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BEER. GOOD FOR HEALTH? SURE!

Our affair with beer surely goes back thousands years. It started in times when the man still fought against nature and his nutritional choices had a fundamental significance. Today we can be sure that that choice was correct.

Such a statement is justified by the results of many long-lasting scientific surveys published over the last few years, concerning the impact of lifestyle, nutritional habits, addictions and so forth on the state of human health in its various aspects and in result on quality and length of human life.

Beer is a worthy beverage / food at the least because of the fact that it usually contains a couple of ethyl alcohol degrees (sic!).

The Polish Law on education in sobriety and alcoholism counteraction foresees that in "places selling or serving alcohol should be exposed an information on alcohol consumption being harmful". In reality we usually see in such places a small board with the following information: "ALCOHOL DAMAGES HEALTH". It is a message equally true than false, a misleading message! Everything we consume in excessive quantities can be said to damage health. Whether something is or is not a poison can be decided above all considering the doses (quantities) – it is a truth noticed and formulated by a German doctor, chemist and philosopher living in Switzerland, known by his nickname Paracelsus a long time ago, in the 16th century. A pinch of salt (sodium chloride) added to the meal improves the taste but 250 grams (a quarter of a kilo) of the same salt eaten in one go can kill!

Research results show that a responsible consumption of moderate quantities of ethyl alcohol not only does not damage health, not only is not indifferent for health, but has healthy effects - it is advantageous for health!

Before I present details of these healthy effects of a moderate ethyl alcohol consumption in general and of beer in particular, I must stress that **these advantages refer to a moderate alcohol consumption of healthy adult persons only!!!**

The key question therefore is: what would a moderate consumption mean?

A Danish researcher, doctor Erik Skovenborg, involved with medical aspects of alcohol consumption, defines it in the following way: *to drink with moderation means to drink without passing the limits indicated by the state of health, the norms of the society in which we live and by the commitments toward family and friends.*

In the European Union (UE) this means 1 to 3 „drinks” per day [1 drink = 10 g of ethyl alcohol (pure substance)] for most men and 1 to 2 „drinks” per day for most women. It is not a discrimination; women usually have a smaller body mass with a slightly bigger contribution of adipose tissue, which does not dissolve ethyl alcohol. This situation leads to a higher alcohol concentration in a woman's blood if she drinks the same amount of alcohol than a man.

Among alcohol beverages beer is the most diluted alcohol solution: 0.5 liter of beer contains 20 g of ethyl alcohol on average, so it constitutes 2 „drinks”.

Consumption of moderate ethyl alcohol doses (nevermind the form: beer / wine / spirits) diminishes considerably the threat of cardio-vascular diseases. Today there is "hard" evidence for that in the form of numerous epidemiological surveys conducted even over 30 years [1]. And the first premises proving the advantageous impact of alcohol on the cardio-vascular system were found in somewhat paradoxical circumstances at the beginning of the 20th century. Anatomicopathologists observed that arteries of patients who died because of the alcohol cirrhosis were exceptionally clean - without a trace of arteriosclerosis. The most important positive effect of drinking reasonable quantities of alcohol is precisely the diminishment of the threat of sclerosis, which can occur as a result of cholesterol accumulation in the form plates in the arteries delivering blood to the heart. It is the most frequent heart disease in developed countries, responsible for 60% of deaths for cardio-vascular reasons and about 25% of all premature deaths. Today the soundly documented beneficial mechanism concerning alcohol consists mainly in increasing by 10 to 20% the concentration of "good cholesterol", i.e. the fraction of HDL which is able to transport cholesterol back to the liver, where it is used again or eliminated [2,3]. Less cholesterol is accumulated in the vascular walls and less sclerosis plates are formed. The positive effect of ethyl alcohol is here no lesser than the positive effect of other preventive actions, such as: the intake of aspirin, the control of the optimum body weight, physical exercise, e.g. jogging.

Many surveys conducted around the world show that consumption of small, moderate quantities of alcohol diminishes the threat of death from ischemic heart disease by 20 to 50% compared to the threat of abstainers with a similar lifestyle and with similar, with the exception of alcohol, nutritional habits. The risk of the coronary heart disease surely decreases with the increase of ethyl alcohol consumption from zero to 25 g per day. The upper limit surely depends on the individual, e.g. on body weight, and can be slightly higher. **Consumption of higher quantities of ethyl alcohol, however, reduces the beneficial effects and consumption of 5 or more "drinks" per day is evidently harmful for the health!**

Many surveys quite consistently prove that alcohol drunk in the mentioned daily doses reduces by about 25% the risk of dementia provoked by the disease of brain blood vessels. In the UE live several million of people in such a situation and since the human life becomes ever longer, this problem will become more serious (as well as some other) [4].

Another increasing medical problem of „saturated” societies is diabetes of type 2 (resistance to insulin). 6 to 8% of adult population suffers from this disease and this indicator still rises. Diabetes is linked to many complications threatening life, coronary heart disease being one of them. Some surveys (including those conducted on samples of twins) stated that people drinking alcohol moderately and regularly have the disease vulnerability lower by as much as up to 50% [5].

There is a documented link between a moderate ethyl alcohol consumption and a decreased vulnerability to cholelithiasis, which afflicts almost 30% of the population over 60 years and generates considerable costs of healthcare. Beneficial effects of alcohol consumption is surely related to its impact on cholesterol management [6].

Positive psychological effects linked to moderate alcohol consumption (tension reduction, stress, mood improvement) are a generally appreciated value, although it is more difficult to be scientifically proved [7].

In light of the above mentioned, the Polish toast „for health” proposed at the occasion of drinking alcohol beverages turns out to be quite justified! But on the undeniable condition that it is a moderate consumption.

However, beer compared to other alcohol beverages, has some additional advantages:

- it is rich with tans - polyphenols (flavonoids), which have antioxidant properties and which are able to "extinguish" free radicals running in the cells of our body. Radicals play an important role in the development of arteriosclerosis and they are a carcinogenic agent. The beneficial effects of red wine are widely appreciated, but you should know that beer can have just a little less of these healthy ingredients. Those in beer are smaller chemical molecules and that is why they are more easily absorbed by our body. Additionally beer contains the so-called melanoid compounds formed in the production of malts (especially dark ones) and the pterulic acid coming from corm, which also has antioxidant properties (unfortunately for the sake of prolonging the commercially required beer durability,

today a considerable part of these polyphenols is removed from industrial beer).

- it contains compounds coming from hop, which - before it appeared in the European beer a thousand years ago - was an appreciated healing plant. Today's common use of hop in the brewing sector comes from the bacteriostatic properties of its components, which beer naturally conserved. One of the components of hop resins - a flavonoid called xanthohumol, has been recently considered an extremely efficient antioxidant protecting the LDL cholesterol from oxidation and a substance braking cancerogenesis. In Germany, beer particularly enriched with this compound is being brewed since not long ago (unfortunately, today there is a visible tendency to lower the level of hop in industrial beer).

- beer contains significant amounts of silicon coming from barley shell in an easily absorbable form (orthosilicon acids). This bio-absorbable silicon is a factor braking osteoporosis. Also compounds coming from hop, the so-called isohumulons, seem to play an important role here. Research show that persons regularly consuming beer have a higher bone density and therefore a smaller risk of osteoporosis development [8]. The World Health Organization considered osteoporosis (a disease in which the bone substance is lost faster than it is built, which leads to bone fractures) to be the second most serious (after the coronary heart disease) main contemporary problem of healthcare. It is also a result of the longer human life expectancy.

- beer contains considerable amounts of soluble fibre (beta-glucans coming from the barley cell paries). A glass of beer can deliver as much as 15% of the recommended daily dose of this factor, which beneficially regulates the functioning of the alimentary canal.

- 0.5 liter of beer contains considerable amounts of vitamins from the B group, soluble in the water, which come from the grains of cereals and yeast. The content of niacin (vitamin PP), folacin (vitamin B11, folic acid) and pyridoxin (vitamin B6) in a bottle of beer covers about 15% of the recommended daily consumption dose. There is about 5% of the dose of riboflavin (vitamin B2) and pantothenic acid (vitamin B5) and up to as much as 50% of cobalamin (vitamin B12), a vitamin particularly important for vegetarians!

There is even more of these vitamins in unfiltered beer and particularly in conditioned bottled beer (containing yeast precipitation).

- beer has an advantageous content of mineral salts: it contains relatively much potassium and little sodium. The low content of calcium and a high content of

magnesium can be considered a factor protecting against the creation of gallstones and kidney stones. In case of the latter high water consumption is also important because it constitutes over 90% of beer content as well as beer's diuretic properties.

The epidemics of obesity approaches Poland and in rich countries it increases. If the present tendencies remain unchanged, in 2010 30% of the adult population in the European Union will be obese (it is more than being overweight)!. Obesity is an evident health problem because it leads to many diseases such as diabetes, coronary heart disease, cirrhosis.

Meanwhile beer has a reputation of being fattening. Not only in Poland there is an expression "beer belly". Probably because of the well-built silhouette many people who like to "eat well" while drinking beer it is quite common to think that a frequent beer consumption irrevocably leads to obesity. Is this opinion justified? Well, in light of what we know today about qualitative and quantitative nutritional properties of beer... not much!

Here are the facts defining the caloric nature of light beer, Pilsen lager type, dominating in the Polish market:

1) depending on the content of the extract in the so-called adjustable wort, the average caloric value of 0.5 liter of beer equals:

11 % wag.	- "	200 kcal (850 kJ)
12 % wag.	- "	220 kcal (925 kJ)
13 % wag.	- "	240 kcal (1000 kJ)

To compare: 0.5 liter of full-fat milk gives 325 kcal, skimmed - containing 2% of fat - 215 kcal, orange juice - 245 kcal, Coca-Cola in its classic version 220 kcal: therefore beer is not any "caloric bomb"!

2) ethyl alcohol (7.1 kcal/g) and sugars, mainly dextrans (4.1 kcal/g) are practically the only energy carriers in beer. There is 10 to 15 grams of sugar in a bottle. It is worth mentioning that these sugars, as opposed to other, do not provoke caries. Beer does not contain any fat. Although labels do not highlight it, it does not contain cholesterol either.

However when it comes to the risk of obesity it must be stated that beer consumption increases appetite. As a result of bad qualitative and quantitative nutritional choices some of beer amateurs satisfying this increased appetite are afflicted by obesity.

The information presented above is supposed to encourage people who never consume it in any form to start doing so. It is more about convincing those

who already have alcohol, especially beer, in their diet, that their choice serves well not only the senses, but also the somatic side of health.

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