



Nature-based Support Strategies

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ARTIFICIAL
INTELLIGENCE

& SUSTAINABLE
EDUCATIONAL
TOOLS

FOR THE
PREVENTION OF

TEENAGERS'
PSYCHOLOGICAL
DISORDERS.

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MENTAL HEALTH

TRAINING

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EDUCATION

Module 2.3 - Benefits of Nature for Mental Health



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Mental health is an essential component of overall well-being, particularly during adolescence, a stage marked by rapid physical, emotional, and cognitive development. As young people navigate academic pressures, social challenges, and personal growth, their mental health is influenced by multiple factors, including lifestyle choices and environmental conditions. Scientific research has increasingly highlighted the importance of natural approaches to mental well-being, such as maintaining a healthy diet, engaging in regular physical activity, prioritizing sleep, and fostering a connection with nature. These elements, often overlooked in discussions about mental health, play a fundamental role in emotional stability, cognitive performance, and resilience.

Understanding the relationship between these natural factors and mental health is crucial for promoting healthier lifestyles and preventing psychological distress among adolescents. The following sections explore how sleep, nutrition, exercise, and nature exposure contribute to mental well-being. By incorporating these practices into daily life, young people can build stronger foundations for emotional and psychological health, ultimately enhancing their quality of life.

Core Areas of Focus:

1. The Impact of Sleep on Mental Health

Quality rest improves mood, memory, and learning capacity.

2. The Importance of Diet

Nutrient-rich meals help stabilize emotions and reduce anxiety.

3. The Role of Physical Activity

Movement relieves stress and supports self-esteem.

4. The Impact of Nature Exposure

Time outdoors reduces cortisol levels, enhances focus, and promotes calm.



Why Lifestyle Matters

Healthy routines around sleep, nutrition, physical activity, and nature exposure:

- Boost emotional regulation
- Improve attention and academic outcomes
- Strengthen psychological resilience

2.3.1 The Impact of Sleep on Mental Health



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Adolescence is a critical developmental stage where sleep plays an essential role in emotional regulation, cognitive function, and overall mental well-being. However, due to biological, social, and environmental factors, sleep patterns often become disrupted during this period, leading to significant consequences for mental health.

The Link Between Sleep and Psychological Well-being

Research highlights that both sleep duration and quality have a bidirectional relationship with adolescent mental health. On the one hand, poor sleep is associated with higher levels of anxiety, depression, and emotional instability. Adolescents who experience sleep disturbances, such as difficulty falling asleep or maintaining rest throughout the night, tend to report greater psychological distress. This may be due to increased cortisol levels and dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, which heightens emotional reactivity and stress responses.

Conversely, mental health issues can further disrupt sleep, creating a vicious cycle. Anxiety and depressive symptoms often lead to excessive worry and rumination at bedtime, making it difficult for adolescents to relax and fall asleep. Additionally, lifestyle factors, such as reduced physical activity and excessive screen time, can further impact sleep hygiene, exacerbating mental health difficulties.

2.3.1 The Impact of Sleep on Adolescent Mental Health



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Consequences of Sleep Deprivation on Adolescents

Sleep deprivation in adolescence is linked to a range of negative outcomes, including:

- **Emotional Dysregulation:** Poor sleep increases irritability, impulsivity, and difficulty managing stress.
- **Cognitive Impairment:** Lack of rest affects attention, memory, and problem-solving skills, leading to decreased academic performance.
- **Social Difficulties:** Adolescents with irregular sleep patterns may struggle with interpersonal relationships and exhibit heightened sensitivity to social rejection.

Strategies to Improve Sleep and Mental Health

Given the strong link between sleep and psychological well-being, promoting healthy sleep habits is crucial. Effective strategies include:

- **Maintaining a consistent sleep schedule**, even on weekends.
- **Reducing screen exposure** before bedtime to prevent blue light interference with melatonin production.
- **Encouraging relaxation techniques** such as meditation or reading before sleep.
- **Promoting regular physical activity**, which contributes to deeper and more restorative sleep.

By prioritizing sleep, adolescents can significantly improve their mental health, emotional stability, and overall well-being, laying the foundation for healthier development.



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2.3.2 The Importance of Diet

A well-balanced diet plays a **crucial role in maintaining and enhancing mental well-being**, especially during adolescence. Scientific research has consistently shown that **diet quality is closely linked to mental health outcomes**, including levels of stress, depression, anxiety, and overall psychological resilience. A nutritious diet not only supplies the brain with **essential vitamins and minerals**, but also contributes to **emotional balance and mood regulation**.

Why Diet Matters

- **Mental Health Link:** Poor diet quality is associated with higher levels of stress, depression, and anxiety.
- **Nutrient Power:** Nutrients directly influence brain function and mood regulation.



What a Healthy Diet Looks Like

- ✓ **Supportive Diets:**
 - Rich in **fruits, vegetables, whole grains, nuts, and healthy fats** (e.g., Mediterranean diet)
 - Linked to **lower academic stress** and **improved self-concept**
- ✗ **Risk-Associated Diets:**
 - High in **processed foods, refined sugars, and unhealthy fats**
 - Correlated with **emotional instability** and **mental fatigue**



Nutrients That Nourish the Brain

- **Omega-3 Fatty Acids** (*fish, walnuts, flaxseeds*) → Improve mood and cognitive function
- **B Vitamins** (*whole grains, eggs, leafy greens*) → Support neurotransmitters and energy
- **Antioxidants** (*berries, tomatoes, carrots*) → Reduce oxidative stress and inflammation
- **Tryptophan** (*turkey, dairy, nuts*) → Boosts serotonin for mood regulation



Healthy eating isn't just good for the body—it's fuel for a stronger, more balanced mind.

By adopting healthy dietary habits, adolescents can build a stronger foundation for emotional stability, academic success, and long-term well-being.



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2.3.3 The Role of Physical Activity

Physical activity plays a fundamental role in adolescent well-being, influencing emotional regulation, self-esteem, and resilience. Engaging in regular exercise has been consistently linked to improved mental health outcomes, including reduced stress, anxiety, and symptoms of depression. Despite these well-documented benefits, many adolescents still fall short of meeting the recommended levels of physical activity—potentially compromising their psychological well-being.

In this support strategy, we will explore how physical activity impacts mental health through the following key areas:

- **How Physical Activity Supports Mental Well-Being:** The biological and social mechanisms behind exercise's positive impact on mood, emotional regulation, and self-image.
- **The Importance of Structured Exercise Programs**
Why well-designed, consistent physical activity plans are more effective than unstructured movement in promoting mental health.
- **Encouraging Physical Activity**
Practical, age-appropriate strategies to help young people integrate exercise into their daily routines and stay motivated.

By prioritizing physical activity, adolescents can build emotional strength, sharpen cognitive skills, and develop resilience against life's challenges. Encouraging an active lifestyle early on sets the foundation for a healthier and more balanced future.



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2.3.3.1 The Role of Physical Activity - How Physical Activity Supports Mental Well-Being

Scientific research highlights several key mechanisms through which exercise contributes to mental well-being:

- **Neurobiological Benefits:** Physical activity promotes the release of endorphins and other neurotransmitters, such as serotonin and dopamine, which play a crucial role in mood regulation. Additionally, regular exercise is associated with improved brain plasticity, which enhances cognitive function and emotional resilience.
- **Psychosocial Effects:** Participation in sports and physical activities fosters social interactions, teamwork, and a sense of belonging. Adolescents who engage in group exercise or structured sports programs tend to have higher self-esteem and a more positive self-concept.
- **Stress Reduction and Emotional Regulation:** Exercise has been linked to lower cortisol levels, reducing stress and improving the ability to manage emotions. Adolescents who participate in regular physical activity report feeling more in control of their emotions and experience fewer mood swings.



2.3.3.2 The Role of Physical Activity - The Importance of Structured Exercise Programs

While unstructured physical activity has its benefits, **structured exercise programs** show the most significant positive impact on adolescent mental health.

Research highlights that activities such as **sports, aerobic workouts, and high-intensity interval training (HIIT)** are especially effective in enhancing well-being, reducing anxiety, and building self-confidence.

However, not all programs produce equal results. The **effectiveness** of an exercise intervention largely depends on factors like:

- **Duration** – How long the activity is sustained
- **Intensity** – The physical and mental challenge it presents
- **Engagement** – The level of participation and motivation

Programs that lack sufficient intensity or fail to engage adolescents may fall short in delivering meaningful psychological benefits.



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2.3.3.3 The Role of Physical Activity - Encouraging Physical Activity

Given the strong connection between physical activity and mental health, promoting an active lifestyle is a vital part of adolescent development. To foster long-term engagement and motivation, support strategies should be practical, inclusive, and aligned with teens' interests.

Effective approaches include:

- **Incorporating activity into daily routines:** Encourage walking, biking, or taking the stairs to build movement into everyday life.
- **Promoting participation in team sports:** Organized sports not only improve physical fitness but also enhance **social skills**, **teamwork**, and a **sense of belonging**.
- **Introducing high-intensity workouts:** Activities like HIIT or dance workouts can be fun and effective, delivering strong mental health benefits in shorter time frames.
- **Educating on the mind-body connection:** Help adolescents understand how physical activity supports emotional regulation, stress reduction, and mental clarity—empowering them to take ownership of their well-being.

By making movement enjoyable and meaningful, we can support adolescents in building habits that promote both physical and psychological health.



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2.3.4 The Impact of Nature Exposure

As urbanization continues to rise globally, concerns about mental health among children and adolescents have become more pressing. Emerging research suggests that reduced interaction with natural environments—often described as “nature-deficit disorder”—may significantly contribute to poor mental health outcomes. With more time spent indoors and increased exposure to screens, young people are losing vital connections with the natural world, which may negatively affect their psychological well-being.

We will explore the impact of nature on adolescent mental health through the following key areas:

- **How Nature Benefits Mental Health**
- **Types of Nature Exposure and Their Effects**

Nature is a powerful yet often overlooked tool for promoting mental well-being in children and adolescents. Whether through structured outdoor programs or simply increasing access to green environments, fostering a deeper connection with nature can help mitigate stress, improve cognitive function, and enhance emotional stability. As urban spaces continue to grow, ensuring that children maintain a meaningful relationship with the natural world is essential for their psychological health and overall development.

2.3.4.1 The Impact of Nature Exposure - How Nature Benefits Mental Health



Nature positively influences mental health through several interconnected mechanisms that support cognitive development, emotional regulation, and social well-being in children and adolescents:

- **Cognitive and Brain Development:** Exposure to nature has been shown to enhance working memory, attention span, and problem-solving abilities. Brain imaging studies indicate that green environments support healthier neurodevelopmental outcomes, fostering improved cognitive function in growing minds.
- **Reduction of Stress and Anxiety:** Time spent in natural settings helps reduce cortisol levels—the hormone associated with stress. Green environments promote a state of calm, supporting emotional balance and significantly lowering symptoms of anxiety and depression.
- **Enhancement of Attention and Focus:** Children, particularly those diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD), benefit from nature exposure through improved concentration and reduced hyperactivity. According to the **Attention Restoration Theory**, natural environments help replenish cognitive resources and restore focus after mental fatigue.
- **Social and Emotional Well-Being:** Access to green spaces encourages outdoor play, cooperative activities, and social interaction. These experiences build emotional resilience, boost self-esteem, and strengthen a sense of belonging—key components of positive mental health.



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2.3.4.2 The Impact of Nature Exposure - Types of Nature Exposure and Their Effects

The study categorizes nature exposure into three distinct types, each contributing to mental health in unique ways:

- **Access to Nature:** Merely having nearby green spaces—such as parks, gardens, or forests—can provide passive mental health benefits. This proximity encourages spontaneous interactions with nature, supporting emotional balance and reducing stress.
- **Exposure to Nature:** Spending time in natural environments, even without active participation (e.g., sitting in a park or walking through a green space), has been linked to improved mood, reduced anxiety, and lower physiological markers of stress.
- **Engagement with Nature:** Actively participating in nature-based activities—such as gardening, hiking, or outdoor play—amplifies the psychological benefits. These immersive experiences foster mindfulness, enhance cognitive function, and promote stronger emotional resilience.

Although the positive effects of nature on mental health are well-documented, further research is needed to explore these benefits across different cultural, socioeconomic, and geographic contexts. To address rising mental health challenges, **schools**, **urban planners**, and **health professionals** should collaborate to embed green spaces in everyday environments.

One emerging solution is **green social prescribing**, where healthcare providers recommend spending time in nature as a therapeutic intervention. This approach is gaining recognition for its accessibility, sustainability, and cost-effectiveness in promoting mental wellness among young people.