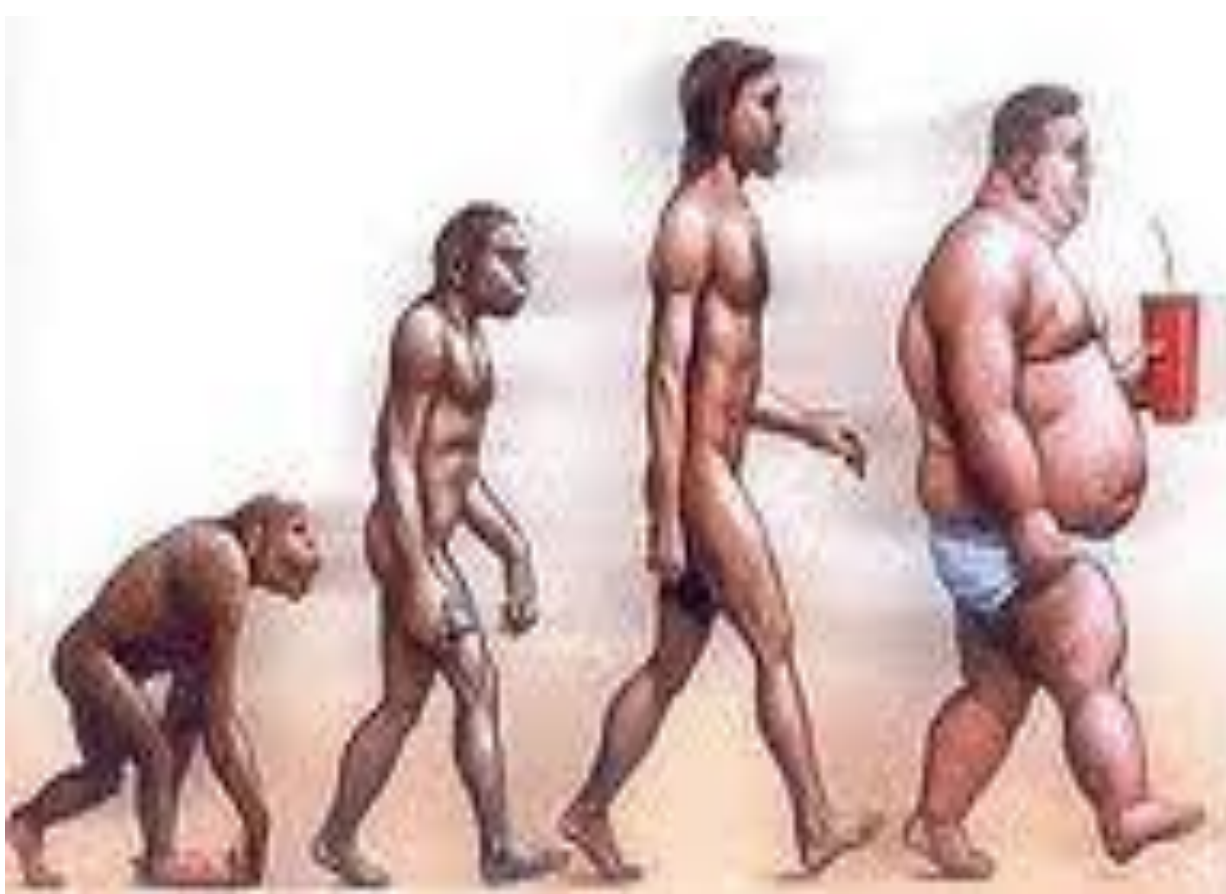


Evolution of Man & Obesity.....



Obese Patient

Grade	BMI (kg/m ²)
Under weight	< 18.5
Normal weight	18.5 – 22.9
Grade 1	23 – 24.9
Grade 2	25 – 29.9
Grade 3	> = 30

BMI (Body Mass Index)

- Calculate your BMI.....

causes for obesity

Lifestyle management

- *Consumption of fatty foods*
- *Overeating*
- *Unbalanced meal*
- *Lack of exercise*
- *Sedentary habits*
- *Unawareness and being ignorant of food nutrition*

Fatty foods



Overeating



Sedentary Lifestyle



Unawareness



Environment

- Lack of neighborhood sidewalks
- Work schedules
- Oversized food portions.
- Lack of access to healthy foods.
- Food advertising.

Oversized food portion and work schedule



Access to healthy food and advertising



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Genes and Family History

- Overweight and obesity tend to run in families.
- Chances of being overweight are greater if one or both of your parents are overweight or obese.

Overweight and obese family



Health Conditions

- hypothyroidism
- Cushing syndrome
- PCOD

Other Factors

- Age.
- Pregnancy.
- Lack of Sleep.

Lack of sleep, Age and pregnancy



effects of obesity

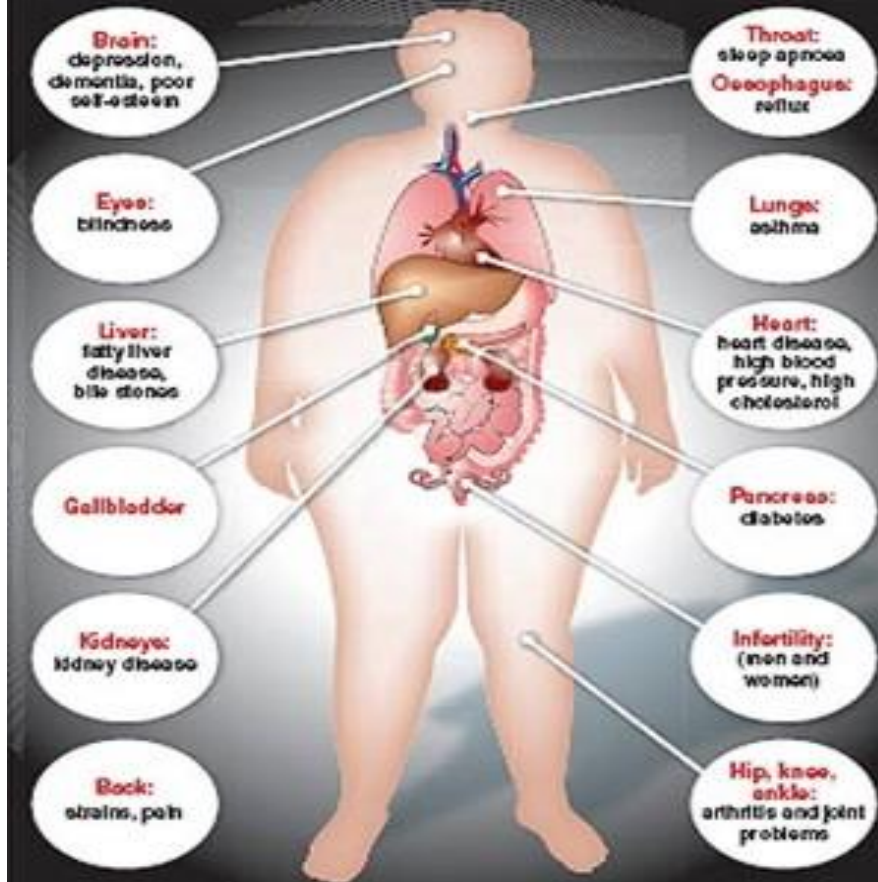
Complications of obesity - 1

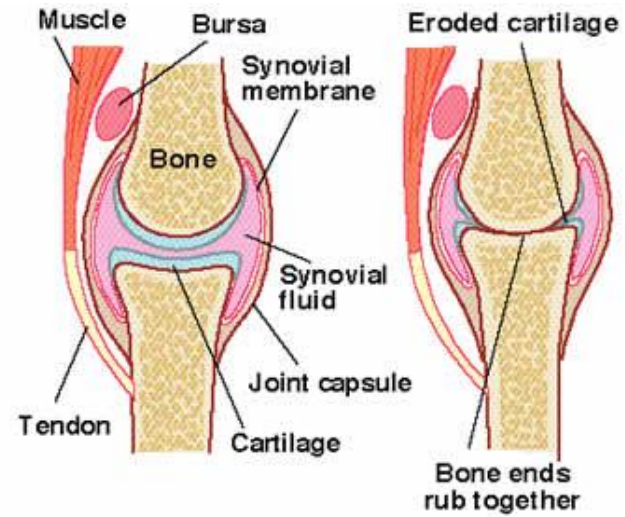
- **Hypertension**
- **Diabetes**
- **Coronary**
- **Artery Disease (CAD)**
- **Stroke**
- **Breathing problems**
- **Menstrual irregularity, Polycystic ovarian disease, Infertility**



OBESITY AND THE BODY

Diseases caused by obesity and where they strike





Normal joint

Osteoarthritis



Obesity & Cancer

TOPICS

Cancers associated with obesity

Cancers likely to be associated with obesity

Cancers with insufficient evidence for a relationship with obesity

Cancers unlikely to be related to obesity

The impact of obesity on cancer

How obesity might lead to cancer

Obesity and Cancer Risk

Summary

Obesity has been associated with increased risk of a number of types of cancer. The risk of cancers of the colon and rectum, breast, body of the uterus (endometrium), kidney and esophagus have all been associated with obesity. Other cancers whose risk is likely to be related to obesity are cancers of the pancreas, liver, gall bladder and the cardia (uppermost region) of the stomach. The level of risk for most of these cancers is moderate, having relative risk values between 1.5 and 2.9. The contribution of obesity to the occurrence of cancer is considerable. In high income countries, such as the United States, obesity is considered to be the third largest contributor to cancer incidence behind smoking and alcohol use.

Program on Breast Cancer
and Environmental Risk
Factors (BCERF)

College of Veterinary Medicine
Vet Box 31
Cornell University
Ithaca, NY 14853-6401

Telephone: 607 254-2893
Fax: 607 254-4730

Email: brcancer@cornell.edu
Web: <http://envirocancer.cornell.edu>



Cornell University

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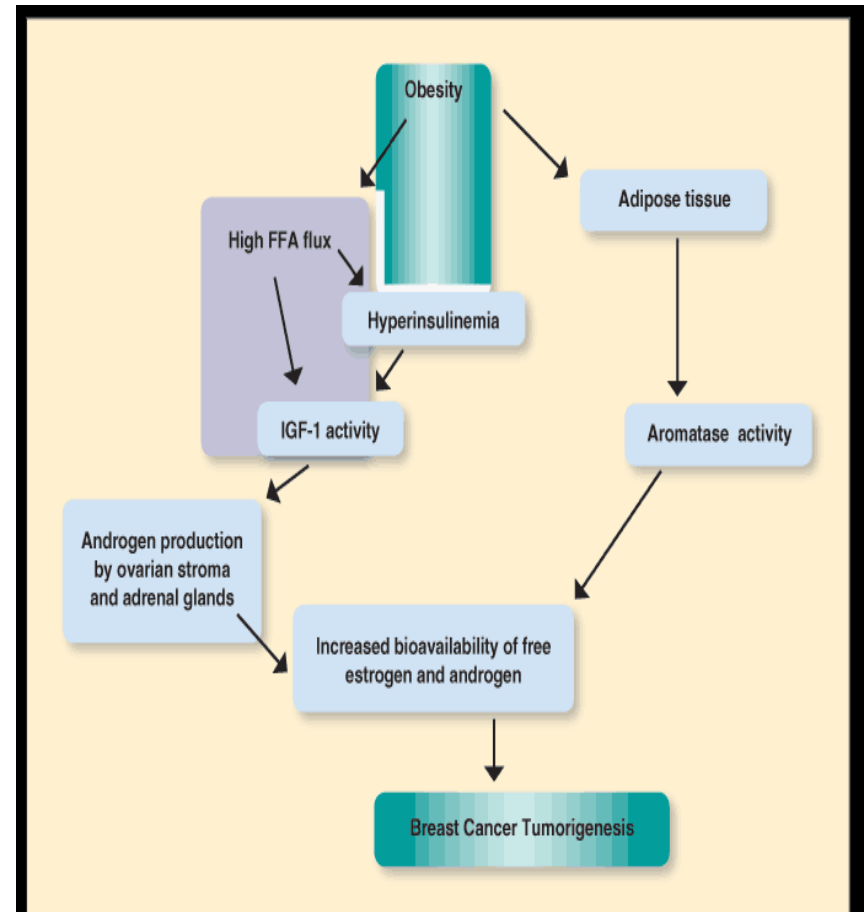
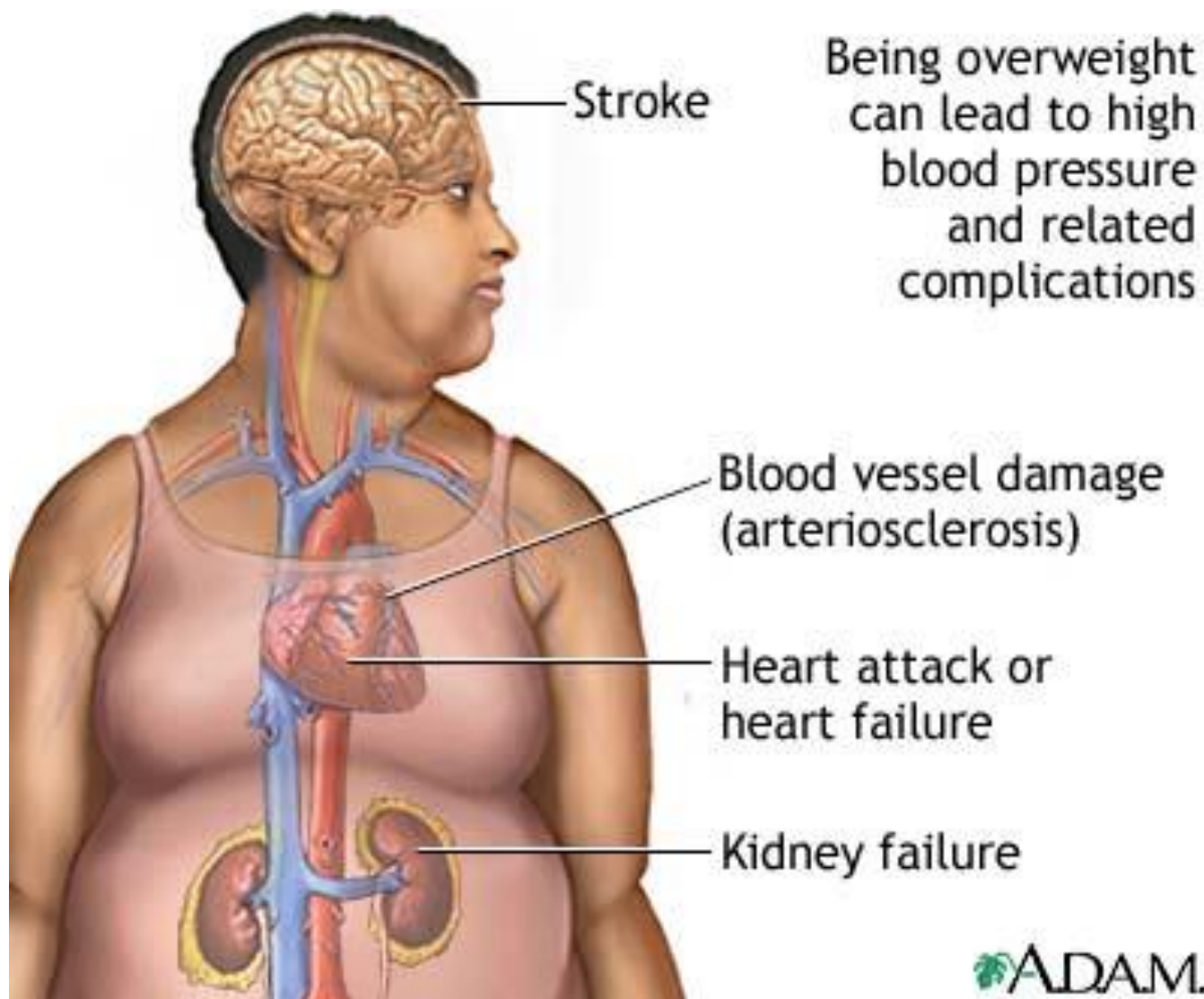


Figure 1: Obesity-Breast Cancer Link – Possible mechanisms of the effect of obesity on breast cancer tumorigenesis. FFA = free fatty acid; IGF-1 = insulin-like growth factor type 1.

Obesity : Complications



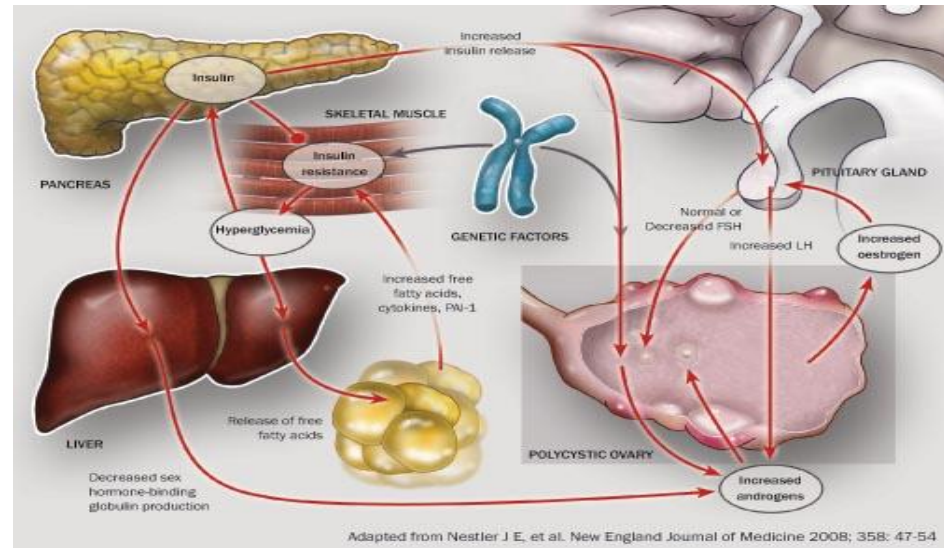
- Type 2 diabetes
- Hypertriglyceridemia/
Low HDL cholesterol
- Hypertension
- Non-alcoholic fatty liver disease/
Non-alcoholic steatohepatitis
- Inflammation
- Hyperuricemia
- Insulin resistance
- Polycystic ovarian syndrome



Obesity & PCOD

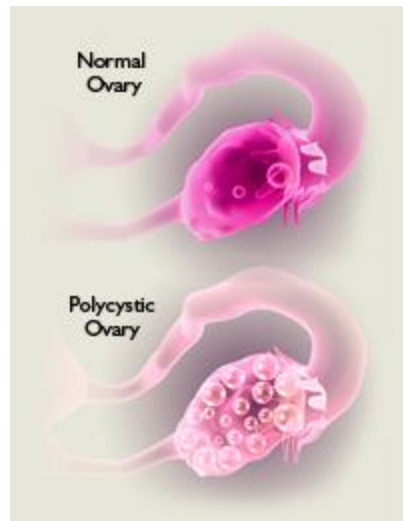
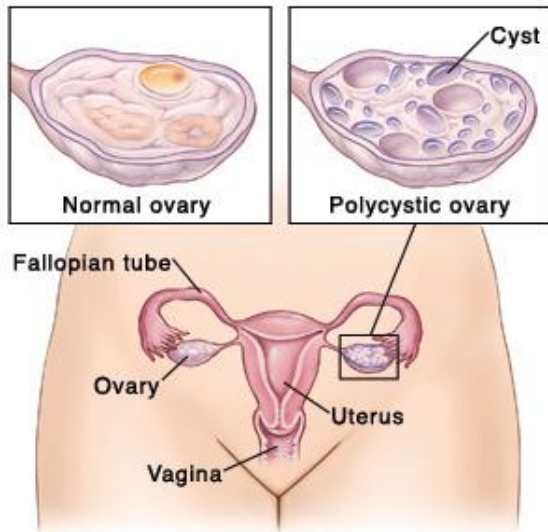
- ▲ free fatty acids (FFA) in blood
- ▲ insulin level in blood
- ▼ **SHBG** (sex hormone binding globulin)
- ▲ free androgens
- ▲ Serum LH
- ▼ serum FSH

Irregular, anovulatory cycles,
infertility, unwanted hairs



Adapted from Nestler J E, et al. New England Journal of Medicine 2008; 358: 47-54





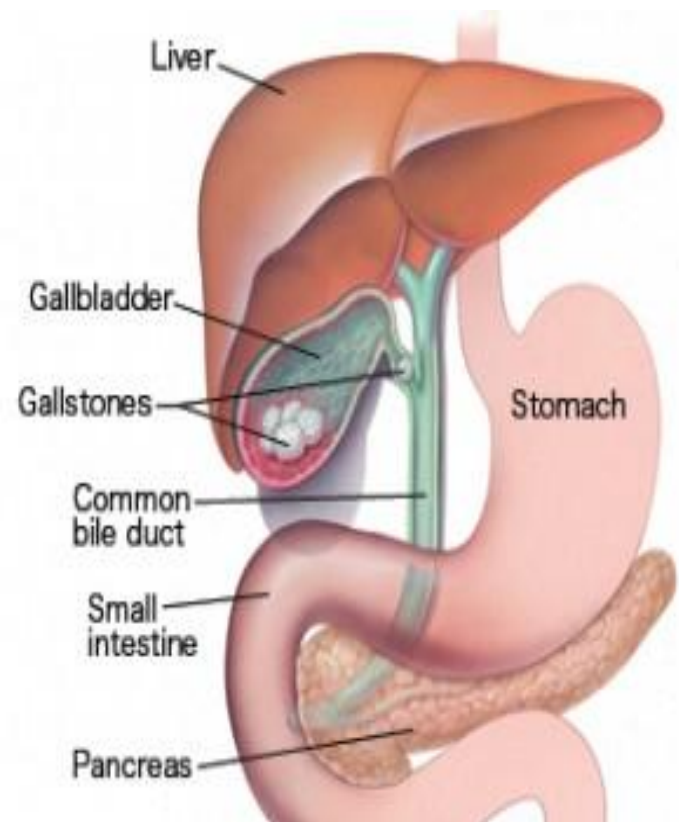
Polycystic Ovary Syndrome

PCOS or polycystic ovary syndrome is a common cause for difficulty in pregnancy. It affects 5 to 7.5 percent of all women during their childbearing years, and may be higher for Indian women.

Common Characteristics:

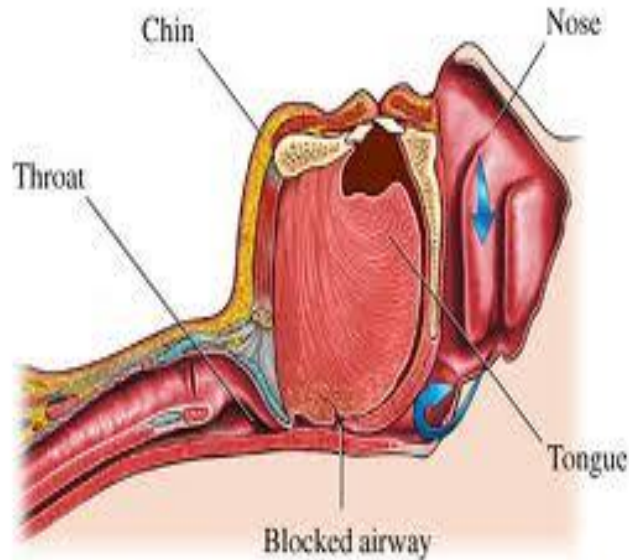
Irregular periods due to the lack of ovulation (Anovulation), infertility, acne, excessive facial and body hair growth (Hirsutism), thinning of scalp hair, weight in abdominal area (present in 50-60 percent of patients with PCOS, with a tendency for fat distribution along the torso).





Complications of obesity

Obstructive Sleep Apnoea (OSA)



- **Symptoms:**

- Excess snoring at night,
- Choking and shortness of breath during sleep, Tiredness while getting up,
- Day time sleepiness

- **Consequences:**

- High blood pressure
- Breathlessness
- Right sided heart failure



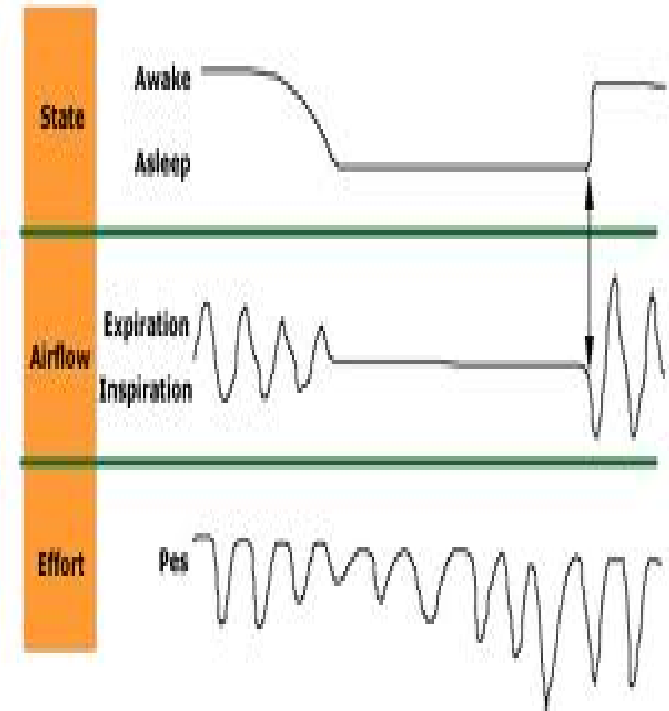
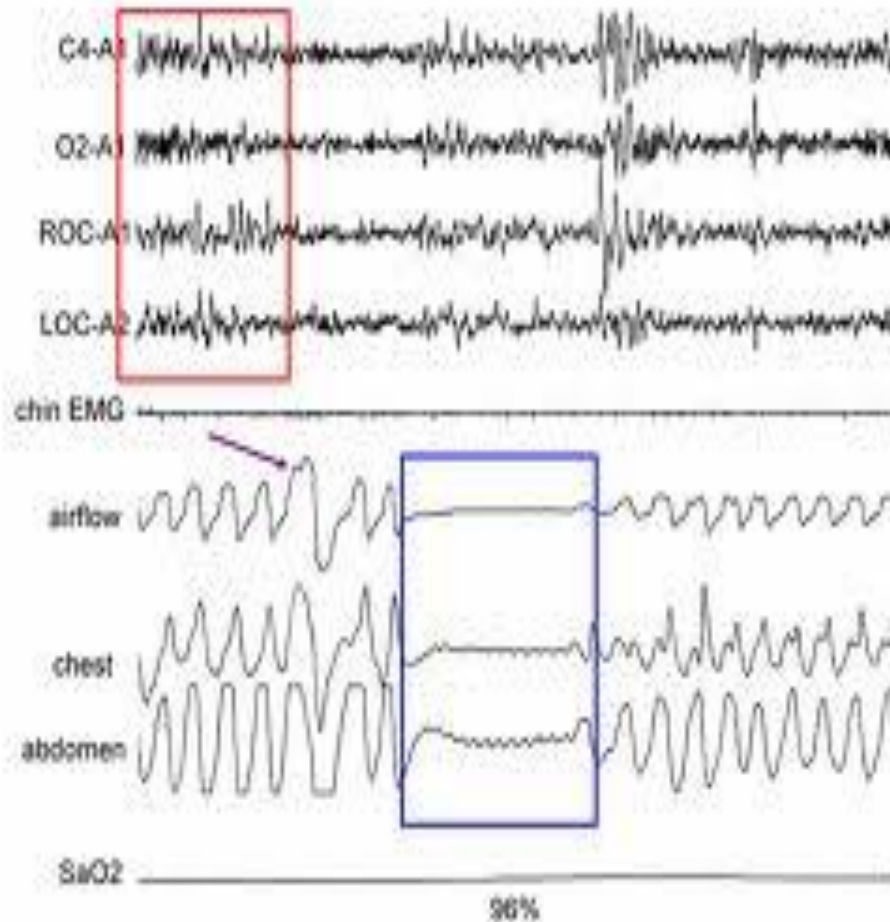
Normal Breathing
- Airway is open
- Air flows freely to lungs



Obstructive Sleep Apnea
- Airway collapses
- Blocked air flow to lungs

Diagnosis of Sleep Apnoea

Sleep study (polysomnography)



(Continuous Positive Airway Pressure) CPAP



Treatment of sleep apnoea

- Weight Reduction
- Bariatric surgery
- CPAP (Continuous Positive Airway Pressure)

Treatment for obesity

Treatment for obesity

- Balance diet
- Regular exercise
- Proper sleep
- Stress management
- Group discussion
- Adhere to therapy (if given by doctor)

Diet

- Take fiber rich food compulsory (atleast 2-3 option before meal)
- Daily one fruit
- Timely meals
- Avoid taking more of simple carbohydrate
- Avoid junk food, fatty foods and bakery products
- Non vegetarian – twice in a week



Fruits to eat, any one



Can have vegetables



Instead of:

Sweetened juice, canned fruit in heavy syrup, or sweetened applesauce

Starchy vegetables like potatoes, corn, and peas

Refined grains made with white flour like white bread, pasta, bagels, and white rice

Sugared cereals like Lucky Charms®, Fruit Loops®, or Frosted Flakes, and other sweetened grains like cereal bars (Nutrigrain Bars®), breakfast pastries (Pop tarts®), and donuts

Sugary drinks like soda or juice

Sugary foods like cookies, cakes, and candy

Choose:

✓ **Fresh fruits** or frozen/canned fruit without added sugar, or unsweetened applesauce

✓ **Non-starchy fresh vegetables** or frozen/canned vegetables like broccoli, spinach, and carrots.

✓ **Whole grains** like whole wheat pasta, brown rice, and whole wheat bread

✓ **High fiber cereals** like Kashi®, shredded wheat, or All Bran®. Try to have a cereal that has at least 5 grams of fiber per serving. Sprinkle 1/2 cup of bran cereal or unprocessed bran on a low-fiber cereal to increase the fiber

✓ **Sugar free drinks** like water, diet soda, Crystal Light®, Fruit2O®, Minute Maid Light®, and seltzer water

✓ **Sugar free foods** like Jell-O®, popsicles, yogurt, and pudding

Vegetables and fruits to be restricted....



Timely meals

Breakfast 8.00 – 8.30 a.m	2 chapati + 1k of curd + 1k of veg / 2 k of Dalia + 1k of curd/ Oats + 1 glass of milk.
Mid morning 11.00 a.m.	1 fruit option
Lunch 1.30 – 2.00 p.m.	1 k of salad (cucumber + tomato + onion + radish + cabbage + carrot) 1chapati (small size)+1 k of rice + 1 k of thick dal + 1k of veg + 1 k of curd.
Mid evening 5.00 p.m.	1 k of roasted channa/1 k of sprouts/ 2 besan dosa /murmura channa (1:4 ratio)/ 2 egg white
Dinner 8.00 p.m.	1 k of salad (cucumber + tomato + onion + radish + cabbage + carrot) 2 chapati (small size) + 1 k of thick dal + 1k of veg + 1 k of curd.
Maintain 2 hrs gap b,w	dinner and sleep time

More often can have



Can have once or twice in a week



Healthy snacks



Fruits, Sprouts, Vegetables



Avoid junk, fatty food and bakery products



High Salt food



Non veg option

- Chicken or fish 2 – 3 small pieces, grilled roasted form
- If taking regularly can reduce amount or no of days
- Try to avoid mutton
- Can have egg white

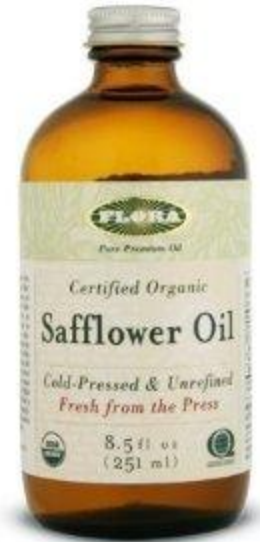


General recommendations

- Type of oil used – 0.6 kg/head/month
- If possible good to rotate oil montlywise
- 3-5 tsp of oil/day
- Avoid ghee or dalda



Avoid oil



Protein intake

- 1 gram per kg present body weight
- Present in milk (fat free) and milk product like curd, buttermilk, home made paneer.
- Present in all types of pulses



Exercise

Minimum 5 days a week for 30 – 45
minutes

Types of Exercises

Cycling



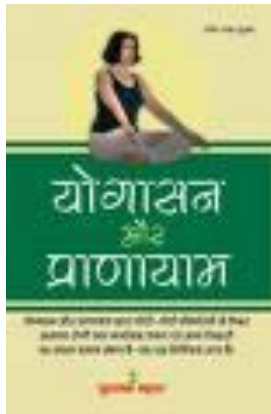
Walking



Jogging



Treadmill



Walley ball



Swimming



Sit ups

If not able to find time for exercise
then can do activity such as



Proper sleep

- Minimum 7 hours of sleep is required



Group discussion



Major point that helps to treat obesity

- Balance diet at all major meal (preferably home made)
- Check with fiber and protein intake
- Day eat more = exercise more
- Regular exercise
- Proper sleep

Drugs for obesity

- Fiber preparations
- Orlistat (intestinal lipase inhibitor)

Bariatric surgery

Thank you