



Light Side

Issue No. 230

A free monthly publication of Skiff Medical Center • Newton, Iowa

Biotechnology: How science impacts our diet

B iotechnology is the science that allows the food industry to modify the DNA of crops and animals. Biotechnology also is known as genetic engineering.

The following are some examples of how biotechnology impacts or could impact the foods we eat:

- The Bt gene, taken from the bacteria *Bacillus thuringiensis*, is applied to crops to resist insect infestation. Bt presents no risk to human health and does not harm beneficial insects.
- Half of the cheese made in America is created using chymosin, an enzyme that is created through biotechnology. The alternative to chymosin is rennin (from the stomach of a calf).
- Today tomatoes are created to have a much greater shelf life. The Flavr Savr™ tomato was the first genetically engineered plant, approved by the FDA in 1994.
- Many crops, including potatoes and corn, are protected against insect infestation by biotechnological methods.
- Broccoli was created by crossbreeding cauliflower and peas.
- Nectarines were created by crossbreeding peaches and apples.
- Rice is engineered to have a higher

protein content and/or a higher level of beta-carotene (known as “golden rice”).

- Porcine somatotropin (pST) is used to encourage lean muscle tissue production in pigs.
- Plant cells grown in fermenters are used to produce flavors, such as vanilla.
- The lactase enzyme is added to milk to make it more tolerable for lactose-intolerant people.

Benefits of biotechnology

The following are benefits of biotechnology:

- Decreased spoilage and increased shelf life; improved ripening
- Resistance to herbicides and insect infestations (leading to less use of pesticides)
- Viral resistance of plants and animals
- Enhanced nutrient content
- Enhanced flavor profiles
- Resistance to adverse environmental conditions, such as freezing, heat and drought

Regulation of biotechnology

The US Environmental Protection Agency (EPA), the US Dept of Agriculture (USDA), and the US Food and Drug Administration (FDA) all regulate bioengineering.

Labeling

Foods derived from biotechnology are not labeled as such unless they are significantly different from their conventional alternatives. However, the food label must list the presence of any allergens or any differences in nutritional quality from the conventional alternative. Any food labeled “organic” cannot contain any genetically modified organisms.

Concerns about the use of biotechnology

Some people are worried about the possible inclusion of allergenic foods into foods that generally do not contain them. For instance, if a peanut DNA were added to a form of produce, a person who was allergic to peanuts could become ill from eating the produce. However, the FDA regularly tests foods to prevent this from occurring, and any food that contains a common allergen must include this information on its food label.

The introduction of unnatural hormones to our food supply has many people concerned. Other individuals are concerned about possible resistance to antibiotics, although no evidence exists to show that this has occurred.



This month's On the Light Side is written by Registered Dietitian Jenny Thompson

Fruit salad & strawberry poppy seed dressing

- 4 cups packed spinach leaves
- 2 cups fresh sliced strawberries, divided
- 1 cup halved red grapes
- ¼ cup toasted pecans
- 1 Tbsp granulated sugar
- 1 Tbsp raspberry vinegar
- 1/3 cup fat-free lemon yogurt
- ¾ tsp poppy seeds

Instructions: In a medium serving bowl, combine spinach, 1-½ cups strawberries and grapes. Top with pecan pieces. In blender, combine ½ cup strawberries, sugar, vinegar, yogurt and poppy seeds. Blend until smooth. Pour dressing over salad and toss gently to coat.

Yield: 6 servings

Nutrition information per serving: calories: 100, fat: 4g, saturated fat: 0g, sodium: 40mg, carbohydrates: 16g, fiber: 2g

Core exercises: Beyond an average abs routine

A well-balanced core exercise routine focuses on more than your abs. Did you know that your core is where all movement in your body originates? Core exercises are an important part of overall fitness training that, except for the occasional sit-up or crunch, are often neglected.

To get your core muscles in better shape, it's important to understand what your body's core is and how you can strengthen it.

Your body's core – the area around your trunk and pelvis – is where your center of gravity is located. A strong core gives you:

- Increased protection and “bracing” for your back
- Controlled movement
- A more stable center of gravity
- A more stable platform for sports movements

When you have good core stability, the muscles in your pelvis, lower back, hips and abdomen work in harmony. They provide support to your spine for just about any activity. A weak core can make you susceptible to poor posture, lower back pain and muscle injuries. Strong core muscles provide the brace of support needed to help prevent such pain and injury.

Core strengthening requires the regular and proper exercise of your body's 29

core muscles. Basic exercises that will enhance your core fitness include the:

- Bridge
- Abdominal crunch or sit-up
- Plank
- Quadruped

A fun alternative to your basic core strengthening regimen is to learn exercises that use a fitness ball. Balancing on these oversized inflated balls requires that you focus on using your core muscles for support.

It's important to do your core exercises at least three times a week. For optimal results:

- Choose exercises that work your core muscles simultaneously. Rather than isolate each muscle group in your trunk, the best exercises for your core are those that get muscles working together at the same time.
- Focus on quality of movement rather than quantity. You'll gradually build up to a greater number of repetitions. When starting out, take it slow and learn how to properly perform each exercise with optimal technique.

- Breathe steadily and slowly. Breathe freely while doing each of the exercises in your core strengthening workout. Your instinct may be to hold your breath during an exercise, but it's better to continue breathing.
- Take a break when you need one. When your muscles get tired, stop and change exercises. And, if you work your core muscles to fatigue during an exercise session, wait at least a day between workouts to allow the muscles to recover.
- Get help from a trained professional. Body position and alignment are crucial when performing core strengthening exercises.

Keep in mind that strengthening workouts – even core strengthening – are just one part of a complete fitness program. Include aerobic exercise and flexibility training to round out your regimen.

