

## TH Activity Plan – Gardening, Melatonin & Sleep

Text by Lesley Fleming, HTR

Photo by J. Fleming



**ACTIVITY DESCRIPTION:** Participants will garden outdoors to increase melatonin production as a mechanism for improving sleep.

**THERAPEUTIC GOALS:**

**Cognitive/Intellectual:** Expand knowledge about sleep, strategies to improve sleep & the importance of sleep in general health

**Physical:** Improve sleep; increase physical exercise

**Psychological/Emotional:** Build confidence in self & the ability to use strategies for improving sleep; recognize gardening & outdoor activities as contributors to improved sleep & melatonin production; self-regulate sleep & other behaviors

**Sensory:** Feel more energized; enjoy sunlight from the outdoor experiences; enjoy sensory aspects of gardening

**Social:** Interact more positively with others due to a more rested state of being; report back to facilitator re change in sleep patterns due to outdoor gardening activities

**Materials**

Garden, garden tools

Gloves, wipes

**STEP-BY-STEP PROCESS:**

1. **Pre-Session Preparation:** Evaluate garden for any hazards or poisonous plants.
2. Facilitator begins session by asking participants if they have sleep disruptions. Beginning with a short overview of the connections between sleep, melatonin and vitamin D production, and exposure to sunlight, gardening can be introduced as a strategy for improving sleep with the added bonus of increasing exercise.
3. Gardening task(s) are identified that will provide increased exercise & healthy sunlight exposure. Participants can choose from the task list (planting, weeding, watering, pruning etc.).
4. Accommodations can be made where appropriate (see comments below). Duration of gardening time can be adapted to suit each participant.
5. Discussion of strategies to improve sleep related to outdoor sunlight exposure, exercise and melatonin production can conclude the session. Facilitator can suggest/provide a chart for participants to document physical activity, sunlight exposure & sleep patterns as a way to reinforce the session's therapeutic focus.

**APPLICATIONS FOR POPULATIONS:** Sleep is an important health factor for all populations. Strategies that improve sleep can be incorporated into TH, these involving increased physical exercise, increased melatonin production and vitamin D, the latter two produced in the skin through sun exposure. A reasonable amount of sunlight is considered beneficial; direct sunlight has up to 10,000 lux, a unit measuring illuminance (The Women's the Royal Women's Hospital, 2024; Lee et al., 2014). Melatonin is a hormone produced in the pineal gland that

regulates sleep patterns and circadian rhythm (The Women's the Royal Women's Hospital, n.d.). Gardening, and even passive engagement in an outdoor setting can provide ways to increase melatonin and vitamin D production through access to sunlight.

Particular populations have been identified as having sleep disruptions including people living with dementia and seniors in institutional settings who have limited access to the outdoors (Pollock & McMair, 2012), people in [recovery from drug addictions where their sleep has been disrupted](#) due to nighttime habits with limited exposure to sunlight (Polacova, 2024), bereaved individuals (Moriarty, 2024), sleep challenges due to shift work, insomnia, and sleep disorders including people with blindness where circadian rhythm is disrupted (Mayo Clinic, 2024). Studies are investigating links between sleep disruptions, melatonin, and cancer, multiple sclerosis, menstrual cycles, and elderly people.

Outdoor gardening activities can support melatonin and vitamin D production, as can other outdoor activities like walking, trail hiking, outdoor (paid) jobs, and cycling. Gardening offers healthy exposure to sunlight combined with physical activity (when done thoughtfully and with protection against unhealthy sun exposure and dehydration). Gardening tasks do not have to be physically taxing to be beneficial from increased exercise and sun exposure. These can include raking, hoeing, planting, pruning, mulching, watering and harvesting.

Adapting gardening so that participants are willing and able to undertake tasks can be done by simplifying tasks (watering, sweeping path, passing a plant to a partner for planting); sitting down to plant, mixing soil, or planting seeds; and filling birdfeeders with seed, or birdwatching for participants interested in this aspect of nature/outdoors.

Discussing sleep, sleep strategies, sleep patterns, and tracking sleep patterns before/after gardening session can expand participants' understanding of this important health determinant. It can also empower people to self-regulate, self-care and change behavioral patterns to improve sleep.

**SAFETY CONSIDERATIONS: Facilitators are responsible for knowing poisonous and toxic plants and plant parts.** Gardening tasks should be structured to accommodate physical abilities/disabilities of participants, with awareness of any safety issues related to sharp tools. Sun protection and access to water should be provided.

**NOTES OR OTHER CONSIDERATIONS:** A number of THAD activities have been written with references to sleep disturbances for a variety of populations including [bereaved](#), [addiction recovery](#), and [dementia](#), and where TH activities can support strategies for improving health and sleep.

#### REFERENCES/ RESOURCES:

- Fleming, L. (2023). [Green exercise – dementia populations](#). *University of Florida Therapeutic Horticulture Activities Database*.
- Lee, H., Kim, S., & Kim, D. (2014). Effects of exercise with or without light exposure on sleep quality and hormone responses. *J Exerc Nutrition Biochem.*, 18(3), 293-9.
- Mancus, G., Hill, S.V., & Carter, P. (2021). Nature-based therapies for sleep disorders in people living with human immunodeficiency virus. *Nurs Clin North Am.*, 56(2), 189-202.
- Mayo Clinic. (2024). Melatonin.
- Moriarty Wroath, E. (2024). [Bulb lasagna – bereaved](#). *University of Florida Therapeutic Horticulture Activities Database*.
- Polacova, Z., & Fleming, L. (2024). [Physical exertion – substance use addiction](#). *University of Florida Therapeutic Horticulture Activities Database*.
- Pollock, A., & McMair, D. (2012). Ch. 2. Going outside is essential for health and wellbeing. In Pollock & Marshall (Eds.), *Designing Outdoor Spaces for People Living with Dementia*. Hammond Press & DSCC.
- The Women's the Royal Women's Hospital. (n.d.). [Sleep, sunshine & vitamin D](#). Edits were made for THAD purposes in 2024.
- TH Activity Plan form developed by Lesley Fleming, Susan Morgan and Kathy Brechner (2012), revised in 2024.