

## Concurrent Sessions II

### Diet/Nutrition

Michelle Wien

My two areas of expertise are obesity and Type 2 diabetes. After my presentation I will be turning the podium over to Wahida whose expertise is in the area of cardiovascular nutrition. There is much overlap between type 2 diabetes and cardiovascular disease. It was really challenging to develop a PowerPoint presentation that didn't tend to go over into the cardiovascular realm because they're so intertwined.

In terms of the condition known as pre-diabetes, we are aware that there is an increased prevalence in our nation, as well as globally. It is because of our toxic environment. We now have fast food available at all four street corners and we also have taxis and subways and we have many wonderful modes of transportation, so we are doing less walking overall as a nation and globally. The key to postponing the onset of type 2 diabetes has been examined. There are some large trials showing that if we improve the quality of our nutritional intake as well as getting on the move and increasing our physical activity, with some moderate weight loss as a side effect, that we can postpone the onset of type 2 diabetes. Two of the trials, one of which was alluded to this morning, the Diabetes Prevention Trial, was earth shattering, with the results showing that a simple low fat diet intervention and a recommendation to do some mild exercise improved health. And we also had some back up evidence from the Finish study which also showed the same thing, that we don't have to take a pill to prevent diabetes. We can get on the move and we can start to go back to our roots and eat in the way we used to eat before we became a fast food nation.

One of the things we have working against us during the aging process is body composition changes. We have a higher percentage of fat by analysis and we have less muscle tissue. Muscle tissue is very dynamic, and burns calories, but fat tissue is metabolically inactive. A lot of my patients that I've counseled in the past that are overweight, maybe BMIs of over 35 or heading towards morbid obesity, when they would get onto a body composition scale I had to do the measurement three times because I was amazed that some individuals could be walking around with 65% body fat by composition as compared to the normal range between 15 to 25%.

In terms of the South Asian population, they've lowered down the cut off as far as BMI to define overweight. It's gone down from 25 to 23 because of increased cardiovascular risk as well as

glucose status with a BMI higher than 23 so we want to really look deep at one layer below the surface at body fat, besides just looking at BMI. And we know that exercise will build muscle mass. They've done studies of individuals in long term care facilities of people in their 90s and they're able to build muscle mass in these individuals. We do have the ability to build muscle mass throughout our life span and we don't have to turn into 65% body fat by analysis. And certainly, as we maintain our muscle mass we keep our body fat reduced.

When I prescribe any weight loss intervention I'm looking at the short term, the 5-7% body weight decline. We don't need to see 10%, 15%, 20% at first because we know that we'll get the greatest metabolic effects just with a simple 5-10 pounds of body weight change. In addition we look at the percentage of total fat as well as percentage of fat and carbohydrate calories suitable based on the individual's cardiovascular risk and their lipid profile. If they have hypertriglyceridemia, or LDL particles that are more atherogenic, we lean towards prescribing a higher percentage of a good quality fat. The monounsaturated fats. One of the things I was invited to do for this conference was to make sure that our snacks were heart healthy, as well as the meals were heart healthy. So you did have quite a bit of monounsaturated fat introduced into your meals and snacks, including those almond laced biscotti that were part of your dessert at lunch today. The primary sources of high monounsaturated fatty acid foods are canola oil, olive oil, almonds and peanuts, as well as fish being an excellent sort of omega-3s, and then our polyunsaturated fats. The goal is to keep away from those atherogenic trans fats and saturated fats in our lives.

As far as approaches for weight control, we know that individuals need structure in order to stay on track. Sometimes Monday through Friday is much easier for individuals versus weekends when they tend to relax their guard and there's more temptations and there are more social family events. There has been a tendency towards over consumption of beverage calories over and beyond what I ever imagined with the introduction of the juice bars. Jamba Juices, the Starbucks, they're on almost every street corner. We do know that if individuals are hydrating themselves with calorie containing beverages their weight goes up. Weight also goes up through the inclusion of calorie dense fried foods and potato chips and the frequency of dining out. Look at your Daytimer or PDA and see how many times during the week you dined out. Just limiting the frequency of dining out can make a world of difference.

For individuals that are struggling with weight control, I always encourage them to arrive at a restaurant with a blood sugar in the relatively normal range, not in a plunging state. For persons with diabetes, there is a tendency that they will feel famished upon arrival to a restaurant. If they have diabetes and they're on a medication chances are their blood sugars will be on the decline right before

their meal. When you are in that famished state, that breadbasket or the bowl of tortilla chips looks pretty good. And the best thing to do is get the hands moving, but out of the chip and the breadbasket. Get something to eat with hand to mouth movement, perhaps a light soup or salad. We're trying to get our entrée portions down in size, but restaurants still serve portion sizes really double or triple that of what we need. Especially with aging, and especially if we need less calories because we're moving less. Taking home leftovers should be praised by individuals and we should pat our patients on the back for doing that. Monitoring rice portions, which can be very calorically dense if not monitored closely, but vegetables – I've never had a patient that I had to scold because they abused vegetables. Even one patient of mine, when I told her she could have a head of cauliflower day after day, tried it for two days and after the second day she said, "I can't do it any longer due to too much fiber. Vegetables are never, never contraindicated.

And that leads me into the topic of satiety, which I've also become very, very passionate about. There are two primary factors in a food that drive satiety, or the decrease in the hunger that occurs upon food ingestion. High fiber foods lead to a feeling of fullness or a feeling of satiety, and the goal that we have set for us in our nation is 20-35 grams per day of fiber. As a nation we consume about 12-13 grams per day. So we're about at 50% of our target for fiber intake. I always like to encourage the consumption of baby carrots, which are so convenient. And as well as, perhaps, some hummus dip or perhaps a low fat ranch type dressing to make the vegetables go down. Individuals that find a better way to get their vegetables in achieve their vegetable servings daily. High protein foods also give a tremendous amount of satiety or the feeling of fullness. So we do know that a combination of any food that's high in protein and high in fiber will give us a feeling of fullness for a longer period of time.

We do have evidence that a calorie is a calorie, but it's dietary influence is context and content specific. The act of actually chewing your food versus drinking your calories day after day does make a difference. The next slide I'll go into in little bit more detail. We do think that perhaps there might be some internal signal that just the motion of the jaw might have signaling towards the feeling of fullness. And we do have evidence that it does make a difference, liquids versus solids. We have had some investigations in the area of chewing an apple versus having apple juice versus having the apple juice thickened to an apple soup. And individuals reported that if they ate an apple they didn't reach for another food item for a longer stretch of time versus if they had had apple soup or apple juice. And then one of my favorite studies is the jelly bean versus the soda study that Richard Mattes did, about five years ago at Purdue, when he demonstrated that his subjects consuming soft drinks during their daily pattern of intake actually had some slight weight gain because the soft drinks did not inhibit the caloric ingestion of other foods throughout the day. But when he had them consume jelly beans, the

same amount of calories that they were consuming from the soft drinks, he found a completely different situation. He found that the subjects were compensating for the jelly bean intake, so they actually did eat less calories with the jelly bean intake, which he didn't expect to have happen. Ultimately he did show that chewing does make a difference for weight control strategies.

We want to postpone the natural progression of type 2 diabetes. We can only postpone the inevitable for so long before it is a full blown case of type 2 diabetes. We have to encourage a return to nutrient dense foods, and that is heading back towards our complex carbohydrate food categories versus the simple sugars and the simple carbohydrates. We also have to encourage less of the saturated fats as well as the trans fats, because we're aware of their cardiovascular implications, but also in terms of their ability to influence the progression of type 2 diabetes. And people need to move, a simple message, increasing steps or increasing physical activity.

We do have culturally sensitive exchange lists – food lists that were established by the American Diabetes Association and American Dietetic Associations. These exchange lists have been modified for the Latino population, the Asians, and now we have the South Asian Guide to Health, Nutrition and Diabetes that you were provided with in your bags this morning. I would like to note the philosophy of the American Dietetic Association is that all foods can fit. We do have, however, foods that we want ingested every day and that is the fruits and the vegetables that are enhanced with the phytochemicals and fiber, which have benefits in terms of prevention of heart disease and cancer prevention. And then there are those foods that are for special occasions and should be limited to maybe once a week or holidays. And I know that dealing with individuals struggling with weight control there is a holiday in every month of the year, sometimes there's two, sometimes there's three. And so there's lots and lots of things that are defined as holidays and special occasions in peoples' lives.

It's extremely important when an individual presents with diabetes that we educate them on portion control. And total carbohydrates do count at meal and snack times. We educate individuals on carbohydrate counting, but total carbohydrate is the important line item on the food label, not just the word "sugar," which everyone tends to just hone in on. We have a great number of wonderful oral agents, as well as new insulins available that require less snacking throughout the day, which makes it easier for an individual with type 2 diabetes, as well as type 1 diabetes, from having to snack, snack, snack so their blood sugars don't decline. That can be a problem in terms of weight control. As well, we have less frequent episodes of hypoglycemia, and anyone who's ever experienced a hypoglycemic episode would probably tell you that they over ate in response to that low blood sugar.

Years ago when patients would ask me if they could have peanut butter between meals I would say oh no, of course not, too high in fat. And then I became more cognizant of the effects of foods that are high in fiber and high in monounsaturated fats in meal patterns and I started to encourage them to have the peanut butter with celery in between meals and/or transfer their prescribed fat at mealtimes into their between meal snacks. And I began encouraging them to consume peanuts and almonds between meals to see how they would do. And remarkably they did pretty well, because peanuts and almonds carry along very well. In Southern California where I've been for the past 40 years, practicing as a dietitian for 25, it gets pretty warm at times during the year, but you can keep nuts in the car and nothing happens to them. They're very robust. Especially in a zip lock bag or if you use an empty Altoids tin. When I became interested in looking at a research project for my doctoral degree at Loma Linda University I evaluated the fatty acid composition of various nuts and oils, and the nut that topped the list that I became more and more interested in studying for my dissertation was the almond, because of its high monounsaturated fatty acid characteristics, as well as high protein and fiber content. One of the things when you ask Mr. Smith on the street, what do you think about consuming nuts? They will respond, as far as a tree nut, they are fattening. And that is the view of most individuals in the US and worldwide. They carry a stereotype that they do put weight on the body, but actually, in terms of body weight studies that are emerging there's no problems with weight gain. I used almonds in the context of my weight control program at City of Hope Medical Center in Southern California and I actually have had greater success with my almond cohort versus a matched amount of calories from complex carbohydrates. I had an 18% decline in body weight introducing almonds into a partial liquid diet approach versus an 11% decline over a six month period of time. I was the first to introduce something that had the stereotype as being fattening into a weight loss program, yet was very successful.

As a Certified Diabetes Educator I was present at the Diabetes Care and Complications Trial results session in Las Vegas back in 1993. It was some time ago and I remember wearing a button that stated Glucose Control Matters. We do know that there's a very, very high correlation between hemoglobin A1C levels and development of complications. In order for us to get individuals to the point of keeping glycemic control in place, physical activity is imperative. As I mentioned, with the aging process we need to keep our bodies lean and exercise will do it. We know we have to have the support of family and friends, as well as gifts of pedometers always helps at holiday times, at birthdays and such. And so is having somebody to walk with in a safe environment. Nutrition, we know calories count and that the quality of the nutrients are very, very important, especially for individuals

that have pre-diabetes, who are at a much higher risk for developing cardiovascular disease, as well as type 2 diabetes.

A simple message! How much physical activity? In the diabetes prevention trials it was about 30 minutes a day five days, maybe seven days a week at the most to prevent obesity. It is not 90 minutes a day that we're hearing sometimes in messages out there by some of the groups. It's so much easier to prevent than to turn the tide after the weight has come on. And 30 minutes a day does not need to be continuous. For weight loss, five pounds, ten pounds is a definite success. A return to nutrient dense foods, very important, versus the calorie dense. We need the more complex versus the simple carbohydrates. Reducing the saturated fat and the trans fats. Use a heart healthy approach to meal planning. I will now turn this over to Wahida who has a phenomenal presentation to introduce you to the nutrients and foods that are appropriate for populations that are at higher cardiovascular risk.