

# Looking At Metabolism

by Joan E. Medlen, R.D., L.D

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In the first weeks after our son with Down syndrome was born, my thoughts strayed to his health throughout his life. My impression was that all adults with Down syndrome were very obese. As a dietitian, most of my work had been in the weight management area. I had seen first-hand the effects long-term obesity had on a person's life. I remember emphatically explaining to my husband that we needed to be an aerobically active family. I asked him to consider cross-country skiing instead of downhill skiing, and to plan for activities like family biking trips.

Now, seven years later, Andy is a slender, tall boy, like his brother. He eats well, but not perfectly. He appears "active," but it's not very aerobic. And, when I look at other children with Down syndrome at conferences and in my community, there seems to be a mix of body types: some are slight and petite, some are thick and stocky, and some are overweight. Where did that early image of obese adults come from? Had I fallen for a myth? Could it be that this younger generation of persons with Down syndrome will not have as many obese adults? Has the increase in community inclusion changed the incidence of obesity?

Probably not. Research suggests children with Down syndrome are as active as their peers, *yet use fewer calories overall*. They appear to have a lowered Basal Metabolic Rate, which is the rate a person burns calories for fuel when completely at rest - or sleeping. This means that children with Down syndrome use less energy when they are resting or sleeping. Taking that information one step further, it means that they use fewer calories throughout the day to accomplish the same activities as their normal peers. When Andy hangs out with his friend, and eats the same amount and kind of foods, does the same activities with the same intensity for the same amount of time, he will burn up to 15% fewer calories than his buddy. Since he ate the same amount of food as his buddy, but needs less to do the job, he has calories left over. These extra calories - even as few as 50 calories a day - can lead to an increase in weight. For example, 50 calories is equal to a half of a large Red Delicious Apple. The calories from half an apple left over at the end of the day for one year will lead to about 5 pounds of increased weight. If that continues for 5 years, it becomes a troublesome 25 pounds. With this in mind, it is easy to see how slender children and adolescents with Down syndrome can change into overweight young adults.

There are three ways to adapt for this difference in metabolism:

- Increase activity
- Limit calories
- Increase activity and limit calories.

Focusing on Calories alone is one option. However, unless there are other medical reasons, it is risky to limit calories for children under 18 years of age without direct medical supervision. Children have great vitamin, mineral, protein, carbohydrate and energy needs while they are growing. Limiting calories may cause children to get too few of what they need to grow and develop well. For adults, a sole focus on calories becomes a battle of will-power, and feels like a punishment.

As with everything else, focusing on positives and abilities has a far greater effect. Beginning with a focus on physical activity has many more positives. A person can choose from a variety of aerobic activities that are enjoyable. Additionally, regular aerobic activity has many health benefits: increased muscle tone, decreased resting heart rate, decreased blood pressure, a sense of well-being, better sleep, and an *increase in metabolism*.

Being physically active, and focusing on aerobic activity doesn't mean you need to be an Olympian athlete. For the average person, with or without Down syndrome, adding small amounts of aerobic activity on a regular basis makes a difference. Even small changes in daily activities can be beneficial.

### **Ideas for adding aerobic activity:**

*For parents, adults, and children:*

- Park farther away from where you are going
- Take the stairs instead of the elevator. My son and I are often seen taking the stairs up and the elevator down -- many times.
- Walk or bike to activities that are in your community.

When you go to the park, play "tag" for 10 minutes with the kids. Don't catch them, just chase them around. Parents think of swinging and climbing the play structure as being active. It's not aerobic activity, except when running between structures.

*For teenagers and adults:*

- Use a push mower to mow the lawn.
- Go on a long walk, hike, or bike with a friend once a week.
- Join a local recreation facility.
- Join a walking club.
- Create some rules: for every one hour of TV watched, go for a walk around the block. (Be prepared to live by the same rules.)

Coming up with ideas to increase activity is the easy part. The hard part is choosing activities that are motivating. It is important that the person with Down syndrome make the choice of activity and be involved in setting the goals. The important part is to keep moving and have fun! Working together as a team in the plans for activity will help. Sit down and make plans together. Write them down in a special place. Create a list of 3 small, but specific activities to add in a week. Begin with things that are 99% achievable. Talk about when these activities will be done and who they will be done with, if appropriate. Write them on the calendar. Then, create a way to keep track visually as those goals are met with a chart or check list. Remember to leave room for doing more than the goals you write down - a chance to over achieve!

For Andy, we hope to build habits that will last a lifetime, and be fun. Habits that will increase his activity overall, and hopefully, reduce the risk that he will have to fight the battles that extra weight can bring. And ours too.

Reference: Luke, A., Rozien, N.J., Sutton, M., Schoeller, D.A. Energy Expenditure in children with Down Syndrome: Correcting Metabolic Rate for Movement. *Journal of Pediatrics*, Vol. 125, 1994.

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