

Learning Guide – Fats and Oils

Chem 1010

For the rest of this unit, we will be talking about the chemistry of food.

From a scientific point of view, what are the chemicals in food useful for?

1)

2)

3)

What's in food?

macronutrients:

micronutrients:

non-nutrients:

Introduction to Fats and Oils

Today we will continue our discussion of macronutrients by looking at the chemistry of fats and oils.

What are fats and oils primarily useful for?

How do fats compare with carbohydrates at providing energy?

What percentage of calories are recommended to come from fat?

What are some other things fats and oils are useful for?

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-
-
-
-
-
-

Of course, too much stored fat can be a health hazard. Obesity is connected to higher risks of:

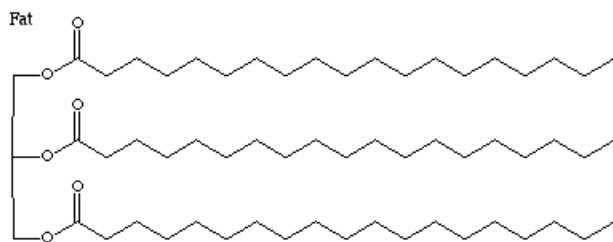
Most Americans have difficulty with...

_____ and _____

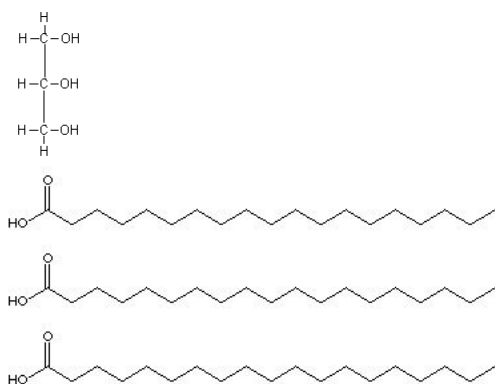
...in their diet.

Structure of Fats and Oils

So, what do fat molecules look like?



During digestion, fats are broken down into:



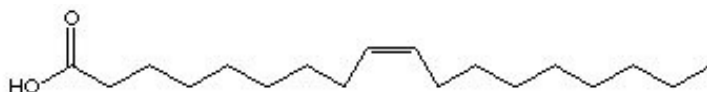
Types of fats

There are two main kinds of fats:

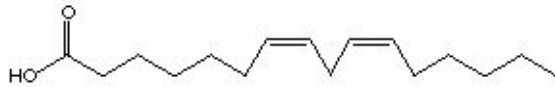
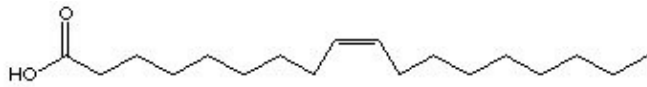
Saturated fats are made from fatty acids that have:



Unsaturated fats are made from fatty acids that have:



Unsaturated fats may contain fatty acids which are:



Saturated fats usually come from:

exception:

Unsaturated fats usually come from:

exceptions:

Also, unsaturated fats often _____

while unsaturated fats usually have _____.

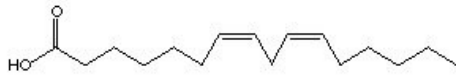
Of course, foods don't actually have just one kind of fat.

	canola oil	corn oil	olive oil	soybean oil	butter	coconut oil
polyunsaturated fat						
monounsaturated fat						
saturated fat						

It has also been recently discovered that there are two important categories of unsaturated fats.



found in:



found in:

The concern is that:

Processed fats

Unsaturated fats can be chemically changed to saturated fats by a process of:

Why would we want to do this?

1)

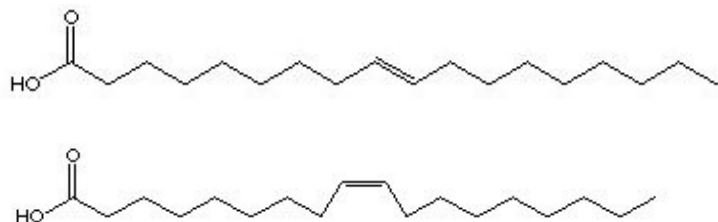
2)

3)

4)

Most processed foods contain:

Unfortunately, the process of partial hydrogenation has a side effect:



Trans fats were considered an advantage by the food industry:

Unfortunately, they have been linked to:

It is estimated that at least _____ due to coronary disease could be prevented by eliminating trans fats.

Rather than banning trans fats outright, a law was passed requiring:

How will this make a difference?

Health effects of fats

Which fats are good for you?

Which fats are bad for you?