Discovery is seeing what everybody else has seen, and thinking what nobody else has thought.
- Albert Szent-Gyorgi, discovered vitamin C in 1928

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Part IV

In tribute to Emil Ginter DSc, Bratislava, Slovakia.

The World's Leading Vitamin C Researcher

By Bill Sardi

Emil Ginter DSc is the world's most productive vitamin C researcher. Now living in near obscurity in Bratislava, Slovakia, as a contemporary of Dr. Linus Pauling, between 1950 to today, Dr. Ginter published 117 papers on vitamin C, as listed by the National Library of Medicine. That's more than three times the number of published papers as Dr. Pauling, and 42 more papers than any other researcher. Dr. Ginter recently agreed to answer some questions regarding his work, in an interview that follows.

Q. **Your pioneer research on vitamin C is forgotten by many. Your research involving vitamin C is more extensive than any modern or past researcher. What is your current opinion as to why world health authorities are not recommending vitamin C more often to promote health?**

A. Vitamin C is a good example of the extreme trends in science. When my personal friend Linus Pauling has published papers on vitamin C and cancer, there was in USA extremely great interest in ascorbic acid. Then, when clinical studies failed, there was a sharp decrease in the interest on vitamin C.

Q. **In 1975 you wrote that high doses of ascorbic acid significantly stimulate cholesterol transformation to bile acids in guinea pigs and decrease plasma cholesterol concentration in humans. [Ann N Y Academy Sciences 258:410-21, 1975] Why aren't doctors using vitamin C to prevent arterial disease? What dose of vitamin C would be needed to control cholesterol?**

A. The role of vitamin C in cholesterol transformation into bile acids (7-alpha hydroxylation of cholesterol) was experimentally proved in guinea pigs, not in a man. Vitamin C lowers total cholesterol level in people who have vitamin C deficiency, not in persons saturated with vitamin C. In USA most people have relatively high intake of vitamin C from oranges, orange juice, vegetables, etc. (*Editor's note: cholesterol is not the only reason to supplement with vitamin C. Modern research shows that vitamin C strengthens the artery wall and maintains the smooth (endothelial) cells that prevent blood clots*

from forming. Vitamin C also prevents unstable plaque from forming.)

Q. **In 1982 you wrote that 500-1000 mg of vitamin C can effectively lower cholesterol. Do you still hold to these numbers or do you think humans need to take more vitamin C to control cholesterol? [Int J Vitamin Nutrition Research Suppl 23:137-52, 1982]**

A. I think that humans need to take 200-500 mg ascorbic acid to prevent atherosclerosis. The reason is not only the lowering of total cholesterol, but a prevention of LDL (low density lipoproteins) from oxidation by free radicals. (*Editor's note: this exceeds the 200 mg limit proposed by National Institutes of Health Researchers by 250%.*)

Q. **In 1976 you wrote that a few guinea pigs still synthesize their own vitamin C. Could this be true for a few humans? [Int J Vitamin Nutrition Research 46:173-9, 1976]**

A. It is possible that some few humans could synthesize vitamin C.

Q. **In 1979 you reported that vitamin C levels were maintained in tissues when bioflavonoids were added. What percentage of bioflavonoids compared with vitamin C is needed to accomplish this? [Physiol Bohemoslov 28:519-24, 1979]**

A. I have not specific data on the optimal bioflavonoid intake. The number of flavonoids in the food is extremely high and they have different effects on the metabolism.

Q. **In 1979 you wrote that *"maximal tissue steady-state levels of vitamin C are probably optimal for the guinea pigs' health."* [Nutrition Metabolism 23:217-26, 1979] What would be the *"maximal steady state level"* or optimal level of vitamin C intake for humans?**

A. See answer to question 3. For smokers, diabetics, obesity, aging, etc. the intake of 500 mg/day or even more is probably optimal. (*Editor's note: this is far higher dosage than recommended by US health authorities.*)

Q. **Steve Hickey and Hilary Roberts PhDs from Manchester University have written that vitamin C levels must be maintained by continual intake throughout the day because vitamin C has a relatively short half life and because of dynamic flow of vitamin C in and out of the body. They report that vitamin C levels can be maintained above 200 micrograms per deciliter by taking 500 milligrams of oral vitamin C five times a day. Do you have a comment about this?**

A. The human gut has limited capacity to absorb ascorbic acid. Therefore it is better to take 3 times daily 100-200 mg of ascorbic acid. On the other hand, the intake of 5 x 500 mg seems to me not harmful, but superficial. Linus Pauling took 16,000 mg daily.

Q. In 1980 you reported that vitamin C controls triglycerides, which is now considered a risk factor for cardiovascular mortality. Do you have a comment regarding vitamin C and triglycerides? [Physiol Bohemoslov 29:337-43, 1980]

A. In several studies with guinea pigs we found decrease of triglycerides not only in the blood but also in the liver. Only in one study in persons we found significant decrease of triglycerides after vitamin C treatment.

Q. In 1988 you wrote about the half life of vitamin C in guinea pigs. It appears the half life of vitamin C has been overlooked by modern researchers. Doesn't this mean humans need to take repeated doses of vitamin C throughout the day? [Physiol Bohemoslov 37:459-66, 1988]

In 1989 you wrote "that such intake of ascorbic acid is optimum that ensures a maximum body pool and maximum steady-state levels of vitamin C in the tissues. It is probable that in healthy adults, such a dose ranges from 100 to 200mg and that in stress conditions, it exceeds 200mg per day." Do you still believe this small amount of vitamin C is all that humans require to maintain health? [Nutrition 5:369-74, 1989]

A. For healthy people the daily intake of 100-200 mg ascorbic acid is adequate. In stress conditions it should be increased to 500 mg and in special cases even more.

Q. In 2004 National Institutes of Health researchers in the USA reported that oral dose vitamin C can achieve peak blood concentrations of 220 micromole/liter, three times higher than previously thought possible. Do you have a comment about this research which has been ignored by health authorities?

A. Yes, the peak concentrations of 200 micromole/liter could be achieved.

Q. In 1979 you wrote that vitamin C helps to maintain the liver detoxification process via cytochrome p450 enzymes. Modern medicine appears to have ignored this discovery. Drugs are often prescribed that produce different reactions because the cytochrome p450 enzymes are not being produced efficiently. Shouldn't many drugs be accompanied with vitamin C to ensure the cytochrome p450 system is working property? [Physiol Research 43:307-12, 1994]

A. The problem of cytochrome P450 system and vitamin C is very complicated. Very high activity of P450 could increase the degradation of many useful drugs. Intravenous doses of vitamin C are a problem, not for physiologists but for pharmacologists.

Emil Ginter, D.Sc.

Number of Published Papers or Letters – National Library of Medicine By Vitamin C Researchers 8/2005	
Researcher	# Publications
Emil **Ginter**, DSc, Bratislava, Slovakia	117
Mark **Levine**, National Institutes of Health, Bethesda, MD	75
Balz **Frei**, Linus Pauling Institute, Corvallis, OR	64
Emmanuel **Cheraskin**, MD, DMD 1916-2001	54
W M **Ringsdorf**, Jr, MD, Alabama	50
Linus **Pauling**, Linus Pauling Institute, 1901-1994	31
Frederick R **Klenner** MD, Reidsville, NC, 1907-1984 27 papers written from 1940s-1970, only 2 on Medline	27
P F **Jacques**, Tufts University, Boston (cataracts)	29
Allen **Taylor**, Tufts University, Boston (cataracts)	22
Ewan **Cameron**, MD, Glasgow, Scotland, 1922-1991	15
Irwin **Stone**, 1907-1984	11
Archie **Kalokerinos**, Australia	9
William J **McCormick**, Toronto	9
Hugh D **Riordan**, MD, Wichita, KS, 1932-2005	9
Matthias **Rath**, MD, Germany	8
A **Kumar**, East Asia	8
Robert **Cathcart** III, MD, Los Altos, CA	7
M J **Gonzalez**, Puerto Rico	7
Constance **Spittle**, England	7
J T **Ely**, Seattle, Washington	6
R J **Jariwalla**, San Jose, CA	6
Brian **Leibovitz**, Ph.D., Davis, CA	6
Claus W **Jungeblut** MD, New York	3

Admittedly, this is only a list of published reports and letters that can be found at the National Library of Medicine Medline PUBMED service, which only lists reports back to 1950. Many reports concerning vitamin C have been published in the Journal of Optimal Nutrition or the Journal of Orthomolecular Medicine, which are not referenced on Medline. The Journal of Orthomolecular Medicine archives contain a number of reports by Linus Pauling that are published nowhere else. One way of censoring information about vitamin C is not to reference it. Consumers will find easier access to reports about vitamin C at GOOGLE rather than Medline/PUBMED which has carefully eliminated many papers and journals.