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## ANTICANCER: A NEW WAY OF LIFE

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*The following is an excerpt from David Servan-Schreiber's forthcoming book, [Anticancer: A New Way of Life](#) available in bookstores everywhere beginning September 4th, 2008.*

#### **Escaping Statistics**

Stephen Jay Gould was a professor of zoology at Harvard University and a specialist in the theory of evolution. He was also one of the most influential scientists of his generation, considered by many the “second Darwin” for his more complete rendition of the evolution of species.

In July 1982, at the age of forty, he found out that he was suffering from a mesothelioma of the abdomen—a rare and serious cancer attributed to exposure to asbestos. After his operation he asked his doctor, “What are the best technical articles on mesothelioma?” Whereas until then she had always been very frank, the oncologist answered that “the medical literature on the subject contains nothing really worth reading.” But trying to prevent an academic of his caliber from going over the literature on a subject that concerns him or her is, as Gould would later write, a little like “recommending chastity to Homo sapiens, the sexiest primate of all.”

When he left the hospital, he went straight to the campus medical library and sat down at a table with a pile of recent medical journals. An hour later, horrified, he understood the reason for his doctor’s vague response. The scientific studies left no room for doubt: Mesothelioma was “incurable,” with a median survival time of eight months after diagnosis. Like an animal suddenly caught in the claws of a predator, Gould could feel a panic taking over. He was physically and mentally stunned, and it took him a good fifteen minutes to recover.

Eventually, his training as a scholar asserted itself and saved him from despair. After all, he had spent his life studying and quantifying natural phenomena. If there was one lesson to be learned from that, it was that there is no fixed rule in nature that applies in like manner to everything. Variation is the very essence of nature. In nature, the median is an abstraction, a “law” that the human mind tries to impose on the diverse profusion of individual cases. To the individual Gould, distinct from all other individuals, the

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question was where he was located in the range of variations surrounding the median.

The fact that the median survival was eight months, Gould reflected, meant that half of individuals with mesothelioma survived less than eight months. Thus, the other half survived more than eight months. Now, in which half did he belong? He was young, he didn't smoke, he was in good health (except for this cancer), his tumor had been diagnosed at an early stage, and he could count on the best available treatment. So Gould concluded with relief that he had every reason to believe that he was in the promising half. So far, so good.

Then he became aware of a more fundamental issue. All curves plotting the survival time of each individual—so-called survival curves—have the same asymmetrical shape: By definition, half the cases are concentrated on the left-hand side of the curve, between zero and eight months.

But the other half, on the right, naturally spreads out beyond eight months, and the curve—the distribution, as it is called in statistics—always has a long tail that can extend to a considerable length of time. Nervously, Gould set about looking in the journals for a complete survival curve for mesothelioma. When he finally found one, he observed that the tail of the distribution actually spread out over several years. Thus, even if the median was only eight months, at the end of the tail a small number of people survived for years with this disease. Gould didn't see any reason why he too could not be found at the end of that long tail, and he breathed a sigh of relief.

Reinvigorated by these discoveries, the biologist in him came to a third realization that was as important as the other two: The survival curve he was looking at concerned people who had been treated ten to twenty years earlier. They had benefited from the treatments available then, under the conditions of that earlier time. In a domain like oncology, two things are continually changing: conventional treatments and our knowledge of what each of us can do individually to reinforce the effect of these treatments. If the circumstances change, the survival curve changes too. Perhaps with the new treatment he would receive, and with a little luck, he would be part of a new curve with a higher median and a longer tail, which would go far, very far, as far as natural death in old age.

Stephen Jay Gould died twenty years later of another disease. He had had time to pursue one of the most admirable scientific careers of his era. Two months before his death, he was able to witness the publication of his magnum opus, *The Structure of Evolutionary Theory*. He had lived thirty times longer than the oncologists had predicted.

The lesson that this great biologist teaches us is simple: Statistics are information, not condemnation. The objective, when you have cancer and want to combat fatality, is to make sure you find yourself in the long tail of the curve.

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No one can predict precisely the course a cancer will follow. Professor David Spiegel of Stanford University has been organizing psychological support groups for women with metastatic breast cancer for thirty years. In a lecture at Harvard in front of an audience of oncologists (published in the *Journal of the American Medical Association*), he explains his uneasiness: “Cancer is a very puzzling illness. We have some patients who had brain metastases [a frequently ominous development in breast cancer] eight years ago and are fine now. Why is that? Nobody knows. One of the great mysteries of chemotherapy is that sometimes you can make tumors melt away and have very little effect on survival time. The link between somatic resistance and disease progression, even from a purely oncological point of view, is still very hard to tease apart.”

We have all heard of miracle cures, of people who had no more than a few months to live and who nevertheless survived for years, even decades. “Don’t forget,” we are warned, “that these are very rare cases.” Or else we are told that these cases may not really be cancer but are more likely mistaken diagnoses. In the eighties, to clarify the matter, two researchers from Erasmus University in Rotterdam systematically researched cases of spontaneous remission from cancer whose diagnosis could not be called into question. To their great surprise, in eighteen months of research in their small region of the Netherlands, they counted seven cases, as indisputable as they were unaccountable.

By participating in certain programs, such as that of the Commonwealth Center in California, patients try to take charge of their cancer, to learn to live in greater harmony with their bodies and their past, to seek peace of mind through yoga and meditation, and to choose foods that fight cancer while avoiding those that promote its development. Their case histories show that they live two or three times longer than the average person with the same cancer at the same stage of development.

An oncologist friend at the University of Pittsburgh, whom I told about these figures, objected: “These aren’t ordinary patients. They’re better educated, more motivated, and in better health. The fact that they live longer doesn’t prove anything.” He was mistaken. If these results don’t fit the canons of double-blind, randomized trials, they nevertheless show that some people beat the odds. Indeed, those who are better informed about their disease, who look after their bodies and minds, and who are given what they need to improve their health can mobilize the body’s vital functions to fight the cancer.

Since then, more formal proof has been provided by Dr. Dean Ornish, a major forerunner of integrative medicine and a clinical professor of medicine at the University of California at San Francisco. In 2005 he published the results of an unprecedented study in oncology. Ninety-three men with early-stage prostate cancer—confirmed by biopsy—had chosen, under the supervision of their oncologists, not to undergo surgery but simply to keep the tumor under surveillance. This meant measuring the blood level of PSA (prostate-specific antigen), an antigen secreted by the tumor, at regular intervals. An increase in PSA would suggest that the cancer cells were multiplying and the tumor growing.

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As these men had refused all conventional medical treatment during this observation period, they made it possible to evaluate the benefits of natural approaches. The patients were split into two groups by drawing lots, so as to establish that they were, at the outset, strictly comparable. The control group simply continued under surveillance with regular measurements of PSA. For the other group, Dr. Ornish set up a complete program of physical and mental health. For one year, these men followed a vegetarian diet with supplements (the antioxidants vitamins E and C and selenium, and a gram of omega-3 fatty acids a day), physical exercise (thirty minutes of walking, six days a week), practice in stress management (yoga movements, breathing exercises, mental imagery, or progressive relaxation), and one hour of weekly participation in a support group with other patients in the same program.

This amounted to a radical change in lifestyle, especially for stressed executives or heads of families with many responsibilities. These were methods long considered outlandish, irrational, or based on superstition. Twelve months later, the results left no room for doubt.

Of the forty-nine patients who hadn't changed anything in their lifestyles and who had relied simply on regular surveillance of the disease, six saw their cancer worsen and had to undergo the ablation of their prostate, followed by chemotherapy and radiotherapy. Conversely, none of the forty-one patients who had followed the program of physical and mental health required recourse to such treatments. In the first group, the PSA level (which reflects the tumor's growth) had increased by 6 percent on average, not including the men who had had to withdraw from the study because of the increase in their disease (their level of PSA was still more worrisome and would have greatly increased that number). This first group's progression suggested that the tumors were growing, slowly but surely. As for the second group, whose lifestyle had changed, the PSA had decreased by an average of 4 percent, indicating a regression in the tumors of most patients.

But what was more impressive still was what happened in the bodies of the men who had changed their lifestyles. Their blood, presented with typical cancerous prostate cells (cells from the LNCaP line used to test various chemotherapy agents) was seven times more capable of inhibiting the growth of cancer cells than the blood of men who hadn't changed anything in their lifestyles.

The best proof of a link between changes in lifestyle and the arrested development of cancer cells is that the more diligently these men had absorbed Dr. Ornish's advice and applied it to their daily lives, the more active their blood was against the cancer cells!

In short, the statistics we are shown on cancer survival don't distinguish between people who are satisfied with passively accepting the medical verdict and those who mobilize their own natural defenses. In the same "median" are found those who go on smoking, who continue to expose themselves to other carcinogenic substances, whose diet is typically Western—a fertilizer for cancer, as we will see—who continue to sabotage their immune defenses with too much stress and poor management of their

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emotions, or who abandon their bodies by depriving them of physical activity. And within this “median” are those who live much longer. This is most likely because, along with the benefits of the conventional treatments they receive, they have somehow galvanized their natural defenses. They have found harmony in this simple quartet: detoxification of carcinogenic substances, an anticancer diet, adequate physical activity, and a search for emotional peace.

There is no natural approach capable of curing cancer by itself. But there is no inherent fatality either. Like Stephen Jay Gould, we can put statistics in perspective and aim for the long tail on the right-hand side of the curve. There is no better path to this objective than to learn to use our bodies’ resources to live a richer, longer life.

Not everyone follows this route through conscious decision. Sometimes the disease itself leads us there. In Chinese, the notion of “crisis” is written as a combination of the two characters “danger” and “opportunity.” Cancer is so threatening that its effect is blinding; it is hard for us to grasp its creative potential. In many ways, my illness has changed my life for the better, and in a way that I could never have imagined when I thought that I was condemned. It started shortly after the diagnosis. . . .

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