



**Summer School “Safety in the
Food Chain”
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Czech University of Life
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Republic**



Healthy lifestyle and dieting

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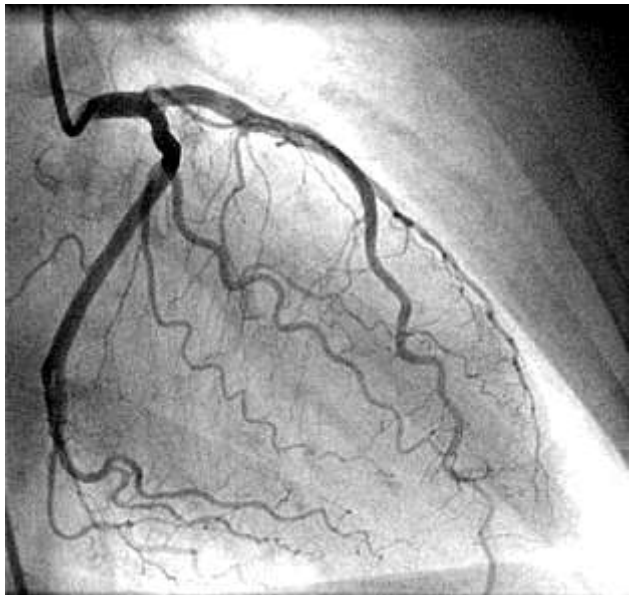
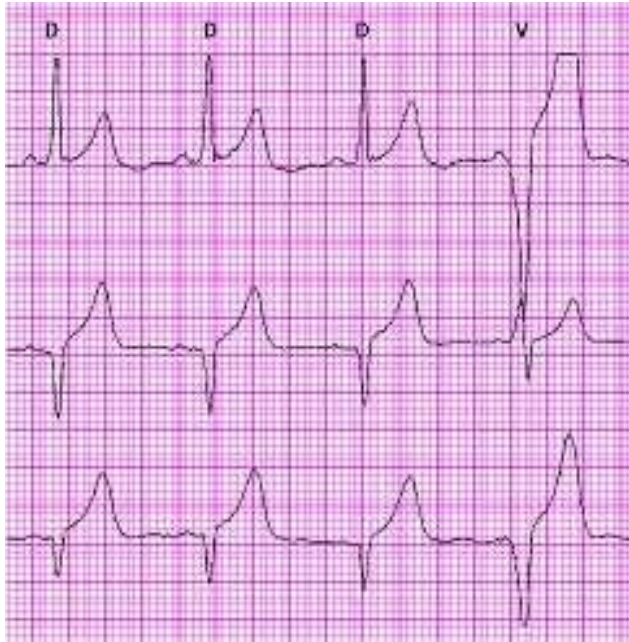
What Are the Causes of Civilization Diseases?



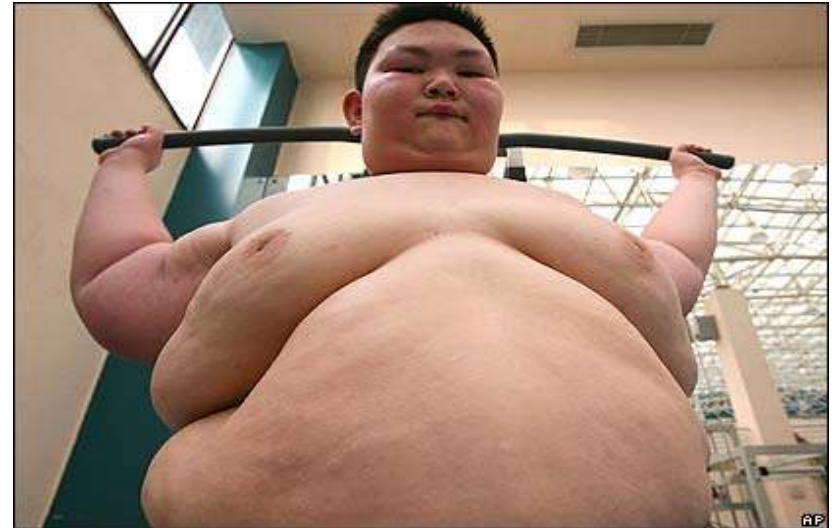
Somatometric Evaluation



Clinical Examinations and Tests



This is Where We Are Going...☹



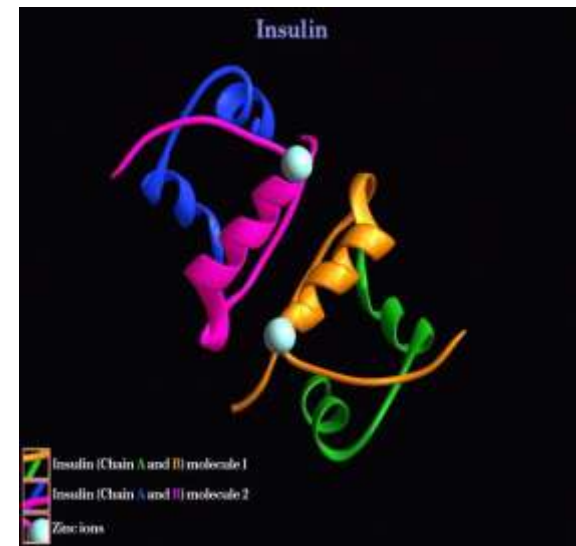
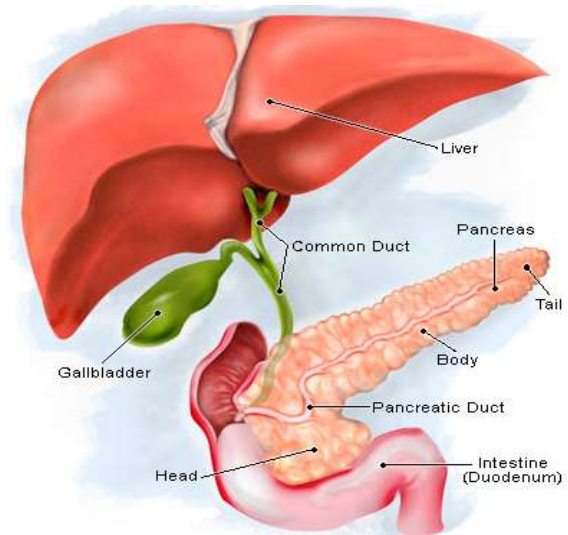
A „healthy” Food Pyramid



- The food pyramid carelessly recommends consumption of highly processed foods, containing bad carbs (6-11 portions a day)
- It does not classify the carbohydrates as good or bad. According to food pyramid, there is no significant difference between oat bran, pasta or toast, and they are all interpreted as the same
- Bad carb products offered by food pyramid are also the source of harmful TRANS fats
- Pyramid does not classify fats in general. They are placed at the upper top with the sweets
- **Water???**
- **Physical activity??? ☹**

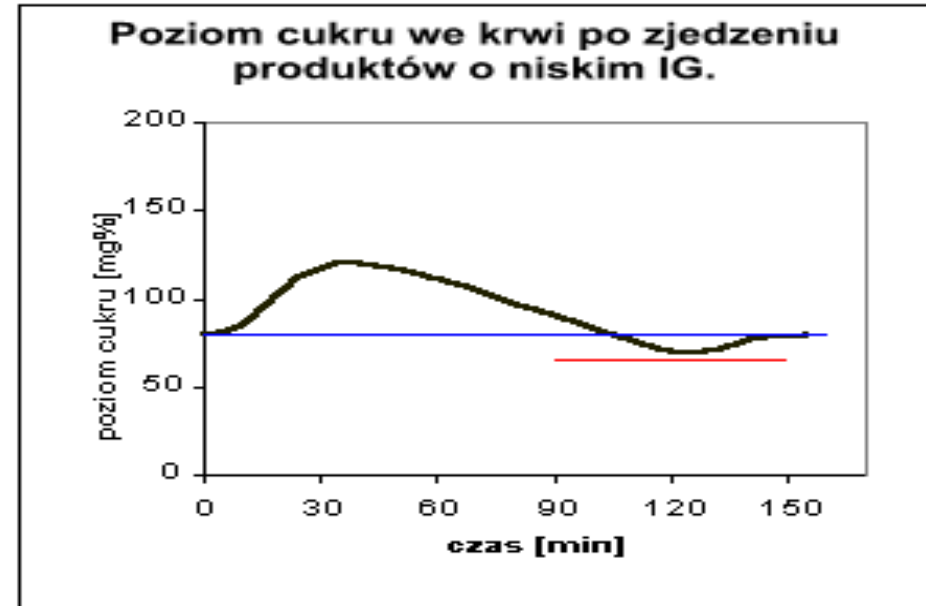
Role of Insulin and Glicemic Index (IG)

- Insulin is pancreatic hormone secreted for carbohydrate breakdown, that transports glucose to the bloodstream
- **Glicemic index (IG) – Why GI is so important?** The higher IG of consumed product, the more glucose is released
- For the high IG products (high glucose level), the insulin secretion is excessive, mostly higher than actually needed
- **The secretion of insulin is very energy consuming. That in fact makes us more hungry and amplifies the appetite for another portion of carbohydrates (carb craving)**
- Consumption of high IG products carb diet causes nothing, but hunger, since highly processed carbs are broken down more quickly. It causes variations of glucose level and due to that we are hungry again.
- **Excessive glucose is always cumulated as fat cells**
- **INSULIN – fat hormone, that activates lipoprotein (it tends to keep fat in fat cells)**



Carbohydrate Versus Carbohydrate

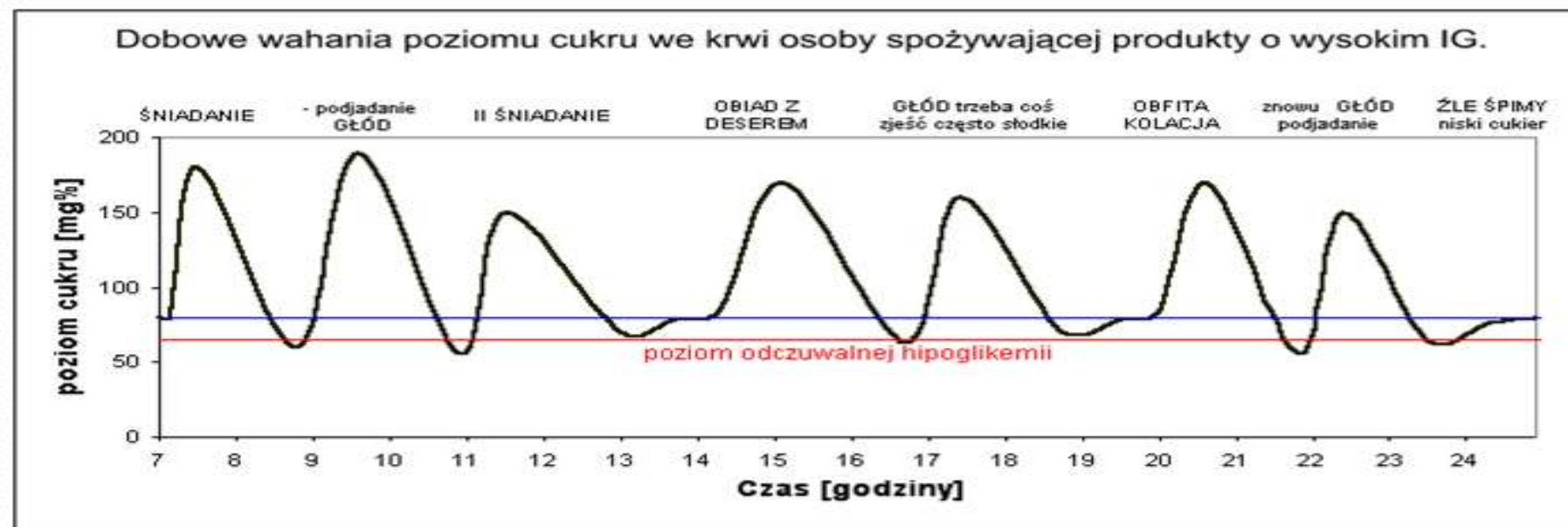
– Where Is the Problem???



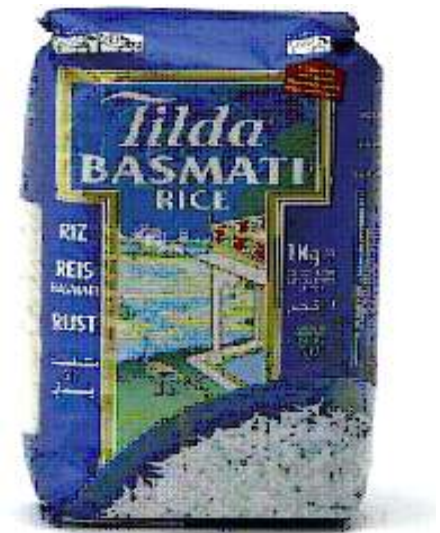
The Variations of Blood Glucose Level for Low IG Products



The Variations of Blood Glucose Level for High IG Products



Low IG Products

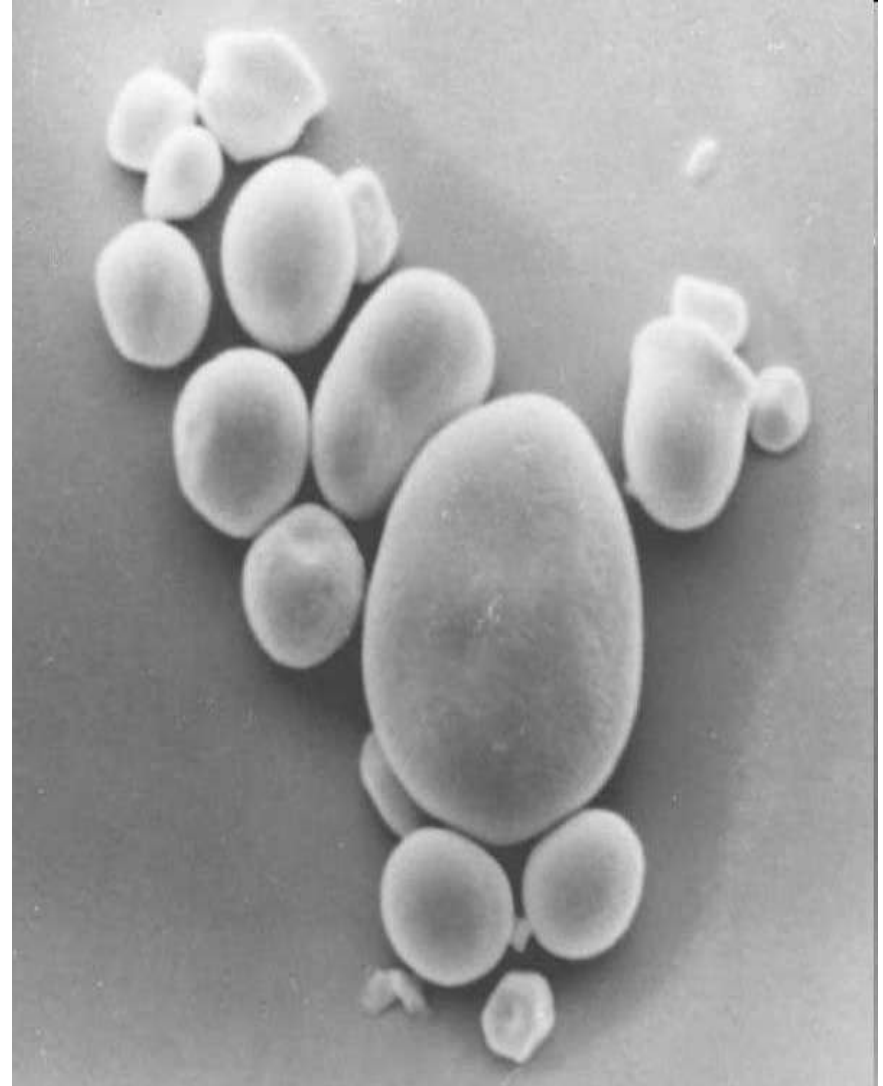


High IG Products



The Factors Affecting IG

- Starch gelation rate
- Size of starch particles (wholemeal flour 😊)
- Amylose/Amylopectin ratio



Food Processing and Its Effect on IG



GI=56



GI=89



IG=55



IG=85

How To Decrease IG of Meals ?

- It is important not to have those as separate meal
- Match them with foods containing proteins (meat, milk) as they have lower IG value
- Vinegar or lemon juice can delay stomach emptying and retard sugar absorption as a result
- The fiber presence (not heat treated!)
- The high IG products should be substituted with low IG products (swap regular flour for wholemeal flour or bran)



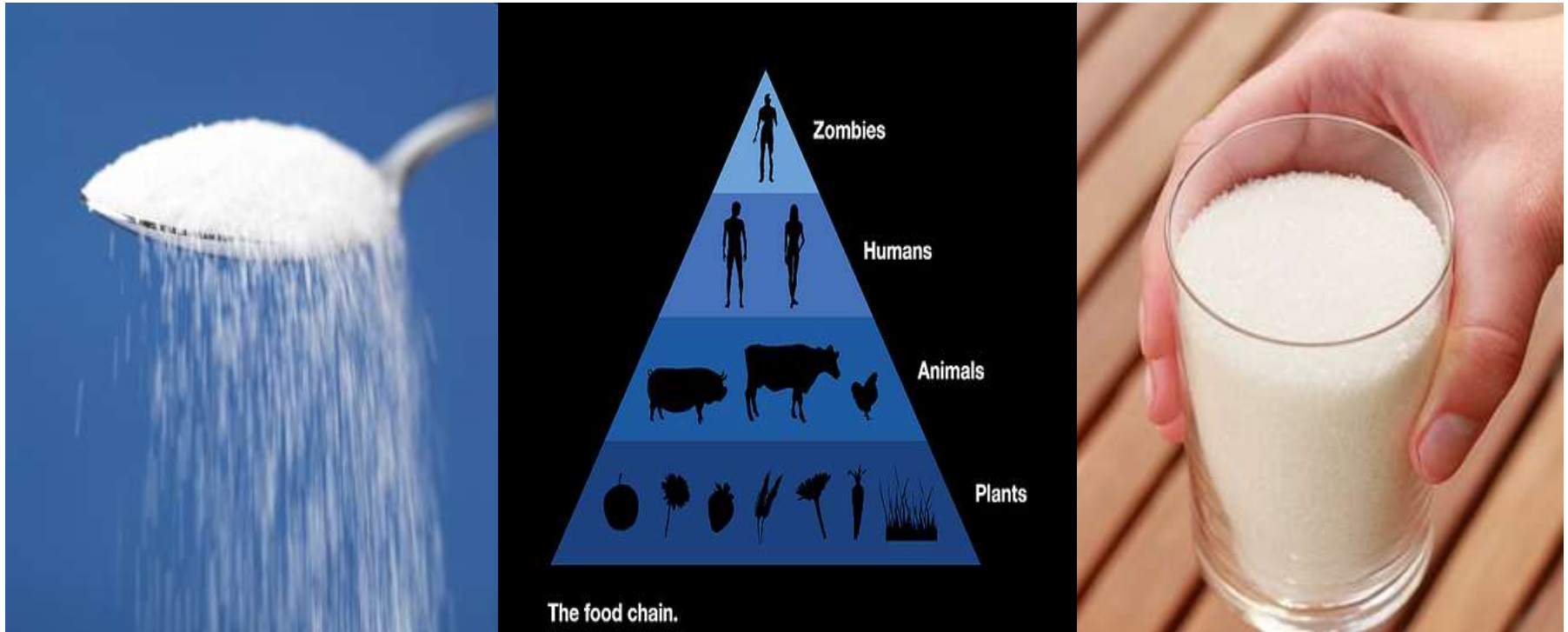
High IG Products...For Who?

- **Diabetics** — help them to metabolise excessive secretion of insuline. They also have a positive effect on frame of mind and eliminate stress
- **Sportsmen** — essential for glycogen reproduction in postexercise recovery process



What is Normal Blood Glucose Level?

< 100 mg/dl (5,6 mmol/l)



Carbohydrates – The Most Unnatural Food Compound for Human?

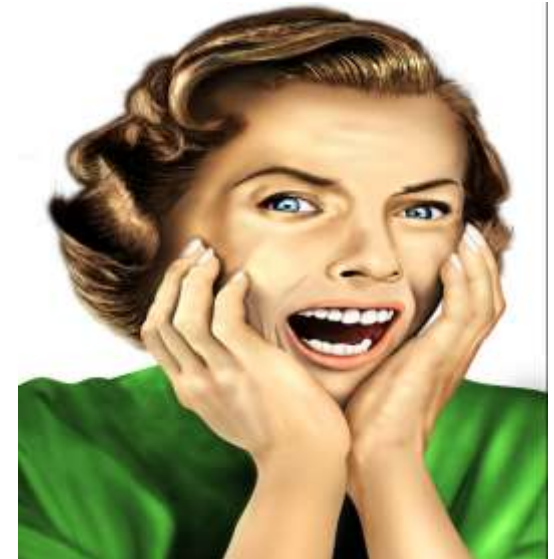
- **Hiperglycemic enzymes** : glucagon, corticosteroids, growth hormone, thyroid hormone
- **Hipoglycemic enzymes** : **INSULIN**



Are Fats Really So Scary???

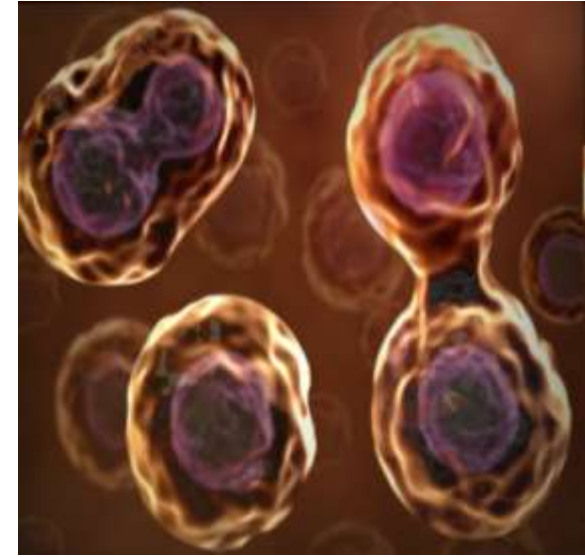


- For optimal body condition and maintain good health, we need to consume fat (fatty acids) as well. These are essential, since our system can't synthesize them itself
- Fat is also required to act as a solvent for fat soluble vitamins
- Fat as opposed to carbohydrates (IG) always provides the same amount of calories and energy
- Foods containing fat are digested slowly and that makes us more full
- Low fat diet leads to triglyceride increase and causes HDL cholesterol decrease
- If you don't provide enough fat with food, your liver will synthesize them itself from carbohydrates, and those will be mostly saturated fats



The Role of Fat in Human Body

- Building agent for the several hormones (**Eicosanoids, prostaglandins**) exhibiting regulatory functions in the body
- It builds cellwalls and cell membranes
- Protects internal organs, tissues
- Acts as a solvent for fat soluble vitamins (A, D, E, K) and sterols
- Storage material and source of concentrated energy



Low Level of Cholesterol Leads To...



Healthy Fat Snacks



- The stodgy nuts are the good source of fat and calories
- Make us eat less calories during the day
- Help to control our weight by making us full and increase the energy input into actual digestion and retard fat absorption