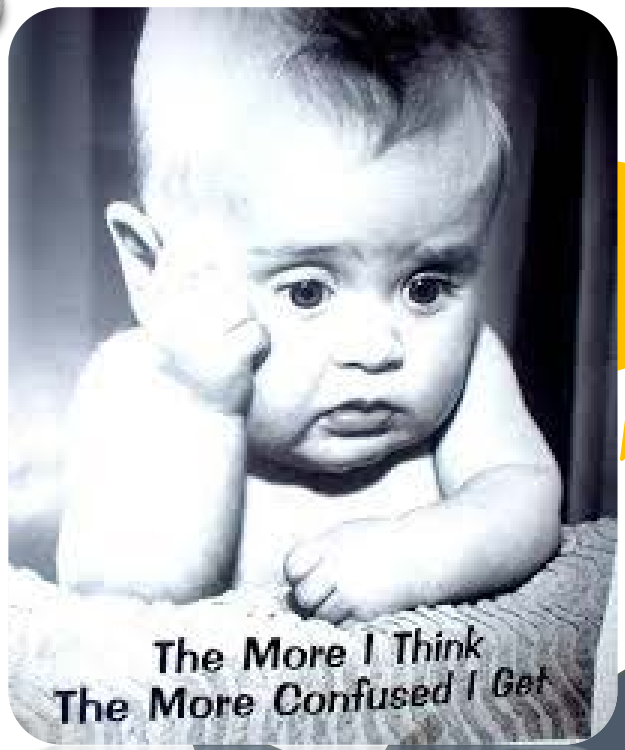
Dames en here, appels of pere…?

Gentle sir and lady fair, an apple or a pear…?

Louise van den Berg
Department of Nutrition and Dietetics

UFS UV



Carbohydrate sensitive?

Glucose intolerant?

Insulin insensitive?

Sugar sensitive?

Carbohydrate intolerant?

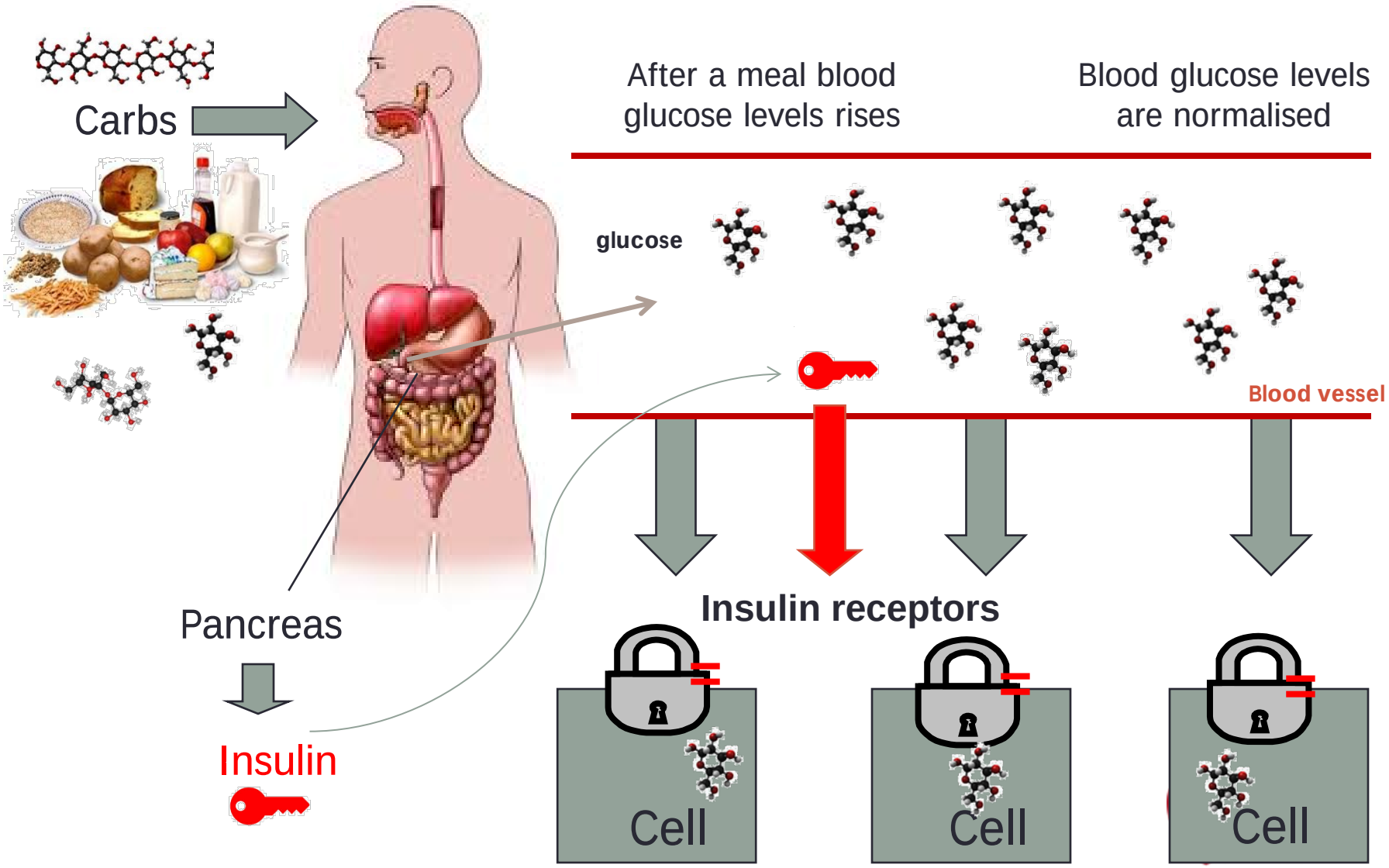
Insulin resistant?

UFS UV

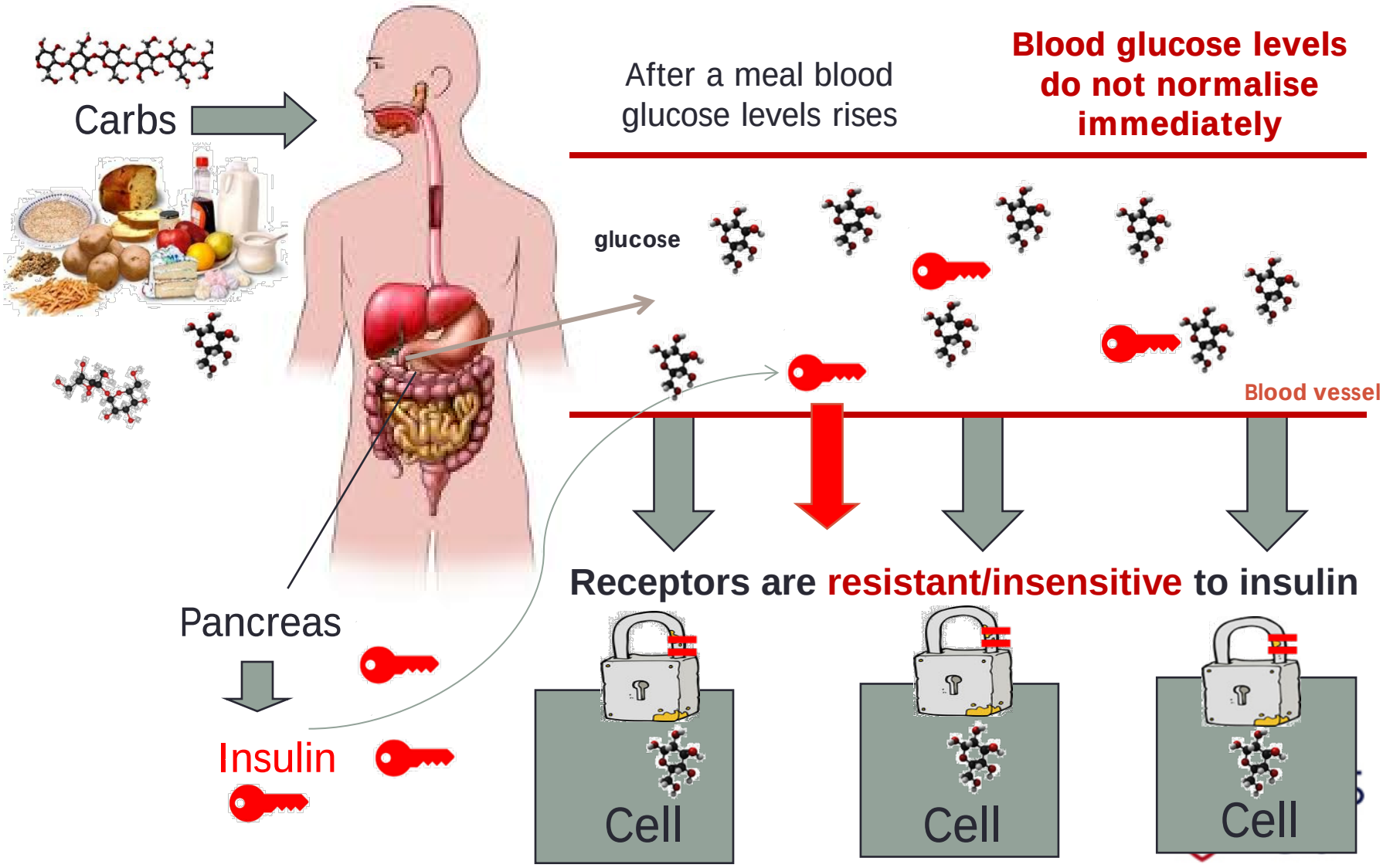
CARBOHYDRATES = CARBS

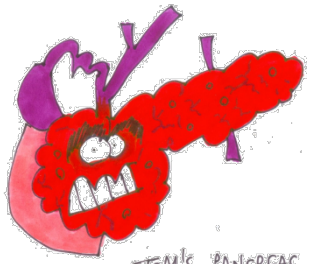
UFS UV

Normal blood glucose control:

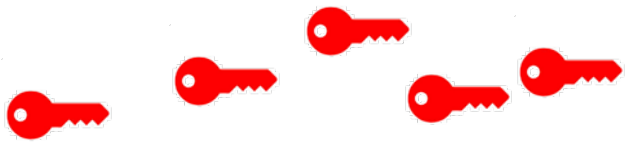


Insulin resistance → progressive glucose intolerance





Pancreas works overtime to try and produce enough insulin



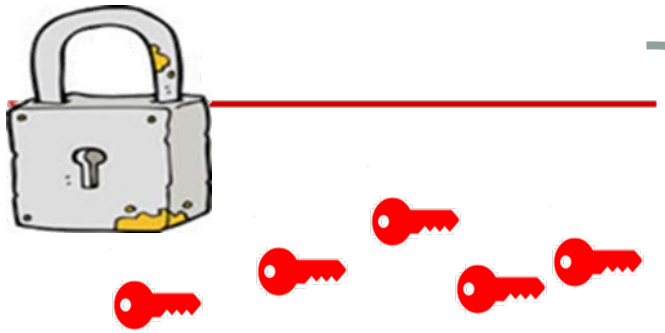
High circulating levels of insulin

- Kidney struggles to excrete sodium (salt) → High blood pressure
- High levels of bad cholesterol and free fatty acids in blood
- Some fat get trapped in the liver
- Blood glucose levels rise
- Kidney struggles to excrete uric Uric acid build up in the blood and joints
- Some women develop an excess of male hormones

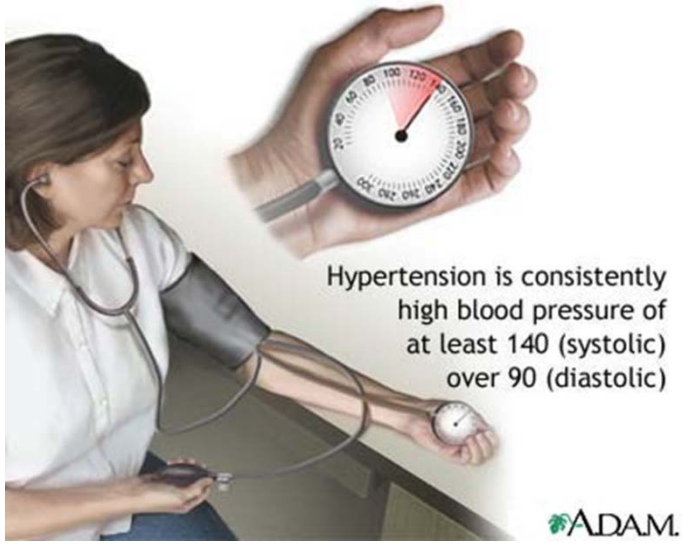
GETS PROGRESSIVELY WORSE OVER TIME

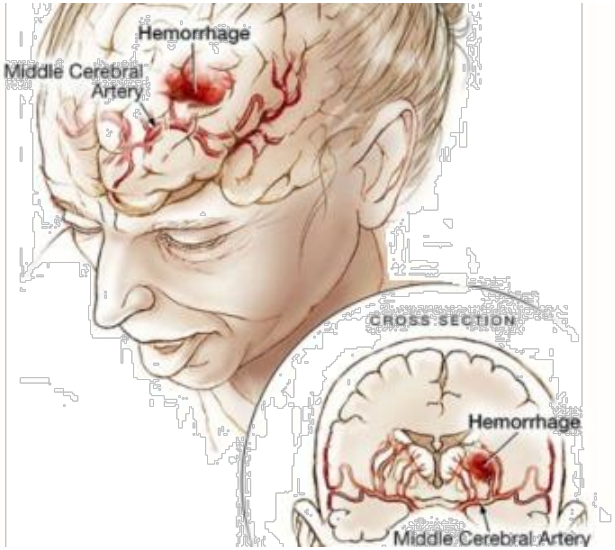
MOSTLY WITH very FEW SYMPTOMS!

UFS UV

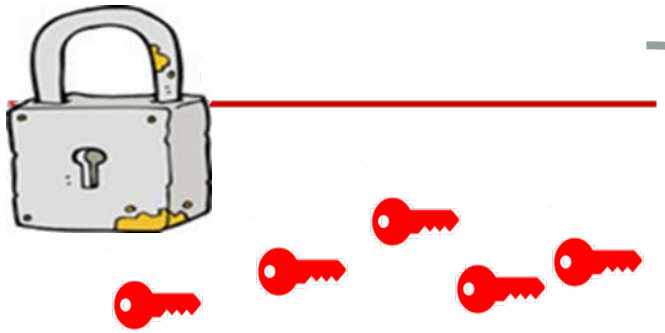


High circulating levels of insulin





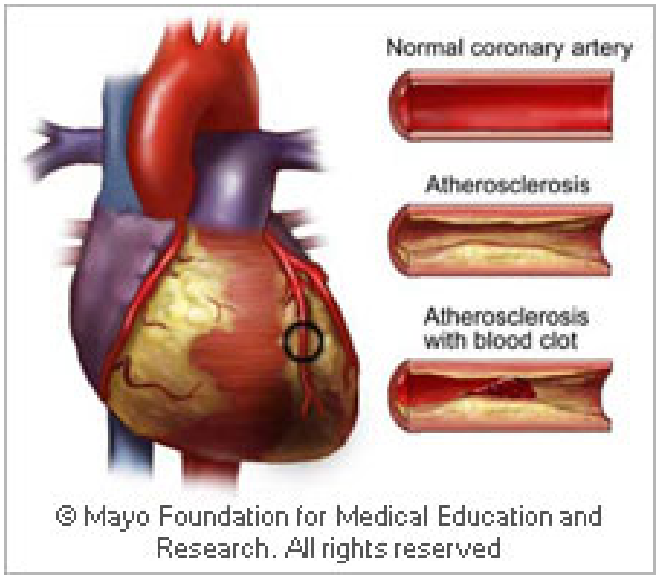
UFS UV

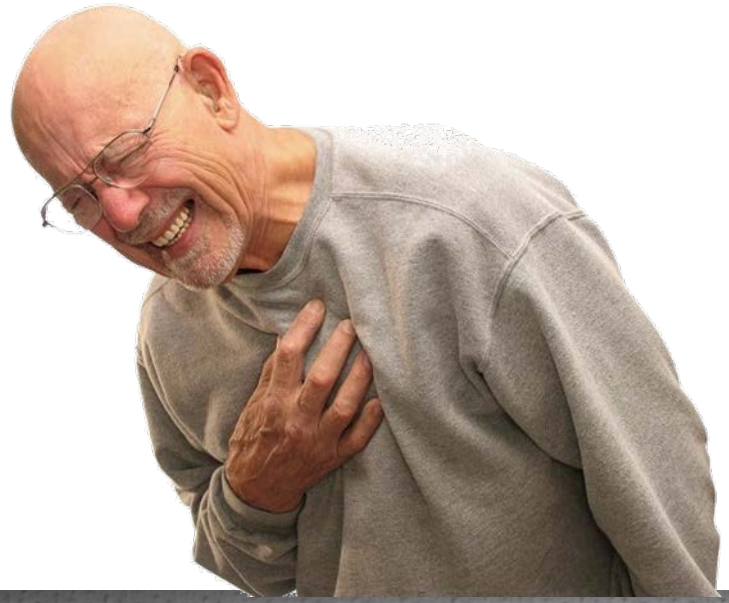


High circulating levels of insulin

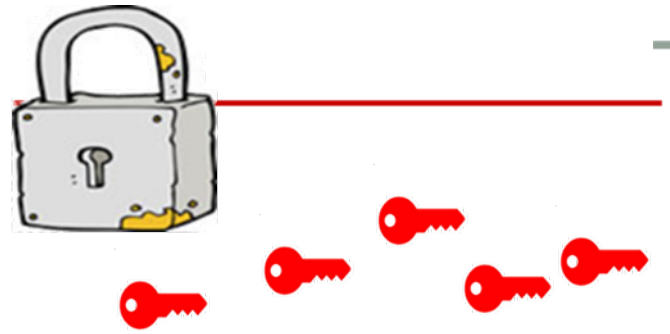
High levels bad cholesterol types in the blood

Lipids form plaques in the walls of the arteries

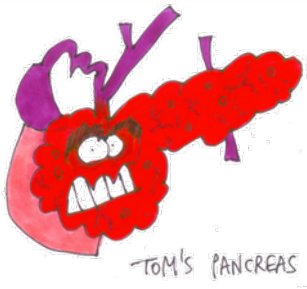


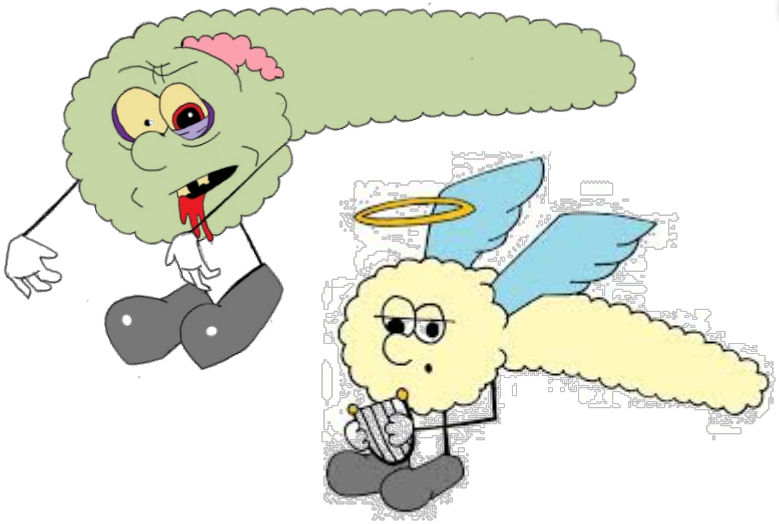


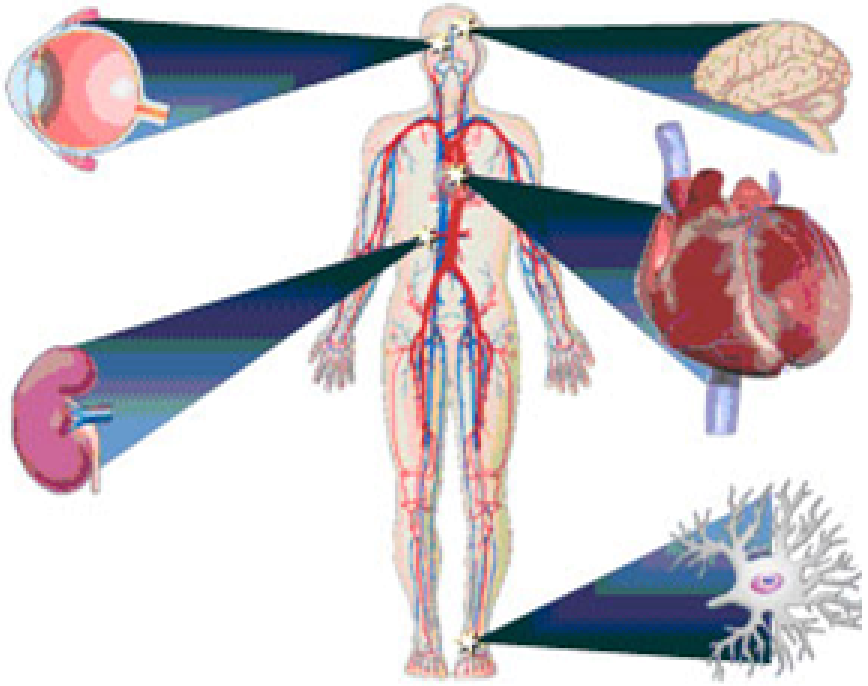
UFS UV



High circulating levels of insulin

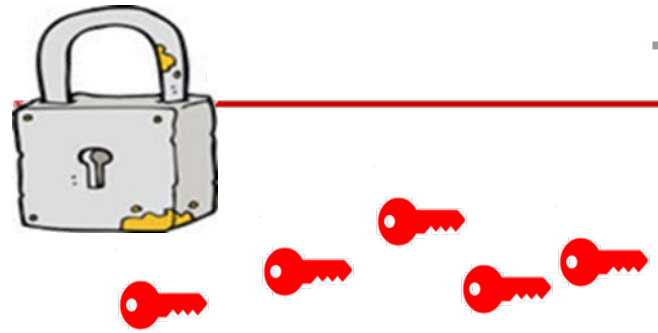






TYPE 2 DIABETES

UFS UV



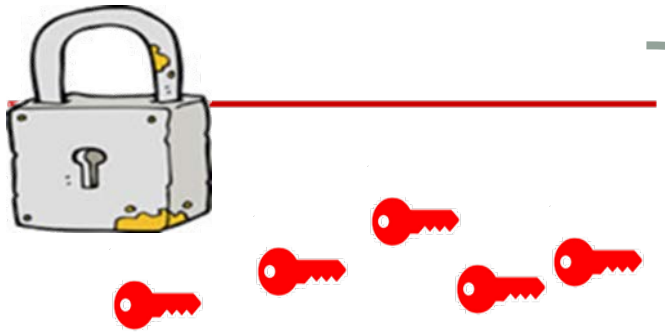
High circulating levels of insulin

HIGH LEVELS OF FREE FATTY ACIDS IN BLOOD

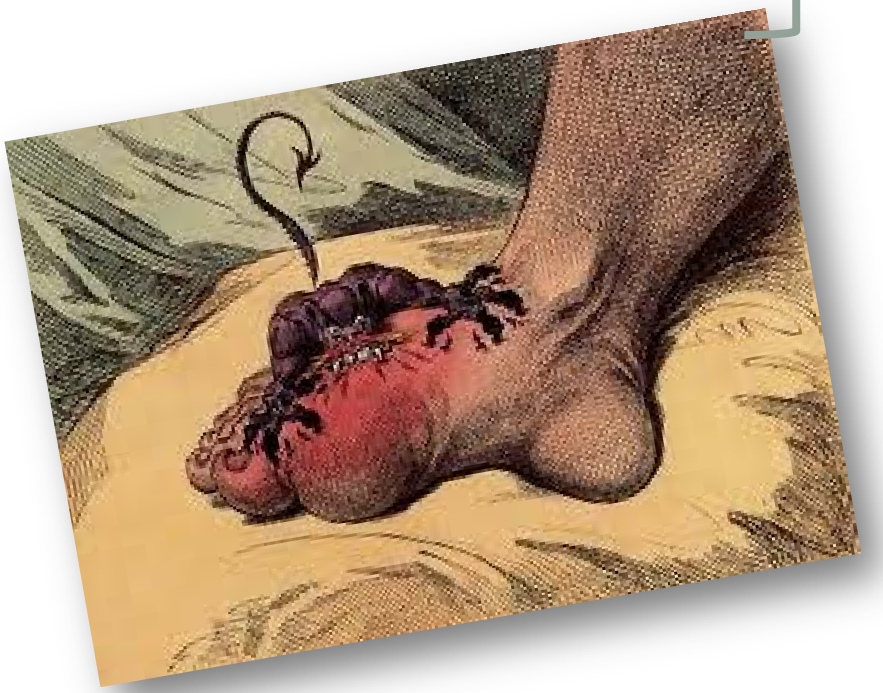
Fats get trapped in the liver

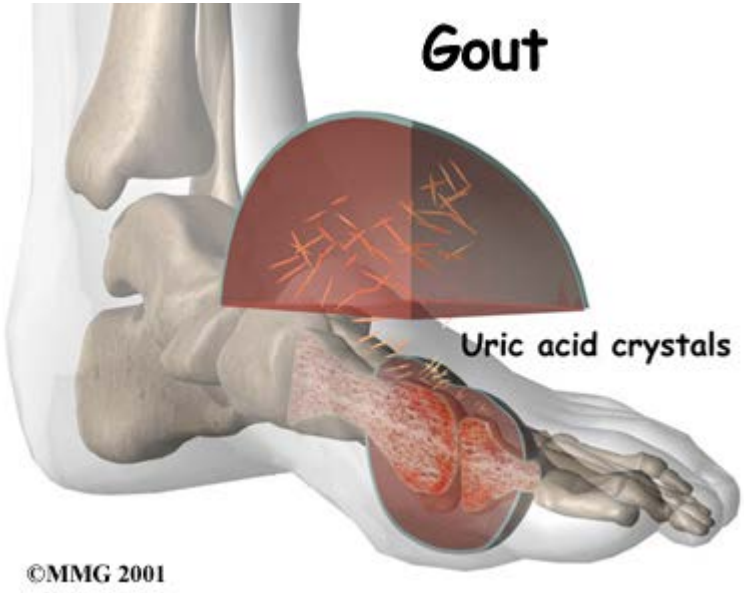
FATTY LIVER

UFS UV



High circulating levels of insulin

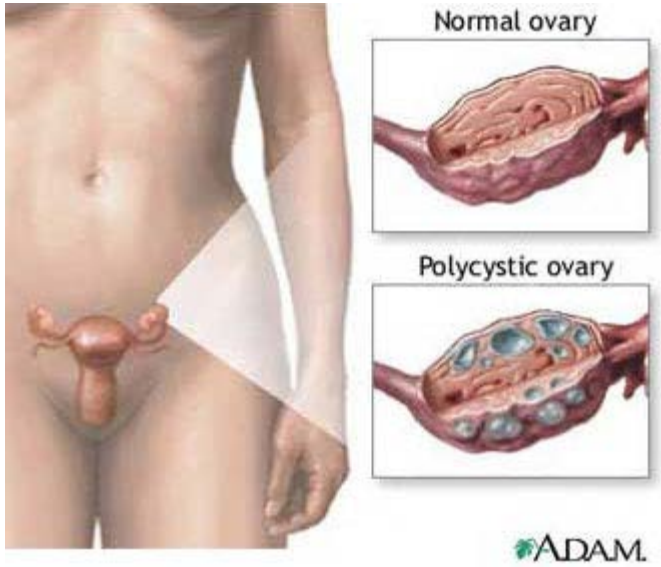




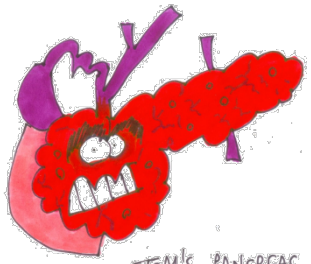
UFS UV

- Erratic periods
- Absence of periods
- Ovarian cysts
- Infertility

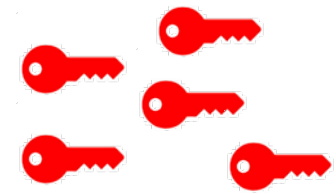
- Acne
- Dark skin discoloration behind the neck
- Excessive male type hairiness
- Hair loss
- Skin tags



UFS UV



Pancreas compensates by producing more and more insulin



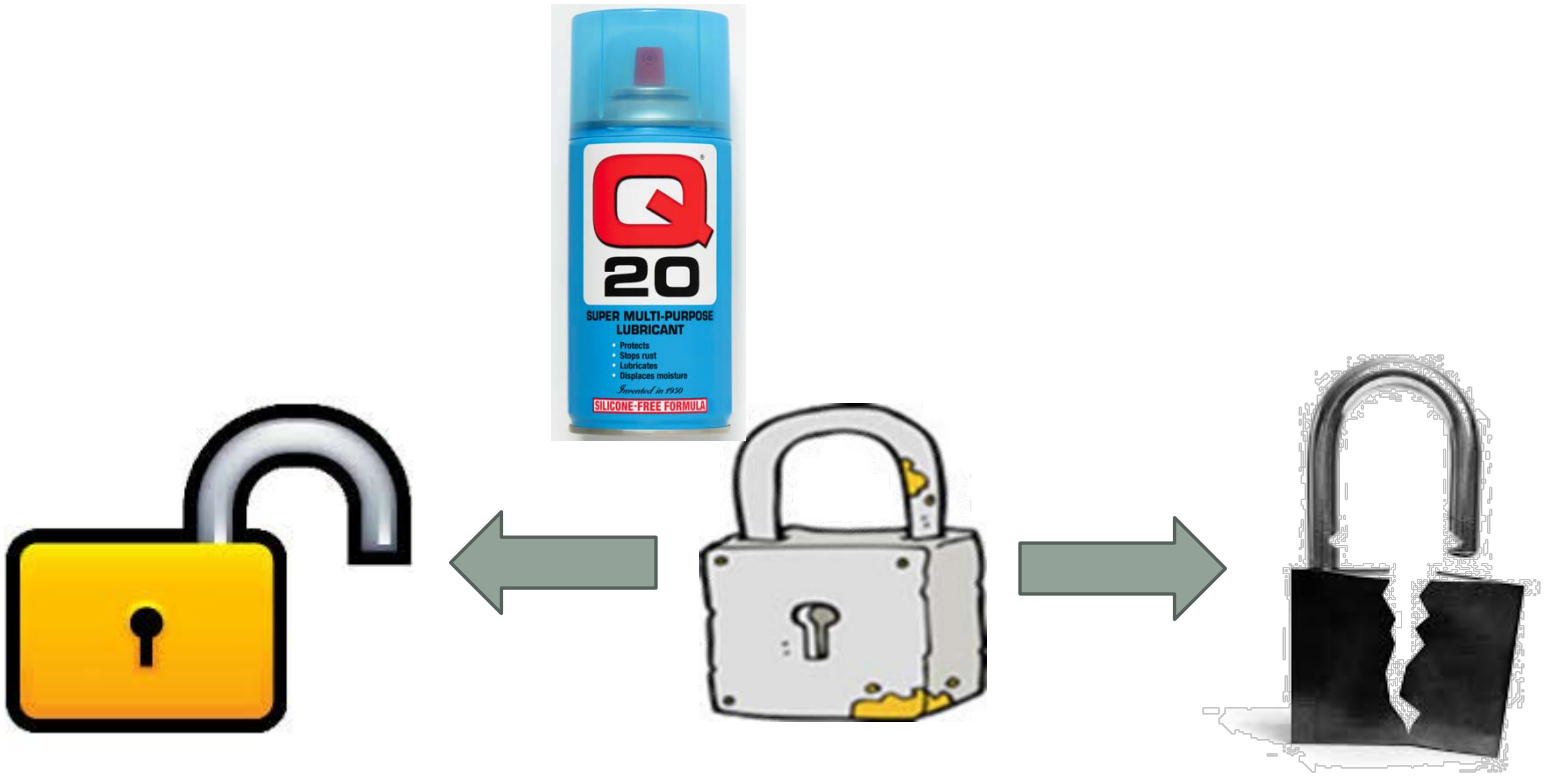
Hyperinsulinemia

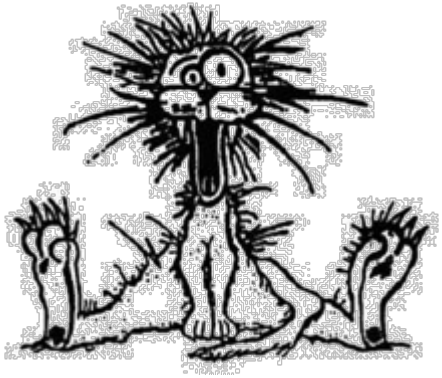
WORSENS OVER TIME

ENDS IN VARIOUS CHRONIC DISEASES

- Hypertension
- Blood lipids rise
- Lipids get trapped in liver
- Blood glucose levels rise
- Decreases the excretion of uric acid by kidney
- Excess of testosterone in women

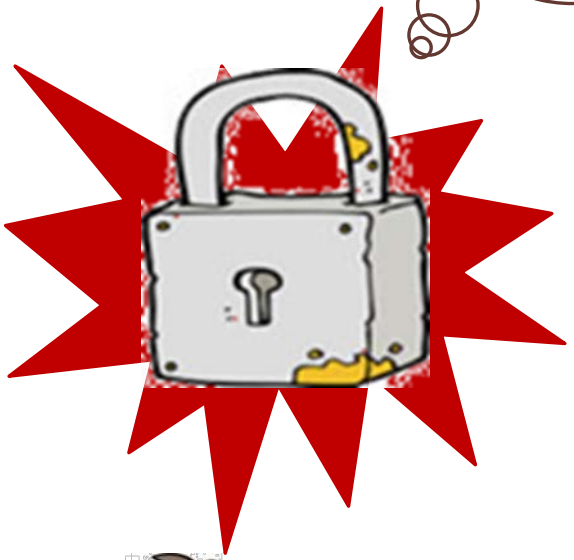
- **Arteriosclerosis**
- **CVD → Heart attacks or stroke**
- **Fatty liver (NAFLD)**
- **Type 2 Diabetes**
- **Gout**
- **PCOS**


Q
20
SUPER MULTI-PURPOSE
LUBRICANT
Protects
Stops rust
Lubricates
Displaces moisture
Invented in 1930
SILICONE-FREE FORMULA



STRESS

Specific types of food or ways of combining foods?

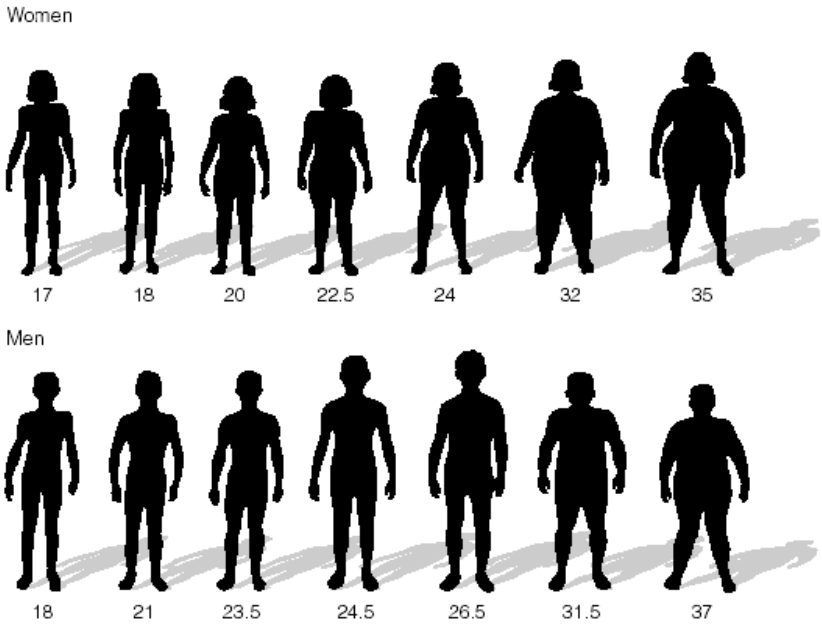


Lack of sleep

UFS UV

CLASSIFICATION	BMI kg/m^2
Underweight	<18.5
Normal	18.5-24.9
Overweight	25.0-29.9
Obesity, class I	30.0-34.9
Obesity, class II	35.0-39.9
Extreme obesity, class III	≥40

When am I at risk?



JUST LOSING **5 – 10%** of current weight
…and **not** regaining it

Significantly increases insulin sensitivity

UFS UV

USA national institute of health (NIH)

For the first 6 months :

BMI 27-35 kg/m^2

- 250g-500g per week

BMI > 35 kg/m^2

- 500g-1kg per week

Next 6 months:

Try to maintaining the weight loss

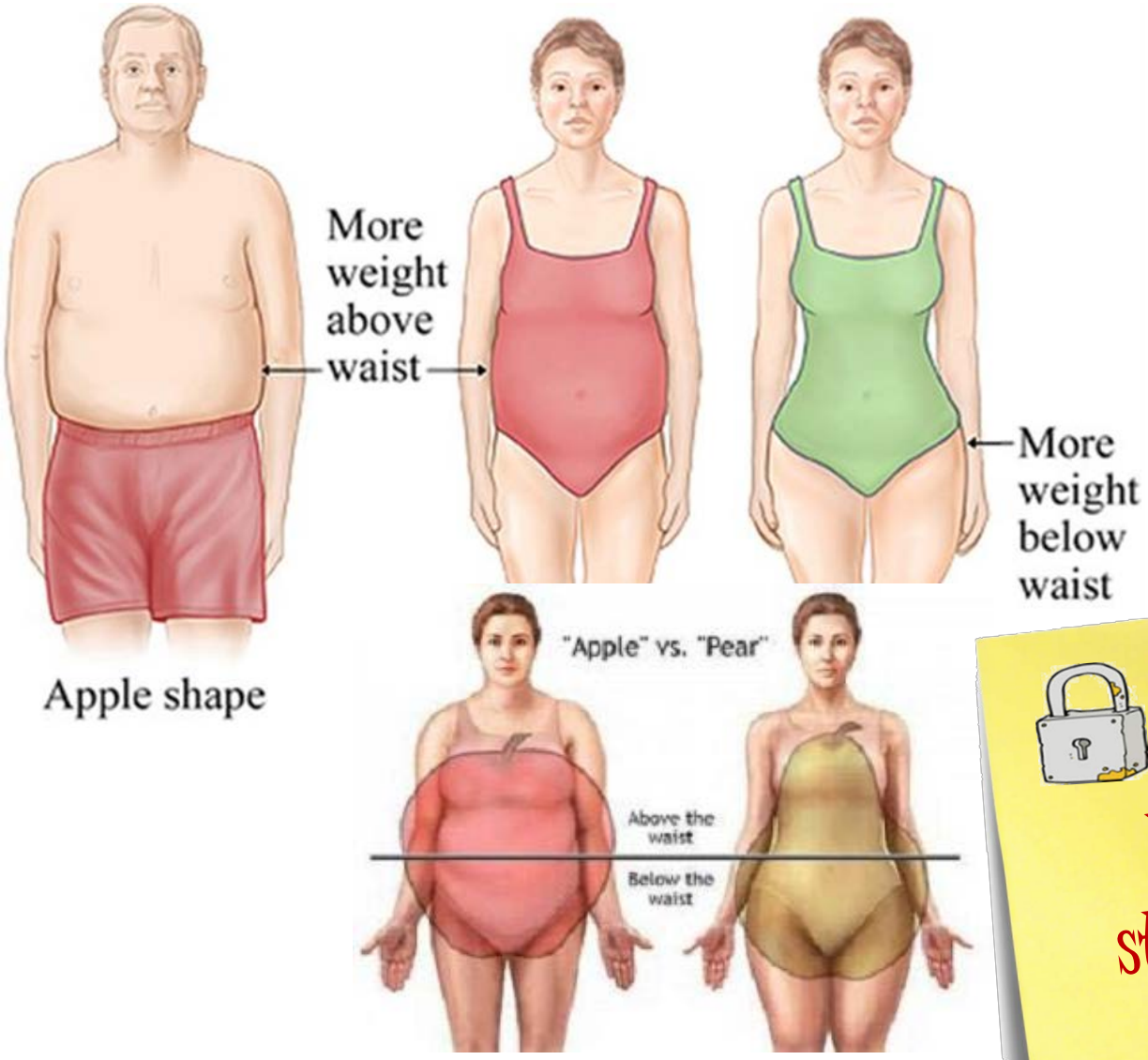
Next 6 months:

Consider further weight loss

Rate of loss:

Men > women

More obese > less obese

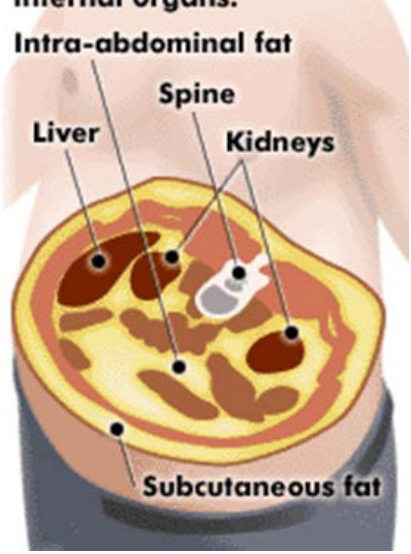


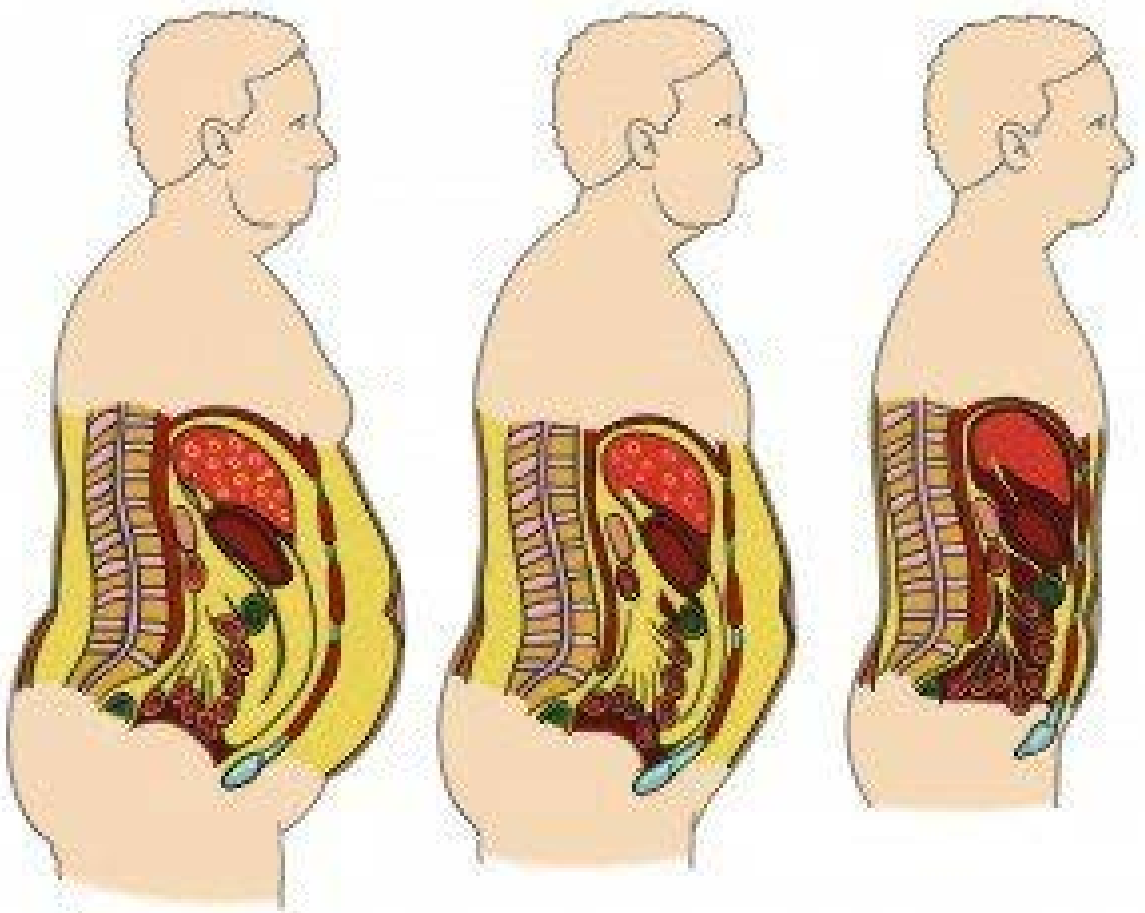
Where do I store my fat?

UFS UV

A hidden, dangerous fat

This is a cross-sectional view of the abdomen. The intra-abdominal or visceral fat surrounds internal organs.





UFS UV

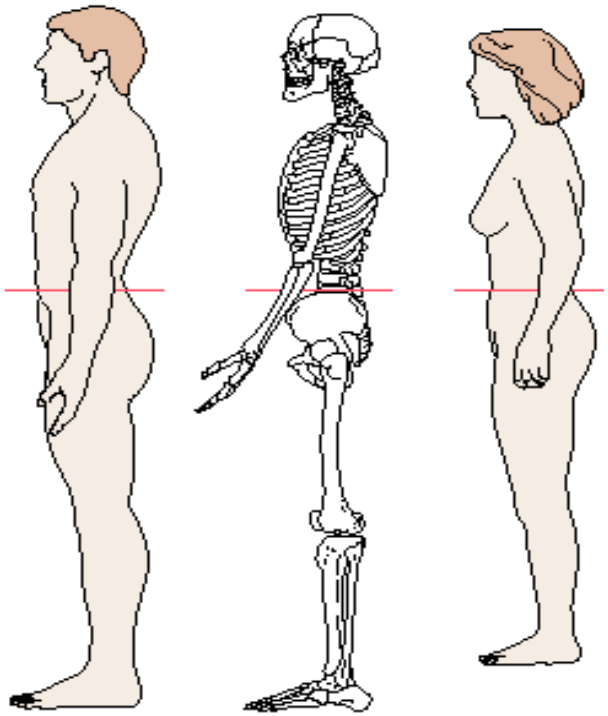


Figure 7–4

Measuring Waist Circumference
Using a nonstretching tape measure, measure the body around the point just above the iliac crest. Take the measure at the end of a normal expiration. A healthy waist circumference for men is no larger than 102 centimeters (40 inches); for women, no larger than 88 centimeters (35 inches).

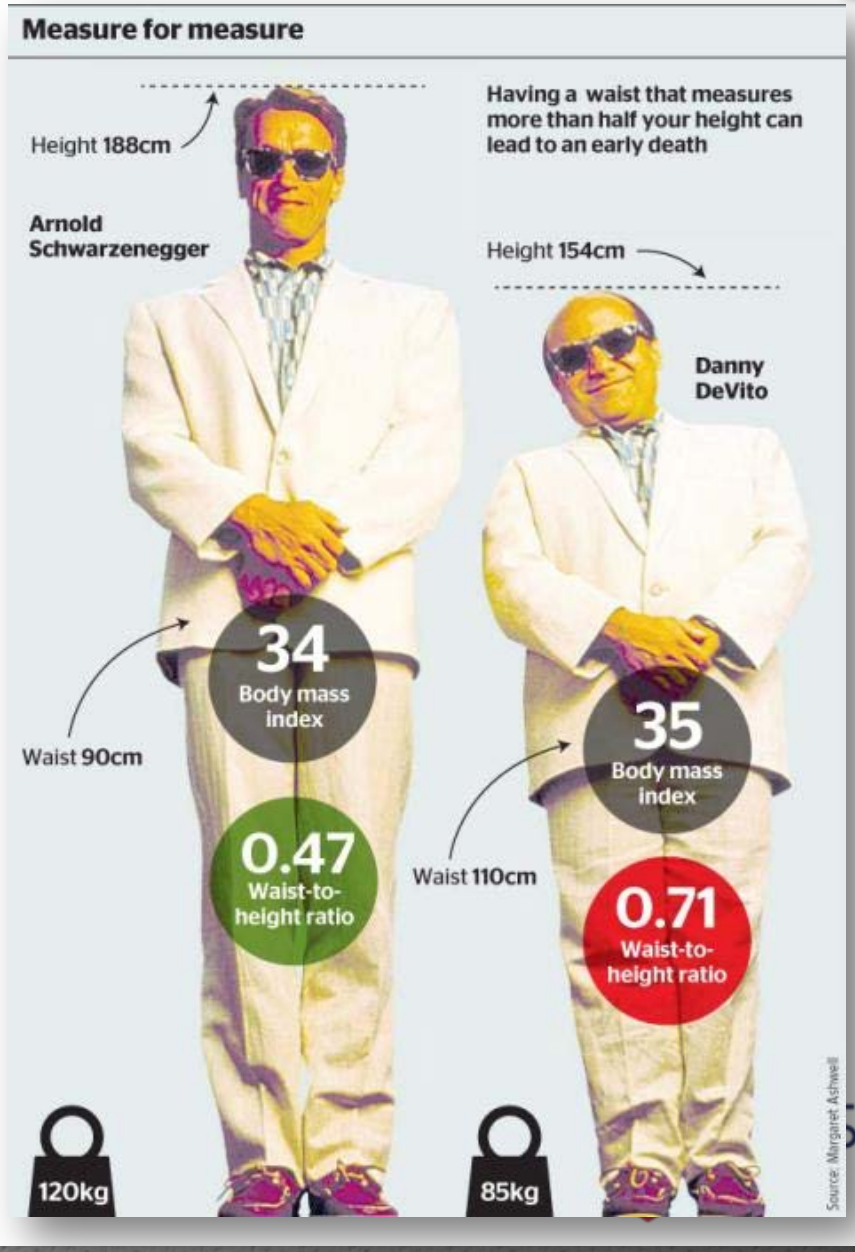
Waist circumference

Men:	≥ 94 cm
Women:	≥ 80 cm

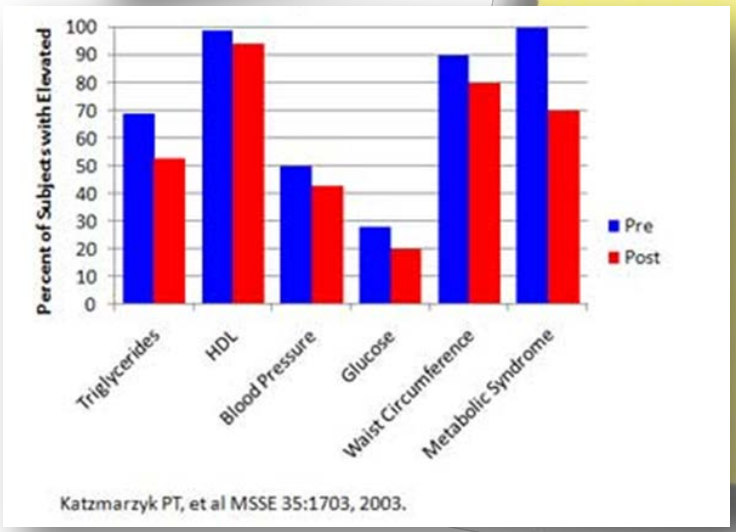
UFS UV

WHtR = $\frac{\text{waist circumferance (cm)}}{\text{height (cm)}}$

≤ 0.5



- Uses energy
- Builds more lean body mass
- Increase metabolic rate
- Increase insulin sensitivity
- Strengthens heart and lungs
- Helps control appetite
- Has psychological benefits
- Limits boredom
- Increase sense of control
- Increase sense of well-being
- Decreases chances of weight regain



Exercise DOES NOT cause spot reduction

I lose fat from the areas with the largest concentration

of fat

UFS UV

Warm up

Start with short slow bouts

Gradually increase

Consistency is the key

Eventually maintain 20-30 min/day of moderate intensity activity 4-7 days per week

Aerobic + resistance exercise

Ideal: 60-90 min per day
But difficult for
obese to achieve

Significant health benefits attained by 30 min/day of moderate intensity activity

UFS UV

Specific types of food or ways of combining foods?

Best carbs

High in fiber
Low GI
High in protective nutrients

UFS UV

Carbs best limited:

Specific types of food or ways of combining foods?

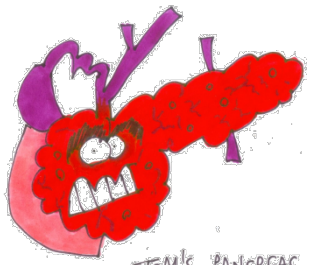
High in fat
Low in fiber
Low in nutrients

Specific types of food or ways of combining foods?

`Keep fructose intake less than 50g per day

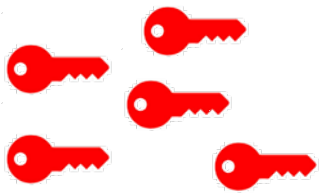
Limit to no more than 1 glass per day

UFS UV



Pancreas compensates by producing more and more insulin

Hyperinsulinemia



WORSENS OVER TIME

Hypertension

Blood lipids rise

Blood glucose levels rise

Excess of testosterone in women

Limit salt

Limit trans fats saturated fats and cholesterol

Limit alcohol

Beware excess of proteins

Split carbs and protein food in diet

Arteriosclerosis

CVD → Heart attacks or stroke

Fatty liver (NAFLD)

Gout

=

Maintain healthy weight
Exercise
Sleep enough
Handle stress
Eat a balanced diet

UFS UV