



## Parkinson's Disease and Other Diet-induced Tremors

James Parkinson originally described a condition of "shaking palsy" in 1817, which subsequently became known as Parkinson's disease (PD). This condition has become the second most common neurodegenerative disease (after Alzheimer's disease), affecting approximately 1% of the population of the US over 65 years of age. People severely affected with PD characteristically have a tremor seen in their hands and head at rest, stiffness, weakness, slow movements, and postural instability. They take small steps when walking and have speech and swallowing disturbances. With time, disease progression often results in loss of mental function (dementia).

PD results from damage to an area of the brain called the substantia nigra (named because of its dark color). The substantia nigra produces large amounts of the neurotransmitter dopamine. Dopamine deficiency is the hallmark feature in PD. Insufficient production of this neurotransmitter substance negatively affects the nerves and muscles controlling movement and coordination, resulting in the major symptoms characteristic of PD.

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## Featured Recipes

Guest Chef - Miyoko Schinner

Miyoko is one of the McDougall cooking instructors for our live-in programs in Santa Rosa, CA. I have included some of her favorite holiday dishes in this month's newsletter.

Miyoko has promoted healthful, vegetarian/vegan cuisine for 30 years. As the founder of Now and Zen, a vegan food manufacturer with nationwide distribution, she developed products such as the Un-Turkey, HipWhip, a line of gourmet vegan cakes, and a low-fat vegan chocolate chip cookie that is still enjoyed by customers on United Airlines. She has written three vegan cookbooks and is a former contributor to publications such as Vegetarian Times Magazine. Miyoko, her products and her unique approach to vegan cuisine have been featured in numerous publications, television and radio shows, including the Washington Post, San Francisco Chronicle, Newsweek, New York Post, ABC World News Tonight, NPR's Marketplace and California Report. She has given cooking demonstrations nationwide as well as in Japan. Currently, she is working on a vegan cooking series with a comic twist. She lives in Marin County with her husband, Michael and her three children, and enjoys being involved in community theatre and running in the hills with her dog.

- Pumpkin Chestnut Soup
- Cashew Milk
- Squash Stuffed with Kale and Almond Risotto
- Earthy Farro Risotto with Mushroom Medley
- Yuba Turkey Loaf with Roasted Mushroom and Chard Stuffing or Wild Rice and Fennel Stuffing
- Roasted Mushroom and Chard Stuffing
- Light Yeast Flavoring Powder
- Wild Rice and Fennel Stuffing
- Fat-Free Gravy II
- Not Nog
- Pumpkin Bread Pudding
- Brandy Nog Crème Anglaise

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PD results from damage to an area of the brain called the substantia nigra (named because of its dark color). The substantia nigra produces large amounts of the neurotransmitter dopamine. Dopamine deficiency is the hallmark feature in PD. Insufficient production of this neurotransmitter substance negatively affects the nerves and muscles controlling movement and coordination, resulting in the major symptoms characteristic of PD.

Famous people alive today with this disabling condition include actor Michael J. Fox and prize-fighter Mohammad Ali. Mr. Fox's condition began at age 29 and has lasted for 19 years. He is an exception since most patients do not show signs of PD until after the age of 50.



Michael J. Fox Talks to Sanjay Gupta on CNN About His Parkinson's Disease

Mr. Fox has raised \$214M for his [foundation](#) for PD. Even though he has been reported to have an interest in vegetarian diets, his foundation has focused on stem cell research, which has been, and will likely continue to be, a dead-end path. Instead, as with most other chronic diseases, his focus should be on the highly likely dietary causes of PD. Correcting the cause will at the very least lead to avenues for prevention.

### The Western Diet Causes Parkinson's Disease

The strongest contact we have with our environment is our food. Therefore, observing variations in incidence of diseases across populations should immediately lead researchers to focus their attention on the foods people eat. The incidence of PD is relatively high throughout Europe and North America.<sup>1</sup> In contrast, rural Africans, Chinese, and Japanese, whose diets tend to be vegan or quasi-vegan, have substantially lower rates.<sup>1</sup> The observation that incidence of PD is similar in African-Americans and in whites, all of whom eat the Western diet, further indicates that environmental factors, not race or genetics, are responsible for PD.<sup>2</sup>

Specific foods have been targeted. For example, the consumption of milk in midlife was found to be associated with subsequent development of PD.<sup>3</sup> Men who consume more than two glasses of milk have twice the incidence of PD as men who do not drink cow's milk. The American Cancer Society's Cancer Prevention Study II Nutrition Cohort study has found almost twice the incidence of PD in the highest consumers of milk.<sup>4</sup>

### **Three Possible Mechanisms for Diet-caused Brain Damage**

After accepting the possibility that PD is due, at least in part, to what we eat, then the next logical question is: how is this damage mediated? There are three common ways our diet could kill the dopamine-producing cells of the substantia nigra:

#### *Autoimmune Reactions*

One probable [mechanism](#) begins with the destruction of the blood brain barrier by dietary components, especially the fats. Once this barrier becomes ineffective (permeable) then immune cells (antibodies) produced outside of the nervous system can enter the cerebrospinal fluid and attack the brain's cells. Dairy proteins are notorious for causing this kind of reaction, known as molecular mimicry. In susceptible people, cow's milk protein may enter the bloodstream from the intestine.<sup>5,6</sup> The body recognizes this as a foreign protein, like a virus or bacteria, and makes antibodies against it. Unfortunately, these antibodies are not specific only to the cow's milk protein; they find similar proteins in the nervous system.

#### 2) *Vascular Disease*

The compromise of the blood supply to the brain caused by vascular closures leads to the death of brain tissues. The mechanisms are the same as those that lead to heart attacks and common strokes. One proposed link between PD and atherosclerosis is iron, a nutrient associated with meat consumption.<sup>7</sup>

#### 3) *Environmental Chemicals*

Most pesticides work by interfering with the nervous system of insects, so findings of brain damage in people exposed to pesticides and other environmental chemicals should be no surprise.<sup>8-10</sup> Convincing examples of this toxicity to the brain are seen in people who work with toxic chemicals; for example, sheep farmers who were exposed to organophosphate pesticides (in the course of dipping sheep to rid them of infestations) performed significantly worse than non-exposed farmers in tests to assess sustained attention and speed of information processing.<sup>11</sup>

Studies show that exposure to pesticides and insecticides causes Parkinson's disease in humans by damaging the brain's cells of genetically susceptible people.<sup>12-15</sup> An insecticide, dieldrin, is among the most likely culprits.<sup>16</sup> Patients with PD have a reduced capacity for detoxification of these toxic compounds. Enzyme systems that metabolize these brain-damaging chemicals are a result of genetic traits. The concentrations of dieldrin compounds in the substantia nigra were significantly higher in PD tissues.<sup>14</sup>

## **Pesticides Bio-accumulate in Animals**

The highest levels of pesticides are found in foods high on the food chain—meaning animal foods. Estimates are that 89% to 99% of the chemical intake into our body is from our food, and most of this is from foods high on the food chain: meat, poultry, eggs, fish, and dairy products.<sup>18,19</sup> Fish and other marine life are especially important sources of brain-damaging chemicals like polychlorinated biphenyls (PCBs) and methylmercury (MeHg).<sup>20</sup>

The scenario looks like this: Low concentrations of environmental chemicals are present in sea vegetables and in seawater. Fish consume these poisons; concentrate them in their own body fat; cows eat fishmeal, and concentrate these noxious wastes even more into their fat; then chickens eat dead cow remnants and the toxins become packed further into their flesh. Finally people get the strongest doses, as they are at the top end of the food chain. Even worse are the consequences for little people—the greatest concentrations of tissues damaging contaminants are delivered to babies nursing from pollutant-overloaded mothers. Understand that this accumulation is lifelong, and therefore, what you do as a child may come to haunt you as an adult in the form of birth defects for your children, cancer, and brain damage. Fortunately, eating a clean diet prevents exposure and helps these chemicals to leave the body.

## **A Starch-based Diet Helps People with Parkinson's Disease**

Prevention of further progression of this form of neurologic deterioration would be expected from removal of the dietary causes.<sup>21</sup> However, once the brain tissue is lost it should not be expected to regenerate. Prevention is key.

Dopamine production in the brain is reduced by poor food choices and enhanced when the diet is high in carbohydrates (starches) and low in animal proteins. Carbohydrate increases dopamine production in the brain by allowing easier passage of the dopamine precursor, tyrosine, through the blood-brain barrier into the fluids surrounding the nervous system (the cerebrospinal fluids).<sup>22,23</sup> Meats, poultry, eggs, and dairy foods are high in heavy neutral amino acids that block the entry of the dopamine precursor, tyrosine, into the brain.

One case report has suggested a low-animal-food diet is beneficial for people who have already developed PD.<sup>24</sup> A 75-year-old man with PD for eight years changed to a quasi-vegan diet for two years. During this time his PD did not appear to have advanced, his dosage of PD medications (levodopa) did not increase, and his quality of life was reported to have improved—an atypical course for this disease.

A healthy diet can also be expected to result in loss of excess body fat, which will allow for improved mobility. People with PD often suffer with constipation, which is relieved by dietary fiber found in plant foods and by removal of dairy proteins, which paralyze the bowels.<sup>25</sup> Consider the total picture: Someone with PD needs to be as healthy as possible, and they especially need to avoid the problems, like obesity, type-2 diabetes, vascular insufficiency, arthritis, and bowel dysfunctions, known to be caused by the Western diet. You should not expect the brain tissues that have been lost to grow back; nor lost

functions to return. Slowing or stopping progression of the PD is your realistic goal.

### **A Low-animal-protein, Starch-based Diet Improves the Effectiveness of Medication**

Dopamine deficiency is the hallmark feature in PD. Unfortunately, dopamine in the brain cannot be replaced by taking a dopamine pill because this natural chemical does not cross the blood-brain barrier to replenish cerebrospinal fluid. The discovery in 1968 of an isomer of dopamine, levodopa (L-dopa), was a major revolution in the management of PD, which still lasts today. L-dopa readily crosses the blood-brain barrier and then is converted into dopamine once it enters the nervous system. The medication is so specific that a "levodopa challenge test" can confirm a diagnosis of Parkinson's disease. If a patient's symptoms improve, then they are likely to have Parkinson's, ruling out other neurological diseases.

L-dopa and dietary proteins use the same transportation system in the intestine and the blood-brain barrier, competing for access to the blood and cerebrospinal fluid.<sup>26</sup> Therefore, a high protein diet, based on meats, dairy products, eggs, and fish results in a competition that reduces the effectiveness of the drug. Levodopa is often sold in combination with another medication, carbidopa, which slows the breakdown of levodopa. Examples include Sinemet, Parcopa, Atamet, and Stalevo. The effectiveness of L-dopa tends to decrease after four to five years of usage.

Patients are often advised to avoid protein (meat, poultry, fish and eggs) during the day and limit these foods to the evening meal in order to improve the effectiveness of their medication. However, eating these animal foods at the evening meal means the patient cannot move all night long— being able to turn over in bed, get up to use the bathroom, or adjust their bedclothes. The incorrect belief that animal foods are the only reliable source of "good" protein leads to this kind of mismanagement of people with PD. The truth is a starch-based [diet](#) (low in competing heavy neutral amino acids) provides all necessary proteins and amino acids and should be the diet of people with (and without) PD throughout each day and night.

### **Essential Tremors from Meat-Eating**

Essential tremor (ET), a type of involuntary shaking with no known cause, is among the most prevalent neurological diseases, affecting 4.0% of individuals aged 40 years and older, and 6.3% of individuals 60 years and older. The tremor is most commonly in the hands, but may affect the head, eyelids, vocal cords, and any other muscles. Harmane is a potent, tremor-producing beta-carboline alkaloid found in high concentrations in muscle foods (beef, chicken and pork); cooking of these meats leads to further increases in concentrations.<sup>27</sup> Thus the amount of harmane in cooked meat is a function of cooking temperature and time. Pan-frying and grill/barbequing produce the highest concentrations. Elevated harmane in the blood is also due in part to a hereditarily reduced capacity to metabolize it into inactive substances.<sup>27</sup> You should not expect the brain tissues that have been lost to grow back; nor lost functions to return. Slowing or stopping progression of the tremors is your realistic goal.

Medications, such as beta-blockers (propranolol), tranquilizers (clonazepam) and antiseizure drugs (primidone), are recommended for treatment, but are of little benefit with significant side effects.

## Detoxifying the Body with Starches

Eliminate foods high on the food chain (meats and dairy products) from your diet and replace them with foods low on the food chain (starches, vegetables, and fruits—preferably organically grown) in order to clean your body. The human body has detoxification systems that have evolved over 300 million years to protect animals from the natural toxins found in plants. These same systems will also rid your body of synthetic pollutants. These natural detoxifying compounds are found in plants, and they are also potent inhibitors of chemically induced cancer.<sup>28-31</sup> In addition, the energy required for the detoxifying processes is most effectively provided by clean-burning carbohydrates found in plants (meat, fish, poultry and vegetable oils have no carbohydrate and cheese has only miniscule amounts). Not surprisingly, malnutrition from under- and over-nutrition (such as when people eat the American diet) almost invariably leads to a reduced capacity to deactivate these pollutants and therefore increases their toxicity.<sup>31</sup>

Losing weight on any “diet” releases stored pollutants as the body fat is dissolved.<sup>32-34</sup> This is good, especially when the diet you are using to cause the weight loss is low in pollutants and full of detoxifying substances. In no time at all consuming a healthy diet will clean your body of brain-damaging chemicals and restore the tissues in order to prevent PD and systemic damage.

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## December 2010 Guest Chef

### Miyoko Schinner

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### **Pumpkin Chestnut Soup**

Miniature pumpkins make a lovely serving dish, but sugar pie pumpkins work as well.

10-12 miniature pumpkins, or 2 small sugar-pie pumpkins (enough to yield about 3 cups of pumpkin)  
1 onion, sliced  
½ apple, diced  
15 ounces steamed chestnuts  
6 cups vegetarian chicken stock or vegetable stock  
½ cup white wine  
½ teaspoon freshly grated nutmeg or more  
1 cup cashew milk (or extra stock as needed)  
Salt and pepper to taste

Pre-bake the pumpkins in a 350 degree oven for about 20-30 minutes until you can cut them easily with a knife. If using miniature pumpkins, cut off the tops and scoop out the seeds. Reserve the shells for use as the serving bowls. If using a sugar pie pumpkin, cut into quarters and scoop out the seeds. If desired, reserve the seeds for another use. Scoop out the softened flesh and measure; you should have about 3 cups (a little more will be fine).

Meanwhile, sauté onion in a small amount of water, covered, until tender. Add the pumpkin, apple, chestnuts, stock and wine. Simmer for about 15 minutes. Puree in a blender. Return to the pan and season with nutmeg, salt and pepper. To enrich, whisk in the cashew milk, or thin out with extra stock if needed. Pour into the pumpkin shells to serve.

### **Cashew Milk**

¼ to ½ cup cashews  
1 cup water

Combine cashews and water in a blender for 2 to 3 minutes until absolutely smooth. The more cashews you add, the richer the resulting milk will be. Straining is not necessary.

### **Squash Stuffed with Kale and Almond Risotto**

8 Zephyr, acorn, or delicata squash  
Water or stock for sautéing  
¾ cup Arborio rice  
1 onion, diced  
2 cloves garlic, minced  
3 cups vegetable or vegetarian chicken stock  
¼ cup white wine (optional)  
6 cups chopped kale  
1 teaspoon rubbed sage  
Salt and pepper to taste  
¾ cup almond meal  
½ cup sliced almonds

In a 350 degree oven, prebake the squash for about 15 minutes until you can get a knife into it. If using Zephyr squash, place the squash on a cutting board, rotating to find a side that will allow the squash to sit and not roll over. Slice off the top of the bulbous part of the squash at a diagonal and scoop out the seeds. It will look like a large spoon (even more so after you have eaten them). If using acorn or delicata squash, pre-bake whole until just soft enough to cut in half. After cutting in half, remove the seeds.

While the squash are baking, you can prepare the risotto. In a heavy-bottom saucepan, heat the water or stock and add the diced onions and minced garlic. Over medium-low heat, sauté the onions and garlic until tender, adding a little salt to flavor. Add the dry Arborio rice, and continue to sauté for about 3 or 4 minutes. Add a half-cup of the stock and stir until mostly absorbed. Keep adding a half-cup of stock at a time, stirring almost constantly; this will prevent the rice from sticking and yield risotto suspended in a creamy sauce. After you have added about 2 cups of stock, add the wine, sage and kale. Continue by adding the final cup of stock in two increments, until the rice is somewhat tender but still has a hard core. Add the almond meal, stir well, and remove from heat.

Spoon this mixture into the hollowed-out squash. Sprinkle almond slices over the risotto and return to the oven to bake for about a half-hour.

### **Earthy Farro Risotto with Mushroom Medley**

This is actually made with pearled spelt, which does not require the overnight soaking and 2 hour cooking that real farro does. It produces a result that is not as chewy as true farro, but is extremely rich and earthy in flavor and texture.

For the farro:

- ¼ cup dried porcini mushrooms
- 1 cup hot water
- 1 large onion, diced
- 2 cloves garlic, minced
- 1 ½ cups farro or pearled spelt
- 5 cups mushroom broth
- 1 tablespoon chopped fresh thyme
- 1 tablespoon chopped fresh rosemary

Soak the porcini mushrooms in the hot water and set aside while you begin to prepare the risotto. Sauté the onions and garlic in a small amount of water or stock until tender. Add the farro and cook for a few additional minutes. Add one cup of mushroom broth and stir every couple of minutes while simmering. When the liquid has mostly been absorbed, add an additional cup of stock. Keep stirring often. *Meanwhile, prepare the mushrooms as instructed below (the mushrooms can be prepared simultaneously with the risotto).* For the risotto, continue cooking by adding another cup of liquid, stirring and simmering. After adding your third or fourth cup of broth, add the porcini mushrooms along with their soaking liquid. Stir and simmer until absorbed. Finally add the final cup of broth, thyme, rosemary and the mushrooms below and cook until the farro is al dente but tender. Serve immediately, and if desired, sprinkle some almond parmesan on top.

For the mushrooms:

- 8 cups sliced mushroom mixture – use a variety of mushrooms for flavor and contrast, such as shiitake, crimini, button, Portobello, oyster, king trumpet, etc.
- ½ cup red wine
- 2 tablespoons soy sauce
- 1 tablespoon mirin
- 2 cloves minced garlic

Place all ingredients in a large sauté pan with a lid. Cover and set over a medium flame. Allow to cook with the lid on for several minutes until juices have exuded and mushrooms have shrunk slightly. Then remove the lid and continue cooking, stirring occasionally, until most of the liquid has been absorbed.

### **Yuba Turkey Loaf with Roasted Mushroom and Chard Stuffing or Wild Rice and Fennel Stuffing**

Thaw 1 pound frozen yuba.

Prepare a marinade for the yuba:

- 2 cups water and ½ cup powdered veggie chicken broth or 2 cups veggie chicken stock
- 2 tablespoons soy sauce
- ¼ cup nutritional yeast
- 1 tablespoon agave

One sheet at a time, dip the yuba in this mixture and spread out. If necessary, the yuba can be crumpled in order to dip it. Repeat with the other sheets, stacking 4 sheets on top of each other. You will have 2-3 stacks total. Fold each one in half or quarters to fit the steamer. Steam for 30 minutes to 1 hour – the yuba will solidify. This can be done several days ahead of time and refrigerated until need-

ed.

To assemble the yuba turkey, dip an additional sheet of yuba in water and place on a non-stick baking sheet. Place one of the yuba stacks on top. Pile high with stuffing of choice. Place another yuba stack or two on top and wrap the entire loaf with the sheet of yuba. Baste with:

½ cup water  
1/3 cup light yeast flavoring  
2 tablespoons white wine

Bake at 350 degrees for 1 hour, basting every 15 minutes or so.

### **Roasted Mushroom and Chard Stuffing**

Spread out each of the following vegetables and bread separately on baking sheets, using several if needed:

1 pound small mushrooms, or larger ones, quartered or halved  
1 bunch swiss chard, roughly chopped  
2 onions, diced  
3 stalks celery, sliced  
1 pound ciabatta bread, cubed or torn

Sprinkle with salt and pepper and roast in a 400 degree oven until the vegetables are crisp-tender and the bread is lightly toasted, about 10-15 minutes. Combine all in a large bowl and toss with:

2 teaspoons sage  
1 teaspoon thyme  
1 teaspoon celery seed  
3 cups "broth" made from 3 cups water and ½ cup light yeast flavoring

### **Light Yeast Flavoring Powder**

1 cup nutritional yeast flakes  
1 tablespoon salt  
½ teaspoon ginger  
½ teaspoon turmeric  
1 teaspoon black pepper  
1 teaspoon dried marjoram  
1 teaspoon dried tarragon  
1 teaspoon paprika  
1 teaspoon dried rosemary  
2 teaspoons dried sage  
2 teaspoons celery seed  
2 teaspoons dried thyme  
2 teaspoons garlic powder  
2 teaspoons onion powder

Pulverize all the ingredients in a blender until powdered. Store in a jar in a cool place.

**Wild Rice and Fennel Stuffing**

In a saucepan, simmer until tender over low heat:

- 1 cup wild rice
- 4 cups vegetable stock

Sauté until tender in a small amount of water:

- 1 onion, chopped
- 1 bulb and a few stalks of fennel, sliced

Combine in a bowl:

- The cooked wild rice
- The sautéed vegetables
- ½ cup dried cranberries
- 3 tablespoons Sherry or Madeira
- 1 teaspoon sage
- 1 teaspoon rosemary
- 1 teaspoon thyme
- Salt and pepper to taste

**Fat-Free Gravy II**

In a saucepan, place:

- 2 cups water
- ¼ cup white wine
- 2 tablespoons soy sauce
- 3 tablespoons light yeast flavoring
- ½ cup cooked white rice
- ½ cup leftover stuffing, if available
- ¼ cup cashews

Bring to a boil, reduce heat and simmer for 10 minutes. Puree until smooth.

**Not Nog**

- 3 cups soy milk (Vitasoy Creamy Original or Vanilla Delite are recommended)
- ½ cup to 1 cup raw cashew nuts
- ½ - ¾ cup maple syrup
- 2 teaspoons vanilla
- Freshly grated nutmeg
- Brandy to taste (if desired)

Puree milk, cashews, maple syrup and vanilla in a blender until creamy and frothy. Grate nutmeg and blend again. Add brandy if desired. Chill for several hours. Pour into glasses and grate additional nutmeg on top.

## **Pumpkin Bread Pudding**

A comforting and warm alternative to pumpkin pie – also lower in fat since it has no pie crust. Serve with Brandy Nog Crème Anglaise.

To make this, you'll want slightly stale or lightly toasted bread so that it soaks up the custard. You can use any kind of bread you like, but I recommend something on the lighter and whiter side and not sour-dough (this is not the dish to use the heartiest wholegrain bread). Trim away the crust and cut into cubes. You can let it sit out overnight to dry, or toast it.

### **Preparing the Bread:**

You will need a total of 6 – 7 cups cubed bread. The less bread, the more custard-like it will be. Trim away the crust from about 1 pound of unsliced bread. Slice and cube. If the loaf is fresh, spread the bread on a sheet pan and toast at 350° for about 10 – 15 minutes until dry but not brown. Otherwise, you can just spread it out on a sheet pan and let it air dry overnight.

### **Preparing the Pumpkin Custard:**

Preheat the oven to 350°. In a blender or food processor, combine and blend until smooth:

- 1 pound pumpkin (canned is fine)
- 8 ounces medium tofu, mashed
- $\frac{3}{4}$  cup soy or almond milk
- 1 cup maple syrup
- 2 teaspoons cinnamon
- $\frac{1}{2}$  teaspoon freshly grated nutmeg
- 1 teaspoon ginger
- $\frac{1}{2}$  teaspoon sea salt
- 2 tablespoons cornstarch or arrowroot

Lightly oil a baking dish big enough for the bread cubes to fill it half-way. Pour the Pumpkin Custard mixture over the bread and mix well with a spoon. If desired, mix in:

- $\frac{1}{2}$  cup raisins

Cover the dish with parchment paper, then with aluminum foil and bake for about 40 minutes until the custard has set. Serve warm with Brandy Nog Crème Anglaise.

## **Brandy Nog Crème Anglaise**

In a saucepan, combine the following:

- 1 cup cashew crème
- $\frac{1}{3}$  cup maple syrup
- 1 tablespoon brandy (optional)
- 1 vanilla bean, split
- pinch of salt
- 1 – 2 tablespoons sugar (optional)

Bring to a gentle simmer over low heat while stirring frequently with a wooden spoon. As it heats, it will thicken. The sauce is ready when it is thick enough to coat the back of the spoon.