flour + water
pasta

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photography by Eric Wolfinger

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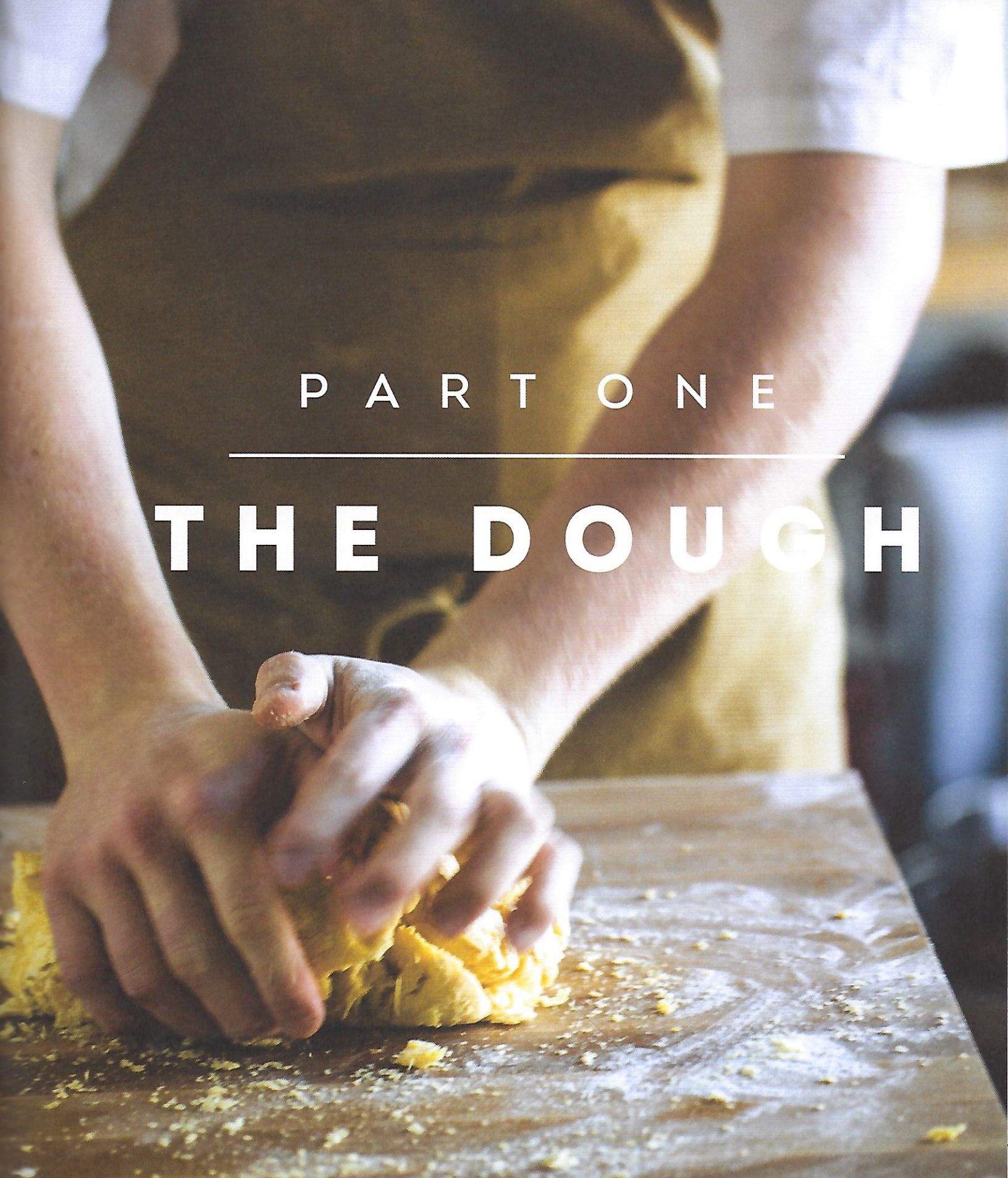


PART ONE

THE DOUGH

HOW TO MAKE PASTA DOUGH

Pasta dough consists of very few ingredients. Mixed in are a spoonful of olive oil and a pinch of salt. The two key ingredients, though, are flour and water. Sometimes the water is conveyed via eggs and sometimes the moisture component is just straight water. Before we can understand how to make pasta, and all that entails, it's useful to understand its basic components.

FLOUR

In the restaurant, we make all kinds of pasta dough. We create flavored dough by adding various spices, and we experiment with regional specialty recipes. But for the most part, pasta dough can be divided into two overarching families: pasta made with zero zero flour and eggs and pasta made with durum semolina flour and water.

Each grain of wheat contains three main components: the outer protective layer called the bran, the tiny embryo germ, and the endosperm—the largest part of the grain. Plants, like animals, evolve natural defense and fertilization mechanisms. Wheat is no exception. If you were to swallow a whole wheat berry, it would impossible for your digestive system to break down the grain's outer protective layers. Crushing the whole grain by milling renders wheat digestible. Refined flour is made when the bran and the germ are sifted away, leaving only the soft endosperm. Wheat is broadly classified as either hard or soft. Durum wheat, a type of hard wheat, thrives in the dry heat of southern Italian fields. It's a type of wheat that is rich in gluten and other proteins, and it has long been a staple crop of the southern regions. Durum wheat—and its resulting semolina flour—is the core ingredient in both fresh hand-rolled semolina pasta (like our orecchiette and cavatelli) and extruded pasta (familiar mass-produced dried shapes like spaghetti, rigatoni, and so on).

The characteristics of durum wheat directly correlate to the final characteristics of the pasta. Semolina-based pasta—most of the dried pasta you're used to buying—is noticeably more textured and much denser than its soft wheat counterparts. It has a ton of bounce and resistance to the bite. In the restaurant, we only combine semolina flour with water.

The other type of flour we use in the restaurant to make pasta is zero zero. It's not a type of wheat but the degree of "fineness" of the milled flour. Zero zero is the most finely ground flour, almost like powder. Refined flours like zero zero consist of only the endosperm and are very nearly always made with soft wheat. Soft wheat contains far less gluten but more starch than its hard counterparts. Varieties of soft wheat grow well in northern Italy, and, as you might guess from the name, it is easier to mill into the ultra-fine zero zero grind.

Zero zero flour is traditionally more expensive as well, another big reason why it flourished in the wealthier northern half of Italy as opposed to the historically poorer south. It thrived especially in the particularly rich (and pasta-obsessed) region of Emilia-Romagna.

EGGS

Whenever I tell any Italian that the name of my pasta-centric restaurant is Flour + Water, I always get the exact same confused, matter-of-fact response: "Flour and water? But there are eggs in pasta. What about the eggs?"

Indeed, eggs are key at the restaurant, probably even more so than the flour or water, since we use them in the majority of our pasta dough. The general public doesn't connect how crucial eggs are to pasta, but in my opinion, they are just as important as the type of flour.

Eggs are fascinating ingredients on their own, but even more so when discussing pasta. Yes, eggs are delicious to eat in a dozen different ways: poached, fried, boiled, scrambled, sous vide, and so on. But the thing that sets eggs apart from nearly every other ingredient is that they are also versatile cooking tools. Eggs are used to set flan, brown pastries, and even give texture to cocktails. Eggs have the same versatility in pasta. The first thing you'll notice in egg pasta dough is that the yolks provide a nice, attractive yellow color—though some chefs have been rumored to "cheat" and add saffron to the dough to make it more orange—a fake tan, if you will.

Generally speaking, an egg consists of a yolk and a white. If you've ever seen a little red blood line in the egg, that means it's a fertilized egg. Eggs that have been fertilized by the rooster will always be stronger (better) in color and flavor, especially since it means they're usually coming from a small farm. More importantly, the yolks contribute richness to the noodle. They make pasta soft and delicate, as well as pliable. You'll notice that our ravioli dough includes egg whites as well; we incorporate whites because they make the dough more elastic and durable due to their protein content—key for stuffed pastas. In the following chapter, we will discuss how each component of the egg affects the final outcome of the particular doughs.

We get our flour from Italy, but we get our eggs from two places: a 4-H youth program north of San Francisco and a small producer located about 30 minutes east of the city in the Berkeley Hills. At both sources, the eggs are organic and cage-free. The hens are fed with grain and allowed to roam freely at the farm. Happy chickens with the correct diet make good eggs, which in turn make good pasta.

How to buy good eggs? The easy answer is to buy them from farmers' markets as often as you can. At the supermarket, avoid eggs from chickens that were given antibiotics or proteins. Get the freshest eggs you can. Eggs have a long shelf life, especially in supermarkets, but as with most agricultural products, fresher is better. When eggs are freshly laid, a very small air pocket is formed between the egg white and the shell. Since eggs are porous, that air pocket grows over time, gradually dehydrating the egg in its shell. The older an egg, the bigger the air pocket. When fresh eggs are cracked, the yolk comes out as a beautiful intact sphere, not a watery glob. To test how old an egg is, put it in a glass of water. A fresh egg will sink to the bottom and stay there. An old egg will float. In the store, if you give an egg a gentle shake, an older egg will slosh around in its shell—you can hear it. Fresh ones will be denser and heavier in the shell.

I prefer to buy large eggs, not extra-large. For the longest time, we were buying extra-large eggs in the restaurant, thinking that we were getting a better value. Then we eventually realized that the yolks (which we were mainly after) are just about the same size in large and extra-large eggs; the extra-large ones only have bigger whites.

The first time I saw the farm eggs used to make pasta in Bologna, I was shocked. Not only were the yolks perfectly round and robust, but they were an incredibly vibrant, deep orange hue. I had never seen that color before in egg yolks. I soon learned that in Bologna, eggs yolks are, quite logically, called "rossi"—literally, the "reds" of the eggs.

Once I asked the folks in Bologna *how* they get the yolks so red and flavorful. Their answer was simple: they feed the chickens their favorite bright orange food—carrots.

Nowadays, I have a dozen chickens on the roof of the restaurant, and we're taking that lesson of the carrot-fueled eggs and expanding upon it. Raising chickens is an extension of the idea that we are better as cooks if we fully understand how ingredients are cultivated. That, in turn, allows us to

cultivate ingredients on our own in the way that is optimal for our purposes, be it a housemade salumi flavored as we like it or a garden of rare fresh herbs on the rooftop, procured for a fraction of the wholesale price. We experiment with the feed we give our chickens to better understand the effect of diet on eggs. Our current sweet spot for chicken feed involves a mix of turmeric, carrots, organic livestock feed pellets, and leftover kitchen foodstuffs, like salmon trimmings, that are high in omega-3 fatty acids.

WHAT EXACTLY HAPPENS WHEN FLOUR IS COMBINED WITH WATER?

The process starts as soon as flour is mixed with moisture, whether pure water or via eggs (which contain mostly water). On a molecular level, the initial hydration gives mobility—lubrication—to the previously inert, coiled flour proteins. The proteins absorb the water and begin to stretch out and bloom, almost like a dried jasmine flower that unfurls in a cup of a hot tea. As the proteins flourish, they unravel on top of their neighboring proteins that are doing the same thing. Bonds are serendipitously formed. The result is a web-like network of gluten, a phenomenon that is largely exclusive to wheat—and one that makes pasta and bread possible.

That network of gluten doesn't form instantaneously upon hydration. When the flour is introduced to the water or eggs, the mixture is very dry, so much so that it can be challenging to incorporate all the flour into the initial dough mass.

Extensive kneading followed by a resting phase is necessary to properly and fully hydrate the dough. It seems counterintuitive at first, but the dough feels more hydrated and more pliable after it's been kneaded and allowed to rest for 30 minutes. The dough needs time to fully hydrate. What's actually happening is that the water that originally sparked the molecular movement and formed the network of gluten is no longer needed. Once the water has done its job, it gets released and lubricates the rest of the dough, thereby becoming more apparent to us.

There are four basic genres of pasta dough that we make at the restaurant. We've also included a fifth—*mattarello* dough (page 160)—because it's traditionally significant, if not very common in America.

- Egg dough: A yolk-based dough made with zero zero flour for hand-cut noodles like tagliatelle, farfalle, garganelli, and others.
- Ravioli "rav"dough: A whole egg–based dough made with zero zero flour, used for all stuffed pasta, like tortellini, mezzalune, raviolini, and more.
- Hand-rolled semolina dough: A dough made with semolina flour and water, common in southern Italy in shapes like orecchiette and cavatelli.
- Extruded semolina dough: A dough made with semolina flour and water and pressed through an extrusion machine into shapes like spaghetti, bucatini, rigatoni, and others.

There are a few other regional specialty doughs (corzetti stampati, stradette, bigoli), but those are all more like riffs on the above frameworks.

Egg Dough

With the exception of the dough for extruded pasta, which gets mixed in the extruding machine (page 16), the process for making pasta dough is basically the same for all of our pasta doughs: Mix, knead, rest. The final mixing step—rolling the pasta—is where the divergences lie. Like most things, making fresh pasta gets easier with practice.

The only difference between our two egg-based doughs is that our standard egg dough includes yolks only, whereas ravioli dough—we call it rav dough, for short—includes whole eggs. There are several reasons why we have two types of egg dough.

First and foremost is flavor. Yolks have a very high fat content, thereby enriching the flavor and creating that rich, almost unctuous taste associated with fresh egg pasta that is used for unstuffed shapes big and small. So the name of the game is reaching the happy place where you can get the most egg yolks (flavor) into the dough without tipping the scale in the wrong direction. Egg yolks contain about 50 percent water, and the rest is largely fat and proteins. Adding too much fat causes the webbed structure of gluten to go from nicely elastic (good for rolling and shaping) to soft and far too pliable. Our egg dough, which is the result of trial and error, contains the most fat possible while still functioning as a pasta should.

On the other hand, an egg white—the albumen—consists of about 90 percent water and 10 percent protein. Egg whites are largely neutral, basically a flavorless and colorless filler. As they dilute taste, we don't use them for the standard egg dough.

Their utility lies in the other kind of egg dough—rav dough, which we use for all stuffed pasta. When making stuffed pasta, the dough should have extra elasticity and durability so it can hold its shape through the stretching, filling, and twisting that stuffed pasta requires. Those qualities come through the use of whole eggs—or more precisely, the inclusion of egg whites. When egg whites are added to zero zero flour, two things happen. Immediately the flour absorbs the water, as usual (see previous section). However, once the water from the egg whites is absorbed into the flour, the egg whites' proteins are left behind and those proteins become very concentrated. Instead of those egg proteins having to mobilize nine times their weight in water, all the water has disappeared and it's suddenly much easier for the proteins to find each other and hook up to create new protein structures. These extra protein structures maintain the rav dough's integrity while you form the shapes and cook the final dish.

When it comes to making fresh pasta, whenever possible, do everything on a smooth wood surface. The entire process—from mixing to shaping—is easier on a porous wood surface, which results in a dough with much more texture than one that is made on a smooth surface such as metal or marble. This texture directly affects how sauces will cling to the surface of the finished pasta.

To be as accurate as possible, we recommend following the weight measurements when making dough. We've included both volume and weight in the recipes throughout the book, but here, specific weight measurements are particularly important.

Also, have a spray bottle of water nearby. Spritzing with water is a handy trick when making dough. Using a spray bottle allows you to introduce as little moisture as possible to the biggest work surface possible, thereby binding together the dry dough into one mass without greatly affecting the overall hydration level of the dough. This is a necessary step for all the dough recipes in this book. Our pasta dough recipes keep the hydration as low as possible to allow us to be able to use zero additional flour when later rolling out the dough. When first mixing the dough it will seem like the recipe is far too dry. A few spritzes will bind the dry dough and allow it to become one mass.

Equipment

Large fork + Bench scraper + Spray bottle

Rav Dough

Makes 556 grams/19.6 ounces of dough

360 grams 00 flour (2 well-packed cups, unsifted)
5 grams kosher salt (1 teaspoon)
100 grams whole eggs (½ cup/about 2 large eggs)
90 grams egg yolks (⅓ cup/5 to 6 yolks)
6 grams extra-virgin olive oil (1½ teaspoons)

Standard Egg Dough

Makes 644 grams/22.7 ounces of dough

360 grams 00 flour (2 well-packed cups, unsifted)
1¼ teaspoons (2 big pinches) kosher salt
300 grams egg yolks (1¼ cups/18 to 20 yolks)
1½ teaspoons extra-virgin olive

Step One: **Mixing**

To start, place the flour on a dry, clean work surface, forming a mound about 8 to 10 inches in diameter at its base. Sprinkle the salt in the middle of the mound. Using the bottom of a measuring cup, create a well 4 to 5 inches wide, with at least a half inch of flour on the bottom of the well.

Slowly and carefully add the wet ingredients (eggs and olive oil) into the well, treating the flour as a bowl. Using a fork, gently beat the eggs without touching the flour walls or scraping through the bottom to the work surface.

Then, still stirring, begin to slowly incorporate the flour "walls" into the egg mixture, gradually working your way toward the outer edges of the flour, but disturbing the base as little as possible. If the eggs breach the sides too soon, quickly scoop them back in and reform the wall. Once the dough starts to take on a thickened, paste-like quality (slurry), slowly incorporate the flour on the bottom into the mixture.

When the slurry starts to move as a solid mass, remove as much as possible from the fork. Slide a bench scraper or spatula under the mass of dough and flip it and turn it onto itself to clear any wet dough from the work surface.

At this point, with your hands, start folding and forming the dough into a single mass. The goal is to incorporate all the flour into the mass, and using a spray bottle to liberally spritz the dough with water is essential. It is a very dry dough, and it cannot be overstated how important it is to generously and constantly spritz to help "glue" any loose flour to the dry dough ball.

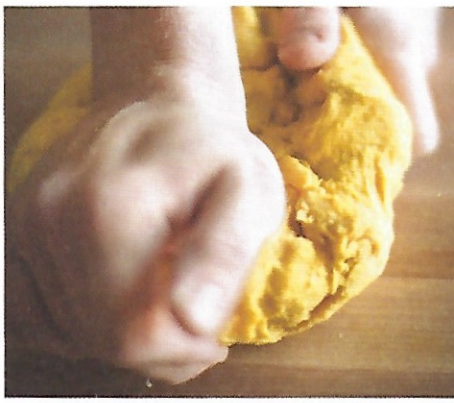
When the dough forms a stiff, solid mass, scrape away any dried clumps of flour from the work surface, which, if incorporated in the dough, will create dry spots in the final product.

Step Two: **Kneading**

Kneading is an essential step in the dough-making process: it realigns the protein structure of the dough so that it develops properly during the resting stage that follows.

Kneading is simple: Drive the heel of your dominant hand into the dough. Push down and release, and then use your other hand to pick up and rotate the dough on itself 45 degrees. Drive the heel of your hand back in the dough, rotate, and repeat for 10 to 15 minutes. This is how Italian grandmas get their fat wrists.

Pasta is easy to underknead but virtually impossible to overknead (unlike bread, where each type has its sweet spot or ideal kneading time). That said, even though the dough cannot be overkneaded, it can spend too much time on the worktable—and, as a direct result, start to dehydrate and be more difficult to form into its final shape. For best results, I think a 10 to 15 minute range is a solid guideline. When the dough is ready, it will stop changing appearance and texture. The dough will be firm but bouncy to the touch and have a smooth, silky surface, almost like Play-Doh. Tightly wrap the dough in plastic wrap.



Step Three: **Resting**

At this stage, the flour particles continue to absorb moisture, which further develops the gluten structure that allows pasta dough to stand up to rolling and shaping.

If you plan to use the dough immediately, let it rest at room temperature, wrapped in plastic, for at least 30 minutes prior to rolling it out (the next step). If resting for more than 6 hours, put the dough in the refrigerator. It's best to use fresh dough within 24 hours. Under proper refrigeration, the dough will hold for 2 days, but I try to avoid letting it rest that long, simply because the eggs yolks will oxidize and discolor the dough. It won't affect the flavor or the texture, but the dough will develop a slightly off color and a grayish-greenish hue.

The Final Step: **Rolling Out the Dough**

Rolling is the last phase of the mixing process. Rolling out pasta by machine—whether it's a hand-crank model or an electric one—should be a delicate, almost Zen-like art. You can only roll out dough that has rested for at least 30 minutes at room temperature. If it has rested for longer in the fridge, give the dough enough time to come back to room temperature. The fat content of pasta dough is so high that it will solidify when cold, so it needs to come back to room temperature to be easier to roll.

The process for rolling sheets of pasta dough is the same whether you have a hand-cranked machine or an electric one, like we have in the restaurant.

To start, slice off a section of the ball of dough, immediately rewrapping the unused portion in plastic wrap. Place the piece of dough on the work surface and, with a rolling pin, flatten it enough that it will fit into the widest setting of the pasta machine. You do not want to stress the dough or the machine.

It's crucial to remember that whenever the pasta dough is not in plastic wrap or under a damp towel, you're in a race against time. The minute you expose the pasta to air, it starts to dehydrate. This creates a dry outer skin that you do not want to incorporate into the finished dough; the goal is to create a dough of uniform consistency.

Our dough is purposely very dry. We do not add any raw flour in the rolling process. Extra flour added at this point sticks to the dough and, when cooked, that splotch turns into a gooey mass, a slick barrier to sauce. It dulls the seasoning and flavors of both the dough and the finished dish.

Begin rolling the dough through the machine, starting with the widest setting. Guide it quickly through the slot once. Then decrease the thickness setting by one and repeat. Decrease the thickness setting by one more and roll the dough through quickly one more time. Once the dough has gone through three times, once on each of the first three settings, it should have doubled in length.

Lay the dough on a flat surface. The dough's hydration level at this point is so low that you'll probably see some streaks; that's normal, which is the reason for the next crucial step: laminating the dough.

Using a rolling pin as a makeshift ruler, measure the width of your pasta machine's slot, minus the thickness of two fingers. This measurement represents the ideal width of the pasta sheet, with about a finger's length on each side, so there's plenty of room in the machine. Take that rolling pin measurement to the end of the pasta sheet and make a gentle indentation in the dough representing the measurement's length. Make that mark the crease and fold the pasta over. Repeat for the rest of the pasta sheet, keeping that same initial measurement. For best results, you want a minimum of four layers. Secure the layers of the pasta together with the rolling pin, rolling it flat enough that it can fit in the machine. Put the dough back in the machine, but with a 90 degree turn of the sheet. In other words, what *was* the "bottom" edge of the pasta is now going through the machine first.

This time around, it's important to roll out the dough two to three times on each setting at a steady, smooth pace. We've created this gluten network—a web of elasticity—so if you roll it too fast, it will snap back to its earlier thickness, thereby lengthening the time you're going through each number.

The more slowly you crank the pasta dough, the more compression time the dough has; it's important to stay consistent in the speed in order to keep a consistent thickness. You should be able to see and feel the resistance as the dough passes through the rollers. On the first time at each level, the dough will compress. It's time to move onto the next level when the dough slips through without any trouble. The first few thickness settings (the biggest widths) usually require three passes; once you're into thinner territory, there's less pasta dough compressing, so it goes more quickly and two passes get the job done.

When handling the sheet of dough—especially as it gets longer—always keep it taut and flat. Never grab or flop or twist the pasta. The sheet should rest on the inside edges of your index fingers with your fingers erect and pointed out.

The hands don't grab or stretch the dough; instead, they act as paddles, guiding the sheet of dough through the machine. Handling the dough with your fingers pointed straight out alleviates any pressure on the dough, which stretches and warps it.

Use the right hand to feed the machine and use the left hand to crank. Once the pasta dough is halfway through, switch hands, pulling out with the left hand. If you have trouble doing it alone as the dough gets longer and thinner, find a friend to help juggle the dough, or roll out a smaller, more wieldy batch.

Once you roll out the dough, immediately form it into shapes.

HOW THICK SHOULD YOU ROLL THE DOUGH?

All machine settings correspond to different thickness, so there's no uniform end point. Experience and touch come into play; once you do it a few times, you'll get a good sense of what you like, and what thickness works best.

That said, thickness relates to the shape you are making. For the most part, doughs will be rolled out to 1/16 inch, or slightly thicker or thinner.

Just slightly thinner than 1/16 inch (but not so thin as 1/32 inch) is the proper thickness for all stuffed pastas and tajarin (page 110). A good rule of thumb is that the finished dough should be slightly translucent. If you can see the outline of your fingers behind it, or the grain of the wood table through the pasta, you're in good shape. For most (but not all) hand-cranked machines at home, it's the second-to-last setting.

The 1/16-inch measurement is used for tagliatelle, tagliarini, paglia e fieno, garganelli, and cappellacci dei briganti. For most (but not all) hand-cranked machines at home, it's the third-to-last setting.

The fattest pasta we make is just slightly *over* 1/16 inch. Shapes formed of this thickness are usually flat: pappardelle, chitarre, stradette, corzetti stampati, maltagliati, lasagnette, cannoli, farfalle, and pizzoccheri. For most (but not all) hand-cranked machines at home, it's the fourth-to-last setting.

THE IMPORTANCE OF LETTING DOUGH REST

It took me a couple weeks, and maybe a little sweet-talking, but the Bologna ladies finally allowed me to roll out the dough on my own. To this point in my job (ok, internship) at the pasta *laboratorio*, I had been relegated to the corner, plopping out ground meat into tortellini after tortellini. I had held my own in some of the toughest kitchens in San Francisco and France, but this was something different, something more intimidating. The pecking order was very clear, and I was firmly established on the bottom. So the fact that they were about to let me roll out a sheet of dough was a benchmark occasion. I felt like they gave me the keys to a Ferrari.

Hands shaking and head down, I chose one of the giant rolling pins—the *mattarellos*—from the bin in the corner of the room. I quickly grabbed a ball of dough and approached the table. I could feel all their eyes on me as I plopped the yellow ball on the wooden table and began rolling. I rolled hard. A lot. But after every thrust extending the dough, the dough snapped back to its original shape. I rolled harder and faster and more frantically. I went on for five more minutes, but the dough simply wouldn't extend. For weeks I had watched the ladies roll out a three-by-four-foot rectangle of dough in less than 10 minutes. Five minutes turned into 10 minutes. Sweat formed on my brow, partly out of exhaustion, partly out of frustration, and partly out of embarrassment. Clearly these women had superhuman strength or something.

Finally, one of the ladies took pity on me and told me to stop. I did, and looked up at them. They all had little grins, stifling giggles. I soon learned that I had erroneously grabbed one of the dough balls that was just made. The dough didn't have time to rest. That was my lesson in one of the key parts of pasta making.

Resting is the point in the process when the elasticity of pasta dough forms, thanks to the formation of gluten strands, and the wheat fully absorbs the liquids. In the pasta lab, they only roll dough that has rested 18–24 hours. My rule of thumb is that dough should rest for at least 30 minutes in plastic wrap at ambient temperature. After 30 minutes, either roll it out immediately or put it in the fridge.

Hand-Rolled Semolina Dough

Semolina dough is the purest definition of flour and water. Whereas most pasta in northern Italy consists of eggs and flour in some combination, in the southern regions, pasta is most often made solely with semolina flour and water. The reason for this is practical: eggs were historically too expensive for southerners—and durum wheat thrived. Also known as durum pasta, semolina-based pasta is the dried version that is most common in stores today.

Semolina is a dense, coarse, and "hard" flour, a stark contrast to the softer zero zero. As a hard flour, it has a higher protein content, and thus supports more gluten structure, so far less kneading is required when making a semolina-based dough. Semolina dough is also very different from its zero zero counterparts in that it is much denser, requiring more cooking time. We use hand-rolled semolina dough for shapes like trofie (page 52), pici (page 140), orecchiette (page 56), and strozzapreti (page 128). The nice part about making these shapes is that no pasta machine is required. All the shapes are made by hand.

Equipment
Large fork + Spray bottle

Makes 514 grams/18 ounces of dough

180 grams semolina flour (1 cup)
180 grams 00 flour (1 cup)
178 grams salted warm water (¾ cup made with 10 grams/1 tablespoon kosher salt)

Combine the flours. Place the flour mixture on a dry, clean work surface, forming a mound about 8 to 10 inches in diameter at its base. Using the bottom of a measuring cup, create a well 4 to 5 inches wide, with at least a half inch of flour on the bottom of the well. Using a fork to stir the middle of the well, slowly pour in the water, trying to keep the integrity of the walls during this first step. Combine the flour and water into one mass and knead until fully incorporated. The dough will be dry. If necessary, using a spray bottle, spritz with water several times to "glue" the loose flour to the mass.

Once you've formed a ball, knead the dough: drive the heel of your dominant hand into the dough. Push down and release, and then use your other hand to pick up and rotate the dough on itself 45 degrees. Drive the heel of your hand back in the dough, rotate, and repeat for 8 to 10 minutes.

Wrap the dough tightly with plastic wrap. Let rest for at least 30 minutes at room temperature before using. If you're not using it after 30 minutes, put it in the refrigerator.

The dough ball is now ready to be shaped for use in a particular recipe, such as orecchiette, which are rolled by hand.

HOW TO COOK THE PASTA

Cooking pasta well takes *slightly* more care than the usual boiling and draining. In fact, you won't find any bowl-shaped colanders at Flour + Water. Reserved pasta water is an essential ingredient in pan sauces—our keys to cooking pasta.

WATER

In his book dedicated to pasta, James Beard declared that predicting how long pasta will take to cook in boiling water is "the one inexplicable art in pasta making." Between the water, the volume, the heat, the pasta, and the environment, there are just too many variables to make blanket statements about cooking time. When dealing with store-bought dried pastas, the directions on the box are a good starting point, but in truth, the only real way to cook pasta properly in water is to taste the pasta continuously as it cooks.

In the restaurant, we cook most pasta about 80 percent of the way in the water, and the final 20 percent in the adjacent sauté pan. When done properly, the water acts not only as a cooking vehicle but also as a seasoning agent and a crucial ingredient in the finishing sauce.

We serve our pasta al dente, but al dente does not mean undercooked. The goal is to cook it to the point where it has as much texture as possible while still finishing clean on your palate. Properly cooked pasta shouldn't stick to your teeth.

While it might sound painfully obvious, the first thing to do is to make sure you start with enough water. If the noodles are too crowded in the pot, they'll stick to each other and won't cook evenly. For most portions in this book, four quarts of water in a six-quart stock pot should create enough space in the pot.

First, bring the water to a boil. Then toss in the other additions—salt and semolina flour, which are just as important as the water. If the water is not boiling, the salt will not dissolve well, so you cannot test the water for saltiness; it should taste just slightly less salty than sea water. We will use the same cooking water to help build our sauces in the next step.

The purpose of the semolina is to create a starchy water, a component in the emulsified sauce that will be used to finish the dish. Starch stabilizes the sauce. Starch and water are the basis for a sauce's structure. In the kitchen of Flour + Water, we have pasta water boiling throughout the night, and it doesn't take long for the pasta water to start to pick up the residual starch released from the noodles that are going in and out of

the boiling water on a regular basis. During service, our cooks use splashes of the starchy water in the finishing sauces on pasta dishes. Obviously, home cooks do not have the luxury of a vat of constantly boiling starchy water to help bind sauces. So, when testing recipes for this book, we figured that a heaping handful of semolina mimics that starchy restaurant kitchen pasta water, thereby creating a perfect foundation for the sauce.

When the pasta is dropped into the water, keep the pasta moving. Stir the noodles so the noodles don't stick to other noodles or the bottom of the pot. As noted earlier, the general rule is to cook the pasta 80 percent of the way in the water, and the final 20 percent in the pan. It's an admittedly rough rule in a medium that usually relies on ultra-specific measurements and timing. We've included the cooking times for pasta in individual recipes. Consider them a guideline. Variables like the freshness of the pasta and the thickness of the pasta will inevitably alter the cooking times. Thus, experience and personal preference come into play, as you develop the ability to detect when a pasta is about 80 percent done. But the point that cannot be emphasized enough when cooking pasta is this: *constantly taste the pasta.*

Our equation for the perfect pot of pasta water: For 4 quarts of water, add ¼ cup of kosher salt and a handful of semolina flour. Once the seasoned water is ready and boiling, it should develop a bubbling white foam on the surface.

COOKING À LA MINUTE: PAN SAUCES

The recipes in this book are nearly identical to the ones we use in the restaurant. The final cooking step is very quick, usually less than five minutes. Most of the time-intensive work comes in the prep work: making the pasta, making the braised meat for the sauce, slicing the vegetables, and so on. Nearly all the dishes can be prepped ahead of time and then cooked or "assembled" or both when ready to eat. (Not to mention, you can swap out dried pasta in many of the recipes.)

Our pasta dishes in the restaurant—and this book—are nearly always finished with a version of a pan sauce, made à la minute. Now, usually when I say the words "emulsified butter sauce," home cooks freak out and get intimidated. Please don't. The sauce is simply butter that has been melted to coat and accentuate the accompanying ingredients.

The entire philosophy of pan sauces is simple: the starting point of any sauce is thinner and wetter than the finished product. As the sauce reduces to the perfect consistency, it's also cooking the pasta. The trick, however, is timing. The sauce is reducing while the pasta is cooking, so the goal is to bring both components to perfection at the same time. It's a balancing act.

A pan sauce has achieved the proper sauce-like consistency when it is thick enough to coat the back of a spoon. At that moment, the bubbles in the pan will be getting larger and the bubbling will slow down as the sugars and starches begin to thicken to the perfect level. If you run a spoon along the bottom of the pan, the sauce should have enough structure that it holds for a moment, but enough fluidity that it eventually oozes back into the spoon's line. (If the sauce gets too dry before the pasta is completely cooked, a splash or two of starchy pasta water can be used to "reset" the sauce.)

The reality of the science is that once pasta is cooked in water, it doesn't absorb any more flavor from the finishing pan sauce. Because pasta is water-soluble, it absorbs only the water from the sauce, not any aroma or oils. Instead, the pasta is *adsorbing* the flavors, meaning the flavor only sticks to the surface of the pasta. That simple tidbit of information blew my mind when Harold McGee, the San Francisco–based author of *On Food and Cooking* (one of my all-time favorite books), explained it. For years, I had been teaching cooks that finishing pastas in pan sauces helped noodles absorb flavor, but as it turns out, that false impression comes from the amount of sauce that adheres to the surface of the pasta.

BUTTER

There's no other way to put this: The recipes in this book use a generous amount of butter.

That's the way it is in the restaurant, too, especially during the colder months. I'm not quite sure if the reason traces back to the strong northern Italian influences, or my traditional French culinary training. We usually go through about twenty pounds of butter a night—nearly all of it for the finishing sauces for our pasta dishes.

Obviously you should try to buy the best possible butter at the market, and always opt for unsalted butter, simply because the balance of flavors and seasoning should be in the cook's control. I prefer butter with 86 percent fat content. This is the standard percentage for table butter; any butter with a higher fat content will be difficult to emulsify into the finished sauce.

We recently began making our own butter at both Flour + Water and our sister restaurant, Central Kitchen. Making butter is a fairly straightforward process, and it's a great example of the value of making ingredients in-house.

HOW TO USE THESE RECIPES

The word *dipende* pops up a lot in Italy.

It technically means "depends," but for some reason, Italians use the word to answer everything as a sort of non answer, a declaration that shades of gray persist. How many eggs do you put in that recipe? "Dipende." How do we get to so-and-so address? "Dipende." How's the food at that restaurant? "Eh, dipende." How much does that bottle of wine cost? "Ah, dipende."

Maybe it's just because they don't want to answer the dumb question that the American (me) asked, but it's my hope that the recipes in this book can take on the same mindset of dipende. The pasta dishes that follow are some of the many versions we use at the restaurant, but in most cases the recipes are just base models that can—and should—be tweaked once you learn the technique.

Even though we've used all of these recipes in the restaurant, in many ways, this book represents the opposite of how we like to cook in the restaurant. We change our restaurant menu on a daily, and sometimes hourly, basis. We buy stuff and then formulate dishes out of those seasonal ingredients. It sounds cheesy, but if I'm in the test kitchen trying to write a menu, I usually can't do it. But, if I step into the walk-in fridge or wander around the farmers' market, the juices start flowing. So much of cooking depends on seeing, feeling, and tasting an ingredient—taking in its size, its heartiness, its color, its acidity. I know that the restaurant probably runs less efficiently because of that attitude—it would be much easier to give my team a menu and say we're cooking these exact same dishes for the next month or year—but that inspired philosophy of fluid cooking runs rampant in the Bay Area. And because of it, there's much more soul and creativity embedded into our culinary landscape.

The recipes in this book are the framework according to which we cook. I encourage you to swap ingredients based on what produce is available; that's what we do in the restaurant on a daily basis. If you don't like bell peppers, use Padrón peppers. If you can't find quail, use chicken. If you're not going to go shoot a wild boar, your dinner party will probably survive with a pork shoulder instead. Many of the longer meat braises can stand on their own without pasta as well.

We write the pasta section of our menu with the goal of balancing different ingredients and different shapes—stuffed, long noodles, short noodles—and that's how we thought about the recipes in the book as well. Some of the pasta shapes are tricky and will take some practice; others are simple. Just about all of the pasta shapes—or at least similar versions—can be bought at good grocery stores. Many are available in dried form.

Does it matter which pasta shape goes with which pasta sauce? It's a question I've been asked many times. And my answer is yes, pasta shapes absolutely do matter.

It's all about the texture of a pasta dish when you eat it. Texture is just as important a component in cooking as flavor; it's how an eater perceives the flavor. As many of the recipes in this book attest, I don't always adhere to the gospel of pasta tradition wherein nearly every pasta shape has only one lawful sauce companion. That said, the traditions do have merit.

The thing I love about Italian cuisine is how much it is driven by tradition. Most regions or even towns have paired pasta shapes and its designated sauce. When using a distinct regional shape, we will pay homage to it and use tradition as a guide, but with our own ingredients from Northern California. That in itself is an Italian food sensibility: use the ingredients that grow around you, and treat them simply.

When it comes to the sauces that accompany pasta, the general thought is this: Stuffed pastas are adorned with a simple sauce because it's the pasta shape and the pasta filling that should sing—they are the stars of the dish. On the other hand, unstuffed, unadorned noodles—like spaghetti—are often accompanied by more complex sauces and garnishes. If it's complicated on the inside, it's simple on the outside, and vice versa.

The recipes in this book are the compositions that we do in the restaurant, from the ingredients to the techniques to the shapes. There are reasons for them all—but not rules. If you must substitute pasta shapes (or use dry pasta), try to get as close as you can to the original recommendation. Keep long noodle dishes with long noodles, for example. The shape is a tool for flavor, be it the filling or the sauce.

One of the most common questions when cooking pasta is one of the most basic ones: How much pasta to boil?

The recipes in this book are designed for four people as a starter or intermediate course, or for two people as a main dish. In the restaurant—and in this book—we follow the general guidelines when it comes to pasta portions:

+ Fresh noodles (long and short): 3-4 ounces per person
+ Dried noodles (long and short): 2-3 ounces per person
+ Large stuffed pasta shapes (tortelloni): 8-10 pieces per person
+ Medium stuffed pastas (tortelli, mezzalune et al.): 12-14 pieces per person
+ Small stuffed pasta shapes (tortellini, agnolotti dal plin): 18-20 pieces per person

Little things affect the end result of any dish, and hopefully experience will breed intuition. Even if two people precisely follow the same recipe, there will usually be variance. My advice? When finishing a pasta dish with a pan sauce, always keep two things on hand: a little extra liquid (like the starchy pasta water or a stock) and a little extra fat (like butter or olive oil). These two tools can help balance the sauce if it's too thick or thin to ensure a proper consistency.

At the restaurant, we make just about everything from scratch. I don't expect all home cooks to follow the same process of making a pork jus from leftover pork bones, but just in case, we've included recipes for most of the stocks and such here.

HOW TO STORE FRESH PASTA

Once pasta shapes are formed, always place them, equally spaced, on a baking sheet sprinkled with semolina flour. Stuffed pasta should be placed in the refrigerator, where it should always be left uncovered. Covering the pasta will trap moisture from the filling, in turn hydrating the dough to the point that it will become sticky and hard to manage. Stuffed pasta can always be frozen on the semolina-lined baking sheet. After a few hours the pasta will be frozen, and at that point you can collect it in a freezer-safe plastic bag for easier storage.

Unstuffed pasta can be left out at room temperature indefinitely. Dry the pasta on an unlined baking sheet for 48 hours, fluffing it after 24 hours. Store in a brown paper bag at room temperature in a dry place. Semolina-based doughs will last longer than egg-based doughs.

I meet with my team every night after service to go over the next day's menu. The menu development at nighttime is a necessity; it enables us to cook how we like to cook. I never want my restaurant to have a static menu. I want to explore, and I want to learn. I'm OK with failure through experimentation if value comes out of the mistakes. So, in the wee hours of the night, my chefs and I examine the list of what our purveyors tell us will be delivered the next day, and we formulate a menu based on what we like to cook and what we think our guests will like to eat. Oftentimes, we'll call our fish guy and see what he's expecting to catch. Maybe we'll tweak a few dishes from the night before, or maybe we'll dip into the greatest hits . . . or maybe we'll look at what we've got and float a few completely new ideas. It all depends.

We hope that you enjoy these recipes and that you embrace the joy of making pasta at home. And if you're absolutely stumped, send us an email at book@flourandwater.com.

GUIDELINES FOR FOLDING PASTA

Shaping pasta easily becomes second nature, but here are some helpful tips to get you going.

+ Seal the dough firmly but gently. Don't squeeze the pasta too much; don't mash it. Once adhered, the dough will stick just fine. The goal is to form shapes with uniform thickness, which will allow for even cooking.
+ Don't be afraid to twist and turn the pasta shapes. Many of the shapes are complex and require some dramatic twists. You obviously don't want to tear the dough, but the pasta should be pliable enough to stretch and twist with ease.
+ When dealing with stuffed pastas, be sure to push all of the air out of the filling.