What to Eat? with Dr. Colin Campbell : Nutrition, Cancer, and The China Study

We are what we eat. But what do we eat? Should we be eating meat? Or is a plant based diet a healthier way of eating? To provide some clarity on the subject we have Dr. Colin Campbell, the author of The China Study again with us on CureTalks. Dr. Campbell is going to present his views and studies linking cancer and nutrition, plant based diet, and the China Study. Join us as we discuss principles of nutrition that everyone should follow. You can follow Dr. Campbell's presentation **Here**.

Full Transcript:

Priya Menon : A very good evening. Welcome to CureTalks' 90th episode. I am Priya Menon, Scientific Media Editor at CureTalks, joining you from India. Nutrition and diet have been a very popular topic on CureTalks; and today we have Dr. Colin Campbell back again with us to present his research and views on plant-based diet and its enormous health benefits. Our listeners can follow Dr. Campbell's presentation slides on the link that has been provided on curetalks.com. Dr. Campbell is a Jacob Gould Schurman Professor Emeritus of Nutritional Biochemistry in the Division of Nutritional Sciences at Cornell University and a best-selling author. His first book, The China Study, examines the relationship between chronic illness and the consumption of animal products. His new book, Whole: Rethinking The Science Of Nutrition, poses serious problems with the way nutritional research is conducted. My co-host of the evening is CureTalks' Creative Director, Aziz Rawat; and today's topic of discussion is Nutrition, Cancer, And The China Study. Before I hand over to Aziz, I would like to remind our listeners that towards the end of the talk, we will be answering questions sent in via email by our listeners. If you want to ask a question live, please press 1 on your keypad to let us know, and we will bring you on air to ask them. I will now hand over to Aziz. Aziz, you are on air.

Aziz Rawat : Thank you, Priya, and thank you, Dr. Campbell, for being back with us today.

Dr. Colin Campbell : Thank you.

Aziz Rawat : Thank you. Your last show with us was so informative; and I thought it was such a lively discussion you and Dr. Daniel and Julie had. People need to hear these discussions and they did. A lot of people listened to it, and it seems we have a lot of people tuning in for this one as well. A big takeaway from your last talk was that the closer we get to consuming a whole food, plant-based diet, the healthier we are going to be. You talked about societies with low consumption of protein and fat also have lowest consumption of cancer and heart diseases and that may have been very interesting because its totally…, its totally going against the notion of high-protein diets being good for you, that we hear all the time and I know we have a lot to cover with your presentation, so…., so, let's get right into it so that we have enough time for some questions after. I just want to remind our listeners that they can follow Dr. Campbell's presentation on the link that has been provided on our website, curetalks.com, so, yeah, let's get started. Dr. Campbell, over to you.

Dr. Colin Campbell : Okay. Well, thank you so much. Incidentally, I can't see my own slides on the show, so I…, I have copied it front of me. I presume everyone else can see the slides. Is that true?

Aziz Rawat : Yep. Yeah, we can see the slides, yes.

Dr. Colin Campbell : Okay. I will refer to them as best I can as we go through them. Actually, my talk really

concerns my long career in health…, diet and health and research that started actually…, this is my 60th year, 6-0 that is, when I started my graduate studies at Cornell University; and at that time, I had a certain view about nutrition which was fairly traditional, that is to say, a diet high in protein and with adequate amounts of fat and so forth, lots of meat, milk, and dairy, was the best kind of diet and it seemed true to me not only to some extent as a professional as I was beginning to learn it, but also I was raised myself on a dairy farm and I grew up in…, on a farm that obviously consumed this so-called western diet, high in protein, fat, and so forth, and when I got involved and did my research, for the most part in the beginning, in the Philippines when I was there with my senior mentor, organizing the nationwide program that was supposed to be helping malnourished children and the main theme that we had other than making sure that these children had enough food, the main theme was to make sure they had enough protein. Also, just prior to that, I had been doing my graduate work, also my doctor work, in fact on a dissertation that involved trying to learn some new ways of producing more protein, especially so called high-quality protein which means animal protein and so that…, that was the start of my career and I learned something quite different as I have briefly explained here. This is a very, very big topic and I have published hundreds of peer-reviewed papers and have been involved in lot of research over the years with many students and colleagues. So, what I am going to mention just needs few minutes here tonight. Its just a few…, sort of summary comments.

Dr. Colin Campbell : So, let's look at the second slide. This is a picture essentially of food, whole food, plant based, if you will, vegetables, fruits, grains, legumes and what we have learned through the years and certainly what my laboratory learned quite extensively was that these fruits have a lot more nutritional value than what we had previously known and so, I want to describe first, you know, how I really got involved in this and as I said, one of the first projects that I was involved in was making sure that the malnourished children in the Philippines were getting enough food, especially protein. I…, I had a second interest at that time too. I had an interest in cancer, how it forms, especially liver cancer which was fairly common in Philippines and other Asian countries at that time, Asian and African countries I should say, and I got the impression very early on that among the few families in the Philippines who were consuming the most protein, basically it seemed like their children are more prone to getting liver cancer and so because we were involved and also the protein stories I said, and I started putting 2 and 2 together and I got this impression that those families who were consuming the most protein might be more susceptible to getting liver cancer, perhaps other cancers as well. So, that started a long research career that was funded in the United States by the National Institutes of Health, which is our primary funding agency.

Dr. Colin Campbell : In order to show you that in the third slide, first some work that was done in the experimental animals, it really picked my interest. As I said, I just had the impression from these children, but this study that came from India in the 1960s is labeled dietary protein and AFB1-initiated liver cancer. That's the summary, very brief summary, of some of this early work that they did. What they learned was that in experimental animals that had been exposed to the carcinogen, it gives rise to cancer. There is a chemical, that chemical is called aflatoxin, that's abbreviated here AFB1. When these two groups of animals were fed…, were exposed to aflatoxin which causes liver cancer, is very potent in.., in the animals and so the idea of the Indian workers was to believe that the animals fed the higher levels of protein, especially 20% of total calories, they would be less likely to get the cancer because unfortunately everyone in those days and still today a lot of people believe that protein is…, is…, has exceptional value to create all kinds of good health. In any case, they fed these two different groups either 20% protein which was the recommended level compared to the animals given lower levels of 5% and although both groups had…, had received the exposure to the liver causing…, I mean the cancer-causing carcinogen, the animals fed the 20% protein, they were the ones…, 100% that seemed to have gotten the…, the cancer and the animals given the lower levels, they did not. Actually, these Indian workers in those days did not quite believe the results, I think, because they did another study where they changed the dosage of the carcinogen and ended up seeing that high protein was protected, but that was a very different situation. It had nothing to do with cancer, it had to do with toxicity. So, let's just then quickly summarize the slide. High protein…, high protein gives rise to more cancer. For me, that was a shock, both personally and professionally because that's not what we went into Philippines to do, was to make sure they get…, come over there to give a lot of protein and

here was a problem.

Dr. Colin Campbell : So, now let's look at the fourth slide. You will see a…, a chart there that we did some experiments of our own. I wanted to see if these results from India were true and I wanted to learn something about how…, how this worked biochemically and so, again, we did a study similar to what the Indian team workers had done, two groups fed either 5% or 20% protein. Both groups were exposed to the same amount of the chemical carcinogen and you could see that first 12 weeks the early cancer grew rather well when the animals were fed 20% protein but did not with the 5%.

So, that was…, was identical to what the Indian workers had done. So, then, if you go to slide #5 which is "Cow milk protein or early cancer", you will see that in that case what we were doing there was to ask the question, what happens if we changed the consumption of protein during the course of this experiment, and so for the first three weeks of the experiment we gave the higher protein and the liver cancers…, lesions were growing as well. We switched it to 5%, we turned it off, back to high protein it turned the cancer process on again and then off again and…, and very briefly what we learned was that and this was new for those days, it still is new for most people these days, we could turn on and turn off cancer in this particular example simply by changing the level of nutrient intake, in this case protein, of course. So, it really gave me the impression rather convincingly that at least for this particular cancer, at least for this particular experimental model, the higher protein diet was really very effective in promoting the development of cancer.

Dr. Colin Campbell : So, then, we went to the next question that I was interested in and I also learned something about how does this work. I mean, this idea was so provocative that it seemed, you know, did not be believable really and so I started looking at mechanisms and so called mechanisms and that's the next slide where I may ask you a new question, you will see the title, what mechanism explains high-protein feeding on cancer and in this particular case, that line there is the timeline representing the beginning of cancer over time. At very early stages is called initiation; the next stage, which is much more prolonged, is called promotion; and the last stage, I don't have them listed there, but that's when the cancer becomes pretty advanced, if you will. That's just an experimental model that lot of us have used in experimental research and so I wanted to know, how does this protein increase the ability of the carcinogen to actually cause liver cancer and so we, in the first phase, initiation phase, that's when a mutation occurs, which is traditional, is typical with the beginning of cancer. The…, the chemical actually was a neurogenic agent that causes mutation…,

mutations and that occurs through some enzyme activity and so we looked at the enzyme activity that's called MFO or mixed-function oxidase. We looked at lot of different things to see if we could understand how this worked and you will see a list of things there and I…, I cannot get into that in this particular presentation, but just under initiation mutation stage, you will see several items there that we looked at, examined fairly closely and found that when the protein intake was up, as of 20%, it increased the rate of entry of the carcinogen into the cell. It increased the enzyme activity that actually activated the carcinogen that causes it, let's say then bind to the genes as DNA, so increased binding to DNA and did some other rather fancy things too and it changed the structure of the enzyme and so forth, so the high protein diet was doing several things to actually increase the risk of that carcinogen causing cancer.

Dr. Colin Campbell : So, then, we said, okay, let's…, let's go to the second stage and see what we see there and there, without getting into the details, we learned some more mechanisms, all of which supported the idea that the higher-protein diet turned on cancer, of that there was no doubt. For example, in the first instance, it says lower NK cell activity, that's natural killer cell activity. Rather intriguingly, the high-protein diet actually compromised the natural ability of the body that it has to kill cancer cells. That's what the end case cell activity means. So, the high…, the higher-protein diet is not only increasing the amount of the carcinogen that's attacking the DNA, it increases mutations, but the same time is actually compromising the

ability of the body to block it. A rather interesting idea. The higher-protein diet did a number of other things there you could see listed. Just point your attention to just…, to just one thing, that's the IGF2 that was in the early days and I think we may have been one of the first to ever look at this, but IGF is an insulin-like growth factor. Its a growth hormone. Its a natural growth hormone and so its useful, you know, as we…., when we were young, we want to grow, also we want to repair wounds and so forth. The body has the ability to call on that hormone to help in the development of cells and in this particular case, though, the higher-protein diet was increasing that hormone activity, therefore increasing the rate of which the cells divide and grow, which is fine to our normal growth of the body, but unfortunately, when that gets out of hand, it also encourages the growth of cancer cells as well. So, I will just stop here just for the moment, quickly summarize and say that not only did the higher-protein diet increase the production of cancer, it did it by a whole bunch of different mechanisms and now I am convinced many years later, 20 to 30 years later, that there are many more mechanisms and there is no doubt in my mind that when we increase the protein intake in the diet, we are going to get these effects.

Dr. Colin Campbell : So, now, let's go to the slide #8, I don't know it has the name or number, but you will see there a graph showing, it says present dietary protein on the x-axis and then there's a cancer index, so this becomes y axis and…, and what we were interested there was to see what level of protein, you know, caused this phenomenon to occur. I mean, we knew up until this point that 20% of the diet is protein, it turned on cancer, 5% did not. So, what we did in this experiment here, we gave 4, 6, 8, 10, 12, 14, 16, and so forth and we learned something really interesting which turned out to be really quite a momentous idea later because in terms of this application to humans, in terms of this application to nutrition and health in general, what you can see in this particular presentation is that protein fed up to a level about 10% of the calories, it…, it doesn't…, it doesn't turn on the cancer, but where…, when as soon as the protein begins to exceed 10%, then it turns on the cancer.

Now, if you look at the next slide, I want to tell you that this protein that we were using, I didn't pay…, I hadn't paid that much attention to it at the time, but the protein we were using was casein, the main protein in cow's milk. So, cow's milk protein was turning on this cancer. Of course for me, that made it really provocative, coming from the farm and believing that, you know, the more protein, the better and…, and animal protein, particularly using milk proteins were better than that, whereas in reality, the…, the casein was actually turning on the cancer and…, and just to have to jump over a bunch of information here to see if I can describe this adequately, it turns out this relationship, you know, up to a level, the proteins doesn't seem to cause any harm as far as this particular situation is concerned. Its only in the excess when the protein increases the cancer. So, I…, I can't say, we can't say, that protein causes cancer, that's…, that's unfair. I need to modify that statement a bit and say, when protein is fed in excess of the amount we need, okay?

Dr. Colin Campbell : Now, it turns out that we humans, at least in the western countries for sure, we humans tend to consume at least 95% of this. We consume in excess of that 10% level, which seems to be safe, you know, a safe level, good level, but we are…, we are really consuming in excess of the 10%. On average in the United States, we are consuming around 17% of the total, that is 70% higher even than that and it turns out without showing all the details here, we get that protein from animal-based foods. So, we certainly have here a rather revealing story, that is to say, at around 10%, which this suggests is a good level, is plenty enough. That 10% is already in excess of the amount of protein we really need for most people. The amount that we absolutely need is around 5% or 6%, about that much, but its been recommended that we consume 8% to 10% just to be on the safe side, that was done many, many years ago. It has been supported by all kinds of research for many years. So, the 10% level is a good level. It turns out the 10% level protein is what we can get from plants. Plants have all the protein we need; and when we are consuming that protein in the form of plants, then we are also changing some other things. We are changing the consumption of lots of other nutrients at the same time. I…, I should tell you, I think failed to mention this, that we are…, as the casein was increasing the cancer, we tried two plant proteins to see if they would do the same thing, soy protein and whey protein, neither one did. Even when those proteins were fed at the 20% level, they did not turn on the cancer, which is really kind of interesting and that sort of raised a

whole new generation of questions as well. So, if I can just quickly summarize the slide here, up to 10% protein which can easily be provided by plant-based foods, we are going to get all the good effects of protein. Protein is an essential nutrient, we all know that. We need protein. If we didn't have protein, we die. So, we need protein. So, this entire little story here began to show that although we need protein, we can get it from plants, #1; #2, we do not need to go higher than that because if we do we are going to run into other problems.

Dr. Colin Campbell : Now, when I say other problems, look at the next slide here, which says nutrient composition, because what I just said sort of begs the question, you know, what is the nutrient content of plant foods and…, and animal-based foods and here you can see in this chart that I have just selected five of the major nutrient groups in food, antioxidants and complex carbohydrates and vitamins and fat and protein and so forth and then I show, you know, where do these nutrients come from? Well, it turns out in the plant column, you see that the antioxidants, complex carbohydrates, and virtually all the vitamins, the true vitamins that is, really come from plants. So, when we…, and very little or none of that in animal foods unless the animal is eating some plants at the time and some of it kind of spilled into the blood, but in any case, you don't find these kind of nutrients really in animal-based foods and it turns out the antioxidants, the complex carbohydrates, and the vitamins and so forth, they really inhibit development of cancer. They prevent heart disease. They have just enormously impressive effects to do all kinds of things. So, if I can just… Why don't we go on first and mention the last two entries there. We got antioxidants, complex carbohydrates, and vitamins that are primarily in plants, not in animals, of course, then, plants have fat and protein and so does animals, of course, have fat and protein, but animal foods on an average have higher levels of fat and protein than do…., overall than do the plants. So, when we are eating plants, we are getting a really nice mixture of the good nutrients and we are getting actually good levels of the fat and protein. So, that coupled to the fact that we are not consuming the animal-based foods, it makes a big difference. So, this is now just a joke that that's…, yeah, I put at the bottom of the chart by the way little entry that says processed foods or dairy and likely to be worsened.

Dr. Colin Campbell : I mean when I am talking about processed foods, I am talking about the kind of stuff that we cook using casein, crackers, and all other kinds of things you can buy on the roadside stands and so forth, especially, I guess, stations and in…, in stores. Processed foods are not what I am talking about even though those…, those processed foods might be made up of, let's say, the fat or the oil from plants and even though they have the sugar from plants and and, of course, salts and so forth and so on. The processed foods don't have all the antioxidants, the complex carbohydrates, and the vitamins that we need, unless its added. That's another whole story. When…, when we add those things back to the food, they do not have the same effect as they do when they are in the whole food. So, the processed foods are not what I am talking about. They are just as likely.., just as bad as animal-based foods and seriously, there's only one group of foods that really create health, that's the whole plant-based foods.

So, we move on to the next slide, just to mention quickly some real evidence that we have, how this works. In the next slide, you will see a picture of a man there, it says prevent and reverse heart disease, Dr. Caldwell Esselstyn at the Cleveland Clinic. He is a very eminent surgeon and very…, quite identified, quite a famous career, good friend of mine. He and I are about the same age, retired about the same time. Well, he, prior to my knowing him, he decided that he wanted to try with some heart patients the effect of this diet for his own reasons. I say we did not know each other. He didn't know my work until he heard about in the New York Times, but in any case, he had started this in the late 80s. He had a bunch of coronary patients, 49 of…, I mean I am sorry, 18 of them actually and he just wanted to give them this kind of diet and those people had been seriously ill with heart disease. They had had 49 coronary events for the previous eight years prior to getting into the study. So, they were real heart patients with…, with problems and so they followed him up, just given a whole food, plant-based diet, if you will, and he published his results after I think it was 4 years, then he did a 12 years and makes some reference to that here and then later it was part of a film that he and I were in.

Dr. Colin Campbell : He had documented some more evidence to show and he knew at that time, 27 years later, these people who had heart disease and some were told to go home and the doctor said, we can't do anything for you. He actually put them on this kind of diet and got these amazing results. He stopped heart disease and he has since published another paper last July in the Journal of Family Medicine, really a wonderful study, much expanded beyond this where he started with 198 patients that he had counseled at one point and then he came back later between 2 and 7 years later and asked them how they were doing. They were all heart patients. It turned out that later when he contacted them, 177 of the 198 had compliantly stayed with the diet. The others did not and the ones who were compliant and stayed with it, they essentially, among all of them there was only one coronary event and those who did not do this, that was 67…, or 62% had a heart event. So, truly dramatic differences! So, based on Dr. Esselstyn work and of course of Dr. Dean Ornish, who has become very famous with some of the work that he was doing early on, especially in regards to his…, getting this to the attention of the American public and getting some healthcare support for these…, to help doctors in this effort. They have…, they have been able to show really quite conclusively that we can now reverse and I would even use the word cure heart disease just with using this whole food, plant-based diet.

Dr. Colin Campbell : Then, there is an addition in the next slides, you will see couple of other books, they are friends of mine too, Dr. John McDougall who has been at this game for a long time. He is a physician in California as well as Dr. Neal Barnard. They have been having their own programs and using this in various ways and…, and Dr. Bernard has documented a lot of benefits from this from the early 1980s onwards

http://blog.appliedinformaticsinc.com/wp-content/uploads/2015/09/Colin_13.png

and again, I didn't know these gentleman before they were doing this work and…, but at least I am here because both of them have shown that for type 2 diabetics, if you put them on this kind of diet, you get these remarkably good benefits. They go off their medications for the most part, very quickly. Now, in the next four slides, I just want to show you, that was meant to be one slide, it was supposed to be animated, but it couldn't work here on this program, I guess. What I have listed here is a list of a bunch of different diseases, four of which there is scientific literatures, the document, the idea that a whole food, plant-based diet is capable of either preventing, stopping the development over suspending and/or curing all these diseases and this particular list is now a short list, the list is actually longer, but I…, I put this list together when my younger son, Tom, and I wrote the book called The China Study. It came out in 2005 and I had become by that time so impressed with this information, I wanted to see if, you know, we had evidence of this in the scientific literature in years past and so I went into the literature and looked to see and then found all these…, these outcomes or diseases that could benefit from this kind of diet.

Dr. Colin Campbell : So, it demonstrated the idea that this kind of diet is…, is very broad in its effect. I would suggest its pretty well now demonstrated, its…, its a total health effect, creates good health, energizes people, improves their well being, at the same time presents all of these diseases or even reverses them in many cases. So, the effect is broad. Its also surprisingly rapid. So, all of a sudden, this diet becomes a means of treatment. Its not just about preventing these diseases and now we have done this, my…, my older son has done it, Dr. Esselstyn did it best first on heart disease patients. Dr. Barnard, Dr. McDougall… They…, what we now are learning is that if you take a group of people who are generally sick or even feeling like they are okay, but they are not quite there and sort of do some measurements with their clinical biomarkers and so forth, it turns out that within 10 days to two weeks, you can see dramatic changes using this approach here and…, and people get well and then in the last couple slides, the next two slides, I am saying that if this is sustained, and it can be sustained, it requires a sort of a new case preference to adapt to. When its sustained, lets say over lifetime, then its a matter of actually getting well. Its sick that you got these problems, try this diet and see what happens, stay with it and you can enjoy a good, long life.

Dr. Colin Campbell : Now, let's go to the next slide which says not low-carb diets. I want to just put in a word about a very popular…, it turns out its quite a popular idea that's been around now for last maybe 30 years or more. It started with a certain Dr. Robert Atkins, the so called Atkins diet, and since then, there have been other books that have come out with different names, South Beach, Paleo diet, Zone diet, blood type diet. All of these books that have come out, I should say, are not based on science. They are…, they are not the kind of books that actually get into the science and present the evidence in that way. They are more sort of reports what they believe to be true. There is only one in there that attempts to give some respectable science in some ways to the Paleo diet drawing on archaeological evidence to make his case, but it turns out that all of these diets are called low carb and what they are saying is that if we went on the diet really low in carbohydrate,

then we are going to…, this would be the best of health and they maintain that heart disease and cancer and so forth, you know, are being caused by the fact that we are consuming too much carbohydrate. Now to some extent, that's true if we are talking about just sugar, refined carbohydrates and whey flour. That's not, as I said before, that's part of the processed food idea, but they did speak a bit generally and say, if you are going on a low-carb diet, we can regain health. It turns out that there is some help if you get off of processed foods, but that's not the solution for the future because if you look at the next two slides, this low-carb diet… In respect to its carbohydrate content, low-carb diet is around 15% to 20% of total calories. All whole food, plant-based diet by the way, is 75% to 80%, so its exactly half of it. The low-carb diet, if its only 15% to 20% carbohydrate or somewhere around there, as they generally recommend, what that means is the low-carb diet is really very high in fat and protein

and there is no evidence that the high-fat, high-protein diet sustains low interim health and certainly if you use a low-carb diet, which you might see some benefit, loss of weight in the beginning, if for people who are really overweight. In terms of long-term health, it just doesn't work. Its a bad…, Its a bad trip, its not going to sustain good health and in fact in the next slide, you will see there is this low-carb versus SAD, that's Standard American Diet.

Dr. Colin Campbell : There is just some evidence here that was taken from one of the Atkins supporters essentially. They did little study comparing the low-carb diet with, let's say, the Standard American Diet, which is not very good. I mean, we are pretty high in fat and protein, of course, as all of you know and so they compared the low-carb diet to see what would happen. The results were not favorable and in fact, there is a bunch of different entries here showing things like shortness of breath and constipation and other sorts of issues that tend to arise in people at a much higher rate when people are consuming a low-carb diet and this is evidence from that group. Its not a lie. In the next slide, we can see there a plot comparing, let's say, animal protein or combination of animal protein and animal fat for different countries versus breast cancer.

Beautiful straight line relationship and it turns out that you can see there and this is evidence that's been around for 30 or 40 years, done a number of different times. The higher the protein, higher the fat from animal-based foods, the higher is the risk for breast cancer, same is also for colon cancer, for heart disease, and so forth. The reason I showed that there because this is really what happens, let's say, in populations that are sustained on these different kinds of diets. The countries that have the lowest level of protein, lowest level of fat from animal-based foods, they have the least of the diseases.

Dr. Colin Campbell : So, then, I kind of summarize toward the end and I just simply say, a whole food, plant-based diet with little or no added fat, sugar, and salt solves more illnesses than all the pills and procedures provide. I mean, I have become really quite enthusiastic for this because I have been in the business for so

long, I have seen how the others have emerged. I have seen all the results and I have been both in the humans kind studies kind of thing as well as in the laboratory and I really have to tell you that the evidence now is really overwhelming that a whole food, plant diet…, based diet is the future not just for regaining health for ourselves but for a variety of other reasons as well. and then I finished with two slides.

They are just pointing out that in the next, the last slide, I am talking about an online plant-based nutrition course that a private foundation that I sort of founded when partnering with the arm of Cornell University that does online courses. We have this online course now called plant-based nutrition. Anyone can take it any place in the world, just go on nutritionstudies…., oh, oh, I see I have the wrong address there. The address, the url is nutritionstudies.org and that's been very successful. We offer 30 Category 1 Continuing Medical Education Credits or CUE credits for health professionals and of the 200 some courses that Cornell University has online, our's is #1. So, we have had a lot of success with this.

Then, I just…, very last slide, I am just listing there quickly some books that I published – The China Study, actually my son and I, Tom… My son who did that book with me now is researching on his own and we are doing a second edition to that book. So, the China Study and Whole are the two principal books that I have been involved in and there are a couple of cookbooks there – The China Study and PlantPure Nation Cookbook, that's daughter and daughter-in-law. We have the rights to the Campbell Plan, that's my son who, you know, is a director of a nutrition program at a medical school. He has had his own book. Then, the other two things, one upper left is a film that just came out. It was shown around the country, its being shown around the country now, it premiered in Hollywood just about a month ago, its called PlantPure Nation and there's one more daughter is doing some stuff too. So… I am sorry, this has been so fast, so superficial, I apologize for that, but I just wanted to kind of touch on the high points that if any of you are in science or you wish to be in science, I can assure you this is a very, very exciting area to be in.

Its a very…, its rather different kind of science actually in ways because the challenge is for lot of the things that we are now` doing. So, its kind of a tough journey in some ways, but it has tremendous promise to be able to resolve lot of problems we have in our society. So, thanks very much and I will be happy to take some questions.

Aziz Rawat : Umm…. Very interesting and I would love to watch this film, PlantPure Nation. Okay… Oh, that's going to be on my list now. So, Dr. Campbell, just what I am hearing is, you are basically saying that you can turn the cancer ticker back with whole-food, plant-based diet basically. Is that correct?

Dr. Colin Campbell : Well, I got it. Let me be…, be careful on that one. I am glad you really raised that question upfront because whereas in heart disease, we have had some really pretty good studies done now and its been published to show that we can do with heart disease and as well reasonably good studies on diabetes. We have a… But on cancer, we don't have the formal kind of study that needs to be done. I…, I need to emphasize that and so for many people for different medicine, you are not inclined to want to really believe this or take it too seriously until a formal study is done, but I can tell you the kind of evidence that convinces me that not only is this evidence that we now have sufficient to give it a try, but in many cases, I know of cases that seem to have responded very well to this. In fact, there is a physician in Ireland that I did not know, I still haven't met him. I am going to be meeting him soon. He was a general practitioner for all of his career and during the latter 10 years or so of his career, he heard about The China Study, our book, and he had diagnosed many of his patients with cancer and so he was urged to give it a try, to take back this kind of information and try on his cancer patients. He published a book. It was published last year and he is really quite remarkable. He was a very conservative doctor, not likely to want to believe this. He tried it with his patients and got remarkable results and benefits in many cases, I guess, you can say cure and I…, I know of lot of anecdotal cases. Its not the kind of thing that is going to sell itself, you know, in medical drills for sure and not anecdotal, but on the other hand, because of the basic science involved, which I am quite familiar with, and also the other kinds of evidences available, I am saying that this really, I think, has the

potential to be the solution to cancer, the same as it is for heart disease and autoimmune disease and a few other things.

Aziz Rawat : Okay. All right. So…, so, we…, we've got a lot of questions. So, I am going to go through few of them and then I will hand it over to Priya because she also has a lot of questions that people have sent in. So, my first question.. You know, there was something involved in those first few slides of yours. You talked about animals with tumor and hyperplastic nodules and…, and it made me wonder what is the possibility that sometimes people could be consuming meat of an animal with tumor or some sort of illness that goes undetected and the animal goes through for human consumption? I know like… I know about… Like we know about mad cow disease and all that and I am…, I am not talking about such a serious casualty but some less serious…, you know, less serious casualty perhaps. What is the possibility of that?

Dr. Colin Campbell : Well, actually, yes… Actually, that's really not important because let's see, the animal food, even if you were to theoretically consume animal food from an animal that had some of these tumor and nodules for example, even if you were to consume that, that's not going to give you cancer and what…, what really happened in a case like this is the protein content and the lack of the other nutrients that actually encouraged the development of cancer and all of us have some predisposition to cancer. That's what caused this. Its not the…, its not any cancer cells that might be in these animals. That's not an…, that's not an issue.

Aziz Rawat : Okay. All right. That's…, that's good enough and so…, you know, what…, so this one question arises is, what people…, the cavemen did, eating meat and getting cancer and dying younger than we do today but just didn't know that they were dying of cancer. Would that be of something to think about?

Dr. Colin Campbell : Well, yeah, of course. This is a good question, and people have posed that question. Have in fact done the best they can to try to evaluate investigative study and so forth, but it seemed like from the ancient literature to the extent we understand that literature may be from Egypt, Greece, Rome in particular, it turns out cancer is really quite rare if it is…, almost, I mean it really was. The only time that during the middle age, not the middle ages, but the late, let's say, 18th, 19th, 20th centuries in time, at that time the people who were getting the cancer, for example, were the…, were the royalty. They were the rich who obviously were eating the kind of food that, you know, that we are now eating today. So, the…, the evidence suggests that in those olden times cancer was rather uncommon and it certainly was not the cause of early death. That was more likely due to either trauma initially in the very early days, people got killed and so forth or it was poor, it was infections and things like that. So…

Aziz Rawat : Okay. So, well done! This is a good segway into this another question which kind of…, kind of…, I am guessing, you kind of answered it, but I will still kind of pose it to you. So, the meat that is available to us today is industrialized and not as pure nor as it was back in the older days. Also, and its a lot cheaper to consume meat now than in the older days where it was…, in fact it was more…, a lot expensive and like you said, like the royalty were getting it, so maybe because they were consuming a lot more meat than, you know, the common man did. Could…, could that be a big factor contributing to the link between meat and disease just because a lot…, just having a lot more as in…

Dr. Colin Campbell : Yes…

Aziz Rawat : What I am trying to get here is, you know, this is good news that okay, you know, you can prevent heart disease and cancer and diabetes by, you know, doing a whole food, plant-based diet, but then this…, its a pill bitter sweet because people love meat, right, and then…, so there is…, so there is a portion maybe that kind of which they need to eat, you know, in some sort of a, you know, a balanced kind of a portion that could help them eat what they kind of want to but in a very limited quantity.

Dr. Colin Campbell : Well, you have asked several different kind of questions here. It turns out its true. Lot of people love meat as you say, but keep in mind that we now know, we have got good evidence for this, that there is a term used for eating addiction. You know, when we are consuming meat-based foods, especially,

high-fat, high and in…, in addition not meat, but in sugar, those…, those things trigger an addiction and so in the sense we are addicted to a high-fat diet, we are addicted to the super carbohydrate diet and it takes a while to get rid of that. That's why we…, you know, so we say to ourselves, oh, this really tastes good because this is what I always ate and so forth and so on, but we.., it kind of crept…, crept up on us over time and we came to like it because we are now addicted to it and its hard to give up and its…, its the same as it is hard to give up cigarettes, you know, or any other kind of chemical addiction, and it just takes time and what I can say and I…, I know this for myself and many friends because I…, I made the transition basically and that is if…, if one goes on the whole food, plant-based diet without the added fat and sugar, I think while on that it takes about a month or two, maybe three in some cases, all of a sudden then…, not all of a sudden but we gradually begin to then develop new taste preferences and so this new diet, that's what we like and if we go back and try to eat the old, it really, we don't like it, if we do it right, if we, you know, used this, you know, new whole food, plant-based diet for sufficient length of time to allow our bodies to adjust to it and allow our taste preference to change. So, yeah, we may like it, we may love it and all that, but that doesn't mean that, you know, we are gaining health from or dying from it.

Aziz Rawat : Okay and my last question is about gut flora. We hear a lot about gut flora these days, fermented foods, and food combining habits these days. What… Do you have any opinion on that?

Dr. Colin Campbell : Yes, I do. I have been involved in that for…, for a long time. I should say the big study we did in China, this is 6,500 people that we surveyed. Their cholesterol levels were all very low by what's the standard, very, very low and I know its been true for 50 or 60 years in the west at least that has been said that high cholesterol consumption or cholesterol causes heart disease, more saturated fat causes heart disease. Actually, I have not been in favor of that statement because alone cholesterol is not a major cause of heart disease, but diets high in cholesterol, you know, are associated with heart disease and when I say they are high in cholesterol, cholesterol only comes from animal-based foods. So, what we were looking at is that… We saw the association of high cholesterol consumption with more heart disease, that is pretty clear, you know, when…, when you compare different populations, but its not that cholesterol is really causing the disease necessarily. It gets involved in a level that is not really causing it, what's really causing it is the fact that we are consuming animal protein-based foods which are wrong in so many different ways. So, its a combination of all of these things working together that causes the heart disease, not cholesterol alone. So, the recent…, the recent controversy that arose of some scientists that got together to say, you know, its not cholesterol. Well, that kind of opened the door to people to believe that, oh, now the cholesterol story is…, is no longer good, now we can go back on butter, we can have this, we can have that. No, not at all! It was never meant to be cholesterol in the first place, so its an overstatement. What was learned…, it was actually in 1909, the first time it was shown and cholesterol was compared with animal protein as to which one causes heart disease, which one causes increase in cholesterol. It was animal protein that did that much more, let's say, than saturated fat. So, through the years, we…, we never really wanted to admit that our problem is with animal protein, we called it high quality, you know, we said that we had the habit, we enjoyed it, we liked it and so forth and so on, but in reality, when we consume it not only do a lot of things start to go wrong, but even more importantly, when we are consuming that, then we are decreasing the consumption of the foods that we ought to be eating. So, its a little complex, but this is pretty straightforward now.

Aziz Rawat : Okay. That…, that's it from me. Thank you, Dr. Campbell, and I am going to hand this over to Priya now. Priya will probably have more questions for you…that people have sent in. Thank you.

Dr. Colin Campbell : Thank you.

Priya Menon : Thank… Thank you, Aziz, and Dr. Campbell. I think that was a wonderful talk. I have a list of questions with me sent in by our listeners. I will just read them out so that you can give them advice. The first question from our listener is, she says that my daughter has a neurofibromatosis type 1, which is a tumor suppressor gene disorder, and aside from the overall benefit of adhering to a whole food, plant-based diet, what might be the impact on the prevention of tumors?

Dr. Colin Campbell : You meant this whole food, plant-based diet? Well, that's what I… In your earlier question, I was asked that and as I said, I have to be careful. I can't say conclusively that a whole food, plant-based diet can be used to treat cancer, for all cancers, but the evidence, lots of evidence, much of that indirect, but we have a lot of evidence now to suggest that going on a whole food, plant-based diet can actually improve the condition as far as cancer is concerned and personally, I happen to believe that we are going to, you know, be not too long in the distant…, too far in the future, learn to be actually saying the same things with cancer as we say with heart disease. The whole food, plant-based diet is going to work quite well for cancer people as well and I…, I told the story about my friend, the physician from Ireland, who just recently published a book and he was a very skeptical man about this. He was conservative. He didn't want to believe it, but he tried it on his cancer patients and it seemed to be working really well, but I…, I also want to say, be emphatic about that, is that somebody has cancer, you know, they should certainly stay under the care of their physician and if their physician is willing to let them give it a try, well that's…, that's fine. We can't see if they were fine.

Priya Menon : Uhmm…. Yeah. That's right. Whole food, plant-based diet can definitely help. That's what even… That's what Dr. Campbell has been showing us. Yeah. So, the next question from our listener is, the person asks, is Crohn's disease curable on a whole food, low-fat, plant-based diet?

Dr. Colin Campbell : I don't…, I don't know that story well enough. I can just pretty much have to rely on my clinical colleagues who have had those kind of patients and I am hearing from those who really do work with the whole food, plant-based diet, it works really well for the Crohn's disease people too. I know Crohn's disease is a very…, its kind of difficult to see, it obviously is not easily managed and handled and it can be very serious for some people, but from the others that I hear from my clinical colleagues, they are quite convinced that a whole food, plant-based diet really does help a lot and may completely remove it. So, that's about all I can say.

Priya Menon : Okay. The next question says, doctor, how to eat right? The person says, I have intestinal permeability, candida, and small intestinal bacterial overgrowth. I have been told to follow up on a ketogenic diet without fruits and a lot of fats and proteins. Would this help?

Dr. Colin Campbell : Well, again, I am just saying, I am not a physician, I am not having, you know, studied that question. I haven't had patients to know exactly that, but I must tell you that once again from the scientific point of view from the others we now have, no, it won't…, that's not the way to do it. The whole food, plant-based diet is…, is… It seemed to have such a broad…, broad effect on the whole body, response from the body, and I, myself…, I have given at least 600 lectures here in the United States and abroad and in the last 10 years, I guess, and I…, there's a lot of people who come to me and tell me about the situation, its only anecdotal, I know that's true, but they tell me that you have conditions of all kinds and I am not that familiar with to say I tried, this is just remarkable like the _____[00:56:37]_____ behind me and so forth and then at the same time this whole food, plant-based diet based on biochemistry seems to affect the whole body in so many different ways that I keep hearing about new conditions that I may not know specifically the answer to, is this people seemed to be responding very well. So, I…, I know, the…, the opposite of that point of view is what we have been doing for decades now and that's the use of pills and procedures to resolve problems and I can…, I am just really confident of it that the whole food, plant-based diet can do more than all the pills and procedures combined, you know, to create health.

Priya Menon : Uhmm… Yeah. Thank you, doctor. The next person is Amber who has written in saying, I have been following a whole food, plant-based diet for 18 months. I have polycystic ovarian syndrome and I have lowered my cholesterol, lost weight, and have more energy, but I also have cystic acne that doesn't seem to go away. And she says, I never had an acne problem until starting whole food, plant-based diet and I have tried everything. Doctor, what is your advice for Amber?

Dr. Colin Campbell : Well, the first thing, I am…, I am assuming is this person is not using dairy, that's #1, so when you say that, I am presuming I am not using dairy, if they are, that can be a source of the problem, but if its not that, then…. You know, some plant-based foods do have allogeneic effects and it is kind of like

an allogeneic effect. I think the best thing I could say is what's practiced already, has been for long time, this, you know, the…, just stop, you know, just take up one food at a time and, you know, how they do…, do analysis to see if they can discover certain foods those are related to that. Basically, I don't know the answer to that question. Obviously, its just an old problem than the other, taking out different foods to see if get a response. I guess this person has already tried a lot of things, so she's not hearing much for me, you know, not going to answer, but I…, I just don't know. I just don't know. I think it may resolve itself in due course. I certainly hope so. Also, a lot of work…. You know, she should make sure that she is taking lot of water. Hydration is very, very important.

Priya Menon : Yeah. The next question is, why do fruit juices sometimes raise triglyceride levels in certain individuals?

Dr. Colin Campbell : Well, yeah, that's…., that…, that can happen. In fact, fruit juices are not really recommended in the whole food, plant-based diet. I mean, its okay to use them, you know, now and again, but the…, the problem with it when we, you know, drink juice, if you will, we can in some way, is this high in sugar. For example, when we are drinking, its a big rush that comes into our stomach that we…, we bypass the first stage of digestion which occurs in the mouth. When we eat whole food, we are chewing the food. The saliva has enzymes in it. We are…, we are beginning the digestive process in the mouth before it gets to the stomach and if we drink this already prepared food in the form of juice, you know, high in sugar, then its kind of overloading the system to some extent. You would put more sugar than what you really need and that in turn, once you use too much of those juices in that can and these are higher triglyceride levels. There is no question about that.

Priya Menon : Yeah. The last question from me is, what is the basis of blood type diet and does it really work? I think we just saw that on your slides about the…, the low-carb diet, this was included. So, the person wants to know whether…., what is the basis of the blood type diet and whether it works?

Dr. Colin Campbell : Well, that…, that…. idea was put forth some years ago and I got the book because I thought what was initially the idea, I didn't know that much about it. I am going to start reading the book at the scientific qualifications and scientific basis, but the discussion was so poor, I…, I just couldn't read on. I mean the person who wrote the book was actually interested in selling supplements and making recommendations that I don't think will warrant it and if you kind of want to believe that its okay to continue eating the diet we are eating, in fact for some people, they should be eating this kind of diet and I was one of the people who had tried all I guess of these. I am supposed to be eating lot of these, so forth and so on. This is nonsense. So, I…, I think the basic blood type diet was kind of an idea to sell books, sell supplements, and make some claims and its just…, its nothing like the whole food, plant-based diet. So, I…, I don't really recommend that book.

Priya Menon : Thank you, Dr. Campbell. Your presentation study was so thoroughly researched. Its actually very helpful for people to know all this, the science behind what you are eating, and discuss these topics and not just blindly follow that information which is like out there on the internet or hearsay. We have lot of listeners here today who are cancer survivors too and I am sure this information about plant protein and cancer would definitely help them. I would like to leave our listeners with the essence of Dr. Campbell's talk that closer we are to consuming a whole food, plant-based diet, the healthier we are. Please visit us again and you can get more details about our show on curetalks.com. Thank you, everyone.

Dr. Colin Campbell : Thank you.

Aziz Rawat : Thank you.