

How the spinach, Popeye and iron decimal point error myth was finally bust

CIBeT? (Can It Be True?) was the name coined by past HealthWatch chairman Professor John Garrow for an occasional series in this newsletter, in which an expert scrutinised popular myths. Who better to revive it, than supermythbuster Mike Sutton, who reveals the history of the legend of why spinach made Popeye so strong—and why Popeye was right all along, but not in the way we thought ...

ONE OF THE MOST complex and convoluted myths in the world of nutrition is the one called, for want of a less complex name, the ‘Spinach, Popeye and Iron Decimal Point Error Myth’. I discovered that the myth was started by the nutrition expert, Professor Arnold Bender (the late father of HealthWatch Secretary David Bender) in his inaugural lecture at the University of London in 1972.¹

The myth, once begun, was long popularised and eventually came to be attributed to Professor Terence Hamblin, after he wrote in the *British Medical Journal*² in 1981:

“A statue of Popeye in Crystal City, Texas, commemorates the fact that singlehandedly he raised the consumption of Spinach by 33%. America was ‘strong to the finish ‘cos they ate their spinach’ and duly defeated the Hun. Unfortunately the propaganda was fraudulent; German chemists reinvestigating the iron content of Spinach had shown in the 1930s that the original workers had put the decimal point in the wrong place and made a tenfold overestimate of its value. Spinach is no better for you than cabbage, Brussels sprouts, or broccoli. For a better source of iron Popeye would have been better off chewing the cans.”

Hamblin was wrong. In reality, Popeye’s creator EC Segar never once had his superhero eat spinach for iron. In 1932, in the only cartoon by Segar

where Popeye explains exactly why he eats the stuff, the cartoon sailor with the bulging forearms claims in in his garbled English: “Spinach is full of Vitamin A. An’ tha’s what makes hoomans strong an’ helty”. In fact, spinach contains beta-carotene, which is converted to vitamin A in the human body. And Popeye is as right today with his dietary advice as he was in the last century, eating spinach *is* a good way to get Vitamin A.

MOREOVER, whilst spinach production did rise by 33 percent in Texas in 1936, there are many possible causes for that. In that year the first two reel colour movie Popeye the Sailor v Sinbad the Sailor was released. And it was hugely popular—being either posted alongside or above as the main feature at cinemas in the USA. But, also in 1936, President Roosevelt introduced his ‘New Deal for Farmers’, which contained the Soil Conservation Act, which discouraged soil-eroding farming practices such as growing wheat and rice, or raising cattle, and promoted the growing of non-soil eroding crops such as spinach. This may have had some impact. In 1936, the USA also introduced the Agricultural Adjustment Act to control the supply of seven basic crops (not including spinach). That might also have led to more supply of spinach as farmers were encouraged to grow more diverse crops of that kind.

The decimal error story is also a myth because the true iron content off spinach was measured by Bunge in 1892,³ and earlier erroneously high measures—such as those made by von Wolff in 1871⁴—were explained in the USA by Professor Sherman in 1907⁵ as resulting from iron contamination from heating dishes and other bad science. In 1920’s Germany, however, the widely read experts Noorden and Salomon, in their popular German textbook,⁶ continued to cite the poor 19th century science of von Wolff as though it

was veracious.

The truth behind Bender’s and Hamblin’s decimal error knowledge gap filling myth for why people think spinach is a good source of iron when it isn’t, is that spinach contains no more iron than many other vegetables, such as lettuce for example. The fact of the matter is that spinach is not a good source of nutritional iron, because it contains oxalic acid, which is an iron blocker.

Amazingly, due to the iron blocking effects of oxalic acid in spinach, within the human body, current scientific knowledge tells us that we can absorb no more than 1 mg of the 6.6 mg of iron that is at most likely to be found in a standard 13.5 oz can of spinach. This means that if no other source of iron is available, a man aged 19-50 would in fact need to eat at least eight cans of spinach every day to get his required level of iron, a woman of the same age would need to eat 18 cans, and a pregnant woman would need to consume a nauseating 27,

which—at 10 oz of solid matter per can when drained—is well over a stone (14 lb) of the stuff!

The scandal of the Spinach Supermyth is not the decimal error myth started by Bender and spread by Hamblin. Rather, it is that people continue to make poor dietary choices based on the belief that spinach is a good source of iron. If only we could discover what the interactive ingredients and contexts are for the enduring success of the Spinach, Popeye and Iron Decimal Point Error Myth, we could reverse engineer the myth and seek to apply the lessons learned from that with an aim to entrench veracious knowledge about nutrition and other information.

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Footnote: David Bender tells us that his father, in the inaugural lecture referred to above, attributed the iron story to a Dutch nutritionist, Professor Cornelius den Hartog, now many years deceased. Maybe another story-within-a-story will have passed away with him...