Developing Pediatric Nutrition Intuition and Mini Exercise Programs

An assessment of dietary and nutritional education levels in pediatric patients, improvements in educational levels through student provider education and handouts, along with recommendations for improved pediatric patient education at Matthew Walker Comprehensive Healthcare Clinic in Nashville, TN.

By Emmanuel Johnson

MD Candidate 2017, Meharry Medical College

GE-National Medical Fellowship Primary Care Leadership Program Scholar, Summer 2014

Abstract

Lack of adequate pediatric nutritional and exercise education in primary care can have serious implications on patients' health. I chose to explore the system of delivery of education for pediatric patients presenting to Matthew Walker Comprehensive Healthcare Clinic and/or parents and investigate how that system could be improved in order to increase healthier eating habits and physical activity. Through the implementation of a system of assessment and addressing needs, I hypothesize a difference in approach in the delivery of patient education in the pediatric clinic will result in increased compliance to healthier eating habits and physical activity. Pre and post-assessments were given and collected, handouts on how to read a food label were disseminated, and in-examination room patient education by me was conducted. Over a period of four weeks 35 pre and post assessments were collected, of which 30 were completed. The gender ratio of those completing the assessments was female (63%): male (37%)). By age, 23% of the assessments were completed by the parents of children age 8 or younger, 40%

completed by children between the ages of 9-12, and 37% by children between the ages of 13-17. Patient appointment cancellations, no shows, language barriers, and patient compliance were limitations to data collection and subsequently lead to a small sample size (n=30). Funding for this project was provided by the GE-National Medical Fellowship Primary Care Leadership Program.

Keywords: pediatric patients, primary care, education, nutrition, diet, exercise.

Introduction

I have always been passionate about childhood diet and exercise. Being overweight throughout childhood I know firsthand the importance of establishing a healthy lifestyle early on in children. Now as an adult, I am much more knowledgeable about diet and exercise and there are things that I know now that I wish I was privy to when I was younger. Because of this, pediatric education on diet and exercise was weighted heavily in the development of my project. I strongly believe that education is the bridge between known medical knowledge and patient results in relevant populations. With the skyrocketing cost of healthcare, preventative medicine is key in the longevity of medicine in the United States. To spare the nation's healthcare system from a financial crisis, a shift of focus at the patient level from disease treatment to disease prevention is imperative. Matthew Walker Comprehensive Healthcare Clinic (MWCHC) in Nashville, Tennessee is a facility key to serving underserved populations throughout the city and surrounding communities. Patients presenting to their pediatric department are by in large either uninsured, impoverished, from a low socioeconomic status or a combination of the three. To exacerbate the issue, children now are in poorer health than their parents were at the same age and the trend worsens with each succeeding generation (Meredith, Dwyer). My project, at this

clinic with the demographics of its patient base and the overriding larger scope of the state of medicine as a whole, has importance and relevance both personally and pragmatically.

Background

Doctor-patient interactions have been long plagued with various issues such as excessive use of medical jargon, lack of empathy, and failure to deliver clear-cut explanations. Gaps in the giving of information from the provider to the patient can lead to misinformed patients who lack the knowledge to be empowered to take a part in their own healthcare (Korsch, Gozzi, Francis). Patient education is key in primary care. By having long lasting relationships with many patients, it is of paramount importance that primary care providers appreciate the fact that how they inform and educate their parents can have drastic and long lasting effects on their health. In pediatric patients this is ever more important as a healthy lifestyle early on would ease and/or eliminate downstream healthcare problems. Inadequate nutritional education in pediatrics populations is a gateway to various other acute and chronic health conditions. Failure to know how to read food labels, assess macromolecule amounts, and implement that information into food intake decision is an easily reversible issue. Children without proper knowledge in regards to their nutritional needs are unable to help their parents at grocery stores, restaurants, and in the kitchen in making sure they are given what they need and in the right amounts. Additionally, lack of a consistent exercise plan limits the effectiveness of many pediatric treatment plans. The doctor-patient interaction is key to ensuring that these patients leave the office ready to take on their own healthcare. If that crucial encounter is not tailored towards the patient, noncompliance will likely ensue (Roter, Hall).

Like most other healthcare facilities, MWCHC attempts to education and raise awareness in their patient base about healthcare issues. For example, in the pediatric clinic handouts with information concerning the presenting illness and/or another chronic illness the patients are suffering from was always given. But, it stopped there. Any potential questions were not addressed as the providers assumed one, that the patient would read the information, two understand what they were reading, and three comply. I found the dissemination of medical education to be highly presumptuous and passive. And as I saw several patients present again still lacking foundational knowledge about their condition(s) the foundation for a constructive project came to fruition. With this information I was beginning to believe that the disconnect inevitably lied in the delivery of the information from the provider to the patient. During my externship at MWCHC I wanted my project to address the lack in education delivery, specifically in these two areas of diet and exercise, to see how this representation of a typical underserved community would respond to an altered approach in healthcare education and awareness. Knowing feasibility was key due to time constraints and the many limiting factors that come with a community healthcare clinic I knew simple measures and small scale measures had to be taken. However, by merely assessing where your target population is in regards to nutrition and exercise through pre and post assessments seeing increases in physical activity and healthy eating were possible (Weaver, Beets, Saunders, Beighle, Webster).

Methodology

The Methodology employed during the execution of my independent service-learning (ISL) project was broken down into a week by week plan of action. Week one's primary goal was to acclimate myself to MWCHC's system of healthcare, more specifically the pediatric clinic, and

to see where and how the implementation of my ISL would serve both the patients and the clinic best. Initially having a general outline involving pediatric diet and exercise, week one allowed me to see that betterment in the delivery of in clinic education was where my project's niche would reside. Furthermore, after input from my site supervisor the most practical and efficient approach to carry out my ISL was solidified and ready to be put into effect as week two neared.

Week two saw the in clinic dissemination of pre and post assessments on diet and exercise (see appendix 1), handouts on food label reading (see appendix 2), and in room patient education from myself. The pre assessments consisted of eleven questions on diet and exercise that was given to patients and/or their parents in the lobby. After completion the receptionist would give me the pre assessments and I would analyze and gauge the direction in which I needed to educate each patient respectively once they were in the examination room. Once each patient was triaged I would go in and discuss their answers to the pre assessment question-by-question to determine their reasoning behind each answer choice. As I listened I would reinforce correct thinking, adjust wrong thoughts, and fill gaps in nutritional and exercise knowledge they may have had. From there, I would educate each patient in a similar fashion as to the significance of diet and exercise as a key preventative measure that daily can help them in their lifelong healthcare goals. After educating the patients I would give them a handout on reading food labels and allow them to skim over it in case any questions arose. As I left the examination room I would leave with the patients a four question post assessment that gave me insight into how effective the interaction was and if any major knowledge gaps needed filling prior to the patients leaving the clinic. After the doctor was finished with the patients I would collect the post assessments, read them in the

room and educate the patient if needed, and I always ended my interaction with the patients by asking if they had any questions for me in regards to diet and exercise.

Week three's methodology was tailored in the same fashion as the previous week with the exception that this week was much more efficient on my behalf. After a week of patient educating, I noticed trends in my interactions and used that knowledge to subsequently adjust my presentation. For example, seeing that patient knowledge coming into the clinic about diet and exercise was much higher than I had assumed, coupled with new insight that financial-based limited access to healthier foods was a much more significant issue to be tackled, I added counseling on more affordable healthy dietary option to my discussion. Also, as I counseled the patients on exercise I would be sure to recommend exercise and physical activity that was free, such as running, push-ups, and sit ups, or of low cost such as basketball.

Coming into week four and the clinic ran health fair on that upcoming Saturday I made preparation for the interactive nutritional game to be used by children on that day. Aiming to teach children foundational knowledge in nutrition I turned to the food pyramid as a key learning tool. Using two tri-fold poster boards, Velcro strips, laminated healthy and unhealthy food items I constructed two food pyramids one on each poster board. The interactive game consisted of children being placed into relay teams. Each kids would be responsible for correctly placing two food items in one food group. After that, they were to run back to the relay point and tag another teammate to likewise place two food items in their appropriate food group. The first team correctly placing two food items in each of the five food groups was announced the winner. All children who played were rewarded for their participation with a choice of either a Frisbee or an

exercise band. The interactive game was designed to teach kids nutrition and to get them moving via the relay component of the game. Pushing the idea of exercise with nutrition was further evinced as our reward choices were all exercise based.

Week five saw my ISL's focus shift from the interactive game back to pediatric patient education. As done before with gained experience I steadily altered the way in which I talked to the patients in the examination room. Concerning the discussions on more affordable healthy options, I made them less didactic and much more interactive. I tried to engage the children and/or their parents by conversing with them about different hobbies and seeing how we could devise a plan to incorporate physical activity into them if the hobby itself didn't already include it.

Results

Over a period of four weeks 35 pre and post assessments were collected, of which 30 pre and post assessments were completed. The gender ratio of those completing the assessments was 19(63%): 11(37%)). By age, 23% (7) of the pre and post assessments were completed by the parents of children age 8 or younger, 40% (12) completed by children between the ages of 9-12, and 37% (11) by children between the ages of 13-17 (Figure 1 Appendix 1). 77% of respondents felt "Somewhat" confident in their knowledge about nutritional needs. 80% of respondents selected "Yes" when asked had they heard of the food groups and 60% of respondents answered correctly when asked the number of food groups. 50% of respondents answered "No" when asked did they know where to go to find answers to their nutritional and exercise needs, 27% answered :Sometimes", and 23% responded with "Yes."

Concerning the post assessments, 87% (26) respondents said they wanted more talks from their doctor concerning nutrition and exercise and 93% (28) of the respondents selected "Yes" the pre-assessments given to them prior to being send by the provider help to raise question about what their needs are concerning nutrition and exercise. The last question which was open-ended in which is asked patients to identify what they wanted to talk to their doctor more about 37% (11) answered with a sexual health related topic, 33% (10) answered with a nutrition and exercise related response, 23% (7) answered "nothing" or left the line blank (Appendix 1 Figure 2).

Discussion

During my time at MWCHC, through the collection of data, conducting patient education sessions, and interacting with the patients in general I realized that the patient presenting to the pediatric clinic were much more knowledgeable on diet and exercise than I had assumed. The majority of patients at the very least have a general understanding of the importance of nutrition and exercise and why its application in their life is needed. Furthermore, many already educated patients didn't know where to begin in eating right and exercising properly. Additionally, there were patients who were educated and knew how to apply the information yet lacked financial means to do such. With this in mind, future research into the helping patient apply the information from a doctor's visit through a more hands on approach and seeing the potential outcomes would likely be very valuable to the community clinic setting. Also, teaching patients to be more wise consumers when going to the grocery stores would ease the financial burdens of healthy eating. Limitations in data collection manifested early on in my ISL project. With a large and growing Hispanic patient base, many of those patients present to MWCHC's pediatric clinic needing healthcare services. Not being fluent in Spanish, coupled with the fact that the few

interpreters present were needed for the actual doctor-patient encounter, those patients were not given pre or post assessments, food label handouts, educated, nor included in my findings. Though they were not included in any aspect of my ISL project, I did see the patients during my time at the clinic. The leading causes of death in Hispanic populations are diseases of the heart, malignant neoplasms, and cerebrovascular diseases respectively (Vega, Amaro). This proved apparent as many of these patients presented with hypertriglyceridemia, hypercholesterolemia, obesity, or often all three. Coupled with the fact that many Hispanic populations are increasingly undereducated (Vega, Amaro), future research into how improving diet and exercise education affects pediatric health seems to be a constructive research possibility. Patients failing to show up for scheduled appointments or cancelling them altogether proved to be arguably the biggest limitation to my data collection. Each day I was in the clinic there were appointment cancellations and no shows. Often the lack of presenting patients would result in me going home early causing me to miss out on clinical time and experience and data collected. Splitting the patients seen with the other PCLP scholars at MWCHC was another limiting factor in data collection. With patient satisfaction in mind, we did not want to burden each patient with several surveys and/or pre and post assessments twice in one visit to the clinic. Because of this, often I would only get to educate and collect data from every other patient, or sometimes, every third patient present to the pediatric department. Patient attitude proved to limit my research as well. Though there were very few patients or parents would simply refused to complete the pre and post assessments, the effectiveness of the examination room education session was severely limited by the mood of the child and/or their parent/guardian. The most compliant patients were those who were not sick, but presenting simply for immunizations or annual school physicals.

However patients suffering from strep throat or parents bringing febrile babies to the clinic were not apt to talk or at all.

Recommendations

My primary recommendation would be to make sure that patients do not leave the clinic with question not asked and/or answered. As patients are being triaged by the MA/RN they can be assessed as to how knowledgeable they are concerning nutrition and exercise. If the patient is found to have major gaps in knowledge or numerous questions, the provider can be informed and an educational session about diet and exercise can be conducted. MWCHC already has a nutritionist on staff and I suggest that they follow up with the patient either in the examination room as a part of that visit or by referral from the provider.

For the providers, I suggest that they are informed as to how important their talks with the patients on diet and exercise are. They should be made known of the fact that they can't solely rely upon MWCHC's community awareness and educational programs to teach their patients what they need to know in regards to the dietary and exercise needs. I would suggest or encourage training on diet and exercise to explore how each physician is educating their respective patients, if it seems to be working, and give support to the providers to help them change their approach for increased retention and compliance in their patients.

Conclusion

Patient education is essential at MWCHC. Serving an underserved community in North Nashville and surrounding areas, the clinic's healthcare providers are often the only source of reliable information for their patients. With the majority of presenting patients already undereducated, any gaps in knowledge by the patients regarding their healthcare needs are

exacerbated in these vulnerable populations. And any chance at improvement in the educating of said patients must be capitalized upon. Training sessions and/or panel discussions for the clinic's providers would go to great lengths to get talk going about what is being done, how it can be improved, and a feasible way in which those suggested improvements can be implemented into the overall healthcare delivery. MWCHC delivers high quality healthcare with a patient first approach and in medicine there is always room for improvement. During my time at MWCHC I felt that at the very least my project for 6 weeks helped to raise questions, get patients more involved in their own nutritional and exercise needs, and hopefully it will carry on after I am gone.

References

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Appendix 1: Pre and Post Assessments Results Graphs

Figure 1

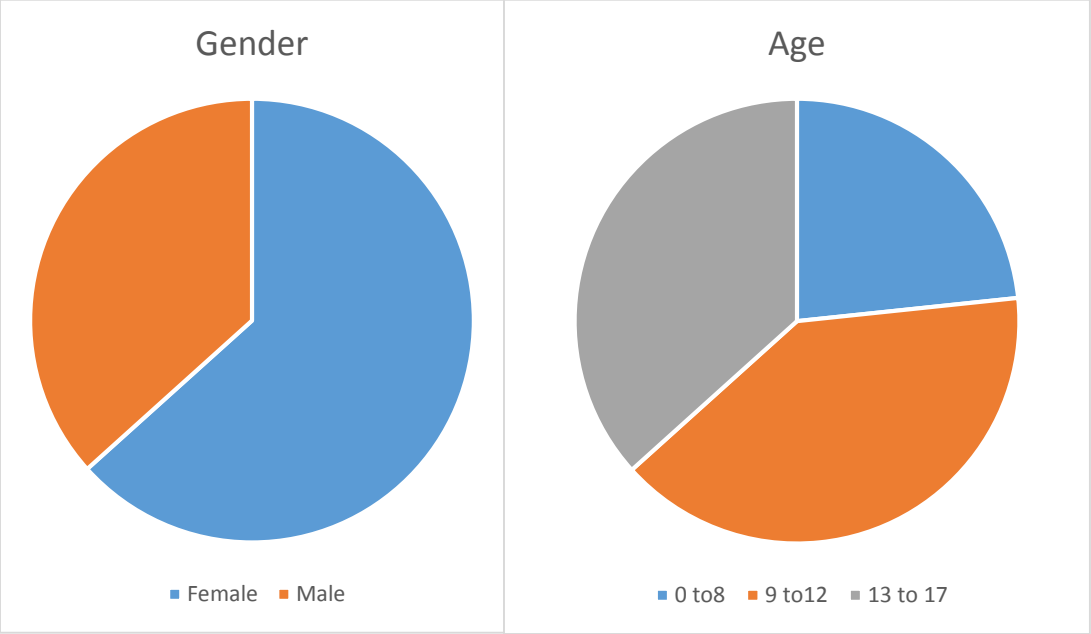
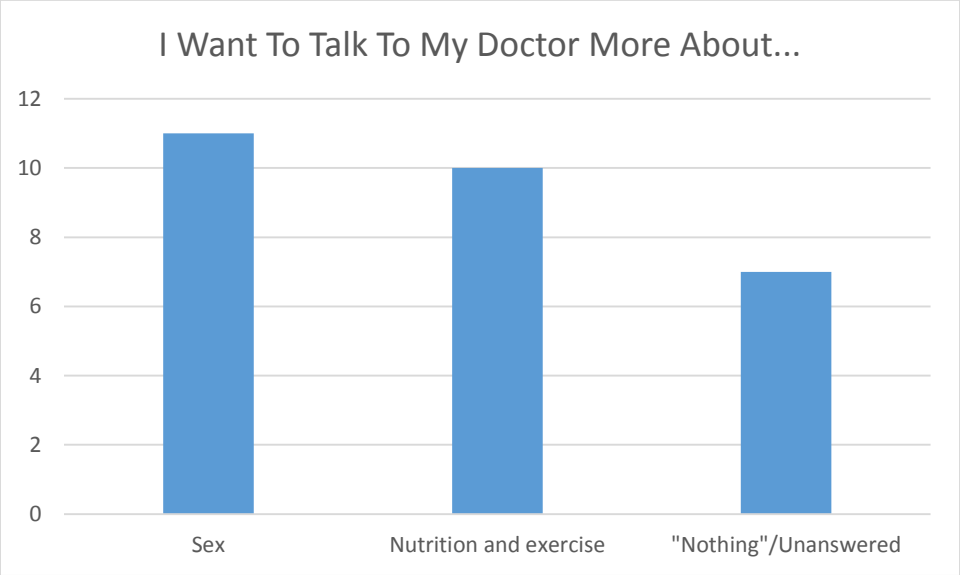


Figure 2



Appendix 2: Pre and Post Assessment on Nutrition and Exercise

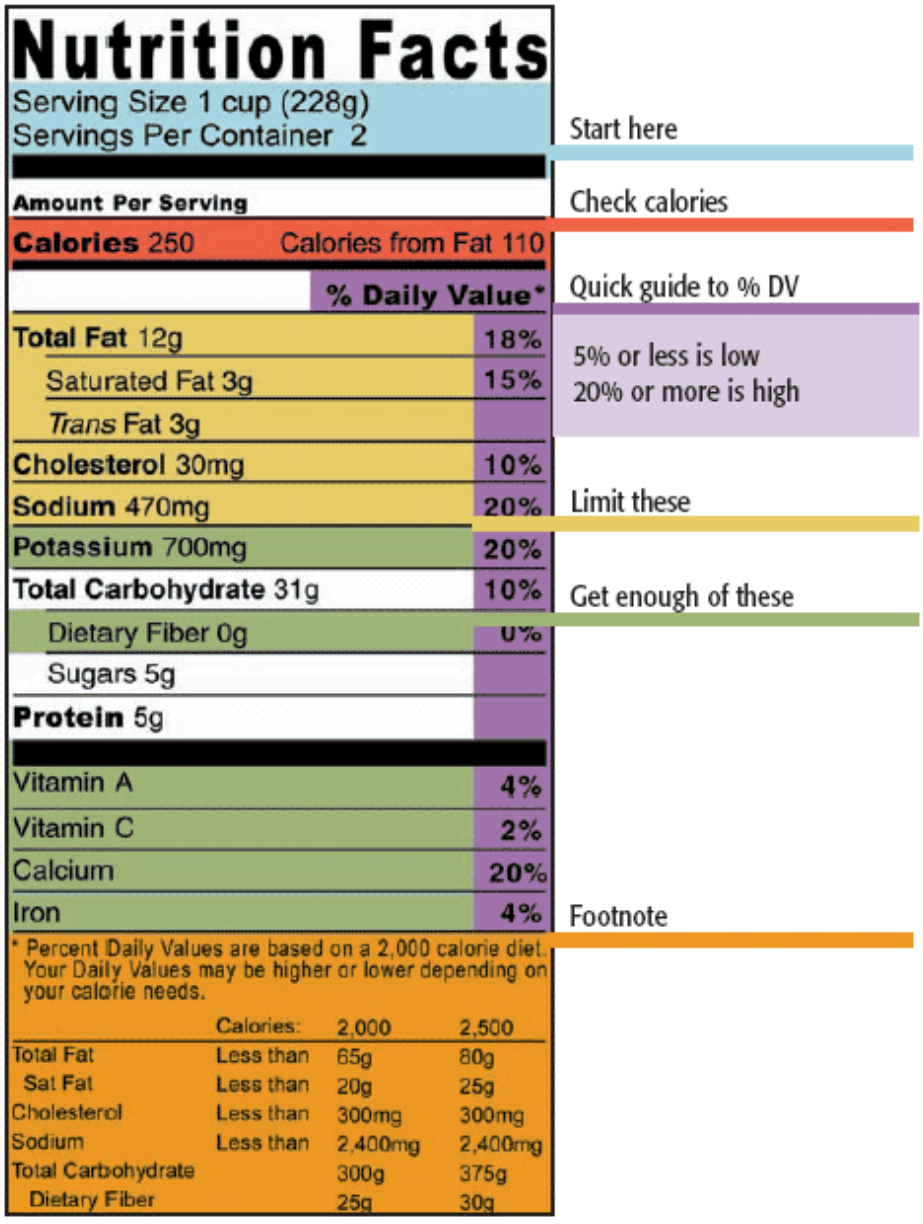
Pre-assessment: Nutrition and Exercise

1. **How confident do you feel about your knowledge about nutrition and exercise?**
   Very Somewhat Average Not at all
2. **Have you ever heard of the Food Groups? (Circle one answer only)**
   YES NO
3. **How many food groups are there?**
   _____
4. **What do you need to eat every day to be healthy?**
   Food from **TWO** different food groups every day.
   Food from **FIVE** different food groups every day.
   Food from **SEVEN** different food groups every day.
5. **What helps build strong bones and teeth? (Circle one answer only)**
   Milk Steak Bread Carrots
6. **What helps build strong muscles? (Circle one answer only)**
   Chicken Bread Apples Cheese
7. **I know how to read a food label properly? (Circle one answer only)**
   Strongly agree Somewhat agree Agree Somewhat disagree Strongly disagree
8. **How much exercise does a child need daily? (Circle one answer only)**
   15 mins 30 mins 45 mins 60 mins
9. **What is considered appropriate exercise? (Circle all that apply)**
   Running Riding a bike Swimming Watching TV texting/talking on the phone
10. **Has your doctor talked to you about your nutritional and exercise needs?**
    Yes Somewhat No
11. **If you are unsure of your nutritional and/or exercise needs do you know where to go to find the answer? (Circle one answer only)**
    YES Sometimes NO

Post-assessment: Nutrition and Exercise

1. **Did the pre-assessment in the lobby help raise questions about what you need in nutrition and exercise?**
   Yes Somewhat No
2. **How helpful was the student doctor's talk with you on nutrition and exercise?**
   Very helpful Somewhat helpful Not helpful
3. **Would you like more talks like this from your doctor concerning your healthcare? (Circle one answer only)**
   YES NO
4. **What else would you like for your doctor to talk to you about concerning diet & exercise?**
   _____

Appendix 3: How to read a Nutrition Label (front page)



Appendix 3: How To Read a Nutrition Label (back page)

How to Read a Nutrition Label

Multiply the Serving size!

Multiply the serving size by the number of servings ("Serving per___" …found directly "Amount Per Serving") to determine the total amounts of fats, carbs, fiber, sodium, protein, etc..

Calorie = Energy.

This is what fuels your body. Too little leads to weight loss. Too much leads to weight gain. If you are **underweight or overweight pay attention to this part of the label.**

Fat = Fat

Consume in moderation. If you're overweight or have a high BMI pay extra attention to this part of the label. **Trans fats… consume as least as possible, especially if you have a heart disease.**

Carbohydrate = Sugar.

Limit your intake. If you have **diabetes or pre-diabetes** watch how many carbs you consume.

Sodium = Salt.

Choose foods with low sodium/salt levels. If you have **hypertension or prehypertension** you want to pay extra attention to this part of the food label.

Potassium

Essential for crucial organs (heart, kidneys, etc..) to function properly. If you are **physically active** pay extra attention to this part of the food label.

Protein = Lean…muscle!

Proteins help to rebuild and build muscle. **Athletes and those who need/want more muscle** you want to pay extra attention to this part of the food label.

"**Percent Daily Values are…"**

READ THIS!

This fine print lets you takes into account what daily calorie intake the food label is basing its DV's (daily values) off of.

Vitamins & Minerals

The values are found directly below the **Protein** part of the label. Consume the proper amount daily. If you feel that you don't, look into multivitamins or ask your healthcare provider about how to ensure you intake enough.