Food as Medicine Series
Presentation #2:
The Digestion Connection

Disclaimer: All of the information contained in this packet is intended for educational purposes only. You should always discuss any changes in diet, exercise, or supplementation with your doctor or qualified healthcare practitioner. As each person is different, none of the information contained herein (food, supplements, or otherwise) is intended as a recommendation for any particular individual.

The Importance of Digestion

Digestion influences all areas of health. Most of us are familiar with digestive system disorders such as heartburn, indigestion, stomachaches, gas, bloating, constipation and diarrhea. We might even be aware of disease states that reside in the gut, such as Celiac disease, Ulcerative Colitis, and Crohn's disease. However, modern research is showing that digestive dysfunction plays a much larger role in overall health than previously understood. Symptoms far removed from the gut—autoimmune diseases (e.g. multiple sclerosis, rheumatoid arthritis, psoriasis and more), cancers, migraine headaches, chronic fatigue, fibromyalgia, skin rashes, acne and more—can all be triggered and perpetuated by a compromised digestive system. Therefore, current thinking supports the idea that healing the gut and maintaining robust digestion can be a pivotal factor in not only reducing or eliminating uncomfortable digestive symptoms, but also in preventing or managing debilitating and often life-threatening conditions.

The Gut Brain Connection

"The gut bone is connected to the brain bone." Your enteric nervous system, which governs the function of the digestive tract, constantly communicates with your central and autonomic nervous systems, which control every voluntary and involuntary function of the body. Emerging research suggests: the state of the GI tract affects the quality of this messaging from gut to brain.

So if your gut is unhappy, you might notice psychological and cognitive problems such as:

- brain fog
- anxiety, depression or other mood disorders
- ADD/ADHD

You may also have other physical problems such as:

- trouble controlling your weight
- asthma and allergies
- autoimmune disorders
- skin conditions (e.g. rashes, acne)
- arthritis / joint inflammation
- heart disease
- neurodegenerative disease
- narcolepsy or other sleep disorders
- migraines
- kidney problems

Digestion: An Overview

Definition

Digestion: The mechanical and chemical breakdown of food into its smallest molecules in order to extract nutrients for cellular use. Proteins are broken down into amino acids, fats are broken down into fatty acids & glycerol, and carbohydrates are broken down into simple sugars such as glucose and galactose.

Brain

Digestion is a North to South process, beginning in the brain. When you see or smell food, your salivary glands begin to produce saliva and the enzymes it carries; when you look at food and start to salivate, digestive juices begin to flow in other areas of your body, readying the entire system to break down and absorb expected incoming nutrients.

The Digestive Tract

Mouth

The mouth is the first stop in the digestive tract and is where food enters the system. The teeth and tongue mechanically break down the food (chewing), making it easier to swallow, and creating more surface area for enzymes to access. Salivary enzymes, such as amylase, begin the chemical breakdown of carbohydrates.

Esophagus

The esophagus is a muscular tube that runs from your pharynx (throat) to your stomach. Food is pushed through your esophagus and into your stomach with a series of muscle contractions called peristalsis.
At the bottom of the esophagus, just before the opening to the stomach is an important ring-shaped muscle called the lower esophageal sphincter (LES). This sphincter opens to let food pass into the stomach and closes to keep it there. No nutrient absorption occurs in the esophagus.

Stomach

The stomach is a pear-shaped, thick elastic, muscular pouch that plays a major role in the breakdown and digestion of food. The stomach is able to change its size and shape according to the amount of food eaten. The stomach digests food mechanically via strong muscle contractions. It digests food chemically by secretion of enzymes (such as pepsinogen) and hydrochloric acid (HCl), which helps to maintain a very acidic environment in order to kill or inhibit harmful bacteria. With the exceptions of alcohol and aspirin, no absorption occurs in the stomach.

Possible Dysfunction in the Stomach

When stomach acid is low, food is not properly broken down. Undigested food therefore enters the next phase of digestion, and can potentially remain undigested for good. When food is undigested, nutrients cannot be extracted from it, and if the small intestine is compromised further down the line, undigested food particles can enter the bloodstream, causing an immune response.

Low stomach acid (not acidic enough) is also less effective at killing harmful pathogens and protecting our bodies from food poisoning and parasites.

Heartburn/GERD/Acid Reflux

Often thought of as too much stomach acid, heartburn or GERD is often a sign of insufficient stomach acid. It feels like too much acid because some of the acid is being pushed upward, through the LES, into the esophagus, where the epithelium is not protected by mucus, like it is in the stomach. Acid reducers (such as Tums, Prilosec, Prevacid, Nexium, Pantalock, etc.) can often make us feel better, but they can be masking the problem of low stomach acid and will lower acid even more. Acid reducers (PPIs) can lead to a stomach environment so alkaline that food digestion becomes extremely compromised and pathogens (like

parasites) can more easily thrive. If you experience acid reflux, consider talking to your doctor about HCl supplementation during meals, instead of acid reducers. Carbohydrate malabsorption can contribute to acid reflux. If you suffer from GERD, consider limiting your carbohydrate consumption for a short time to see if symptoms improve. Also, avoid overeating, eating too fast, and bending down or lying down after meals.

Small Intestine

The small intestine is a long (approx. 22-25 feet), convoluted tube in the central and lower abdominal cavity that connects the stomach to the large intestine and absorbs about 90% of nutrients from the food we eat. The small intestine contains villi and microvilli: fingerlike projections that increase the surface area of the small intestine so that nutrient absorption can be maximized. When the small intestine is working well, the cells of its epithelium (lining) are cemented tightly together, opening only to let fully digested nutrients (e.g. glucose, fatty acids, amino acids, vitamins, minerals…) into the bloodstream, while keeping out toxins, microbes, undigested food particles and harmful pathogens.

Possible Dysfunction in the Small Intestine

When the small intestine is compromised by toxins, inflammatory foods (such as highly processed oils and chemicals), and gut irritants, inflammation causes the epithelial cells to separate, creating increased intestinal permeability, or "leaky gut." These gaps allow undigested food (i.e. food not completely broken down) and harmful pathogens (e.g. pathogenic bacteria, parasites) to enter the system, signaling the immune system to launch an immune response. This response can be systemic inflammation, which potentially compromises function in any part of the body. Also, villi can become worn down (called blunted brush border), impairing the proper absorption of nutrients.

It's given the name "small intestine" because it's only 1 inch in diameter, making it less than half the diameter of the large intestine. Nerves lead to the small intestine from two divisions of the autonomic nervous system: parasympathetic nerves initiate muscular contractions that move food along the tract (peristalsis), and sympathetic nerves suppress intestinal movements.

Large Intestine/Colon

The large intestine performs the vital functions of converting waste products and indigestible fibers into feces, absorbing essential vitamins produced by gut bacteria, and reclaiming water. A slurry of digested food, known as chyme, enters the large intestine from the small intestine via the ileocecal sphincter. Chyme passes through the cecum where it is mixed with beneficial bacteria that have colonized the large intestine throughout a person's lifetime. This collection of bacteria (and their genetic material) residing in the large intestine is often referred to as the “microbiome.”

Possible Dysfunction in the Large Intestine/Colon

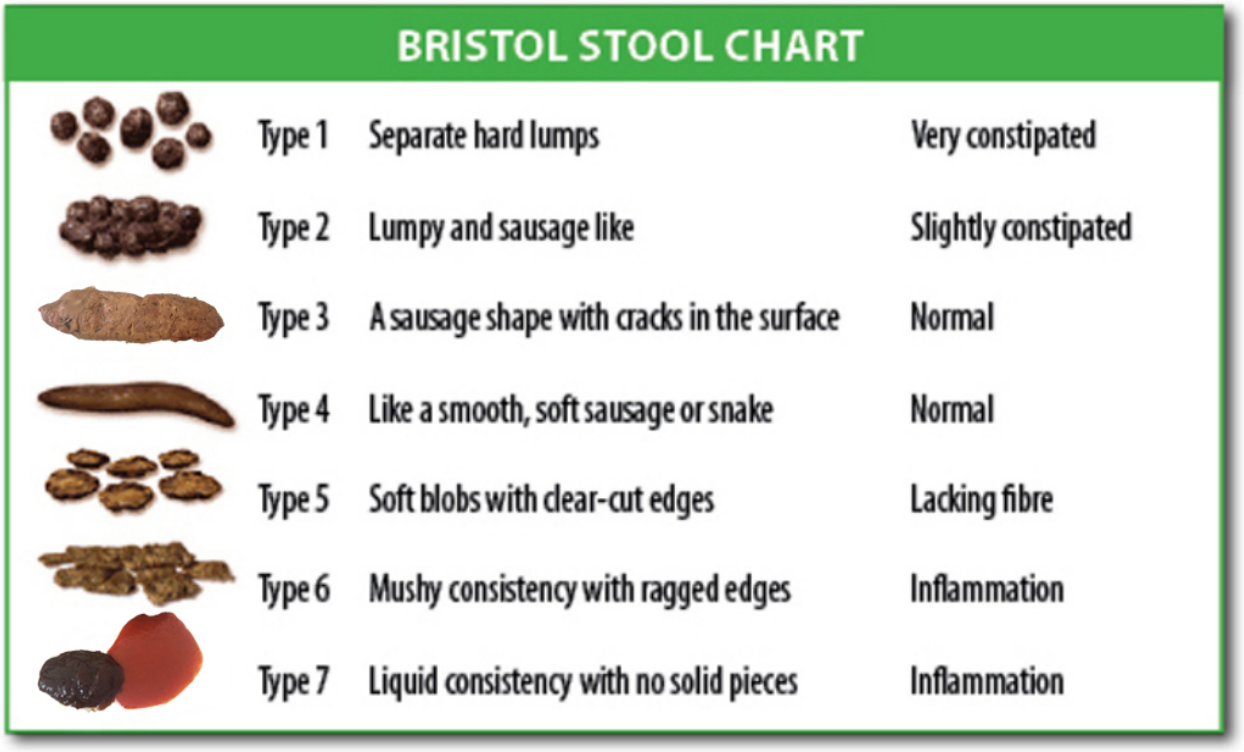
It is common for a variety of problems to manifest in this part of the body:

Constipation

Constipation can occur for a variety of reasons and can be harmful to the system because the body can reabsorb hormones and toxins from waste (feces) that is not excreted in a timely manner. Techniques for addressing constipation include: increased hydration, increased fiber (fruits and veggies, prunes, dried apricots), exercise. Certain disorders such as hypothyroidism can also contribute to constipation. Check the Bristol Stool Chart below to see what feces look like when one is constipated.

Diarrhea

Diarrhea is often a sign of a compromised microbiome. Consider eating foods that contain prebiotic fiber, fermented foods, and talking to a healthcare practitioner about probiotic supplementation. Also, work with a healthcare practitioner to track and remove foods and chemicals that might irritate your system. Check the Bristol Stool Chart below to see what feces look like when one has diarrhea.



Gas and Bloating

Many people routinely experience gas and bloating. Common causes of gas include:

- GI tract irritation due to excess caffeine, sugar, alcohol or processed oils
- nutrient deficiencies
- lack of sufficient enzymes
- food allergies or sensitivities
- insubstantial bile production
- stress
- bacteria imbalances
- Candida
- Parasites
- SIBO (small intestinal bowel overgrowth--or excess bacteria in the small intestine)

Dysbiosis

The trillions of bacteria (and their genetic material) that live in our colons are often referred to as our microbiome. We live symbiotically with these bacteria, and would die without them. Many of these beneficial bacteria produce substances our bodies need, like short chain fatty acids. However, like everything, these microbes must be in balance (positive and negative, or, beneficial, pathogenic, and commensal). When the amount of pathogenic bacteria outweigh the beneficial

bacteria, we can experience problems. This imbalance of bacteria is called DYSBIOSIS. Ideally, our microbiome is balanced and diverse, with many varieties of bacteria in the mix. Methods for supporting the diversity and health of your microbiota include: eating a wide variety of fruits and veggies (eat the rainbow), eating fermented foods or taking probiotic supplements (adding strains of bacteria to the mix), eating prebiotic foods (foods that feed the existing beneficial bacteria).

Accessory Organs (That Support Digestion)

Pancreas

The pancreas produces digestive enzymes that it releases into the first part of the small intestine (the DUODENUM) to further digest the proteins, fats, and carbohydrates arriving from the stomach.

Liver

The liver has over 500 functions in the body. One of its digestive roles is the production of bile, which is necessary for the digestion and absorption of fats. Think of bile as the Dawn dishwashing liquid of the system, breaking down grease. When fats aren't properly broken down and absorbed, fat-soluble vitamins (i.e. vitamins A, D, E, K) are not accessible to the body, potentially resulting in nutrient deficiencies that can lead to dysfunction elsewhere.

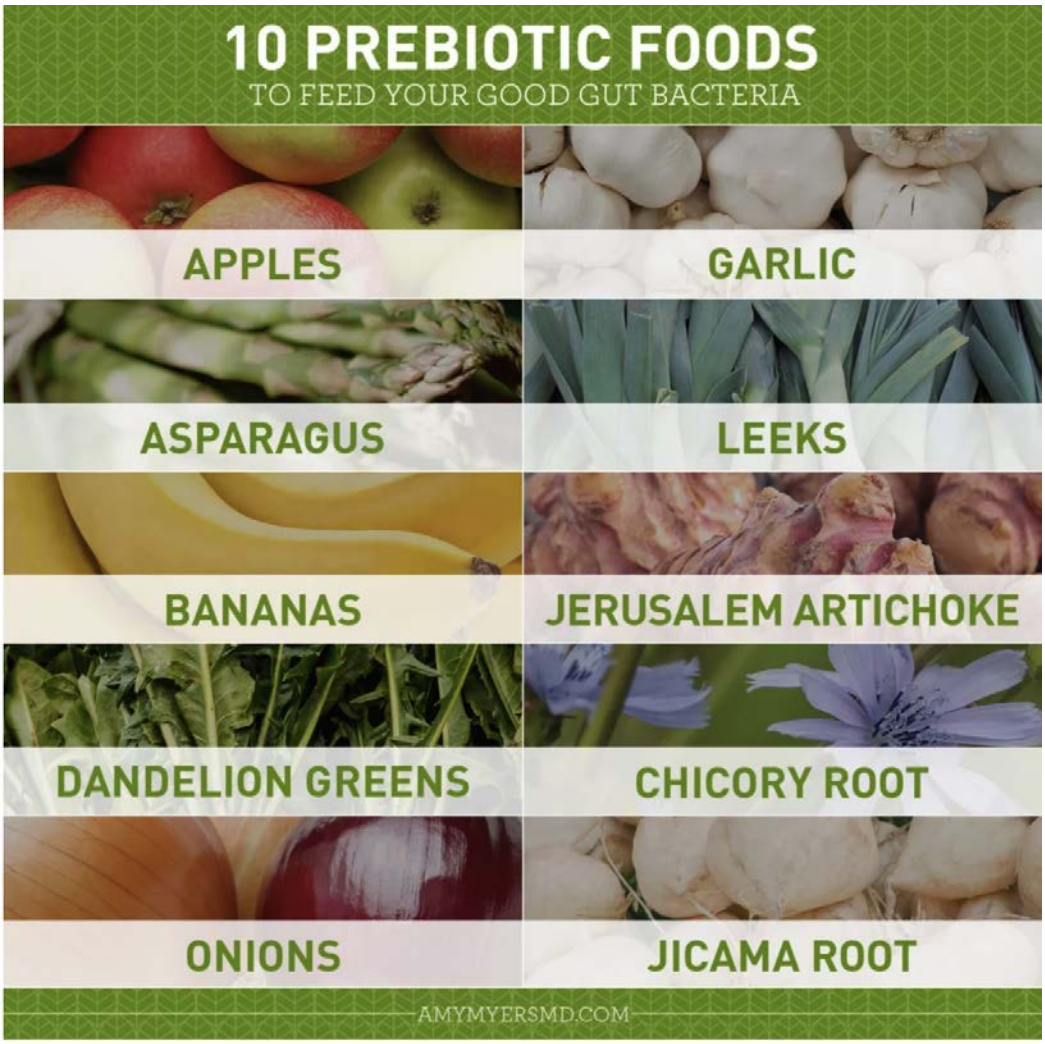
Gallbladder

Contrary to common belief, the gallbladder isn't simply a "vestigial organ" with no importance. The gallbladder stores and releases bile (which came from the liver) in response to the fat content in a meal. In other words, it's the gatekeeper of proper bile flow. It releases more bile for a high fat meal, and less bile for a low fat meal, ensuring the precise breakdown of fats. Once the gallbladder is removed, this function becomes compromised, as the liver simply drips bile continuously into the system, regardless of the amount of fat entering. Therefore, if a gallbladder has been removed, thorough fat absorption requires "outside" support, which can be achieved through supplementation. The symptoms of fat-soluble vitamin and essential fatty acid deficiencies come on slowly and stealthily. Health problems can be many and varied, associated with a deficiency of any or all of these nutrients. If your gallbladder has been removed, consider discussing ox bile supplementation (especially for high fat meals) with your doctor.

Tips & Tricks to Improve Digestion

What To Do	Why
1. Slow down.	**It gives your brain time to start up those digestive juices.**
2. Belly breathe.	**It turns off your sympathetic nervous system (fight or flight) and turns on your parasympathetic nervous system (rest & digest).**
3. Smell, admire, be grateful.	**It gives your brain time to start up those digestive juices and turns on your parasympathetic NS.**
4. Chew, chew, chew.	**It mechanically breaks down food so the stomach has less work to do, and so that salivary enzymes have more surface area to access. The longer you chew, the more enzymes break down the food, lightening the upcoming workload for your stomach. It can also significantly reduce gas and bloating.**
5. Use apple cider vinegar (ACV) or lemon juice before meals. If symptoms are severe, talk to your doctor about digestive enzyme supplementation, including HCl.	**ACV increases stomach acid, which promotes the chemical breakdown of food and protects the system by neutralizing pathogens such as harmful bacteria (food poisoning) and parasites.**

6. Minimize water with food (but hydrate between meals).	**Water dilutes stomach acid, making it less effective at both digestion and protection against harmful pathogens. Have a little, just not too much!**
7. Consume bone broth, fiber, prebiotics (see chart below) & probiotics.	**Bone broth repairs a "leaky gut." Fiber and prebiotics feed our microbiome, helping it to flourish, and probiotics aid in diversifying our microbiome.**
8. Reduce gut irritants such as pesticides (eat organic), environmental toxins (filter air & water, avoid plastic food storage/BPA), antibiotics, and unnecessary pharmaceuticals (e.g. NSAIDS).	**Toxins, pesticides, xenoestrogens, antibiotics, & pharmaceutical are all insults to the gut, potentially increasing intestinal permeability.**
9. Experiment with eliminating gluten. (And maybe also dairy and sugar.)	**Although not everyone is celiac, gluten can be highly inflammatory to the gut for many people who might be gluten sensitive (Non-Celiac Gluten Sensitivity or NCGS). If you have any uncomfortable symptoms, digestive or otherwise, consider eliminating gluten for 4 weeks and see if your symptoms improve.**



Foods and Techniques that Support Digestion:

Function	Food / Technique
Increases stomach acid (HCl)	• Apple Cider Vinegar • Lemon juice • HCl supplements
Stimulates digestive juices	• Slowing down • Admiring, savoring, being grateful for food • Umeboshi plums • Sour/tangy foods

Stimulates or supports bile flow (reduces fat malabsorption)	• Bitters • Bitter greens e.g. radicchio, endive, escarole • Eating moderate amounts of healthy fats (e.g. avocado, nuts, olive oil, ghee, coconut oil) • Ox bile supplementation
Supports microbiome health and diversity; also helps with diarrhea	• Eat a variety of fiber (eat the rainbow of fruits and veggies) • Mushrooms • Fermented foods such as sauerkraut, kombucha, kefir • Prebiotics • Probiotics
Repairs digestive lining	• Bone broth from healthy pastured animals • Collagen from grass fed healthy animals • Aloe • Marshmallow • Slippery Elm • L-Glutamine • Deglycyrrhized licorice
Reduces gas and bloating	• Slow down • Be present with your food • Chew, chew, chew • Take apple cider vinegar before meals • Peppermint oil • Slowly increase fiber • Consider removing all dairy • Soak beans and grains before cooking and/or cook with kombu seaweed • Avoid sugar alcohols (sorbitol and xylitol) • Consider a short-term low FODMAP diet (work w/ a practitioner)

	• Do a 3 week elimination diet to detect food sensitivities (work w/ a practitioner) • Introduce digestive herbs such as ginger, fennel, anise and cardamom. • Probiotics • Digestive enzymes • Colon massage (following the line of the colon)
Helps with constipation	• Hydration • Reduce diuretics (e.g. coffee, alcohol) • Exercise • Increased fiber from fruits and vegetables • Probiotics and probiotic-rich foods • Magnesium • Aloe vera juice (2-4 oz.) • Slippery elm • Marshmallow root

Supplement options to discuss with your healthcare practitioner:

1. Digestive Enzymes (with or without HCl and Ox bile)
2. HCl
3. Ox bile
4. Probiotics
5. Prebiotics
6. DGL
7. Marshmallow
8. Aloe
9. Slippery Elm
10. L-Glutamine

Links for Further Reading

Environmental Working Group: https://www.ewg.org

https://www.ewg.org/foodnews/summary.php

Some fun general digestive system facts:

https://www.verywellhealth.com/digestive-system-facts-1944708

On chewing and digestion:

https://thegastricguru.com/chewing-and-digestion

For a 2½-minute overview of digestion in each part of the tract, watch this video:

https://www.youtube.com/watch?v=08VyJOEcDos

Dr. Anderson's 9½-minute video on how digestion works (very well done):

https://www.youtube.com/watch?v=nM5kMSjBrmw

Sympathetic vs. Parasympathetic Nervous Systems

https://thisonevsthatone.com/sympathetic-vs-parasympathetic/

Heartburn and GERD:

https://chriskresser.com/what-everybody-ought-to-know-but-doesnt-about-heartburn-gerd/

How to Cure GERD without Medication:

https://chriskresser.com/how-to-cure-gerd-without-medication/

The many benefits of peppermint tea:

https://www.healthline.com/nutrition/peppermint-tea

Celiac vs. Non-Celiac Gluten Sensitivity

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6182669/

Reasons Gluten Intolerance May Be More Serious Than Celiac Disease:

https://chriskresser.com/3-reasons-gluten-intolerance-may-be-more-serious-than-celiac-disease/

Tom O'Bryan on Gluten Sensitivity:

https://thedr.com/wp-content/uploads/2014/03/cd_ncgs_the_evolving_spectrum.pdf

Gene Variants Linked to Gluten Sensitivity:

https://www.thepaleomom.com/5-gene-variants-linked-to-gluten-sensitivity/

What Is A Leaky Gut?

https://www.thepaleomom.com/what-is-leaky-gut-and-how-can-it-cause/

What Is the Microbiome and Why Should We Care About It?

https://www.thepaleomom.com/what-is-the-gut-microbiome-and-why-should-we-care-about-it/

Two articles about a fascinating Fat Mice/Skinny Mice Study (microbiome and weight loss):

https://science.sciencemag.org/content/341/6150/1241214
https://www.nytimes.com/2013/09/06/health/gut-bacteria-from-thin-humans-can-slim-mice-down.html

Two lists of prebiotic foods to feed your microbiome:

http://www.fermented-foods.com/prebiotics/prebiotic-foods-list-prebiotic-fiber-foods
https://www.amymyersmd.com/2018/10/10-prebiotic-foods/

The Effects of Non-Antibiotic Drugs on the Microbiome

https://chriskresser.com/the-effects-of-non-antibiotic-drugs-on-the-microbiome/

What does healthy poop look like? Watch this video:

https://www.doctoroz.com/videos/poop-primer

How eating more of what you love can make you healthier:

https://www.wsj.com/articles/how-eating-more-of-what-you-love-can-make-you-healthier-11556822538

Recipes

Note: Select the highest-quality ingredients that your budget will allow. Eggs, meats and dairy products are preferably pastured and organic. Salt is preferably Himalayan pink or sea salt. Fruits and vegetables are preferably organic. If you cannot afford or do not have access to these products, just do the best you can and what works for you. The recipes will still be delicious and nutritious!

Ginger Pickle

(Makes about 1/2 cup)

Ingredients:

- One full ginger root peeled (the size would cover the palm of your hand 1.5x), peeled and shredded with a carrot shaver or cheese grater
- Juice of one full lemon
- 1 teaspoon Himalayan pink salt

Method:

1. Mix together and put in a jar. Let "pickle" overnight.
2. Take ½-1 teaspoon before bigger meals daily for 2-4 weeks.

Source: https://thewholejourney.com/balance-low-stomach-acid/

Dandelion Pesto

(Makes about 1 cup)

Ingredients:

- 1/2 cup shelled pine nuts
- 3 cloves garlic, minced
- 2 cups chopped fresh dandelion leaves loosely packed
- 1 tablespoon lemon juice
- 1 tablespoon lemon zest
- 1/2 cup extra virgin olive oil
- 1/2 teaspoon salt
- 1 teaspoon turmeric powder
- 1/2 teaspoon freshly ground black pepper
- 1/4 cup freshly grated Parmesan cheese

Method:

1. Place all ingredients except the Parmesan into a blender or food processor. Process until smooth. If it's too thick, slowly add a bit more olive oil.
2. Add the Parmesan and continue to blend until the mixture has a smooth consistency.
3. Refrigerate, and eat within 3 days.

Source: From Alchemy of Herbs by Rosalee de la Forêt

Escarole and White Bean Salad with Fennel and Gruyere
(Serves 4-6)

Ingredients for salad:

- ½ cup small dry white beans or 1 cup canned white beans (Eden brand is a good one)
- ¼ teaspoon salt
- 1 tablespoon chives, slices into narrow rounds
- 1-2 tablespoons chopped flat leaf parsley
- 1 teaspoon fresh tarragon or 1 tablespoon chervil, finely chopped
- 1 small fennel bulb or several celery stalks, sliced into ¼ inch pieces
- 3 ounces gruyere cheese, cut into narrow matchsticks
- Salt & freshly-ground black pepper
- 12 cups escarole leaves, or a mixture of escarole, curly endive, romaine hearts and radicchio

Ingredients for mustard vinaigrette:

- ¼ teaspoon dried tarragon
- ¼ teaspoon fennel seeds
- 1½ tablespoons sherry vinegar or raspberry vinegar
- ¼ teaspoon salt
- 1½ teaspoons Dijon mustard
- 2 tablespoons crème fraiche or sour cream
- 6 tablespoons extra virgin olive oil

Ingredients for (optional) croutons (omit for gluten free)

- 2 tablespoons butter
- 2 slices sourdough bread, cut into crouton-sized cubes

Method:

1. If using dried beans, cook until tender but still hold their shape (45 minutes or longer). If using canned beans, drain and rinse the beans.

2. Prepare the mustard vinaigrette: Grind the tarragon and fennel seeds with a pestle to bruise and partially break them. Put them in a bowl with the vinegar, salt, mustard, and crème fraiche or sour cream and stir until mixture is smooth. Whisk in the olive oil vigorously until the ingredients are completely amalgamated into a thick sauce. The dressing will be very strong.
3. Toss the cooled beans with ½ the vinaigrette and the herbs, fennel, and cheese. Season to taste with salt if needed and freshly ground black pepper and set aside.
4. Prepare the greens: use the pale inner leaves of the escarole and endive torn or cut into pieces. Tear or slice radicchio into small pieces. Wash the greens carefully giving special attention to the bases of the escarole and endive leaves, which often hold a lot of silt. Spin them dry and refrigerate until ready to use.
5. If using croutons, melt the butter in a skillet, add the bread cubes and toss them well. Fry them over low heat until they are brown and crisp all over, shaking the pan every so often so they don't burn.
6. To assemble the salad, toss the greens with the remaining vinaigrette (use less if not using croutons--to your taste). Then add the beans and the croutons and toss again. Arrange the salad in a shallow flat bowl with the beans distributed evenly among the greens.

Source: Adapted from Deborah Madison's Greens Cookbook

Winter Greens Salad with Apples, Pecans and Stilton Cheese

(Makes 2 large or 4 small salads)

- 1 large head of escarole, about 6 cups
- 1 small bunch of watercress
- Sherry-Shallot Vinaigrette (recipe below)
- 1 head Belgian endive
- 1 crisp apple (e.g. McIntosh or Granny Smith)
- ¼ cup toasted pecans, chopped
- 1-2 ounces Stilton cheese, crumbled
- Pepper

Method:

1. Remove the outer leaves of the escarole and use only the tender, light green inner leaves.
2. Pluck the small sprigs of watercress discarding the long stems and bruised leaves. Wash the greens and dry them in a spinner; wrap loosely in a damp kitchen towel and refrigerate. Prepare the vinaigrette.
3. Separate the endive leaves, cutting the larger leaves in half lengthwise. Cut the apple into quarters, remove the core, and thinly slice. Place the greens in a large bowl with the apples, pecans, and cheese. Toss the vinaigrette and sprinkle with freshly ground pepper.

Sherry Shallot Vinaigrette

Ingredients:

- 1½ tablespoons sherry vinegar
- 1 small shallot, thinly sliced
- ¼ teaspoon salt
- ¼ cup extra virgin olive oil

Method:

Combine the vinegar, shallot, and salt. Let sit for 5-10 minutes. Whisk in the oil to combine.

Source: Field of Greens Cookbook by Annie Somerville

Citrus Salad with Bitter Greens

(Serves 4)

Ingredients:

- 1 handful escarole hearts
- 1 small head of radicchio
- 1 handful of watercress or frisée hearts or a mixture
- Citrus Vinaigrette (recipe below)
- 2-3 kumquats, thinly sliced and seeded
- 2 navel or blood oranges
- 2 tangerines
- 1 large ruby grapefruit

Method:

1. Remove and discard the outer leaves of the escarole; cut or tear the tender light green inner leaves into larger pieces. Trim the base of the radicchio, carefully separate the leaves and cut or tear them. Discard the stems of the watercress, saving the good leaves. Wash all the greens and dry them.
2. Make the citrus vinaigrette, then toss the kumquats in a little of it to soften their acidity.
3. Using a sharp knife remove the peel and white pith from the fruit, slicing a piece off their top and bottom then working down the sides. Be sure to remove all of the outer white membrane. Slice the oranges and tangerines into rounds; slice the grapefruit in half lengthwise, then into half moons. Remove the seeds.
4. Place the greens in a bowl and toss with half the vinaigrette. Arrange them on a platter or individual plates and place the fruit on top, alternating the slices. Sprinkle on the kumquats and drizzle with remaining vinaigrette.

Citrus Vinaigrette

(Makes about 1/3 cup)

Ingredients:

- ½ teaspoon minced orange zest
- 2 tablespoons fresh orange juice or 1 tablespoon each orange and tangerine juices
- 1 tablespoon champagne vinegar
- ¼ teaspoon salt
- 3 tablespoons extra virgin olive oil

Method:

1. Combine everything but the oil into a small bowl, then whisk in the oil.

Source: Field of Greens Cookbook by Annie Somerville

Sautéed Beet Greens with Garlic, Sundried Tomatoes, and Capers

(Serves 4)

Ingredients:

- 2 tablespoons olive oil
- 1/2 onion, chopped
- 2 tablespoons minced garlic
- 1 pound beet greens - stems discarded and leaves shredded
- 1 1/4 teaspoons capers
- 1 tablespoon drained and chopped oil-packed sun-dried tomatoes
- Sea salt to taste

Method:

1. Heat olive oil in a skillet over medium heat. Cook and stir onion in hot oil until it begins to turn translucent, 3 to 5 minutes. Stir garlic into the onion; cook together about 1 minute.
2. Fold the beet greens into the onion mixture, stirring to coat; cook until the greens wilt, 3 to 5 minutes.
3. Add capers and sun-dried tomatoes; cook and stir until hot, about 1 minute.
4. Remove skillet from heat; season dish with sea salt and black pepper.

Source: https://www.allrecipes.com/recipe/223079/sauteed-beet-greens

Step-by-Step Instructions on How to Make Any Kind of Bone Broth

You may have read about the need to roast bones first before making bone broth. Some people prefer this method as they find it adds extra flavor to the finished broth. Roasting is totally a taste preference and is not required. In any case, it is only for beef, lamb, or wild game bones – it is not a necessary step for bone broth made with poultry or fish.

If you're new to making bone broth it may be easier to skip the roasting step until you become more practiced with the process. If you do wish to roast the bones first, all you need to do is place the bones on a baking pan and roast uncovered in a 350ºF oven for 20-30 minutes. Once you've gathered your bones (either raw or roasted), you're ready to proceed with the steps below.

Step #1: Place bones (fresh, frozen, or roasted--usually around 2.5 pounds or so) into a large stock pot or crock pot and cover with cold filtered water. Make sure all the bones are covered, but still leave plenty of room for water to boil. Add onion or leeks, carrots, and celery stalks to the pot. No need to chop, just cut them into big chunks.

Step #2: Add two tablespoons of an acidic substance (e.g. apple cider vinegar, wine, or lemon juice) to the water prior to cooking. The acid will help draw out important nutrients from the bones.

Step #3: Heat slowly, gradually bringing to a boil and then reduce heat to a simmer. Skim off any scum that floats to the top.

Step #4: Cook long and slow. Cook chicken bones for at least 6 to 24 hours (up to 48 hours). Beef bones can cook for 12 to 48 hours (and even up to 72 hours). A long and slow cooking time is necessary in order to fully extract the nutrients in and around the bones. You may need to add additional hot water as the broth simmers to keep the bones covered.

Step #5: Add additional vegetables and/or seasonings such as sea salt, pepper, herbs and peeled garlic cloves to the pot 1-2 hours before finishing. (Optional) Add a bunch of fresh parsley 10-15 minutes before removing from heat.

Step #6: Once broth is ready, remove from heat and allow broth to cool enough so you can handle the pot. Remove the solids, strain through a fine mesh strainer, and reserve the broth. If there was meat on the bones, you can pick this out to use in a soup if desired.

Step #7: Consume broth within 5-7 days or freeze for later use. Bone broth can be safely frozen for several months.

Bone Broth Tips

- Using a crock pot that can be continually re-set for several hours at a time is likely a safer and easier option for most people. If you are using the stovetop method, be sure to keep an eye on your broth and follow good stove safety practices.
- A pressure cooker or Instant Pot is also very useful for making bone broth. Here are sample recipes for Beef Bone Broth: (https://www.primalpalate.com/paleo-blog/instant-pot-beef-stock-bone-broth/) and Chicken Bone Broth: (https://blog.barebonesbroth.com/instant-pot-chicken-bone-broth-recipe/).
- After the broth cools, a protective layer of fat will harden on top. Only discard this layer when you are about to eat the broth. Alternatively, you may choose to consume it along with the broth. If your bones are from quality pastured animals, this is a healthy, nutrient-dense source of fat. Another option is to save this fat in a jar in the fridge and use it as a cooking oil when making other dishes.
- If your broth becomes thick and jellylike after you chill it for 24 hours – congratulations! That means it contains a significant amount of gelatin (collagen). When you heat up your broth, it will turn back into liquid form.
- To maximize the collagen, be sure to include knuckle bones (aka “soup bones”) in any mammal-based broth, and chicken feet in any poultry-based broth.
- To warm up your broth, scoop some into a saucepan and gently heat your broth on the stove. Season with salt & pepper and/or add other health-promoting spices such as turmeric, ginger, etc.
- Purchase a few silicone molds and freeze bone broth in ½-cup portions (or whatever portion works for you).
- There are many ways to use bone broth. It is delicious to drink by itself; you can use it as a base for soups, risotto, and a variety of sauces; you can use it to replace the water when cooking rice, quinoa, or other grains.

Source: https://organixx.com/how-to-make-bone-broth/

Italian Wedding Soup
(Serves 8)

Ingredients for the turkey meatballs:

- 1 pound turkey meat
- 2 teaspoons minced garlic
- 3 tablespoons chopped fresh parsley leaves
- ½ cup grated Pecorino Romano (omit for dairy-free)
- 3 tablespoons milk
- 1 egg
- Salt and pepper

Ingredients for the soup:

- 2-3 tablespoons olive oil
- 1 cup minced onion
- 1 cup chopped carrots (about 3 carrots)
- ¾ cup chopped celery (about 2 stalks)
- ½ cup white wine
- 9-10 cups chicken bone broth
- ~1 tablespoon "Better Than Bouillon Organic Roasted Chicken Base" (or to taste; comes in a glass jar)
- Fresh kale or spinach
- Fresh dill (for garnish)
- Grated Romano or Parmesan cheese (for garnish, omit for dairy-free)

Method:

1. Preheat oven to 350ºF. Mix meatball ingredients well. Form into balls and bake for about 30 minutes.
2. Meanwhile, heat the olive oil in a large sauté pan. Add the onion, carrots and celery, and sauté until caramelized or browning.
5. Add white wine and cook until almost all evaporated.
6. Add chicken bone broth containers (each are 3 cups) and 1 cup water. (Or add 10 cups of chicken bone broth)
7. Add "Better than Bouillon Organic Roasted Chicken Base.".
8. Add cooked meatballs and kale or spinach until wilted
9. Garnish with dill
10. Top with grated Romano or Parmesan cheese if desired.

Source: Kimie Navetta

Lemony Greek Chicken Soup with Mushrooms and Rice

(Serves 8)

Ingredients:

- 2 tablespoons olive oil
- 2 lemons, zested into thick strips
- 8 cups chicken bone broth
- 1 cup cooked shredded chicken (a Rotisserie chicken is easy)
- 1 medium onion, finely diced
- 2 stalks of celery, diced
- 2 carrots, diced
- 2 cloves fresh garlic, minced
- 2-3 cups mushrooms (whatever variety you like), cleaned and halved
- ½ cup white rice, uncooked
- 1 bay leaf
- 2 large eggs
- 2 egg yolks
- ¼ cup fresh lemon juice (from the zested lemons) or more to taste
- Salt, liberally to taste
- Pepper to taste
- Fresh dill for garnish
- Optional: add 1 tablespoon organic Chicken Back to Bouillon

Method:

1. Add 2 tablespoons olive oil to a large pot.
2. Over low-medium heat add onion, carrot, celery, lemon zest, and a bit of salt. Cook until onion is translucent and carrots are tender, about 7 minutes. Add garlic and mushrooms and stir for 1 minute. Add bone broth, bay leaf, and rice, raise heat to medium high and bring to a boil. Once boiling, reduce heat to simmer until rice is tender, about 20 minutes. Remove the bay leaf and the lemon zest strips. Turn off the heat. Using an immersion blender, blend the soup for a few seconds. Alternatively, ladle 2 cups of soup into a regular blender, blend until smooth, and return mixture to the pot. Add shredded chicken to pot.
3. In a large separate bowl, gently whisk eggs, yolks, lemon juice, some salt and pepper, until combined. While whisking constantly, SLOWLY ladle 2 cups of hot stock into egg mixture until combined. Return egg/broth mixture to pot, stirring continuously, until soup is slightly thickened, about 4-5 minutes. Do not turn on the heat again or soup will get gummy. Stir in 1 tablespoon Chicken Back to Bouillon, and add liberal amounts of salt and lemon juice to taste. Soups should be lemony.
4. Garnish with chopped dill and serve.

Source: Randi's Kitchen

Wild Mushroom Soup

(Serves 4)

Ingredients:

- 2 teaspoons olive oil
- 4½ oz. (1 ½ sticks) of butter (preferably organic or pastured), diced at room temperature
- 1 small-medium onion, finely chopped
- 1 clove garlic, crushed
- 1½ pounds wild mushrooms such as chanterelle, oyster or shiitake, cleaned and chopped
- ½ cup white wine
- 4 cups chicken bone broth or vegetable stock
- ⅔ cup cream (or less to taste)
- Freshly ground black pepper
- Parsley for garnish

The plant-based version (served at the event)
-Replace butter with vegan butter. Try Earth Balance buttery sticks, which can be found at Whole Foods
-Use vegetable stock instead of bone broth
-Replace cream with a plant-based alternative, like cashew cream, coconut cream, or full-fat oat milk (cashew is the creamiest!)

Method:

1. Heat a heavy based pan and add the olive oil and 1-2 tablespoons of the butter. Once the butter is foaming, put in the onion, garlic, and mushrooms and cook slowly for 4-5 minutes, until tender but not colored. Remove and reserve some of the mushroom mixture to garnish.
2. Add the wine to the pan and allow to evaporate until reduced by half, then season to taste with salt and pepper.
3. Add the bone broth or vegetable stock, stirring to combine and bring to a boil. Reduce the heat and simmer for 15-20 minutes until slightly reduced and all the flavors have mingled.
4. Stir the cream into the pan and leave to simmer for another few minutes.
5. Transfer to a food processor and process to a purée (chunky or smooth, to your taste). Return soup to the pot without turning the heat on.
6. Whisk in the remaining butter. Season to taste.

7. To serve, ladle into bowls and garnish with reserved mushrooms and torn parsley.

Source: Lost to the sands of time.

Jane Grigson's Celery Soup

(Serves 4)

Ingredients:

- ½ pound celery stalks or celeriac, chopped (about 2 cups)
- ½ cup chopped onion
- ½ cup diced potato
- 6 tablespoons butter
- 4 cups turkey or chicken bone broth
- ½ cup milk (optional, up to 1 cup)
- 1 teaspoon dill weed (or 2 teaspoons fresh dill), or more to taste
- 2½ tablespoons cream

Method:

1. Stew celery, onion, and potato gently in the butter in a covered pan for 10 minutes. Don't let the vegetables brown. Add bone broth and 1/2 teaspoon of dill weed. Simmer for 20 minutes if you have a blender, 40 minutes if you use a food mill.
2. Blend or purée the soup. Pour through a strainer into a clean pan (to remove the last few threads of celery--I never do this step and the soup turns out just fine!), adding a little milk if too thick. Bring slowly to just under the boil, seasoning with salt, pepper and more dill weed if required.
3. Put the cream into the soup dish, and pour the soup in on top. Swirl round with the ladle before serving, to mix in the cream.

Source: Adapted from https://food52.com/recipes/26523-jane-grigson-s-celery-soup

Very Basic Sauerkraut

(Makes about 1 quart)

Ingredients:

- 1 large head cabbage
- 1 tablespoon kosher salt
- 1 tablespoon caraway seeds (optional and to taste)

Method:

1. Wash your hands, but no need to sterilize anything.
2. Quarter and core the cabbage head and slice it very thin.
3. Put half the cabbage slices in a very large bowl and add half the salt; mix together with your hands. Add the rest of the cabbage and the rest of the salt; mix again.
4. Now comes the hard work: Massage the cabbage/salt mixture very thoroughly. I put the bowl on the floor and use my fists to grind into the mixture with upper body weight. The cabbage will begin to "weep" and you'll get a lot of liquid in the bowl--this is the goal.
5. When all of the cabbage looks weepy and broken down, transfer cabbage, with all the liquids to a glass jar or ceramic crock with a loose lid (so gas can escape).
6. Press down on the cabbage so that it is completely submerged in the liquid. Anything that sticks up will be prone to mold.
7. Weigh the cabbage down so it stays under the liquid. [Tip: A zip-top bag filled with water is a great option: partially fill a bag with water, press out the air and seal it. For extra security you can double-bag. Place the water-filled bag into the crock or jar and wiggle it around so it covers the top of the cabbage completely.]
8. Let stand on your countertop or in a cupboard for about a week. You can determine the amount of time you like. More time = more sour; less time = less sour.
9. Check it periodically to make sure cabbage is staying submerged; if you see mold or discoloration do not worry, just skim it off the top, re-submerge the cabbage, and carry on.
10. When it has achieved the sourness you like, transfer to a glass storage jar and refrigerate.

Source: Vibeke's kitchen

Lacto-Fermented Blueberries

Ingredients:

- Any weight of fresh blueberries
- 2% of that weight in non-iodized salt

*****Note: this is the master ratio of any fruit or vegetable to salt for lacto fermentation. You can now ferment anything. If using larger fruits or vegetables, like plums, cut them into smaller pieces so they can snuggle up together in the jar.**

Method:

1. Make sure blueberries are clean and place them in a bowl. Add the salt and mix well.
2. Use a rubber spatula to scrape the berries and all the salt into your fermentation vessel of choice--make sure to get every bit of juice and salt.
3. Weigh the berries down so they release their juices. The easiest way to do this is to use the zip-top bag method described in the sauerkraut recipe above.
4. Set the berries aside to ferment at room temperature or up to 80-ish degrees. At room temperature they should take about a week to ferment, but let taste be your guide. Taste and check progress periodically. If you take the fermentation too far you will lose the character of the fruit eventually and all you'll taste is an overpowering acidity.
5. Look out for a wispy white substance that may develop on the surface of the liquid and edges of the fruit. This is totally harmless kahm yeast that can flourish before the fruit has fully fermented and acidified its juices. It can add an off-flavor, so skim it off and discard it. Carry on from there.
6. Once the fruit has finished fermenting, remove from the fermentation vessel and strain out the juice into a small jar. It can be used to make a delicious vinaigrette!
7. Place fermented fruit in a covered glass jar. They'll keep for a week in the fridge without changing character too much. If you're not using them immediately, spread them out on a parchment-lined baking sheet and freeze. Once frozen, transfer to a freezer bag.

Source: adapted from the Noma Guide to Fermentation by René Redzepi & David Zilber. Discussed in this New Yorker article: https://www.newyorker.com/culture/kitchen-notes/how-to-ferment-blueberries-like-rene-redzepi.

Sausage Stuffed Mushrooms with Pecorino

(Makes 16 stuffed mushrooms)

Ingredients:

- 16 extra-large white mushrooms, caps and stems separated
- 5 tablespoons extra virgin olive oil, divided
- 2½ tablespoons Marsala wine or medium-dry sherry (optional)
- ¾ pound sweet Italian sausage, casings removed
- ¾ cup minced scallions, white and green parts (6 scallions)
- 2 cloves minced garlic
- 1 teaspoon kosher or Himalayan salt
- ½ teaspoon freshly ground black pepper
- 2/3 gluten-free breadcrumbs (or regular Panko if desired)
- 5 ounces Italian mascarpone cheese
- 1/3 cup freshly grated Romano cheese
- 2½ tablespoons minced fresh parsley

Method:

1. Preheat the oven to 325ºF. Trim the mushroom stems and chop them finely. Set aside. Place the mushroom caps in a shallow bowl and toss with 3 tablespoons of the olive oil and the Marsala. Set aside.
2. Heat the remaining 2 tablespoons of olive oil in a medium skillet over medium heat. Add the sausage, crumbling it with a wooden spoon. Cook the sausage for 8 to 10 minutes, stirring frequently, until it's completely browned. Add the chopped mushroom stems and cook for 3 more minutes. Stir in the scallions, garlic, salt, and pepper and cook for another 2 to 3 minutes, stirring occasionally. Add the breadcrumbs, stirring to combine with the other ingredients. Finally, swirl in the mascarpone and continue cooking until the mascarpone has melted and made the mixture creamy. Off the heat, stir in the Romano cheese and parsley and season to taste. Cool slightly.
3. Fill each mushroom generously with the sausage mixture. Arrange the mushrooms in a baking dish large enough to hold them all in a snug single layer. Bake for 50 minutes, until the stuffing is browned and crusty. Serve warm.

Source: Adapted from Ina Garten's Barefoot Contessa

Vegan Stuffed Mushrooms

(Makes 12 stuffed mushrooms)

Ingredients:

- 12 Baby Bella mushrooms
- 1 cup vegetable broth
- ½ cup rice (can be mixed varieties: white/brown/wild), thoroughly rinsed
- ¼ cup Vegan Parmesan (recipe below)
- ¼ cup dried cranberries, chopped
- ½ cup white onion, finely diced
- 1 rib celery, finely diced
- 2 cloves garlic, minced
- 2 teaspoons balsamic vinegar
- 1 teaspoon dried rosemary (or 1 tablespoon fresh)
- 1 teaspoon dried sage (or 1 tablespoon fresh)
- ¼ teaspoon dried thyme (or 1 teaspoon fresh)
- ¼ teaspoon salt
- ¼ teaspoon fresh ground black pepper

Method:

1. Preheat oven to 350°F. Wipe mushrooms clean and pop off the stems. Use a small teaspoon to scoop out the insides.
2. Chop stems and set aside.
3. Place the mushroom caps on a parchment lined baking sheet and bake for 10 minutes. When they come out of the oven, set them aside while preparing the stuffing.
4. Bring vegetable broth to a boil and then turn off heat. Add rice and cover with lid. Allow rice to steep for 30-45 minutes, then fluff with fork.
5. Prepare Vegan Parmesan per recipe below.
6. In a large skillet, sauté onion and celery in 1-2 tablespoons of vegetable broth or water until softened, then stir in garlic.
7. Add chopped mushroom stems to onion mixture and simmer until softened, then stir in rosemary, sage, thyme, salt and pepper.
8. Stir in cooked rice and remove from heat.
9. Stir in chopped cranberries and vinegar, then stuff each mushroom with the mixture. Top with Vegan Parmesan.
10. Bake stuffed mushrooms for an additional 20 minutes and serve.

Vegan Parmesan

(Makes about ½ cup; can be made ahead and used for other dishes)

Ingredients:

- ¾ cup raw cashews
- 3 tablespoons nutritional yeast
- ¾ teaspoon salt
- ¼ teaspoon garlic powder

Method:

1. Place all ingredients in a food processor or blender and process until desired consistency is reached. Should be like a grainy powder.

Source: https://www.brandnewvegan.com/recipes/vegan-stuffed-mushrooms