

## A Silent Fire: The Story of Inflammation, Diet and Disease

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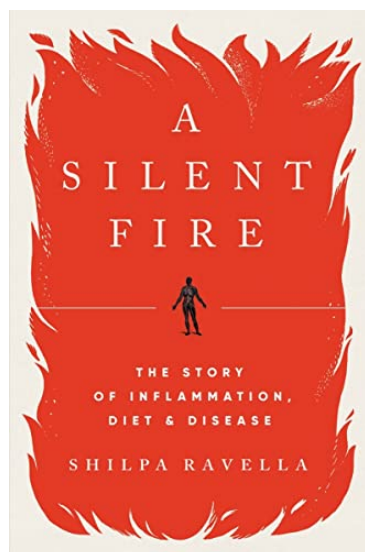
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**Book Title:** A Silent Fire: The Story of Inflammation, Diet and Disease

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I rarely read a book by a physician that changes my perspective on an aspect of medicine; Atul Gawande’s *Being Mortal*<sup>1</sup> and Siddhartha Mukherjee’s *The Emperor of All Maladies*<sup>2</sup> come to mind. Before reading *A Silent Fire: The Story of Inflammation, Diet and Disease*, I thought that treating inflammation, such as acute musculoskeletal injuries, infections, allergies, and asthma, constituted a limited part of my practice. In her first book, Shilpa Ravella, a transplant gastroenterologist and assistant professor of medicine at Columbia University, makes a convincing case that chronic inflammation creates or exacerbates nearly every condition we see in family medicine. *A Silent Fire* takes readers on a wide-ranging tour of historical and present-day research on inflammation and ways to slow or reverse it.

In the Introduction, Dr Ravella’s friend Jay is struck by a necrotizing autoimmune myopathy that attacks his neck muscles and resists diagnosis and treatment by a series of specialists. The first chapter then jumps to the 19th century, when German pathologist Rudolph Virchow described cardinal signs of inflammation on a cellular level and Russian zoologist Élie Metchnikoff deduced the role of macrophages in innate immunity. Another chapter profiles Harvard cardiologist Peter Libby, who correctly hypothesized in the 1980s that high cholesterol increases the risk of heart attacks and strokes not by simply clogging the “plumbing” of coronary or cerebral vessels but by inducing endothelial cells to produce inflammatory mediators that can rupture fatty plaques. In 2017, a placebo-controlled trial coauthored by Dr Libby found that in patients with previous heart attacks who were taking high-dose statins and had elevated C-reactive protein (CRP) levels, the anti-inflammatory drug canakinumab further reduced their risk of recurrent events and cardiovascular death by 15%, and surprisingly, also reduced their risk of cancer death by 50%.<sup>3,4</sup>

That inflammation is involved in the pathogenesis of cancer is a relatively recent finding. In 2011, Robert Weinberg, an MIT biology professor who in 2000 had published a landmark review describing the shared traits of cancer cells,<sup>5</sup> added inflammation as another hallmark that causes or assists the others. “In cancer,” Dr Ravella observes, “inflammation . . . can at once be the match that lights the fire and the fuel that feeds the flames” (p. 79). While overt inflammation caused by smoking, acid reflux, and *H. pylori* infection increases risk of lung, esophageal, and stomach cancers, low-level or hidden inflammation, detectable only by elevated CRP levels, has been linked to lymphoma, colorectal, pancreatic, prostate, and ovarian cancers. Subsequent chapters explore emerging research on the role of immune system-mediated inflammation in triggering or worsening obesity, type 2 diabetes, premature aging (Italian immunologist Claudio Franceschi coined the term “inflammaging” in 2000<sup>6</sup>), osteoporosis, osteoarthritis, depression, and Alzheimer’s dementia.

The second half of *A Silent Fire* discusses existing and potential anti-inflammatory therapies. Picking up where the Introduction left off, Jay at first takes over-the-counter ibuprofen, then months of high-dose prednisone. Finally, as the inflammatory onslaught continues unabated, Jay’s rheumatologist combines the immunosuppressants tacrolimus and azathioprine with courses of intravenous immunoglobulins, halting the

disease's progression. As Dr Ravella notes, none of these therapies are appropriate for the inflammation at the root of heart disease or cancer. Research has identified the Western diet, high in animal protein and low in fiber, as the chief contributor to inflammation in the gut microbiome. Diverse anti-inflammatory diets consisting largely of whole plant foods are linked to lower rates of obesity, heart disease, some cancers, and autoimmune and neurodegenerative diseases.

The book closes with pandemic researchers' efforts to understand why life-threatening coronavirus infections are more common in older people but do not entirely spare the young and apparently healthy. Again, hidden inflammation is a likely culprit; affected patients "tend to have both sluggish immunity and impulsive immune systems and are more likely to generate overwhelming, inappropriate inflammation during infections" (p. 276).

*A Silent Fire* is an entertaining read, and its thesis that the inflammatory responses that rage out of control in autoimmunity and severe COVID-19 are responsible for much of our patients' chronic diseases is worthy of our attention. This book should appeal to readers with an interest in medical history or dietary guidelines. However, starting to check CRP levels would be premature outside of patients suspected of having overt inflammatory diseases. And though future therapeutics may emerge from the cutting-edge science the author describes, the book does not offer new practical interventions for clinicians who already prescribe the Mediterranean, DASH, and vegetarian diets to prevent disability and premature death.<sup>7</sup>

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