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NOTE Confidence: 0.787472546100616

00:00:00.090 --> 00:00:03.350 You know podcast network.

NOTE Confidence: 0.919457316398621

00:00:04.470 --> 00:00:35.760 Hello and Welcome to another episode of the Yale Journal Biology in Madison podcast? Why JBM is a pub. Med index quarterly Journal edited by Yale medical graduate and professional students in peer reviewed by experts in the fields of biology in Madison. Each issue of the Journal is devoted to a focus topic and through a few episodes of this podcast. We will take you through the past, present, and future of the issues subject matter. This episode is for everyone who eats no robots allowed and is the first of two devoted to our June 2018 issue on nutrition and food science.

NOTE Confidence: 0.869668900966644

00:00:35.890 --> 00:00:43.510 I'm your host Helen balance and a fourth year graduate student in the in the Immunobiology program here at Yale and the Co editor in chief of YJBM.

NOTE Confidence: 0.887581586837769

00:00:44.050 --> 00:00:49.060 And I'm your cohost Amelia Hall worth a first year graduate student in the microbiology program here at Yale.

NOTE Confidence: 0.903430640697479

00:00:49.670 --> 00:01:19.680 So really before we start we should clarify we're not medical doctors. We're training to get our doctorates, but not in Madison. So we do want to clarify that if you are concerned about your diet or health. You should go talk to a medical doctor, but we're here to kind of talk about the history of diets. What diet is how food can affect our bodies, so mean why, why is it so important to look at food, but I mean, one is as you mentioned before for our own personal health.

NOTE Confidence: 0.912024021148682

00:01:19.680 --> 00:01:54.690 As we're going to talk about a little bit today, and in our next episode. It's really influencing every system in our bodies. I grew up being told to drink. My milk if I wanted to have strong bones or to avoid osteoporosis. When I get older and I also grew up knowing that if I have a lot of salt or fats. Then, maybe I'll have high blood pressure and that could harm my circulatory system. One of the things I didn't grow up hearing but that will go into next episode in our interview with doctor. Hafler is that the food you eat can also influence your nervous system in your immune system.

NOTE Confidence: 0.927435338497162

00:01:54.690 --> 00:02:26.500 I'm really excited to hear that conversation and kind of if we take a step back from our own personal bodies kind of more into the nutrition. Agriculture aspect of this on a large like our current human population is 7.3 billion people and by 2050. It is predicted to be around 9.7 billion so a big question is like? How are we supposed to feed all of us and there's this new urgency to figure out not just how to feed everyone, but how to feed everyone.

NOTE Confidence: 0.924815654754639

00:02:26.530 --> 00:02:47.760 In a healthy manner and how to feed everyone and also maintain the health and of our environment and this really is so food. Science isn't just a matter of our own personal health, but it really encompass is health, agriculture, Environmental Sciences Veterinary Sciences kind of all the things.

NOTE Confidence: 0.920773327350616

00:02:48.740 --> 00:03:19.160 So as Helen was suggesting this topic is really big and we definitely aren't going to be able to cover it all today. So we're just trying to give you a overview of some of the history behind food science and how our relationship with food has changed. Overtime and ideally this will allow you to be more informed going on about what you're putting into your body and why you're doing that, yeah, so I think it's been kind of coming more and more to light recently that human diets have dramatically shifted.

NOTE Confidence: 0.920146822929382

00:03:19.160 --> 00:03:49.900 Over since human evolution started so we shifted from Hunter hunting and gathering days and then through the Cultural Revolution. Anna shift to farming and all these things are diets have completely changed so early humans would not have been able to go through the drive through and get chicken Nuggets and catch up so we basically very much going from stone aged bodies, too very much a fast food world and this the fact that we've.

NOTE Confidence: 0.566802442073822

00:03:49.900 --> 00:03:50.320 And.

NOTE Confidence: 0.922264397144318

00:03:51.860 --> 00:04:21.870 Sorry. So we basically gone from Stone Age bodies to a fast food world in a very, very quick manner. Evolutionarily, speaking and so we human the human body is actually haven't been able to evolve perfectly from the most quote Unquote natural diet that we had before the Agriculture Revolution to the diets that we have now so because of this we are actually exposed to foods and diets and nutrients.

NOTE Confidence: 0.94040709733963

00:04:21.880 --> 00:04:46.680 That we haven't necessarily been able to evolve to handle so we actually have to be very careful about what we eat and we need to understand how it impacts us and this is actually the idea behind the pay. Leo diet, which we'll get into later but it's just something to keep in mind that the way the very drastic shift in our diets has something that we should keep an eye out.

NOTE Confidence: 0.916311502456665

00:04:47.550 --> 00:05:18.280 So before we get 2 into diets and dieting. I want to start by clarifying what we mean by a calorie 'cause that word gets thrown around all the time and there's actually 2 different kinds of calories. So there's a calorie with a lower case C and this is a scientific unit of heat, it's the amount of energy that's needed to raise 1 gram of water by 1 degree Celsius. The calorie that you're all used to seeing on food labels actually has an uppercase C and this is 1000 lower case C calories.

NOTE Confidence: 0.89751523733139

00:05:18.280 --> 00:05:29.910 Or one kcal in the rest of this podcast when we're referring to calories were talking about uppercase. C calories that are used on food and not lower case C calories that's used in science.

NOTE Confidence: 0.926821827888489

00:05:31.330 --> 00:06:02.720 Yeah, so the history of this really confusing term is pretty unclear. So several people are accredited apparently first appeared in the middle of the 1800s. There actually lots of ways to measure calories in food. But the kind of the first kind of way to go about it is measuring the Heat produced by burning food. In what's called a bomb calorimeter so this is kind of the estimate of what a calorie is so Antwan Laboissiere was a.

NOTE Confidence: 0.924737870693207

00:06:02.720 --> 00:06:33.440 Chemist, who made the first calorimeter in around 1780. Two 83 and it basically it was a really highly insulated container to measure the heat given off by elements changing between solid liquid and gas phases. This is kind of more of an upper limit. Our bodies do not burn all of our food to ash and there have been modifications. To this number that to make it more relevant about how the body processes food, but essentially.

NOTE Confidence: 0.91677463054657

00:06:33.650 --> 00:07:05.160 Cal went from a very scientific term to now more of a broad term, but it kind of essentially means the same thing, yeah, so in 1990, Congress passed the nutrition labeling and Education Act, which kind of standardized how calories are calculated and so now rather than burning them in a bomb calorimeter. We calculate the number of calories that ought to be in food based off of the number of grams of sugar and protein the calories per gram of fat, sugar and protein.

NOTE Confidence: 0.900568783283234

00:07:05.160 --> 00:07:35.570 Are determined using? What's called the Atwater system so this guy whose last name? Was Atwater burned a lot of proteins. Carbs and fats in a bomb calorimeter and took the average so for proteins. This number is 4 calories per gram. Carbs are also 4 calories per gram and fats are 9 calories per gram and then as hello is mentioning there's a couple of modifications that are made. We don't digest dietary fiber so the grams of fibers are subtracted out from this.

NOTE Confidence: 0.79031777381897

00:07:35.570 --> 00:07:36.150 Number.

NOTE Confidence: 0.905891537666321

00:07:37.240 --> 00:08:10.060 Unfortunately, the calorie labels that are on food that are calculated with this system aren't necessarily super accurate. There was one paper by urban at all, and they compared restaurant. Food calorie labels with actually the numbers that they got when they stuck it in a bomb calorimeter and they found that 40% of foods were 10 calories proportion higher than the stated and 53% were 10 calories lower than listed only 7% were within 10 calories of what the label actually said.

NOTE Confidence: 0.940843403339386

00:08:10.060 --> 00:08:17.510 Oh Man, I mean, it's good to know that there is at least some foods that have lower calories proportion. It's not entirely.

NOTE Confidence: 0.930939853191376

00:08:18.010 --> 00:08:31.380 Hired so another thing to keep in mind is that these calories proportion are not the same number of calories that are taken in by our bodies by the food from the food so.

NOTE Confidence: 0.907672345638275

00:08:31.900 --> 00:09:02.790 When we talked uh many episodes. Now, almost 2 years ago on our first episode series on the microbiome. We talked about how the gut microbiome actually will process some of what we eat so our gut microbiome can breakdown fiber and the level of which fibers broken down or any other components of our diet is broken down varies from person to person varies from microbiota microbiome. So if Emily and I were about to eat the same hamburger. I would get very different.

NOTE Confidence: 0.90508234500885

00:09:02.790 --> 00:09:25.970 Intake at the end point, then Amelia based on the differences in our microbiome based on differences of our genetics and things like that. And In addition, calories in let's say stock of broccoli changes on the way that you cook it. So cooking will release additional calories in food and will modify the nutrients that you can actually get out of the food so.

NOTE Confidence: 0.953913748264313

00:09:26.590 --> 00:09:29.960 Needless to say it's a complicated system.

NOTE Confidence: 0.917879164218903

00:09:30.480 --> 00:10:00.590 For sure, and to make it even more complicated little boy. Our bodies actually change how they respond to food based off of how we're perceiving it rather than necessarily just what's actually being taken in so there is this really cool study where they fed a group of volunteers 380 calorie milkshake. But they were told that this milkshake was either more calories or fewer calories than this, 380 calories.

NOTE Confidence: 0.902242064476013

00:10:00.760 --> 00:10:10.470 An and they measured hormone production. Over-time and this is a hormone called ghrelin in that makes you feel hungry and after you eat the levels of this hormone go down.

NOTE Confidence: 0.938741981983185

00:10:11.010 --> 00:10:27.580 And they found that people who thought they were drinking more calories had a bigger decrease in this hormone ghrelin than the people who thought they were drinking fewer calories so even though these people had the same exact number of calories. The way their bodies responded to it change depending on how many calories they thought they were having.

NOTE Confidence: 0.921848654747009

00:10:30.170 --> 00:10:41.720 I don't know whether that means that I should start pudding like little stickers on all like the bars that I eat actually put in like a higher calorie number just to trick my body into it.

NOTE Confidence: 0.912855088710785

00:10:42.240 --> 00:11:12.850 Who knows probably not the best idea so on top of calories? There is a lot more to having a healthy diet. Just those calories so In addition, you need vitamins, which are an organic essential micronutrients kind of like Vitamin D Vitamin B Vitamin, A also In addition, mineral so these are chemical elements so calcium, potassium, sodium magnesium. These are the big ones.

NOTE Confidence: 0.924535572528839

00:11:12.850 --> 00:11:44.260 That you need a lot of and then In addition, there's some that you need in smaller amounts so copper zinc iron and then there's also essential amino acids and fatty acids so these are molecules that cannot be produced by your body and so, but we need them to live so we need to take them in VR food and then there's a variety of other beneficial bio active compounds in food and even on top of that. We don't really know everything that goes into food.

NOTE Confidence: 0.923298060894012

00:11:44.460 --> 00:12:16.490 So for example, there's been many studies looking into the nutritional benefits of honey. And when they do mass Bacchanal, Mass. Spectrometry analysis of honey. So this is a way to try to identify exactly what is honey. They identify all the components that are in the honey and then they try to remake it in the lab they don't get honey mixture of random compound so there is something In addition to exactly what's there that gives the nutritional help which we don't?

NOTE Confidence: 0.907065868377686

00:12:17.170 --> 00:12:20.130 Understand yet so that's really crazy.

NOTE Confidence: 0.933022141456604

00:12:20.650 --> 00:12:46.930 But one of the things that we do know pretty well is that having too much or too little of any of these nutrients is not very good for you and can lead to some pretty nasty. Metabolic diseases and if these diseases or something you'd like to know more about we have one of the papers in our issue by agile on at all, and this goes into a lot more detail about how these nutrients are actually affecting our body and what can go wrong if you're getting too much or not enough.

NOTE Confidence: 0.885201930999756

00:12:47.890 --> 00:12:49.190 Yeah, so.

NOTE Confidence: 0.925520837306976

00:12:49.730 --> 00:13:19.950 Maybe we should take some time to talk about what a good diet is I know that that's a question that is very often Googled what should what's the best diet? What should I eat things like that. And there is a lot of different ideas and we're going to go into some that make some sense in some that are a bit wonky, but all of these are especially popular when losing weight is concerned so I just want to take a moment.

NOTE Confidence: 0.918598771095276

00:13:19.950 --> 00:13:24.060 Then talk about the word diet 'cause I think we've been throwing it around in.

NOTE Confidence: 0.918071568012238

00:13:24.840 --> 00:13:51.680 2 basic meanings, which I think have the main 2 meanings. The first being diet. As in specifically what we eat and then In addition, there's a diet, which is something of how you change? How you if that makes sense so for example. My current diet is predominantly pizza and T but I need to go on a diet and eat less fast food.

NOTE Confidence: 0.902975380420685

00:13:52.750 --> 00:14:03.970 So, but the word diet. We don't really we know that it was actually the word diet. It was invented in Ancient Greece. So it's in its original context.

NOTE Confidence: 0.671460926532745

00:14:04.900 --> 00:14:07.480 DIE to Oman my Greek is.

NOTE Confidence: 0.906138300895691

00:14:08.980 --> 00:14:40.330 Close to 0 it wasn't solely on eating it wasn't focused on eating particular foods or certain foods to achieve weight loss as its predominately known today. It was actually meant to represent the entire T an entire lifestyle. So this encompassed food and drink and your exercise plan and your lifestyle and things like that, so there's a lot of these ancient Greece, which will go into a little bit about what they recommended eating had fairly sensible advice.

NOTE Confidence: 0.92039155960083

00:14:40.330 --> 00:14:48.000 Although the weird thing that they did recommend was running around naked and regularly vomiting which you know.

NOTE Confidence: 0.824652433395386

00:14:48.940 --> 00:14:50.070 To each is own.

NOTE Confidence: 0.892289042472839

00:14:51.350 --> 00:15:01.230 Yeah, I guess when clothes are really expensive. I guess you wouldn't want to go exercising in them, but I I kind of prefer exercising with clothes on myself.

NOTE Confidence: 0.919522523880005

00:15:01.930 --> 00:15:09.690 So people have historically eaten and currently eat, a lot of Dietze and there are a lot of different ideas about what makes a good diet.

NOTE Confidence: 0.891933739185333

00:15:10.210 --> 00:15:40.440 Hum so when the first fossils of our human ancestors in Africa were discovered by Raymond Dart. Back in 1924. This popularize sort of the image in our culture of our ancestors hunting meet on the African savanna, and so the person who discovered these fossils Doctor Dart. He described these humans as quote current averse creatures that seized living queries by violence battered them to death slaking their ravenous.

NOTE Confidence: 0.865256369113922

00:15:40.440 --> 00:15:50.370 First, with the hot blood of victims in greedily devouring livid, writhing flesh, which is which is one idea for potential diet. You could eat of?

NOTE Confidence: 0.882458746433258

00:15:50.880 --> 00:16:21.880 Livid writhing flesh, but eating meat is thought to be really important for the evolution of our ancestors. Larger brains because

it has more energy than plants are so by starting to eat more calorie. Dense meat rather than plants. It's possible that Homo Erectus got enough energy to fuel a bigger brain. So I guess I shouldn't be knocking meeting too much are you a vegetarian I am yeah.

NOTE Confidence: 0.907513380050659

00:16:21.880 --> 00:16:36.090 Yeah, I feel like there's a vegetarian ISM is coming back in full swing. So there's always this kind of like contest and between like do we order pepperoni on that pizza. I don't know I'm trying to be more a vegetarian these days?

NOTE Confidence: 0.875014126300812

00:16:36.720 --> 00:16:47.600 In its slow but it's working so in our issue in June, there's another review by Venomin.

NOTE Confidence: 0.917603552341461

00:16:48.500 --> 00:17:23.510 There's a review by vanilla about that ally diet, which is an ancient Indian diet so in this diet. They have rice or bread that served with several smaller dishes such as lagoons yogurt. Spiced vegetables and the important. The important slide in a variety of different flavors. So various different spices different foods. All in one dish and this allowed for the incorporation of a variety of micronutrients 'cause you're going to get different nutrients from different foods in this review suggest that this diet may have had anti inflammatory effects that prevented diseases because.

NOTE Confidence: 0.83929580450058

00:17:23.510 --> 00:17:24.430 Of this variety.

NOTE Confidence: 0.906596601009369

00:17:24.970 --> 00:17:55.200 It also just made me really, really hungry in 1614 in Italian living in England Giacomo Castril. Destro is wrote. This book, the fruits, herbs and vegetables. In Italy, which is touting the benefits of a produce rich diet. The British were not super convinced by this which I think is kind of funny so in 1753. About 150 years later. I was the first discovery of vitamins James Lind discovered that fruit can reverse curvy.

NOTE Confidence: 0.910080909729004

00:17:55.200 --> 00:18:27.430 But he doesn't actually realize the importance of his work and it's another 40 years before lemon start getting given to the British sailors and this actually contributed to history. This is a large reason why the British were so dominant on the Seas. So I guess a lemon a day keeps the enemies away. I guess so and this discovery of vitamins led to increase in convenience foods and fortified foods. That kind of still persist. Today I know I have a gummy vitamin every day and then in 1864.

NOTE Confidence: 0.891559243202209



00:18:27.530 --> 00:18:37.960 Uh there's a book published called a letter on corpulence by William Banting and this is actually likely the first diet book that was ever published he was.

NOTE Confidence: 0.925394117832184

00:18:38.530 --> 00:18:48.950 He heard about his success of weight loss after replacing this excessive intake of bread sugar and potatoes with the diet of mostly meat fish and vegetables.

NOTE Confidence: 0.916856586933136

00:18:49.670 --> 00:19:04.460 And then in 1930s more entertainingly some Hollywood starlets. Start a diet called The Hollywood diet. And this is half a grapefruit before every meal, coupled with some other restrictions to limit calories.

NOTE Confidence: 0.910040736198425

00:19:05.370 --> 00:19:27.080 Yeah, Banting was interesting that letter started off with all the parasites that affect humanity. I do not know of nor can. I imagine any more distressing than that of obesity. So I think that kind of image is really intense to start a diet book but so In addition to.

NOTE Confidence: 0.940663874149323

00:19:28.160 --> 00:19:58.890 Starlets and past nutritionist and dietitian's the government has a lot to say about dieting. And there are a variety of different dietary guidelines that have been imposed in lots of countries so 91 of 195 countries around the world have national dietary guidelines, which I was very surprised about but but in both ways. First I was like oh that seems like a lot then I realize that it's less than half of the nations.

NOTE Confidence: 0.787767708301544

00:19:59.080 --> 00:20:00.770 So, but let's.

NOTE Confidence: 0.933989942073822

00:20:01.370 --> 00:20:31.580 First simplicity let's focus on the US and the guidelines that were put forth in the US because we are recording in the US so the USDA has a variety of nutritional guidelines, which have which are basically over 100 years of nutritional advice and these guidelines are updated overtime to adopt new scientific findings or new public health marketing techniques and will get into the marketing aspect of this a little bit later.

NOTE Confidence: 0.932905852794647

00:20:31.580 --> 00:20:49.720 And overtime they've described from 4:00 to 11:00 different food groups and various guys have been criticized as not being accurately representing scientific information. And they're highly criticized for being overly influenced by the agricultural industries that the USDA promotes.

NOTE Confidence: 0.90983372926712

00:20:50.820 --> 00:21:21.530 Yeah, so the first nutrition guidelines were not published by the government at all. The first one was in a farmers bullet by Doctor Wilbert Atwater and his his publication in 1904, was called the principles of nutrition and nutritive virtue of food and he advocated variety proportionality in moderation. He says to measure calories and he promotes an efficient affordable diet that focus on nutrient rich foods and less fat, sugar and starch.

NOTE Confidence: 0.923385083675385

00:21:21.530 --> 00:21:29.850 It's important to keep in mind. This information actually preceded the discovery of vitamins that were really starting to get ramped up in 1910.

NOTE Confidence: 0.923077583312988

00:21:30.370 --> 00:21:46.420 An and I was actually really surprised when reading this about how similar that is about to what we're getting suggested today. Yeah, I wonder if it's that we haven't learned or they got it right. The first time around and we just need to keep rediscovering that it's the right way to go about it.

NOTE Confidence: 0.916807770729065

00:21:46.990 --> 00:22:17.000 So a new guy that was published 12 years after doctor at Woods was published by the nutritionist. Caroline Hunt, which was called food for young people it categorized food into milk and meat cereals, vegetables and fruits fats and fatty foods and sugars and sugary foods and in so she basically was the first one to separate out foods into groups and then in her 1917 publication how to select food.

NOTE Confidence: 0.912927806377411

00:22:17.080 --> 00:22:48.810 She promoted these 5 food groups 2 adults, and these guidelines remained in place through the 1920s. I think it's really cool that she started off really thinking about Children's Health at first, and then being like Oh wait. I think adults should eat healthy as well. So while this is happening in right afterwards in popular culture. This is actually when the Hollywood starlets were starting to do their grapefruit diet so there's this really interesting disconnect between.

NOTE Confidence: 0.921485722064972

00:22:48.810 --> 00:23:12.360 But was actually being suggested and what people are actually eating that I think persist today. In 1933, shortly after this diet became popular. The USDA first introduced food plans at 4 different cost, levels and this was in response to the Great Depression. So this was the first time that the government introduced.

NOTE Confidence: 0.925485014915466

00:23:13.080 --> 00:23:32.530 Diet advice or food plans and they also created the first recommended dietary allowances 7 years later. In 1941 and this listed specific intakes for calories protein iron calcium and vitamins AB1B2B3C and D.

NOTE Confidence: 0.928575932979584

00:23:33.080 --> 00:24:03.090 So as the Great Depression influence the government to produce these food plans at different cost points. World War 2 kind of push the USDA to introduce a nutritional guide promoting the what's called the basic 7 in 1943, so the basic 7 food groups are put in place to help maintain nutritional standards under wartime food rationing. So there's a variety of different groups including green and yellow vegetables.

NOTE Confidence: 0.889496922492981

00:24:03.090 --> 00:24:37.640 Raw cooked or frozen oranges tomatoes and grapefruit. This also included raw cabbage will get back to the cabbage in a little bit also included were potatoes meat and milk products meat poultry fish, and eggs bread flour and cereals. An butter or fortified margarine and importantly, the fortified margarine had added vitamin A so I found an old poster from the 40s that promoted this basic 7 food groups and I thought it was really funny 'cause on the poster it said.

NOTE Confidence: 0.919342219829559

00:24:37.820 --> 00:24:46.340 And In addition to the basic 7 food groups eat any other foods. You want, which I think sounds like the greatest diet, I've ever heard of.

NOTE Confidence: 0.888161301612854

00:24:46.970 --> 00:25:04.960 I like that idea that would be good so she shortly after this. Well, this was going on. There is also this crashdiet that was created as a weight loss remedy and this diet was eat unlimited cabbage soup for a week, but that was all you ate.

NOTE Confidence: 0.882910966873169

00:25:05.550 --> 00:25:16.170 This diet was really interesting in that it caught on even though it didn't really actually keep off the pounds and also it can be flatulence inducing.

NOTE Confidence: 0.894294261932373

00:25:17.630 --> 00:25:47.690 Not so pleasant so after the War from the 50s to the 90s. The USDA kind of switched from the basic 7 to the basic for simplifying things so the four groups were vegetables, and fruits, mostly as sources of vitamin C&A and for fiber. Second food group was milk. So this include overwrite for a variety of reasons, but apparently cheese ice cream and ice milk or?

NOTE Confidence: 0.912757456302643

00:25:47.690 --> 00:26:17.920 It's OK to replace those for room temperature milk that was emphasized and teens needed more servings on adults. So I thought that was interesting and then third group was meat and this included poultry fish, and eggs and somehow dry beans and dry. Peas were also considered meat. At least in this classification system and then the 4th group was cereals and breads and so interesting Lee, the minimum daily.

NOTE Confidence: 0.925621092319489

00:26:17.920 --> 00:26:26.170 Servings of cereals and breads actually doubled from the basic 7, reflecting the end of the war and the end of wartime rations.

NOTE Confidence: 0.927869439125061

00:26:26.710 --> 00:26:58.280 And there is a fair amount of backlash to these basic for due to the agricultural industry, not being too pleased with the lower amount of food that was being recommended and So what at this point, the government actually United. The USDA and the HHS to create the first combined 1980 dietary guidelines for Americans, which recommended seven ways to have a good.

NOTE Confidence: 0.898256599903107

00:26:58.280 --> 00:27:17.260 Diet to one eat a variety of foods to maintain an ideal weight 3 avoid too much fat for eat foods with adequate starch and fiber 5 avoid too much. Sugar 6 avoid too much sodium and 7:00 if you drink alcohol do so another moderations.

NOTE Confidence: 0.910252034664154

00:27:17.920 --> 00:27:47.980 Uh yeah, so essentially the same recommendations that we have today during this time period. The basic forward pretty much omnipresent in nutrition education in the US, however, that didn't stop people from trying. All sorts of other weird diets as the theme goes so in the 1960s on an American physiologist living in Italy published the first scientific study on the Mediterranean with eating which has been a thing ever since.

NOTE Confidence: 0.92213636636734

00:27:48.600 --> 00:28:03.220 In the 1970s this grapefruit diet of half a grapefruit today experienced a resurgence in popularity after its mistakenly associated with the Mayo Clinic. I'm sure there not too pleased with that one, I'm sure.

NOTE Confidence: 0.92544811964035

00:28:03.860 --> 00:28:30.960 In in 1972 doctor Robert Atkins published his book Diet Revolution in which he claims that avoiding carbs will peel off pounds and lower the risk of metabolic syndromes diabetes and high blood pressure and so this really kicked off the Atkins diet, which then had a revival in the 1990s

when he published a second book in 1975. The Stone Age diet book introduces modern man to his dietary history.

NOTE Confidence: 0.92034125328064

00:28:31.460 --> 00:28:36.940 So this was essentially the start of the pay Leo Dietze insurgents into society.

NOTE Confidence: 0.8908811211586

00:28:38.280 --> 00:29:06.020 And then in in 1975, Miami Doctor Doctor Siegel introduces a specially formulated diet cookie so his patients 6:00 to 9:00 cookies a day followed by sensible meals would be OK with the diet that has me 69 cookies a day. But honestly I'm a little bit skeptical that would work pretty well. I wonder how those cookies taste they can't all be like.

NOTE Confidence: 0.926546573638916

00:29:06.540 --> 00:29:19.800 Snicker doodles can they I don't know if it's like a really healthy cookie let's say that it's basically a salad and a cookie is that still a cookie. I don't know if I would classify a healthy cookie as a cookie.

NOTE Confidence: 0.927089512348175

00:29:20.330 --> 00:29:52.100 I I don't know takes away from the excitement of the word for me, yeah, so in 1992. The USDA kind of realize that just putting out a series of guidelines isn't the best way to educate the American people as to what to eat? What's healthy and what's not, and so they attempted to express' the recommended servings of each food group based on an image and this image was the famous food guide pyramid so this was.

NOTE Confidence: 0.935306131839752

00:29:52.100 --> 00:29:54.810 The pyramid in which there were.

NOTE Confidence: 0.917548596858978

00:29:55.430 --> 00:30:26.120 6 different food groups that were kind of aligned and blocked off in a pyramid where the biggest section at the bottom was the servings that you needed the most of so this was broad cereal, rice and pasta and then this kind of narrowed into a small a packs that had the sparring amounts of fats oils and sweets that we need an in between. There were different size blocks for vegetables, fruits, dairy products and protein and so this there is a modified pyramid.

NOTE Confidence: 0.933083057403564

00:30:26.120 --> 00:30:56.550 That was proposed to adults over 70 and this was actually the first food chart. That was suggested by the USDA and interesting Lee when it was very first proposed they actually wanted fruits and vegetables to be the biggest group at the base of that. Pyramid and not breads, how ever that thought was overturned at the hand of the special interests in the grain meat and dairy industries. All of which were heavily subsidized by the USDA.

NOTE Confidence: 0.931750953197479

00:30:56.680 --> 00:31:09.120 And so that is why the pyramid switched and fruits and vegetables are only the second highest recommended foods after bread and cereal, which.

NOTE Confidence: 0.933775663375854

00:31:10.620 --> 00:31:15.270 I find a little bit frustrating, but you know its history.

NOTE Confidence: 0.5357865691185

00:31:16.700 --> 00:31:17.370 Hum.

NOTE Confidence: 0.921697020530701

00:31:19.430 --> 00:31:49.590 So, in in 2003, the South Beach Diet was created, possibly in response to this and that combined. The Atkins and Mediterranean diets to try to make something that was maybe a bit healthier and more pleasing for people. Yeah, I'm actually the Mediterranean diet sounds so delicious just like Fish and why don't know if the winds actually included I doubt it but how I imagine it is you have like a beautiful fresh caught fish with like.

NOTE Confidence: 0.928108870983124

00:31:49.590 --> 00:32:19.600 Creasy salad and that someone which sounds lovely, so, if we go back to this pyramid. It actually was changed and replaced in 2005. Basically, it just kind of changed up its image. So instead of having hierarchical levels. It was replaced with vertical wedges. So this was supposed to represent that all foods should be considered important but having different amounts.

NOTE Confidence: 0.921927571296692

00:32:19.600 --> 00:32:40.470 And there was an they left kind of this unmarked white tip at this new pyramid. That didn't have any colors representing food groups and this was supposed to be left for candy alcohol in any additional food to kind of encourage people that you can indulge and you can kind of have the foods that your quote Unquote not supposed to eat.

NOTE Confidence: 0.926458656787872

00:32:41.210 --> 00:33:11.320 Because they're good delicious actually now and I didn't realize this because the last time I learned about the pyramid. The food pyramid was in school, but now it's switched to my plate so the pyramid was replaced in 2011 by a plate in this plate actually has its divided into different. The different food groups, which Mark 20 years of the pyramid being over which I don't know it's kind of a staple of my childhood that's now gone.

NOTE Confidence: 0.877600252628326

00:33:11.320 --> 00:33:41.790 RIP pyramid so after the unveiling of the my plate. There has been additional diet fads in 2007. The cookie diet came back, he launched cookiediet.com and rival cookie based diets have followed so there's some drama in the cookie diet world in the twenty 10s the pay. Leo diet was repackaged from the Stone Age diet before and this is a supposedly ancient meal plan of meat.

NOTE Confidence: 0.919587910175323

00:33:41.790 --> 00:33:52.180 Eggs greens fruits on zero packaged foods and this diet also doesn't include dairy beans or cereal grains. Because these were introduced after cooking in agriculture.

NOTE Confidence: 0.908848583698273

00:33:52.840 --> 00:34:23.210 So the idea is that this diet is based on the Hunter gatherers and therefore it's the most quote Unquote natural diet for humans. In other news in 2012, Marie Claire UK advocates, the cabbage soup diet. It's coming back as a quote Super cheap. Anna great fix for a special event. Oh my God. Especially this cabbage soup diet. I just I can't get enough of it. I kind of want to try it and see if it's actually as bad as it sounds.

NOTE Confidence: 0.90853363275528

00:34:23.210 --> 00:34:28.250 I feel like after your second bowl of cabbage soup. You might not. You might go back on those words, yeah, I might.

NOTE Confidence: 0.924750924110413

00:34:28.990 --> 00:34:55.390 And then the Mediterranean diet in 2013, which is lean meats produce olive oil nuts wine and whole grains. So probably not that different from your idea of fishing a salad. This was found to reduce the chance of heart attacks strokes and death by heart disease by 30%, so that's that's a pretty big decrease in wine is included in that I'm sure it's not excessive amounts of wine, but just a little goes a long way.

NOTE Confidence: 0.947607398033142

00:34:56.820 --> 00:35:25.010 So since the 1980 dietary guidelines for Americans. So this is a publication of the USDA, the US Department of Agriculture and the Department of Health and Human Services. The DHHS so these guidelines are actually updated every 5 years, which I think is pretty which I think is really great because it allows for the incorporation of gnu scientific findings and.

NOTE Confidence: 0.926215946674347

00:35:25.540 --> 00:35:58.670 Essentially, it's it's it's predominantly hasn't had the biggest influence on American Dietze. So, although there's been a lot of debate on what should be left in what should be taken out so for example, the there's been a lot of focus on whether cutting fat should become still stay a really big focus of these groups and another thing is like weather cholesterol is still considered a nutrient of concern.

NOTE Confidence: 0.936812818050385

00:36:00.200 --> 00:36:31.470 The interesting thing is like when you representatives from the center of for natural nutrition policy and promotion at the USDA. They've been quoted to say. Unfortunately, what has remained constant over the years is that Americans have not followed dietary guideline recommendations so as much work has been that has been put into creating these guidelines and trying to put together a system that allows people to know what's healthy for them and what's not Americans don't really tend to respond.

NOTE Confidence: 0.916397988796234

00:36:31.560 --> 00:37:04.010 Well to these guidelines and don't enter respond so in our next episode on talking to David Hafler. He will be touching hopefully on this and how to really change the diets of people. Although I think less fast food restaurants may may be helpful there. In addition, there's tons of new additions that come in and what I found interesting is that every couple years. There's new recommendations that all basically say eat more fruits and vegetables, so this is a recommendation that have been coming in.

NOTE Confidence: 0.948975801467896

00:37:04.010 --> 00:37:34.120 For many, many years, so apparently fruits and vegetables are important, and we still haven't figured that out. Yet as as a society so actually if you the committee since 2015, has really started factoring in environmental sustainability for the first time in its recommendations, which I think is a wonderful thing that we really do need to start thinking about because as I mentioned earlier our population is growing, which means the amount of food we need.

NOTE Confidence: 0.934921145439148

00:37:34.120 --> 00:38:05.310 Also needs to grow more and we really need to start considering whether growing this much food is environmentally sustainable or how we can grow a lot of food while also being environmentally sustainable so in 2015. They found that a healthy diet should comprise of a higher plant based foods and lower animal based foods and that plant based diets are better for the environment than those based on meat and dairy actually if you're interested in how are?

NOTE Confidence: 0.936940491199493

00:38:05.310 --> 00:38:20.700 Agricultural system impacts sustainability, we actually have a review on this topic in our issue by Morawiecki. An gonzalas and I think that was something that I think everyone should be interested in learning more about.

NOTE Confidence: 0.925270736217499

00:38:21.460 --> 00:38:32.390 And In addition, we have another manuscript that talks about the importance of considering the environmental impact and this



manuscript is by.

NOTE Confidence: 0.934428334236145

00:38:32.960 --> 00:39:03.750 And and opa at all, and it focuses on the risks of toxins produced in algal blooms. So our human behaviors such as over fertilizing fields and climate change are increasing the severity of algal blooms in water and these crops that are grown with food that has algae in it, are more likely to be contaminated with toxins that are produced by Algy and frustratingly increased globalization.

NOTE Confidence: 0.934413552284241

00:39:03.750 --> 00:39:35.200 Allows for intoxicated products to be more widespread because there's more of these products and I think this is this highlights the importance of basic research so researchers that are looking and studying the biochemistry an lifestyle of Algy. It might seem like oh? Why are they studying the small organisms but actually it's impacting our everyday life and human health globally so we talked a little bit before about some of the controversy that's surrounding.

NOTE Confidence: 0.905673682689667

00:39:35.200 --> 00:40:05.350 The guidelines and how the food industry is lobbying in response to those guidelines and and this is happening really anytime something happens. That might affect sales. So one of the papers in our issue by area say at all. This is summarizing the history of sugar beverage sales like soda and just a history of industry pushed back to their regulation. 'cause I mean, I know I've seen a couple of times. There have been proposals to tax them and then there's.

NOTE Confidence: 0.922510981559753

00:40:05.350 --> 00:40:30.130 All kinds of blowback against that so we talked a lot about how food and diet recommendations came to be, but why do we care anyway? Why do you need a good diet? So a lot of people know that bad diet? Can lead to diseases like obesity or diabetes or heart attacks. The diet can also affect diseases that you wouldn't necessarily consider.

NOTE Confidence: 0.0425208434462547

00:40:30.670 --> 00:40:31.480 Um.

NOTE Confidence: 0.898662686347961

00:40:32.290 --> 00:40:56.650 And in modern Medison can also use nutrition to cure diseases, so things like federal code. In area where the person is not able to breakdown. One amino acid phenylalanine. This can lead to the Fidelity in accumulating in the brain and leading to intellectual disabilities, but this can actually be completely prevented by only feeding these people.

NOTE Confidence: 0.909839570522308

00:40:57.260 --> 00:41:05.530 Foods that don't contain phenylalanine, so if you look at a nutrition label really carefully a lot of them will say caution contains phenylalanine and that's actually why.

NOTE Confidence: 0.925273776054382

00:41:06.680 --> 00:41:25.180 Beyond that, nutrition can cure help regulate diseases like diabetes or it can. It's important for people with food intolerance. So we need to know more about our nutrition in order to improve our health and there's a lot of really interesting research happening about nutrition some of which is in our issue.

NOTE Confidence: 0.923286914825439

00:41:25.720 --> 00:41:57.470 Yeah, in our in our next episode. Millie is going to be talking with doctor David Hafler, who will be talking about the influence of diet nutrition on risk of autoimmunity, which I think will be really awesome conversation. I look forward to it. So I guess this whole episode. It's basically just we're talking about a Goldilocks situation where too much of something too. Little of something is never the best idea but you really it's again. It seems so personal, though, so like.

NOTE Confidence: 0.902091443538666

00:41:57.470 --> 00:42:13.360 My genetics my microbiome impacts? What a healthy diet is for me in the same for you and again. We're not doctors. This is not medical advice and if you go if you want to improve on your diet as a result of listening to this.

NOTE Confidence: 0.924990773200989

00:42:13.970 --> 00:42:43.180 Read about the government's food guidelines are they do put a lot of effort into it and these are but these are based on an entire body of literature and not only is one study not a good basis for making decisions so if you read one manuscript about a certain diet affecting group of people just know that that's one study, but looking at the entire body of literature is really critical and also taking consideration your personal health and your your personal body as well.

NOTE Confidence: 0.900001287460327

00:42:43.780 --> 00:43:14.250 So as an intro to our next episode where we're going to interview Doctor Hafler. Let's talk about a manuscript that we're publishing about how food is affecting our bodies and this is by Donovan at all. And so some background is this paper is looking at how your diet might affect breast cancer risk. Our bodies make this receptor called an aryl hydrocarbon receptor in this receptor responds to a variety of different compounds in our food.

NOTE Confidence: 0.912739813327789

00:43:14.870 --> 00:43:46.000 But it also responds to compounds that are made by breast cancer and that promote the breast cancer's growth so the authors of this paper. Donovan at all are proposing that if we eat foods that inhibit this receptor from being activated by breast cancer, then that might prevent breast cancer from spreading. So it's kind of like we should eat a lot more foods that bind to this receptor so that all of the receptors are blocked with.

NOTE Confidence: 0.918942213058472

00:43:46.000 --> 00:43:51.920 The nutritional good food that we're eating as opposed to the cancer of signals that are saying to grow.

NOTE Confidence: 0.907165586948395

00:43:52.640 --> 00:44:22.960 Yeah, that's that's the idea it's it's actually a little bit more complicated than that because defiance always is as science always is because different specific compounds. Bull either activate or inactivate the receptor so the idea is eat foods that contain compounds that inactivate the receptors that way. The breast cancer can't activate the receptor oh that's so interesting so this particular compound. We're talking about is called a flavone. Andy slave bones are in a lot of different fruits and veggies like broccoli lettuce spinach.

NOTE Confidence: 0.91547417640686

00:44:22.960 --> 00:44:31.860 Grapefruit lemons limes oranges and apples so maybe the grapefruit diet did have something to it maybe.

NOTE Confidence: 0.920768916606903

00:44:32.430 --> 00:44:59.530 And in this paper, there reviewing the effect of other studies where they looked at cancer risk in eating some of these fruits and vegetables and they found really that it's kind of a wide range, some of these studies are looking at sono effect. Some sort of small protective effect, but none of these studies were really designed to look for this so it's not 100% clear necessarily how much of this flavon compound is getting consumed.

NOTE Confidence: 0.929228067398071

00:45:00.080 --> 00:45:08.730 So they're basically using this, this paper to argue that this is something that would be worth looking into more and doing some more research to specifically test this.

NOTE Confidence: 0.884604215621948

00:45:11.130 --> 00:45:38.420 And with that it's time to wrap up. Thanks for tuning into this episode of the L Journal of biology and medicine podcast join us next month for a second podcast on nutrition and food science, where Neil and I will be interviewing doctor David Hafler, a professor professor in neurology and immunology here at Yale. We'd like to thank the Yale School of Madison for being a home for YJBMNR podcast, thanks to the old broadcast Center for help with making this podcast come to life.

NOTE Confidence: 0.910665810108185

00:45:39.050 --> 00:46:09.930 Thank you to our entire why JBM editorial board and if you'd like more information on the Old Journal Biology. Madison or a podcast. Please visit [madison.yale.edu/my\\_JBM](http://madison.yale.edu/my_JBM) and be sure to check out her Journal by searching Gail Journal Biology. In Madison at [pubmed.com](http://pubmed.com) were actually completely open access, so even if you're not an academic who don't have access to a lot of journals were completely free to read and if you like to contact us you can email us at why JBM at [yale.edu](mailto:why_JBM@yale.edu).

NOTE Confidence: 0.856564342975616

00:46:09.930 --> 00:46:12.690 We also have a Twitter we are at the YJBM.

NOTE Confidence: 0.908685266971588

00:46:13.270 --> 00:46:26.490 We'd love your feedback and questions so feel free to tell us your thoughts by emailing or tweeting us and if you enjoyed our podcast. Please share us on SoundCloud or Apple podcasts. See you next month for the next installment of the wide JBM podcast.