



The Alternative Flour Handbook:

**Milling for Health
& Flavour**

Vita-Links®

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Introduction to Home Flour Making

Why Make Your Own Flour?

Making your own flour at home is a game-changer for freshness, nutrition, and control over what goes into your food. Store-bought flour often sits on shelves for months, losing essential nutrients and flavor. By milling your own grains, you ensure maximum freshness and preserve the full nutritional profile of the grain. Plus, you get to experiment with a wide variety of grains that are often unavailable in pre-packaged flour options.

The Health Benefits of Freshly Milled Flour

Freshly milled flour retains the natural oils, fiber, and vitamins that commercial processing strips away. This means:

- **Higher Nutritional Value:** Whole grains provide essential nutrients like fiber, B vitamins, and antioxidants.
- **Better Digestion:** Fresh flour contains live enzymes that aid in digestion and promote gut health.
- **No Additives or Preservatives:** You control the quality of your flour, ensuring a pure and natural product.
- **More Flavor:** Freshly milled grains have a richer, fuller taste compared to store-bought alternatives.

What You'll Learn in This Guide

This guide is designed to walk you through the entire home flour milling process, from selecting the right grains to properly storing your fresh flour. You'll discover:

- The best grains for milling and their unique properties.
- How to prepare grains before milling for optimal results.
- Step-by-step guidance on using different types of grain mills.
- Tips for baking with fresh flour and adjusting recipes accordingly.
- Storage methods to maintain freshness and prevent spoilage.

By the end of this guide, you'll be well-equipped to embark on your home flour milling journey with confidence!



2. Getting Started: Choosing Your Grains

Common Grains for Flour Making

When it comes to milling your own flour, there are a variety of grains to choose from. Some of the most popular grains include:



- **Wheat:** The most commonly used grain for flour, available in varieties like hard red, soft white, and durum.
- **Rye:** Known for its slightly tangy flavor, perfect for hearty breads.
- **Spelt:** An ancient grain with a mild, nutty taste and excellent baking properties.
- **Oats:** A gluten-free option that adds a soft texture and mild sweetness to baked goods.

- Barley: A nutritious grain that enhances flavor and texture in bread and pastries.
- Buckwheat: Despite its name, it's gluten-free and has a strong, nutty flavor, perfect for pancakes and crepes.
- Rice: White and brown rice can be milled into a fine flour suitable for gluten-free baking and thickening sauces.
- Hemp: A nutrient-dense seed that can be ground into flour, rich in protein and omega-3 fatty acids.
- Einkorn: An ancient wheat variety with a rich, nutty flavor, lower in gluten, and easier to digest than modern wheat.

Gluten-Free and Ancient Grain Options

For those avoiding gluten or looking to diversify their flour choices, consider these alternative grains:

- Quinoa: A high-protein, gluten-free grain that produces a slightly earthy flour.
- Amaranth: Another protein-rich grain, great for boosting the nutritional profile of baked goods.
- Millet: Mild in flavor and naturally gluten-free, ideal for a variety of recipes.
- Sorghum: A versatile and nutritious option, commonly used in gluten-free baking.
- Teff: A tiny but mighty grain, traditionally used in Ethiopian injera but also excellent for gluten-free flour blends.
- Chickpeas: Also known as garbanzo beans, chickpea flour is a protein-rich gluten-free option that works well in savory and sweet dishes.
- Lentils: Ground lentils can be used in gluten-free baking, adding protein and fiber to recipes.

Understanding Grain-to-Flour Conversion Ratios

Different grains yield varying amounts of flour when milled. Here are some general guidelines:

- Wheat: 1 cup of wheat berries = ~1.5 cups of flour
- Rye: 1 cup of rye berries = ~1.4 cups of flour
- Oats: 1 cup of oat groats = ~1.2 cups of flour
- Quinoa: 1 cup of quinoa = ~1.25 cups of flour
- Millet: 1 cup of millet = ~1.3 cups of flour
- Buckwheat: 1 cup of buckwheat groats = ~1.4 cups of flour
- Rice: 1 cup of rice = ~1.3 cups of flour
- Sorghum: 1 cup of sorghum = ~1.2 cups of flour
- Chickpeas: 1 cup of chickpeas = ~1.25 cups of flour
- Lentils: 1 cup of lentils = ~1.3 cups of flour
- Hemp: 1 cup of hemp seeds = ~1.2 cups of flour
- Einkorn: 1 cup of einkorn wheat = ~1.5 cups of flour

Understanding these ratios helps you determine how much grain to mill based on your recipe needs, ensuring you get the right consistency and quantity for your baking projects.



3. Grain Preparation Before Milling

Proper grain preparation is key to producing high-quality flour. Before you begin milling, it's important to clean, sort, and sometimes process your grains to improve their flavor, texture, and nutritional profile. This section covers essential preparation techniques to get the best results from your freshly milled flour.

Cleaning and Sorting Grains

Before milling, grains should be free from dust, dirt, and any foreign materials. Follow these steps to ensure clean grains:

- **Inspect the Grains:** Remove any stones, debris, or damaged grains.
- **Rinse if Necessary:** Some grains benefit from a light rinse to remove dust and impurities. Be sure to dry them completely before milling.
- **Air or Sun Drying:** If grains have been rinsed, spread them out on a clean towel or tray and allow them to dry completely to prevent clogging your mill.

Soaking, Sprouting, and Fermenting

Some grains can be further prepared through soaking, sprouting, or fermenting, which enhances their nutritional value and digestibility.

- **Soaking:** Soaking grains overnight in water can reduce phytic acid, making minerals more bioavailable. Drain and dry completely before milling.
- **Sprouting:** Soak grains for 12–24 hours, then drain and allow them to sprout for 1–3 days. Once small sprouts appear, dry the grains thoroughly before milling.
- **Fermenting:** Some grains, like rye, benefit from a short fermentation process, which enhances flavor and digestibility. This is commonly used in sourdough baking.

Roasting and Toasting for Flavor Enhancement

Light roasting or toasting can enhance the flavor of certain grains, adding depth and complexity to your flour.

- **Dry Roasting:** Spread grains in a single layer on a dry skillet or baking sheet and toast over low heat until they become fragrant.
- **Oven Roasting:** Bake grains at 300°F (150°C) for 10–15 minutes, stirring occasionally, to develop a rich, nutty flavor.
- **Cooling Before Milling:** Always allow roasted grains to cool completely before grinding to prevent moisture buildup and ensure even milling.

By properly preparing your grains before milling, you can enhance their flavor, nutritional value, and performance in baking and cooking. Next, we'll dive into the different types of grain mills and how to get the best results from your freshly prepared grains!



4. How to Mill Your Own Flour



Milling your own flour allows you to enjoy fresh, nutritious, and flavorful flour free from preservatives and additives. Understanding the different types of mills and how to achieve the perfect texture will help you get the best results for your baking and cooking needs.

Types of Grain Mills: Stone, Steel, and Manual Options

Different types of grain mills are available, each with unique benefits:

- **Stone Mills:** Use natural or synthetic stones to grind grains. They preserve nutrients and produce finely textured flour, ideal for baking.
- **Steel Burr Mills:** Use stainless steel or cast iron burrs to crush and grind grains. They are durable and work well for a variety of textures.
- **Impact Mills:** High-speed electric mills that use small steel blades or plates to break grains into fine flour. Best for ultra-fine milling.
- **Manual Mills:** Hand-cranked mills are excellent for small batches and emergencies. They require effort but offer complete control over the milling process.

Step-by-Step Milling Guide

Follow these steps to get the best results when milling your grains:

1. **Choose Your Grain:** Select clean, dry grains suitable for milling.
2. **Adjust the Mill:** Set the mill to the desired texture—fine, medium, or coarse.
3. **Feed the Grain:** Pour the grain into the hopper, ensuring a steady flow for even grinding.
4. **Start Milling:** Power on the mill (or start cranking for manual mills) and let it process the grains.
5. **Check the Flour:** Once milled, inspect the flour for consistency and sift if needed.
6. **Store Properly:** Transfer fresh flour to an airtight container and store in a cool, dry place to maintain freshness.

Achieving the Perfect Texture: Fine, Medium, or Coarse

Adjusting the settings on your mill allows you to achieve different flour textures:

- Fine Flour: Best for soft, fluffy breads, pastries, and cakes.
- Medium Flour: Ideal for rustic breads, muffins, and pancakes with a bit more texture.
- Coarse Flour: Suitable for hearty breads, porridge, and recipes that benefit from a grainier consistency.

Experimenting with different grains and grind sizes will help you discover the best flour textures for your favorite recipes. Next, we'll explore how to use freshly milled flour for the best baking results!



5. Using Freshly Milled Flour

Freshly milled flour behaves differently than store-bought flour, requiring slight adjustments in baking to achieve the best results. With the right techniques, you can enjoy nutritious, flavorful baked goods with a superior texture.

Best Practices for Baking with Fresh Flour

- **Use Immediately or Store Properly:** Freshly milled flour retains its natural oils, making it more prone to spoilage. Use it right away or store it in an airtight container in a cool, dry place.
- **Allow Flour to Settle:** Freshly ground flour is aerated and fluffy. Let it rest for 30 minutes before measuring to ensure accurate quantities.
- **Weigh Instead of Measuring by Volume:** Because fresh flour is less compact, weighing it instead of using cups helps maintain recipe accuracy.
- **Experiment with Hydration Levels:** Freshly milled flour absorbs liquid differently. You may need to adjust by adding more water or flour to reach the right dough consistency.



Adjusting Recipes for Different Grain Flours

Each grain flour has unique properties. Here's how to adjust for some common varieties:

- Whole Wheat Flour: Absorbs more liquid and benefits from longer resting times (autolyse) for better gluten development.
- Spelt Flour: More water-sensitive; reduce liquid slightly and handle dough gently to prevent over-mixing.
- Rye Flour: Low in gluten, so it works best in combination with other flours or for naturally dense breads.
- Oat Flour: Naturally gluten-free and best mixed with binding agents or other flours for structure.
- Almond & Nut Flours: Require additional eggs or binders in recipes due to their lack of gluten.

Common Mistakes and Troubleshooting

- Dense or Heavy Bread: This could be due to insufficient hydration, over-mixing, or not allowing enough fermentation time. Try adding more liquid or adjusting kneading techniques.
- Gritty Texture: Some mills produce coarser flour. Sifting or double milling can create a finer consistency.
- Bitter Taste: Certain grains, like quinoa or some whole wheat varieties, have a natural bitterness. Toasting grains before milling or balancing flavors with honey or spices can help.
- Flour Spoilage: Freshly milled flour should be stored properly to prevent rancidity. Refrigeration or freezing extends shelf life without affecting quality.

By understanding how to work with freshly milled flour, you can create delicious, nutrient-rich baked goods with confidence. Next, we'll explore how to store your fresh flour to maintain its quality and freshness!



6. Storing Freshly Milled Flour

Proper storage of freshly milled flour is essential to maintain its freshness, prevent spoilage, and retain its nutritional value. Because freshly milled flour contains natural oils from the whole grain, it has a shorter shelf life than commercially processed flour.

Short-Term and Long-Term Storage Solutions

- **Room Temperature (Short-Term Use):** Freshly milled flour can be stored in an airtight container in a cool, dark place for up to 7 days. This is ideal for frequent bakers who use flour quickly.
- **Refrigeration (Medium-Term Storage):** For storage up to 2 months, keep flour in an airtight container in the refrigerator. This helps prevent rancidity by slowing down oxidation.
- **Freezing (Long-Term Storage):** If storing flour for 3 to 6 months or longer, freezing is the best option. Use vacuum-sealed or airtight containers to prevent moisture absorption and freezer burn.

How to Keep Flour Fresh and Nutrient-Rich

- **Use Airtight Containers:** Oxygen speeds up nutrient degradation and can lead to rancidity. Glass jars, vacuum-sealed bags, or high-quality plastic containers work best.
- **Keep Flour Away from Heat and Light:** Exposure to heat and light can accelerate spoilage and nutrient loss. Store containers in a pantry, cupboard, or fridge.
- **Label and Rotate Stock:** Always label storage containers with the milling date and use older flour first.
- **Store in Small Batches:** To avoid repeated exposure to air, store flour in smaller, easy-to-use portions rather than one large bulk container.

Freezing vs. Refrigeration

- **Freezing:** Best for long-term storage. Preserves freshness, prevents rancidity, and maintains the nutritional profile of the flour.
- **Refrigeration:** Suitable for moderate storage needs. Slows spoilage but does not preserve freshness as long as freezing.
- **Room Temperature:** Ideal for immediate use but should be limited to small amounts that will be used quickly.

By storing your freshly milled flour properly, you can extend its shelf life and ensure it remains fresh and full of nutrients for all your baking needs. Next, we'll explore recipes that make the most of your home-milled flour!



7. Recipes for Home- Milled Flour

Freshly milled flour adds depth of flavor and nutrition to your baked goods. Here are some delicious and versatile recipes to help you get started with your home-milled flour.

Whole Grain Bread

Ingredients:

- 3 cups freshly milled whole wheat flour
- 1 ½ cups warm water
- 2 ¼ tsp active dry yeast
- 1 tbsp honey or maple syrup
- 1 ½ tsp salt
- 2 tbsp olive oil

Instructions:

1. In a bowl, dissolve yeast in warm water with honey. Let sit for 5-10 minutes until foamy.
2. Add salt and olive oil, then mix in the flour gradually.
3. Knead the dough for about 10 minutes until smooth and elastic.
4. Cover and let rise in a warm place for 1-2 hours or until doubled in size.
5. Shape into a loaf and place in a greased loaf pan.
6. Let rise for another 30 minutes, then bake at 375°F (190°C) for 30-35 minutes.
7. Cool before slicing.

Gluten-Free Pancakes

Ingredients:

- 1 cup freshly milled oat flour
- ½ cup almond flour
- 1 tbsp baking powder
- 1 tbsp honey or sugar
- 1 cup milk (or dairy-free alternative)
- 1 egg
- 1 tsp vanilla extract
- 1 tbsp melted butter or oil

Instructions:

1. In a bowl, whisk together the flours, baking powder, and sugar.
2. In another bowl, mix milk, egg, vanilla, and melted butter.
3. Combine the wet and dry ingredients, stirring until just mixed.
4. Heat a lightly greased skillet over medium heat.
5. Pour batter onto the skillet and cook until bubbles form, then flip.
6. Cook the other side until golden brown and serve with desired toppings.

Ancient Grain Flatbreads

Ingredients:

- 1 cup freshly milled spelt or einkorn flour
- ½ cup water
- 1 tbsp olive oil
- ½ tsp salt

Instructions:

1. Mix flour, salt, water, and olive oil to form a dough.
2. Knead for 5 minutes, then let rest for 20 minutes.
3. Divide into small balls and roll out thin.
4. Heat a dry skillet over medium heat and cook each flatbread for 1-2 minutes per side.
5. Serve warm.

Oat and Nut Muffins

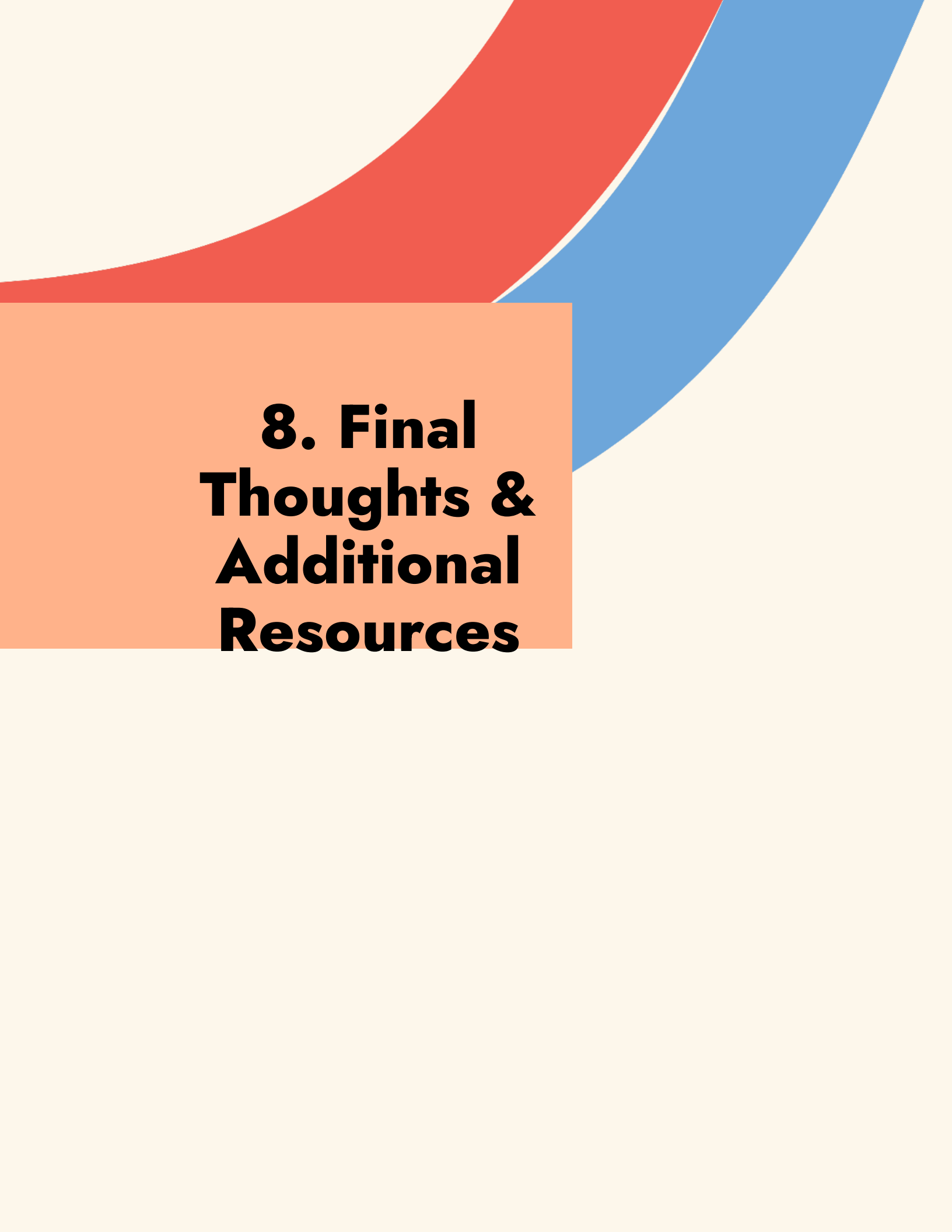
Ingredients:

- 1 ½ cups freshly milled oat flour
- ½ cup chopped nuts (walnuts, almonds, or pecans)
- ½ cup sugar or honey
- 1 tsp baking powder
- ½ tsp baking soda
- ½ tsp cinnamon
- 1 cup milk (or dairy-free alternative)
- 1 egg
- ¼ cup melted butter or oil
- 1 tsp vanilla extract

Instructions:

1. Preheat oven to 350°F (175°C). Grease a muffin tin.
2. In a bowl, whisk together oat flour, nuts, sugar, baking powder, baking soda, and cinnamon.
3. In another bowl, mix milk, egg, melted butter, and vanilla.
4. Combine wet and dry ingredients, stirring gently.
5. Pour batter into muffin cups and bake for 18-22 minutes.
6. Let cool before serving.

Enjoy experimenting with these recipes using your home-milled flour! Next, we'll explore additional resources for sourcing grains and improving your milling techniques.



8. Final Thoughts & Additional Resources

Milling your own flour is an incredibly rewarding journey that allows you to take full control over the quality, freshness, and nutrition of your food. Whether you're using ancient grains, gluten-free alternatives, or traditional wheat, fresh flour opens up a world of flavor and health benefits that commercial flours simply can't match.

Where to Source Quality Grains

To get the best results from your home milling, it's important to source high-quality grains. Here are some places to consider:

- **Local Farmers & Co-Ops:** Check with local farmers, farmers' markets, or grain co-ops for fresh, organic grains.
- **Health Food Stores:** Many health food stores stock a variety of whole grains in bulk.
- **Online Retailers:** Websites specializing in organic and heirloom grains offer a wide selection for home milling.
- **Bulk Food Suppliers:** Buying in bulk can be cost-effective, especially if you plan to mill regularly.

Recommended Tools and Accessories

Having the right tools will make your flour milling experience more efficient and enjoyable. Here are some essentials:

- **Grain Mill:** Whether manual, stone, or electric, choose a mill that suits your needs and frequency of use.
- **Airtight Storage Containers:** Essential for keeping freshly milled flour fresh and free from moisture.
- **Sifters & Sieves:** Useful for refining flour textures and separating bran if desired.
- **Kitchen Scale:** For precise measuring and recipe adjustments.
- **Mixing Bowls & Baking Tools:** A sturdy set of baking essentials will help you put your fresh flour to use.

Next Steps in Your Flour Milling Journey

- **Experiment with Different Grains:** Try blending different grains for unique flavors and nutritional benefits.
- **Adjust Recipes:** Learn how different flours behave and tweak recipes to match your taste and texture preferences.
- **Join a Community:** Connect with fellow home millers online through forums and social media groups to share tips and experiences.
- **Keep Learning:** Explore books, courses, and workshops to deepen your knowledge of grain milling and baking.

Your journey with home-milled flour is just beginning! Enjoy the process, embrace the experimentation, and savor the results of fresh, homemade flour in your everyday meals.



From Vita-Links®

Go beyond the basics of flour! Whether you want to explore gluten-free options, rediscover ancient grains, or simply enjoy the unbeatable freshness of home-milled flour, this handbook gives you everything you need to get started. Learn how to prepare, mill, and bake with a variety of grains for better health and incredible flavor!