

# Sugar industry withheld evidence linking sucrose to bladder cancer for five decades

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New research published in *PLOS Biology* by Cristin Kearns, Dorie Apollonio and Stanton Glantz of the University of California at San Francisco reveals that the sugar industry has been manipulating scientific research on the potentially deadly effects of a diet that includes sucrose for at least five decades. They argue that the industry, primarily through a group known as the Sugar Research Foundation (SRF), prematurely ended studies in the 1960s that linked sucrose to bladder cancer before they could be published.

The study focuses on the SRF-funded research project entitled Project 259, led by W.F.R. Pover of the University of Birmingham from 1967 to 1971. Project 259 was initially launched to measure the growth and composition of intestinal bacteria when sucrose was consumed as compared to starch. Previous research into this question had been done but was ultimately inconclusive. Pover was paid \$187,583 in 2016 US dollars for the 1968 to 1970 portion of the study.

The initial work was done on various rat strains and guinea pigs. Among one of the observations made by Pover was that the urine of the rats fed sucrose had a higher level of an enzyme known as beta-glucorinidase than their counterparts that had a starch diet. Other scientific publications at the time had already made a positive connection between this enzyme and bladder cancer and to a lesser extent atherosclerosis. While this was an incidental finding of Project 259, it was a clear indication that sucrose stimulated the production of beta-glucorinidase and thus likely promotes the development of bladder cancer.

These results, however, were not made public. In August 1970, Pover reported to the SRF (which had since been rebranded the International Sugar Research Foundation) on his initial findings regarding the effects of different diets on rat intestines and the potentially

carcinogenic effects of sucrose on rats. Pover then requested an additional 18 weeks of funding to complete the research. In response, ISRF Vice President of Research John Hickson reported to sugar industry executives that the value of Project 259 was “nil” and terminated the project. No results were published in the ISRF publication *Sugar Research* or elsewhere.

As shown by the research done by Kearns, Apollonio and Glantz, the reasons for suppressing the study were purely financial. In 1958, the Food and Drug Administration (FDA) issued its US Food Additives Amendment which stated that any food found to cause cancer in animals was grounds to remove it from its list of foods “generally recognized as safe.” If Project 259’s results had been made public, the fact that a high-sucrose diet versus a high-starch diet contained higher levels of an enzyme that produces bladder cancer would have caused sucrose to fall under scrutiny as a carcinogen. This was particularly likely thanks to a recent precedent: the FDA had removed cyclamates—a set of artificial sweeteners that were a competitor with sucrose—from its safe foods list in 1969 as a result of research showing that cyclamates caused bladder cancer in rats. The sugar industry was concerned about a repeat performance with sucrose.

This was not the first time that the sugar industry hid scientific studies showing that sucrose could cause fatal diseases in humans. A study published last year in *JAMA Internal Medicine* by Kearns, Glantz and Laura Schmidt showed that in the 1950s, the sugar industry found evidence linking coronary heart disease to the consumption of sucrose. These results were also suppressed and are in many ways even more sinister.

In 1954, the president of the SRF, Henry Hass, gave a speech promoting the human health benefits of sugar as

compared to fat in an effort to increase sugar's market share in the United States. He stated, "If you put [the middle-aged man] on a low-fat diet, it takes just five days for the blood cholesterol to get down to where it should be... If the carbohydrate industries were to recapture this 20 percent of the calories in the US diet (the difference between the 40 percent which fat has and the 20 percent which it ought to have) and if sugar maintained its present share of the carbohydrate market, this change would mean an increase in the per capita consumption of sugar more than a third with a tremendous improvement in general health."

This speech became the rallying cry of the sugar industry. The industry spent \$5.3 million in 2016 dollars over the next decade to promote sugar as the solution "to face our daily problems." It was also the beginning of efforts to suppress research connecting sucrose to high levels of cholesterol.

Studies to this effect became particularly concerning to the SRF in 1962, when a report from the American Medical Association found that a low fat and high carbohydrate diet increased the amount of cholesterol in the blood stream. This corroborated a previous study by British physiologist John Yudkin who had stated in 1957 that singling out fat as the primary dietary cause of heart disease was incorrect, and that sucrose was at least equally important. As a result, it was proposed in December 1964 that the SRF embark on a campaign against Yudkin and others who connected sucrose to heart disease.

The campaign became more frantic after the *New York Herald Tribune* ran a full-page article in July 1965 on a series of papers from the *Annals of Internal Medicine*. The articles in the *Annals* and an accompanying editorial strongly vindicated the findings of Yudkin, that sucrose was a major cause of heart disease. Two days after the *Tribune* article, the SRF established Project 226, led by Mark Hegsted, specifically to publish a literature review countering the growing evidence linking sucrose to elevated cholesterol levels.

While this group was working, even more research was published against sucrose, this time in the *American Journal of Clinical Nutrition* by Alfredo Lopez, Roger Hodges and Willard Krehl, who again connected sucrose to heart disease. This group was so prolific that when the SRF asked Hodges about the

progress of the literature review, he responded, "Every time the Iowa group publishes a paper we have to rework a section in rebuttal." And when Project 226 was finally published, claiming that there is little evidence that sucrose is a factor in heart disease, it was not disclosed that it was in part funded by the Sugar Research Foundation.



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