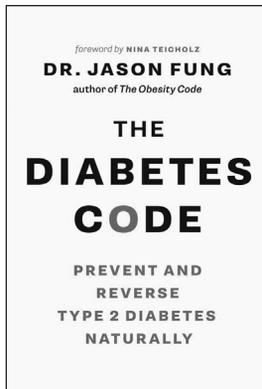


BOOK AND MEDIA REVIEWS

The Diabetes Code

Jason Fung

Vancouver, Canada, Greystone Books, 2018, 296 pp., \$22.95



Jason Fung, MD uses Ockham's razor to simplify the management of type 2 diabetes. William of Ockham (1287-1347) was an English friar and philosopher. He is famous for postulating that with complex problems, the hypothesis with the fewest assumptions is usually correct.¹

Fung is a nephrologist by training and runs the Intensive Dietary Management Program at the University of Toronto.

Fung formulated a new understanding of obesity by developing the argument that obesity is a hormonal illness of excess insulin.² With all food consumption, especially carbohydrates, insulin is secreted to drive blood sugar into cells. Insulin is more importantly a fat storage hormone that blocks the burning of fat and causes excess sugar to be turned into fat through lipogenesis. Repeatedly eating carbohydrates causes chronically high insulin levels and the steady accumulation of fat.

Fung stresses the importance of fasting to lower insulin levels enough to begin using body fat for energy. He argues that nutrition for weight loss has been overly focused on what is eaten, and not sufficiently focused on how often we eat. Humans have spent most of their time on earth eating just one meal a day. Eating three meals a day is cultural, and contributes to the epidemic of overweight and obesity, especially with the increased intake of refined carbohydrates.³

In *The Diabetes Code*, Fung furthers this same argument to show that type 2 diabetes is caused by insulin resistance. Doctors have known this for a long time, but Fung simplifies it for a better understanding of how insulin resistance occurs. The repeated secretion of insulin that causes obesity next leads to

insulin resistance as a protective mechanism for chronically high insulin levels. This also results in fatty liver early in the disease process. Insulin resistance results in the high blood sugar of type 2 diabetes. Overcome insulin resistance, and the blood sugar returns to normal and the type 2 diabetes is reversed. Fasting is a key part of this disease reversal process.

The approach to preventing and reversing diabetes described in *The Diabetes Code* is straightforward. The nutrition is healthy fats, low carbohydrates, and intermittent fasting. Healthy nutrition continues for life with good fats: nuts, seeds, fatty fruits and vegetables such as avocado, quality fish, and meat. This is a version of the Mediterranean diet. All refined carbohydrates and sugars are avoided. Twelve to 16-hour fasting periods are built into the daily routine, and adults eat one to two meals a day. Water is encouraged to stay well hydrated, and coffee and tea are allowed during fasting periods. Any snacks should be healthy fat and low carbohydrate, such as raw nuts. Bone broth or similar foods are used during prolonged fasts to maintain electrolytes.

Obese patients with long-standing insulin resistance often require a prolonged fast to get them started for burning fat, losing weight, and reversing insulin resistance. Fung shows how fat burning does not occur until the insulin levels are low, such as a fasting insulin below 10 mIU/ml. Fung uses longer fasting periods to lower insulin levels, allowing the body to recover from insulin resistance. To avoid hunger from fluctuating blood sugar levels, the patient is first weaned off refined carbohydrates and started on the healthy fat low carbohydrate diet. A minimum initial prolonged fast of 36 hours to 3 days may be needed to start the process of reversing insulin resistance. For morbidly obese patients Fung uses initial fasts of 7 to 21 days. The longest known medically supervised fast is over 1 year in a male weighing more than 460 lbs. Micronutrients, ample water, and electrolytes are provided during the fast, and coffee and tea are allowed.

Fung describes how many of the drugs used to treat type 2 diabetes, while lowering the blood sugar, make the underlying disease

worse by increasing body fat and increasing insulin resistance. The biggest culprit here is the use of insulin. In the United States, over 23 billion dollars were spent on drugs for type 2 diabetes in 2013.⁴ In Fung's clinic at the University of Toronto, most of the patients with type 2 diabetes have a complete reversal of the disease and are off medications in 3 to 6 months.

With *The Diabetes Code*, Fung provides a simple lifestyle approach to preventing and avoiding what has become the most expensive of all chronic diseases. The food industry and the drug industry will not be excited by his method, but it is long overdue for the public to curb the epidemic of obesity and diabetes, and lower the costs of medical care. The methods described by Fung should be taught to medical students and residents, and used in family medicine offices as part of a lifestyle approach to promoting health.

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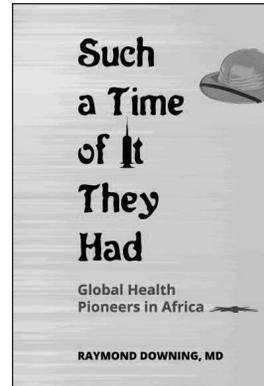
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**Such a Time of It They Had:
Global Health Pioneers in Africa**

Raymond Downing

Nairobi, Kenya, Manqa Books, 2018, 350 pp., Kindle: \$3.50, paperback: \$12.63



Humility and an open mind are two necessary characteristics for true success in any physician's career, but particularly one in global health. Raymond Downing, MD has both of these qualities, and uses them as a lens through which to view the long and

sordid history of medical missions and global health in Africa up to present day. Through his collection of snapshots of mostly white European doctors coming to Africa on missions to "save the natives," he draws striking parallels between 1 to 2 centuries ago and now, forcing the reader to face the distasteful—but familiar for many of us—notion that not much has changed. From colonialism to donor-driven health campaigns, how much of the global health work that is done is helpful and how much is harmful; and even when we deign to ask this question in earnest, how often do we seek an answer that comes from the African and not the western perspective? Given how little of what we do has changed in 200 years, the answer has got to be, "Not nearly often enough."

Dr Downing, a family medicine physician, has decades of global health experience on which to reflect. Although my own global health experience only started in 2007, since my very first time working abroad I've questioned the utility of what we do as global health workers. The past decade for me has included working domestically in west, and northeast Philadelphia, east Baltimore with homeless populations, with immigrant populations, and abroad in southern Africa, South America, and the Carribean, multiple courses in bioethics, dozens of lectures and books on global health, and work with two of the most ethical institutions in the world, and yet the same question remains in my mind.

Such a Time of It They Had is uniquely written in punctuated style with short modern

anecdotes of Dr Downing's personal experiences, juxtaposed with selected poignant excerpts from history. In this way, while it might have been easy for the reader to dismiss the insanity of what was done centuries ago as the ignorance of the times, when faced with the similarities of what is being done in our own time, the reader is forced to acknowledge that not much has changed. The book is not meant to be a comprehensive history of global health in Africa, nor is it meant to be a medical text, although without knowing it the reader will certainly learn a bit of history and medicine. Each chapter is its own story, but the stories are woven together with the touch of an experienced writer and come together at the end to reveal the larger picture to the reader. It is quite beautifully done.

While eager medical students and residents might not find this to be the most "high yield" study text, they will find it enjoyable, and as a faculty member preparing students for global health experiences, I will add this to my must-read list. It is one of those rare books, that if the reader pays attention and internalizes the message, they will be blessed with wisdom beyond their years and will be spared some of the growing pains that necessarily come with global health for those who truly wish to practice it in an ethical and thoughtful manner.

White westerners have made, and continue to make many missteps in our quest to "help" Africans. I fear that this will not end with the publishing of this valuable text, yet I hope that it will be one more roadblock to those who might otherwise barrel recklessly forward in their own attempts to "save the natives," as it is clear from both this text and centuries of experience that with this sort of global health, we sometimes do much more damage than good.

On a positive note however, it is my guess that in spite of what this book says about the state of global health over the past few centuries, as one of a handful of recent thoughtful publications on this issue it signals a ray of hope that perhaps we white westerners are truly starting to rethink our approach to global health.

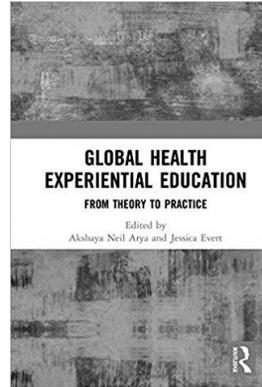
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Global Health Experiential Education: From Theory to Practice

Akshaya Neil Arya and Jessica Evert, editors
New York, Routledge, 2018, 338 pp., \$150, hardcover



Global health has experienced significant and perhaps overdue growth in the medical professions. The academic study of global health was largely a public health pursuit in the past: the literature on international development, social determinants and the root causes

of global inequity have mostly arisen from the public health sciences encompassing social and biomedical ones, but not until recently has it included clinical medicine. The relatively archaic concept of missionary medicine was perhaps the main underpinning that clinical sciences have, and this was reflected until the last couple of decades in the paucity of academic, rigorous global health didactic curricula in US medical schools and residencies.

Drs Arya and Evert thus immediately do us a great service through the selection of topics and authors for this edited book. They have assembled a multidisciplinary group while keeping a focus largely on the medical students, learners, and practitioners at whom the book is targeted. As the practice of medicine changes, we see greater inclusion of nonmedical professionals teaming with and teaching their physician counterparts. The book models this and indeed shows us how much we all have to learn from one another's disciplines when working with the highly complex set of interconnected concerns we lump together as global health.

The editors' introduction is an intellectually honest one. It sets forth their motivations in writing the book, the intended audiences, and importantly, personal shortcomings and learnings the editors faced in their own global health journeys. The book is divided into the following parts:

- "Pedagogies," which reviews educational paradigms, curricula and best practices in education.
- "Ethics," which goes far beyond a token chapter on the topic to a seven-chapter

exploration of power dynamics, ethical standards, cultural humility, and a provocative discussion of neocolonialism.

- “Host Perspectives,” exploring in case study form the perspective of volunteer recipients. This includes a fascinating discussion on “critically engaging host communities’ praise for foreign healthcare volunteers,” an important chapter that reflects in a way the more cutting-edge content of the book: deeply interesting and important content with much but not all the scientific underpinning for a definitive understanding.
- “Contemporary Conversations” feels like a grab-bag section of the chapters that did not neatly fit any of the others, but this is far from faint praise. This section is actually home to some of the most well-reasoned and developed chapters, such as one by the late, great Dr Tom Hall and others, and addressing critical topics such as global health job opportunities, short-term experiences in global health, LGBT health in the global context, and women’s representation in global health leadership. On this last topic, it has been my observation that we are fortunate as a society that women are comprising a greater number of educational leaders, physicians, and indeed in some entering medical school classes. However, they are inadequately represented at the highest levels of GH leadership, and at the lowest end of the economic spectrum, bear a disproportionate burden of child-rearing and employment.
- “Case Studies” rounds out the collection, with informative bites on key initiatives

in the global South and North, and a concluding chapter by the leadership of the Consortium of Universities of Global Health ties it all up nicely.

One concern regarding chapter organization pertains to the online materials. While it is common now for books to have accompanying materials, I could not access the three online-only chapters at the URLs provided in the book. Perhaps it would have been better if those chapters had simply been reprinted in the print version.

The editors deserve credit for stitching together a remarkably coherent volume in a field where the influences and determinants are incredibly diverse. Certainly leaders of global health programs, particularly in medical school and residency, need this book as a collection of our current state of knowledge on this set of topics. One can see individual chapters forming important discussion areas for journal clubs as well.

This book seems to be part of a journey not yet complete. That makes it no less an accomplishment. As the state of knowledge on these key topics evolves, the next edition will likely include chapters with a more assured and complete knowledge base, and an even broader authorship from the developing world. In the meantime, this book is an important, even essential, contribution to global health education.

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