

## **Research Project**

**How tofu turkey and organic turkey differ?**

**Vegetable vs. Animal**

**What effects on the circulatory/cardiac system does tofu turkey and organic turkey have**

**compared to each other?**

**(In other words- which is better for you?)**

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## Questions/Outline:

A) Heart Healthy Food – daily allowance per servings under a 2,000 calorie diet

- a) Sodium – why does the body need it?
- b) Cholesterol – why does the body need it?
- c) Calories – why does the body need it?

B) Not a Heart Healthy Food-

- a) High Sodium
  - 1) effects on the circulation / cardiovascular system
- b) High Cholesterol
  - 2) effects on the circulation /cardiovascular system
- d) Calories
  - 3) effects on the circulation/cardiovascular system

1) What is tofu?

- a)Soy
- b)Tofu

2) What is Tofurky?

- a) Heart healthy food
- b) Sodium and cholesterol content

3) What is Domestic Organic Turkey?

- a) Domesticated organic turkey
- b) Sodium, cholesterol and calorie content

C) Comparison of Tofurky vs. Domesticated Organic Turkey

a) What is Tofurky compared to Domesticated organic turkey

Which is better for you?

## **Heart Healthy Food**

In exploring, what is better for you Tofurky vs. organic domesticated turkey (vegetable vs. animal), you need to look at the primary nutritional content for both and compare that to what makes a good heart healthy food and a food that is not considered to be heart healthy – then relate it to the circulatory and cardiovascular systems in this case. Besides coming from the five basic food groups, a heart healthy food contains just the right amount of nutritional content that can primarily include sodium, cholesterol and calorie content for an individual, thus, depending on the individual needs- physical condition of the body.

## **Sodium**

Sodium is an electrolyte that is needed by the body at the cellular level to help conduct positive electrical activity. The heart relies on the process of Action Potential of polarization, depolarization and repolarization -the process that conducts the electrical activity at the cellular level of the heart. In this process of Action Potential, sodium is one of the main elements (electrolytes) that not only does it help in maintaining a regular heart beat but it also helps the body eliminate waste and keep the system clean by maintaining the right amount of fluid in the system in which keeps blood pressure under control.

Since a low sodium food can prevent heart problems, according to the American Heart Association, the new recommended 2010 daily allowance for sodium is 800 mg a daily.

\*Chart according to the American Heart Association is as follows:

\*How much sodium is in salt?

1/4 teaspoon salt = 600 mg sodium

1/2 teaspoon salt = 1,200 mg sodium

3/4 teaspoon salt = 1,800 mg sodium

1 teaspoon salt = 2,300 mg sodium

1 teaspoon baking soda = 1000 mg sodium

Since  $\frac{1}{4}$  of a teaspoon of salt equals 600 mg of sodium and  $\frac{1}{2}$  teaspoon of salt is 1,200 mg of sodium, it would be recommended that a little over a  $\frac{1}{4}$  of a teaspoon but much less than a  $\frac{1}{2}$  a teaspoon of salt would be recommended for a daily allowance. Note: salt and baking soda both contain sodium.

## Cholesterol

Cholesterol is essential to the body in that it helps in digestion and hormone activity of the body at the cellular level traveling through the arteries and veins.

When it comes to cholesterol and nutritional content, there are two types of cholesterol to watch for in a healthy diet the LDL and HDL. The LDL is the bad cholesterol that includes foods that are high in trans fats and saturated fats that can build up in the arteries and veins producing blockages if not taken in moderation. The HDL is the good cholesterol that is thought to help lower LDL according to the American Heart Association.

When it comes to cholesterol, according to the American Heart Association, the recommended daily allowance for cholesterol is less than 300 mg per day and for coronary heart disease with LDL cholesterol level that are 100mg/dl or greater to limit the cholesterol intake to less than 200 mg a day. For Total Fat intake the recommended allowance is 25-35% of a person's calories each day with a limit in saturated fat intake of less than 7% of total daily calories with trans-fat intake of less than 1% of total daily calories.

## **Calories**

Calories are just as important in a diet as sodium and cholesterol. When our body needs energy, we rely on lipids (fat). When the body consumes food that contains calories it turns into lipids (fat) at the cellular level then back into energy by the body at the cellular level when the body needs it.

In general calories per serving, according to American Heart Association, on a 2,000 calorie diet is considered as the following:

40 calories per serving is considered *LOW*

100 calories per serving is considered *MODERATE*

400 calories per serving is considered *HIGH*

## **NOT a Heart Healthy Food**

Food that is not a heart healthy food is **high in cholesterol** and **high in sodium**. **High calories** may not be good for you- depending on your physical fitness. Generally, a 2,000 calorie a day diet is recommended.

**High Sodium** causes the arterioles (smallest arteries in the body) to constrict forcing the heart to pump harder than normal. This can cause hypertension (high blood pressure) that may result in an enlarged heart and promote Angina (chest pain) that may also lead to Myocardial Infarction (heart attack).

Consuming too much **LDL (bad cholesterol)** causes plaque build-up in the veins and arteries of the circulation system- plaque build-up that shrinks the passage so that a normal blood volume is restricted to an abnormal blood volume to pass through to the heart and rest of the body producing ischemia (poor blood flow to the heart), thus, may cause hypertension. It can produce an environment in the circulation/cardiovascular system that can cause Coronary Artery Disease (CAD), Angina or Myocardial Infarction- resulting in total necrosis (cell death) of the heart or partial necrosis of the heart. If not complete necrosis of the heart ending in death of the individual, then damage may result in ventricular hypertrophy (enlargement of the ventricle) in which may be the cause or lead to the damage of the SA node (pacemaker of the heart), NA node, bundle of His, bundle branches and/or include Purkinje fibers that control the heart's electrical activity.

The energy source for the body is the consumption of **calories** to be burned at the cellular level. When calories are consumed, then converted to lipids, they are naturally stored in the body until they will be used. But, when an individual consumes too many calories the body continually keeps storing the lipids (fat) and an unnatural unhealthy weight may be attained by the individual. An increase in weight gain, being over- weight can cause hypertension as well as CAD creating an environment for the circulatory/cardiovascular system that can result in Angina or Myocardial Infarction.

## **The comparison of the vegetable-Tofurky vs. animal-domesticated organic turkey for a Thanksgiving feast-heart healthy or not**

### **What is tofu?**

#### **Soy**

“In October 1999, the FDA decided that well-designed, well-controlled, repeatable research studies had shown that soy was a heart healthy food that could help decrease the risk of developing cardiovascular disease.” – Gale Encyclopedia of Diets (2012)



## **Tofu is Soy**

For hundreds of years tofu has been used in the Eastern Asia civilization as a primary food source in their diets. Tofu is made of soybeans, water and a coagulant/curling agent. It is known for its ability to be able to absorb new flavors and marinades. Tofu is a good alternative to meat and fish because it is high in protein. It is considered a good heart healthy food because of the low sodium, low cholesterol and low calorie content that can reduce cardiovascular disease.

## **What is Tofurky?**

When it comes to Tofurky a fairly new product that combines the words tofu and turkey together and it became Tofurky. Tofurky, a brand name, created the product of a tofu that is noted to taste like turkey but does not contain turkey. It is sold as a loaf or a loaf with gravy or as a “Tofurky feast” that is a complete vegetarian meal for six complete with gravy, stuffing, chocolate cake for dessert and a “wish bone”. Tofurky is only available seasonally during the Thanksgiving holiday season at your local grocery store.

As for the nutritional value for Tofurky, a serving size of 4 oz contains **190 Calories**- (Calories of Fat 45), 5.0g of Total Fat (8 % Daily Value), **396mg of Sodium** (16% Daily Value), 10.0g total Carbohydrates (3% Daily Value), 2.0 Dietary Fiber 2.0g (8% Daily Value), 1.0g Sugars and 26.0g Protein that contains calcium 15% Iron 9%. -Based on a 2000 calorie diet.

## Domesticated Organic Turkey

The domesticated turkey's original origin is Mexico before the 16th Century. And in the 16th Century, Spanish colonizers brought and raised domesticated turkeys to North America as a prominent food source.

Domesticated organic turkeys are turkeys that have been raised without any antibiotics and have been fed organic feed throughout their lives. As a food source, domesticated organic turkeys are considered a white meat including the thighs and drumsticks. This is the turkey that we most often consume on the Thanksgiving holiday- present day.

According to Mayo Clinic's *Nutrition and healthy eating* article on its website, since poultry is a valuable source of protein for the body, the lean cut of a turkey should be considered because of the fat content – meaning more fat on some parts of the meat than others. The white turkey breast without the skin is considered to be the lowest of fat content for consumption. Cooked without added spices, sugars and marinades, turkey can be cooked to be a low-fat cholesterol and low calorie heart healthy food.

The website [www.GoodGuide.com](http://www.GoodGuide.com) gives the nutritional content for the basic Organic Turkey Breast Oven Roasted *without the spices, marinades and sugars* as calories per serving size as 2 oz. with **70 Calories** (Calorie of Fat 5), 0g Total Fat, 0g Saturated Fat and Trans Fat, **30mg Cholesterol**, **460mg Sodium**, 2g Total Carbohydrates, 0g Dietary Fiber, 1g Sugars, 12g Protein.

– Based on a 2,000 calorie diet. This is only one brand on the website. There are other organic turkey products sold with similar nutritional content.

**Summary: What is Tofurky compared to organic turkey? Which is better for you?**

AMA – American Heart Association 2012 recommended

Calorie                    2,000    daily

Sodium                    800mg    daily

Cholesterol less than 300mg daily

\*Sodium, Cholesterol and Calorie based on a 2,000 calorie diet

In comparison to the daily recommended sodium, cholesterol and calorie content, based on the American Heart Association's 2,000 calorie diet (noted above) vs. Tofurky contents contain 4 oz. per serving:

Calories                  190 w/Calories of Fat 45

Sodium                    396mg

Cholesterol              None

Tofurky is below the recommended daily allowance in calorie, sodium and cholesterol in nutritional content. It can be reasoned that Tofurky is a good healthy food.

As for the AMA daily recommended sodium, cholesterol and calorie content vs. the organic domesticated turkey nutritional content contained 2 oz. per serving:

Calories        70 w/Calorie of Fat 5

Sodium         460mg

Cholesterol    30mg Cholesterol

The domesticated organic turkey can also be considered a good heart healthy food. Even though the serving size for domesticated organic turkey is noted at 2 oz it should be doubled with the nutritional content to get the same comparison per serving size vs. Tofurky per serving size of 4 oz, thus making the sodium content for the domesticated organic turkey 920mg 4oz per serving going beyond the new AMA daily recommended allowance of 800mg Sodium. But, if you eat the recommended serving size of 2oz per serving for the domesticated organic turkey, eating half the serving size of 4oz of Tofurky, you will remain under the new daily AMA 800mg Sodium allowance- keeping the domesticated organic turkey a heart healthy food.

As with any food both Tofurky and domestic organic turkey, they should be eaten in moderation according to the general food guide lines per serving keeping them as heart healthy foods.

Fortunately, Tofurky and domestic organic turkey are both heart health foods- which is better when it comes to taste, relies upon the individual.

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