nervana medical

Metabolism

Applying Nutrition to Data

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Metabolic rate is a measure of how much food, or fat, is converted to energy in a day. Resting metabolic rate (RMR) is the measurement of how much food, or energy, is required to maintain basic body functions such as heartbeat, breathing, and maintenance of body heat while you are in a state of rest. That energy is expressed in calories per day. So, an RMR test shows how many calories you burn at rest, doing nothing more than sitting in a chair.

Indirect calorimetry (a measurement of metabolic rate) relies on the fact that burning 1 calorie (Kilocalorie) requires 208.06 milliliters of oxygen. Because of this very direct relationship between caloric burn and oxygen consumed, measurements of oxygen uptake (VO2) and caloric burn rate are virtually interchangeable.

Oxygen uptake requires a precise measurement of the volume of expired air and of the concentrations of oxygen in the inspired and expired air. The process requires that all the air a person breathes out be collected and analyzed while they rest quietly. The KORR® indirect calorimeters contain a precision air flow sensor that measures the volume of expired air, and an oxygen sensor that measures the concentration of oxygen. Once the factors of humidity, temperature and relative humidity are accounted for, the KORR® instrument provides the most accurate results available in a compact metabolic analyzer.

Why Test RMR?

- Proof of individual metabolism
- Pinpoint caloric weight loss zone
- Help establish macronutrient goals
- Detect hypo or hyper metabolism
- Assess efficacy of weight loss treatment, medications, exercise with a re-test
- Maintain weight loss
    - Regardless of the method used to lose weight, a patient's RMR will decrease after weight loss. The decrease is below the level predicted by fat-free mass (FFM). Although the cause is unclear, it appears that in most cases, if a patient can maintain his new weight for 6 months, his RMR will eventually rise to the expected level. Pinpointing the precise number of calories necessary to maintain is key to surviving this crucial period.

Focus Foods to Increase Metabolism

- Protein
    - Increases the thermic effect of food, more energy to digest than carb or fat.
- Minerals
    - Iron and Selenium play important roles in thyroid function.
- Chili peppers
    - Capsaicin is a chemical with fat burning and appetite reducing properties.
- Coffee/Tea
    - Caffeine can help regulate the body's mobilization/metabolism of lipids.

- Beans and legumes
  - Dietary fiber, including resistant starch and soluble fiber, usea as a prebiotic to feed the good bacteria in your large intestine. In turn, these friendly bacteria produce short-chain fatty acids, which may help your body more effectively use stored fat as energy and maintain normal blood sugar levels.
- Ginger
  - Energy boosting properties may help increase RMR, decrease hunger levels and enhance feelings of satiety. Add ginger to food, especially hot tea!
- Seaweed
  - rich in iodine, a mineral required to produce thyroid hormones and for your thyroid gland to function properly.
- Cacao
  - Flavanoids in dark chocolate (raw is best) may help support metabolic actions and help reduce hypertriglyceridemia.
- Water
  - All the benefits of hydration of course, but also the thermal effect of caloric energy needed to heat water to body temperature (thermogenesis).

Rice and Lentil Salad

Makes 6 Servings (~1 cup each)

Ingredients:

• 2 tbsp olive oil
• 2 tbsp red wine vinegar
• 1 tbsp finely chopped shallot
• 1 tbsp Dijon mustard
• 1/2 tsp paprika
• 1/4 tsp salt
• 1/4 tsp ground black pepper
• 2 cups cooked brown rice
• 1 15-ounce can lentils, rinsed, or 1 1/3 c cooked lentils
• 2 carrots, diced
• optional - 2 diced tomatoes
• 1/4 cup chopped fresh parsley

Directions:

• Whisk oil, vinegar, shallot, mustard, paprika, salt & pepper in a large bowl. Add the cooked rice, lentils, carrots, tomatoes (if using), & parsley. Stir to combine
• Note: if cooking the lentils, cook ~3/4 cup lentils with ~1 quart of water in a medium pot until they are soft, ~30 min. Drain and set aside.
• Note: This salad is a great use of leftovers (lentils and/or brown rice). It can sit in the fridge for up to 3 days, so make a big batch and use for lunches for a few days.

Nutrition Facts:

Amount per serving · Kcals: 271 · Carb: 40.7g · Fat: 7.95g · Protein: 9.3g