

BRAIN MAKER

*The Power of Gut Microbes to Heal and
Protect Your Brain — for Life*

BY DAVID PERLMUTTER, MD

WITH KRISTIN LOBERG



LITTLE, BROWN AND COMPANY
NEW YORK BOSTON LONDON

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Little, Brown and Company
Hachette Book Group
1290 Avenue of the Americas, New York, NY 10104
littlebrown.com

First Edition: April 2015

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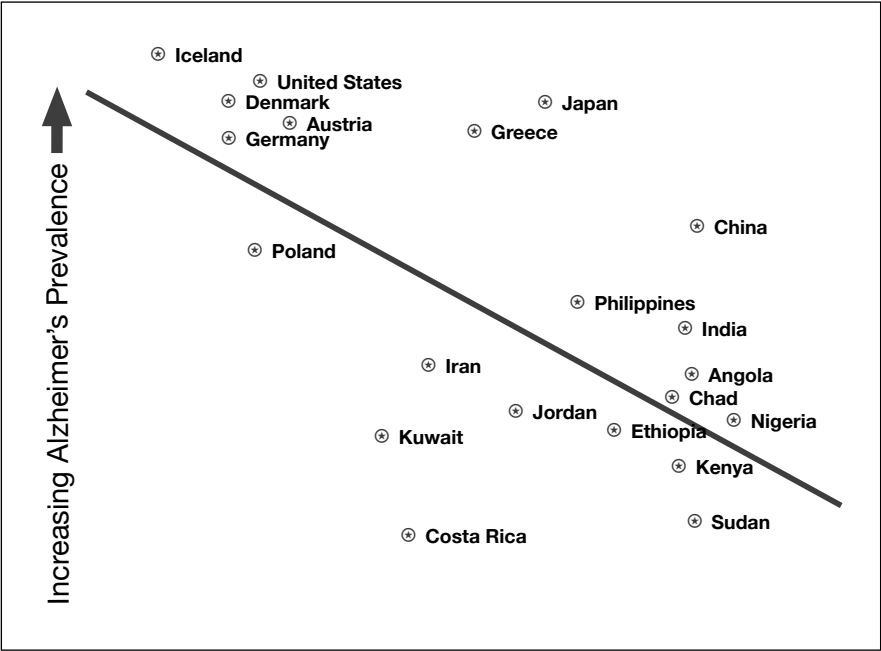
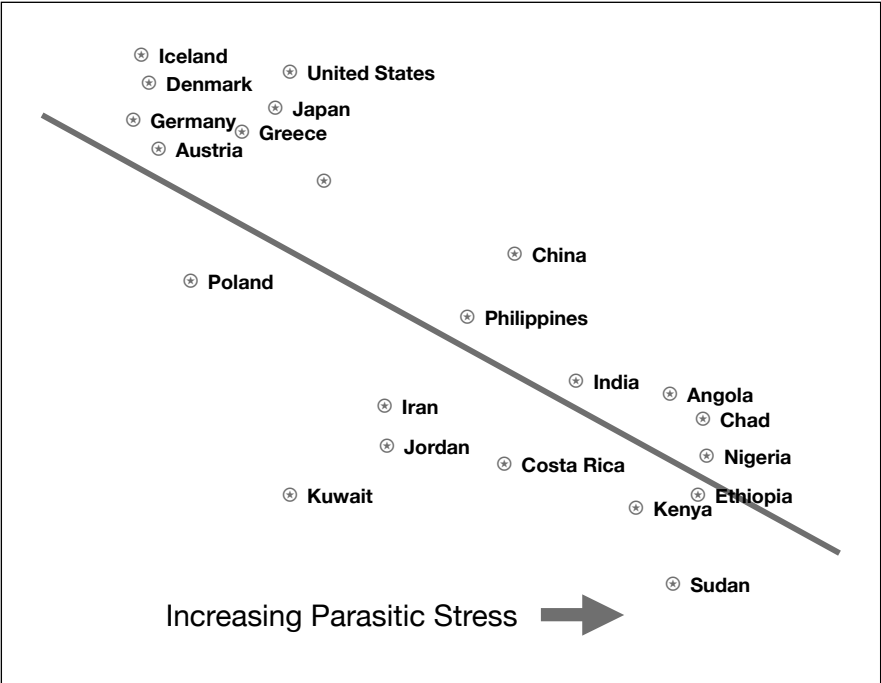
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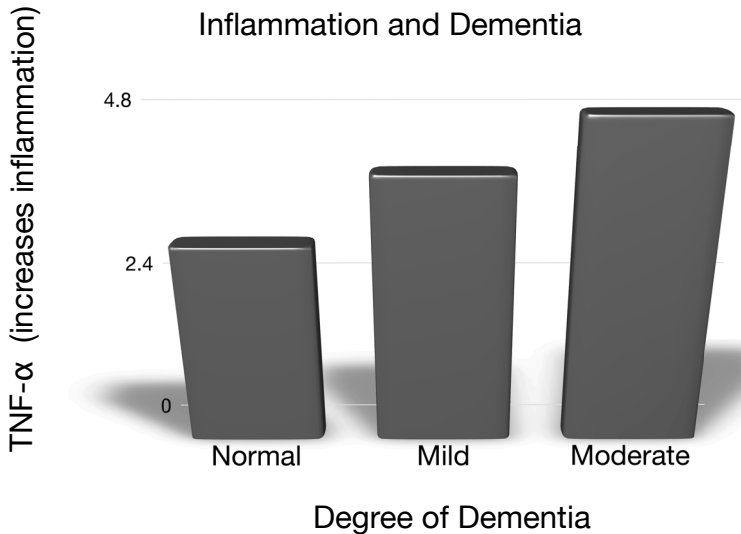
ISBN 978-0-316-38010-2
LCCN TK

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Printed in the United States of America



Inflammation and Dementia



LPS (pg/ml)

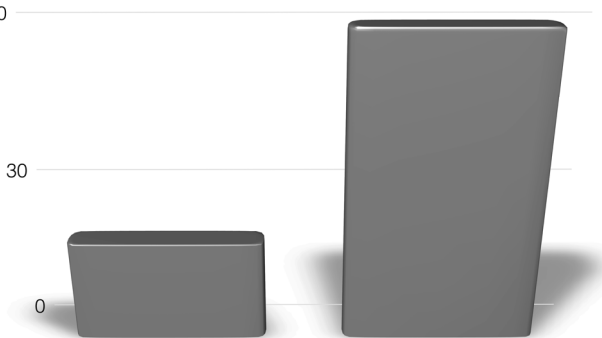
60

30

0

Healthy controls

Alzheimer's



Plasma LPS (pg/ml)

50

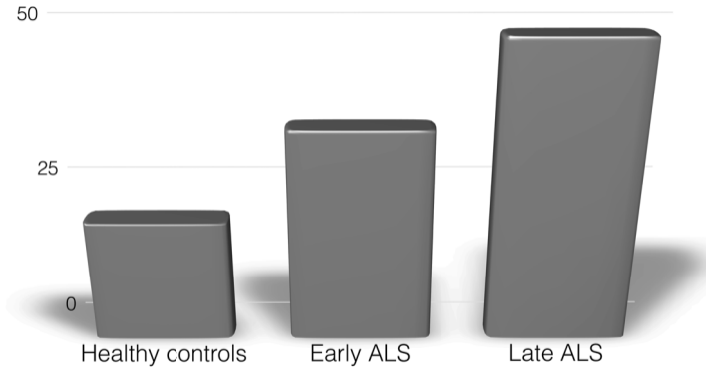
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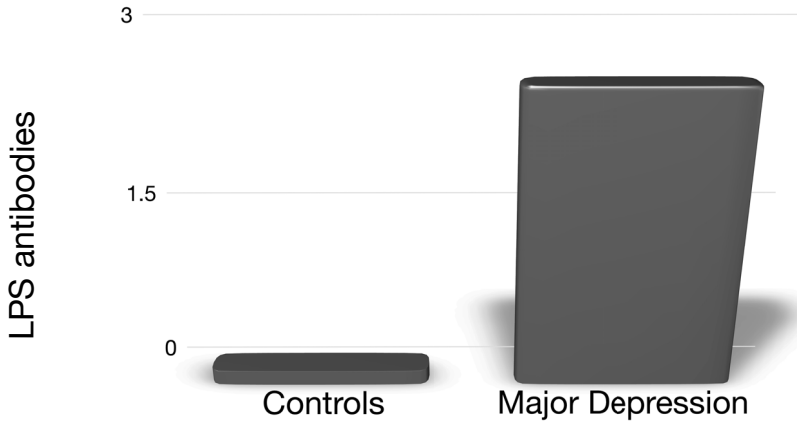
Healthy controls

Early ALS

Late ALS



LPS antibodies in control vs. Major Depression



Percentage bacteria in fecal sample

African

European

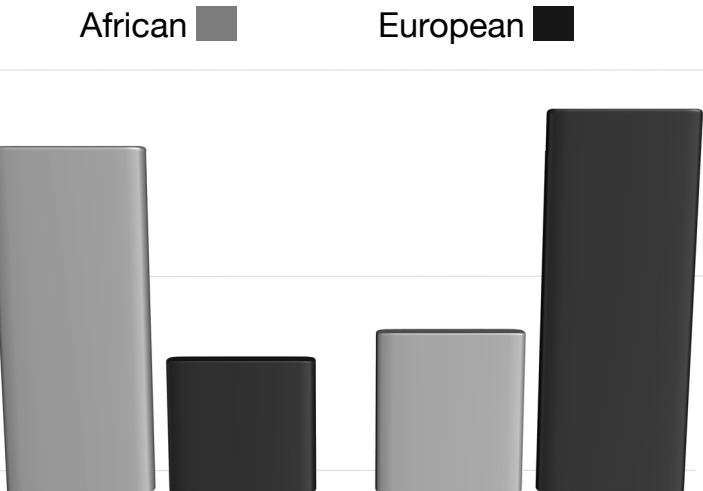
70

35

0

Bacteroidetes

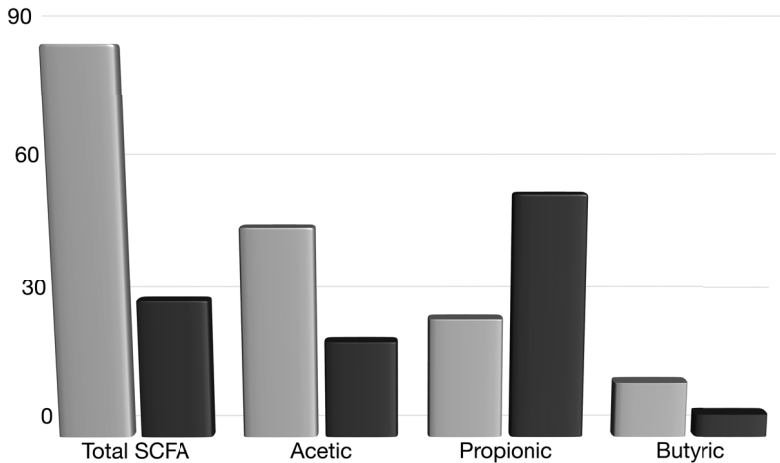
Firmicutes



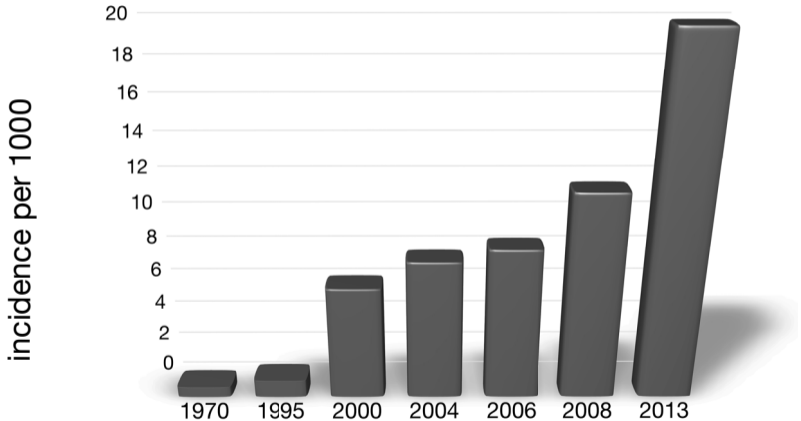
Short chain fatty acids in fecal sample

African

European



Autism Spectrum Disorders



LPS units/ml

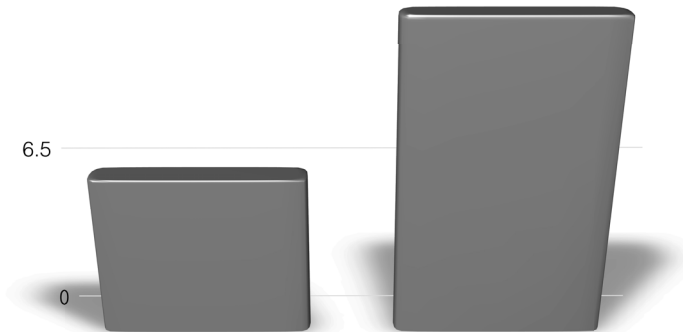
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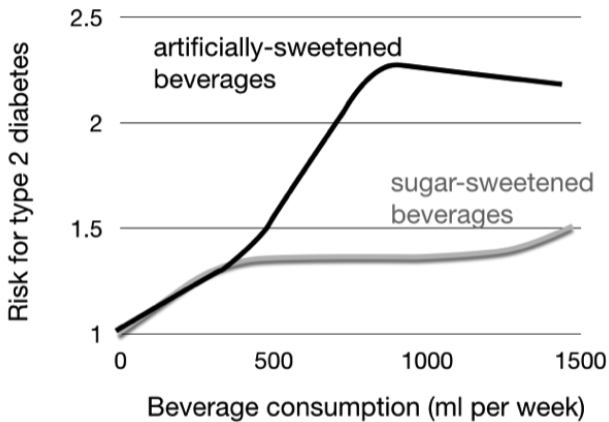
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Healthy controls

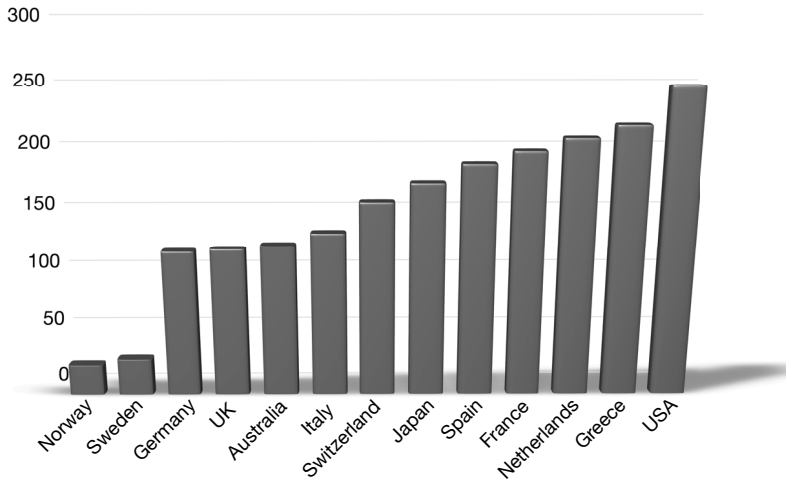
Autism



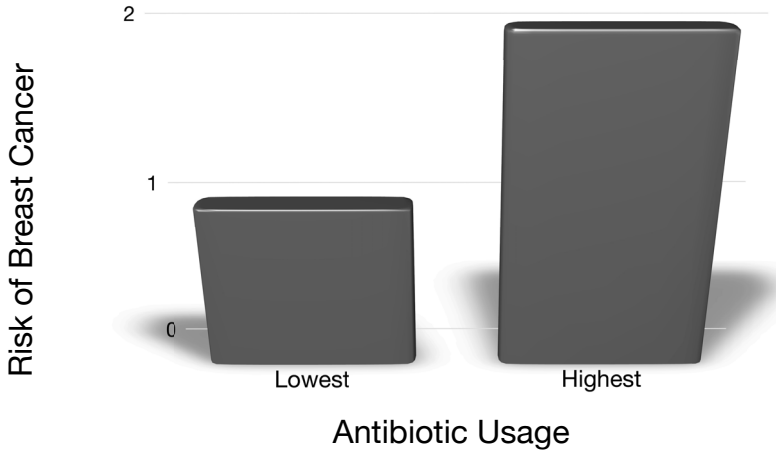


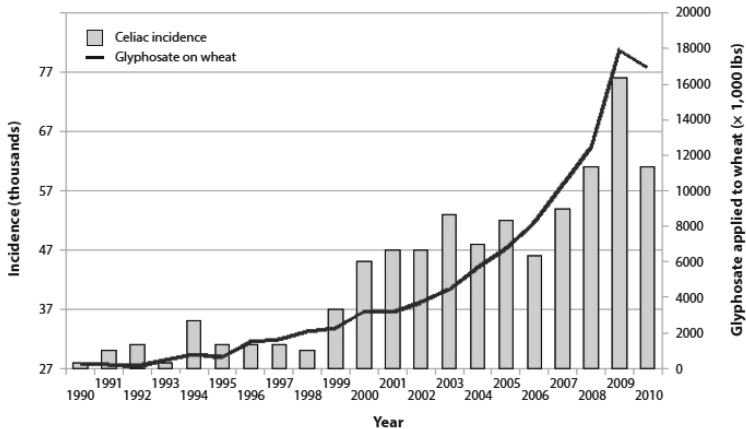
Adapted from: American Journal of Clinical Nutrition. 2013;97:517-23

Antibiotic usage (mg/kg meat produced)



Breast Cancer Risk Relates to Antibiotic Usage





Hospital discharge diagnosis (any) of celiac disease ICD-9 579 and glyphosate applications to wheat ($R=0.9759$, $p<$
 Sources: USDA:NASS; CDC. (Figure courtesy of Nancy Swanson).

1.862e-06).

THE 7-DAY MEAL PLAN

Day 1

- BREAKFAST: 1 cup **yogurt** (page xx) with crushed walnuts and blueberries; optional: coffee or black tea
- LUNCH: grilled king salmon with **preserved lemons** (page xx), with a side of leafy greens dressed in balsamic vinegar and olive oil; optional: **kombucha** (page xx) or green tea
- DINNER: 3 ounces steak topped with **pickled salsa** (page xx), with a side of greens and vegetables sautéed in butter and garlic; optional: glass of red wine
- DESSERT: 2 to 3 squares dark chocolate

Day 2

- BREAKFAST: 1 cup **yogurt** topped with **blueberry-mint preserves** (page xx); optional: coffee or black tea
- LUNCH: mixed-greens salad with 3 ounces grilled chicken and two **fermented hard-boiled eggs** (page xx), dressed in balsamic

vinegar and olive oil; optional: **coconut water lemonade** (page xx) or **water kefir** (page xx)

- DINNER: 3 ounces steak topped with **pickled salsa**, with a side of greens and vegetables sautéed in butter and garlic; optional: glass of red wine
- DESSERT: half a cup of berries topped with a drizzle of unsweetened cream

Day 3

- BREAKFAST: 2 scrambled eggs with stir-fried onions, mushrooms, and spinach, and 1 cup **milk-based kefir** (page xx); optional: coffee or black tea
- LUNCH: stir-fried vegetables with **corned spiced pork loin** (page xx); optional: filtered water with 1 tablespoon of acacia powder (see resources) or **kombucha** (page xx)
- DINNER: 3 ounces **raw fish ferment** (page xx), with a side of greens and vegetables sautéed in butter and garlic; optional: glass of red wine
- DESSERT: ½ cup **quark** (page xx) with a drizzle of honey

Day 4

- BREAKFAST: 1 cup **yogurt** with fresh fruit and a sprinkle of ground flax seeds, with half an avocado drizzled with olive oil; optional: coffee or black tea
- LUNCH: grilled steak with **sweet cippolini onions** (page xx), with a side of roasted vegetables; optional: **kombucha** or **water kefir**

- DINNER: 3 ounces wild, cold-water fish of choice, with a side of **kimchi** (page xx) and steamed asparagus; optional: glass of red wine
- DESSERT: 1 whole piece of fruit with an optional sprinkle of stevia and cinnamon

Day 5

- BREAKFAST: 3 to 4 slices of lox or smoked salmon with **ricotta** (page xx) and 1 soft-boiled egg; optional: coffee or black tea
- LUNCH: Mixed greens salad with raw dandelion greens, diced chicken, and **spiced asparagus** (page xx) dressed with balsamic vinegar and olive oil; optional: **kombucha**, green tea, or **coconut water lemonade**
- DINNER: grilled or roasted meat of your choice, with a side of greens and vegetables sautéed in butter and garlic; optional: glass of red wine
- DESSERT: 2 squares dark chocolate dipped in 1 tablespoon almond butter

Day 6

- BREAKFAST: 2 eggs any style, with unlimited stir-fried veggies (e.g., onions, mushrooms, spinach, broccoli) and 1 cup **milk-based kefir**; optional: coffee or black tea
- LUNCH: roasted chicken with **pickled garlic** (page xx), with a side of leafy greens with dandelion, and ½ cup wild rice; optional: filtered water with 1 tablespoon acacia powder mixed in or green tea

- DINNER: **corned beef** (page xx) and **basic sauerkraut** (page xx), with a side of steamed vegetables drizzled with olive oil; optional: glass of red wine
- DESSERT: 1 piece of whole fruit of your choice dipped in 1 tablespoon melted dark chocolate

Day 7

- BREAKFAST: 1 cup **yogurt** topped with mixed fresh berries, shaved coconut, and chopped walnuts, with 1 traditional hard-boiled egg; optional: coffee or black tea
- LUNCH: mixed greens salad with shaved Jerusalem artichoke and 4 ounces of ahi tuna, dressed in balsamic vinegar and olive oil; optional: **water kefir** or green tea
- DINNER: **Scandinavian-style fermented salmon** (page xx) over mixed greens, with a side of vegetables sautéed in butter and garlic and ½ cup brown rice; optional: glass of red wine
- DESSERT: skip

The Recipes

BASICS

Whey

Makes 1 quart

Whey, the liquid left after milk has curdled and been strained, is often used as a starter culture in fermented recipes. Nonrefrigerated raw milk that has been left to sour will naturally form lumps and liquid known as curds and whey, as in the Miss Muffet nursery rhyme. As the curds drain, nutrient-rich whey remains.

When drained, organic whole-milk yogurt will exude liquid whey, leaving a thick cream-cheese–like substance that can be used as a spread. Whey is also produced when one makes homemade ricotta (see page 00) or other creamy cheeses, and this whey, too, can be used in fermenting. Whey assists in the production of the microorganisms that make fermented foods so good for you; it also decreases the amount of salt required for fermentation.

You can use either homemade or store-bought yogurt, as long as it has been produced with organic, full-fat milk (goat, sheep, or cow) from grass-fed animals and contains live cultures; however, do not use Greek yogurt, as much of the whey has already been drained off. You will need a large colander or fine-mesh sieve and unbleached cotton cheesecloth to prepare the recipe.

8 cups homemade or store-bought plain, full-fat yogurt from grass-fed cows, sheep, or goats (see page 00), brought to room temperature

Dampen enough cheesecloth to cover the interior of a large colander or fine-mesh sieve. Fit the cheesecloth into the colander, taking care that it completely covers it. Set the lined colander into a large glass bowl or nonreactive container large enough to allow a few inches of space between the bottom of the colander and the bottom of the bowl.

Spoon the yogurt into the colander, and set it aside at room temperature to drip for 4 hours or until a substantial amount of whey has drained into the bowl. Pour the whey into a clean glass container, cover tightly, and set aside. (It doesn't need to be refrigerated.)

Pull the cheesecloth up and around the firm cream that remains, and tie the ends together to make a tight bundle, creating pressure to continue the draining. Leave the bundle in the colander for at least another 8 hours or overnight or until no more liquid is draining off.

Combine the remaining whey with the jarred whey, cover tightly, and refrigerate for up to 2 months. Whey may be frozen for up to 3 months, but after that the microorganisms begin to die.

Place the cream-cheese-like remaining yogurt into a clean container, cover, and refrigerate for use as a cheese or spread. This may be stored, covered and refrigerated, for up to 1 week.

Kefir Whey

Makes 1 cup

Kefir is a fermented dairy product that is similar to yogurt but substantially thinner in consistency. The most noticeable difference between the two is that kefir starter consists of granular “grains” that are combinations of bacteria and yeasts living in dairy components, and the

microbes do best at room temperature. In contrast, yogurt is the result of the bacterial fermentation of milk, and its microbes thrive above about 100°F. Also, kefir is most frequently consumed as a beverage rather than eaten, as yogurt is.

2 cups plain homemade or store-bought organic milk-based kefir
(see page 00)

Dampen enough cheesecloth to cover the interior of a fine-mesh sieve with two layers. Fit the cheesecloth into the sieve, taking care that it completely covers it. Set the lined sieve in a large glass bowl or nonreactive container large enough to allow a few inches of space to remain between the bottom of the sieve and the bottom of the bowl.

Pour the kefir into the sieve. Cover with plastic film, and place the bowl in the refrigerator. Let it drip for 8 hours or overnight or until the all of the whey has dripped off and the kefir has thickened.

Transfer the whey to a clean glass container, cover, and refrigerate for up to 1 month, although the bacteria in the whey are most vigorous when freshly prepared. Scrape the thickened, cream-cheese-like kefir remaining in the cheesecloth into a clean container, cover, and refrigerate for up to 1 month to use as a cheese or spread. (Avoid freezing.)

Basic Brine

Makes 1 quart

Since many fermented foods require brine, it is a good idea to keep some on hand. The following recipe makes a minimal amount, but it may be increased incrementally to meet your needs. Refrigerated, brine will keep indefinitely.

Because the water is so important in fermenting, it is imperative that you use distilled water when making a brine. Most tap water has been

treated with chlorine or chloramine, which kill the good microorganisms you need; well water may have chemicals or salts that will adversely affect the fermentation process; filtered water may still contain trace chemicals; and bottled water that is not labeled “distilled” may contain unwanted chemicals, too.

I recommend using only pure sea salt in brines and all forms of fermenting. Table salt contains undesirable iodine and chemicals, so it should never be used in brine, as it will impede fermentation and may lead to spoilage.

4 cups cold distilled water

3 tablespoons fine pure sea salt (or 4½ tablespoons coarse pure sea salt)

Combine the water and salt in any container with a tight-fitting lid, stirring to blend (the salt will eventually dissolve). Cover and refrigerate until ready to use. If the brine is needed immediately, dissolve the salt in 1 cup of very warm distilled water and then combine it with the remaining 3 cups of cold water.

Spiced Brine

Makes 1 quart

Spiced Brine is used most generally for curing meats and fish, as the spices and sweetness add the complexity these recipes require. You may use any combination of organic spices and dried herbs that appeal to you so that you can make your own personal mark on a dish. All of the same information given for a Basic Brine (see page 00) applies to making a Spiced Brine.

4 cups cold distilled water

3 tablespoons fine pure sea salt (or 4½ tablespoons coarse pure sea salt)

2 tablespoons raw honey

2 organic bay leaves

¼ teaspoon organic black peppercorns

¼ teaspoon organic allspice berries

¼ teaspoon organic juniper berries

¼ teaspoon organic whole coriander

¼ teaspoon organic mustard seeds

Whole organic dried hot chiles or red pepper flakes to taste, optional

Combine the water and salt in a large saucepan with the raw honey, bay leaves, peppercorns, allspice, juniper, coriander, and mustard seeds. If heat is desired, add dried chiles or red pepper flakes to taste. Place over medium heat, and bring to a simmer. Remove from the heat and let stand until cool.

DAIRY

Milk-Based Kefir

Makes 1 quart

Kefir is an ancient fermented milk drink that originated in the Caucasus region between Europe and Asia and was made from camel's milk. Although it is now most commonly made from cow's milk, it can also be made from goat's or sheep's milk as well as unsweetened coconut or almond milk. With moderate fermentation, it is slightly sour and reminiscent of a faintly bubbly, liquid yogurt. It has been touted as the secret to longevity and superb health.

¼ cup kefir grains (see note below)

4 cups organic full-fat milk from grass-fed cows

Place the kefir grains in a clean, sterilized container, such as a 1-quart glass canning jar with a sterilized lid. Add the milk, tightly seal the jar, and set it aside at room temperature for 24 hours. After the initial fermentation, you can let it stand at room temperature for weeks, but remember that it will get increasingly sour as it sits and eventually become too sour to drink. Refrigerated milk kefir will last for months.

After 24 hours of fermentation, open the jar, and pour the liquid through a fine-mesh strainer into a clean container, reserving the kefir grains as directed in the note below. Return the kefir to the quart container, tightly seal, and place in the refrigerator.

The kefir may be consumed at this point or kept, refrigerated, for up to 1 year. However, the longer it is refrigerated, the more sour it will become.

At this point, if you wish to flavor the kefir, you can put it through a second fermentation period using the same container. Add whatever flavors you wish, such as fresh berries, cinnamon sticks, whole nutmeg,

cardamom seeds, chai tea, or orange peel. It is difficult to give exact amounts of these ingredients, as that will depend on the strength of flavor you desire. The more flavoring you add, the stronger the flavor will of course be. But it is best to start on the low end; for example, $\frac{1}{4}$ cup of fresh berries, 1 to 2 pieces of a spice, 1 teaspoon chai tea, or the zest of 1 orange.

Combine the kefir with the flavoring, tightly seal, and set aside to ferment at room temperature for 12 to 24 hours; the longer you leave it, the more flavor it will absorb. The kefir may be consumed at this point or kept, refrigerated, for up to 1 year. Again, the longer it is refrigerated, the more sour it will become.

NOTE: Kefir grains are a yeast/bacteria mixture held together in milk proteins and complex sugars. They range in size from that of a small grain of rice to that of a hazelnut and incorporate friendly organisms into milk as it ferments. Since they are alive, they require continual nourishment. This means that after use, they should be stored in fresh full-fat milk, covered, and refrigerated. In a ratio of 1 tablespoon of grains to 1 cup of milk, they will remain active for a week. If you need to store them for longer periods, add 1 cup of milk (per tablespoon of grains) each week it is stored. Although it would seem that storing them this way would turn the milk into kefir, this does not happen because the cold inhibits the fermentation process. Kefir grains will also quickly die if they are exposed to high levels of heat, such as in a very hot freshly sterilized container.

When making kefir from coconut or almond milk, it will be necessary to refresh the grains in full-fat milk, as these alternative milks do not contain the lactose necessary to nourish them.

Yogurt

Makes 1 quart

Yogurt is very quick and easy to prepare. All you need is milk, yogurt starter, and some time. One of nature's original prepared foods, yogurt was probably discovered by the nomadic tribes of Asia and Eastern Europe when the milk carried in their sheep- or goat-skin pouches inadvertently fermented with the sun's warmth. Like kefir, yogurt is believed to be a factor in the extraordinary longevity of the people of the Caucasus region and Bulgaria.

To make yogurt successfully in the home kitchen, you will need an instant-read food thermometer and a yogurt maker, or a place that remains at a near-constant 110–115°F, such as a pilot-light-driven oven with a constant temperature of 110°F. Once you have made your own yogurt, always remember to keep $\frac{1}{4}$ cup from each batch to make the next one.

4 cups organic full-fat milk from grass-fed cows, sheep, or goats

$\frac{1}{4}$ cup organic full-fat yogurt made from milk from grass-fed cows, sheep, or goats (see note)

Place the milk in a medium-size heavy-bottomed saucepan over medium heat. Bring to 185°F on an instant-read food thermometer, watching carefully to keep the milk from boiling over. Once the temperature has been reached, remove from the heat and set aside. Allow the milk to cool to 110°F. If you are in a rush, place the saucepan in an ice bath and stir to speed cooling, but do not allow the milk to get cooler than the required 110°F.

Whisk the yogurt into the warm milk until it is completely blended. Pour the mixture into clean, sterilized containers with sterilized lids, such as four 8-ounce glass jelly canning jars or a 1-quart glass canning jar; or, if using a yogurt maker, pour the mixture into its containers.

If using the jars, tightly cover, and place in a spot that remains at a near-constant 110°–115°F for 8 to 12 hours or until it reaches the tanginess and thickness that you desire. Transfer to the refrigerator and store for up to 2 weeks. If using a yogurt maker, follow the manufacturer’s directions for that specific machine.

NOTE: Both sheep’s milk and goat’s milk tend to produce yogurts that are somewhat looser in texture than yogurt made from cow’s milk.

Quark

Makes 1 cup

Quark, the German word for “curd,” is a fresh cheese common throughout Europe. The texture achieved depends on the type of milk used and the length of fermentation. It can be as loose as sour cream or as thick as cream cheese. It can be flavored with herbs, aromatics, or citrus zest. Quite tangy, quark is used in sauces, dips, salads, and desserts. Like ricotta, it can be served as a dessert with a drizzle of honey, a piece of fruit, or a bowl of berries.

Once you have made your own quark, retain about ¼ cup from each batch to use as the culture in place of the buttermilk for your next batch.

4 cups organic full-fat milk from grass-fed cows, goats, or sheep

3 tablespoons organic full-fat buttermilk from grass-fed cows, goats, or sheep

Place the milk in a medium-size heavy-bottomed saucepan with a tight-fitting lid over medium heat. Bring to 165°F on an instant-read food thermometer, watching carefully to keep the milk from boiling over. Once the temperature has been reached, remove from the heat and cover

tightly. Set aside for about 1 hour or until the milk has come to room temperature (no cooler than 70°F).

Uncover and whisk in the buttermilk. Again, cover and set aside for 18 hours or until the milk has clabbered (soured and curdled) and thickened into a slightly sour yogurt-like substance.

Dampen enough cheesecloth to cover the interior of a fine-mesh sieve with 2 layers. Fit the cheesecloth into the sieve, taking care that it completely covers it. Set the lined sieve into a large glass bowl or nonreactive container large enough to allow a few inches of space to remain between the bottom of the sieve and the bottom of the bowl.

Using a metal spoon, transfer the clabbered milk to the cheesecloth-lined strainer, cover with plastic film, and refrigerate for 8 hours or until the desired consistency is reached. You may have to stir the clabbered milk from time to time to keep the whey (liquid) flowing. Do not discard the whey; it may be used as a beverage or in any recipe requiring whey. Store the whey as directed on page 00.

Store the quark, covered and refrigerated, for up to 1 month.

Ricotta

Makes about 1½ cups

This recipe—which is so easy to make and so much creamier than most commercially made ricottas—will become a standard in your kitchen. It is useful as a spread, a component of salads, and a dessert with a bowl of berries or drizzled with a bit of honey or Blueberry-Mint Preserves (see page 00). Traditionally, northern Italians don't like their ricotta salted, while southern Italians prefer it salted. If you are going to use the ricotta solely as a dessert, you can flavor it with a tablespoon or two of honey when boiling the milk.

2 cups organic full-fat milk from grass-fed cows

1 cup organic heavy cream from grass-fed cows

½ teaspoon fine pure sea salt (optional)

1½ tablespoons strained fresh lemon juice

Dampen enough cheesecloth to cover the interior of a fine-mesh sieve with two layers. Fit the cheesecloth into the sieve, taking care that it completely covers it. Set the lined sieve into a large glass bowl or nonreactive container large enough to allow a few inches of space to remain between the bottom of the sieve and the bottom of the bowl. Set aside.

Combine the milk and cream and, if desired, salt in a heavy-bottomed pot over medium heat. Bring to a gentle boil and boil for 1 minute. Remove from the heat and stir in the lemon juice.

Set aside to rest for about 4 minutes or just until the mixture separates into visible curds and whey. Using a slotted spoon, transfer the curds to the cheesecloth-lined sieve, cover with plastic film, and set aside to drain for about 2 hours or until the desired consistency is reached. The longer you allow the mixture to drain, the denser the finished cheese. Do not discard the whey; it may be used as a beverage or in any recipe requiring whey. Store the whey as directed on page 00.

Scrape the ricotta from the cheesecloth, and place in a nonreactive container. Store, covered and refrigerated, for up to 5 days.

VEGETABLES

Basic Sauerkraut

Makes 1 quart

This is, perhaps, the easiest recipe to introduce fermenting into your life; nothing is needed but organic cabbage, sea salt, and time. You can use any type of cabbage—red, napa, savoy, Brussels sprouts—it really is up to you. Not only is it easy to make, but fresh sauerkraut is very good for you. It contains *Lactobacilli*, beneficial bacteria that aid in the functioning of the digestive tract, and it is an excellent source of essential nutrients and fiber. Refrigerated, sauerkraut keeps for a very long time, usually up to a year, without losing flavor. Fresh sauerkraut is best eaten raw, while mature, intensely flavored kraut is often best cooked.

To make sure that the ratio of cabbage to salt is correct, I recommend that you weigh the cabbage after you have removed the core and any wilted or damaged outer leaves.

2½ pounds organic cabbage, cored and with wilted or damaged outer leaves removed

3 teaspoons fine pure sea salt

Shred the cabbage into coarse threads using either a food processor fitted with the shredding blade, the large holes of a hand-held box grater, a mandoline, or a large, sharp chef's knife.

Place the cabbage in a large bowl, and sprinkle the salt over the top. Using your hands, begin massaging the salt into the cabbage, working until you have begun to easily squeeze liquid from the cabbage. The time required will depend on the freshness of the cabbage and the strength of your massage and can range from a couple of minutes to 30 minutes or so.

Pack the cabbage and the liquid into a clean, sterilized container, such as a 1-quart glass canning jar with a sterilized lid or a 1-quart crock with a sterilized, tight-fitting lid. Using your fingertips, a smaller jar or glass that will fit down into the larger jar, or a potato masher, press down as firmly as you can to allow the liquid to rise up and cover the shredded cabbage. You should leave about 1 to 2 inches of space between the cabbage and the top of the jar to give the cabbage room to expand as it ferments. If the mixture has not created enough liquid to cover the cabbage, add enough cool distilled water to completely cover it.

Place a bit of cool water in a small, clean resealable plastic bag, pushing to eliminate all air from the bag. You need just enough water to create a weight to keep the cabbage under the liquid. Seal the bag, place it on top of the cabbage in the jar and push it down to ensure that the water bag has sufficient weight. Place the lid on the container and seal tightly.

Set aside in a cool, dark spot for 5 days. Check the fermentation process daily to make sure the cabbage has remained covered in liquid. If not, add distilled water to cover.

After 2 days, begin tasting the sauerkraut. Remove the water bag and set it aside. Remove and discard any scum or mold that has formed; it is not harmful, just unappetizing. Using a fork, poke around in the jar, and pull out a small amount to taste. This allows you to determine when the sauerkraut is to your liking. But be sure to push the sauerkraut back down into the liquid, place the water bag on top to press the cabbage down, tightly seal, and set aside as before.

Depending on the temperature in its resting place, after one week the sauerkraut should be a bit bubbly and have a tart, sour aroma. When the sauerkraut has reached the flavor and texture you desire, transfer the jar to the refrigerator to impede further fermentation. The kraut will continue to ferment, but at a much slower pace.

You can use the sauerkraut at any point in the fermentation process. Early in the process it will be more cabbage-like and crunchy; later it will

be softer and have a stronger, more sour flavor. It will keep, covered and refrigerated, up to six months, although it will slowly continue to increase in sourness.

NOTE: Cabbage ferments very quickly at room temperature (about 70°F), and sauerkraut is usually ready to eat in a week. You can also refrigerate it from the start, but fermentation will occur very slowly (taking somewhat more than double the time of room temperature fermentation); however, the end result will be crisper. If kept at a temperature over 80°F, it will quickly turn dark brown and spoil. If this occurs, discard the sauerkraut and start again.

For more flavor, add caraway, dill, or mustard seeds to the cabbage and salt.

Spiced Asparagus

Makes 1 quart

Asparagus prepared in this manner makes an elegant addition to salads and charcuterie platters, serves as a snappy hors d'oeuvre, and best of all, is good for you! This is a terrific way to preserve that perfect and inexpensive spring harvest.

1 pound organic asparagus (about 16 spears)

4 cloves organic garlic, peeled and sliced

2½ cups room temperature Spiced Brine (see page 00)

Trim the woody ends from the asparagus. You can then either cut each spear on the bias into 3-inch pieces or neatly trim the end and leave each spear whole.

If using cut pieces, place them in a bowl, add the garlic, and toss to combine. Place into a sterilized 1-quart glass canning jar with a sterilized lid or a 1-quart crock with a sterilized, tight-fitting lid. Pour the brine into the container, taking care that it covers the asparagus completely.

If whole pieces, place the spears, standing with tip up, into a sterilized 1-quart glass canning jar with a sterilized lid or a 1-quart crock with a sterilized, tight-fitting lid. Nestle the garlic slices around the asparagus spears. Pour the brine into the jar, taking care that it covers the asparagus completely.

If there is not enough liquid to cover the asparagus, add enough cool distilled water to completely cover. You should leave about 1 to 2 inches of space between the asparagus and the top of the jar to give the asparagus room to expand as it ferments.

Place a bit of cool water into a small resealable plastic bag, pushing to eliminate all air from the bag. You need just enough water to create a weight to keep the asparagus under the liquid. Seal the bag, and place it on top of the asparagus, pushing down to ensure that the water bag has sufficient weight. Do not press too firmly on the whole spears, as you don't want to smash the tips. Place the lid on the container and seal tightly. Set aside in a cool, dark spot.

Check the jar frequently to make sure the asparagus remains covered with liquid. If the liquid level is low, remove the water bag and set it aside. Remove and discard any scum or mold that has formed (it is not harmful, just unappetizing). Add distilled water to cover the asparagus. Push the asparagus back down into the liquid, place the water bag on top to press the asparagus down, tightly seal, and set aside as before.

After about 1 week the asparagus is ready to eat, but allowing it to ferment for 2 weeks will add more flavor. Transfer to the refrigerator and store for up to 3 months.

Sweet Cippolini Onions

Makes 1 quart

If you can't find small, rather flat white or red cippolini onions, you can use small yellow or red onions or shallots in this recipe. The same goes for the Himalayan pink salt, which is available at specialty food stores, some supermarkets, and online. Other fine sea salts may be used, but they won't add the hint of color to the finished onions that the pink salt does.

Although delicious straight from the jar, a quick turn on the grill heightens the acidic flavor of these pickled onions and makes them the perfect side to a grilled steak or chop.

10 whole cloves

10 cippolini onions, peeled and trimmed (about 1¼ pounds)

1 1-inch piece fresh ginger root, peeled and sliced

2 2-inch pieces cinnamon stick

1 tablespoon fine Himalayan pink salt

Distilled water (about 2 cups — enough to cover the onions)

Stick 1 clove into each onion. Fit half of the onions into a sterilized 1-quart glass canning jar. Nestle half of the ginger around the onions and add the cinnamon sticks. Fit the remaining onions into the jar and nestle the remaining ginger slices around them.

Combine the salt with the water, stirring to dissolve. Pour the salted water over the onions, taking care that it covers them completely. If it doesn't, add enough cool distilled water to completely cover. You should leave about 1 to 2 inches of space between the onions and the top of the jar to give the onions room to expand as they ferment.

Place a bit of cool water into a small resealable plastic bag, pushing to eliminate all air from the bag. You need just enough water to create a weight to keep the onions under the liquid. Seal the bag, and place it on

top of the onions, pushing it down to ensure that the water bag has sufficient weight. Place a sterilized lid on the container and seal tightly. Set aside in a cool, dark spot for 3 weeks or until the onions are as flavorful as you like.

Check the onions frequently to make sure they remain covered with liquid. If the liquid level is low, remove the water bag and set it aside. Remove and discard any scum or mold that has formed (it is not harmful, just unappetizing). Add distilled water to cover the onions. Push the onions back down into the liquid, place the water bag on top to press them down, tightly seal, and set aside as before.

After 3 weeks the onions should be ready to eat, but another 2 weeks of fermentation at room temperature will not hurt them. Transfer to the refrigerator and store for up to 9 months.

Kimchi

Makes 1 quart

Kimchi is one of those traditional recipes for which every Korean home cook has a secret or long-handed-down recipe. Traditionally, it was prepared in glazed clay crocks and buried deep in the ground to ripen over long periods of time, but that is rarely done anymore.

Fresh kimchi is treated as a salad; when ripened, it is used as a side dish or condiment; and when really mature, it is only for the stouthearted, as it is quite sour and intensely flavored. It is a dish you can make your own by adding more heat or changing the vegetables used. However, no matter what combination you choose, make sure you keep the pear or apple, as their sugars assists in the fermentation.

I recommend that you weigh the cabbage after you have removed the core and any wilted or damaged outer leaves.

- 2 pounds organic napa or savoy cabbage, cut into pieces about 2-inches square
- ¼ cup plus 1 tablespoon fine pure sea salt
- ¼ cup gochugaru or pure organic hot chile powder (see note)
- 1 large organic Asian pear, bosc pear, or crisp apple, skin-on, cored and chopped
- 2 tablespoons chopped organic garlic
- 1 tablespoon minced organic ginger root
- 1 tablespoon natural anchovy paste
- 2 organic leeks, white and some green parts, well washed and chopped
- 1 large organic Japanese radish (daikon), trimmed and cut into matchsticks
- 1 organic carrot, trimmed and cut into matchsticks
- 1 raw organic chicory (endive) root, well washed, peeled, and cut into matchsticks, (optional—see note)
- ½ cup (about 3 ounces) chopped organic Jerusalem artichokes

Combine the cabbage with ¼ cup of the salt in a large mixing bowl. Add enough warm distilled water to cover. Using your hands, mix the cabbage into the salted water. Set aside, uncovered, for 4 to 8 hours.

Drain the salted cabbage into a colander, and rinse under cold running water, shaking off excess water. Place the cabbage in a large mixing bowl.

Combine the gochugaru with the pear, garlic, ginger, and anchovy paste in a food processor fitted with a metal blade. Add 1 cup of warm distilled water, and process to a smooth puree. Set aside.

Toss the leeks, radish, carrot, chicory root, and Jerusalem artichokes into the cabbage. Using a rubber spatula, scrape the chile puree into the vegetables. Put on rubber gloves (to prevent the chiles from burning your skin), and use your hands to thoroughly rub the chile paste and the remaining salt into the vegetables.

Still wearing the gloves, pack the mixture and the liquid it has formed into a sterilized container, such as a 1-quart glass canning jar with a sterilized lid or a 1-quart crock with a sterilized, tight-fitting lid. Using

your gloved fingertips, a smaller jar or glass that will fit down into the larger jar, or a potato masher, press down as firmly as you can so the liquid rises up and covers the vegetables. If the mixture has not created enough liquid to cover, add cool distilled water to completely cover. You should leave about 1 to 2 inches of space between the vegetables and the top of the jar to give the kimchi room to expand as it ferments.

Place a bit of cool water into a small resealable plastic bag, pushing to eliminate all air from the bag. You need just enough water to create a weight to keep the vegetables under the liquid. Seal the bag and place it on top of the kimchi, pushing it down to ensure that the water bag has sufficient weight. Place the lid on the container and seal tightly.

Set aside in a cool, dark spot for 3 days. Check the kimchi daily to make sure it remains covered with liquid. If not, add distilled water to cover.

It is said that the optimal length of time for kimchi fermentation is three days, but many cooks allow it to ferment for far longer periods. It really depends on how sour and/or zesty you want it to be. After 3 days, begin tasting the kimchi to see if it is as flavorful as you'd like. Place the water bag back on top, reseal, and set aside as before.

When the kimchi has reached the flavor you desire, transfer the jar to the refrigerator to impede the fermentation process. The kimchi will continue to ferment, but at a much slower pace.

NOTE: Gochugaru, an essential ingredient in Korean cooking, is simply dried and crushed Korean red chiles. It is coarsely textured, a deep and pulsating red, and very spicy with a soft sweet aftertone. There is no replacement for it in authentic Korean cooking. The closest thing would be to grind your own dried organic hot red chiles. You should only purchase gochugaru made from 100% pure Korean red chiles; however, if you can't find it, use pure organic chile powder.

I use chicory root, as it is an excellent source of antioxidants as well as a terrific system cleanser. But since it is not always easy to find, I have made it optional; it will not impact the flavor or texture of the finished kimchi.

MEAT, FISH, AND EGGS

Corned Beef

Makes 6–8 pounds

This is traditionally served with plain cooked cabbage. However, to maximize brain-making potential, I serve my Corned Beef with home-made sauerkraut (see page 00). A large cut of beef will take approximately 2 weeks to ferment; thinner cuts, such as brisket, will be corned in about 5 days.

- 6 quarts Spiced Brine (see page 00)
- 2 cups raw honey
- 1 6- to 8-pound grass-fed beef top round roast
- 12 organic black peppercorns
- 6 sprigs organic parsley
- 4 bay leaves
- 3 cloves organic garlic, peeled and chopped
- Distilled water for cooking
- 6 organic leeks with some green part, trimmed and well washed
- 4 carrots, peeled and cut into chunks
- Sauerkraut (optional)
- Hot mustard (optional)

Combine the brine and the honey in a large saucepan over high heat and bring to a boil. Lower the heat and cook at a gentle simmer for about 5 minutes or just until the honey has dissolved. Remove from the heat and set aside to cool.

Place the beef into the cooled brine, making sure that it is completely covered by the brine. If not, add enough cold distilled water to cover. Cover and refrigerate for up to 2 weeks, checking often to ensure the

meat is completely covered. After 1 week, begin checking to see how deeply the brine flavor has been imparted to the meat. Remove the meat from the liquid and slice off a thin end piece. Quickly sear the piece just enough to allow you to taste it. You want the pickled flavor to be dominant without being too salty. If a deeper pickled flavor is desired, return the meat to the brine, cover, and refrigerate for the additional week, again checking often to ensure the meat is completely covered and doing the taste test every other day.

When ready to cook, remove the meat from the brine, and discard the brine.

Combine the peppercorns, parsley, bay leaves, and garlic in a small piece of cheesecloth. Using kitchen twine, tie the cheesecloth into a little bag. Set aside.

Place the meat in a large Dutch oven. Add cold distilled water to cover. Add the cheesecloth bag along with the leeks and carrots. Place over high heat and bring to a boil. Lower the heat and cook at a gentle simmer—adding more distilled water if needed to keep the meat submerged—for about 3 hours or until the meat is tender when pierced with the point of a small sharp knife.

Remove the beef from the liquid and cut it, against the grain, into thin slices. Place the slices on a serving platter along with the leeks. Serve with sauerkraut and hot mustard, if desired.

Corned Spiced Pork Loin

Makes 4 pounds

Lean pork loin works best for brining, as pork fat often does not taste good or look appetizing when brined. Although delicious hot with sauerkraut, this spiced pork loin is a tasty addition to a chef's salad, stir fries, or soups.

3 quarts plus 1 cup distilled water
¾ cup fine pure sea salt
1 tablespoon organic brown sugar
6 bay leaves
5 whole star anise
1 cinnamon stick
1 teaspoon mustard seeds
1 teaspoon juniper berries
1 teaspoon whole coriander
1 teaspoon whole allspice
½ teaspoon red chili flakes
¼ cup coarse salt, preferably Himalayan pink salt
4 pounds pork loin, trimmed of all excess fat
4 cloves garlic, peeled and halved lengthwise
6 cups Sauerkraut (see page 00)
2 cups thinly sliced onion
Hot mustard or horseradish (optional)

Combine the 3 quarts of water with the sea salt and sugar in a large, non-reactive saucepan, stirring to dissolve. Place over high heat, and add the bay leaves, star anise, cinnamon stick, mustard seeds, juniper berries, coriander, allspice, and chili flakes. Bring to a boil, and boil for 5 minutes. Remove from the heat, add the salt, and set aside to cool.

Place the pork and garlic in a large resealable plastic bag (use 2-gallon storage bags or brining bags). Pour the cooled brine into the bag, push out the air, and seal. Place the bag in a container large enough to hold the pork in a position that will ensure that it remains covered with the brine. Transfer to the refrigerator, and allow it to brine for 1 week, checking often to make sure the meat is completely covered with brine.

Remove from the refrigerator, drain, and discard the brine.

Place the meat in a Dutch oven. Add the sauerkraut and sliced onion, along with the remaining cup of distilled water. Place over high heat, and

bring to a boil. Immediately lower the heat, cover, and simmer for about 90 minutes or until the meat is tender when pierced with the point of a small sharp knife.

Transfer the meat to a cutting board. Using a sharp chef's knife, cut it crosswise into thin slices. Lay the slices, slightly overlapping, down the center of a serving platter. Spoon the sauerkraut/onion mixture around the edge of the platter, and serve with hot mustard on the side, if desired.

Pickled Sardines

Makes 1½ pounds

This recipe is based on the classic Swedish pickled herring, but I have used nutrient-rich sardines in place of the traditional herring. You can, of course, use herring or some other small fish, such as whitebait or smelt.

1½ pounds wild sardine fillets

Approximately 4 cups room temperature Spiced Brine
(see page 00)

1 cup distilled water

2 cups raw vinegar

¼ cup raw honey

3 bay leaves

3 whole cloves

1 organic sweet onion, peeled and cut crosswise into thin slices

1 organic Meyer lemon, cut crosswise into thin slices

Place the fillets in a shallow container. Add enough brine to completely cover the fish. Cover the entire container with plastic film, and refrigerate for 24 hours.

Combine the distilled water with the vinegar and honey in a small saucepan over medium heat. Bring to a boil; then lower the heat and cook at a bare simmer for 5 minutes. Remove from the heat and let cool.

Remove the sardines from the refrigerator. Uncover and pour off the brine. Place the fillets in a clean, sterilized container, such as a 1-quart glass canning jar with a sterilized lid, and randomly add the bay leaves, cloves, and onion and lemon slices as you fill the jar. Add the cooled vinegar mixture. If the fish is not covered completely, add enough cool distilled water to cover. You should leave about 1 to 2 inches of space between the fish and the top of the jar to allow the gases to be released as the fish ferments. Let stand at room temperature for 24 hours; then transfer to the refrigerator for 1 day before eating. May be stored, covered and refrigerated, for up to 1 month.

NOTE: To make Creamed Pickled Sardines, remove the sardines from the pickling liquid, reserving $\frac{1}{4}$ cup of the liquid. Place the sardines in a serving bowl. Combine the reserved liquid with 1 cup Quark (see page 00), whisking to blend well, and pour the mixture over the sardines. Add 2 thinly sliced sweet onions and a tablespoon of chopped fresh dill and toss to blend. Cover and refrigerate for at least 1 hour to allow flavors to blend. Serve, or store—covered and refrigerated—for up to 2 weeks.

Scandinavian-Style Fermented Salmon

Makes 2 pounds

Although many Scandinavian fermented fish recipes result in strongly flavored dishes that are an acquired taste, this one creates a citrusy flavor that is much more appealing to the American palate. This salmon makes

a wonderful passed hors d'oeuvre or a terrific topping for a mixed green or vegetable salad.

Approximately 3 cups room temperature Spiced Brine (see page 00)

¼ cup room temperature Whey (see page 00)

1 tablespoon raw honey

2 pounds boneless, skinless wild salmon, cut into bite-size pieces

6 sprigs fresh organic dill

1 whole organic lemon, cut crosswise into thin slices

Combine the brine with the Whey and honey, stirring to blend well.

Place the fish pieces in a clean, sterilized container, such as a 1-quart glass canning jar with a sterilized lid, randomly adding the dill sprigs and lemon slices as you fill the jar. Add the brine mixture. If the fish is not covered completely, add enough cool distilled water to cover. You should leave about 1 to 2 inches of space between the fish and the top of the jar to allow the gases to be released as the fish ferments. Let stand at room temperature for 24 hours; then transfer to the refrigerator at least 4 hours or up to 1 week before serving.

Raw Fish Ferment

Makes 1½ pounds

This recipe is much like sushi from generations past when it was made with salted, fermented fish rather than the raw fish with which we are now familiar. Unlike many other strong-smelling fish dishes that are fermented for longer periods, this brief cure creates a mellow dish that still offers the digestive aid and nutritional value of longer ferments.

I have made this recipe with both Whey and sauerkraut juice and find that although both work, the sauerkraut juice offers the best flavor.

1½ pounds wild fish fillets, cut into bite-size pieces

5 thin slices peeled organic ginger root

1 organic onion, peeled and chopped

Approximately 1½ cups sauerkraut juice, homemade (see page 000)
or commercially produced

Place the fish in a clean, sterilized container, such as a 1-quart glass canning jar with a sterilized lid, randomly adding the ginger and onion pieces as you fill the jar. Add the sauerkraut juice. If the fish is not covered completely, add enough cool distilled water to cover. You should leave about 1 to 2 inches of space between the fish and the top of the jar to allow the gases to be released as the fish ferments. Let stand at room temperature for 8 hours; then transfer to the refrigerator to cure for no more than 3 days.

Once chilled, the fish may be eaten plain or with a drizzle of extra-virgin olive oil, lemon juice, and sea salt.

Fermented Hard-Boiled Eggs

Makes 1 dozen

These pickled eggs make a terrific snack or an addition to a salad. You can also use the Spiced Brine (see page 00) for the ferment to add some more flavor.

1 dozen hard-boiled eggs, peeled

6 cloves organic garlic, peeled and halved lengthwise

3 sprigs organic dill

3 organic dried red hot chiles

¼ cup room temperature Whey (see page 00)

Approximately 2 cups room temperature Basic Brine (see page 00)

Place about three of the eggs in the bottom of a clean, sterilized container, such as a 1-quart canning jar with a sterilized lid or a crock with a sterilized, tight-fitting lid. Randomly add garlic, dill, and chiles as you continue adding eggs to fill the container. Add the Whey followed by enough Brine to cover the eggs. You should leave about 1 to 2 inches of space between the eggs and the top of the jar to allow the gases to be released as the eggs ferment. Cover tightly and set aside in a cool, dark spot for 3 days. Because the eggs have been cooked, there will not be a large amount of gaseous bubbling; expect to see just slight bubbling on the top when fermentation is complete. Once fermentation has occurred, transfer to the refrigerator for up to 3 weeks.

FRUITS

Preserved Lemons

Makes 1 pint

Preserved lemons are an essential ingredient in Moroccan cooking. They are used to season salads, tagines, and grain dishes. I like them chopped in salads and stews, sliced with grilled fish, and mixed with herbs to season a roast chicken. They are easy to make and keep forever.

Working with one at a time, place the lemons on a flat surface and roll them around, pressing down lightly to soften. Do not press too hard or the lemons will split and be unusable.

Cut each lemon in half crosswise, and then cut each half, lengthwise, into four equal pieces without cutting all the way through. You want the lemon to open slightly like a blooming flower. Remove and discard any seeds.

Place some salt in the crevices of each lemon. Then, using a small portion of the remaining salt, place a thin layer of salt in the bottom of a clean, sterilized pint container, such as a 1-pint glass canning jar with a sterilized lid or a 1-pint crock with a sterilized, tight-fitting lid. The container should be barely large enough to hold the lemons, as it is essential that they be very tightly packed. Begin tightly packing the lemons into the container, following each layer of lemons by another layer of salt. Continue packing in the lemon pieces until all of the lemons and salt have been used. As you pack, you will compress the lemons, and they will begin to exude a lot of juice. If using cinnamon sticks, randomly place them among the lemons. If the lemons have not exuded enough juice to cover them completely, add additional lemon juice to cover. You should leave about 1 inch of space between the lemons and the top of the jar to give them room to expand as they ferment.

Place a bit of cool water into a small resealable plastic bag, pushing to eliminate all air from the bag. You need just enough water to create a weight to keep the lemons under the liquid. Seal the bag, and place it on top of the lemons, pushing down to ensure that the water bag has sufficient weight.

Place the lid on the container and seal tightly. Let the lemons ferment at room temperature for 1 week, checking the container frequently to make sure the lemons remain covered with liquid. If the liquid level is low, using some force, push the lemons down so the liquid can rise up to cover them. Place the water bag back on top to press them down, tightly seal, and set aside at room temperature for at least 2 more weeks before using.

Preserved lemons may be stored at room temperature for up to 1 year. Throughout the fermentation, remove and discard any scum or mold that forms (it is not harmful, just unappetizing). The lemons may also be stored, covered and refrigerated, for an even longer period.

NOTE: Although most organic lemons have not been waxed, if you have any question about yours, blanch them in boiling water for 1 minute before using. Drain well and set aside to cool completely before proceeding with the recipe.

Blueberry-Mint Preserves

Makes 1 pint

These are far different from highly sweetened commercial jams. The honey does add some mellow, sugary taste, but the fermentation and the Whey add quite a strong note of acidity. You can use any berry except strawberries (which don't seem to "jell" during fermentation) and any herb or spice you like to make this jam your own.

3 cups organic blueberries

⅓ cup raw honey

1 teaspoon fine pure sea salt

2 tablespoons chopped fresh organic mint leaves

1 teaspoon organic lemon juice

¼ cup Whey (see page 00) or vegan starter (see Resources)

Combine 2½ cups of the berries with the honey and salt in a medium saucepan over medium heat. Bring to a low simmer, and begin mashing the berries with the back of a wooden spoon. Simmer for 5 minutes. Remove from the heat, and set aside to cool.

Combine the remaining ½ cup blueberries with the mint leaves and lemon juice in a food processor fitted with a metal blade. Process for about 1 minute or until pureed. Pour the puree into the cooled berry mixture. Add the Whey, stirring to blend well.

Pour the mixture into clean containers, such as two sterilized 8-ounce glass jelly canning jars with sterilized lids or two ½-pint crocks with sterilized, tight-fitting lids. Cover tightly, and set aside at room temperature for 2 days to allow fermentation. The preserves may be consumed immediately. Once opened, they may be stored in the refrigerator for up to 1 month or the freezer for up to 3 months.

CONDIMENTS

Jicama Pickle

Makes about 1 quart

Jicama is one of the top probiotic foods. Jerusalem artichoke may also be used in this recipe. These pickles are simple to make and terrific to keep on hand for snacking or salads. You can change the flavor by using other herbs, adding some spices or chiles, or using lemon or lime peel in place of the orange.

1 large organic orange (see note)

1¼ pounds organic jicama, peeled and cut into 1-inch cubes

6 sprigs fresh organic dill

6 sprigs fresh organic mint

2 cups room temperature Basic Brine (see page 00)

Using a small, sharp knife, remove the peel from the orange, taking care that no white pith is attached. Place half of the peel in the bottom of a sterilized container, such as a 1-quart glass canning jar with a sterilized lid or a 1-quart crock with a sterilized, tight-fitting lid. Add half of the jicama along with half of the dill and mint. Then make another layer of orange peel, jicama, dill, and mint. Pour the brine into the container. You should leave about 1 to 2 inches of space between the jicama and the top of the jar to give it room to expand as it ferments.

Place a bit of cool water into a small resealable plastic bag, pushing to eliminate all air from the bag. You need just enough water to create a weight to keep the jicama under the liquid. Seal the bag, and place it on top of the jicama, pushing down to ensure that the water bag has sufficient weight. Place the lid on the container and seal tightly.

Set aside to ferment at room temperature in a cool, dark spot for 3 days. Check the container daily to make sure the jicama remains covered with liquid. If not, add distilled water to cover.

After 3 days, open the container. Remove the water bag and set it aside. Remove and discard the herbs. This can be a bit messy, but if you leave the herbs in for a longer period, they will deteriorate and get a bit mushy.

Push the jicama back down into the liquid, place the water bag back on top to press the jicama down, tightly seal, and set aside as before. Check daily to test for flavor and texture. Depending on the temperature in the dark spot you've chosen, the jicama should be ready to eat after 10 days. When it has reached the flavor and texture you desire, transfer the jar to the refrigerator to impede the fermentation process. The jicama may be stored, covered and refrigerated, for up to 6 weeks.

NOTE: Although most organic citrus has not been waxed, if you have any question about yours, blanch it in boiling water for 1 minute before using. Drain well and set aside to cool completely before proceeding with the recipe.

Pickled Garlic

Makes about 2 cups

These zesty cloves are a great addition to so many things and even make a tasty pop-in-your-mouth snack. Pickled garlic can brighten salads, hummus, soups, or stews and can make an inviting cocktail tidbit stuck on a toothpick with a piece of rare grass-fed beef.

50 cloves (about 4 heads) garlic, peeled and trimmed of any brown spots

2 cups room temperature Basic Brine (see page 00)

Place the garlic in a clean, sterilized container, such as a 1-quart glass canning jar with a sterilized lid. Add the brine, taking care that it covers the garlic completely. If not, add just enough cool distilled water to cover.

Place a bit of cool water into a small resealable plastic bag, pushing to eliminate all air from the bag. You need just enough water to create a weight to keep the garlic under the liquid. Seal the bag, and place it on top of the garlic, pushing down to ensure that the water bag has sufficient weight. Place the lid on the container and seal tightly.

Set aside at room temperature in a cool, dark spot for 1 month. Check the container after 2 weeks to ensure that the brine still covers the garlic. If it does not, add more Basic Brine to cover.

The garlic is usually ready to eat after 1 month, by which time the strong, raw aroma is replaced by a slightly sweet one. From time to time throughout the month, do a taste test; continue fermenting until the texture and taste are to your liking.

Pickled garlic keeps, covered and refrigerated, almost indefinitely.

Pickled Salsa

Makes about 2 pints

Since I am not a chip eater, I use this salsa as a sauce for grilled meats and fish. It is particularly delicious in a shellfish cocktail in place of the usual cocktail sauce. It also makes a great lunch when stirred into a bowl of homemade yogurt.

2 cups diced peeled and seeded organic tomatoes
1 cup diced organic red onion
1 cup diced jicama
½ cup chopped organic cilantro
1 tablespoon minced organic garlic
1 tablespoon minced organic hot chili, or to taste
Juice of 1 organic lime, plus more to taste
3 tablespoons Whey (see page 00)
1 teaspoon fine pure sea salt, or more to taste

Combine the tomatoes, onion, jicama, cilantro, garlic, and chili in a large nonreactive bowl. Stir in the lime juice, Whey, and salt. Taste and, if necessary, add additional lime juice or salt.

Spoon equal portions of the salsa into each of three clean, sterilized containers, such as 1-pint glass canning jars with sterilized lids. You should leave about 1 to 2 inches of space between the salsa and the top of the jar to give the mixture room to expand as it ferments. Place the lid on the container and seal tightly.

Set aside at room temperature in a cool, dark spot for up to 3 days or just until the salsa has the flavor and texture you prefer. Transfer to the refrigerator and store, covered and refrigerated, for up to 3 months.

BEVERAGES

Kombucha

Makes 3 quarts

Kombucha, a traditional drink in Asian cultures, has only recently been discovered in America. It is known to be a very strong detoxifier and is loaded with vitamins and amino acids. Although it can be purchased in health food stores and some supermarkets, there is nothing better than a homemade batch.

To make kombucha, you will need a large (about 1 gallon) glass container, a clean cloth, and what is known as a SCOBY (Symbiotic Colony of Bacteria and Yeast), which is available from most health food stores or online (see Resources). The SCOBY is often referred to as the “mother” or the “mushroom” of kombucha; the former because it is the source of the drink’s life, and the latter because when it forms in the drink it resembles a large flaccid fungus. All in all, kombucha can look a bit foreboding, with the SCOBY seeming to take on the appearance of all kinds of faces, from pimply to stringy to just plain weird. However, these looks do not affect the taste unless mold appears. If any black or blue mold does appear on the SCOBY, discard both it and the tea immediately. Sterilize your container, and start all over again.

3 quarts distilled water

1 cup unrefined sugar

6 bags organic green tea

1 SCOBY (see note 1)

1 cup fermented kombucha or raw cider vinegar, such as Bragg’s
(see note 2)

Place the water in a large saucepan over high heat. Add the sugar and bring to a boil. Boil for 5 minutes, and then add the tea bags. Remove from the heat and set aside for 15 minutes to steep.

After steeping, remove and discard the tea bags. Allow the tea to cool to room temperature.

When cool, transfer the tea to a sterilized 1-gallon glass jar. Add the SCOBY with the shiny surface facing up. Add the fermented kombucha or vinegar. The SCOBY might sink, but it will rise again during fermentation. (If, for any reason, you feel the need to lift or move it, use a clean wooden spoon; metal does not react well with a SCOBY.)

Cover the container with a clean cloth and secure the cloth in place with a large rubber band. The cloth simply keeps dust, airborne spores, and insects from contaminating the drink.

Set the jar aside to ferment at room temperature (no less than 65°F and no more than 90°F) in a dark spot for 5 to 10 days. The temperature is important because if it is too cool the drink will take too long to ferment. Begin testing for taste after the fourth day. The tea should not be too sweet; if it is, the sugar has not yet been converted. Perfectly brewed kombucha should have a fizzy tartness that most resembles sparkling cider. If it becomes too acidic or has a very vinegary odor, it has fermented for too long. It is drinkable but not as tasty as it should be.

When the kombucha is nicely carbonated and as flavorful as you desire, pour it into sterilized glass containers, seal, and refrigerate. Discard the SCOBY. The kombucha will keep, covered and refrigerated, for up to 1 year.

NOTE 1: Both the SCOBY and fermented kombucha are available from health food stores and online. Although raw vinegar can replace the fermented kombucha, I suggest beginning your kombucha-making with fermented kombucha as it will absolutely guarantee that you will create a successful batch, whereas raw vinegar does not give you this guarantee.

NOTE 2: Certified Bragg Organic Raw Apple Cider Vinegar is available from health food stores, specialty food stores, many supermarkets, and online. It is unfiltered, unheated, and unpasteurized, with 5% acidity.

Water Kefir

Makes 1 quart

Unlike milk-based kefir, water kefir is a probiotic beverage made with sugared or coconut water or juice and flavored with juice, pure extracts, or dried fruit. Kefir grains or powdered kefir starter culture are required to activate the fermentation. Kefir “grains” are composed of bacteria and yeast working together in a symbiotic relationship but do not contain actual wheat (or other) grain; the term is used to describe their look.

4 cups warm distilled water

¼ cup unrefined sugar

3 teaspoons water kefir grains (see note and Resources)

¼ cup organic blueberry (or any other organic fruit) juice

Pour the water into a large (slightly more than 1 quart) sterilized glass jar, taking care to leave at least 1 inch of space between the water and the top of the jar so there is room for the pressure to build as the drink ferments.

Add the sugar to the water, stirring occasionally until the sugar has dissolved and the water has cooled. Do not add the kefir grains until the water is cool; they will not activate properly in warm water.

When the water is cool, add the kefir grains. Cover the container with a clean cloth, and secure the cloth in place with a large rubber band. The cloth simply keeps dust, airborne spores, and insects from contaminating the drink.

Set aside to ferment at room temperature. Check on the progress of the fermentation after 24 hours. Do not allow the fermentation to continue beyond 2 days. After 2 days, the fermentation might kill the kefir grains. When it is ready, the kefir will be rather sweet, but not as sweet as the sugar water base; it may also be slightly carbonated. Although it can now be consumed, a second fermentation (described below) will give it more flavor.

Strain the liquid through a nonreactive strainer into a 1-quart sterilized glass container with a sterilized, tight-fitting lid, reserving the kefir grains. The grains may be stored for reuse; if you wish to do so, store them, covered and refrigerated, in the same amount of sugar and water that is used in this recipe.

Add the blueberry juice to the water kefir, taking care to leave at least 1 inch of space between the flavored water and the top of the jar so that pressure can build as the drink ferments. Cover tightly and set aside at room temperature (no less than 65°F and no more than 90°F) in a dark spot for up to 2 days. The temperature is important because if it is too hot the beverage will ferment too quickly, and if it is too cool fermentation will take too long. Transfer to the refrigerator, and let the kefir rest for 3 days to allow the carbonation to set.

When it is ready to drink, open the jar carefully, as the kefir might foam up and out of the bottle due to the pressure that has built up.

NOTE: Water kefir grains differ from milk kefir grains and are generally used to make kefirs based on fruit juices or sugared waters. Water kefir grains (also known as tibicos) are a SCOBY, a symbiotic colony of bacteria and yeasts. Water kefir grains are used only for culturing water kefir; they proliferate best in a high-mineral environment, such as that provided by unrefined organic cane sugar. Water kefir cannot be made with milk kefir grains because milk kefir grains are composed of different beneficial bacteria and yeasts that are dependent upon milk to grow and reproduce. Although you can use milk kefir grains to culture nondairy

liquids (such as coconut water), they must be returned to milk for storage to ensure that they retain their strength.

Coconut Water Lemonade

Makes about 4½ cups

This refreshing drink is very good for you. Although I make it with coconut water, you can also use distilled water.

4 cups organic coconut water

¼ cup plus 1 tablespoon unrefined sugar

4 sprigs fresh mint

2 tablespoons water kefir grains (see Resources)

⅓ cup fresh organic lemon juice

Combine ½ cup of the coconut water with ¼ cup of the sugar and mint in a small saucepan over medium heat. Cook, stirring frequently, for about 3 minutes or just until the sugar has dissolved. Remove from the heat and set aside to cool.

When it is cool, remove and discard the mint sprigs. Combine the cooled sugared coconut water with the remaining 3½ cups coconut water and the kefir grains in a large (slightly more than 1 quart) sterilized glass container with a sterilized, tight-fitting lid. Cover tightly and set aside at room temperature in a dark spot for 2 days.

Strain the liquid through a nonreactive strainer into a sterilized glass container with a sterilized, tight-fitting lid, reserving the kefir grains. The kefir grains may be stored for reuse; if you wish to do so, store them, covered and refrigerated, in the same amount of sugar and water that is used in this recipe.

Combine the lemon juice with the remaining 1 tablespoon of sugar, stirring to dissolve.

Add the lemon juice mixture to the coconut water kefir, taking care to leave at least 1 inch of space between the kefir and the top of the jar so that pressure can build as the drink ferments. Cover tightly and set aside at room temperature in a dark spot for up to 1 day. (If it is allowed to ferment for more than 1 day, the process can produce so much carbonation that the liquid might explode out of the bottle when it is opened.) Transfer to the refrigerator and chill for at least 4 hours before serving.

When it is ready to drink, open carefully as the lemonade might foam up and out of the bottle due to the pressure that has built up. If it does not taste sweet enough, add a bit of stevia.