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RULES & TOOLS | TRANSCRIPT | LESSON 4

# The Supporting Cast



GLUTEN-FREE  
**BAKING**  
ACADEMY

This lesson is a bit about “teamwork,” and specifically the ingredients that work together to make something special. You now know who the major “flour players” are for delicious GF bread. In this lesson, we’ll break down the alternative egg- and gluten-replacing ingredients, natural sweeteners, salt, and oils we’ll be using to whip up some GF alchemy.

## Whole-Food Egg & Gluten Replacers

We’ll talk more in Module 3 about a variety of gluten-free egg replacers, and how some of the sweeteners listed here can double as egg-replacers, but here are the go-tos you’ll find in the course recipes.

### Chia Seed

Chia seeds have similar egg-replacing properties as flax without the fragility. When soaked in water they become mucilaginous (egg-white like) and are great for replacing eggs and binding in recipes for quick breads and muffins. You can grind chia and use as a “flour” in a blend, or mix chia seeds with water to make a “goo.” Use the chia goo unblended or blended depending on desired final texture. Unblended works well for a seeded, textured bread. And yes, chia seeds are the same stuff you can use to make a sprout-covered terracotta bunny.

### Chickpea Brine aka Aquafaba (which means “water bean”):

WHAT?! We know, we know, but let’s think outside of the box a bit because this is how some of the most commonplace baking techniques came about after all, right? Someone tried something new—perhaps crazy—and it worked, simple as that. See, the water (aka brine) from a can of chickpeas, or the water leftover after boiling chickpeas, makes a great egg replacer in GF baked goods. Don’t feel uncomfortable about adding chickpea brine to your breads. It bakes up beautifully, adds gorgeous golden color and creates a bouncy crumb without any bean flavor in the final product.



## Psyllium Husk

A keystone binder and ingredient in yeasted GF baked goods, psyllium husk is a fiber—the same found in fiber replacements—that has incredible egg-like, gluten-like binding power that gives GF breads familiar springiness. It comes in whole husk or ground into a powder. You can fresh-grind whole husk in a coffee grinder or flour mill. You can order it online, find it at your local pharmacy, or ask your local health food store to order it for you.

A general whole psyllium husk to ground psyllium powder ratio is 1½ teaspoons of whole psyllium husk is roughly equal to 1 teaspoon ground psyllium husk powder. Use whatever you can find—they both work great.

## Natural Sweeteners

When it comes to cookies, cakes, and pies, the sweet aspect of these goodies is why we love them so—we couldn't imagine these treats without the sweetness. But when it comes to baking breads, sugars play a significant role in the “chemistry” of ingredient mixing, and in turn the texture and flavor of baked goods.

There are many different molecules that could nestle under the label “sugar” and usually when recipes call for sugar, it's in reference to highly processed table sugar, also known as sucrose.

Recipes in this course will use the least refined natural sweeteners possible, in moderation and/or very small amounts. Why are sweeteners used in bread baking at all? Well, there are many reasons...

Sweeteners can promote browning, enhance flavor and texture of baked goods. It assists in leavening (making breads rise), especially in yeasted breads because it's a food source for yeast and bacteria (so is the flour). As the microorganisms “eat” the sugars (the fermentation process in action), it releases carbon dioxide and creates that desired bubbly texture. These bubbles are best trapped in the dough when we use ingredients like psyllium and arrowroot, but the sugars also can help bind and trap bubble action. It's important to know that sweeteners expedite the rising process in yeasted breads (it's more food for yeast), but yeast



is perfectly happy munching on just the flour if you want to omit the sugar—the fermentation/rising process may take a little longer, but it works just fine in the end.

Sugar is “hygroscopic,” which means that it attracts water from the air and it also pulls and retains moisture from mixed ingredients. This property yields a moist interior, but different sweeteners are more hygroscopic than others, so until you have a good handle on baking, substitutions are discouraged unless otherwise noted. In general, you can use some of our guidelines for swaps, but tread with caution. Nothing will go horribly wrong, but baking is a science you know, so textural differences are inevitable with sweetener swaps. Track it all in a baking journal.

The water content of sweeteners is very important when making substitutions—syrupy, liquid sweeteners like molasses, honey, and maple syrup can contain 18–25% water and 70–80% sugar. Sweetness levels vary with each sweetener as well.

If using a syrupy sweetener (molasses, honey, maple syrup, agave) to replace a dry sweetener (Sucanat, demerara sugar, turbinado, jaggery, coconut palm sugar), reduce the liquid/water content of your entire recipe by 18–25% since syrupy sweeteners add moisture to the recipe. This graphic is a good general rule of thumb for syrupy sweetener know-how.

Sugars are also very important for artisanal techniques like steaming breads while they bake. As a loaf bakes in a steamy oven, gorgeous crusts form because as moisture evaporates, sugars within the dough crystallize. This process is best executed with dry, granular sugars since syrups like honey are highly hygroscopic and hold onto moisture. We'll walk you through the steaming technique in Module 4.

Let's go through some of the types of natural sweeteners you'll see in this course.



## Apples

Often called for as “applesauce” or apple purée in a recipe, apples add moisture, binding power and natural, fiber-rich sweetness to baking recipes without overpowering other flavors. You can use unsweetened organic store-bought applesauce, but it couldn’t be easier to make your own at home, too.

## Banana

Adds “fatty” moisture to baked goods—which is great for butter- and oil-free baking. Banana does have a strong, distinct flavor that will become a highlight in a baked good. Brown-skinned bananas are great for baking as they add extra sweetness to a recipe—the more ripe and black the peel, the more sweet. And here’s a tip: if your bananas are starting to perish, peel them and freeze them in an airtight, freezer-proof glass container for future baking. Or, if you’ll be using them in a few days, put the banana in the fridge—the skin will blacken, but the banana inside the peel should be a-ok for up to 10 days.

## Honey

Lends a lot of moisture to baked goods and helps baked goods brown easily. Try using raw, unpasteurized honey as many honeys can contain corn syrup or deceptive look-a-like sweeteners in the mix. Wild honey is more humanely gathered, with minimal disruption to the hive, if that’s a concern for you. Honey has incredible probiotic benefits, but like with any probiotic product, once heated, benefits are diminished—flavor remains however. Naturally occurring acids in honey can enhance the flavors and aromas of spices, fruits and nuts in recipes, and it can inhibit mold growth, too.

## Maple Syrup

Most “maple” syrups in traditional grocery stores contain preservatives, cellulose gums (derived from wood pulp), caramel color (aka ammonia-sulfite process caramel), sodium benzoate, chemical flavorings, sodium hexametaphosphate (used to make soap, detergents), and high fructose corn syrup. Whenever maple syrup is called for, we mean 100% pure—the kind that is made simply by boiling sap from a tree.



## Salt

The recipes in this course call for sea salt for the flavor and extra minerals it provides to a recipe. Like hygroscopic sweeteners, sea salt attracts and holds onto moisture which helps establish desired textures while also preserving the bread. Unless otherwise called for in these course recipes, always use fine-ground sea salt instead of coarse.

## Fats & Oils

Oils are used to moisten and help maintain freshness in a recipe. They help achieve a distinctive cake-like texture in quick breads, chewiness in cookies, flakiness in pie crusts, and moisture in sandwich breads.

Now, some folks use oils for cooking and baking and some do not, and the reasons dance all across the spectrum from “beneficial for health” to “don’t touch the stuff, it’s poison.” Here’s what you’ll find in this course, and if it doesn’t sync with your needs, we’ll show you how you can work around it.

### Unrefined, Virgin Coconut Oil

Adds incredible moisture, a smidge of sweetness, and butter-like richness and flavor to a recipe. When a recipe calls for coconut oil, if you must skip the oil, leave it out or use applesauce, pear sauce, mashed banana, even avocado to replace it. Look for these substitutions with each recipe.

### Grapeseed Oil

A relatively neutral-tasting oil with a bit of sweetness, tartness and floral-ness that works quite well in baked bread recipes.

### Avocado Oil

Pressed from the flesh of avocados, this smooth, nutty, buttery, dark green oil is more than 50% beneficial monounsaturated fat that holds up well to high baking temperatures.



## Extra-Virgin Olive Oil

Has a strong grassy, almost zesty flavor that when used in the right combination like with cocoa and rosemary, makes a beautiful loaf of yeasted bread or quick bread. Unless a recipe calls specifically for olive oil though, we don't recommend it as a substitute because of the strong flavor.

So, there you have it—more secrets for GF bread-baking success. You're now officially more than halfway through learning about the basics, which means you're that much closer to next week where we start baking! It's a lot to learn, but to help this info sink in, take the lesson recap. Alright baker, see you in the next lesson...

