

## **Microgreens for Mental Health**

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This chapter on microgreens and mental health is a collaboration between two professionals, one being a Horticulturalist specialising in urban micro-greens farming, and the other a Nutritional Therapist. Both writers are lifelong friends with a passion for good health and a holistic lifestyle.

As practitioners we both strongly understand the beneficial link between the cycle of growing and eating microgreens and good mental health. It is not just the nutritional benefits – which are impressive – but the cycle of planting, harvesting and preparing microgreens that helps focus the mind on a positive activity. For someone struggling with poor mental health, any distraction, particularly one which is relaxing and fulfilling, can be a welcome relief. Growing microgreens is simple, inexpensive and takes a small amount of patience, time and space.

Despite their small size, the first consideration of microgreens is that they pack a nutritional punch; often containing higher vitamin, mineral and antioxidant levels per serving than their more mature version. In addition, they look and taste great; using them in dishes can be an exciting and fulfilling experience when grown yourself. Research comparing microgreens to their more mature counterparts reports that nutrient levels can be up to nine times higher than those found in mature greens. [1]

Sourcing nutritious ingredients, such as microgreens, is an essential part of valuing the food we eat and helps to build on the importance of sustainable self-care as part of the holistic approach to the cooking experience. Microgreens can be easily incorporated into diets and dishes and using their flavours and colours to inspire nutrition-based cooking can be categorically beneficial in supporting mental health.

Microgreens hold their nutritional benefits best when eaten raw, used as a topping or added to the final stage of preparing a dish. Once harvested and stored in the fridge, microgreens offer an easy solution to incorporate in dishes. The chopping and preparation that other salads and vegetables require can deter some individuals from

preparing a balanced meal, having microgreens to hand can ensure an easily available daily dose of nutrition.

The cycle of growing, harvesting, preparing and consuming offers a complete approach in creating activities for clients or patients which can be used to help reduce anxiety, stress and depression. The small amount of space needed to grow microgreens, and the fast-growing rate of crops, may be an attractive activity for individuals with attention disorders. Patients can also come to understand that growing your own food can be easily achieved without the need for a garden, greenhouse or gardening tools. In fact, all it takes to achieve positive and nutritious results is a well-lit, warm indoor space and some basic kitchen equipment. Seasonal outdoor gardening can be limiting with space, access and weather conditions, whereas growing microgreens can be an all-year-round indoor activity. Again, this might be appealing to certain physical and mental health conditions. With their dietary benefits and ease of growing perhaps microgreens could be exactly what health practitioners should be prescribing to patients as a positive and nutritious solution to support mental health.

*To understand how micro-greens can be incorporated into a diet and activity, it is important to know exactly what these small plants are and what they can offer.*

*Microgreens* is the term given to vegetables and herbs that are in the cotyledon stage of growth which falls between the sprouting and baby leaf stages. The window of opportunity to harvest microgreens is usually 10-16 days from germination. Microgreens have intense, aromatic flavours and come in many different colours and textures. [2,3]

As the popularity of growing microgreens has increased dramatically over the last few years, access to purchasing quality, organic seeds and peat-free organic composts has become much easier and more affordable. We will review more closely three microgreen varieties later in this chapter, Broccoli, Basil and Radish China Rose. All three can be grown as microgreens but Broccoli and Radish China Rose are recommended for beginners for their fast-growing rates. Basil would be perfect for longer-term growers. These microgreens have been chosen for this

review as they present clear examples of how to boost nutrition with these small plants for mental health conditions. As an intervention to a life seemingly out of control, the process of nurturing, producing and preparing healthy, nutritious foods can be a wholesome and positive focus for an individual.

Growing your own food is a proven mood enhancer. In addition to the sense of achievement the practice assists mental wellbeing, especially relieving anxiety and depression. Using soil instead of the alternative substrates used in commercial microgreen farming has shown to have the same effect on the brain as antidepressants. The bacteria *Mycobacterium vaccae* found in soil can activate neurons that promote the formation of serotonin, a neurotransmitter that regulates mood. Inhaling and having physical contact with this bacterium can result in experiencing positive effects.

Cultivating microgreens can give individuals a strong sense of responsibility and purpose. The physical act of gardening causes the release of serotonin and endorphins, our body's natural feel-good hormones, which promote mental wellbeing. Caring for these delicate micro-greens helps foster a relationship between the grower and the plant and creates a bond with nature; growing and nurturing life. It can develop optimism and a regular routine, and these incredible psychological benefits can result in improved self-care. People with mental health issues might be unable to take care of themselves, but if they can grow and look after a plant, they can learn self-care. [4]

Attention Restoration Theory (ART) developed by the Kaplans in the 1980s, emphasises that people can concentrate better after spending time in nature. Growing helps focus the mind and attention and helps prevent the insular effects of mental health conditions. This mindfulness can alleviate stress levels, prevent anxiety and depression, relieve insomnia and improve personal productivity. During the process of growing plants specific brain functions, such as sensory awareness, are challenged. The textures, aromas, tastes and colours of microgreens can awaken and focus the senses, leading to the restorative experience. It promotes brain health and can have a positive effect on enhancing problem solving abilities all

while learning new skills. It can result in improvement in attentiveness and lowered stress and pain levels.[5]

From a nutritional perspective, growing and consuming microgreens is a healthy and positive step in supporting your mind. There is overwhelming evidence to show that certain vitamins and minerals support good mental health; a deficiency in these micronutrients will most certainly have an adverse effect. Microgreens contain essential vitamins and minerals which are specifically known to support the mind, including vitamin B, magnesium and chromium. Harvested fresh, microgreens are packed with nutrients and promote good health. Broccoli for example, harvested at the cotyledon stage, contains chromium, a mineral which helps to control blood sugar levels. Low blood sugar levels can cause shakiness and contribute to the feelings of anxiety and nervousness. For individuals struggling with anxiety, maintaining normal blood sugar levels is essential. Broccoli microgreens can contain up to 40 times the levels of nutrients by weight compared to fully grown broccoli. Basil microgreens contain vitamin B6 and magnesium. Magnesium is often deficient in modern diets due to soil depletion and food processing. Stress and anxiety also deplete the body of magnesium. The National Health and Nutrition Examination Survey explored the connection with magnesium intake and depression in nearly 9,000 adults. The study showed a link between very low magnesium intake and depression. [6] In his article entitled 'Magnesium: The missing link in mental health' James Greenblatt MD states "Magnesium deficiency afflicts 90% of all people with ADHD and triggers symptoms like restlessness, poor focus, irritability, sleep problems, and anxiety" [7]. Neuropsychiatric disorders including seizures, migraine, chronic pain and depression have been linked to vitamin B6 deficiency [8] China Rose (part of the radish family) also contains vitamin B6, magnesium, and zinc, as well as many other vitamins and minerals which aid good health. Zinc has been found to be low in those suffering from depression. In fact, the more depressed someone is, the lower their zinc level [9]

Due to the high levels of nutrients contained in microgreens they are a sustainable way to provide nutritious food for people living in small spaces. They are easy to

grow at home and can be contained on shelves or windowsills. For the small cost of compost and seeds there is a significant return in terms of nutrients.

Research has also shown that microgreens may contain significantly higher levels of vitamins and minerals than the fully grown plant. [10] For those struggling with their mental health and who feel unable to source and prepare nutritious meals, growing simple microgreens could provide them with essential additional vitamins and minerals. Vitamins and minerals obtained from fresh produce are more readily absorbed by the body than in tablet and supplement form making microgreens a natural source for obtaining high levels of valuable micronutrients.

Physical and mental health are intrinsically linked and, in addition to the vitamins and minerals mentioned specifically for mental health, most varieties of microgreens tend to be rich in vitamins C, E and K, plus potassium, iron, and copper. In addition, micro-greens are also a great source of beneficial plant compounds such as disease-fighting antioxidants.

In conclusion, the simple act of growing microgreens can present a holistic approach to mental health and well-being by offering the full sensory experience and delight of all the activities involved in a 'seed to plate' project. This positive and mindful venture offers consistency, routine and somewhat predictable outcomes. More importantly it can deliver a wealth of learning, discovery, and achievement to improve the nutrition needed to benefit both physical and mental health.

[1] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5362588/>

[2] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5362588/>

[3] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3915300/>

[4] ref - <https://www.urbancultivator.net/connection-growing-plants-mental-health/>

[5] [Ref <https://www.urbancultivator.net/connection-growing-plants-mental-health/>]

[6] Tarleton EK, et al. Magnesium Intake in Depression in Adults. Journal of the American Board of Family Medicine, 2015 Mar-Apr;28(2):249-56.

[7] <https://www.immh.org/article-source/2016/11/17/magnesium-the-missing-link-in-mental-health>

[8] <https://pubmed.ncbi.nlm.nih.gov/14584010/>

[9] <https://www.psychologytoday.com/us/blog/evolutionary-psychiatry/201309/zinc-antidepressant>

[10] <https://www.researchgate.net/journal/Journal-of-Agricultural-and-Food-Chemistry-1520-5118>