Book Summary: The China Study, by T. Colin Campbell and Thomas M. Campbell

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This is a preview of the Shortform book summary of The China Study by T. Colin Campbell and Thomas M. Campbell. Read the full comprehensive summary at Shortform.

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1-Page Book Summary of The China Study

As a nation, we’re fascinated by diets. We spend billions of dollars every year trying to lose weight, feel better, and get healthier. But most of us are failing. Americans are some of the sickest and most overweight people in the world, and yes, our diet is to blame. But sugar and fat, the usual culprits, might not be the only, or even the worst, offenders.

In *The China Study*, T. Colin Campbell, Ph.D., and his son Thomas M. Campbell II, MD offer evidence that suggests that the foods we should actually be avoiding are animal-based. In hundreds of studies, eggs, cheese, milk, and meat have all been shown to increase your risk of everything from obesity and diabetes to cancer and autoimmune diseases. The authors’ goals are to 1) provide you with the evidence that **a whole foods, plant-based (WFPB) diet can prevent and even reverse disease**, and 2) explain why these findings aren’t better known.

The benefits of a WFPB diet include:

- Losing weight
- Living a longer life
- Looking and feeling younger and more energetic
- Lowering cholesterol and blood pressure
- Reducing the need for expensive surgeries
- Reducing your risk of heart disease, cancer, diabetes, autoimmune diseases, Alzheimer’s, and osteoporosis, among other illnesses.

*The China Study* is based, in part, on the research project of the same name, one of the most extensive nutrition studies ever done. For the project, T. Colin Campbell’s Cornell team partnered with Oxford University and the Chinese Academy of Preventive Medicine to study the diets, lifestyles, and diseases of inhabitants of rural China. What they discovered shocked them: Eating plant foods may be one of the leading determiners of health in rural China, and eating animal protein may be one of the leading causes of disease in the Western world.

*The China Study* has chapters devoted to individual diseases and disease groups, but regardless of the illness, the message is the same: **Eat more plant foods and avoid animal foods.**

The Principles of the Whole Foods, Plant-Based Diet

The Campbells distill their research findings and the findings of hundreds of other nutrition and disease studies into eight basic principles.

**Principle #1: Various nutrients work together to achieve health.**

No single nutrient is responsible for good health. What matters most is how the various nutrients in foods work together to create change in the body and maintain good health. This is why eating whole foods rather than taking nutrition supplements is so important, which brings us to Principle #2.

**Principle #2: Avoid supplements—get your nutrients from food, not pills.**

Supplements are problematic because they’re poorly regulated, often have side effects, and aren’t always effective. Further, the way nutrients function in the body is complex, and it’s not always clear whether certain benefits come from a single nutrient or from the whole food, so you’re better off eating the whole food.

**Principle #3: Almost any nutrient you can find in animal-based foods, you can find in a healthier form in plant-based foods.**

Plant foods have more of almost every nutrient, including fiber, vitamins, minerals, and antioxidants. Animal foods have fewer nutrients and more fat. The only exception to this principle is vitamin B₁₂, which is only present in animal foods.
Principle #4: Genes alone don't cause disease—we have considerable control over which genes get expressed.

Genes only affect us when they're activated, and diet is one of the biggest triggers of gene activation. This explains why, in populations made up of people who share a genetic heritage, disease rates vary widely. Some of these people are eating more foods that trigger the expression of genes that lead to disease. Researchers can actually turn “bad” genes on and off in mice by altering the amount of animal protein they feed them.

Principle #5: Good nutrition can counter the negative effects of carcinogens.

We think that carcinogens cause cancer, but, like genes, carcinogens likely need to be activated to do harm. They're often activated by diets high in animal protein. Conversely, antioxidant-rich plant foods can diminish the potency of carcinogens.

Principle #6: The same principles that prevent disease can reverse it.

A WFPB diet can prevent heart disease, diabetes, and obesity. Even more surprising, it can also reverse these diseases.

Principle #7: Nutrition that prevents one disease is probably beneficial for health in general.

Whole, plant foods seem to reduce risk across the board. Therefore, a diet that's good for your heart is also good for your brain, liver, kidneys, and nervous system.

Principle #8: Good nutrition works holistically with physical activity, mental and emotional health, and our environment.

Positive lifestyle changes work together and build off one another to promote health. For example, eating well gives us more energy. Having more energy makes it easier to exercise more. Exercising more promotes mental and emotional health. When we're in a better mood, we eat healthier meals, and the cycle continues.

Recommendations

Although their main goal is to provide evidence in support of a plant-based diet, the Campbells also offer advice for healthier living. These recommendations include the following:

- **Eat plant-based proteins.** These come in the forms of fruits, vegetables, and whole grains. Eat as much as you want, as long as what you're eating is plant-based and unrefined.
- **Avoid animal-based proteins** to decrease your risk of heart disease, cancer, diabetes, and kidney stones, among other illnesses and health issues. Animal-based proteins are those in meat, fish, eggs, and dairy.
- **Eat a variety of fruits and vegetables** to increase your antioxidant intake and protect yourself against free radicals. This also ensures you're getting all the essential amino acids for healthy growth and increased strength.
- **Eat three more servings of fruits and vegetables a day** to cut your risk of stroke. One serving could be a potato, half a cup of broccoli, half a cup of peaches, or a quarter of a cup of tomato sauce.
- **Focus particularly on consuming vitamin C** in whole foods like peppers, strawberries, broccoli, papayas, and peas.
- **Eat 10 extra grams of fiber a day.** This is the amount of fiber in a cup of raspberries or peas. A cup of beans has more than 10 grams. Get your fiber from real foods, not from supplements.
- **Eat a high-carb, rather than a low-carb, diet.** But make sure you're getting your carbohydrates from whole, not refined, foods.
- **Get less than 10% of your calories from fat** to prevent or treat heart disease.
- **Reduce your intake of milk products**—casein has been shown to increase cholesterol and promote tumor growth.
- **Don't spend time, money, or energy on weight-loss programs that promise quick fixes.**
- **Exercise 15-45 minutes a day, every day.**
- **For general disease prevention, get vitamin D by spending 15-30 minutes in the sun** every few days.
- **Eliminate saturated fat from your diet.** Saturated fats are generally found in animal products. Foods with...

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Shortform Exercise: Your Health Beliefs (Part I)

Before diving into the findings presented in *The China Study*, take stock of your own beliefs and knowledge about diet and nutrition.

Make a brief list of foods you know are good for you.

The China Study Summary Introduction

Diet books are frequent bestsellers and America's health industry is worth billions of dollars. Clearly, we want to be healthy.

But even though there's a huge amount of health information out there, most of us still aren't really sure what we should be eating to be our healthiest.

*The China Study* has the answer: **Eat a whole foods, plant-based (WFPB) diet.**

**Whole Foods:** Throughout the book, the authors (T. Colin Campbell, Ph.D., and his son Thomas M. Campbell II, MD) recommend eating foods in their least processed forms.

For example, rather than eating potato chips, eat a potato. Substitute whole-grain pasta for your usual white pasta.

**Plant-Based:** The authors also recommend a diet that's free of all animal products, including meat, fish, dairy, and eggs. Just as importantly, they recommend eating lots of antioxidant- and fiber-rich plant foods, such as fruits, vegetables, and whole grains, to protect against disease.

The WFPB diet is relatively simple. If eating well and preventing illness is really this straightforward, why are we so bewildered about what it means to eat well?

The Confusion Surrounding Diet

Is gluten bad for us? Do eggs increase cholesterol? Is dairy the best source of calcium?

The aim of this book is to eliminate the confusion surrounding health and diet and expose the problems in our current health systems.

**Problem #1:** The goal of the “health” industry is to make a profit, not to make us healthy.

Part of the problem is that genuine, useful research is buried beneath fad diets, miracle pills, and marketing propaganda. As we'll see in Part IV, the people and companies who give us health advice are often also the ones who profit from our diseases.

**Problem #2:** We don't know how confused we really are.

Another part of the problem is that even though we're confused, we all think we know a lot about health. But much of this “knowledge” is actually myth. For instance:

- Synthetic chemicals are not the primary cause of cancer.
Your genes are not the most important factor in determining whether...

The China Study Summary Part I: The China Study | Chapter 1: Problems and Solutions

America spends more money on healthcare, per capita, than any country in the world. So Americans must be the healthiest, right? Not quite.

Two-thirds of our population is overweight, 25 million Americans are diabetic (up by 10 million since the book was first published in 2005), and half of Americans take a prescription drug every week. The authors believe that all of these issues are caused by, and can be solved with, food.

The Health Problems of Americans

Problem #1: As a Country, We’re Sick

We struggle with obesity, diabetes, cancer, and heart disease at alarmingly high rates.

For example, in 2005, more than one-third of American adults were obese. This percentage has been increasing for decades.

A related problem, one out of eleven Americans is diabetic, and that number keeps rising too, even though as a community we’re more knowledgeable about this disease than ever before. Even more sobering is the fact that 34% of people with diabetes don’t even know they have it. Diabetes is particularly serious because it can lead to issues such as blindness, heart disease, limb amputation, and early death. Further, this disease is expensive: 20% of our nation’s health care costs is directed toward diabetes treatment. Still, fast-food restaurants sell items proven to lead to diabetes, and we’re spending more time in front of screens, further increasing our risk.

Cancer is another disease that’s startling in its prevalence. Males have a 47% chance of developing cancer in their lifetimes and females have a 38% chance. Contrary to what we’re often told, cancer is not a natural or inevitable disease. Most cancers are preventable through diet and lifestyle choices, but cancer death rates haven’t decreased over the past 20 years, despite all we’ve learned about this group of diseases.

And then there’s heart disease, the biggest killer in the U.S., killing 1 out of every 3 Americans. Perhaps even more so than cancer, whether we get heart disease is largely under our control. Close to 100% of heart disease is preventable (and even...
One thing we think we know about nutrition is that we need lots of protein to be strong and healthy. But we may not need as much as we think, and we probably don't need animal protein at all.

The Importance of Protein

Protein is a chemical made up of chains of hundreds of amino acids. It's an essential part of our biological makeup—proteins function as enzymes, hormones, tissues, and transport molecules, among other roles.

Our bodies need to replace proteins when they get old and wear out. You can imagine a protein as a string of different colored beads, each color representing a different amino acid. When the string of beads breaks, we need to build a new one from new beads.

Our bodies make many of these "beads," or amino acids, on their own, but there are eight they can't produce. We need to consume these "essential" amino acids in order to replace some of our bodily proteins.

Protein "Quality"

The highest quality proteins are the ones that provide us with all eight of the amino acids our bodies can't make themselves. The best quality proteins come from animal foods, particularly milk and eggs. The protein in plants is generally lower quality because a single plant source usually lacks one or more of the eight essential amino acids.

But the term "quality" is misleading. A protein can be "low quality" but still healthier than its high-quality peers.

"Low-quality" plant proteins are slower to synthesize into the proteins our body uses, but unlike animal proteins, they don't increase our risk of disease. (Well look at how animal proteins contribute to disease development in the next chapter.) Animal proteins may be more efficient, but efficiency doesn't always mean healthy.

People worry that vegans (who don't eat animal protein) don't get the right amino acids, but as a group, plants contain everything we need. It's not necessary to eat a huge quantity of plant proteins to reap their benefits, and we don't need to meticulously plan each meal. As long as we're eating a variety of plants, our amino-acid needs will likely be taken...

Cancer is one of the most feared diseases in America. We're swift in responding to carcinogen discoveries, decrying the use of DDT, Red Dye Number 2, nitrates, and artificial sweeteners.

But we're not swift in the face of discoveries that are much more impressive and substantial, like the research linking casein with cancer. These findings are so counter to what we've always been told that they're hard to take seriously.

Another discovery that gets ignored is the fact that cancer is, for the most part, preventable. Genetics only determine 2-3% of your cancer risk.

Campbell added to the growing body of research that suggested we have control over our cancer risk. He conducted his own studies with rats to determine how protein intake affects cancer development, and what kinds of proteins have this effect.

In his studies, in which rats were administered AF, Campbell confirmed and deepened the findings of the Indian study. He found that animal-protein consumption increased the risk of various cancers (including liver, pancreatic, and breast) at different stages of the cancer's development. The results remained consistent when the rats were dosed with other carcinogens, such as hepatitis B, indicating that animal proteins may open the door for multiple types of carcinogens (cancer-causing substances).

The Three Stages of Cancer

Carcinogens cause cancer by permanently damaging a cell's DNA, mutating it from a normal cell to a cancer cell. The cancer cell then replicates, and the cancer may spread to other tissues and body systems.
To understand how protein influences this development, we need a basic understanding of the three stages of cancer. We can think of these stages like the process of seeds becoming a lawn.

**Stage 1: Initiation**
This is the stage analogous to putting the seeds in the soil. In this stage, the carcinogen enters the body and is transported into cells.
Also in this stage, the carcinogen changes into its “active” dangerous form and binds to DNA. Damaged DNA is then passed on to daughter cells. In humans, this stage...

**The China Study Summary Chapter 4: The China Study**
Now that he had evidence that animal protein causes liver cancer in rats, Campbell wanted to see if the findings also applied to humans.

This was one of the aims of the China Study, the most comprehensive survey of its kind.

In collaboration with the Chinese Academy of Preventive Medicine and the University of Oxford, Campbell's team traveled to 65 rural and semi-rural Chinese counties, collecting blood and administering questionnaires to 6,500 adults.

Once for every subject over the course of a year, researchers obtained urine samples, measured what families ate over a three-day period, visited marketplaces to analyze food samples, and accumulated data on 367 variables.

They examined 48 different diseases and found more than 8,000 statistically significant associations among disease variables, diet, and lifestyle.

**Why China?**
Studying people in rural China allowed researchers to rule out genetics as a major factor in disease formation because, compared to other areas of the world, rural China contains populations with homogeneous genes. 87% of the Chinese are of the same ethnic group, the Han.

Additionally, 90-94% of the adults studied were living in the county where they were born. The lack of migration meant that the genes in the population were relatively similar.

Even though the Chinese share the majority of their genes, they don’t all have the same cancer risk. For example, some Chinese counties have much higher cancer rates than others, and some types of cancers are much more prevalent in some places.

As mentioned earlier, genes make up only 2-3% of a person’s total cancer risk. Therefore, the other 97-98% must be environmental or related to lifestyle. The fact that the Chinese share most of their genes but get different cancers supports this statistic.

**Lessons from the China Study**
From the study, researchers learned several lessons that informed the way they viewed America’s various health problems.

**Lesson #1: There are diseases of poverty and diseases of affluence.**
Researchers had access to mortality rates in...
Which lessons from the China Study are most meaningful to you?

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The China Study Summary Part II: Diseases of Affluence | Chapter 5: Heart Disease

Part II dives into the diseases of affluence that afflict Westerners in particular: heart disease, obesity, diabetes, cancer, and autoimmune diseases. Each chapter discusses the ways in which the rich diets of our Western privilege are killing us. These chapters also detail how a whole foods, plant-based diet can heal us.

Heart Disease
The first disease of affluence discussed is heart disease. Heart disease has been the leading cause of death in the U.S. for almost 100 years, killing 40% of Americans and leading to 3,000 heart attacks in America every day.

Still, women tend to worry more about breast cancer, even though they're eight times more likely to die of heart disease. Young people should also be vigilant—heart disease exists even in those who are in their 20s and seemingly healthy. One study examined 300 soldiers killed in the Korean War, none of whom had been diagnosed with heart problems. Their average age was 22. When researchers dissected their hearts, they found that 77.3% had major evidence of heart disease.

The Risk Factors and Mechanisms of Heart Disease
High cholesterol, high blood pressure, obesity, smoking, and lack of physical activity are all risk factors for heart disease. Almost all of these risk factors contribute in some way to plaque buildup in the arteries.

The Role of Plaque in Heart Disease
Plaque is made up of cholesterol, proteins, and immune system cells, among other components. Together, they create a greasy layer lining the walls of the coronary arteries.
You can think of the coronary arteries like garden hoses. Plaque accumulating in an artery is like putting an increasingly acute kink in the hose. Blood flow turns to a trickle. Plaque buildup leads to angina, or chest pain.

**Heart Attacks**

Counterintuitively, having more plaque buildup doesn't necessarily mean you have a higher heart attack risk. **Heart attacks are more likely to happen when plaque blocks less than 50% of the artery.**

This is because thinner layers of plaque have weaker caps. Caps are layers of cells that can separate...

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**The China Study Summary Chapter 6: Obesity**

Perhaps the most famous disease of affluence is obesity, a symbol of our privilege and the excesses it fosters.

More than two-thirds of American adults are overweight, and one-third are obese, and this isn't just a problem for adults. Obesity in children is on the rise as well. Of children ages 6 to 11, 18% are overweight, and of children ages 12 to 19, 21% are overweight. A further 15% are at risk of becoming overweight.

Aside from making many everyday tasks uncomfortable or painful, obesity is a problem because it's linked to numerous health issues, including diabetes and heart disease.

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**How We Treat Obesity in America**

Going on diets and popping weight-loss pills have become national pastimes. In 2006, we spent $147-$210 billion on obesity-related medical treatments and an additional $60 billion out-of-pocket on weight-loss programs and supplements. So why are one-third of us still obese?

**Problem #1: We rely on gimmicks.**

Everyone wants a quick fix, and companies know that to get customers, they need to promise rapid results.

And sometimes, we can lose weight quickly from certain diets, pills, and methods. But these programs often damage our health (and our waistlines) in the long run.

**Problem #2: We think of obesity as independent of other diseases.**

This takes the issue of obesity out of its context. If we try to treat obesity without taking into account the diseases linked with it, we'll end up less healthy overall, and probably still won't weigh less than before.

**Problem #3: We place too much emphasis (and blame) on genetics.**

Researchers have identified several genes thought to be related to obesity. Their aim is to control weight by developing a drug that inactivates these genes.

But blaming obesity on genes is unproductive. At the moment, we can't control these genes, and believing that obesity is our fate keeps us from adopting healthy lifestyle changes that minimize our disease risks and help us lose weight.

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**The Solution to Our Obesity Problem**

As we've all heard before, diet and exercise are the keys to weight...

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**Shortform Exercise: Your Weight-Loss Strategy**

Make a plan to lose weight for good.
If one of your health goals is to lose weight, which of the above strategies would be easiest for you to adopt? What roadblocks do you anticipate?

The China Study Summary Chapter 7: Diabetes

Another disease of affluence is diabetes. In 2012, 9.3% of American adults were diabetic, and over 200,000 kids had Type 1 or Type 2 diabetes. Almost one-third of diabetics don’t even know they have this serious disease.

Complications of diabetes include heart disease, kidney disease, damage to the nervous system, high blood pressure, blindness, and amputation.

Type 1 Versus Type 2 Diabetes

Type 1 diabetes used to be called juvenile-onset diabetes and Type 2 was called adult-onset diabetes. But now, 45% of childhood diabetes diagnoses are Type 2, so the original terms no longer apply.

As we’ll see, both types are associated with the consumption of animal foods and both involve a malfunctioning metabolism.

The Metabolism

A functional metabolism involves four steps:

1. We consume food.
2. Our bodies break down carbs into simple sugars like glucose (blood sugar).
3. Glucose enters the blood. In response, the pancreas produces insulin.
4. Insulin lets glucose into cells, where it’s used as energy.

In both types of diabetes, the breakdown of this system wreaks havoc on the body.

People with Type 1 diabetes (5-10% of all diabetes cases) can’t produce insulin because the pancreas cells that make it have been destroyed by the immune system.

Because Type 1 diabetes is an autoimmune disease, it’s discussed at length in Chapter 9.

People with Type 2 diabetes (90-95% of all diabetes cases) can produce insulin, but the insulin isn’t effective. It doesn’t transport glucose into cells, so the glucose isn’t metabolized. It remains in the bloodstream, causing the body to produce more insulin, resulting in a vicious cycle.

The Problems with Modern Treatments

Problem #1: The drugs that are currently available allow people with diabetes to function, but they don’t treat diabetes at its source.

Problem #2: Consequently, people with diabetes spend their entire lives post-diagnosis taking daily medication.

Problem #3: This is costly. In 2013, **the U.S. spent $245 billion a year on diabetes...**

The China Study Summary Chapter 8: Cancer (Part II)

Campbell, who won the American Institute for Cancer Research’s Research Achievement award in 1998, believes that the nutritional principles discussed in this book have the same effect on many cancers, as discussed in Chapter 3. In this chapter, we look at the research on diet and three groups of cancer in particular: breast cancer, large bowel cancers, and prostate cancer.
Breast Cancer

One out of eight American women will get breast cancer in her lifetime. Like most cancers, this is yet another disease of affluence.

There are multiple risk factors and animal foods are linked to almost all of them.

Breast Cancer Risk Factors

1. High Blood Cholesterol

As we’ve seen, both dietary fat (found in greater quantities in animal foods than in plant foods) and animal proteins have been shown to increase cholesterol.

2. Prolonged Exposure to Female Hormones

These hormones include estrogen and progesterone. The earlier a female starts menstruating, and the later she starts the process of menopause, the greater her exposure to estrogen over her lifetime.

Animal foods seem to play a part in increasing cancer risk at every stage of a woman’s life:

- **Adolescence**: In girls, there’s an association between eating high-fat diets and starting menstruation earlier. Because animal foods are often high in fat, they may contribute to early menstruation.
- **Adulthood**: High-fat diets have also been shown to increase estrogen levels during reproductive years.
- **Menopause**: Diets rich in animal foods are associated with delays in menopause of three to four years. These additional years of estrogen exposure increase breast cancer risk.

In the China Study, researchers compared the estrogen levels of Chinese women to the levels of British women, whose breast cancer risk is similar to that of American women.

Chinese women in the study didn’t start menstruating until an average age of 17. Due to their low-fat diets, they also started menopause earlier than British women. Also due to their low-fat diets, Chinese women had half the...

The China Study Summary Chapter 9: The Autoimmune System

Most people, doctors included, agree that autoimmune diseases are some of the hardest to treat because their cause isn't well understood and there's no cure. Is it possible that our food choices affect even these stubborn and grim illnesses?

In people with autoimmune disease, the body attacks itself. The immune system thinks it's assaulting foreign invader cells, but it's actually destroying normal body cells. Tens of millions of Americans have autoimmune diseases, including multiple sclerosis (MS), Type 1 diabetes, lupus, and rheumatoid arthritis.

Before looking at food's role in the development of autoimmune diseases, let's look at their bodily source, the immune system.

How the Immune System Works

We can think of the immune system as our body's military. **White blood cells are the soldiers, keeping us safe by attacking foreign invaders like bacteria and viruses.**

Whenever it confronts a new invader, the immune system creates a protein that mirrors the invader protein. This mirror protein molds itself onto the invader and destroys it.

**The Problem: Some invaders look a lot like our own cells.** The molds that fit and destroy invaders can also fit and destroy the normal cells that look like them.

Sometimes, the immune system's molds get confused. They can't tell the difference between invaders and similar-looking cells, so they attack the normal cells. This is the root of an autoimmune disease.

Autoimmune Diseases May Have a Common Cause

While the presentation of each autoimmune disease differs, we can speak about them as a group and even discuss a common cause because of six ways they're alike:
Commonality #1: Each is a disease in which the body's immune system attacks itself.

Commonality #2: All studied autoimmune diseases are more prevalent in northern areas far from the equator, where there's less sunlight.

Commonality #3: Some of these diseases cluster together in individuals. For example, MS and Type 1 diabetes often occur in the same individuals and Parkinson's and MS are both common in the same geographic areas...

The China Study Summary Chapter 10: Other Diseases

No matter what your pet idea is, you're almost guaranteed to find a study, somewhere, that supports it.

Is the belief in the healing power of a whole foods, plant-based diet a pet idea? How do we know it's not just another fad diet? The answer is in the thousands of studies providing evidence that plant-based diets prevent and cure a multitude of health issues. Chapter 10 explores some of these various issues, including osteoporosis, kidney stones, vision problems, and brain health.

We tend to think of these health issues as the natural consequences of aging. But they might actually be the natural consequences of our diets.

Osteoporosis

The Calcium Myth

We all know that calcium builds strong bones. Americans consume more calcium, in the form of dairy products, than most people in the world. So our bones should be stronger than everyone else's.

But they're not. Americans age 50 and older have one of the highest hip fracture rates in the world. The few countries with higher rates, like Australia and New Zealand, eat more dairy than we do. How can this be?

Reason #1: Animal Protein in Milk Increases Acid in the Body

When our blood and tissues become more acidic, the body pulls calcium from our bones to neutralize the acid. This calcium loss weakens bones.

Studies suggest that 70% of fracture risk in women over 50 can be attributed to eating animal protein. Women who eat a lot of animal protein lose bone four times as quickly as those who get most of their protein from plants. More than 87 separate studies have found a link between animal protein and increased risk of bone fractures.

Further, populations that get most of their protein from plant sources have virtually no bone fractures.

Reason #2: Calcium Decreases the Body's Ability to Regulate Calcitriol, a Supercharged form of Vitamin D

In a normally functioning system, calcitriol determines how much calcium we absorb from food and how that calcium is distributed in the body.

But if we take in too much calcium over long periods of time, calcitriol becomes less...

Shortform Exercise: Your Health Beliefs (Part II)

Before starting Part III and reading about the Campbells' dietary principles, reflect on your own principles, the beliefs that consciously or subconsciously dictate how you eat. Have they changed since reading Parts I and II?

What are the benefits of eating animal foods? What are the benefits of eating plant foods?

Part III makes the findings from the studies detailed in Parts I and II actionable. A more comprehensive guide to nutrition, with meal plans and recipes, is available in Thomas M. Campbell's companion book, The China Study Solution, but this section also offers guidance on how to make a whole foods, plant-based diet work for you. The Campbells start by outlining eight key principles.

The Eight Principles

Principle #1
Various nutrients work together to achieve health.

No single nutrient is responsible, on its own, for good health. The way food chemicals function in the body and the way they interact with each other are too complex to ever fully understand. The sum of all these chemicals working together is greater than the actions of each individual chemical.

This is why the “whole foods” part of the whole foods, plant-based diet is important. How nutrients are packaged together in food matters more than the specific nutrients themselves. This brings us to Principle #2.

Principle #2
Avoid supplements—get your nutrients from food, not pills.

Supplements are problematic for a variety of reasons. First of all, the whole concept of a supplement ignores Principle #1—it's the whole food, not a particular nutrient, that provides the most benefit.

Additionally, supplements are poorly regulated, so you don’t really know what you’re getting when you buy them. They may have unforeseen side effects and some can cause harm. For example, many researchers caution against taking beta-carotene supplements because they’ve been shown to increase lung cancer risk.

Another problem is that supplements encourage people to eat poorly and “compensate” by taking pills.

Exceptions to Principle #2

Vitamin B12: A WFPB diet doesn’t contain B12, which is found only in animal products. Supplements of this vitamin have been shown to be effective in resolving deficiencies and there’s no evidence they cause health problems.

Vitamin D: While we can usually get the vitamin D we need easily from the sun, some people living...

The China Study Summary Chapter 12: How to Eat a Plant Diet

If you've made it this far in the book, you might be convinced by the extensive data associating animal foods with disease. The problem now is imagining yourself actually giving up meat and dairy. Is this feasible? Could you really stop eating animal foods?

Chapter 12 is here to hold your hand as you start your meat-and-dairy-free journey. Although the biology of why and how the WFPB diet works is complex, eating a WFPB diet is simple: Eat unrefined plant foods and limit added salt and fats.

What to Eat

- **Eat as much as you want** of fruits, vegetables, legumes, mushrooms, nuts, and whole grains (this includes whole-grain bread and pasta).
- **Limit** refined foods (white bread, cakes, pastries, crackers), fish, and added oils (including corn, peanut, and olive oils).
Avoid meat, poultry, dairy, and eggs.

**Four Discoveries**

Not eating animals is such a strange idea in America that most of us don't take it seriously. But if you try it for a month, you might be surprised by the discoveries you make.

**Discovery #1: Plant foods are delicious.** You may miss meat and cheese, but you'll also discover some enticing new foods you wouldn't have tried otherwise.

**Discovery #2: It's not as hard as you thought it would be.** Making such a huge dietary change isn't necessarily easy, but many people—some over a period of days, some over months—find that the shift isn't as dramatic as they expected.

**Discovery #3: You feel good.** In the first month, many people lose weight and gain energy. See if you can fit in a doctor's visit and get blood work done before and after changing your diet. Odds are, you'll see drops in cholesterol and blood pressure that match how healthy you feel.

**Discovery #4: Eating a WFPB diet is possible.** Even if it's just for a week, you'll know you're capable of surviving on a diet free of animal products. From then on, you'll see eating animals as a choice rather than a necessity. Your experience will prove that this diet isn't just for Buddhist monks and animal rights activists. Everyone can make this diet work...

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**Shortform Exercise: The WFPB Diet**

Take stock of your feelings so far about the WFPB diet. Are you all-in, ready to change your diet today? Are you merely curious? Anticipate your own possible foray into plant-based eating. If you’re considering trying a WFPB diet, which of the above suggestions do you find most helpful?

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**The China Study Summary Part IV: Institutions That Obscure | Chapter 13: Problems with Science**

In previous chapters, the Campbells hint at the skepticism, and even antagonism, of doctors, scientists, industries, and governments when it comes to the dangers lurking in meat and dairy. In Part IV, the Campbells flesh out some of the reasons the public doesn't hear more about these dangers.

Part IV is divided into discussions about resistance to the link between animal products and disease in the worlds of science (Chapter 13), industry (Chapter 15), government (Chapter 16), medicine (Chapter 17), and academia (Chapter 18).

While each institution gets its own chapter, the Campbells stress that it's increasingly hard to see where one ends and another begins, as industry especially has a huge influence over the other sectors.

The overarching issue is that we live in a system that prioritizes the profits of a few over the health of all. Even so, there are few "bad guys" in the stories in the coming chapters—industries, understandably, have a product to sell, government workers have elections to win, doctors lack training in nutrition, and well-intentioned journalists and health organizations spread bad information. The bad conduct of the few is rarely illegal, but it's certainly questionable, as well see.

**Chapter 13: The Problems with Science**

Science isn't always the unbiased, dogged pursuit of truth we like to think it is. There are multiple issues that allow science as an institution to promote unhealthy habits and spread bad information.

**Problem #1: Scientists' associations with food and drug companies.**
Many researchers receive personal compensation for advising food and drug companies. This biases them toward research that upholds the status quo and benefits these companies.

**Problem #2: Research is often designed by food and drug companies.**

Many researchers also receive compensation to conduct research designed to favor certain hypotheses over others. Often, these studies are devised by employees of the company rather than the researchers. Companies can then cherry-pick results, promoting some and burying others.

**Problem #3:**

The China Study Summary Chapter 14: The Problem of Reductionism

When Campbell talks about reductionism, he means the practice of doctors, researchers, and reporters focusing on the health benefits of specific nutrients rather than the food as a whole. This is an approach opposite to the one implied by Principle #1, the idea that various nutrients work together to achieve health, in Chapter 11.

Because the whole food is more than the sum of its nutritional parts, changing your diet one nutrient at a time isn't going to make you healthier. You need to look at the bigger picture, your dietary and lifestyle patterns as a whole, to understand how to be healthier.

Studies or companies that zero in on one particular nutrient lead to misleading information and confusion. You can't isolate a chemical and then make sweeping assumptions about the food it's in. Foods, the chemicals they contain and the way they work in the body, are too complex for that.

Two examples show the dangers of focusing on one nutrient in isolation.

**Example #1: The Marketing of Lycopene**

Often, scientists will use whole foods in their research and then supplement companies will use their findings to promote a specific nutrient. Lycopene is one example of many.

In the early 2000s, studies indicated that men who ate more tomatoes and tomato products had a lower risk of prostate cancer.

Rather than encouraging men to eat more tomatoes, people in marketing zeroed in on lycopene, the carotenoid thought to give tomatoes their health benefits.

The market for lycopene supplements boomed. But later research showed that high doses of lycopene were correlated to a higher risk of prostate cancer. Researchers started warning consumers against taking them.

Lycopene on its own probably isn't what makes tomatoes healthy. It's the way lycopene works in concert with the other chemicals in tomatoes that gives tomatoes their health benefits.

**Example #2: The Failings of the Harvard Nurses' Health Study**

Beginning in 1976, researchers at the Harvard School of Public Health followed over 120,000...

The China Study Summary Chapter 15: Industry

Food costs consume a huge percentage of our budget. Because we're dependent on food, we're also fairly dependent on those who market and sell it. "Health" industries take advantage of this. By making claims about the proven nutritional value of their products, food and drug companies and advocacy groups blur the line between science and marketing.
Organizations like the National Dairy Council, the American Meat Institute, and Florida Citrus Processors Association each have annual budgets in the hundreds of millions of dollars. With this money comes power over research, medical education, and government decisions.

Problems for the Consumer

Let's look at some of the problems of a system in which industry and science merge.

Problem #1: The consumer can't always tell which claims are based on rigorous research and which are marketing ploys.

It's the job of industries to sell a product. But when they clothe their marketing in scientific language, they make it hard for the consumer to understand the truth of a product's health claims.

Problem #2: Consumers are particularly vulnerable to food and drug industries.

Our lives literally depend on the foods we eat and the drugs we take. We might be able to resist the newest Apple offering or Lululemon pants because we know, on a rational level, that we don't really need them. But we can't say that about food.

When industries tell us that we need their products in order to be healthy, they're hard to resist. They use scientific language or cite scientific studies to make it sound like it's science that says we need these products. And whereas the layman might be skeptical of an advertiser's health claim, he often doesn't have the background knowledge to argue with “science.”

Problem #3: Marketers take advantage of reductionism.

As discussed in the previous chapter, researchers often study nutrients out of context. This can result in conflicting findings and confusion. It also makes it easy for industries to find a favorable study result and exploit it, taking the finding out of context.

(This...)

The China Study Summary Chapter 16: Government

Food is one of the biggest threats facing the American people. Our eating habits kill more of us than tobacco use, accidents, or any other lifestyle factor. Yet the government promotes the consumption of meat and dairy, foods that hundreds of studies say cause disease. Why? Is the government for the people, or at the expense of the people?

Problems with the Government's Approach to Health:

Problem #1: The government is closely tied to the food industry, and elected officials need to represent their constituents to get reelected.

For example, in 1976, Senator George McGovern headed a committee that drafted dietary goals based on a survey of the science linking diet to heart disease. He recommended that Americans decrease their consumption of fatty animal products and increase their consumption of fruits and vegetables.

But the goals were so controversial in the senate (because of their recommendation to decrease consumption of animal products) that the committee had to substantially revise them. McGovern and five other senators from agriculture states lost their 1980 reelections, in part because of their involvement with the dietary goals.

Keeping donors and influential industries happy informs the actions of many government officials.

Problem #2: The government has the power to establish nutrition guidelines, even though officials usually have no particular expertise in nutrition and eat the same diet that kills thousands of their constituents every day.

Government employees have power over nutrition guidelines at various stages of their development. They provide the money for the researchers devising the guidelines. They also choose the chair of the committee, who then chooses the other members. The government can then pick and choose what it likes from the resulting report.

Problem #3: Although government funding bodies devote billions of dollars to research on health topics, they rarely fund
Example, Problem #1: The Government's Ties with Industry

As we'll see in this example, the problems...

The Problems with Medicine as an Institution

Problem #1: Many doctors see a plant-based diet as too "extreme" to recommend. Presumably, they don't feel the same way about chemotherapy or life-threatening surgeries.

Problem #2: Many doctors don't think their patients will actually adopt a plant-based diet, so they don't suggest it, or they suggest it in passing. It's not offered as a serious recommendation.

Problem #3: Many doctors feel threatened by the idea that foods can cure as well as (or better than) they can. They've spent years developing their skills and learning how to execute extremely complicated procedures. It's demoralizing to think that a patient could choose between eating more greens and having bypass surgery, and eating more greens might be the more effective choice.

Problem #4: Medical students get almost no training in nutrition.

In 2010, medical students got an average of 20 hours of nutrition education. This is miniscule compared to their total hours of medical school coursework. Many of these "nutrition" hours focus on biochemistry and the metabolism rather than using food to prevent and treat illnesses. One survey found that some students finish these courses and don't even realize nutrition was covered in them.

Aggravating the problem, much of the educational material related to food and disease is supplied by the food industry, including the Dannon Institute, the National Cattlemen's Beef Association, the National Dairy Council, and Nestlé. In 2003, 112 medical schools used nutrition curricula sponsored by food and drug companies.

Consequently, many doctors prescribe meal-replacement shakes for diabetics, milk for patients with osteoporosis, and high-fat, high-meat diets for people who want to lose weight. They don't have the training to know better. There's also little knowledge among doctors that diseases...

The Source and the Link

What sector carries the most blame? According to the Campbells, it's academia. As the source of information, it may hold the most power. Food industries, medical centers, and the government rely on the research provided by the academic sector. They may exploit, disregard, bury, or manipulate that information, but academia is its origin.
Academia also has ties to these other institutions, its members helping develop health policies and working closely with the U.S. Department of Agriculture through outreach programs. It could use these ties to initiate change.

Universities are places valued for intellectual freedom, collaboration, and original, unbiased research. University members are in the ideal position to influence the quality and spread of information. Are they falling short?

The Problem: Disappearing Academic Freedom

Academic freedom is on the line. How much academic freedom a professor or researcher has is often connected to his or her tenure status.

Fewer and fewer researchers have tenure track jobs. In 1980, 68% of academics were tenured or held a tenure-track position. In 2016, only 32% of academics were tenured or held a tenure-track position. (Shortform note: Other surveys place this number closer to 25%.)

As adjunct employees, whose jobs are unstable, most researchers are now vulnerable to the desires of their employers. They can't always do the research they want to do, the way they want to do it.

While employees are vulnerable to the wishes of the administration, these administrators are in turn vulnerable to the wishes of corporations, who pay an increasingly large percentage of universities' research costs (65% in 2006). If researchers use...

The China Study Summary Chapter 19: Is History Doomed to Repeat Itself?

Eating a whole foods, plant-based diet isn't a new idea. Socrates, via Plato, predicted that a society that indulged in the luxury of meat would lead to a society plagued with inflammation and disease. The winning athletes in the ancient Olympics also knew that eating a plant-based diet was the key to good health and performance. So how did we get here, promoting meat's health benefits and worrying that vegetarians don't get enough protein?

Despite the detour we've taken as a society, there's reason to believe that we're slowly returning to a culture that values plant foods.

Reasons for Hope

These reasons provide a summary of the book's main arguments.

Reason #1: The body of evidence supporting a WFPB diet, from hundreds of rigorous studies, keeps growing.

Reason #2: We have a better understanding of how animal proteins usher carcinogens into cells and increase growth hormone levels, increasing cancer risk.

Reason #3: We have the technology to measure blood sugar, cholesterol, and insulin to better track how a WFPB diet can treat and even reverse Type 2 diabetes.

Reason #4: We have a better understanding of how animal proteins can mimic our own, potentially leading to autoimmune diseases.

Reason #5: We understand the mechanisms behind how animal proteins increase calcium and oxalate in the kidney, leading to kidney stones.

Reason #6: There's growing evidence that antioxidants in plant foods can prevent vision issues such as cataracts and macular degeneration.

Reason #7: We now know that animal protein makes blood more acidic, which depletes bones of calcium, increasing your risk of osteoporosis.

Reason #8: Literacy rates throughout the world are higher than ever. This...
Shortform Exercise: Your Health Beliefs (Part III)

Reflect on how your ideas about what makes food healthy and unhealthy have changed over the course of learning about the China Study and other research on animal foods.

Take a look at your responses to the exercise questions before the Introduction. How have your beliefs about what makes a diet healthy or unhealthy changed as you explored the evidence of the China Study?