

WEEKLY DIGEST

MICROGREENS, AGING, AND LONGEVITY

THE NUTRIENT-PACKED MICROGREENS FOR BETTER SLEEP

CREATIVE RECIPES: Bavarian Cabbage Microgreens Salad with Smoked Trout
COMMERCIAL BEST PRACTICES: E3 Farm's Innovative Approach to Microgreens
CULTIVATION TECHNIQUES: The DIY Microgreens Grower Using 3-D Printing

“Delivered to Your Inbox Every Monday,” your summary digest of the latest microgreens, urban, vertical farming, and new trends and exciting startup stories from around the world.



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Microgreens, Aging, and Longevity

This Week: Monday, July 8, 2024

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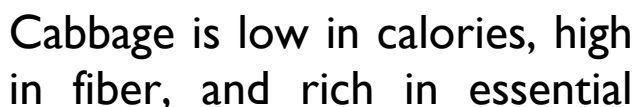
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The Resurgence of Cabbage



MSN. <https://www.msn.com/en-us/health/nutrition/cabbage-is-making-a-comeback-here-s-the-best-way-to-eat-it/ar-BB1p5117>

Creative Recipes

Bavarian Cabbage Microgreens Salad with Smoked Trout



This salad combines the crunch of cabbage and microgreens with the smoky flavor of trout. The Bavarian sweet mustard and

caraway seeds add a delicious German twist.

Smoked trout is a good source of protein, and almonds add extra crunch and nutrition.

Packed with vitamins, antioxidants, and omega-3s, it offers a refreshing, protein-rich meal.

The microgreens boost its nutritional profile, adding fiber vitamins C and K.

Serving size: 12 oz (350 ml)

- Prep time: 15 minutes
- Cook time: 0 minutes
- Total time: 15 minutes
- Category: Salad
- Method: No-cook
- Cuisine: Fusion (Bavarian-inspired)
- Yield: 4 servings

Ingredients:

- 4 cups finely shredded white cabbage
- 2 cups cabbage microgreens

- 8 oz smoked trout, flaked
- 1/4 cup chopped fresh dill
- 1/4 cup thinly sliced red onion
- 1/4 cup chopped roasted almonds
- 2 tablespoons caraway seeds

Dressing:

- 1/4 cup apple cider vinegar
- 2 tablespoons Bavarian sweet mustard
- 1 tablespoon honey
- 1/4 cup cold-pressed rapeseed oil
- Salt and freshly ground black pepper to taste

Instructions:

1. In a large bowl, combine the shredded cabbage, cabbage microgreens, flaked smoked trout, fresh dill, red onion, and caraway seeds.
2. In a small bowl, whisk together the apple cider vinegar, Bavarian sweet mustard, honey,

and rapeseed oil. Season with salt and pepper to taste.

3. Pour the dressing over the salad and toss gently to combine.

4. Let the salad sit for 5 minutes to allow the flavors to meld.

5. Before serving, sprinkle the chopped roasted almonds over the top.

6. Divide the salad among four bowls and serve immediately.



GET MORE RECIPES

Sesame-crusted Seared Ahi Tuna Salad with Sunflower Microgreens



This is one of my favorite “**quick 20-minute**” dinner recipes.

The **nutrient-packed** salad combines lean protein from the ahi tuna, **healthy fats** from

avocado and sesame, and diverse **vitamins** from vegetables.

Rich in **fiber** and **omega-3s**, it supports overall health.

Sunflower microgreens add a concentrated boost of vitamins A, C, E, K, **antioxidants**, and **minerals**.

Serving size: 12 oz (350 ml)

- Prep time: 20 minutes
- Cook time: 5 minutes
- Total time: 25 minutes
- Category: Main Course
- Method: Pan-searing
- Cuisine: Asian-Fusion
- Yield: 4 servings

Ingredients:

For the tuna:

- 16 oz sushi-grade ahi tuna
- 1/4 cup white sesame seeds
- 1/4 cup black sesame seeds

- 2 tbsp vegetable oil
- Salt and pepper to taste

For the salad:

- 8 cups mixed fresh greens
- 1 ripe avocado, sliced
- 1 cucumber, thinly sliced
- 1 cup shelled edamame
- 1 cup grated carrots
- 1 cup shredded cabbage
- 4-6 radishes, thinly sliced
- 1/2 cup sunflower microgreens

For the sesame ginger dressing:

- 1/4 cup rice vinegar
- 2 tbsp soy sauce
- 2 tbsp sesame oil
- 1 tbsp honey
- 1 tbsp grated fresh ginger
- 1 clove garlic, minced

Instructions:

1. Mix white and black sesame seeds on a plate. Season the tuna with salt and pepper, then coat it with the sesame seeds.

2. Heat vegetable oil in a pan over high heat. Sear the tuna for

about 2 minutes on each side for medium, longer, or less if desired. Remove from heat and let it rest.

3. In a small bowl, whisk together all dressing ingredients.

4. In a large bowl, combine mixed greens, cucumber, edamame, grated carrots, cabbage, and radishes. Toss with half of the dressing.

5. Divide the salad mixture among four plates. Top each with sliced avocado and sunflower microgreens.

6. Slice the seared tuna and arrange it on top of each salad.

7. Drizzle the remaining dressing over the tuna and salad.

8. Serve immediately and enjoy your refreshing sesame-crusted seared ahi tuna salad!

Evidence-based Expertise

Nutrient-packed Microgreens for Better Sleep



The article discusses the benefits of incorporating nutrient-packed microgreens

like kiwis, spinach, and avocados to enhance sleep quality and overall well-being.

Kiwis, rich in antioxidants and serotonin, were found in a study to aid in falling asleep faster and improving overall sleep quality when consumed one hour before bedtime.

Spinach is highlighted for its high magnesium content, which can help relax muscles and regulate sleep.

Avocados, known for their healthy fats and potassium, support better sleep and overall health.

By including these microgreens in your diet, you can potentially experience improved sleep patterns and well-being during the spring season.

SOURCE: MSN. (2024, July 7). *Springtime comes with better nutrient-packed microgreens for better sleep.* <https://www.msn.com/en-za/news/other/springtime-comes-with-better-nutrient-packed-microgreens-for-better-sleep/ar-AA1gEr3H>

Commercial Best Practices

E3 Farm: Ethan Carter's Innovative Approach to Microgreens



Ethan Carter's [E3 Farm in Wolfforth, Lubbock County, Texas](https://www.lubbockonline.com/picture-gallery/business/agricultural/2024/07/07/e3-farm-ethan-carter-wolfforth-mushrooms/74283369007/), showcases a variety of microgreens, including **kohlrabi microgreens** noted for their freshness and quality.

Carter, a master's candidate at Texas Tech, emphasizes the importance of superior genetics for optimum microgreen production.

By **refreshing the genetics**, Carter ensures that his microgreens are of the highest standard.

The process involves meticulous care in cultivating the microgreens, providing a glimpse into **modern farming practices**.

Carter's dedication to producing top-notch microgreens highlights his commitment to delivering exceptional products at the Wolfforth Farmer's Market, attracting customers seeking **premium, locally-grown produce**.

SOURCE: Annie, Rice. (2024, July 07). Mushrooms, produce, and more: Check out Ethan Carter's E3 Farm. <https://www.lubbockonline.com/picture-gallery/business/agricultural/2024/07/07/e3-farm-ethan-carter-wolfforth-mushrooms/74283369007/>



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The Featured Article

Microgreens, Aging, and Longevity



You might be surprised to learn how **microgreens**, those tiny, vibrant seedlings, can significantly impact **aging and longevity**.

Packed with essential nutrients and bioactive compounds, these greens excel in supporting antioxidant activity, nerve function, and cellular health—all **vital** for combating age-related issues. By incorporating microgreens into your diet, you're not just adding flavor; you're also optimizing nutrient intake and enhancing **disease prevention**.

Curious about the specific micronutrients that make these benefits possible?

Young, middle-aged, or older, the following pages **reveal** how these tiny greens can have a significant impact on your long-term health.

Key Takeaways

- Microgreens are rich in antioxidants that combat oxidative stress, slowing down the aging process.
- Nutrient-dense microgreens provide essential vitamins and minerals crucial for cellular health and longevity.
- Bioactive compounds in microgreens improve immune function and reduce inflammation, supporting healthier aging.
- Consuming microgreens boosts the intake of phytochemicals that possess disease-fighting properties, enhancing overall well-being.
- Microgreens support nerve function and cognitive health, promoting a longer, healthier life.

Aging and Longevity: Knowing the Difference

Understanding the difference between **aging** and **longevity** is pivotal for nutrition research to effectively target interventions that promote both **healthspan** and **lifespan**.

Aging refers to the natural and inevitable process of bodily changes over time, while longevity focuses on extending a healthier life.

By distinguishing between the two, you help researchers pinpoint specific mechanisms to slow aging and boost longevity.

Incorporating **microgreens** into diets shows promise for healthy aging. Rich in bioactive compounds and nutrients, microgreens support **antioxidant activity** and nerve function, which is essential for longevity.

Nutrition research utilizes these insights to develop strategies promoting well-being in older adults, aiming to optimize both health and lifespan.

Your role in understanding these distinctions is essential for advancing healthy aging initiatives.



Nutrition, Longevity and Disease

Incorporating **microgreens** into your diet can significantly improve **nutrient intake**, aiding in the prevention of age-related diseases and promoting longevity. These tiny greens are packed with **bioactive compounds** such as ascorbic acid, carotenoids, and folate, which play critical roles in **disease prevention** and **healthy aging**.

Microgreens offer a high density of micronutrients like iron, zinc, and potassium, supporting overall health and potentially extending lifespan. The phytochemicals in microgreens, including phenolic antioxidants and chlorophyll, possess potent disease-fighting properties. Additionally, their rich content of ascorbic acid,

phylloquinones, and β -carotene helps combat oxidative stress and maintain cellular health.

Healthy Aging is Achievable Through Nutrition and Lifestyle Management



Achieving healthy aging hinges on a combination of proper nutrition and strategic lifestyle management. By incorporating **microgreens** into your daily routine, you can tap into their myriad health benefits that support overall health.

These **nutrient-dense foods** are packed with **antioxidants** and essential nutrients vital for maintaining a healthy diet. Consuming microgreens helps combat **age-related issues**, promote cellular health, and reduce the impact of aging.

By focusing on nutrient-rich foods and healthy habits, you can boost your chances of aging gracefully and maintaining vitality. Proper

nutrition paired with an **active lifestyle** is vital to unlocking the potential for a longer, healthier life.

The Micronutrients that have a significant impact on aging and longevity

Micronutrients like **antioxidants**, vitamins C, **E**, and K, along with minerals such as iron, zinc, potassium, and calcium in microgreens, play an essential role in combating oxidative stress, reducing inflammation, and slowing the aging process.

These micronutrients are found abundantly in microgreens and act as powerful agents that promote anti-aging effects. Antioxidants neutralize free radicals, preventing cellular damage that accelerates aging.

Vitamins support immune health and cellular repair, while minerals are vital for maintaining cognitive function and overall longevity. By incorporating microgreens into your diet, you're providing your body with essential nutrients that fight oxidative stress and inflammation, ultimately supporting healthier aging and potentially extending lifespan.

Microgreens as a Functional Component of the Human Diet

Building on the significance of **micronutrients** for aging and longevity, microgreens serve as a functional component of the human diet by offering a concentrated source of **bioactive compounds** and essential nutrients. Rich in ascorbic acid, carotenoids, and folate, microgreens boost your diet's nutritional content, supporting healthy aging.

These young plants are also high in iron, zinc, and potassium, essential for overall health. The **phytochemicals** in microgreens, like

chlorophylls, carotenoids, and polyphenols, improve **antioxidant activity**, crucial for combating aging and promoting longevity.



With higher concentrations of essential vitamins compared to mature plants, microgreens provide a potent nutritional boost. Including them in your meals is a convenient way to support longevity and well-being.

Microgreens: A Key Trend Towards Healthy Aging and Longevity Promotion

Embracing the trend of incorporating **microgreens** into your diet can significantly boost your **nutrient intake** and support **healthy aging** and longevity. Microgreens are packed with **antioxidants**, essential for combating oxidative stress and inflammation—critical contributors to aging.

Their high nutritional density means you get a concentrated dose of vitamins and minerals, enhancing your overall health and immune system. Regular consumption of these nutrient-dense greens can play

a significant role in promoting healthy aging by providing essential nutrients that support nerve function and disease prevention.

Ongoing Research on Microgreens



Current research on **microgreens** is exploring their potential to mitigate age-related diseases and improve longevity through their rich **antioxidant content**. Studies are focusing on how microgreens' high levels of bioactive compounds may reduce **oxidative stress**, a critical factor in aging.

Researchers are investigating the effects of these tiny greens on cellular health, inflammation, and cognitive decline. Preliminary findings suggest that the nutrient-rich profile of microgreens supports **healthy aging** at the cellular level.

Conclusion: Microgreens, Aging, and Longevity



Incorporating microgreens into your diet can significantly boost your intake of **essential nutrients** and bioactive compounds, promoting healthy aging and longevity.

You'll benefit from their **antioxidant properties**, improved nerve function, and enhanced cellular health.

By making microgreens a staple in your meals, you're not just optimizing **disease prevention** but also maximizing overall well-being.

Stay informed on ongoing research to continue leveraging microgreens for a longer, healthier life.

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Cultivation Techniques

The DIY Microgreens Grower

Gorden Freeman is the author of the channel “Diy Yari”! on

His “passion is to invent useful devices for the home that make our lives easier and more convenient.”

In this video, Yari (Gordon Freeman) provides some very detailed information about a



UltiMake Thingiverse. The UltiMakers’s Thingiverse is a thriving design community for discovering, making, and sharing **3D printable things**.

small home farm project for **growing microgreens**, including assembly instructions and links to necessary products.

The project is called MicroGrenn Farm by Gorden-FreeMan.

Detailed assembly instructions and experiments on growing microgreens can be found on [Gorden FreeMan's YouTube channel](#).

All dimensions are in millimeters, and scaling may be required in the slicer software.

The project uses parts that can be purchased from specific links provided on the web page.

The design is under a Creative Commons license - Attribution - Share Alike.

What license is the MicroGrenn Farm design released under?

The MicroGrenn Farm design is released under the Creative Commons-Attribution-Share Alike (CC BY-SA) license.

Emerging Industry News

Food Industry Lobbyists Seek To Weaken FSMA 204



The Safe Food Coalition, a group of food industry stakeholders and consumer protection organizations, has

urged Congress to reject two bills that aim to weaken the FDA's Food Traceability Final Rule (FSMA 204).

The bills include the Food Traceability Enhancement Act, which would ease traceability requirements, and a provision in the FY 2025 agriculture appropriations bill that seeks to delay the FDA's 2026 implementation.

The Coalition argues that these bills could hinder traceability efforts by exempting lot code information crucial for tracking foodborne illnesses.

As the January 2026 compliance date nears, many companies have made progress in traceability, showing compliance feasibility.

The Safe Food Coalition opposes these bills as they could potentially impede traceability and food safety measures.

SOURCE: Food Safety Magazine Editorial Team. (2024, June 25). The second bill was introduced to Weaken FSMA 204; Safe Food Coalition Voices Opposition. <https://www.food-safety.com/articles/9565-second-bill-introduced-to-weaken-fsma-204-safe-food-coalition-voices-opposition>

Arugula Microgreen Market Size Predicted to Generate Huge Revenues in the Future



Report Ocean (2024) predicts significant revenue growth in the global arugula microgreen market, from US\$ 180.0 million in 2022 to an estimated **US\$**

402.6 million by 2031, with a 9% compound annual growth rate.

Factors driving this growth include increasing popularity among **health-conscious consumers**, support for **protected cultivation**, and **demand** in the food service industry.

Despite a slight negative impact from COVID-19 disruptions in distribution channels, **North America leads** the market with indoor vertical farming advancements.

This growth presents opportunities for microgreen growers to capitalize on the rising demand and utilize innovative cultivation methods to meet market needs efficiently.

SOURCE: Taiwan News. (2024, July 4). Arugula Microgreen Market Size Predicted to Generate Huge Revenues in the Future. Retrieved from <https://www.taiwannews.com.tw/news/5898512>

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