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February 2010: Investing in Stocks

Bone Stocks: *One of the best ways to build and strengthen bones and support general health*

Housebound in the frigid, snowy days of winter, I often think of starting up a long-simmering bone stock to fill the house with welcoming aromas. Winter is the perfect season to awaken the senses and nourish the body by making bone stocks. Hearty stocks can be sipped alone to boost the immune system and as an antidote to colds and the flu, or they can be used in cooking to add depth, flavor, and nutrition to your favorite recipes. Making stocks,[1] especially time-consuming bone stocks, is a bit of a lost art in modern times, and yet it is one of the very best health investments we can make.

I confess that I did not always feel this way. For years, the pages of the "stock-broth" chapter of my cookbooks stayed pristine and unexplored. Why bother? Stocks seemed like such a time-consuming, needless step in meal preparation.

Despite my love of cooking, perhaps I can blame my "Show Me" Missouri roots for why it took so many years…decades really!…for me to get excited about stocks. What ultimately convinced me to begin to make bone stocks was my interest in supporting the bone health of myself and my family. I came to realize that bone stocks are one of the best natural ways to build bone since they are loaded with minerals…calcium, magnesium, sodium, phosphorous, and trace minerals that make bones *dense*. They also contain collagen to keep bones *strong* and *flexible*.[2] As they say, "You are what you eat." So, I began to make bone stocks and to use them as the liquid in cooking, especially when preparing soups and grain dishes. Subsequent reading and research on the medicinal value of bone stocks helped me further appreciate stocks' incredible and natural healing power for other health issues, as well.

Our forebears seemed intuitively to appreciate so much of this. In traditional cultures, bone *marrow* preparations were often used, especially for children, both as a calcium-rich substitute for milk and as a special dietary supplement.[3] And, bone *stocks* were relied upon by cultures around the globe for nutrition and health. Animals were valued members of a family's economic system and often slaughtered reluctantly. Bone stocks were a way to convert the tough meat and carcass into something hearty and nourishing and assured that no part of the animal went to waste. Stocks were valued for their tonic, digestive, assimilation powers. They were also used to bolster the immune system and to

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[1] A stock is a liquid in which foods have been simmered and, when removed, leave behind in the liquid their flavor and mineral nutrition. Stocks are one of the best, easy-to-absorb ways to enrich your body with minerals.
[2] To bone-up on bone health, see Annemarie Colbin's *The Whole-Food Guide to Strong Bones* (2009) one of the best, reader-friendly and thorough books on this topic.
[3] Weston A. Price, *Nutrition and Physical Degeneration*, 260.

nourish people with wasting diseases, since the protein-sparing nature of the gelatin in stocks helped to preserve the muscle mass of people who were chronically ill. [4]

It is easy to understand why, over the course of the last century, we have forgotten the ecological and medicinal reasons for making stocks: We have lost much of our connection with farm animals as more and more are now raised far away on isolated commercial factory farms and then sold in conveniently-wrapped supermarket plastic or transformed into fast food innovations. Meanwhile, wonder drugs of the pharmaceutical companies have devalued such preventive, natural remedies.

Interestingly, it seems that some ingredients of our modern 21st century economy and culture point to a budding revival of the homemaking arts, as well as a movement back toward the kitchen. The same seems true for investing time in making stocks…Environmental concerns mean conservation and ecological responsibility are *de rigueur* as we grow more mindful of waste in all forms, including animals. Disenchantment with the drug industry, combined with an aging population and widespread chronic disease, are leading many back to traditional, natural therapies. Also, as technology, electronic screens, and a "distracted" lifestyle seem to rule so much of our life, investing time to start a 24-hour bone stock in a slow cooker can be an easy, helpful, grounding counter-cultural experience. It sends a "slow-down" message to our family and friends and one that says cooking at home is worthwhile. Stocks allow us to add more intense and pleasurable taste to a dish and to know and control the ingredients in our food. In addition, when we take the time to make stocks, we avoid commercial food additives like monosodium glutamate (MSG) that are so often found in commercial stocks.[5] Perhaps we also gain a greater appreciation for the animal that feeds and nourishes us, as well as for the food chain in general. Lastly, knowing and appreciating as I do now the diverse medicinal powers of bone stocks, I find the experience of preparing them to be one of the most valuable, natural ways that I can support my health and the health of my family.

Why Bother? Bone Stocks for Health

The nutritional value of bone stocks varies with the type of animal used, and whether you add vegetables, herbs, or other ingredients to the pot. Bone contributes minerals and collagen (with its healing gelatin) to a stock without adding taste; meat adds taste but supplies little medicinal value. For this reason, using both flesh and bones together results in a hearty and delicious bone stock—to be enjoyed on its own or used in cooking. Chicken is a favorite choice of many because it has a rather neutral flavor, but other stocks made from beef, fish, seafood, and vegetables deliver more mineral nutrition (see Table, page 3).

When scanning the Table, pay less attention to numbers and more to appreciating the nutrition offered by different cooking ingredients. Also, precise numbers need to be taken with a grain of salt since the nutritional value of any stock will vary, of course, with the quality of ingredients, as well as your own

[4] Carl Voit, qtd. in N.R. Gotthoffer, *Gelatin in Nutrition and Medicine,* 7.
[5] See October08 Newsletter: Excitotoxins.

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digestive/absorptive capacity. An implicit message from the table is that any bone stock becomes more nutritious and more mineral-rich with the addition of vegetables…or herbs, and/or kelp.

Mineral Nutritional Value of Stocks
(milligrams per 100 grams)

Type	Calcium	Magnesium	Potassium	Sodium	Zinc
Vegetable	5.33	5.18	112	16.2	0.165
Fish	8.07	4.46	82.6	28.1	0.207
Shrimp	10.4	3.13	51.9	22.8	0.207
Chicken	6.08	1.88	47.7	8.64	0.191
Beef	10.8	3.76		18.2	0.086

Source: *Food and Our Bones*, Annemarie Colbin, PhD

This newsletter cannot cover all these stock types. Bone stocks is a topic that fits perfectly this cold winter season and is more than enough for one newsletter. So, here we will focus on stocks made with bones and the medicinal reasons that make them worth the time and effort that is needed to prepare them. In an upcoming issue, we can turn our attention to fish and vegetable stocks, which require an hour or less to prepare and are more in keeping with the longer days and more outdoor time that comes with spring. Fish stocks are natural medicinal aids for people with thyroid problems (an issue that affects some 40 percent of the population). Vegetable stocks are adaptable to what is available throughout all four major seasons. Vegetable stocks add flavor and minerals to any dish and are a wonderful way, used as liquids in your favorite recipes, to add nutrition and to supplement the diets of picky eaters. But for now…let's focus on bone stocks…

Bone Stocks for Bones. As noted, bone stocks are one of the best natural ways to grow bone and support bone health. Fortunately, at whatever age, there is much we can do to rebuild bone.[6] Bones are hardly the rigid, static objects they appear. They are constantly in the process of *remodeling*—this is a combination of the catabolic/breaking down process called *resorption,* and the anabolic/building up process called *deposition*. The important thing to grasp is that bones are dynamic and that they act as storage "closets" where the body hangs extra protein and the minerals calcium, magnesium, sodium, and phosphorus to be readily available, like a winter coat, to meet the body's needs when called upon. The human body stores in the bones 99 percent of its calcium, roughly 85 percent of is phosphorus, and between 40 and 60 percent of its total sodium and magnesium.[7] These minerals give bones density,

[6] See Colbin, *The Whole-Food Guide to Strong Bones.*
[7] Colbin, *Food and Our Bones (1998)*, 17.

while the collagen matrix, which provides the matrix structure for the deposition of minerals, gives bones strength and flexibility. Bone stocks are an easy source of collagen, to foster strong, flexible bones. To build dense bones requires many factors, but one of the most important is the mineral magnesium, which is found in whole grains, beans, vegetables and fruits. Magnesium is needed for the absorption of calcium into bones—which might otherwise be deposited into joints and organs like the kidney and gallbladder. The magnesium levels of bone stocks, many of which are already high (third column, Table, page 3), can be enhanced by the addition of vegetables.

Collagen/Gelatin and Health. The potential link between gelatin (derived by simmering bone collagen) and health is fascinating. Gelatin was a popular remedy, especially for digestive issues, before the advent of synthetic drugs. While many of the early studies concerning the health benefits of gelatin have been lost, research by Francis Pottenger ("The Hydrophilic Colloidal Diet," in *Pottenger's Cats*, 1937) and N.R. Gotthoffer (*Gelatin in Nutrition and Medicine*, 1945) survive to this day and have much to offer us. Both research documents contain evidence of the potential health benefits of gelatin and draw more attention to gelatin's potential healing power for many ills: digestive issues like Crohn's, irritable bowel disease, and hyperacidity; bone health; immune issues; wound healing and skin diseases; rheumatoid arthritis and other joint diseases that involve collagen; detoxification; and even cancer. Research on gelatin seems to be reawakening; it is exciting and could fill a whole newsletter. If you enjoy science and are interested in reading further, I highly recommend "Why Broth is Beautiful—'Essential Roles for Proline, Glycine and Gelatin'" by Kaayla T. Daniel, PhD. It is available on line through the Weston A. Price Foundation: http://www.westonaprice.org/foodfeatures/brothisbeautiful.html In addition, while Gotthoffer's book is out of print and therefore expensive to obtain, a variety of findings from the book--about gelatin's role in health--are quoted in Sally Fallon's *Nourishing Traditions*. This book is not only readily available but also an asset for any cookbook shelf, particularly if you are interested in making stocks.

Our quick overview of gelatin and health would not be complete without saying a few words about the work of Francis Pottenger. Above all, gelatin is acknowledged for the important role it can play in healing digestive issues. For this affirmation, we owe much to the pioneering work of Pottenger. Pottenger realized that, unlike raw food which is "hydrophilic" and attracts digestive juices, cooked food is "hydrophobic," and repels digestive juices. This causes food to become layered in the stomach, rather than being digested in a uniform mass, creating greater stomach acidity and digestive distress.[8] Pottenger's experiments showed that by adding gelatin to a cooked meal, foods were better able to absorb digestive juices (think how Jello works to draw in liquids), thus leading to smoother digestion and reduced stomach acidity. Based on this research, Pottenger successfully used gelatin-rich meat stocks both to treat disease and to support general health.

...If you are now eager just to get cooking, recipes begin on page 8.

[8] Francis Pottenger, *Pottenger's Cats*, p. 102.

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A Few Background Concepts Related to Bone Stocks, Health, and Cooking Preferences

Collagen. Connective tissue like animal skin, cartilage and bones are rich sources of *collagen.* In contrast to *meat, which is just one percent collagen by weight,* bones are about 20 percent collagen, pig skin around 30 percent, and animal knuckles up to 40 percent pure collagen.[9] And, collagen-- tough, resilient, and flexible—is really just gelatin molecules tightly bonded and intertwined as cross-linked triple helixes. Temperatures that create a gentle simmer efficiently break collagen's triple helix bonds to release gelatin.[10] The older the animal the longer it takes to break these bonds. At the same time, prolonged periods of heat weaken the gelatin molecules that have already been freed, rendering them less able to hold body and thicken liquids…so for jelling, prolonged simmering is not always better. *Timing will be a function of your objectives: if your goal is to maximize gelatin for the healing benefits it can provide, use a shorter cooking time. But, if you want to extract more nutrition from the bones and marrow and consume these later, simmer a stock longer, for up to 24 hours, and use a bit of vinegar or wine to help pull nutrients into the simmering liquid. Many professional chefs would advocate that meats should be tasted and stocks strained once meats have lost their flavor.*

Gelatin. Gelatin has been criticized because it is not a complete protein and cannot sustain life on its own. This is true. A gelatin molecule is composed of close to 1,000 amino acids, but of the "essential" aminos, it has no tryptophan and lacks adequate amounts of methionine, histidine and tyrosine. Gelatin is really a rich source of only glycine and proline (along with hydroxyproline, its active form). And, to be health-supportive, gelatin, like all amino acids, requires the fat-soluble vitamins A and D in sufficient quantity. Still, with adequate supplemental nutrients, gelatin does deserve a place in health and healing: for digestive conditions; for those who cannot obtain or digest adequate protein (due to its protein-sparing role), and for those with wasting diseases (due to its ability to preserve muscle mass that might otherwise be dismantled in conditions of disease or malnutrition). *Finally, as it relates to cooking, gelatin is the easiest, most flexible and most forgiving of all protein thickeners used in the kitchen.*[11] *It can be heated and cooled numerous times, liquefying and re-jelling again and again*.

Commercial Gelatin versus Bone Stocks, For Healing See Rebecca Wood 's thoughts, page 10.

Animal skin. Animal skin is made up largely of fat and connective tissue. Skin and fat add flavor to any stock, as well as extra collagen. Important to recall, too, is that fats are essential to allow us to absorb the *mineral* nutrients in foods. So you may want to cook a chicken, for example, with the skin.

But, some stock recipes call for skinning before beginning to cook… Lost in this process is not only the time required to skin but also the value that fat can add to a stock. So why bother? One reason is that at high temperatures, fat, which might normally remain floating at the top of a simmering pot, can begin at a prolonged boil to be dispersed throughout the liquid, producing a greasy tasting stock. Since you

[9] Harold McGee, 598.
[10] McGee, 597.
[11] McGee, 603.

always begin a bone stock with cold water and heat it slowly to allow the flesh to gradually release nutrients into the water, it can be hard to control the heat if you are not watching carefully. What you want is to have the water move slowly to a simmer but without boiling. Obviously, a watchful eye is not always easy with life's distractions and/or with family about. Also, if you are like me and prepare multiple foods when in the kitchen, it can be hard to devote the attention required to catch the simmer before it breaks into a boil. For this reason, skinning may help you avoid the risk of a greasy stock.

Stock pot or slow cooker? Stock pots are wonderful, especially for vegetable and fish stocks that have a short cooking time. But, considering the long time that bone stocks can require and that we may not want to leave our pot on the stove unattended for the long hours of cooking, you may prefer, as I often do, the convenience and security of an effortless slow cooker.

Acidic additives…vinegar or wine? Bone stocks do very well without the addition of vinegar or wine. The result will likely be a more gelatinous stock, since acids can weaken gelatin. At the same time, you may not extract as much nutrition without the addition of an acid. It really depends upon what you are trying to achieve. Should you opt for an acid component to extract more nutrients, a good rule of thumb is to use one tablespoon of vinegar or a half a cup of wine for every two quarts of liquid.

Making Bone Stocks…Equipment and Materials

There are a host of wonderful cookbooks describing how to make bone stocks. Many suggest a large stock pot and organic meats, which you bring to just a boil, reduce the heat, skim off foam that floats to the surface, add vegetables, and keep at a slow simmer for some hours depending on the meat…beef for at least 8 hours so it has time to surrender all its minerals and flavor, and chicken for about half that time. I truly enjoy reading the author/chefs who describe this process and, much like cooking shows on television, I can live the dream along with them--down to imagining the wonderful aromas as well as the delicious tastings from frequent sampling of the stock as it gathers richness and body.

But if you have never cooked stocks, I want to be realistic. I want you to be successful. And, I want it to be easy. I usually use a slow cooker for bone stocks because I cannot stay in the kitchen hour after hour, and I am also not comfortable leaving the house with a pot on the stove. So, for now, since bone stocks cook for very long periods and because our modern world is full of distractions and commitments that pull us out of the kitchen, I recommend a slow cooker, especially if you are just starting out to with bone stocks. A slow cooker is easy, safe, effortless, and rather fail-proof.

Special equipment you will need:

- A slow cooker large enough for your needs (or stock pot, if you choose)
- Strainers, stainless-steel nesting bowls for cooling, cheese cloth if you desire a clearer stock
- A cooking thermometer is helpful to monitor temperatures with a stock pot

A few guidelines:

- Water should barely cover ingredients. Add more if needed
- Never salt a stock. Bones have sodium and flavors concentrate
- Start with cold water and bring just to a simmer, with bubbles barely breaking the surface of the water. Never boil a stock. High temperatures can integrate the fat with the liquid, resulting in a "greasy" rather than a clean tasting stock. A slow cooker is perfect for a slow simmer: Even "High" is calibrated to be below the boiling point.
- Skim the impurities that rise to the top…most foam will rise in the first hour of cooking
- Taste the meat when you suspect it has surrendered its essence. When tasteless, stop cooking and strain the stock, unless you are making a 24-hour stock and intend to eat the bones
- Cool the stock quickly to prevent bacteria growth. Skim off the congealed surface fat
- Stocks keep in the refrigerator for about a week, but should be boiled about every three days to kill bacteria. They can also be frozen for up to 3 months. Always bring a thawed stock back to the boil to restore its life.

Many bone stocks use both meat and bones. Bones provide collagen and gelatin for health; meat, which has only 1 % collagen, provides taste. Rich, delicious stocks are the result of using both.

Bone Stock Recipes…From the Simple to the More Complex

With no recollection of my own bone stock beginning, I suspect that I started making bone stocks because of Timothy Aitken, L.Ac., a gentle, wise healer whom I first met years ago as a teacher at the Natural Gourmet Institute. His recipe for a 24-hour bone stock is below. It uses a slow cooker and is easy and effortless. Next is my own favorite version based on Tim's, using organic chicken legs--because legs are succulent and economical and because the abundant joint tissue gives a high collagen/gelatin yield. The next recipe is for a very rich bone stock from my good friend Ellen Arian, a professional whole foods chef. This recipe, by adding vegetables, is rich in magnesium and potassium. Last you will find a beef stock recipe from Annemarie Colbin that explains some of the merits of marrow. This recipe could be made richer with the addition of 1-2 pounds of beef short rib. There seem to be as many ways to make stocks as there are cooks. I invite you to experiment and discover your own favorites.

Before your get started…Some Observations from my "Test Kitchen:"

- To get the best gelatin from chicken, cook the meat on the bones for 4-6 hours. Use no vinegar or wine. A longer cooking time and/or an acid will weaken the gelatin.
- To get an even better gelatin that is twice as firm, use cartilage-rich knuckle- and hock-type bones. Cover with boiling water in a slow cooker (no vinegar) and simmer for 4-6 hours (a short enough time so the freed gelatin does not break down from prolonged heat). Pour off the stock and refrigerate. Begin a new batch the same way, with the same bones. Knuckles and hocks will provide multiple batches, with no discernible diminution of firmness of the gelatin.
- To eat small bones like chicken legs with their marrow requires about 24 hours and is best when you use some vinegar or wine.
- The best tasting stock is a product of both meat and bones. Flavor can be enhanced by the addition of extra meat. Prolonged cooking does not help flavor. Remove stock when meat has no taste.

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Eight Branches Organic Chicken Bone Soup

4 pound organic chicken, well-washed and skinned
4 skinned chicken breasts, or other chicken pieces, if there is room in the pot
1-2 large onions, chopped
2-3 carrots, chopped
3-5 ribs of celery

Place chicken in large crock pot with enough water to cover plus 2 inches extra and begin cooking on high. When simmering well, turn to low and cook for about 20 hours, adding more water to keep covered, if needed. Add chopped vegetables about 2 hours before you plan to finish.

Broth may be strained and used as a tonic when recovering from colds or the flu; it may also be used in soups, bean dishes, or to cook grains (my favorite...I freeze this in 2 cup batches and cook with grains in my rice cooker)

Chicken may be eaten, bones and all...alone, in salads, as additions to soups, etc.

Source: Tim Aitken, L.Ac.,Eight Branches Healing Arts.

Pathways4Health Chicken/Bone Stock

Three pounds (about 12 legs) of organic chicken, or whatever fits well in your slow cooker
2 Bay leaves
Sprig of Fresh rosemary, or 1 t. dried, if desired (it is a good anti-inflammatory); 1 t. dried thyme
4 quarts boiling water
¼ cup organic apple cider vinegar or ½ cup white wine (to be added later).

Combine all ingredients but the vinegar in a 4-5 quart slow cooker, turned to high. Skim off foam, if it exists. Let legs cook for about 4 hours until meat begins to fall off the bone. Using tongs, transfer the chicken to a large bowl. When cooled a bit, remove the meat from the bones and store it in a covered container in the refrigerator for another use. [Since meat is just 1% collagen, saving it to eat and cooking the bones for gelatin is my preference to avoid waste, unless your goal is to maximize taste.]

Return bones to slow cooker along with all the knuckle, gristle, and skin. Add the apple cider vinegar. Turn slow cooker to low, cover with lid, and let simmer for up to 20 more hours. Strain the stock, reserving the bones and discarding the other solids. Store the bones in the refrigerator in a covered container. Cool the stock overnight in a covered container in the refrigerator, then remove the fat from the top and store in the refrigerator for up to 3 days, or in the freezer for up to 3 months. *If you chose to try eating the bones, the sensation is a bit like eating shoe-string potatoes...slightly crunchy, rich, and satisfying. Marrow is full of bone-building minerals, of course, as well as fat to help with their absorption.*

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Very, Very Rich Chicken Bone Stock...A bowl or two can make a meal.

3-4 pound chicken, whole or in parts
12 cups cold water
3 or 4 large carrots
2 or 3 celery stalks, with leaves
1 parsnip
1 onion, peeled
½ head garlic
1 leek
2 or 3 sprigs fresh thyme
Handful fresh parsley leaves and stems
8 peppercorns
1 bay leaf
Other vegetable scraps, like fennel fronds, chard stems or squash ends
2 tablespoons apple cider vinegar
Fine sea salt to taste

Into a large stock pot, place cleaned chicken and water and bring to a boil. Lower the heat and simmer, uncovered, for about 15 minutes. Skim and discard any foam that appears.
Meanwhile, clean the vegetables and herbs, and cut the vegetables into large pieces so that they will fit inside the pot. Add all the ingredients, except the sea salt, to the soup pot. Bring the soup to a boil again, reduce the heat to very low, and simmer uncovered. After the first hour of simmering, remove the chicken, take the meat off the bone, and set it aside to be added back to the soup when it's finished cooking (boiled meat is rather spent after 6 hours in a pot). Simmer the soup uncovered for another five hours. Then remove it from the heat, strain, skim the fat if there is an abundance, and serve with the reserved chicken pieces. This serves a family of five, so it can be cut down.

Source: Ellen Arian, www.ellensfoodandsoul.com

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Beef Stock

Once you've made this stock, don't be so quick to discard the bones. The marrow that remains within is a rich source of calcium, fat, iron, and zinc. In fact, it has three times more calcium than milk, ounce for ounce. Although it's fallen out of favor as a food, marrow was an esteemed source of nutrients in the past. If you'd like to give it a try, blow or scrape it out of the bones after the stock is cooked, spread it on whole grain toast, and top with a little salt and white pepper.

2 pounds beef marrow bones
4 quarts cold water
1 large carrot, top ½ inch discarded, chopped
1 medium onion, quartered
2 stalks celery, chopped
3 cloves garlic, peeled
½ cup parsley stems (no leaves, which add green color)
2 tablespoons extra-virgin olive oil
1 cup red or white wine, or 2 tablespoons wine vinegar

1. Place the bones in a stockpot with the water, bring to a boil over high heat, and simmer for 10 minutes. Skim off as much of the foam as possible.
2. Add the carrot, onion, celery, garlic, parsley stem, oil, and wine, lower the heat to maintain a very low simmer and cook for 6 to 8 hours with the lid ajar, skimming occasionally.
3. Strain the stock through a fine-mesh sieve without pressing on the solids. Cool the stock before storing in the refrigerator overnight, then remove the fat from the top. It can be kept in the refrigerator for up to 3 days, or in the freezer for up to 3 months.

Makes 3 quarts.

Source: Annemarie Colbin

Reading Resources:

Annemarie Colbin, *Food and Our Bones* and *The Whole-Foods Guide to Strong Bones*
Harold McGee, *On Food and Cooking*
Rombauer, Becker, and Becker,*The Joy of Cooking*
Sally Fallon, *Nourishing Traditions*
Ronald F. Schmid, *Traditional Foods Are Your Best Medicine*
Frances Pottenger, *Pottenger Cats*
N.R. Gotthoffer, *Gelatin in Nutrition and Medicine*
http://www.westonaprice.org/foodfeatures/brothisbeautiful.html
http://www.westonaprice.org/Bone-Marrow.html
http://www.rwood.com/Articles/Traditional_Bone_Stock.htm

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Rebecca Wood, Award-Winning Julia Child Chef, on…Traditional Bone Stock (Gelatin)

Here's how the classic energy tonic, bone stock, deliciously soothes whatever ails you. It increases endurance and strengthens the gastro intestinal tract and the immune system. Plus it sublimely increases the flavor and texture of savory dishes.

How does purchased stock compare to home-made? Like cut glass to a diamond. It is stock that ultimately determines the success of a dish. Thus cooks world-wide and through the centuries have regarded silky, gelatinous, marrow bone stock as an essential ingredient for soups, sauces and pilafs.

Because gelatin is concentrated protein, you may regard it as the original--and healthful--protein isolate. These long chained protein molecules may be extracted from animal skins or bones.

Today's commercial gelatin, however, is derived only from animal skins, it is a protein source, but that's all. It is not *an energy tonic. Whereas, gelatin extracted from bones is a nutritious source of protein as well as collagen, calcium, minerals and the amino acids proline and glycine. Bone stock is a remarkable and healing food.*

Thus a traditional chicken stock made of the carcass is fondly dubbed "grandma's penicillin" for its effectiveness in combating the flu. Stock made from poultry or other bones increases endurance and strengthens the immune system and veins, arteries, muscles, tendons, skin and bones. It also soothes and heals the gastro-intestinal tract and is thus a potent medicine for people suffering from food sensitivities and digestive or bowel problems.

Even vegetarians use this gelatinous tonic medicinally because bones, like leather, are a by-product. Thus, no matter your dietary preferences, health or age, you'll benefit from bone stock.

The secret to a bone energy tonic is long cooking with a little solvent such as vinegar or wine to extract nutrients. Because bones are dense it takes a long time to draw out all their nutrients.

Excessive cooking will break-up the earliest-released gelatin molecule chains and produce (when chilled) a thin—instead of a thickly quivering—gelatin. Therefore, for thick gelatin, you may extract three different batches of stock from one pot of bones.

Stock is a forgiving recipe that easily accommodates your schedule and a little under- or over-cooking. Do try it and soon you'll gain a sense of mastery and your own stock rhythm.

I make a week's supply of bone stock and use it liberally in any savory dish that calls for liquid. Or, for a quick pick-me-up, I season it to taste and drink this consommé as an on-the-spot restorative.

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A Final Comment…In doing research for this newsletter, I was fortunate to have a conversation with scientist and practitioner Kaayla T. Daniel, PhD, who wrote the "Broths are Beautiful" article referred to on page 4. I called her to ask where to find a reliable, organic source of dried gelatin for use in cooking. This question turned into a broader discussion about gelatin, bone stocks, and health. Kaayla suggested that many who are interested in stocks for their health benefits are not comfortable using animal bones. In response to my question about how to improve the gelatinous quality of my own stocks, Kaayla reminded me that one of the very best ways to derive gelatin from bones is to use shanks, knuckles, and marrow bones. Of course this would be the case since they contain up to twice as much collagen as regular bones (page 5). These are delicious slow-simmered with beans for a hearty and nutritious meal. This traditional way of cooking makes so much sense because the gelatin in knuckle-type bones would act as a protein-sparing agent for meals relying simply on the protein of beans. In our next newsletter we plan to expand upon this concept while offering recipes for shank soups, hocks and beans, bone marrow spreads…the perfect antidote to the March damp chill and biting winds.

Kaayla helped me recognize that, since some of you may not want to cook with bones, you might appreciate another option of obtaining stocks. Also, I know that organic knuckle- and shank-type bones maybe hard to find. So, I decided to add one last resource section to this newsletter… to provide sources where you can order homemade organic stocks. Some of the providers listed below also sell organic shank, marrow, and knuckle bones. For a more complete listing, see the Weston A. Price Foundation shopping guide, www.westonaprice.org.

Sources for Organic Bone Stocks:

Bonewerks stocks (800-542-3032)

Chesapeake Gardens beef, chicken and fish stocks (800-886-0272)

Grazin'Acres beef and chicken stock (608-727-2904)

Green Acres Farm beef and chicken stock (717-661-5293)

Miller's Organic Farm beef, chicken and fish stock (717-556-0672)

Perfect Addition frozen stocks (949-640-0220)

Stock Options stocks and demi glace (503-236-7810)

US Wellness Meats beef stock (877-383-0051)

…Forward to a friend…