J&M® halal certified meals use only wholesome ingredients and have NO MSG, NO SOY, and NO ARTIFICIAL FLAVORS OR COLORS. Each meal is fully cooked and is conveniently packaged in either 10 oz. (283 g) microwaveable serving dishes or 8 oz. (227 g) travel and camping pouches. Reheat to eat in minutes.

**LAMB & LENTIL STEW:** Tender lamb joins a medley of tomatoes, lentils, onions, chickpeas, zucchini and red and green sweet peppers. Aromatic herbs and spices invite all to taste and enjoy this truly delicious meal.

**LAMB & BARLEY STEW:** Tender lamb, combined with barley, eggplant, red and green sweet peppers, zucchini and onions, create a true culinary delight! A scrumptious meal with a variety of textures, it is deliciously seasoned with herbs and spices of the Middle East.

**MY KIND OF CHICKEN®:** A favorite combination of chunks of light and dark chicken meat with brown rice, peas and carrots in a mild sauce.

**CHICKEN MEDITERRANEAN:** A hearty chicken meal with the flavors of the Mediterranean region. It has chunks of light and dark chicken meat, tomatoes, potatoes, chickpeas, and black olives in a tangy sauce.

**CHICKEN & NOODLES:** A winning combination with chunks of light and dark chicken meat, homestyle Kluski noodles, peas and carrots in a lightly seasoned sauce.

**CHICKEN & BLACK BEANS:** A scrumptious meal with chunks of light and dark chicken meat, black & kidney beans, tomatoes, potatoes, sweet peppers and corn. Simple spicing brings out its full flavor!

**BEEF STEW:** A satisfying and delicious stew! It has chunks of lean beef, with potatoes, sweet peppers, tomatoes, cabbage, zucchini, chickpeas and carrots in a flavorful sauce.

**OLD WORLD STEW:** Chunks of lean beef, with brown rice, tomatoes, zucchini and pinto beans. The sauce is seasoned with the aromatic flavors of the Middle East.

**PASTA WITH GARDEN VEGETABLES:** This delicious and robust meal has rotini pasta with peppers, mushrooms, zucchini and tomatoes. It is perfectly seasoned with traditional Italian seasonings.

**VEGETARIAN STEW:** A meal fit for vegetarian and hearty eater alike! With macaroni, vegetables, potatoes, barley, lentils, peanuts and seasonings, this meal has great taste and a variety of textures.

**CHEESE TORTELLINI:** Cheese-filled tortellini are simply delicious in a well-seasoned tomato sauce, with the added protein and texture of pinto beans.

**FLORENTINE LASAGNA:** A meal influenced by the tastes of Florence. Savor the combination of small lasagna noodles in a tomato sauce with Ricotta and Parmesan cheeses, spinach and pinto bean pieces which add texture and protein.
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Editor’s Note

Assalaamu alaikum,

Eid Mubarak. This Ramadan and Eid were little different than usual as most of us were self-distancing and sheltering-in-place. We trust you still had a rewarding Ramadan and very happy and blessed Eid.

Some of you may still be self-distancing. If so, “Fitness at a Distance” offers ideas for staying fit while avoiding the gym and crowded places.

“Collagen Chronicles” discusses one of the latest trends and the importance of collagen in skin elasticity and joint flexibility.

If you still cannot make it to a restaurant and are tired of pick-up or delivery, consider new recipes and ideas. “Wheat” explores the different types available and what they are best suited for making while “The Cuisine of Lebanon” provides a number of recipes you might want to try out from the rich history of that region.

Dairy products are a good source of nutrition but for many of us, they are also a source of abdominal stress. “Lactose Intolerance” delves into one cause of this stress and how to reduce or eliminate the problem.

More and more we hear about products containing cannabidiol and the rush to market these products. While still not legal in interstate commerce, “CBD: The Next Wonder Supplement” reviews what it is, where it is being used, and the interest in these products. Note that it is not yet legal to infuse food products with CBD or to market supplements containing it.

The future of meat is examined in “Cultured Meat: Food of the Future or Weird Science?” While not commercially available yet, cultured meat may not be far away. Will the cattle or the environment be thanking us?

Finally, be sure to try out the recipes and share your comments with us via email, Facebook, or Twitter.

Enjoy!

Sincerely,

Roger Othman editor
Assalaamu alaikum,

Things are changing, really changing. You don’t need a cow to produce meat so you can enjoy a steak or a burger. Food engineers and scientists are busy creating products that are supposed to reduce the carbon footprint and the reliance on animal protein.

The alternate protein meat analogs are either produced from plant proteins like the Impossible™ Burger, which is made from soybeans, and the Beyond Burger®, which is made from pea protein. Both are available in various restaurants as well as supermarkets. Many other products from different sources of plant proteins are in development.

Still other companies are making alternate protein products from animal cells, culturing them into tissues to make burgers, steaks, and imitation lamb chops. Your imagination is the only limit in this new product development science.

The idea or the philosophy behind development of alternate protein products is not dietary restrictions or preferences, rather it is to address the problem of global warming. Both plant-based and cell-produced products offer more environmentally friendly alternatives to meat produced from herds of cows. Is it working? Yes it is working.

How about the carbon footprint and global warming? Just imagine how much energy is required to produce just one patty used in a regular beef hamburger compared to using the plant-based analog; 100 times more to produce a real beef patty compared to a plant-based protein patty.

What else is in the pipeline of alternate protein? Could it be a locust burger or desert seafood, or larvae milk shake? Those are some of the real possibilities. What is IFANCA’s role here, as a leading halal certification body that takes decisions based on both shariah and science? We will work very diligently with the product development scientists to ascertain the products we will certify as halal are indeed meeting the needs of target populations.

Sincerely,

Muhammad Munir Chaudry president

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FOOD TRENDS

COLLAGEN CHRONICLES

By Husna T. Ghani
Should you eat it? Should you drink it? Should you apply it on your face? Should you stare at it? You may have no idea that I am talking about collagen! So what exactly is collagen and do you need it? Well, you already have collagen in your body. Collagen is a fibrous protein found throughout the body, including the muscles, eyes, nervous system, blood vessels, gastrointestinal tract, and connective tissue such as the skin, bones, ligaments, tendons, and cartilage. It is made up of a chain of amino acids (the building blocks of proteins) that are linked together by covalent bonds (the strongest bonds that are in proteins). According to the National Center for Biotechnology Information (NCBI) of the National Institutes of Health (NIH), there are sixteen types of collagen; however, eighty to ninety percent of the collagen in the body consists of only three types. It is the most abundant protein in the human body, making up one-third of the total protein content. Collagen also provides the cohesion and structural framework for connective tissue, which helps the skin have elasticity and the skeletal system to have added strength and flexibility in the bones, joints, and cartilage.

There are several sources of collagen. The majority of all collagen comes from animals. The most common sources of collagen in the United States of America used in the food industry and the medical field is from bovine, chicken, and fish. A small amount of collagen is derived from pigs. Bovines are a group of animals with chambered stomachs such as cows, buffalo, bison, and yaks. Other organisms that are sourced for collagen are marine animals. Marine collagen is made from the skin and cartilage of fish. Since the vegan lifestyle is gaining popularity, is there vegan collagen? Some manufacturers are making microbial collagen. This type of collagen is created from genetically modified yeast and bacteria. According to Dr. Saeed Hayek, food scientist and quality manager with the Islamic Food and Nutrition Council of America, “Microbial collagen is considered real; however, the functionality differs from animal collagen.” He also says, “Although the Food and Drug Administration (FDA) regulates collagen containing products, the actual health and cosmetic claims are not regulated by the FDA. That is the responsibility of the company.”

So with all these choices, which collagen source has the most potency? “The highest levels of protein and most effective collagen benefits are from bovine collagen,” says Dr. Ehtesham J. Ghani, an internal medicine, bariatric, and medical spa physician in Arlington Heights, Illinois.

Collagen depletion is a natural process in our bodies. Many symptoms occur when our bodies lose collagen because the structural framework of our connective tissues becomes weak. A decrease in collagen can cause the skin to wrinkle, become dry and inflamed, and become discolored, especially around the eyes. Collagen in skin is responsible for elasticity, firmness, and cell renewal. Cellulite occurs when the fatty tissue underneath the skin pushes up towards the surface due to the loss of collagen. Hair follicles are surrounded by collagen and give them the strength to hold the hair. With collagen loss, these follicles become weak, causing hair loss. Muscle pain can
occur with collagen loss because the connective tissue fibers weaken, causing muscle pain. The decrease of collagen in the joints may cause arthritis, swelling, decreased mobility, and overall frictional joint pain. In bones, a reduction in collagen can reduce bone density, thus increasing the risk of breaks and osteoporosis.

We know what collagen is and we know what happens when there is a shortage, however, what causes collagen to decrease in our body? Several factors may decrease collagen levels, including poor nutrition, aging, unhealthy environment, excess wear and tear of joints, genetics, and smoking. The quality of nutrition is key. A diet that contains a lot of sugar can deplete collagen production. According to Dr. Ghani, “Sugar molecules attach to collagen in a process called glycation. This can break down collagen and interfere with new collagen production, which causes the skin to lose its elasticity and firmness, hence causing wrinkles and dryness.” Aging causes collagen to naturally deplete, although lifestyle can affect the rate of depletion. Environmental factors such as pollution, ultraviolet radiation, chemicals in food, water, crops (pesticides), and air add to the breakdown of collagen.

A diet that contains a lot of sugar can deplete collagen production.

How does one increase collagen in their bodies without control over some of the factors such as aging? There are several ways in which one can add collagen. Edible collagen is one option. Animal collagen is sold as a powder that can be added to food or drink. Dr. Hayek, advises us to consume “natural sources of collagen such as beef, poultry, and seafood.” These foods naturally contain collagen and have a high amount of protein. Consuming these protein-rich foods can increase collagen production in the body. He goes on to say that, “Collagen is normally added to foods such as meat, protein bars, flavored and unflavored gelatin, as well as some desserts. Collagen is usually extracted from the bones of bovine, pigs, and fish and then formed into a powder. The powdered collagen is then added to food during the manufacturing process.” However, is this halal?

Dr. Hayek adds, “It is important to check for the halal certification regarding collagen since halal slaughtering is required to produce halal collagen, although this is not the case for fish collagen. Collagen manufacturers produce different types of collagen additives, which can be from pork, beef, or fish. Therefore cross-contamination is also an important consideration when making and purchasing halal collagen.” Bone broth is another way to consume collagen as food. Bone broth has been a staple for hundreds of years in South Asian, Middle Eastern, and Eastern European cultures. It has become increasingly available in grocery stores and health food stores, as well as many recipes for homemade bone broth available online. Another way to consume collagen is through capsules, which are available in pharmacies and online.

Aside from edible collagen, there are collagen shots. A physician gives these injections to patients experiencing joint pain in the knees by injecting collagen directly into the joints. The most common type of collagen used in joint injections is bovine. The skincare industry has been using collagen in topical creams, lotions, and subdermal procedures. You may have seen many advertisements touting “younger and smoother skin.” No matter how persuasive these marketing tactics may be, one must be careful and do their own research. Dr. Ghani states, “It is important to understand the difference between what is moisturizing the skin versus what is fixing the skin below the surface. Mesodermal creams work because they seep in below the epidermis (outer layer of the skin), whereas most common cosmetic creams stay on top.” We often hear and see advertisements regarding injections that increase collagen production and can be used for diminishing wrinkles and filling in hallowed skin. “These are formulas that contain hyaluronic acid, which is a substance found naturally in the body. The hyaluronic acid stimulates collagen production. These injections are given just deep enough to fill in the gaps below the epidermis.”

Both Dr. Hayek and Dr. Ghani caution against taking too much collagen. There is a rare autoimmune condition called scleroderma that causes the body to produce more collagen than needed. As with most things, an excess of collagen can be harmful. This may range from mild digestive issues to the more serious thickening and hardening of the kidneys, lungs, heart, and other internal organs. As with anything regarding health, it is vital to speak with your doctor and figure out what supplements you need and the amount that is required.

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LACTOSE INTOLERANCE

By Summaya Ali, MS, RD
Lactose intolerance is a common culprit for digestive dilemmas in many individuals. Lactose is the sugar naturally present in dairy products. Once consumed, it must be broken down by the intestinal enzyme lactase. Primary lactose intolerance is the most common form of the condition. It is due to a deficiency of the lactase enzyme. Lactase activity is highest in newborns and declines after weaning around age two. Symptoms may begin to appear in adolescence or early adulthood. Affected individuals complain of abdominal pain, bloating, gas, or diarrhea after consuming products containing lactose. Products with lactose need to be limited or avoided in some cases. The following infographic illustrates the process:

Who is Affected?
While some individuals are born with a lactase enzyme deficiency, 65 percent of humans become lactose intolerant after infancy, according to the National Institutes of Health. The prevalence is higher in East Asians, Native Americans, and Africans and much lower in Europeans, partly due to the history of milk product consumption of these communities. Individuals that frequently consume milk and dairy products may have lactase persistence, which allows them to digest lactose into adulthood successfully. Communities with a higher prevalence of the condition can try to gradually increase their consumption of lactose to build up their tolerance.

Secondary lactose intolerance is caused by intestinal disorders like Crohn’s disease, ulcerative colitis, or Celiac disease and radiation therapy for cancer treatment. These are all known to cause damage to the lining of the intestines, which significantly interferes with lactose absorption. This type of lactose intolerance often resolves once the underlying cause is treated.

Developmental lactose intolerance is seen in babies born prematurely. A baby’s small intestine creates cells producing lactase at the end of the third trimester of pregnancy. Babies born early may not have fully developed this enzyme though this generally resolves soon after birth, and babies can tolerate lactose-containing formulas and breastmilk.

While some individuals are born with a lactase enzyme deficiency, 65 percent of humans become lactose intolerant after infancy,
Congenital lactose intolerance is a more rare form of the condition. The baby will develop this condition if both parents have mutations in the LCT gene, which instructs the body to make lactase enzyme. In this case, the baby cannot tolerate breastmilk or regular infant formula, as this will cause excessive diarrhea and dehydration. They must be fed a lactose-free formula. Whether or not they need to limit lactose consumption into adulthood depends on genetic variations. Some variations will allow lactase production, and others will not, so the diet must be adjusted accordingly.

What Dairy Products are Involved?
Lactose intolerant individuals can usually tolerate up to 12 grams of lactose per day. It helps if this is spread out into small amounts.

<table>
<thead>
<tr>
<th>Product</th>
<th>Serving Size</th>
<th>Lactose Content (Grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaporated milk</td>
<td>1 cup</td>
<td>24</td>
</tr>
<tr>
<td>Milk (whole, 2%, 1%, skim, regular, chocolate, buttermilk)</td>
<td>1 cup</td>
<td>10-12</td>
</tr>
<tr>
<td>Nonfat dry milk</td>
<td>1/3 cup</td>
<td>12</td>
</tr>
<tr>
<td>Ice cream</td>
<td>2/3 cup</td>
<td>8</td>
</tr>
<tr>
<td>Greek yogurt</td>
<td>6 oz</td>
<td>6</td>
</tr>
<tr>
<td>Condensed milk</td>
<td>2 tbsp</td>
<td>5</td>
</tr>
<tr>
<td>Cottage cheese</td>
<td>½ cup</td>
<td>4</td>
</tr>
<tr>
<td>Cheese</td>
<td>1 ounce (size of a domino), 1 pre-cut slice</td>
<td>2</td>
</tr>
<tr>
<td>Cream cheese</td>
<td>1 ounce (size of a domino)</td>
<td>1</td>
</tr>
<tr>
<td>Butter</td>
<td>1 tsp</td>
<td>Trace amounts</td>
</tr>
</tbody>
</table>

Hidden Sources of Lactose
- Whey protein powders (choose whey protein isolate for the lowest lactose content)
- Some bread
- Baked goods
- Pancake mix
- Ready-to-eat breakfast cereals
- Hot chocolate mix
- Instant soups
- Instant mashed potatoes
- Puddings
- Candies and cookies
- Some salad dressings

Practical Tips for Reducing Symptoms
- Introduce one new food for 2-3 days and monitor symptoms
- Try having the new food in the morning first

Lactose intolerant individuals can tolerate milk products, but the serving size must be small.

- Start with a 4-ounce serving of milk
- Combine a small milk serving with a larger serving of another food (small glass of milk + fruit salad)

Recommendations for Children
The American Academy of Pediatrics recommends giving children with lactose intolerance small amounts of dairy products regularly. Focus on Greek yogurt and aged cheeses first. As they safely tolerate these, increase the serving size. Then incorporate 4-ounce servings of milk with meals and monitor symptoms. Children should be able to tolerate these foods better with time and increased exposure.

Should I Look for Dairy-free Labels?
Not necessarily. Those with a milk allergy need to choose dairy-free foods because their bodies will produce a dangerous allergic reaction to milk products. Lactose intolerant individuals can tolerate milk products, but the serving size must be small. Become familiar with items containing high levels of lactose (use the adjacent table). When shopping, look for these items in the ingredient list. Individuals may prefer to avoid milk products, but with proper planning, these can be safely incorporated into the diet.

Milk Alternatives
There are several products available if you choose to avoid cow’s milk due to persistent discomfort or are simply looking for new options. Organic Valley® is a popular brand that offers lactose-free milk products. Individuals can choose the lactose-free milk or the ultra-filtered milk. The former has been treated with lactase enzyme to convert the lactose while the latter is filtered to remove the lactose, making digestion much easier on the body. Organic Valley milk products are also halal certified by IFANCA. Other options include soy milk, nut milk, oat milk, and coconut milk.

Meeting Calcium Needs
Adults need 1,000-1,200 mg of calcium daily. A serving of milk or yogurt contains 300 mg of calcium. Three of these servings would bring you close to the recommended amount. Those with lactose intolerance can build up to this amount gradually. Organic Valley lactose-free milk contains about the same amount of calcium as cow’s milk. Alternative milk such as those made from soy and nuts are also calcium-fortified (check the label, some varieties may not be fortified).
Greek Yogurt is Better Tolerated
Greek yogurt is strained, so the whey (liquid) portion containing much of the lactose is filtered out. The live active bacterial cultures also eat some of the remaining lactose, so digestion becomes easier. Regular yogurt also contains live active bacterial cultures and can also be a good choice.

Nutritional Supplements
Nutritional supplements like Ensure® are made with milk ingredients, but the lactose content per serving is 0.5 grams, which is clinically insignificant. (Ensure is halal certified by IFANCA.) In practice, most of my patients have tolerated these products well though some still complained of abdominal distress. The complaints could be multifactorial. Other components in the drink, such as the simple sugars, can cause bloating and diarrhea, which is more likely to happen in individuals who have malabsorptive conditions or irritable bowel disease. A good approach would be to try half a bottle at a time and monitor symptoms. If tolerated, increase the serving size and monitor again.

Closing Thoughts
Managing symptoms often becomes overwhelming for individuals with lactose intolerance, which often prompts the decision to avoid dairy products altogether. Some individuals may decide to do this by preference, but it is possible to incorporate dairy into the diet. Learning the lactose content of foods is imperative. Be sure to look at the serving size on food labels. The amount listed may be very different from the amount you will consume. Lastly, the most time-consuming part is trial and error. It helps to keep a small notebook in your kitchen to write down the lactose-containing foods you ate and a summary of your symptoms. Building up lactose tolerance requires the introduction of these foods in small amounts to allow your body and intestinal bacteria to adapt to the changes. Patients often tell me that the “problem foods” were only a problem in larger amounts. Once they reduced the serving size, they felt much more comfortable. Lactase drops are appealing to consumers as an easy, cost-effective way to enjoy dairy again. They are added to regular dairy products, and the enzyme breaks down the lactose for you. Some individuals benefit from lactase tablets. These are available over the counter and are taken thirty minutes before meals and snacks. Using lactase tablets should be discussed with your primary care physician if the discomfort does not resolve, and symptoms persist over time.

SUMMARY ALI holds a Master’s degree in Nutrition from the University of Illinois and is a Registered Dietitian. She is excited to begin her career in Dietetics.
Bread has a certain spiritual connection to it. Observe as it accidentally falls to the floor: people are mortified, and someone rushes to pick it up, kiss it, and set it aside. “I seek God’s forgiveness” abounds. Bread is brought last to the table, as it is the most honored of foods. In Egypt, they call bread ‘aish, meaning “life,” “subsistence,” or “livelihood.” The word “grain” is mentioned thirteen times in the Quran, calling mankind’s attention to God’s blessings in His provisions for us on the Earth.

“And grain having husks and scented plants.”
(Quran 55:12)
Grain refers to wheat as well as rice, barley, lentils, and so on. It is interesting how God mentions the husk specifically as one of His blessings. The process of threshing and winnowing by hand to remove the husk was hard work before machinery, and God reminds us of its great benefit. It protects the grain from pests, sunlight, disease, and water. It is also fodder for our animals, from which we get transportation, meat, and milk. All are reminders to show God our gratitude.

In the chapter of Joseph (Peace Be Upon Him [PBUH]) in the Quran, the grain mentioned is likely wheat or barley, which are crops of ancient Egypt. Joseph (PBUH) advised that the grain should be kept in its spikes for preservation in storage: [Joseph] said, “You will plant for seven years consecutively; and what you harvest leave in its spikes, except a little from which you will eat.” (Quran 12:47)

In the Hadith, you will find wheat mentioned with regards to trade, gratitude, and asceticism. It’s often cited as a sort of luxury item in comparison with barley. Imam Malik reported that Jesus (PBUH) used to say, “O Bani Israil! You must drink pure water and the green things of the land and barley bread. Beware of wheat bread, for you will not be grateful enough for it.”—Muwatta Imam Malik Hadith 1700. In another narration, bread is tied to the asceticism of the family of the Prophet Muhammad (PBUH). “The family of Muhammad (PBUH) never ate to their fill of wheat bread for three consecutive nights, ever since they had come to Madina, until he passed away.”—Sahih al-Bukhari Hadith 6089.

Nutrition
Depending on the soil it’s grown in, whole grain wheat is a good source of fiber and other nutrients such as selenium, copper, folate, manganese, and phosphorous. It also contains other plant compounds like the antioxidants ferulic acid, alkylresorcinols, lignans, and lutein, which may improve eye health. Whole grain wheat may lower the risk of heart disease, diabetes, obesity, and even colorectal cancer. Some newer studies have shown that Khorasan wheat, commercially known in America as Kamut, may be more nutritious, easier to digest, and disease-fighting than other common wheat strands. Refined flour removes the germ and bran, losing fiber and nutrients, with iron and B-vitamins added back in.

Sprouted grains have been growing in popularity for years. The germinating process breaks down phytate, an antinutrient that otherwise decreases the absorption of vitamins and minerals. It also breaks down some of the starch, which makes it easier to digest and increases the percentage of nutrients such as folate, iron, vitamins C and E, beta carotene, zinc, magnesium, and protein. Note that it is important to refrigerate raw sprouts.

Gluten
Gluten has been getting more attention in the past decade. People with celiac disease have an autoimmune response affecting the small intestine, causing intense symptoms, like diarrhea, gas, bloating, constipation, weight loss, and fatigue. Others are gluten sensitive or intolerant and have milder symptoms from eating wheat. A simple test is to remove gluten from your diet and observe for improvement.

A gluten-free option is buckwheat, which is unrelated to wheat. It’s a seed of a flowering fruit related to rhubarb and sorrel, and it is naturally gluten-free. It is also richer in antioxidants than many other common cereal grains, including D-chiro-inositol, which is shown to improve insulin sensitivity.

Some travelers have found that wheat in Europe does not aggravate their gluten symptoms and that they can even eat wheat products there freely, until returning to the United States. European wheat strands are of a mostly soft variety, and American strands are mostly hard red wheat. Hard wheat has more gluten than soft wheat, and...
It is worth noting that wheat in America is not genetically modified but has been bred to cultivate higher gluten content for a fluffier loaf.

the gluten it contains is stronger. The tough gluten found in hard wheat is great for making that fluffy, soft bread we find in the United States. It is worth noting that wheat in America is not genetically modified but has been bred to cultivate higher gluten content for a fluffier loaf.

Types of Wheat
Wheat is the third-largest crop grown in the United States after corn and beans. Different types are grown in different regions, classified by color (red or white), hardness (hard or soft), and growing season (spring or winter). There are six different classes of wheat grown in the United States (agclassroom.org):

1. **Hard red winter** is high in protein with strong gluten. It is excellent for yeast bread, rolls, flatbreads, tortillas, cereal, general-purpose flour, and Asian-style noodles.
2. **Hard white** is used for whole wheat flour because of its milder, sweeter flavor.
3. **Soft red winter** is low in protein and gluten. It is ideal for cookies, pastries, crackers, flatbreads, and pretzels.
4. **Soft white** is used for Asian-style noodles, pastries, Middle Eastern flatbreads, and in cakes as cake flour. Both hard and soft white can be winter or spring varieties.
5. **Hard red spring** is high in protein and gluten. It is used in croissants, bagels, pizza crust, and artisan bread. Internationally it is often blended with local wheat to increase the strength of a flour blend. It is planted in early spring rather than fall, as northern plains farmers need a wheat that is suitable for a shorter growing season.
6. **Durum wheat** is the hardest and is high in gluten. It is planted in the spring and is mainly used in pasta, couscous, and some Mediterranean bread.

There are many kinds of wheat flours, the most common being all-purpose flour. All-purpose flour is a refined flour made from a blend of hard and soft wheat. It is versatile, the “pantry essential,” and is used in a wide range of products. Bread flour is also refined, but with a higher protein content of about 12.7 percent versus 11.7 percent in all-purpose flour. Whole wheat flour is made from hard red wheat with about 14 percent protein, great for sandwich bread, and baked goods. You may think the higher protein content would make it rise highest of all, but the bran has sharp edges that can cut the gluten strands forming in the dough, resulting in a shorter, denser bread. Adding more liquid can soften the bran and help it perform more like a white flour. Some folks mix it 50/50 with refined flour. White whole wheat flour is made from hard white spring wheat, which is 13 percent protein and performs like all-purpose flour, getting the best of both worlds. Cake flour is low in protein and fine-textured, used in baked goods like cookies, crackers, quick bread, and (you guessed it) cakes.

Wheat finds its way into many food products, like bread, porridge, crackers, biscuits, muesli, pancakes, pasta and noodles, pies, pastries, pizza, polenta and semolina, cakes, cookies, muffins, rolls, doughnuts, gravy, breakfast cereals, and sauces. You will also find it in veggie burgers, soy sauces, condiments, salad dressings, and chicken broth. In non-food products, different parts of the wheatgrass are used in wood for kitchen cabinets, paper, hair conditioners, the sticky adhesive on postage stamps, medical swabs, and charcoal.

Storage
Storing wheat in sealed containers can help prolong freshness and seal out weevils, which are harmless little flour pests with long snouts. Whole wheat bread contains the germ, which has an oil that can go rancid; thus, it has a shorter shelf life. Refrigeration or freezing can prolong shelf life, and freezing a few days can kill weevils and their eggs. Whole grain flour can last three months in the pantry or six months in the freezer. All-purpose flour lasts up to eight months in the pantry, one year if refrigerated, and two years in the freezer.

GREG CARR is a Registered Dietitian and Nutritionist and NASM-certified personal trainer. Check out his free nutrition resources at www.GregCarrNutrition.com.
The civilization of Lebanon can be traced back seven thousand years. Lebanon was originally home to the Phoenicians, a seafaring community, that traded spices from the Far East and travelled throughout the Mediterranean.

The region came under the rule of the Roman Empire, then subsequently was conquered, and occupied by the Assyrians, the Persians, the Greeks, the Arabs, the Fatimids, and the Crusaders. In the 16th century, Lebanon was conquered by the Ottomans, remaining under their rule for the next 400 years.

After World War I and the collapse of the Ottoman Empire, modern Lebanon, came under the control of France. While under French control, its capital, Beirut, attracted many tourists, and become known as ‘The Paris of the Middle East’.

Over the centuries, Lebanese culture has evolved, borrowing from all these groups. Its diverse population of different ethnic and religious groups, has further contributed to the country’s festivals and musical styles, as well as its cuisine.

Lebanese cuisine is similar to that of many countries in the Eastern Mediterranean, such as Greece, Cyprus, Syria, and Turkey. Characterized by a healthy mixture of herbs, fruit, labneh (yogurt), nuts, olives, olive oil, rice, vegetables, and khubz and markook (flatbreads).

Sitting for a meal in a Lebanese restaurant, or as a guest in someone’s home, will begin with a wide array of Mezze (a selection of shared dishes presented all at once on several small plates, with savory dishes, like dips, salads, and even pastries). Mezze is usually followed by meat or fish, then finished with Arabic coffee, fresh fruit, and occasionally a selection of traditional sweets.

Let’s dive into some of the more popular Lebanese offerings. Download additional recipes here.
**SPICE BLENDS**

**Seven Spice Seasoning**

**Ingredients**
- ½ cup ground allspice
- ½ cup ground cloves
- ¼ cup ground fenugreek
- ¼ cup ground ginger
- ¼ cup ground nutmeg
- ¼ cup ground black pepper
- ¼ cup ground cinnamon

**Preparation**
Combine all the ingredients thoroughly and store in an air-tight container.

**Uses**
Used in and on numerous meat preparations.

**SAUCES & DRESSINGS**

**Walnut Dressing**

**Ingredients**
- 1 cup shelled walnuts, chopped
- 2 tablespoons vegetable oil (Grapeseed or Sunflower Oil may be substituted)
- 6 tablespoons walnut oil
- 2 tablespoons white vinegar
- salt and pepper, to taste

**Preparation**
1. Place walnuts in a small skillet over low heat and pan fry, stirring until they have become golden brown. Remove from heat and allow to cool on a dry towel and set aside.
2. In a large bowl, whisk together the two oils and vinegar.
3. Add the toasted walnuts, then season with salt and pepper, to taste.
4. Place in a sealable glass container and store in the refrigerator.

**To Use**
Remove from refrigerator, shake well. Pour on salads, over sliced tomatoes, or cucumbers. For dipping - heat Pita bread and cut into eighths, serve with a bowl of extra virgin olive oil and dressing.

**MEZZE**

**Grilled Halloumi Cheese With Garlic And Mint**

**Ingredients**
- 4 tablespoons extra virgin olive oil
- juice of one (1) lemon
- 1 garlic clove, finely chopped
- small bunch of fresh mint, chopped
- salt and pepper, to taste
- 1 package Halloumi cheese
- 2 tablespoons pomegranate seeds (optional)

**Preparation**
1. In a large bowl, mix the first four ingredients, and season to taste with salt and pepper. May be made in advance and refrigerated.
2. Preheat your grill. (If you wish to use your oven, set it on broil, or on a stick-free skillet on your stove top.)
3. Slice the Halloumi into bite-sized pieces or in long strips and place the pieces into bowl; and pour the garlic-mint mixture over the cheese and let stand for ten minutes, stirring once or twice to coat all sides.
4. If using your grill or skillet, using tongs, place the pieces of cheese on the grill/skillet. Otherwise, place the contents of the bowl into a shallow oven-proof dish, and place in your oven. Cook the cheese 4 minutes on each side.
5. Remove the cheese and garnish with pomegranate seeds.
SOUP

Lamb Meatball Soup

Ingredients
- 8 ounces ground lamb
- 1 onion, grated
- 1½ tablespoons flour
- 1 teaspoon seven spice seasoning (see recipe page 19)
- salt and pepper (to taste)
- 1 can chopped tomatoes (14 ounces)
- 5 cups vegetable stock (see Halal Consumer Issue 51, page 9)
- 1 tablespoon sugar
- 1 small can corn kernels (rinsed and drained)

Preparation
1. Combine lamb, onion, flour, and seven spice seasoning into a bowl. Season with salt and pepper to taste.
2. Moisten your hands and pick-up 2 tablespoons of meat mixture, and form a small ball in your hand. Continue making balls, until all the meat mixture has been utilized.
3. In a large saucepan, combine the tomatoes and vegetable stock, and whisk in the sugar.
4. Bring to a boil, then simmer for 15 minutes.
5. Carefully, add the meatballs and continue to simmer for an additional 15 minutes or until the meatballs have been thoroughly cooked.
6. Add the corn and continue to simmer for 2-3 minutes.
7. Serve warm.

FISH

Sumac Crusted Tuna

Ingredients
- 2 tuna steaks, about 6-ounce portions
- olive oil
- 1 tablespoon sumac

Preparation
1. Brush the tuna with olive oil and rub the sumac on all sides.
2. Heat a skillet; when hot, place the tuna on it and cook for 2-3 minutes per side.
3. Remove from heat and serve immediately.

You may serve this with cooked vegetable, or placed over a salad or rice. Salmon may be substituted for the tuna.

MEAT

Lamb With Eggplant and Rice

Ingredients
- 1 eggplant, peeled and cubed
- 6 tablespoons olive oil
- 1 onion, very finely chopped
- 3 garlic cloves, peeled and crushed
- 1¼ pounds lamb, boneless cubed
- water
- 1 teaspoon pepper
- salt to taste
- 1 teaspoon seven spice seasoning (see recipe page 19)
- 1 cup long grain rice, rinsed twice

Preparation
1. Preheat oven to 400°F.
2. In a bowl, toss the eggplant with the 3 tablespoons olive oil, then place in a roasting pan.
3. Place the roasting pan into the oven and roast for 40 minutes, then remove from oven and set aside.
4. At the same time, place the other 3 tablespoons olive oil in a skillet to heat.
5. Add the onion and garlic and stir occasionally for 5 minutes or until the onion has become transparent.
6. Add the lamb and increase heat on the skillet, continue to cook over medium temperature, frequently stirring for 5-7 minutes, until the lamb is evenly browned (seared).
7. Add enough water to cover the lamb.
8. Sprinkle the pepper, salt, and seven spice seasoning and stir, reduce heat, and allow to simmer for 1 hour.
9. Add cooked eggplant and the rice, and stir.
10. Cook for an additional 15 minutes or until the rice is tender, then serve.
VEGETABLE

Lentils, Rice and Caramelized Onions

Ingredients
1 cup green lentils
4 tablespoons olive oil
4 medium-sized onions, sliced
½ cup Basmati rice, rinsed
2 teaspoons salt
½ teaspoon ground cumin
½ teaspoon pepper
½ teaspoon seven spice seasoning (see recipe page 19)
water

Preparation
1. In a pot, place lentils and cover with water.
2. Bring to a boil, reduce heat to medium, cover and simmer for 20 minutes.
3. At the same time, in a skillet, heat the olive oil, then add the onions, and cook over medium heat frequently stirring, about 15-18 minutes, until caramelized (golden brown, but not burnt), and set aside.
4. In the pan with the lentils, add the rice and salt.
5. Recover the pot and simmer for an additional 15-20 minutes, until the rice and lentils are soft, and the liquid has been soaked up.
6. Stir in the cumin, pepper, and seven spice seasoning.
7. Remove from heat, and spoon into bowls, then garnish with the caramelized onions and serve.

DESSERTS

Roasted Figs and Almonds

Ingredients
12 figs, cut in half
6-8 tablespoons pomegranate juice
2 tablespoons Demerara (you may substitute Light Brown Sugar)
zest of 1 orange, finely grated
¼ cup blanched almonds
½ cup halal yogurt
honey

Preparation
1. Preheat oven to 400°F.
2. Place figs, cut side up, on a cookie sheet, pour pomegranate juice over each, and sprinkle Demerara over the tops.
3. Sprinkle the orange zest, then place a few larger almonds on each fig, and sprinkle the balance of the almonds around them.
4. Place in oven for 10-12 minutes, until soft.

Serve hot, with yogurt and honey.
**Fattoush**

From the Archives of Fatima Zein Annan

Servings: 2–4

**INGREDIENTS**

- 1 head Romaine lettuce, chopped
- ½ bunch chopped parsley
- ½ cup chopped mint leaves
- 5 radishes, sliced
- 2 cucumbers, sliced
- 3 tomatoes, diced
- 1 green pepper, diced
- 5 spring onions, diced
- 2 loaves pita bread cut into 1-inch squares, browned in vegetable oil and drained

**Dressing**

- 2 cloves garlic, pressed
- ½ teaspoon salt
- ¼ cup lemon juice
- 2 tablespoons white vinegar
- ½ cup olive oil
- 1 teaspoon sugar
- 1 teaspoon dried mint
- 1 teaspoon Simmag

**DIRECTIONS**

1. Cut pita bread into 1-inch pieces, brown in vegetable oil, and drain oil.
2. Combine browned pita bread pieces with all above ingredients.
3. Add dressing and mix.
**Crockpot Beef Stew with Saffron Road Korean Stir Fry Simmer Sauce**

By: YaQutullah Ibraheem Muhammad, MS, RDN, LD

**Servings:** 4

**INGREDIENTS**

- 2 pounds halal lean beef, cut into cubes
- 2 tablespoons olive oil
- 1 packet of Saffron Road® Korean Stir fry simmer sauce
- 1 Vidalia onion, diced
- 2 celery stalks, diced
- 3 cloves garlic, crushed
- 2 tablespoons tomato paste
- 1 cinnamon stick (for flavor)
- 1 cup halal chicken or vegetable stock
- 1 cup chopped tomatoes
- ½ teaspoon coriander
- ½ teaspoon cumin
- 1 bay leaf
- 1 cup lemon juice
- ½ teaspoon black pepper
- salt to taste

**DIRECTIONS**

1. Place beef cubes into crock pot.
2. Season beef with salt and pepper.
3. Add onion, garlic, stock, tomatoes, celery, coriander, cumin, tomato paste, bay leaf, and olive oil to the crock pot and stir to combine.
4. Add Saffron Road Korean Stir fry simmer sauce and the lemon juice to crock pot, cover, and cook on high for 6 hours until very tender.
5. Transfer the beef to a large serving dish.

Serve with mashed sweet potatoes, rice, bulgur wheat, or couscous to soak up the delicious sauce.
Freekeh Pilaf with Za’atar Chicken
By: Minar Shehadhah

Servings: 4-5

INGREDIENTS

- 1 cup freekeh, washed
- 1 ¼ water or broth of choice
- 1 tablespoon butter or oil
- ¼ teaspoon ground allspice
- salt to taste
- almonds or pine nuts, optional
- chopped parsley, optional
- 5-6 boneless halal chicken breasts
- 2 tablespoons olive oil
- 3 tablespoons za’atar, reserve some to sprinkle on the tops
- ½ teaspoon garlic powder
- ¼ teaspoon turmeric
- ¼ teaspoon cayenne
- salt and pepper to taste

DIRECTIONS

1. Combine all the ingredients for the freekeh besides the broth in a small pot and stir to coat with butter or oil and seasonings.

2. Add water or broth and bring to a gentle boil over medium to high heat.

3. Reduce the heat to low and cover the pot. Let it simmer for 10 to 15 minutes until the water is soaked up. Remove from heat and let cool for 5 minutes before serving.

4. In a mixing bowl, combine all the ingredients for the za’atar chicken. It is best if this mixture can be marinated for a few hours before baking.

5. Preheat oven to 375°F and line a baking sheet with parchment paper, preferably with a rack placed on it for grill-like texture. Place the marinated chicken on the rack and sprinkle extra za’atar on the tops. Bake for 20 to 30 minutes depending on the size of your chicken.

6. Once baked, broil for color and immediately serve with the freekeh pilaf.

7. Garnish the dish with fried almonds or pine nuts and chopped parsley. Serve with plain yogurt.
Shakshuka
By: YaQutullah Ibraheem Muhammad MS, RD, LD

Servings: 3-6

INGREDIENTS

3-6 eggs
1 medium onion
2 cloves garlic, minced
1 medium bell pepper
2 cans tomatoes
2 tablespoons tomato paste
1 teaspoon cumin
1 tablespoon olive oil
1 teaspoon paprika or chilli powder
black pepper to taste
salt to taste
to garnish Cilantro (Coriander leaves)

DIRECTIONS

1. Prep the ingredients. Thinly slice the bell pepper. Finely chop the onions, prep the tomatoes, and garlic.
2. Heat some olive oil in a pan, then add chopped onion and garlic; reduce to medium and continue cooking until the onions turn translucent.
3. Add the sliced bell pepper. Stir well and continue cooking for a couple more minutes.
4. Add the tomatoes and cook till they turn tender. Add ¼ cup of water, salt, and mix well.
5. Now add salt, black pepper, paprika/chili powder, cumin and mix well. Let simmer 10 to 15 minutes.
6. Make three wells in the sauce for the eggs.
7. Break each egg, and carefully place it into a well. Repeat for each egg.
8. Let the eggs poach in the sauce on a low flame. Wait for the egg whites to be set and turn off the flame.
9. Garnish with cilantro or parsley leaves and serve with your choice of toasted bread.

Note: For a spicier Shakshuka, use cayenne pepper or any other hot chilies instead of paprika, for a real kick.
CBD: The Next Wonder Supplement?

By Kelly Izdihar Crosby
CBD is getting a lot of attention lately. It has been touted as a natural medicinal alternative for a variety of health problems. It is a substance promoted as a wonderful ingredient to add to your morning smoothie or post-workout power drink. You can even get some CBD enhanced brownies! Due to changing attitudes and ongoing scientific research, CBD is the latest super-substance marketed to treat depression and anxiety, headaches, and pain. But as with any new popular supplement, it can be hard to separate fact from fiction. So, let us clear up some misconceptions.

Cannabidiol, better known as CBD, is a chemical found in the Cannabis sativa plant, marijuana, or hemp. There are over eighty chemicals identified in the Cannabis sativa plant, but here lies the difference. Delta-9-tetrahydrocannabinol, or THC, is the major active ingredient in cannabis. According to Healthline.com, “Hemp plants are cannabis plants that contain less than 0.3 percent THC, while marijuana plants are cannabis plants that contain higher concentrations of THC.” Cannabidiol, the second major active ingredient, contains minimal amounts of THC. While the consumption of THC creates a feeling of “being high” or intoxicated, CBD does not.

CBD is usually sold as a supplement in oil form. The first step in making CBD oil is to cultivate and harvest plants that contain high amounts of CBD and low amounts of THC. Hemp plants can vary in their cannabinoid content. The second step is extraction. Extraction solvents are used to separate and collect the essential oils and compounds from the stalks and seeds. Preferably, producers use a supercritical carbon dioxide (CO2) process that uses non-toxic fluid CO2 as a solvent. Supercritical CO2 is considered GRAS or Generally Regarded as Safe by the Food and Drug Administration (FDA). In the third step, the solvent is forced through the ground plant material and pulls out the CBD, essential oils, and lipids. Then the solvent is removed from the final product, creating an oil naturally high in CBD. Most CBD oil undergoes decarboxylation, a heating process that makes cannabinoids easily usable in the body. Decarboxylated cannabinoids can immediately interact with the endocannabinoid system’s cannabinoid receptors. Cannabinoid receptors are located throughout the body and are involved in various physiological processes, including appetite, mood, memory, and, most importantly, pain-sensation.

Because CBD does not create feelings of intoxication, and because of its possible health benefits, many religious leaders consider CBD to be halal for medicinal purposes. Imam Radwan Mardini, Islamic Food and Nutrition Council of America (IFANCA®) religious advisor, says, “CBD is halal to be used in medicine and over the counter relief for pain and headaches. It comes from a halal source and does not do damage to physical health according to the viewpoints of so many medical doctors and health professionals.”

With growing popularity, CBD products can be purchased online, in natural supplement stores, and in some big-box retailers. Pure CBD oil can be consumed directly, and CBD is available in all kinds of products, including gummies, skin serum, supplement capsules, protein bars, and energy drinks. There are also CBD-infused bath salts, beauty soaps, and body lotions, and of course, there are CBD vape cartridges and oil tinctures. And along with these products are the promise of a natural alternative to treat many common ailments.

IFANCA food scientist Dr. Saeed Hayek, states, “Many CBD claimed health benefits include relief for anxiety, depression, and stress. Other claims are that it serves as a mood optimizer and sleep helper and for skin treatments such as acne and psoriasis.” He says, “However, CBD also has some side effects, so you need to be aware when taking these CBD supplements, especially for people with any health issues or pregnant women.” According to MayoClinic.org, “CBD use also carries some risks. Though it is often well-tolerated, CBD can cause side effects, such as dry mouth, diarrhea, reduced appetite, drowsiness, and fatigue. CBD can also interact with other medications you’re taking, such as blood thinners.”

Because CBD does not create feelings of intoxication, and because of its possible health benefits, many religious leaders consider CBD to be halal for medicinal purposes.

Currently, the Food and Drug Administration (FDA) strongly advises against CBD usage by pregnant women and people with pre-existing health conditions. Also, the FDA says, “CBD can cause liver injury. Male reproductive
toxicity, or damage to fertility in males or male offspring of women who have been exposed, has been reported in studies of animals exposed to CBD.” Yaqutullah Ibraheem Muhammad MS, RD, LN, says, “CBD is derived directly from the hemp plant, and by itself does not cause a high. But there is not sufficient high-quality evidence for human studies yet, and without the studies, effective doses for CBD can’t be pinpointed. CBD is mostly available as an unregulated supplement, so it is hard to know exactly what you are getting.”

The FDA has approved only one CBD drug for the treatment of epilepsy, and it is monitored as a controlled substance. Cannabis is a Schedule I controlled substance in the United States, and other CBD creations remain illegal to prescribe for medical use or to use as an ingredient in foods or dietary supplements. The FDA “recognizes the potential opportunities that cannabis or cannabis-derived compounds may offer and acknowledges the significant interest in these possibilities. However, the FDA is aware that some companies are marketing products containing cannabis and cannabis-derived compounds in ways that violate the Federal Food, Drug and Cosmetic Act (FD&C Act), and that may put the health and safety of consumers at risk.” So those CBD products that are currently on the market are illegal, according to the FDA. However, some state laws allow the sale of products containing CBD.

Differing state regulations have led to confusion and claims of fraudulent CBD products. Some companies claiming that their products have similar effects to prescription drugs have received warning letters from the FDA for making unsubstantiated health claims.

Furthermore, the FDA is still formulating regulations for CBD products. In the meantime, due to a lack of regulation, there are many counterfeit CBD products on the market. And with any fake product, its consumption can lead to health risks. In 2018, the Centers for Disease Control (CDC) reported fifty-two people from Utah were sick due to consuming counterfeit CBD oil, with thirty-one of them ending up in the emergency room. In February 2019, the New York City Department of Health announced plans to fine restaurants that sell food or drinks containing CBD, beginning in October 2019.

CBD may be the next wonder supplement, but lack of federal regulation and continuing scientific research leaves more questions to be answered. Until more studies are done, and there are proper measures to protect consumers from fraudulent products, CBD usage will be a risky alternative to already-regulated food and drug products.

Kelly Izdihar Crosby is an artist and freelance writer living in Atlanta, GA. You can find her work at www.kellycrosbydesign.com.
Cultured Meat: Food of the Future or Weird Science?

By Alia Shalabi
Have you ever heard of cultured meat? No, it doesn’t mean the cow took a stroll through a Smithsonian museum or caught a show at the Chicago Symphony Orchestra before slaughter. Also referred to as clean, cell-cultivated, cell-based, and lab-grown meat, cultured meat just might be the next big thing since plant-based meats.

There are quite a few companies across the globe developing a variety of cultured meats (i.e., beef, poultry, and seafood) in different forms, e.g., ground, steaks, etc. Some companies are focusing on the same type of cultured meat and have developed their own production methods. As Beckie Calder-Flynn, Operations Coordinator of Mosa Meat in the Netherlands, says, these methods are “very commercially sensitive as no one has yet launched their products on the market.”

Our brains are very powerful, and the way we interpret language can influence our decisions. The picture in our heads when we hear “lab-grown meat” is certainly not a pleasant one. By simply changing the language, we can allow ourselves to have a more open mind. Basic biology teaches us that the cell is the basic unit of life, that all living things are composed of cells. Cultured meat starts by taking cells from an animal. Calder-Flynn elaborates:

“The cells are fed nutrients and natural growth factors and allowed to proliferate just as they would inside an animal. They proliferate until we get trillions of cells from a small sample. This growth takes place in a bioreactor [...]. When we want the cells to differentiate into muscle cells, we simply stop feeding them growth factors, and they differentiate naturally. The cells are then placed in a gel that is 99% water, which helps the cells form the shape of muscle fibers. The muscle fibers contract naturally, causing them to get larger. When thousands of muscle fibers are layered together, we get what we started with—meat. The meat can then be processed using standard food technologies—for example, by putting the meat through a grinder to make ground beef.”

The process from biopsy to quarter-pound hamburger is about ten weeks. The first cells (muscle stem cells) can be obtained from either living or slaughtered animals, but the goal is to only use living animals, as one of the key benefits of all the time and money invested into this science is to create a more sustainable source of meat.

“Theoretically...if this is translated into a reduction of cows, we would need only 150 cows to meet the entire world’s meat demand.”

While Calder-Flynn shares that Mosa Meat is still working on upscaling their production to determine exactly how much meat they can develop from one sample, “theoretically, from one sample of less than one gram of muscle we can produce 10,000 kilograms [about 22,000 pounds] of beef, reaching a multiplication factor of ten million.” She continues, “If this is translated into a reduction of cows, we
would need only 150 cows to meet the entire world’s meat demand.” That’s a huge reduction in cattle compared to the current estimate of 1.5 billion cows.

Such a drastically smaller number of cattle needing to be raised, fed, and cared for would not only foster a greater sense of animal welfare, but also have significant effects on the planet.

Animal agriculture is one of the major causes of the world’s most grave environmental problems. According to the Food and Agriculture Organization of the United Nations (FAO), meat consumption is expected to rise over 70 percent by 2050, and the way it’s produced today just isn’t sustainable.

“We believe shifting to cultured meat is important, and necessary,” says Calder-Flynn. “If we want to continue to eat meat, we need a more efficient production method.”

This new way of animal farming would significantly reduce waste, lower food-related emissions, cut pollution, and conserve land and water resources.

A life cycle analysis paper published in the journal Environmental Science & Technology predicted that, based on current published figures and research on livestock farming, complete replacement of conventional meat with cultured meat would result in an up to 98% reduction in greenhouse gas emissions, 99% reduction in land use, and up to 96% reduction in water use.

Some critics claim those numbers are arbitrary since a cultured meat production industry does not exist yet. Authors of a 2014 study say, “more research on development of cultured meat technology is needed before more reliable estimates of the environmental impacts can be provided.”

And what about the impacts on livestock farmers and slaughter plant employees? For slaughter plant employees, this seems akin to having AI robots take their jobs. No slaughter means no slaughter plant, which means no slaughter plant employees. Mosa Meat admits that switching to cultured meat will make some farming jobs obsolete, but they assure those in the livestock industry are well-suited to take advantage of new opportunities. “For example, farmers already producing feed for animals may have an advantage in transitioning to producing feed for cells, which will be a large new market.”

David Kay, the head of mission for Memphis Meats out of Berkeley, California, said during a panel discussion at the New Harvest Conference in 2017, “We’re not out to transform family farms; we’re out to transform factory farms. There is a place for sustainable high welfare operations.”

Mosa Meat is currently using donor cells from animals that have already been slaughtered for meat, but when they begin production of their meat for the market, Calder-Flynn assures, “we will use cells from live, healthy donor animals.” When cells are taken from these animals, it is done with a biopsy under anesthesia, which does not harm the animal.

Mosa Meat is famous for being the first company to produce a cultured meat hamburger, back in August of 2013. That burger cost $280,000. Pretty pricey, but at that time, it was done more as proof of concept. Almost seven years later, there have been many adjustments and advancements. Calder-Flynn says they project the cost of producing a hamburger will be closer to ten dollars. That’s still expensive compared to a typical supermarket hamburger at just over one dollar. She expects they’ll be able to reduce the price to that level over the next decade as further efficiency improvements are made. “Ultimately, cultured meat should be cheaper than conventional meat, given its production is more efficient.”

While many types of plant-based meat tout their ability to taste like “real meat,” cultivated meat actually is real meat. So, does it taste like “real meat?” Critics say yes, it does. Under a microscope, Calder-Flynn says, Mosa Meat tissue is indistinguishable from the meat tissue that comes from the animal. It contains fat and has a similar texture. It will have a similar shelf-life and is even anticipated to freeze well.

It may also be healthier than conventional meat if you consider it will not contain any growth hormones, will be free of antibiotics, and will be made in a sterile environment, reducing the likelihood of contamination by bacteria that lead to foodborne illnesses.

While many types of plant-based meat tout their ability to taste like “real meat,” cultivated meat actually is real meat. So, does it taste like “real meat?” Critics say yes, it does.
Memphis Meats is producing beef and poultry. They are backed by investment from some big names—Bill Gates, Richard Branson, Tyson Foods, and Cargill. Memphis Meats released the world’s first cultured meatball in 2016 and the world’s first cultured poultry in 2017. In their latest press release this past January, the company states they have raised more than $180 million in total funding. They intend to use the money to build a pilot production facility, grow their team, and launch products into the market.

According to the Alliance for Meat, Poultry, and Seafood Innovation, the United States Department of Agriculture (USDA) and the Food and Drug Administration (FDA) announced a formal agreement in March 2019 stating they plan to jointly regulate food products derived from the cells of livestock and poultry. This is an imperative step on the path to getting cultured meat to consumers in America.

Is it Halal?

Since no animal is harmed in the production of cultured meat, it’s halal, right? Not exactly. Although the development of cultured meat has been going on for years, final products still have a long way to go before showing up in store aisles. As the process continues to be finalized, it’s still too early for there to be an official Islamic ruling on whether or not cultured meat is permissible. Imam Mahmoud Harmoush is more inclined to say cultured meat is only halal if the cells are taken from a halal-slaughtered animal, not a living animal. A condition of determining whether or not meat is halal is in the way it was slaughtered. If the animal was not slaughtered, can that meat still be eaten? Also, part of halal slaughter is proper draining of the animal’s blood. How would that be determined in cultured meat?

Before deciding on a ruling, there will need to be extensive communication not only among Islamic scholars but also with food scientists. Dr. Mian N. Riaz, Professor in Food Diversity at Texas A&M University and IFANCA Board member, says that scientists need to provide information about the manufacturing process and culture medium composition to religious scholars so they can determine the halal status of cultured meat. If and when that happens, the process for certification can begin.

Halal certification of cultured meat would undoubtedly differ from certification of conventional meat. “Halal certifiers instead of going to butcher houses will go to manufacturing facilities where this meat is being grown and will check every step of production for this meat,” says Dr. Riaz.

Since no animal is harmed in the production of cultured meat, it’s halal, right? Not exactly...it’s still too early for there to be an official Islamic ruling on whether or not cultured meat is permissible.

Is cultured meat the meat of the future, or will it be just another food trend? Only time will tell. The benefits are plenty: better for animals, better for the planet, and better for your health. When production is scaled up, cultured meat should even be better on your wallet. Still, consideration must be made for potential adverse effects on farmers. More research is still needed to decide if and under what circumstances cultured meat will be halal, but if all the world’s meat cannot be raised and slaughtered Islamically, cultured meat appears to be a beneficial replacement for conventional meat. One thing is certain: our food habits must change in some way if we plan to continue inhabiting this earth and living healthy lives.

“Then eat of what God has provided for you [which is] lawful and good. And be grateful for the favor of God, if it is [indeed] Him that you worship.” (Quran 16:114)

Alia Shalabi is just a girl in the world. She enjoys crafts, jigsaw puzzles, and Taco Tuesdays. Alia lives in the suburbs of Chicago with her husband and three children.
FITNESS AT A DISTANCE

By Ali Othman, CPT
Fitness, fun, work, and life took a wildly unexpected turn at the beginning of this year as the Coronavirus spread across the world sickness millions and killing hundreds of thousands of people.

Gyms, fitness centers, yoga studios, and many other retail brand health and wellness shops had to close their doors and either wait for the current environment to change, or find an alternative to offer their clients. Fitness enthusiasts who once frequented the retail spaces have adjusted their routines to incorporate online media, or the neighborhood sidewalks and trails. Online content has improved in its functionality and ability to interact with the user. Interactive applications can motivate us to receive our second wind as we get tired. They can even cheer us on as we overcome our limitations and succeed in pushing ourselves harder than we thought possible. Human ingenuity has been given a kick-start as we repurpose household items and equipment to use in a manner other than directed. Many people have been contemplating whether or not they will return to their fitness centers, or if it is possible to maintain social distance in a space filled with sweating, heavy breathing individuals. If you are one of those people, purchasing a few key pieces of equipment can help turn a small area of your home into a mini-workout studio. One should set their goals appropriately as the current social distancing environment might be our new norm. Think about long-term goals when you seek out and purchase equipment for your home. Multipurpose items that don’t take much storage space are best for creating an in-home exercise space. Take advantage of the warm weather and inviting outdoor summer climate by finding activities that can be enjoyed while still maintaining appropriate distance from others. Unprecedented times can look favorably upon those with unconventional new ideas.

Don’t be afraid to try something you never thought possible if it will help you stay fit, happy, and healthy.

Earlier this year, as each State decided to issue their shelter-in-place orders, a lot of our retail amenities had to close their doors. Many had already begun to explore options for maintaining their clients’ well-being. Exclusive content was developed or purchased and incorporated into their online applications and made available to members. Granted, streaming an online workout in your living room may not have the same draw as being in your yoga studio with your classmates, but it does have its appeal. If your in-person instructor drew you in with his or her motivating words and soothing voice, maybe that same instructor has begun posting videos you can access. If not, try a simple internet search for a few keywords that helped keep you coming back to class. You may find that the benefits of being in your home for a workout outweigh those of being in the physical space of a retail fitness center, or you may find the opposite is true. One typically limiting factor with online content is motivation. It may not be possible for many to gather the motivation needed to follow along with a YouTube fitness trainer at home.

So you’ve decided to set up an exercise space in your home and cleared out an area that is favorable for a workout. The next step is choosing the proper equipment. Cardiovascular equipment such as treadmills and stationary bikes are great; they can bring considerable benefits in increasing heart and lung strength and conditioning muscles. However, there is one drawback: you have to be motivated to use them as directed instead of as an expensive rack for drying your clothes. Instead, you might choose something more dynamic, like an aerobic step-up with risers. It’s a relatively small piece of equipment that can be used in many different ways to help work your entire body. An easy way to use the step-up for cardio is by doing the “Power Step-Up Alternating Side.” Start with your right foot on the step and left foot on the floor. Bend down into a half squat position and raise with a small sideways jump to the right side. When done correctly, your right foot will come down to the floor on the right side of the step-up, and at the same time, your left foot lands on the step-up. Once you get the hang of this movement, you can bounce back and forth quickly and repeatedly until your heart is pounding and your legs are burning. The step-up can be used for lower-body agility exercises such as lunges and squats, where one foot is on the step, and the other is on the floor. This imbalance will force your core to flex and stretch, effectively working your entire midsection. Add a few dumbbells or elastic bands and you can incorporate a shoulder raise or press to your squats. Add a riser to the base of your step-up to increase its height and make your movements more challenging. Elastic bands can be woven underneath the step and grasped with each hand to work your arms, shoulders, chest, and back. For dozens of additional step-up variations, the internet will be one of your best resources.

Your home is potentially already filled with equipment that can be repurposed to use during exercise. Khoshal Azami, a Chicago based personal health coach, hasn’t let the stay-
at-home order or social distancing interfere with his clients’ success. In the second week of quarantine, Azami had the innovative idea to continue training his clients via video-conferencing. Most of his clients don’t have equipment at home, so Azami used his experience and ingenuity to find objects around their houses to involve in his sessions. “We use water bottles, laundry detergent, bags of potatoes, tables, couches, and anything that can incorporate some resistance because resistance is the best way to break down and build muscle.” Use your dining room chairs to do box-squats, grab two jugs of laundry detergent, and use them for bicep curls. Fill a large bag with clothes and carry it in front of your body like a small child while walking around your house, or up and down the stairs. The added weight can turn a calisthenic workout into an explosive muscle-building session. The possibilities are endless; just make sure you don’t break anything.

If exercising in your home is not for you, then another great suggestion is to take it outside. When getting your activity outdoors, try to limit yourself to doing so with only the people within your household. Your neighborhood is the best place to walk, run, bicycle, or incorporate any kind of physical activity you can imagine. Find activities that you can enjoy with your kids; build a fort or obstacle course. Head to your local park, trail, or forest-preserve if they’re open, to find a walking trail, and hike it out to become one with nature. The important thing to remember is to follow your local government’s guidelines for social distancing while outside. If face coverings are required in your area, then you should be wearing one. Exercising with a face covering is a new concept that hasn’t been thoroughly studied or reviewed. When you cover your nose and mouth, breathing may become more labored. The mask’s material can also make a difference in how your body reacts to this new fashion statement. Start at a little lower intensity than what you are used to and feel how your body reacts. Over time, your lungs will begin to adapt to this change and become more robust out of necessity. If the mask is reusable, be sure to wash it each time you wear it to prevent infection from bacteria build-up.

Getting your activity outdoors provides you with several benefits. Of course, the activity itself is important for keeping healthy, but being outdoors in nature can bring a soothing and calming feeling. Fresh air, open space, and sunlight tend to make people happier than being indoors. This is the perfect opportunity to take advantage of being outside, even if it is just for a few minutes a day. Nowadays, most people are spending the majority of the day indoors, so a small change of scenery is an excellent way to inject some freshness into an otherwise routine day.

For those of us who are still working from home, spending even a few minutes a day outdoors can help fend-off the depressive nature of being inside for days on end. Working from home has its benefits; no need to fight the rush-hour traffic to-and-from the workplace, lunchtime can be as simple or as involved as your mood dictates, and if you’re having a bad hair day, try again tomorrow. While you work from home, you can also try a few techniques for adding physical activity to your workday. Take a one-minute break every hour to stand, stretch, walk around your office or living room, do a set of twenty squats or pushups, then get back to work with a fresh pair of eyes.

The start of this year may have brought us a new reality, but there are still ways to make ourselves better than our last version. Spend the extra time you have working on improving your physical and mental health. While practicing social distancing, be sure to remember not to become socially isolated. Take a few moments and go outside for some fresh air each day. The situation you are going through in your city is similar to that of nearly every city in the world. There are other ways to get physically active if you are not ready to go back to the gym. Work with an online trainer, find online fitness content that interests you, hit your neighborhood trails for a bike ride, or clear a space in your home where you can work up a sweat on your own or with a group of friends on video chat. Before starting any physical fitness routine, consult with your physician either in-person or through an online portal to ensure that your activity won’t contraindicate any underlying conditions; and, above all, be safe.

**ALI OTHMAN** has been an NSCA certified personal trainer for the past 13 years with specialization in weight loss, functional training, muscular hypertrophy, and human nutrition. He also works in the Technical Department at IFANCA and manages IFANCA business activities in South Korea.
Not all of the company products are halal-certified. Look for the Crescent-M logo on the product label or verify the certification using the Certified Products listing on www.ifanca.org.

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### HALAL-CERTIFIED PRODUCT LOCATOR

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<td>Food Products</td>
<td>Bard Valley Natural Delights</td>
<td>Kroger, Publix, Meijer, Walmart, Whole Foods, and various markets throughout the United States</td>
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| Carole’s Cheesecake | Bakery Item           | Carole’s Cheesecake Company Ltd.         | • Select markets, restaurants, and bakeries throughout Canada  
• Visit their website for a complete list of locations: www.carolescheesecake.com | |
<p>| English Biscuits    | Bakery Items          | English Biscuit Manufacturers (Pvt.) Ltd. | Ethnic (Indo/Pak) stores throughout the United States and Canada                                                 |
| Enjoy Life®         | Snack Food            | Enjoy Life Natural Brands                | Supermarkets, convenience stores, drugstores                                                                   |
| Fruitfull®          | Food Products         | Happy &amp; Healthy Products Inc.            | Supermarkets, convenience stores, mini marts, gas stations                                                     |
| Godiva              | Candy / Chocolate     | Godiva Chocolatier                       | Company stores, department stores, supermarkets, gift shops, and drugstores throughout the United States         |
| Golden Bonbon       | Candy / Chocolate     | Asti Holdings Ltd.                       | Visit their website: <a href="http://www.goldenbonbon.com">www.goldenbonbon.com</a>                                                                       |
| Hahn’s® Green Mountain Farms™ Lombardi’s* | Dairy Products | Franklin Foods Inc. | Supermarkets, discount stores                                                                                   |
| Impossible™ Burger  | Food Products         | Impossible™ Foods                        | Select restaurants throughout the United States                                                                 |
| J&amp;M Food Products   | Food Products         | J&amp;M Food Products                        | Visit their website: <a href="http://www.halalcertified.com">www.halalcertified.com</a>                                                                    |
| Kontos              | Bakery Items, Bread   | Kontos Foods, Inc.                       | Ethnic (Arab, Indo/Pak) stores and fruit &amp; vegetable markets throughout the United States                        |</p>
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