



EPISODE 17 - How To Use the Exchange Lists

Transcript

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I was seeing some patients in the pediatric unit when my pager went off. It was the Failure to Thrive clinic. There was a new patient who needed a nutrition consult. I finished the conversation I was having with the child and their parents then walked down to the clinic. Before seeing the patient, the doctor wanted to talk to me. He showed me the diet recall so I could add to it when I spoke with the patient. I had a long conversation then spoke with the doctor. He asked me how many calories the patient was eating. I was able to quickly estimate how many calories and grams of protein the patient was getting. I shared it with the doctor as well as the patients estimated needs so we all knew where the patient stood with regards to their intake and how much they needed. The beauty is that I was able to estimate it quickly because I used a helpful tool.

[Music and Intro]

Hey there. As dietitians, we're often asked to review a menu or make a quick evaluation of a patient or clients diet recall where you need to calculate and determine how many calories and protein, carbs and fat are in the meal. Sometimes you may have access to a database and there are apps that can give a breakdown but there's one true method that dietitians and clients can use to help with easy calculations when there's no access to these other things and that is the exchange lists. The exchange lists are used by dietitians all the time and across specialties. It doesn't just help with carb counting - although it's super useful for that. It's overall a great tool anytime you need to quickly assess the macronutrient breakdown of a meal. I wanted to cover this topic because I've had a couple RDs2Be reach out to me who either want help clarifying exchanges or I've had interns ask about questions during their internship rotation or practice questions they might be doing and need help answering it. The key to answering the question is using exchanges. So I'm dedicating an episode to this very helpful, trusted tool that I want you to be comfortable using.

I used to see the patients with eating disorders who would come to the outpatient clinic. When they'd tell me what they ate, I'd use exchanges to quickly figure out how many calories they were roughly eating in a day. If you've worked with eating disorder patients, they know exactly what they're eating because they calculate everything but that's for another day.

Let's say you're asked to do a comparison of meals on the exam and you need to determine which meal has the most amount of protein. Or maybe you need to indicate which meal has the least amount of calories. You would use the exchange lists to quickly determine this. On the exam, you don't have time to do a full nutrient analysis nor will you have access to the software to enter the data. So you have to use a tool to help you and that tool would be the exchange lists.

So let's spend some time talking about exchanges, a general breakdown of the exchanges and why it's so important you know how to use this tool. The beauty is that you don't have to be exact when using exchanges - I know, this is hard for dietitians who are known to have type A personalities. We want everything to be perfect. Exchanges are estimates so yikes, that can be hard if you're a perfectionist. But I'd argue that using exchanges is perfectly fine. Essentially the tool helps you estimate how many calories, grams of protein, grams of fat and grams of carbs a meal or food item has when there's no food label available. It's particularly helpful when eating out.

For dietitians who work with people who have diabetes, carbohydrate counting is a very important skill they need to learn which requires patients to use the exchange lists. I want to mention that sometimes I've seen it called Food Lists. So you may come across that name too. I don't want you to be confused so if you do, it's the same thing.

So let's do a review of the exchange lists. The exchanges are only helpful for the macronutrients. The macronutrients are carbohydrate, protein and fat. These nutrients provide calories therefore calories are also part of the exchanges. The micronutrients are vitamins and minerals which are not counted using the exchanges. So let's go over the categories first. The first category is starchy foods which includes breads, cereals, starchy vegetables, beans and legumes. The next category is the fruit category which includes fruits - appropriately named right. Then there's the non-starchy vegetables which are all the vegetables except for the starchy vegetables. Starchy vegetables are corn, peas and potatoes. Those vegetables are included in the starch category. Then there's the milk category which includes milk and yogurt. Cheese is not included in the milk category even though it's made from milk. Cheese is actually part of the meat category which is broken down into lean, medium-fat and high-fat meats. There's also desserts and sweets as well as fats which includes things like butter and margarine. Don't worry. I'm gonna break these down for you further. Before I do, if you feel you need to write things down which I'm a huge advocate for, I suggest you grab yourself something to write with so you can follow along and take notes. In fact, I recommend you draw a table with 5 columns and 8 rows. Give yourself enough room in the rows to write down a couple examples. If you need to pause this episode while you draw your table or maybe create one on your computer (whatever easiest for you) go ahead and do so.

Ok. At the top of your table, from left to right label your columns Foods, Carbohydrates, Protein, Fat and Calories. Now the first row is going to be starch. Under foods, write starch and write down some examples of starches such as bread, cereal, oatmeal, beans, potatoes, and pasta. There's a lot of starchy foods so I'm not gonna review every starchy food - we'd be here for a long time so this is just a summary. So let's complete the row with the nutritional values for each type of food group. In one serving or "exchange" of starch, there is 15 gm of carbohydrates. The serving size is really important because portion sizes matter. So let's review examples of portion sizes. 1 slice of bread is 1 starch exchange. In 1 slice of bread, there is 15 gm of carbohydrate. 1/3 cup of rice is 1 starch exchange. In 1/3 cup of rice there is 15 gm of carbohydrate. If you ate a sandwich with 2 slices of bread, you would need to count each slice of bread. That means that the 2 slices of bread provide 30 gm of carbohydrate. So make sure you pay attention to portion sizes and that you're familiar with the portion sizes. I know bread and rice are commonly known as starchy foods but the starchy vegetables are also part of the starch category. So what does that include? Peas, corn and potatoes are all part of the starch category. 1/2 cup of corn is 1 starch exchange so it contains 15 gm of carbohydrate. So if you haven't done this already, in the carbohydrate column of your table, write down 15 gm. The next column over is protein. Now using the exchanges, protein varies because in reality, it varies in foods. If you're in the ballpark of 0-3 gm of protein, you're doing ok. 1 slice of bread that I have in my freezer has 2 gm of protein which is right in the middle so I usually use the middle of the range for protein. So in your column for protein, you will write 0-3 gm in the starch row. For fat, the range is 0-1 gm of fat. So in the column under fat, you will write 0-1 gm. And lastly, 1 starch exchange provides 80 calories.

So let's use bread as an example to review the exchanges for starch. 1 slice of bread is 1 starch exchange which means that 1 slice of bread has 15 gm carbohydrate, 0-3 gm protein (I'll estimate to 2 gm protein), 0-1 gm of fat (I'm gonna go with 1 gm) and 80 calories. If you had 2 slices of bread, everything will be multiplied by 2. You don't need to have a food label to help you. You don't need to have an app or a specialized computer software program in front of you. All of this can be done live time, in your head or writing it down on a piece of paper.

So let's move on to fruit. On the next row down, below the starch, you're gonna write down fruit. Let's go over some examples of fruit. This includes apples, oranges, bananas, berries, kiwi and mango - no name a few. In 1 serving of fruit, there is 15 gm of carbohydrate. So in your carbohydrate column, write down 15 gm of carbs. An example of a portion size or 1 exchange of fruit is 3/4 cup of blueberries, 1 small apple, 1 extra small banana or half a large banana, and 1 small orange. In the next 2 columns for protein and fat, you're gonna put a line through it or you can write 0 because there's no protein or fat in fruit - at least not enough for us to count it in most circumstances. In the final column for calories, you're gonna write down 60 calories because there's 60 calories in 1 serving or 1 exchange of fruit. So that means in 1 small apple, there's 15 grams of carbohydrate and 60 calories.

The next row down is milk. This includes the different types of milk such as fat-free, 1%, 2% and whole milk. Yogurt also fits into this category. 1 cup of milk is one milk exchange. In one milk exchange, there is 12 gm of carbohydrate regardless of the amount of fat in the milk. So write down 12 gm under the carbohydrate column for milk. In one serving of milk or yogurt, there's 8 gm of protein. The fat column is a little more detailed because dairy products have different amounts of fat depending on the type of dairy product you have. In fat-free milk, there's 0 gm of fat. In 1% milk there's around 3 gm of fat. In 2% milk there's 5 gm of fat and in whole milk, there's 8 gm of fat per serving. Again, this is an estimate but it makes it so much easier when you're getting a dietary recall. Since there's different amounts of fat in each type of milk, the calories are also varied because fat provides calories and the more fat there is, the more calories there are in a food item. So in the fat free milk, there's 100 calories in 1 serving or 1 exchange. In 1% milk, there's 110 calories. In 2% milk there's 120 calories and in whole milk, there's 160 calories. So that's the milk category.

Moving on to the next row which is the sweets and desserts category. Foods in the sweets category include cookies, cakes and candies for example - basically the good stuff if you have a sweet tooth like me. Using the exchanges, you have to identify what the food item is first in order to figure out the protein and fat. Let me break this down for you. It's safe to say that cookies, cakes, chocolate, candy, and pudding all contain a common ingredient which is sugar. Since they all contain sugar, in 1 serving of that dessert which again will vary depending on what you're eating, the amount of carbs in the item is 15 gm when using the exchange lists. What will vary is the protein, fat and calories. If you're eating gummy candies for example, there's no fat or protein in gummies so in 1 serving of gummies there's 15 gm of carbohydrate from the sugar in the candy. The calories for the serving of gummies is around 60 calories. Why did I say 60 calories? Well, remember that there's 4 calories in 1 gram of carbs. This is something we know. So in 15 gm of carbs, you'll multiple 15 by 4 because there's 4 calories per gram which gives you 60 calories.

Moving on to the non starchy vegetables. This includes all the other vegetables such as broccoli, green beans, carrots and lettuce. In 1 serving of broccoli, there's 5 gm of carbohydrate. There's also 2 gm of protein in 1 serving of non starchy vegetable. Non-starchy vegetables don't have any fat. And lastly there's 25 calories. I hope your table is looking great and you're filling in the categories.

We're almost done. The meat category is broken down into lean, medium-fat, and high-fat meats. There's no carbohydrates in meat. Meat is carb free - unless it's breaded and fried. But we're not going over that for now. So there's 0 gm of carbs in 1 serving of meat. Moving on to protein. There's 7 gm of protein in meat regardless of how much fat is in the meat. We'll get into the fat content in a minute. For now, we're talking about protein. I remember when I first learned about exchanges and when I really started to get into the details of nutrition. I

remember being so surprised that dairy products have 8 gm of protein whereas meat has 7 gm of protein. I never would've thought that to be true. That realization helped me with memorizing the exchanges so I thought I'd share it with you in case it helps you too. Ok. The type of meat indicates the type of fat. For example, lean meats include boneless, skinless chicken breast, fish, and egg whites. There's a lot of lean fat meats but these are a couple examples. So in 1 ounce of lean meat, there's 0-3 gm of fat. In 1 ounce of medium-fat meat there's 4-7 gm of fat. Examples of medium-fat meats include a whole egg, beef, pork, and lamb. And finally, high-fat meats include bacon, cheddar cheese, and sausage. In 1 oz of high-fat meat, there's 8 gm of fat. Ok finally the calories. In lean meats, there's 45 calories, medium-fat has 75 calories and high-fat meats have 100 calories.

One more row which is the fats category. The fats include foods such as butter and margarine. There's no carbs or protein in fat. In 1 serving of fat there is 5 gm of fat and 45 calories.

Phew. That was a lot. If you're already comfortable with exchanges, keep going. You got this. And if this is something you need a refresher on, please, please take the time to review the table you created and learn this tool. Get comfortable with exchanges because you'll use them. Whether you work in clinical, or outpatient counseling...or maybe you'll end up working in a kitchen doing foodservice management. You'll need to know exchanges to help you with meal planning and when you need to give quick estimates. If you work with clients who have diabetes who need to know how to carbohydrate count, this is the tool you'll teach and the tool they'll need to know how to use so they can manage their blood sugars independently. AND you might need to do a quick estimate on the exam if you're asked to compare foods and indicate which options have the most calories, or the most amount of fat or protein. If you're asked to do a comparison of foods on the exam, this strategy - the exchange lists - is what will help you answer the question.

Let's put what you just learned into a real life scenario. Something more practical that you can apply. Let's say you're asked to determine how many calories and grams of carbohydrate are in the following meal: 3 oz baked chicken breast, seasoned with herbs, 2/3 cups of rice and 1/2 cup cooked broccoli. Ok. If you're a visual learner and need to write things down (which is how I am), you will making 3 columns and 4 rows. Write down the foods you have in this question which is chicken, rice and broccoli on each row and the columns will be listed Food, Carbohydrate and Calories. The first food is chicken. Chicken is a meat and meat doesn't have any carbohydrate. It's not breaded and fried so that confirms there's no carbohydrates. It's only seasoned with herbs. Moving on to calories. Chicken is a lean meat. The question isn't asking about protein and fat so I'm not gonna bother with those values but the type of meat does affect the calories in each exchange. 1 oz of chicken is 1 lean meat exchange. In 1 oz of lean meat there's 45 calories. This meal provides 3 oz of chicken so I need to multiply 45 calories by 3 which will give me 135 calories. Now moving on to rice. This meal provides 2/3 cup of rice. Rice is a

starch. 1/3 cup of rice is one exchange or one serving so I'm gonna need to multiply everything I do by 2 because there's 2 servings of rice in this meal. First column is carbohydrate. In 1 starch exchange, there's 15 gm of carbohydrate. I have 2 servings so I'm gonna multiply 15 by 2 which will give me 30 gm of carbohydrate from rice. Now I have to determine how many calories are provided from the rice. In each exchange of starch, there's 80 calories. I have 2 exchanges so $80 \times 2 = 160$ calories. Last food item in this meal is broccoli. Broccoli is a non-starchy vegetable. It still has some carbohydrate but not as much as the starchy vegetables do. 1/2 cup of broccoli is one non-starchy vegetable exchange which has 5 gm of carbohydrate per serving so I know that 1/2 cup of broccoli gives 5 gm of carbs. Now I have to determine how many calories are in the serving of broccoli. There's 25 calories in 1 exchange of non-starchy vegetable so that means the broccoli provides 25 calories. Now it's time to add up our nutrients. The question wants us to indicate how many grams of carbohydrates and how many calories are provided in this meal. Well, chicken has 0 gm of carbs, the rice has 30 gm of carbs and the broccoli provides 5 gm of carbs. $30 + 5 = 35$ so this meal provides 35 gm of carbohydrate. Now for the calories. The chicken provides 135 calories, the rice provides 160 calories and the broccoli provides 25 calories. $135 + 160 + 25 = 320$ calories. There you go! That's how you're gonna use exchanges when having to quickly determine the macronutrients provided in a meal. You won't always need to write out a table. Maybe you're already comfortable enough that you don't need to. It's just a tool to use if you're still struggling with this concept or you're a visual learner and need to see things organized.

What I just did in this example was also show you how you'll help any diabetic patients you might have. Carbohydrates are important and calculating the number of servings per meal is key to blood sugar control. In this meal, it provided 2 carbohydrate exchanges. The 5 grams of carbs from the broccoli is low. If this patient had diabetes and was allowed to have 5 carbohydrate, there's enough room for 3 more servings of carbs before reaching the max carbs for that meal.

This is the last point I want you to remember. It's important you remember how many calories are in each of the macronutrients. So let's review. There's 4 calories per gram of carbohydrate, 4 calories per gram of protein and 9 calories per gram of fat. You just need to know this.

What I want you to do is go back and use the exchange table you created. Review it. If you have your own resource (there's a lot out there), go ahead and review the resources available to you.

I wanted to end with a story that comes to mind when I think of exchanges so naturally, as I was preparing for this episode, this story kept coming to mind so I figured why not. I'll share it with you. Years ago when I was a new dietitian, I was super eager to help anyone and everyone. I wanted to share with the world - or at least

anyone that would listen - that I finally finished all my education and was able to use the RD credential. I'm sure you can relate. I was flying to Seattle and ended up sitting next to this man who was flying to Seattle for a business meeting. I was flying home to see my family. Anyways, he started a conversation with me and asked me what I do for a living. I told him I was a dietitian... Obviously because remember, I told anyone who asked. He started to tell me everything he eats on a regular basis. He said, "Usually for lunch, I eat a tuna sandwich. I put a can of tuna on 2 pieces of bread with some light mayo and lettuce and tomato. And I make sure I use whole wheat bread. Is that a healthy lunch? How many calories is the sandwich?" So in my newbie RD mind, I start calculating how many calories he's eating by using exchanges. I told him roughly how many calories his tuna sandwich on whole wheat provided. Let me tell you. This was the beginning. He started going through everything he eats, what restaurants he likes to eat at and as the flight went on, I quickly started losing interest in the conversation. But it was so awkward at that point to put my headphones on which I really wanted to do not because he wasn't a nice man but because I had loaded my original iPod full of 90's and early 2000's R&B and Hip Hop which I couldn't wait to listen to.... Anyways, I didn't want to be rude so I talked to this man the whole way to Seattle. I eventually successfully changed the conversation so we at least talked about something other than what he ate the day before. Don't get me wrong. I love helping people but this turned into a long conversation - much longer than any session I would normally have with a client and I couldn't go anywhere because I was stuck on an airplane next to him. But I learned a lot from that experience. 1) Exchange lists are amazing, super helpful and a must know regardless of what area you work in as a dietitian. 2) People generally love to talk about themselves, and 3) Dietitians are valued and needed in society and our communities. People look to dietitians for nutrition advice and guidance even when we aren't working. Which means you're exactly where you should be. You're the expert and you have a big, important role in this world. Stay on top of your study game. There's no limits to achieving the success you so deeply desire. Until next time.

[Music and Outro]