

Complementary Results: Effects Of Patented Fibre Complex Of *Opuntia Ficus Indica* On The Binding Of Non-Specific Fat-Soluble Vitamins, Bile Salts And Acids

In addition to the fat absorption properties of patented fibre complex of *Opuntia ficus indica*, the effect on the fat-soluble vitamins A and E as well as on bile salts and acid were examined in vitro and in a clinical pre-study.

Vitamins A and E:

The fat binding product patented fibre complex of *Opuntia ficus indica* was added to a mixture of sunflower oil containing approximately the recommended daily nutritional amount of vitamins A and E. The test was performed under conditions (aqueous phase, temperature, pH) comparable with those of the digestive tract. Patented fibre complex of *Opuntia ficus indica* interacts with the fat content and decreases the quantity of fat remaining in the medium. By analysing the vitamins in each remaining fatty phase the capacity of patented fibre complex of *Opuntia ficus indica* to bind specifically to fat-soluble vitamins can be evaluated. The results of the *in vitro* tests show that patented fibre complex of *Opuntia ficus indica* does not bind to fat-soluble vitamins A and E in a specific manner. This is supported by a clinical pre-study. In conclusion, the product does not pose a risk to vitamin levels.

Bile salts and acids:

The effect of fibre, compared to fat, is its ability to initially interact and, if required, bind to bile salts. Bile salts are necessary to emulsify the nutritional fat so that it can be transformed into fatty acids by the pancreatic lipase. Bile salts have also an accelerating effect on the transit time. Bile acids, cholic acid and its derivatives are derived from cholesterol. In the bile, they are combined with taurine or glycine to increase their hydrophile and emulsifying capacity. Colon bacteria separate the cholic acid and its combined amino acid, It is through this process that bile acids come to be found in the stool. The majority of bile salts are reabsorbed at the end of the small intestines and returned to the liver by blood circulation before they are re-excreted. The pool of bile salts is small (2 to 4 g) but the enteropathic cycle allows for a flow of 12 to 40 g/24 hours in the intestines.

The concentration of the bile acids is measured on freeze-drying stool samples. The results show that patented fibre complex from *Opuntia ficus indica* collects some of the bile acids and makes them unavailable for digestion of lipids by pancreatic lipase.