

## PHARMACY *a long and proud history*

### CHOLESTEROL BEYOND AGENT 007

#### Time to get serious, look at the facts, and move on from our hopes with Agent 007 James Bond.

*Cholesterol* is a waxy, fat-like substance insoluble in water. It is found throughout our body and is absolutely essential to our lives and well-being. *Cholesterol* is mainly made by our liver and intestine. Additional *cholesterol* is obtained from food such as dairy products and animal fat. Chemically *cholesterol* is known as a sterol. It is necessary for the production of our sex hormones, adrenal hormones and vitamin D, and is an important component of cell membranes. It is most abundant in our brains.

Because *cholesterol* is not soluble in water it can't be carried in solution in our bloodstream. Instead, two complex chemicals made of protein and lipid (fat) carry it. One is called high-density lipoproteins (HDL), the other is called low-density lipoproteins (LDL). Because LDL appears to cause **atherosclerosis** it is nicknamed *bad cholesterol*, and because HDL appears to retard **atherosclerosis** it is nicknamed *good cholesterol*.

Now back to our story that started in Russia where *Nikolai Anichkov* proposed that *cholesterol* was the primary factor in starting **atherosclerosis** – heart disease. We then moved to the USA and England where various government agencies, health officials, scientists and doctors carried out extensive research and huge epidemiological studies into the relationship between food, coronary heart disease and *cholesterol*.

Since 1948 Boston University has been studying the health of Framingham residents through routine health

monitoring and blood tests. In the USA a Multiple Risk Factor Intervention Trial (MRFIT) was started. Concerns about this trial led to the London School of Hygiene initiating the WHO trial involving 50,000 men in sixty-six factories in Britain, Belgium, Italy and Poland.

The results of these trials are beyond the scope of this simple summary of events – but it did appear that diet might be only one of a range of factors that cause **atherosclerosis**. Giving up eggs, cakes and fatty meat and moving to a Mediterranean diet would not necessarily prevent you having a heart attack, but would help address obesity problems. Nevertheless *cholesterol* was seen as a potential causative factor, especially for people with very high levels of *blood cholesterol*.

Could medicines be developed to reduce *cholesterol* levels?

*Cholestyramine* (an ion exchange resin that you sprinkled on food) was used to lower *cholesterol* levels in high-risk patients over a seven-year trial ending in 1984. The results showed that of 1,900 taking the medicine thirty had a fatal heart attack and thirty-eight died in the control group. Did the side effects and problems associated with taking this medicine justify its use?

For Big Pharma the challenge was to find a *cholesterol lowering medicine* with few side effects that was easy to take and really lowered cholesterol levels. Their dream of apparently healthy people taking medicine for the rest of their life was going to come true.

**To be continued**



#### INACTIVE INGREDIENTS

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