree of obesity based on BMI, waist circumference and waist-hip-ratio.
- The prevalence of obesity in Saudi Arabia.
- Common causes of obesity in the community.
- Common health problems associated with obesity.
- Methods to prevent obesity in the community.
- The evidence based approach to reducing weight (exercise, dieting, drug treatment, and bariatric surgical intervention)
- The roles of health team, medical students, and school health professionals in addressing the problems of obesity in the community

MCQ 1

When to consider bariatric surgery ?

A. BMI less than 35
B. BMI less than 35 with comorbidity
C. BMI more than 40
D. When non-surgical intervention is successful

MCQ 2

What is the recommended amount of weekly moderate intensity exercise for a healthy person?

A. 200 minutes per week
B. 350 minutes per week
C. 130 minutes per week
D. 150 minutes per week

MCQ 3

The target for deficit calories per day is?

A. 200-500 kcal/day
B. 500-1000 kcal/day
C. 1000-1500 kcal/day
D. 1500-2000kcal/day

MCQ 4

Which one of the following is a routine interval to do lab tests for patient undergo bariatric surgery ?

A. Every month
B. 2,4,8 months
C. 3,6,9 months then annually
D. Every 6 months then annually

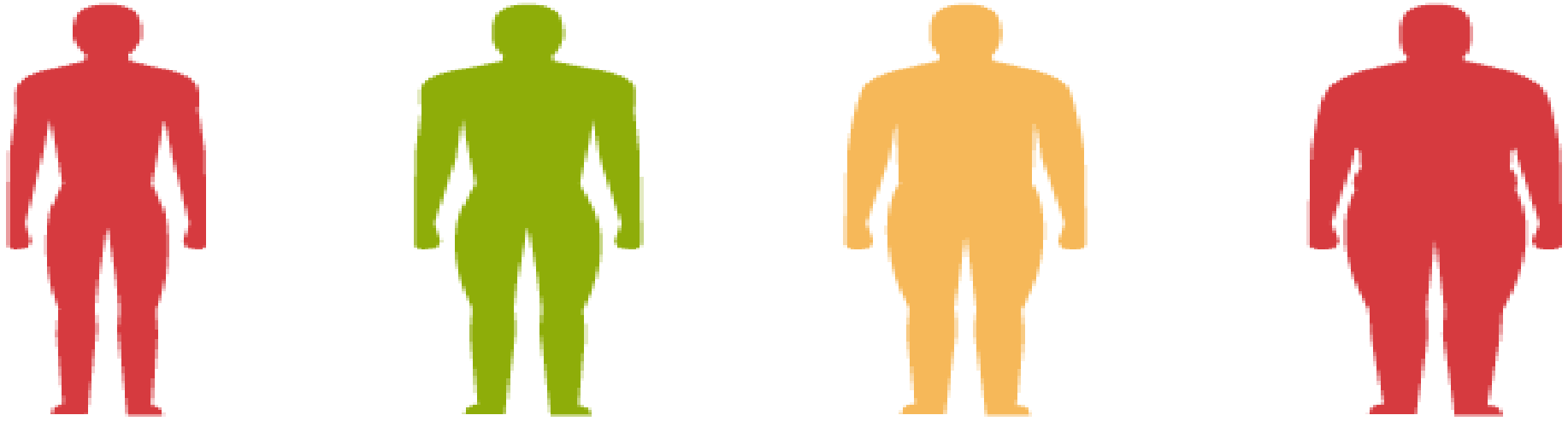
Is **Obesity** the same as being overweight?

What is BMI and how to calculate it?

Obesity is defined as abnormal or excessive fat accumulation that may impair health.

It’s also defined by a BMI of greater than or equal to 30.

Based on BMI = $\frac{\text{Weight (Kg)}}{\text{Height}^2\ (\text{m}^2)}$



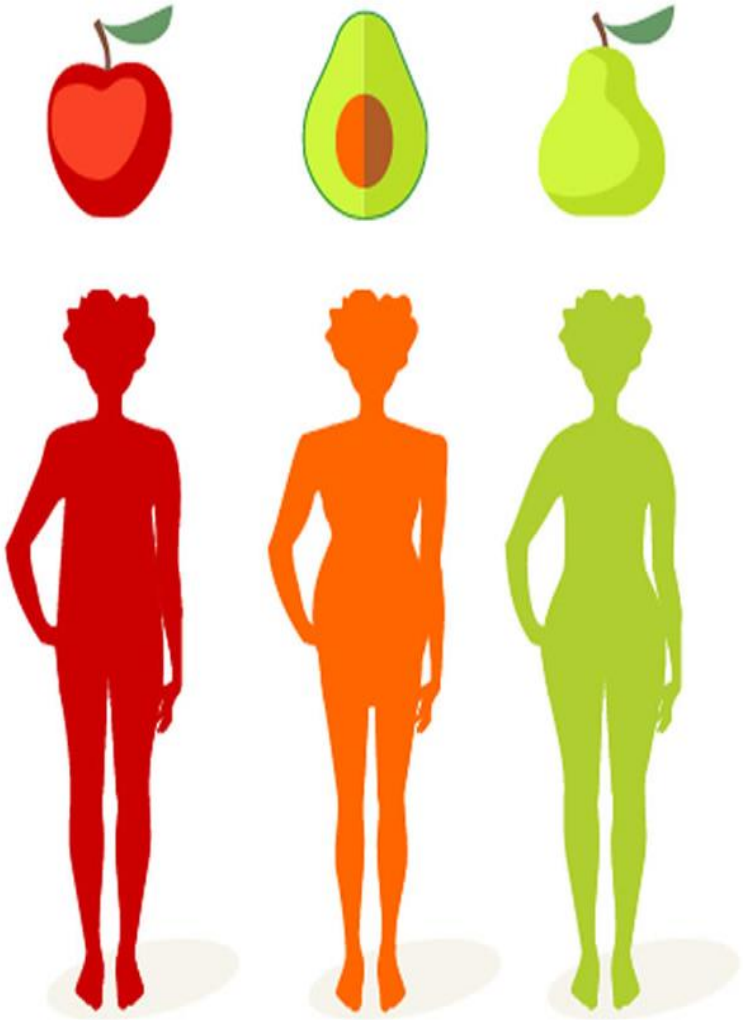
BMI Chart

BMI less than 18.50	Underweight
BMI 18.50 - 24.99	Healthy weight
BMI 25.00 - 29.99	Overweight
BMI 30 or more	Obese

Based on Waist circumference

Risk Category	Females	Males
Very low	<27.5 in (<70 cm)	<31.5 in (<80 cm)
Low	27.5–35.0 in (70–89 cm)	31.5–39.0 in (80–99 cm)
High	35.5–43.0 in (90–109 cm)	39.5–47.0 in (100–120 cm)
Very high	>43.5 in (>110 cm)	>47.0 in (>120 cm)

Based on Waist Hip Ratio

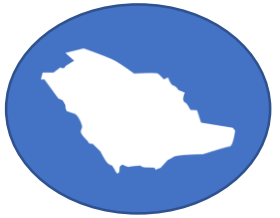


What your Waist-to-Hip Ratio Means

WOMEN	HEALTH RISK	BODY SHAPE
0.80 or below	Low	Pear
0.81 to 0.85	Moderate	Avocado
0.85+	High	Apple

MEN	HEALTH RISK	BODY SHAPE
0.95 or below	Low	Pear
0.96 to 1.0	Moderate	Avocado
1.0+	High	Apple

Obesity Prevalence in KSA



- **National study** in 2013 (Age 15+) have estimated:

  28.7% were obese (body mass index ≥30 kg/m^2)

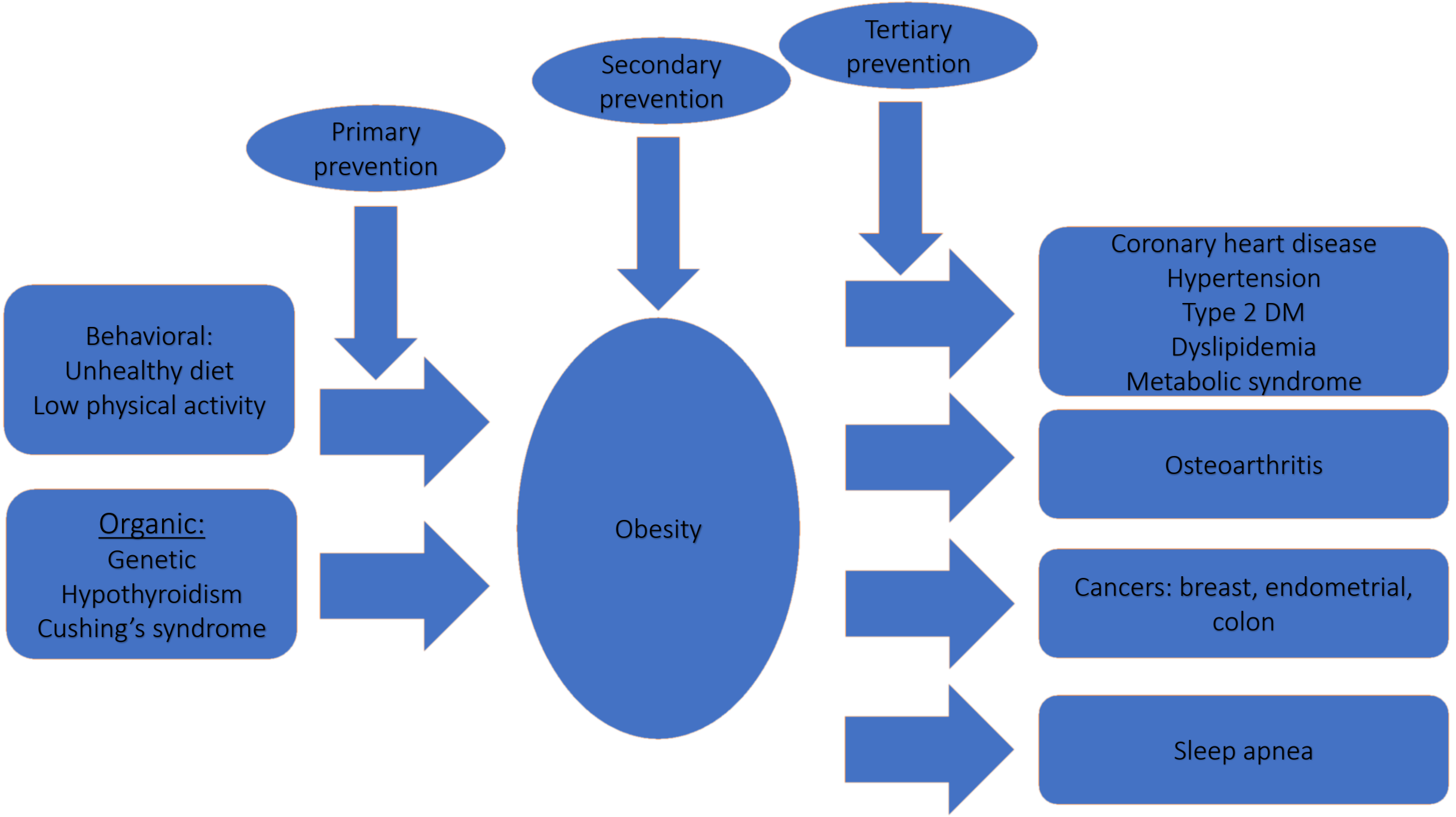
  Higher among women 33.5% compared to men 24.1%

- **School-based multi-centre study** in 2014 (Age 14-19)have estimated:

  - Prevalence of Overweight was 19.5% in males and 20.8% in females.
  - Prevalence of Obesity was 24.1% in Male and 14% in females.

  And if things continue as they are

- The overall obesity will increase to 41% in men and 78% in women by 2022.


Primary prevention
Secondary prevention
Tertiary prevention
Behavioral:
Unhealthy diet
Low physical activity
Organic:
Genetic
Hypothyroidism
Cushing's syndrome
Obesity
Coronary heart disease
Hypertension
Type 2 DM
Dyslipidemia
Metabolic syndrome
Osteoarthritis
Cancers: breast, endometrial, colon
Sleep apnea

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Prevention

Primary Prevention:

Education: For behavioral causes

A. Maintaining a balanced diet and a healthy behavior:

5-2-1-0 plan for ages 5 and up (especially children)

5= Encourage intake of daily **5 portions of fruits and vegetables.**

2= Encourage eating with the child in a sociable atmosphere without distractions, separate eating from other activities and keep recreational **screen time to less than 2 hours**,

1= Include at least **1 hour or more of active play** every day

0= **Skip sugar sweetened beverages**, drink more water every day

B. Exercising and active life style:

i. Exercise for 30 minutes or more, 5 days a week.

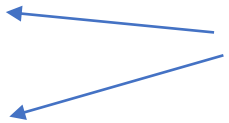
ii. Reduce time spent in front of TV, computer, and mobiles.

C. Breastfeeding:

Recommend exclusive breastfeeding from birth to six months

Secondary Prevention:

- Exercise
- Diet
- Drug Management
- Bariatric surgery

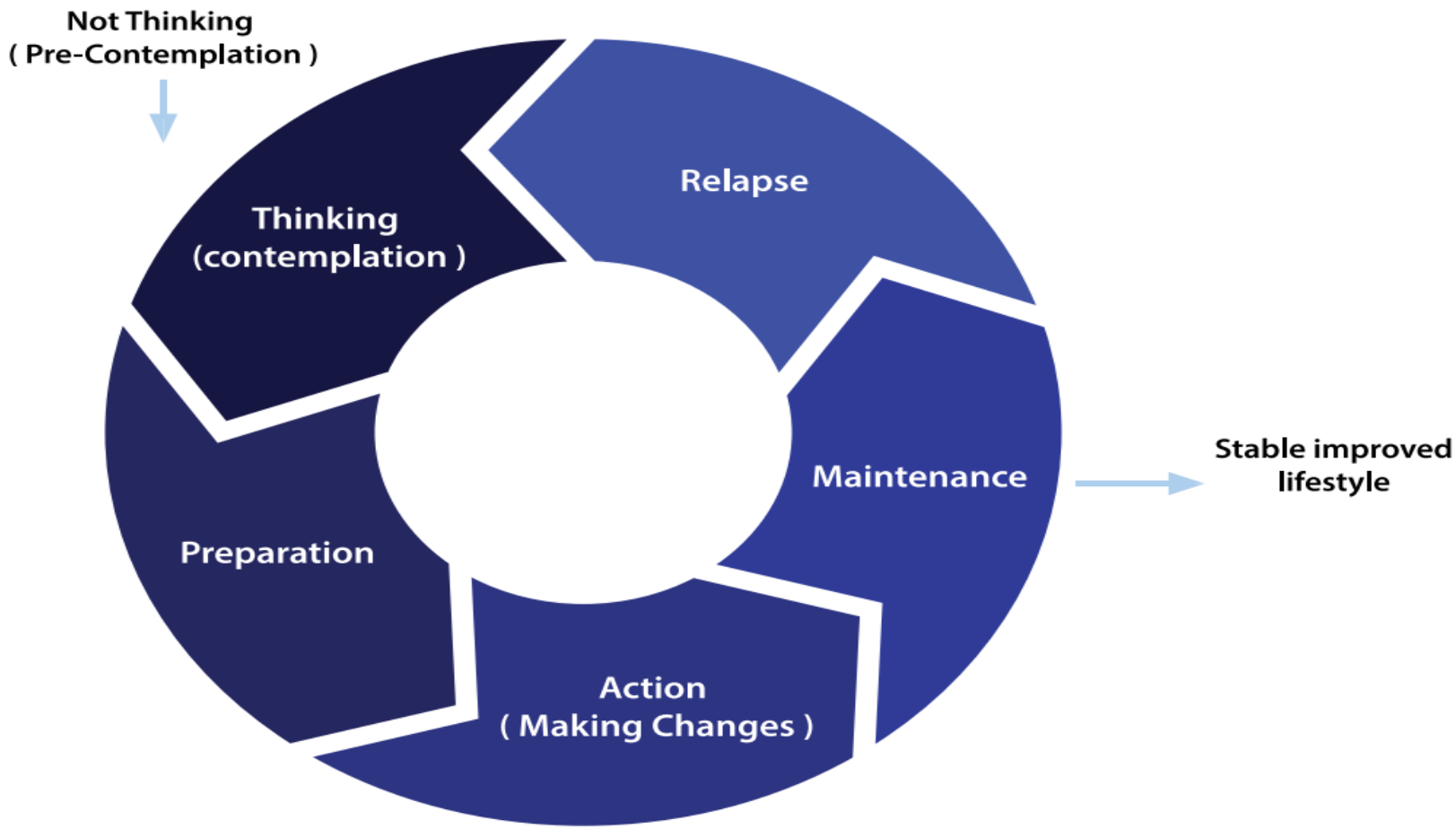


Indications?

Tertiary Prevention:

Decreasing the progression of obesity and it’s complications

Figure 1: Stages of Change Model to Assess Readiness to Lose Weight[15]



Weight management

- For adults with BMI 25-35 kg/m2 the target is to lose 5-10% of body weight (0.5-1 kg per week)
- - For adults with BMI>35 kg/m2 and obesity-related co-morbidities the target is to lose a greater than 15-20% of body weight.
- Lifestyle modification should target at reducing energy intake, increasing energy expenditure and assisting in behavioral change (NHMRC, evidence grade A)
- Optimal dietary plan for achieving healthy body weight should be developed with a qualified and experienced health professional team together with the individual and family.

Diet

- Target energy deficit of 500-1000 kilo-calorie per day (3,500 kcal/week)((NHMRC, evidence grade A)
- Provide advice on dietary modification
- choose low energy-dense foods (e.g. whole-grains, cereals, fruits, vegetables, and salads)
- reduce intake of energy-dense foods (e.g. animal fats, sugary drinks (SIGN, evidence grade B)

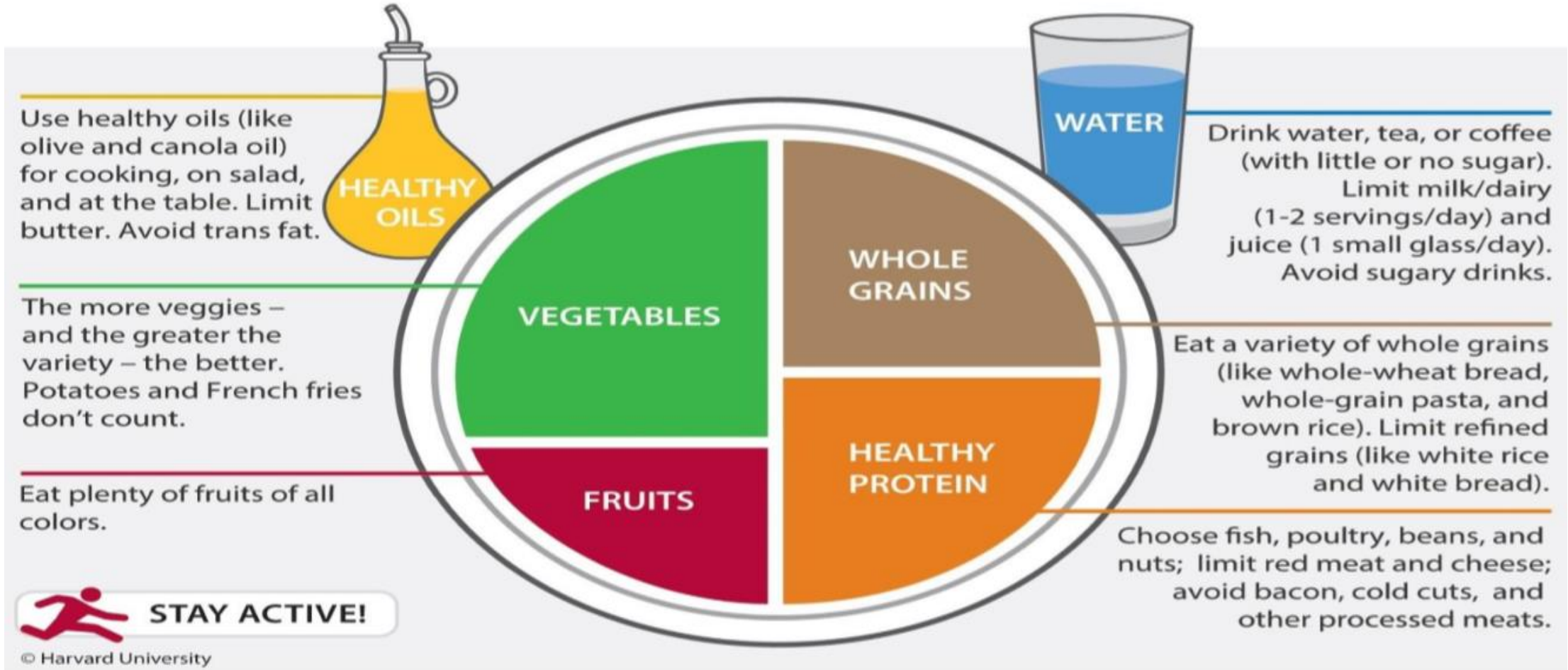
Diet

- undertake regular self-weighing (SIGN, evidence grade B)

• Strictly supervise patients on very low-calorie diets prescribed for rapid weight loss, (SIGN, evidence grade D)

Fat: < 30% of total daily caloric intake

HEALTHY EATING PLATE



Harvard School of Public Health
The Nutrition Source
www.hsph.harvard.edu/nutritionsource

Harvard Medical School
Harvard Health Publications
www.health.harvard.edu

Physical activity

30 min/day for at least 5 days/week (150 min/week) WHO recommendation

• Encourage overweight or obese individuals to be physically active and to avoid sedentary behavior (SIGN, evidence grade B)

• Prescribe a volume of physical activity that produce energy deficit of approximately 1,800-2,500 kcal/week. This could be achieved through 5 sessions of 45-60 min/week of moderate intensity physical activity, or lesser amounts of vigorous physical activity (SIGN, evidence grade B)

Physical activity

encourage non-weight-bearing moderate intensity physical activities (e.g. cycling, swimming, water aerobics) for obese patients suering from joint problems (BMI over 35 kg/m2)

Build up the pace of physical activity gradually over time. The volume of physical exercise should be sustainable and tailored to the individual condition (Canadian, evidence grade A, level 2) 3

muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.

Benefits of Exercise

- **Reduce your risk of heart diseases**
- **body manage blood sugar and insulin levels.**
- **Improve your sleep**
- **Help you quit smoking**
- **Improve your sexual health**

Benefits of Exercise

- **Increase your chances of living longer.**
- **Improve your mental health and mood.**
- **Strengthen your bones and muscles**
- **Reduce your risk of some cancers**
- **Reduce your risk of falls**

Diet or exercise

- Diet or Exercise
- Diet only: short term effects unless maintained.
- Exercise only: help in preventing weight gain but not in significant weight loss.
- Therefore, both of them are required as lifestyle modifications for obesity.*
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- *Alfadda AA, Al-Dhwayan MM, Alharbi AA, Al Khudhair BK, Al Nozha OM, Al-Qahtani NM, Alzahrani SH, Bardisi WM, Sallam RM, Riva JJ, Brożek JL. The Saudi clinical practice guideline for the management of overweight and obesity in adults. Saudi medical journal. 2016 Oct;37(10):1151.
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Bariatric surgery

Bariatric surgery

- When to consider?

- BMI ≥ 40 kg/m2
- or BMI ≥35 kg/m2 with obesity-related comorbidity (e.g., hypertension, diabetes, sleep apnoea, GERD)
- When non-surgical methods have failed.

Bariatric surgery

How does it reduce weight?

Reduces food intake by altering hunger and satiety.

Techniques: (Laparoscopic vs open)

- Sleeve gastrectomy (USA, KSA)
- Gastric bypass
- Adjustable gastric banding (UK)

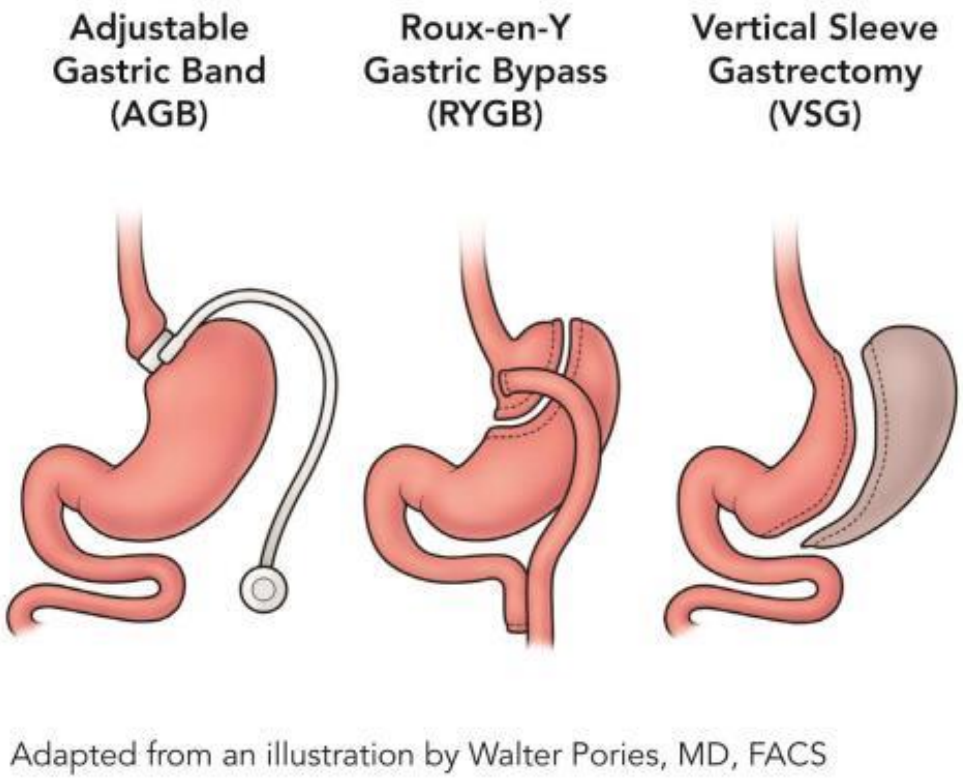


Table 13: Common types of bariatric surgery [29]

Treatment	General	Potential acute complications	Potential chronic complications
Sleeve Gastrectomy	• Hospital stay 1-2 days • Recovery 1-2 weeks • Contraindications - Poor surgical candidates - Sever psychiatric disorder - Intolerance to general anesthesia - Pregnancy - Drug or alcohol addiction - Untreated or sever esophagitis - Barrett›s esophagus - Sever gastroparesis - Achalasia - Previous gastrectomy • Sometimes used as staged approach to gastric by-pass	• Postoperative complications are rare • Hemorrhage • Anastomotic staple line leak • Deep vein thrombosis • Pulmonary emboli • Dehydration • Death	• Weight regain • Marginal ulcer • Dumping syndrome with reactive hypoglycemia • Luminal stenoses (stomal narrowing) • Anastomotic staple line leak • Fistula formation • Iron deficiency • Protein malnutrition • Other nutritional and mineral deficiencies (e.g. deficiencies of vitamins A, C, D, E, B and K, folate, zinc, magnesium, thiamine, etc.) • Anemia (often related to mineral and nutrition deficiencies) • Neuropathies (resulting from nutritional deficiencies) • Osteoporosis (often caused by calcium deficiencies and chronically elevated parathyroid hormone levels) • Potential need to re-operate
Laparoscopic adjustable gastric banding	• Outpatient procedure • Recovery usually one week • Contraindications - Poor surgical candidates - Sever psychiatric disorder - Intolerance to general anesthesia - Pregnancy - Drug or alcohol addiction - Untreated or sever esophagitis	• Band too tight with gastrointestinal obstructive symptoms (e.g. dysphagia) • Leakage of gastric content into abdomen • Hemorrhage • Deep vein thrombosis • Death	• Weight regain • Band slippage, erosion ulceration, port infection, disconnection and displacement • Esophageal dilation • Rare nutrient deficiencies if persistent vomiting or marked and sustained decrease in nutritional intake • Depression • Potential need to re-operate • GERD

Treatment	General	Potential acute complications	Potential chronic complications
Gastric bypass	• Hospital stay 2-4 days • Recovery 2-4 weeks • Contraindications - Poor surgical candidates - Sever psychiatric disorder - Intolerance to general anesthesia - Pregnancy - Drug or alcohol addiction - Untreated esophagitis - Unwillingness or an inability for appropriate long-term follow-up	• Gastrointestinal obstruction • Hemorrhage • Anastomotic leaks • Deep vein thrombosis • Pulmonary emboli • Dehydration • Death	• Weight regain • Marginal ulcer • Esophageal dilation • Dumping syndrome with reactive hypoglycemia • Small bowel obstruction caused by internal hernias or adhesions • Anastomotic stenoses (stomal narrowing) • Calcium deficiency • Secondary hyperparathyroidism • Iron deficiency • Protein malnutrition • Other nutritional and mineral deficiencies (e.g. deficiencies of vitamins A,C,D,E,B and K, folate, zinc, magnesium, thiamine, etc.) • Anemia (often related to mineral and nutrition deficiencies) • Metabolic acidosis • Bacterial overgrowth • Kidney stones (oxalosis) • Neuropathies (resulting from nutritional deficiencies) • Osteoporosis (often caused by calcium deficiencies and chronically elevated parathyroid hormone levels) • Depression Potential need to re-operate

Bariatric Surgery Long-Term Risks

- Dumping syndrome
- Low blood sugar
- Malnutrition
- Cholilithiasis
- Marginal Ulcers
- Bowel obstruction
- Hernias

Bariatric surgery after discharge

1. Diet
2. Weight measuring
3. Labs
4. When to refer back to Bariatric Surgery

Bariatric surgery after discharge

1. **Diet**

Immediate :

- Full liquid diet for 2-3 weeks.
- Gradually changed to soft, solid food (salads, fruits, vegetables and soft proteins)
- 400-800 kcal/day for the 1st month.
- Vitamin and mineral supplements

(ex. multivitamins, Iron, Calcium, Vitamin D, Vitamin B12)

Bariatric surgery after discharge

1. **Diet**

In the 1st 12 months:

- Healthy diet
- No meals skipping
- Regular dietician visits.

For epigastric pain and vomiting:

- Eat slowly
- Stop eating once they reach satiety
- No food and beverages at the same time

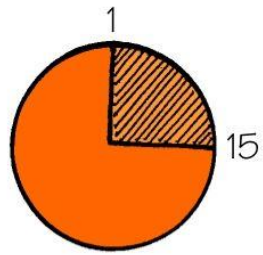
Dumping syndrome

- a group of symptoms, including weakness, abdominal discomfort, and sometimes abnormally rapid bowel evacuation, occurring after meals in some patients who have undergone gastric surgery.

- In dumping syndrome, food and gastric juices from your stomach move to your small intestine in an uncontrolled, abnormally fast manner.

- Eating too much or too fast, eating foods high in fat or sugar, and not chewing your food adequately can all cause nausea or vomiting after meals.

DUMPING SYNDROME



Occurs 15-30 Minutes After Eating

- Weakness
  - Dizziness, vertigo
  - Diaphoresis

- Epigastric Fullness

- Tachycardia
- Abdominal Cramping
- Self-Limiting

- No Fluids With Meals
- No High Carbs i.e., Bread, Potatoes

Weight Measuring

- Weekly in the 1st 4-6 months (Rapid weight loss phase)
- Then at 8, 10 and 12 months.
- Then annually.

Labs

(3,6,9 months then annually)

- CBC
- Electrolytes
- Glucose and Glucose

Tolerance test

- Complete lipid profile
- Complete iron studies
- Vitamin B12, Folate(B9) and thiamine (B1)
- Aminotransferases, alkaline phosphatase, bilirubin, GGT (LFT)
- Total protein and Albumin
- 25-hydroxyvitamin D, parathyroid

hormone

- Zinc and Copper

When to refer back to Bariatric Surgery

Immediate **Direct to the emergency or trauma center**	**Urgent** **Appointment timeframe within 30 days**	**Routine** **Appointment timeframe greater than 30 days depending on clinical need**
• Severe abdominal pain or intolerance of fluids after bariatric surgery • Fever or shortness of breathe after bariatric surgery	• Vomiting or severe reflux following bariatric surgery	• Assessment for bariatric surgery

Reducing Your Bariatric Surgery Risks

- Decreasing your Body Mass Index
- Increasing your amount of exercise
- Stop smoking

Maintenance

Once weight loss is achieved, the patient should be followed up to maintain his/her body weight.

Obesity Health problems ?
How To Address?

To Address

Health Team

i. **Work with other health care team members to develop a comprehensive scheme for them.**
ii. **Create non-judgmental atmosphere.**
iii. **Consider barriers people might have.**

School Health Professionals

i. **Promoting Healthy Nutrition at School**
ii. **Increase daily physical activity of the students**
iii. **Implement a screening program to detect and provide appropriate care**

Medical Students

i. **Aware their relatives and friends**
ii. **Be a role model**

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MCQs

MCQ 1

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Role Play

Obesity
Counseling

Thank You

For Your Listening

Any Questions ?