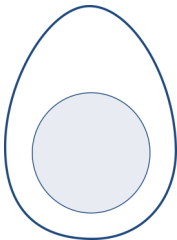


BAKING SUBSTITUTION GUIDE: How to Replace Common Allergens

When allergic to **Egg**, **Dairy**, and **Wheat**, baking at home and finding a birthday cake recipe *may seem impossible*. Here we've compiled a list of baking substitutes to keep in your pantry and a few easy recipes.

EGG



For each egg, substitute one of the following in your baking recipe; note certain options are better suited to **binding** or **leavening** depending on the function of egg in your recipe. These substitutes work well when baking from scratch and substituting 1 to 3 eggs, but won't work well for meringue or mousse.

Egg substitutes for binding:

- 1 Tablespoon applesauce or pear-sauce or peach or apricot puree
- 1 Tablespoon ground flax seed + 3 Tablespoons water, combine and let sit for 5 minutes
- 1 packet gelatin, 2 T. warm water, do not mix until ready to use

Egg substitutes for leavening:

- 1 teaspoon baking powder + 1 Tablespoon water or other thin liquid + 1 Tablespoon vinegar
- 1 teaspoon yeast dissolved in 1/4 cup warm water
- 1 ½ Tablespoon water + 1 ½ Tablespoon oil + 1 teaspoon baking powder

Note: The commercial brand Ener-G has a product called "Egg Replacer" that is made from potato starch and tapioca flour.

MILK



Cow's milk is one of the easiest ingredients to substitute in baking and cooking. Any liquid can be substituted for the milk in a recipe with a 1:1 ratio. Choose the best liquid for your recipe: Is your recipe **sweet** or **savory**? You may choose between a fruit juice, water or broth, depending on if your recipe's flavors. Does your recipe rely on fat in the milk? In this case you may still rely on water or juice, but may add 1 tsp of olive, canola or coconut oil to compensate.

Milk substitutes:

- 1 cup whole milk: ½ cup whole soy milk, oat, rice, hemp or coconut milk + ½ cup water
- Or 1 cup fruit juice, water, or broth + 1 tsp oil
- 1 cup low fat or skim/fat free milk: 1 cup fruit juice (for a sweet recipe), or 1 cup broth (for a savory recipe) or low fat soy, or rice, or other low fat non-dairy milk substitute
- 1 cup heavy cream: 2/3 cup whole soy milk, oat, rice, hemp or coconut milk + 1/3 cup oil
- 1 cup light cream: ¾ cup whole soy milk, oat, rice, hemp or coconut milk + ¼ cup oil
- 1 cup buttermilk: 1 tablespoon lemon juice or white vinegar (add to a liquid measuring cup), + enough non-dairy milk until 1 cup full. Stir, and let sit for five minutes before using.
- ½ cup cottage cheese: ½ cup soft tofu (contains soy), stir with a fork to gently mash
- 1 tablespoon cream cheese: 1 tablespoon mayonnaise (caution: read the label, usually contains Egg, sometimes Soy), or 1 tablespoon Tofutti 'cream cheese' (contains soy), or Daiya 'cream cheese' (no soy, does contain pea protein isolate)
- 1 cup sour cream: 1 cup soft tofu (contains soy), pureed in a blender + 1-2 teaspoons lemon juice

BUTTER



Butter contains more water than pure oil/fat, so you can reduce the proportion by 25% when substituting butter for another fat. Or you can use a 1:1 ratio replacement if using a dairy-free margarine, although caution if also allergic to soy, carefully read the label.

Butter substitutes:

- 1 cup butter: $\frac{3}{4}$ cup oil (olive, coconut, canola, etc)
- 1 cup butter: 1 cup dairy free margarine, Nutiva Organic Vegan Buttery Spread (coconut and red palm base), Earth Balance Coconut Butter Spread, Earth Balance Soy Free Buttery Sticks (contains pea protein isolate)
- 1 cup shortening or lard: 1 cup Spectrum Naturals Organic All Vegetable Shortening, Earth Balance Vegan Shortening (contains canola, soy and flax)

WHEAT



Because of the unique proteins in wheat that help to stabilize and bind a recipe, usually a wheat-free flour mixture is best, rather than substituting only one alternative flour. There are many commercially prepared wheat-free flour mixtures to choose from, or you can make your own to keep on hand.

Wheat substitutes:

Commercial options: Bob's Red Mill Gluten Free All Purpose Flour Mix, King Arthur Gluten Free All Purpose Flour Mix, Namaste Foods Gluten Free Perfect Flour Blend, Pillsbury Gluten Free Flour Mix

Homemade mixes: many to choose from, here's a small sample of what's available! Combine all ingredients for each recipe and store in a glass jar for up to 3 months.

BREAD RECIPE FREE OF TOP 8 ALLERGENS

- 2 $\frac{1}{2}$ cups rice flour
- $\frac{1}{2}$ cup tapioca flour
- 2 $\frac{1}{2}$ teaspoons guar gum
- 1 tablespoon yeast
- 1 teaspoon salt
- 2 tablespoons honey
- 2 tablespoons olive oil
- $1\frac{1}{2}$ - 2 cups water
- 1 teaspoon cider vinegar or rice vinegar

Add liquid ingredients to dry ingredients in a food processor. Process until it is smooth like a cake batter. Spoon batter into a greased bread pan or muffin tins. Bake in oven at 350F, 30 minutes for bread loaf and 15 minutes for the buns.

Recipe credit: Susan Carmack.

Recipe 1

- 1 $\frac{1}{2}$ cups sorghum flour
- 1 $\frac{1}{2}$ cups potato starch or amaranth flour
- 1 cup tapioca flour (tapioca starch)
- $\frac{1}{2}$ cup almond flour or a bean flour (try mung bean or etc.)

Recipe credit: Carol Fenster from the book Cooking Free.

Recipe 2

- 1 $\frac{1}{2}$ cups brown rice flour
- $\frac{1}{4}$ cup white rice flour
- Optional, add 1 tsp xanthum gum for increased binding.

Recipe credit: <http://minimalistbaker.com>.

Recipe 3

- 4 $\frac{1}{2}$ cups + $\frac{1}{3}$ cup white rice flour
- 1 + $\frac{1}{3}$ cups potato starch
- $\frac{2}{3}$ cups brown rice flour
- $\frac{3}{4}$ cup tapioca starch
- $\frac{1}{4}$ cup nonfat dry milk powder

Recipe credit: <http://www.cooksillustrated.com>.

Recipe 4

- $\frac{3}{4}$ cup amaranth flour
- $\frac{1}{4}$ cup arrowroot flour OR tapioca starch OR potato starch

Recipe credit: Children's Medical Center Dallas, <https://www.childrens.com>

To **thicken gravies and sauces**, white wheat flour is traditionally used as in the classic *Roux* (fat + flour cooked slowly). Wheat flour has very specific protein and starch combination, so it doesn't substitute very well in the 1:1 ratio.

Wheat flour substitution ratios:

- 2 tablespoons wheat flour: 1 tablespoon cornstarch
- 1 tablespoon wheat flour: 1-2 teaspoons arrowroot starch
- 1 tablespoon wheat flour: $\frac{1}{2}$ - 1 tablespoon pureed vegetables, mashed potatoes or beans

Additional Resources:

Food Allergy Research and Education. Cooking and Baking Tips: <http://www.foodallergy.org/tools-and-resources/managing-food-allergies/cooking-and-baking>

Joy of Baking website. Ingredients and Substitutions: <http://joyofbaking.com/IngredientSubstitution.html>

Kids with Food Allergies website. How to Cook and Bake Free of Allergens. <http://www.kidswithfoodallergies.org/page/recipe-substitutions.aspx>