

## INTERPRETING YOUR RESTING METABOLIC RATE

### Defining RMR

First, a person's metabolic rate accounts for about 60-75% of the calories that they will "burn" in a day. These calories, about 1200-2400 PER DAY, reflect the amount of energy that it takes every day to keep the various body systems functioning with the energy they need. These calories will be used even if you remain at rest all day.

Secondly, TOTAL metabolic rate is determined by ADDING the calories "burned" through physical activity and those needed to digest the food we eat in a day TO the resting metabolic rate. Physical activity can account for 15-30% of the calories used in a day while digestion accounts for 10-15% daily. Average TOTAL metabolic rate of an individual engaged in normal daily activity ranges from 1800-3,000 calories per day.

To summarize, if a person added the calories burned from their resting metabolic rate plus those from their daily physical activity AND the calories used just to digest the food that is eaten, this would reflect the total calories used in a day or their TOTAL DAILY ENERGY EXPENDITURE.

The practical application...if a person EATS more food in a day than is BURNED through their TOTAL DAILY ENERGY EXPENDITURE, they will gain weight!

### Increasing Your RMR

Since resting metabolic rate (60-75% of the daily calories expended) affects the TOTAL metabolic rate dramatically, what can you do to increase it? Get on a physical activity program that requires consistent daily movement of some sort. You don't have to join a gym BUT you need to be more physically active. Walk places instead of using your car. Mow the lawn instead of hiring out. Go up and down a flight of stairs to use the restroom at work. Walk up the stairs in places instead of using the elevator. (Here's an idea you might not have thought of: <http://www.youtube.com/watch?v=4WNws3UzU6s>). Use a treadmill, bicycle, elliptical or rowing machine, attend a group exercise class at a gym but, get moving! For those trying to lose weight or simply maintain weight, aerobic exercise/activity is necessary- preferably 50-60 minutes/day where the heart is elevated by the activity.



### Highlights:

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**Interpreting Your Resting Metabolic Rate**

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**What You Need to Know: The Basics of Weight Lifting**

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**The "Cost" of Eating Healthy**

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Remember the recommended number of steps per day is 10,000 for good heart health.

Dr. Kim Fischer, Editor

Please send comments/suggestions to:

[KFischer@otterbein.edu](mailto:KFischer@otterbein.edu)



## What You Need to Know: The Basics of Weight Lifting.



### The Basics

When beginning a weight lifting program, you'll need to know some basic strength training principles. These principles will teach you how to make sure you're using enough weight, determine your sets and repetitions and insure you're always progressing in your workouts.

1. **Overload:** To build muscle, you need to use more resistance than your muscles are used to. This is important because the more you do, the more your body is capable of doing. You should increase your workload in order to continue improving. In plain language, this means you should be lifting **enough weight that you can ONLY complete the desired number of repetitions**. You should be able to finish your last repetition with difficulty but also with good form.
2. **Progression.** You need to increase your intensity regularly. You can do this by increasing the amount of weight lifted, changing your sets/repetitions or the exercises and/or the type of resistance. You can make these changes on a weekly or monthly basis.
3. **Specificity.** This principle means you should train for your goal. If you want to increase your strength, your program should be designed around that goal (e.g., train with heavier weights closer to your 1 RM (1 repetition maximum)). To lose weight, choose a variety of repetition ranges to target different muscle fibers.
4. **Rest and Recovery.** Rest days are just as important as workout days. It is during these rest periods that your muscles grow and change. Make certain you're not working the same muscle groups 2 days in a row.

You always want to keep a few key points in mind:

1. **Always warm up** before you start lifting weights. This helps get your muscles warm and prevent injury. You can warm up with light cardio or by doing a light set of each exercise before going to heavier weights.
2. **Lift and lower your weights slowly.** Don't use momentum to lift the weight. If you have to swing to get the weight up, chances are you're using too much weight.
3. **Breathe.** Don't hold your breath and make sure you're using full **range of motion** throughout the movement.
4. **Stand up straight.** Pay attention to your posture and engage your abdominal muscles in every movement you're doing to keep your balance and protect your spine.



## Human Performance Lab– Rike Center

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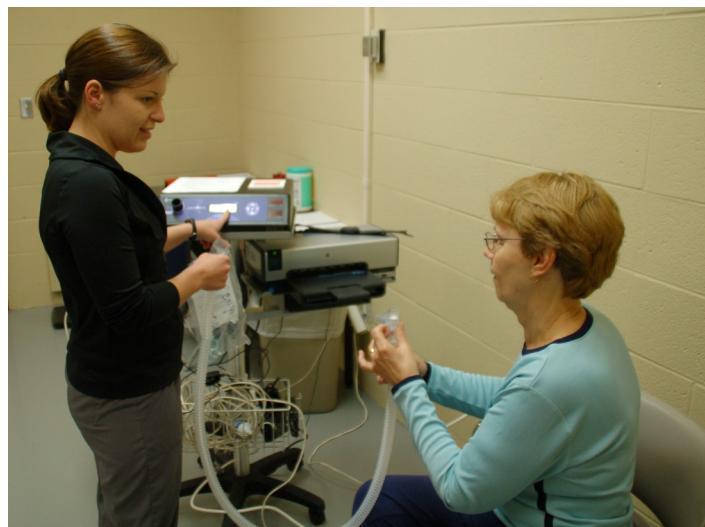
The Department of Health and Sport Sciences has sophisticated fitness assessment equipment from Korr Medical Technology, as well as a treadmill and cycle, housed in its Human Performance lab which allows our majors to get practical experience doing fitness assessments for a variety of faculty clients. Funding for this equipment was made possible by the Dean's Office special equipment funds.

This laboratory, located in the Rike Center, will be utilized by students in several departmental courses including Kinesiology, Exercise Physiology, and Fitness Leadership. The longer-term goal is to develop a faculty and staff fitness program that will also use this fitness assessment equipment.

The interested person can take a VO2 max test that is designed to determine a person's cardiovascular fitness. With this equipment, a person's resting metabolic rate, a measure that can be used in discussion of weight management, can also be assessed.

In the past, a step test has been used to estimate cardiovascular fitness of clients. There has never been an opportunity to test for resting metabolic rate. In addition to these two measures, clients will continue to be measured for blood pressure, resting heart rate, height, weight, girths, flexibility, and muscle fitness. From a fitness assessment, a person can be guided through a safe fitness program that is commensurate with his/her initial fitness level.

Students graduating with majors in Health Promotion and Fitness, Athletic Training, and Health and Physical Education will all benefit from using this state-of-the-art assessment equipment. Student numbers have been increasing in these majors and, in order to ensure preparedness upon the completion of the major especially as this relates to graduate school admittance and securing of top-notch internship placements, students need to know how to determine and interpret VO2 max and RMR results.





## Too Much Sitting Is Hazardous to YOUR Health!

In a recent article from *IDEA Fitness Journal*, it was reported that this physical activity (30 minutes of moderate-intensity exercise per day, most days of the week) might not be enough to cancel out the deleterious effects of too much SITTING! In a 12 year investigation into mortality rates among over 16,000 men and women enrolled in the Canadian Physical Activity Longitudinal Study, Katzmarzyk et al. (2009) found a strong association between sitting and mortality risk from "all causes" and from cardiovascular disease (*Medicine & Science in Sports & Exercise*, 41(5), 998-1005).

From studies like this one, a new field of research in health, fitness and medicine, called **inactivity physiology** is emerging. The study of sitting for extended periods of time and the biological ramifications associated with too much sitting are being researched.

So, how does this impact you as you consider how much sedentary activity (like sitting for meals, sitting while driving to work, sitting while at work, sitting at home in the evening) you are engaged in during a typical day? And, what can you do about it?

First, determine what you "do" in a typical day from the moment you wake up to the moment you return to bed at night. Are you sedentary during a large percentage of your day?

Second, consider how you might get more activity into your day rather than prolonged and excess time spent sitting – you need a PLAN!

Try breaking up **prolonged sitting periods at work** by:

- Walking to a restroom on a different floor.
- Standing up and getting a drink of water.
- Using the stairs, at least one flight, instead of the elevator when going to/from your office.



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- Walking around or at least standing while using the phone.
- Instead of emailing colleagues about something, walk to their desks.
- Standing up and walking around the office or around the building at least every 30 minutes

If you spend **time at home in sedentary activities** like watching TV, working in your home office, reading a book or grading papers, try...

- Getting up and moving at every TV commercial, after you have graded so many papers, after reading so many pages, or after working in your home office for 30 minutes.
- Using an aerobic machine while watching TV or reading a book.
- Getting up and doing stretches or lunges or squats to break up long periods of sitting.

Any other creative or novel ways of moving rather than being sedentary are suggested. SITING is harmful to your health even if you get the suggested amount of physical activity in a day! Only sit 30 minutes at a stretch and then GET MOVING!!







## Ashton Luff: An OtterFit Success Story

**Ashton works in the Otterbein copy center and was trained by HPF majors Seth Siringer and Cory Whitmer; currently working with Adam Chow.**

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On May 2009, I realized, after returning from a trip to Cedar Point, that I had a weight problem. I had a hard time fitting into some of the safety harnesses on the rides. I also realized that I had become a “couch potato.” I even became winded walking to the mail box.



I was 6 feet and 288 pounds. I was tired of not having any energy to do anything. I'd had enough!

I announced to my wife that I was going to lose weight. I cut out all junk food, the extra carbohydrates, and doubled my vegetable intake. I became intent on losing weight BUT it wasn't easy, especially at the dinner table!

After one month, I dropped several pounds. I started to have energy again. I realized I needed to do something physical. I started walking. At first I walked about a half mile every morning. It was hard and I was embarrassed. But I remained steady in my course. By the end of the second month, I was walking three miles every morning. I lost another 20 pounds.

I wanted to move more. That's when I saw the email from Dr. Fischer about needing more people to join the OtterFit Faculty and Staff Health and Fitness Program. I gave it a “shot”!

The workouts with the OtterFit personal trainers were awesome! They pushed me to achieve my goals. I have participated in the program all three quarters this

year with two different trainers. I lift weights three days per week. I am running four days per week. I developed a workout program and have left the old “me” behind. I have a new identity and self-esteem for the first time in my life!

My wife began telling me how proud she was of me. My wife joined me in this “new” way for us to eat. We cut out red meats, sugar, and started eating vegetables and whole grain products. She has managed to lose weight and has become interested in running as well!

I created a more specific goal – to get out of plus sized clothes! I started out in a size 42 and I am now in a 32. I was 288 pounds and now I am 180 pounds! I lost a grand total of 108 pounds in the last year. Thanks to the OtterFit personal trainers who helped me reach my goals!

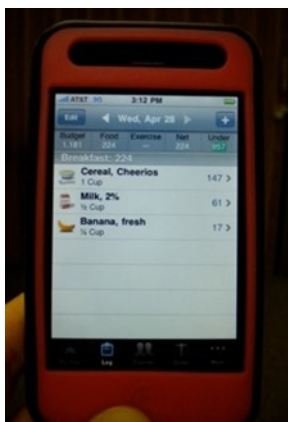




## Need Help Losing Weight? There's an App for That!

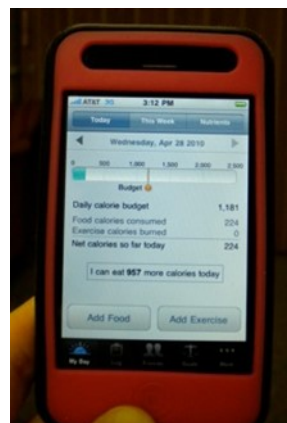
by Annette Boose, HSS

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Losing weight is not easy. I need all the help I can get. A trusted friend and fitness expert told me about the “*Lose It*” app on the i-Phone. It was free so I downloaded it and have found that it keeps me honest and on track. At the beginning of my weight loss program I entered goals into “*Lose It*”; my starting weight, goal weight, gender, height, birthday and whether I wanted to maintain, or lose ½, 1, 1.5 or 2 lbs per week. The app then calculated how many calories I was allowed to eat on a daily basis. My allotment is a measly 1,181 calories per day. There's an eye opener in itself. Unchecked, it is easy for one individual to down 3,000+ calories in the course of a day. (For more on that, read the book

*Eat This, Not That* by Dave Zinczenko). The i-Phone app allows me to track my caloric intake by meal and it is easy to do since I have my i-Phone with me all the time. There is a huge database of foods including grocery store and restaurant name brands. I enter my foods after each meal and snack. There is also a database of exercises. I try to walk one hour per day at minimum. By doing so I get to eat more calories! So if you over eat, you get instant feedback and can do some extra exercise to make up for your digression. This app allows the user to see where they are “wasting” calories. For example, yesterday I ate a cookie and a bite-sized candy bar and they were the two highest item calories on my list. I could have eaten four times that amount of vegetables but instead I chose unwisely. My mantra has now become, “Is this what I want for my body?” Each food that you enter has a little symbol beside it so you can see at a glance if you are getting enough colorful foods in your diet. I have been on my weight loss program, which eventually will become a lifestyle change, for just over 3 weeks and I have lost 6 pounds; which is in line with my goal. The app is free so you might give it a try or look for another similar app that appeals to you.





# Practicing Our "Trade"?

By Dr. Kim Fischer

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I believe that I am a more effective teacher when I have "practiced" what I preach! To me this means that I must be engaged in a regular program of physical activity that keeps my body and my mind healthy and fit. In addition, I believe it important to apply my skills of helping others become more healthy and fit outside of the Otterbein community. So, here's my story!

As for "practice" outside of OC...Since January I have been training this 60-year-old woman who has multiple sclerosis and depression (among other things). At first we just did lots of talking about "stuff." The only "real" physical activity was pretty low key - stretching. She had problems getting herself "going" each day. Some days she never got out of her pajamas. If she did anything productive, it didn't usually happen until at least 1 or 2 in the afternoon.

Part of our many discussions have centered around what she wanted for herself. She really wanted to get her day going earlier than 10 a.m., to become productive in her daily activities like research the purchase of a new car and change out her office space to allow for construction that needed to be done. She also wanted to become more physically active and strong so that she could accomplish her goal of a summer hike that she was able to "do" when she was in her 20's.

Wouldn't you know - I no longer call her at 10 a.m. to make certain her day has begun. She has purchased her car after considerable research and she LOVES it! Her office has been moved and construction is finished in the room that it was in. AND, she is now able to walk without shuffling at a "snail's pace." We walk 40 minutes at a "clip" that is hard for me to keep up with her! She is lifting bags of mulch and bragging how she isn't sore after a day working in the yard.

But the real accomplishment...she called me two weeks ago to tell me that I didn't need to come to put her through her workout BECAUSE she had already done it. "I am starting to look forward to my routine of stretching, strength exercises (she is up to 12 push-ups), and walking," she said. Her comment was priceless, music to my ears!

As for me...I managed in April and May to stay in some semblance of physical shape by taking two new classes (for me) - Stability Ball with Pilates and Step Aerobics.

I had to write myself into my calendar two days per week to attend these classes because, normally I would have said I had too much work to do and not attended. After having had such an active winter (most of my sabbatical was spent in AZ), I was in the "mood" to accommodate my desire to continue MOVING!

So, at first I was reluctant to "carve" out this time from 12-2 on Tuesdays and Thursdays. By the time these classes ended (eighth week of the term), I was planning my weekly schedule around them!

I found that 1) I had a blast in these classes and gained core strength and flexibility and 2) I actually got more and better "WORK" done when I permitted myself this "LUXURY" of attending these classes.

Well, like all good things, these terrific classes had to come to an end. Of course I anticipated such so when a student mentioned that he had won his weight class at the Arnold Classic in BOXING, I asked him to tell me more. As you can probably imagine, I called his boxing coach/trainer and starting taking weekly, one hour boxing lessons about two months ago.

## Why tell you all this?

1. Physical activity can be FUN and ENJOYABLE and maybe even a bit habit-forming! But you have to try it on a CONSISTENT basis for at least 21 days to even get close to establishing it as a habit. Try something new and different whether it is boxing or dance lessons, joining a gym, hiring a trainer/coach to challenge you, buying a new bike to explore the numerous paths in the Columbus Metro Parks, or participating each quarter in the OtterFit Faculty and Staff Health and Fitness Program

2. I've never had a personal trainer, believe it or not, but I am finding I am capable of doing so much more with the "push" that such a person provides. I'm learning about boxing but I am also realizing that I am physically capable of so much more than I thought I was because of this "push". A trainer and an appointment hold me accountable to being active on a consistent basis.

3. Take time for YOU! If I don't write myself into my own schedule, I'll likely have something else come up that is seemingly more important than "MY" time! So, plan for you!





## The “Cost” of Eating Healthy

by Dr. Kim Fischer

“The most expensive foods are now the ones that you're buying the smallest amounts of and using to cap off a well-balanced diet, **a diet based on food costing under one dollar a pound.**” *The Ultimate Cheapskate's Road Map to True Riches* by Jeff Yeager.

Speaking of apps, I got an iPhone in earlier this year for a number of reasons. It serves as a phone, GPS for sabbatical trips, a camera (I took some amazing pictures of the Grand Canyon in February!), AND, very importantly, a “tool” for READING BOOKS. I “whip my iPhone out whenever I have “down” time in the doctor’s office, airport, waiting for someone to meet me for dinner, and even while waiting at stoplights. I read a book while on a plane to/from Columbus and Phoenix. It helps that I don’t have to carry so many books around since the textbooks for my classes are heavy enough by themselves. My latest “read” from my iPhone is the basis of the food information/ideas presented below.

Somewhat frequently people ask me about what I eat and where I grocery shop for what I eat. I have never priced the groceries I purchase nor do I comparison shop, clip coupons, or look for the “bargains.” Granted, I am only feeding myself BUT I don’t think I would shop otherwise if I was providing for others.

I shop at Whole Foods (sometimes referred to as “Whole Paycheck”) and Trader Joe’s. Yes, both are likely more expensive than Kroger’s, Sam’s Club, Wal-Mart and the like. For those of you who might enjoy shopping at these two stores without buyer’s remorse, read on.

I currently have a book on my iPhone that I am reading entitled, *The Ultimate Cheapskate's Road Map to True Riches* by Jeff Yeager. Yeager brings up a good point (at least I think so!). He suggests not buying anything costing more than \$1/pound. Right – like how?



Remember the Food Guide Pyramid that we all grew up with and heard about in our home economics or health classes? The most recent version is My Pyramid found at [www.MyPyramid.gov](http://www.MyPyramid.gov). Either “version” will suffice because, in both, the emphasis is on eating DAILY a minimum of 3 ounces of whole grains, 2.5 -3 cups of vegetables and 2 cups of fruit, 3 cups of milk products, 5 ounces of meat, 6 teaspoons of oils, and no more than 200-300 “discretionary” calories (foods with fats or sugars like desserts). I have listed these daily food items from those we should most consume to the least (things like desserts, potato chips).

Yeager points out that, when considering what these different types of foods cost, there is an inverse relationship between the cost and how much a person should be eating. For instance, the foods like fruits, vegetables, and grains are those we should be eating the most. Chances are, these are the cheaper foods per pound when compared to meats, dairy products, and the “discretionary” calorie foods. These more expensive items are **bad for us** and **cost the most!**

Americans **pay more** to eat higher on the food chain but are **less healthy** as a result.

Perhaps we ought to **spend less** in order to **be healthier?** FOOD for THOUGHT!