// The *liver*

// *Facts ans figures*

- Has more than 500 functions
- Represents 2 % of the body's weight (like the brain)
- Contains 10 % of the blood at any time
- Filters around 1,4 liters of blood per minute
- Produces 1 liter of bile per day
- Stores the equivalent of 48 hours of reserves of glycogen
- Makes 70 % of the total cholesterol

To stay alive, our body must develop and maintain the functions of the organs, the tissues, in a word, the cells that constitute them.

The daily absorption of nutrients and breathing guarantee our physical survival. Everyday, some elements from the external environment become part of us, when others are excreted.

This process requires some steps such as digestion, absorption through intestines and other methods of assimilation, for instance to allow foods to become our muscles, our lungs, our brain. In the same way, some substances like vitamins for instance, will be particularly useful when others, like some metals, will be harmful to our body.

A crucial step in this process is to control and transform what is beneficial and reject what is not : this responsibility is down to the liver.

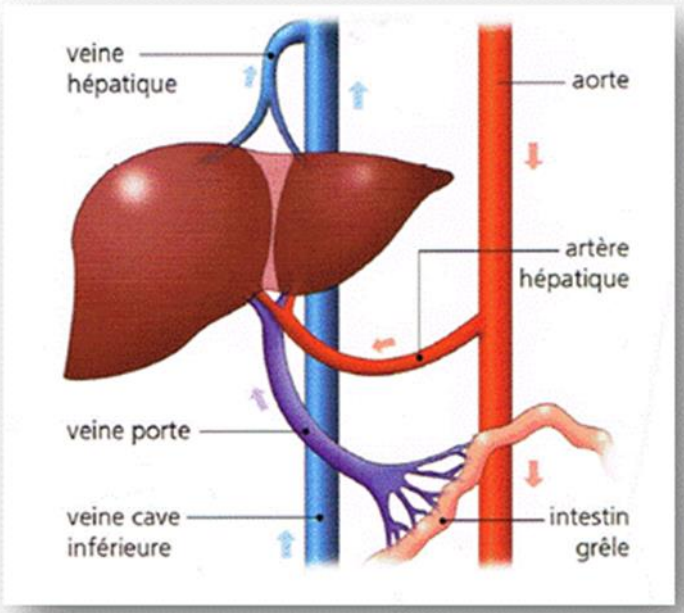
The liver :

- A voluminous organ linked to the intestine by a big blood vessel bringing all the blood full of the nutrients from the digestion (the hepatic portal vein) ;
- Directly linked to the intestine where the liver sends the bile ;
- Also linked to the rest of the organs via the general blood circulation, that transports the selected nutrients ;
- An organ whose active cells flow their secretions outside and inside is a gland ;
  the liver is soft but highly structured and segmented.

CRP
1 route d'Escalquens - BP 12294
31322 Castanet Tolosan Cedex
Tél : 05.34.66.41.64
Email : contact@crp-phyto.com

// *A junction of physiological liquids*

- veine hépatique = hepatic vein
- veine porte = hepatic portal vein
- veine cave inférieure = inferior vena cava
- aorte = aorta
- artère hépatique = hepatic artery
- intestin grêle = small intestine



Let's take a sponge soaked with different liquids, each of them with its own course, in order never to blend. All liver cells are fed by the arterial blood : supportive tissues and all specific active cells. Venous blood flowing in through the hepatic portal vein irrigates all spaces at the edges of the hepatocytes (cells of the liver), that will absorb its components. Hepatocytes (hundreds of millions) will then transform or store and will send their secretions :

- either in the biliary circuit : bile acids, bilirubin (0,5 to 1 litre per day),
- or in the outgoing venous blood circuit,
- or in the lymphatic network (nearly half of the thoracic lymph derives from the liver).

The total amount of liquid leaving the liver is very important.
The liver and its hepatocytes can function only with a lot of water.

Functions of hepatocytes :

Several different cells are specifically constituting the liver but we will mention here the main category (80 %) : hepatocytes.

Hepatocytes are in charge of :

- storage and release (glucose, iron…),
- synthesise of proteins important for immunity, blood clotting (lipids sterols transporters, that are clotting factors) ; they are hormone precursors, such as sterols,
- break down and elimination (detoxification) of our body's by-products : nitrogen from amino acids, metabolized into urea ; bilirubin generated by used red blood cells broken down in the spleen, and excreted via the bile, then in the faeces, the sterols.

CRP
1 route d'Escalquens - BP 12294
31322 Castanet Tolosan Cedex
Tél : 05.34.66.41.64
Email : contact@crp-phyto.com

Undesirable external components, such as pollutants, toxic substances… must also be eliminated.

Hepatocytes contain effective adaptive enzyme systems that solubilise and reject these undesirable molecules. These modifications happen through steps involving oxidation, and are themselves secured by antioxidant processes.

If they are overexposed to toxic substances, these detoxification systems can saturate themselves or become clogged, or these antioxidant processes can be insufficient.
In this case, hepatic cells are suffering and can die in large quantities. However, the liver's ability to regenerate its structure, its cells and its metabolism is remarkable : a damaged zone, even dead, will be replaced by the next healthy zone.

The reliability of the liver and its capacity of resistance that is superior to other organs make it robust.

However, some elements can impose a heavy strain on the liver, such as the environment, the way of life, the food taken, the use of toxic substances, etc. This can lead to serious damage, difficult to cure or even irreversible.

Some issues that are important to address :
- insufficient flow of bile. The most common issue. It is necessary to drain the bile ducts, or their congestion will lead to other problems.
- reduction of the metabolic activity of the hepatocytes, or congestion : the enzymes supposed to synthesise the nutritional substances or the undesirable compounds have lost some of their potential or are insufficient to facilitate an increasing demand.
- clogging caused by toxic substances meant to be excreted, with consequences on the rest of the body. In this case, all functions of hepatic cells are weakened and will disrupt many other systems : immunity, respiratory, energetic, healing. It is then necessary to proceed to a detoxification treatment.
- occurring of inflammation of hepatic tissue (= hepatitis), whatever the cause is : toxic substances, medication, viral, autoimmune. This will induce the inflammation of the hepatic parenchyma which is a result of the cells being attacked and the death of the hepatocytes. Depending on the intensity and the duration of the damage, large zones of activity will disappear and will be replaced by a non functional and fibrous tissue. Fibrosis is then appearing and can degenerate in cirrhosis.

Some plants can treat these issues ; an experienced medical practitioner will be able to inform you.

CRP
1 route d'Escalquens - BP 12294
31322 Castanet Tolosan Cedex
Tél : 05.34.66.41.64
Email : contact@crp-phyto.com