One primary care doctor's journey

to growing and eating sustainably, to help save the planet and sentient beings

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Dr. Kahn is a practicing internist since 1988 who believes it is possible to save our planet and improve the quality of life of all sentient beings with gardening and a plant-based diet.

From Basement to Table

I am excited to continue my series of articles on the topic of growing and eating sustainably. Today's article is about indoor gardening. My home lacks sufficient sun exposure to grow plants indoors using natural light. My indoor garden is located in my basement and I am using LED lights suspended from my ceiling as my light source. I start my seedlings in seed trays and then transfer the seedlings during the warm months directly into my garden. For the first time this winter, I am able to grow the plants using an aeroponics system discussed below. By growing food in my basement, I am able to satisfy my culinary yearnings for fresh produce and also help to sustain our planet in my own personal way.

Why Aeroponics?

Aeroponics is a form of food growing in which plants are grown without soil in the air. This is in contrast to hydroponics in which the growing media is nutrient-infused water rather than soil. Both methods protect our environment from fertilizers, pesticides, and fungicides that are added to the soil of many modern industrial farms. These petrochemicals run off the land in rain events and pollute our water supplies. This makes hydroponics and aeroponics a fun and eco-friendly choice for those in urban and suburban areas who are looking to live more connected and healthy lives. If you are concerned about the sustainability of current farming methods or if you just want to have access to fresh produce at all times, I recommend that you consider starting your own aeroponics and hydroponics garden. There are self-contained aeroponics gardens available to purchase at your local hardware store and online. If you are a do-it-yourself kind of person, you are welcome to travel with me on my aeroponics journey.

Elements of an Aeroponics Garden

The difference between hydroponics and aeroponics is how the nutrient water is delivered to the plant. In an aeroponics garden, the nutrient water is delivered to the emerging plant roots via mist and in hydroponics the roots are totally suspended in water. The basic elements of both aeroponics/hydroponics gardens include a source of light, a structure to support the plants, and a means to distribute the nutrient-enriched water. You will need seeds and a process to germinate (start) the seeds.

The Aeroponics System

My aeroponics system is based on the Family Plot YouTube video at https://www.youtube.com/watch?v=_ewOsgoGQL4. I had to make some changes to the drain mechanism because the grommet that was suggested in the video leaked and I had to replace a defective submersible pump. After many months of research and just in time for winter I am ready to try out my new aeroponics system. I cleaned out the aeroponics chamber with a mixture of 3 tablespoons of bleach to 1 quart of water. I then rinsed out the container and put in 10 gallons of tap water along with 8 tablespoons of Dyna-Gro Plant Food. I let the misters run for a couple cycles and then tested the pH of the nutrient water. The pH meter registered 6.46 which is in the ideal range for growing leafy greens.

Growing Cycle

I started my most recent growing cycle by sowing my seeds into a 72-cell tray which I placed inside of a triple thick 10x20 seed tray without holes. This arrangement allows me to water the seedlings from below. I am experimenting with the growing medium for this initial growing cycle and half of the seeds I sowed into Root Riot sphagnum peat cubes and the other half into coco peat. I used a germination dome that covered the seed tray to keep the temperature and humidity constant during germination. I enjoy eating fresh greens in the winter and with this in mind, I choose to grow arugula, basil, kale, and nasturtium. After 19 days under the LED grow lights, the seedlings were ready to be transplanted into the aeroponics chamber. The arugula, basil, and kale seeds sprouted quickly and grew well under the LED grow lights in both of the sphagnum peat cubes and coco peat. The nasturtium seeds did not sprout. I learned that I could have encouraged sprouting by scraping off some of the thick nasturtium seed coating.

Transplanting the Seedlings into the Chamber

The seedlings need a structure to support the young plants and allow their roots to grow down into the aeroponics chamber. In my system the support is provided by the lid, 12 basket-like structures called net pots, and hydroton clay pellets. Just before I transplanted the seedlings, I filled the empty net pots half way up with hydroton clay pellets and then I removed each seedling from the seed tray and encircled them with a neoprene collar. Finally, I slipped the lid with the suspended net pots on top of the growing chamber.

Setting the Timers

Motor timer

Based on my internet search of aeroponics techniques, I learned that it is important to have a short period cycle timer that allows the misters to be on for seconds and off for minutes. I am still experimenting with the timing cycle. I initially set the timer at 10 seconds on and 1 minute off, but later I changed it to 15 seconds on and 3 minutes off after doing more research.

Light timer

I set the timer for my LED lights at 16 hours on and 8 hours off. This is the same schedule I used to start my seedlings.

Stay tuned for the next article in this series when I will continue to share more about my indoor gardening journey.

Yours Truly,
Stasia Kahn

Take a tour of Stasia's Aeroponics Garden **https://youtu.be/my9V8ODvBKY**