

Chapter 28



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Ecotherapy: The Healing Power of Nature

*“Forget not that
the earth delights
to feel your bare
feet and the winds
long to play with
your hair.”*

—Kahlil Gibran

To smell the fragrant scent of pines as you breathe in the fresh air on a morning hike exhilarates the senses. To feel the warm sunlight on your face as you stroll on a beach and gaze over the ocean fills your heart with a sense of wonder. And no words can adequately describe what you see and feel as you stand atop a mountain before you make your descent on groomed powder ski slopes. Ageless wisdom reminds us time and again that nature in all her glory is a remarkable healing force of homeostasis for mind, body, and spirit. Yet what seems like common sense has become lost in the madness of our current love affair with a 24/7, on-demand, instant-gratification world teeming with technology. With every click of a mouse, text message, Facebook update, Instagram post, and downloaded app, we are losing our inherent connection to the natural world. If Henry David Thoreau, author of the literary classic *Walden* (first published in 1854), were alive today, he would cover his face with disbelief. He's not alone. Experts from all corners of the world believe that our disconnect from nature has become a serious health problem.

Consider this: various estimates suggest that people today spend less than 5 percent of their day outdoors—a remarkable, if not drastic, change from the agrarian society of several decades ago. Moreover, studies investigating the impact of our highly industrialized environment on physical and mental health show that repeated exposure to artificial light, disturbing office noise, bad indoor air quality, chemical particulates from photocopier machines, and electromagnetic pollution all have a harmful effect on wellness. These variables are thought to be directly tied to the related epidemics of stress and chronic disease (Chalquist, 2009).

The abyss separating mankind from nature, however, didn't begin with the invention of the desktop computer or the Internet. For centuries, influential members of Western civilization have advocated a sense of superiority to and dominion over nature. This philosophy continues today, from genetically modified crops and cloning cows for beef steaks, to the installation of bright city lights, yet now there are serious unintended health consequences.

Although the negative health consequences of our deviation from nature are well documented, they can be counteracted. Enter ecotherapy, one of the newest (yet perhaps oldest) means of relaxation to be (re)introduced to humanity in the twenty-first century. **Ecotherapy** is a method of restoring optimal health and well-being through routine exposure to and experience in the natural world.

■ A Historical Perspective on Ecotherapy

For millennia, health experts of all kinds have known of and promoted the benefits of nature as healer, from ancient Zen gardens to European mineral baths. Frederick Law Olmstead specifically designed New York City's Central Park in 1858 to erase the ills of modern civilization from its citizens. Moreover, the establishment of our national park system was not merely to protect the wilderness, but to ensure our healthy relationship with it. The word *vacation* (to vacate one's urban home) entered the American lexicon after the Civil War, when an 1869 best-selling book written by William H. H. Murray titled *Adventures in the Wilderness* encouraged city slickers from Boston and New York to leave their rushed urban lifestyles and head to the Adirondack Mountains in upper New York state as a tonic for mind, body, and spirit (Perrottet, 2013).

It wasn't until the early 1990s, however, that the field of psychology took a deeper look at the effects of nature on mental health and the connection between psychology and environmentalism. This awareness first began in the city of San Francisco, which is named after St. Francis, the patron saint of nature and animals. Therapists began getting their clients off the couch and into the woods and parks for walks and precious moments of solitude. Before long an emerging field of psychotherapy developed under the umbrella term *ecotherapy*. Deep ecology, ecopsychology, green therapy, terra-psychology, and wilderness therapy fall under this umbrella, and the latest research in this area has given way to a few other related therapies: forest therapy, nature therapy, and even “avatar therapy” (a name based on James Cameron's mega-hit movie, *Avatar*). A quick Google search of the term “ecotherapy” (and related terms) highlights the significance—if not the immensity—of this topic as it relates to stress levels and the personal health of human beings.

Several people have made significant contributions to the field of ecotherapy, including Theodore Roszak, Joanna Macy, Bill McKibben, Craig Chalquist, Elizabeth Roberts, Larry Robinson, and Linda Buzzell. These and other professionals showed great interest in the connection between the psyche and the natural world. They

Ecotherapy: A method of restoring optimal health and well-being through routine exposure to and experience in the natural world.

began to track patients' anxiety levels, grieving process, fear of death, and other spiritual concerns against rising concerns of deforestation, global warming, animal extinction, and other environmental problems. They found that worrying about environmental problems exacerbated patients' psychological conditions.

Although individuals alone cannot solve global environmental problems, they can influence their immediate environment. It became quite evident to these early researchers that bringing our relationship with nature back into balance can help the psyche. Everything from worksite infrastructure and hospital settings to school classroom environments, backyard gardens, animal therapy, and home design can be part of ecotherapy for people of all ages and demographics. Ecotherapy was first used among professionals in psychology, but this umbrella term now extends well beyond the domains of mental health to physical health and optimal well-being. Ecotherapy, as it turns out, is not merely a cognitive therapy recommended by counselors, therapists, and psychologists. Experts from a great many disciplines, including psychology, immunology, anthropology, outdoor recreation, and even theology, have come to the same conclusion: people need to get outside and expose themselves to nature regularly to reach optimal health. What was once taken for granted (spending time outdoors) is now recognized as an essential part of living a balanced life (**FIG. 28.1**). As emerging research in this new



FIGURE 28.1 Making a habit of spending quality alone time (solitude) in nature is a great way to calm the mind and bring a better sense of perspective to your life.

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field suggests, the relaxing mind-body effects of being in nature cannot be understated. Simply stated: we are a part of nature, and it is a part of us.

■ A Nature Deficit Disorder?

Several years ago, a serious revelation came upon author and journalist Richard Louv. He realized that many kids of today's generation simply don't go outside to play, something that every kid did in his generation and perhaps hundreds of generations before him. (If kids do play outside, it's often through structured enrichment programs like soccer, rather than unstructured exploration.) Although some people might see this inactivity as one reason for childhood obesity, Louv had an entirely different concern: a disconnection from the natural world. It seemed impossible to believe that boys and girls would prefer to spend time indoors with technology rather than outside catching fireflies, watching meteor showers, following butterflies through fields of wildflowers, making snow angels, building forts, watching frogs, or fishing at the nearest pond. He discovered that, by and large, kids of the twenty-first century would rather play video games and watch television than spend actual time outside making discoveries in a field of grass or finding out what's hiding under a brookside rock. This phenomenon is a classic case of a "nature disconnect." The implications are startling.

In his best-selling book, *Last Child in the Woods* (2005), Louv coined the term **nature deficit disorder**, a now-common behavior (affliction) where people simply don't get outside enough, hence losing touch with the natural world and all of its wonder and healing properties. He was quick to learn that it's not just kids who are afflicted; adults (parents) rarely get outside either, and kids model their behavior after their parents' behavior. Yale scholar Steven Kellert, author of *Birthingright* (2012) cites that the average person spends over 95 percent of his or her day inside. Kellert explains that this behavior is against our nature; specifically, it goes against the wisdom of our DNA. Being in nature (e.g., forests, beaches, gardens, and parks) is as important as the air we breathe. Without it, health will suffer. Kellert's colleague and renowned Harvard naturalist E.O. Wilson

Nature deficit disorder: A now-common behavior (affliction) where people simply don't get outside enough, hence losing touch with the natural world and all of its wonder and healing properties.

Stress with a Human Face

To get to the Rocky Mountain Wildlife Foundation (RMWF), a wolf rescue sanctuary, you head west on Route 24 from Colorado Springs. It's best to call for directions because some of the roads in these parts have yet to be charted on your favorite mapping site or GPS device. The reason to visit the sanctuary, of course, is to commune with wolves. If you're lucky, you might just get a wolf kiss.

Mark Johnson heads up the RMWF, a project he started in 2001. It began when he found himself the caretaker of a young wolf pup named Cheyenne. Mark's heart is as big as the Rocky Mountains themselves. His goal in raising Cheyenne was to teach people that wolves play an essential role in our ecosystem, and as such, they have much to teach us. Cheyenne became famous for her ability to befriend people, particularly people in need of physical, mental, or spiritual healing.

"Before she passed away, Cheyenne had met over 22,000 people and kissed over 1,900 people. She even had the unique ability to discern those people who had a chronic illness and spend extra time with them. She was a very

special wolf with a very special healing energy," Mark said. Soon other wolf pups joined his pack, and the wolves' healing mission grew. One of Mark's proudest moments was taking two wolves, Cherokee and Lakota, to a federal prison and giving the inmates a chance to commune with nature. "It changes people's lives," he said.

As word spread about Cheyenne, Mark found himself taking care of more wolves and half-breeds (wolf and malamute or husky mixes). Some people might call Mark a wolf-whisperer, but he will tell you that he never whispers. He uses a combination of body language and voice commands—never any hand strikes. If you were to visit the wolf sanctuary today, Mark would first give you an educational lecture about wolves and the history of the RMWF. Afterward you would meet several wolves and wolf half-breeds, many of which long for your affection. If you're lucky, you might get a kiss or two, much like the one Lakota is giving Mark in the photo.



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recoined the term **biophilia** to describe human beings' emotional affiliation to other living organisms. Kellert embraces this idea, stating that humans have an inherent connection and affinity to the natural world. Once this birthright is abandoned or forfeited, health issues—both personal and planetary—ensue.

There was a time not too many decades ago when people couldn't wait to get away from their work in offices, as well as mills and factories, and head out of town on a vacation to the nearest seaside beach or mountain forest. It's been this way for over a hundred years. Renowned naturalist John Muir put it this way back in the late nineteenth century: "Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is necessity; that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers,

but as fountains of life." Things have only become more complex, high-tech, and stressful since he uttered these words. Moreover, people are now taking their smartphones and laptops (their virtual work desks) with them on vacations, denying themselves the true natural connection they should try to form.

Americans are not the only ones to be over-stressed at work and nature deprived. The Japanese are famous for putting in long hours at the office. In fact, they coined a term to describe those who literally die from job stress: *karoshi*. Many Europeans are equally nature deprived. In fact, in 2008 an odd milestone was achieved in the history of humanity: for the first time ever, more people lived in urban cities than in rural areas. As more and more cultures adopt a Western lifestyle confined to an indoor routine, more cultures fall prey to this nature disconnect. As more people spend less time in nature, their indifference (some say apathy) regarding environmental issues dramatically increases. According to the 2008 *Proceedings of the National Academy of Sciences*, since the late 1980s, Americans have decreased their nature-based outdoor recreation by 35 percent. Based on their

Biophilia: Human beings' emotional affiliation to other living organisms (e.g., plants, trees, animals, birds, dolphins and whales).



FIGURE 28.2 A vacationer checks his text messages and voicemail while in Rocky Mountain National Park.

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compilation and analysis of the data, the authors predicted serious impending health issues. Today, researchers from Japan, South Korea, China, and the United States are beginning to examine the effects of nature on various aspects of health, specifically stress levels. All over Japan you can now find “forest therapy” trails for what the Japanese call *shinrin-yoku*, or “forest bathing.” The direct translation: Let nature enter your spirit through the five senses. Although many Americans run or walk outside, more often than not, they are tethered to their MP3 players or even their phones all the while (**FIG. 28.2**). With their mind still attached to work or other responsibilities, they negate the “outdoor effect” considerably (Reynolds, 2012).

■ Physiological Effects of Ecotherapy

In the thought-provoking book, *Your Brain on Nature* (2012), authors Eva Selhub and Alan Logan compile a strong body of research data from all corners of the earth and several disciplines to reveal just how important spending time in nature (or with representations of

nature) is to your physical, mental, and emotional well-being. Highlights include the following:

- When people were shown images of nature, there was an increase of alpha waves in the brain with a corresponding increase in serotonin levels (the happy hormone).
- People who were shown photo images of nature reported a decreased sense of anger (whereas images of urban city life increased levels of frustration and corroborated with functional magnetic resonance imaging [fMRI] images of the amygdala region of the brain).
- Patients who had potted plants in their hospital rooms reported a greater sense of joy and happiness than those patients who had no plants. People who have plants in their houses show decreased stress levels and improved stress moderation.
- Functional MRI findings report that viewing aesthetically pleasing images of nature correspond to increased activity of the parahippocampal gyrus region of the brain, tissue that is rich in opioid receptors associated with the neuropeptide dopamine.
- A two-hour walk in the forest improves sleep quality (Morita et al., 2011).

“If simply viewed in isolation, it might be easy for critics to dismiss some of the research. But when viewed together [subjective and objective data] the picture of nature’s influence emerges. Our perception of stress, our mental state, our immunity, our happiness, and our resiliency are all chemically influenced by the nervous system and its response to the natural environment” (Selhub and Logan, 2012).

It may seem intuitive that a walk in nature might decrease stress levels, but today many researchers are finding out exactly what happens to your body as you leave technology behind and acclimate to the rhythms of the natural world. Not only is the newest research fascinating, it also supports what philosophers and therapists have been saying for generations: repeated exposure to the natural elements is good for you. Here are some other recent findings:

- Leisurely walks in a forested area (see **FIG. 28.3**) decreased cortisol levels by 12.4 percent as well as significantly decreased resting heart rate and blood pressure (Park, 2010 Miyazaki, 2011).



FIGURE 28.3 You don't have to be a tree hugger to gain the benefits of "forest bathing." A simple walk in the woods or park does wonders for one's health.

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- Time spent in nature has been shown to increase the number of natural killer cells and anticancer proteins, sometimes by as much as 40 percent (Li et al., 2008).
- Exposure to phytoncides (aromatic scents) emitted by evergreen trees is associated with increased natural killer cells and decreased stress levels (Li et al., 2009).
- Exposing cancer cells grown in Petri dishes to phytoncides increased anticancer proteins and proteases, granzymes A and B, and perforin—substances known to destroy cancerous tumors (Li et al., 2009).
- Hospital patients who had a view of nature (e.g., trees) recovered more quickly from surgery than those who had a view of a brick wall (Ulrich, 1984).
- Exposure to sunlight increases the production of white blood cells, which boost the immune system, and red blood cells, which increase oxygen-carrying capacity (Williams, 2012).
- Repeated natural sunlight exposure (ultraviolet rays) converts cholesterol in your skin to vitamin D (hence sunlight's nickname, the "sunshine vitamin"). Lack of exposure to natural sunlight is known to increase cholesterol levels (Lieberman, 1991).

■ Entrainment: A Symphony in Natural Rhythms

As the last person took their seat, the evening's keynote speaker, composer Steven Halpern, approached the stage and began to speak. It was the last keynote event at the Science and Consciousness Conference in Santa Fe, New Mexico. Halpern's presentation was on the topic of the healing power of music. For the next several minutes he explained that all aspects of nature have a healing rhythm, including the live potted plant on the stage next to the podium. Explaining some basic concepts of physics (such as that everything is energy and everything has a vibration), he began to speak about the vibrations one encounters in a forest, and how humans entrain on these vibrations (through sympathetic resonance) by direct contact. He then attached an electrode to a leaf of the potted plant. Through the magic of audio technology, with the electrode wires plugged into a transducer, a melody came from the speakers; it was an incredible harmonic melody that astounded the audience. "This is just one leaf of a plant," he said. "Can you imagine if I had an electrode attached to all the leaves? Can you imagine what your body senses at the energetic levels as you simply walk through a forest? This is the healing power of nature. Welcome to the healing power of entrainment in nature," he said.

Waterfalls, whale songs, and scores of other natural wonders that make up the world we live in produce a vibration of 7.8 Hz. Also known as the Schumann resonance, this energy vibration is now considered to be the vibration of homeostasis. When separated from this vibration (or when we are in closer proximity to a higher vibration, such as the constant hum of our laptop computers), our bodies become out of sync with the natural energetic rhythms that help keep our health in check. This disruption affects everything from melatonin production for quality of sleep to the metabolic processes that regulate optimal health. Following the assumption that objects entrain to vibrations, the idea that spending time in nature to "bathe in the natural rhythms of the world" as a way to recalibrate the body's natural rhythms begins to make sense.

■ Circadian (Bio) Rhythms and Physical Health

You may have heard of the term "bio-rhythms" before, but the correct scientific term is "circadian rhythms." From the Latin root *circa*, which means "about a day,"

circadian rhythms are the various body rhythms that take place in a 24-hour period. Simply stated, circadian rhythms define the body's internal clock. It is this clock that regulates everything from the release of melatonin (the sleep hormone) in the evening to the increase in activity of the gastrointestinal tract. These rhythms are based on Earth's 24-hour rotation on its axis and the corresponding cycles of light and dark; these rhythms have been ingrained in our DNA since the dawn of humanity. In today's world, they are every bit as important as when humans first evolved, yet they are often disturbed, because of our reliance on artificial light and our frequent exposure to glowing television and computer screens.

Research in the field of circadian rhythms suggests that our bodies do best when kept to a regular schedule with regard to sleep, meals, and exercise—for example, eating breakfast, lunch, and dinner at the same times each day; going to bed and waking up at the same times every day; and exercising at approximately the same time every day. People who keep their body on a regular schedule and who are in tune with these rhythms tend to live longer, healthier lives.

Conversely, when we get off schedule, our body's physiology has a hard time adjusting—disrupting circadian rhythms is a form of stress. Over time the result is a greater propensity toward disease and illness as well as more rapid aging. Oncologists will tell you that cancer cells respond best to chemotherapy in the mid-morning hours as compared to early evening hours. Athletes will tell you that their best competitions are held at the same time as their practice workouts. The human body craves habitual routines for optimal health.

■ Psychological Effects of Ecotherapy

A clever line for an outdoor camping ad states: *Think outside. No box required.* The message is simple: Get outside! One need look no further to see the healing power of nature than in the scores of poems, books, and essays from people of all walks of life describing nature's best attributes (**BOXES 28.1 and 28.2**). Throughout history, philosophers, sages, and wisdom keepers the world over have looked to nature to help solve all kinds of problems. If nothing more, the vastness of nature, not to mention the stunning beauty, from her ocean beaches and cathedral forests to majestic mountain ranges, put into perspective the common,

BOX 28.1 The Voices of Healing Water Are Many

The voices of healing waters are many,
Her streams echo to the rising cliffs she once trespassed,
Her waves sing a constant refrain to the beaches,
Her moist clouds whisper incessantly to the trees and mountains,
Soon cascading white ribbons refrain with misty rainbows,
There is music in all of these songs,
And this music dampens my dry heart like a spring rain.
Yet the song I like best is the silent melody of gentle falling snow,
Sometimes her voice is a thunderous roar that begs for my attention,
But mostly water's song is a celebration of life and I celebrate with it.
I long to hear the voices of water as I dangle my feet in a cool lake,
Or wade in the shallow ocean surf, or drink from a cold mountain stream.
The voices of healing waters are many and I sing with them.

—Brian Luke Seaward

everyday problems of each individual. Being outdoors simply helps clear the mind and reduces personal issues to a manageable size. Perhaps John Muir said it best this way: "I only went out for a walk and finally concluded to stay out till sundown, for going out, I found, was really going in." Carl Jung also noticed that nature provided a canvas on which to explore the mind's landscape. He often wrote of the benefits of walks in nature and how immersion in nature benefits the yearning for wholeness; he offered dire warnings through his writings that when the connection to nature is severed, serious repercussions would result in harm to the psyche of the individual (Jung, 2002).

Circadian rhythms: The various body rhythms that take place in a 24-hour period; the body's internal clock.

BOX 28.2

You ask
 why I perch
 on a jade green mountain?
 I laugh
 but say nothing.
 My heart, free
 like a peach blossom,
 in the flowering stream,
 going by,
 in the depths,
 in another world,
 not among men.

—Li Po (Ancient Chinese poet)

When the wind blows . . .
 This is my medicine
 When the sky rains,
 This is my medicine
 When the heavens are filled with snow,
 This is my medicine
 When the skies become clear after a storm,
 This is my medicine

—Native American Prayer

In the book *Refuge*, author and naturalist Terry Tempest Williams describes a parallel storyline between her mother's fight with cancer (which was a result of nuclear testing) and the Great Salt Lake floods that destroyed much wildlife in 1983. Williams is not alone in her attempt to connect the parallels of nature to our own lives. Over 2,000 years ago Chinese philosopher Lao Tzu created a philosophy of life based on living in the rhythms and cycles of nature, which he called Taoism and eloquently described in his classic book, *The Tao Te Ching*.

Do your physical surroundings affect your thoughts and behavior? Students of psychology might be interested to learn of the *Journal of Environmental Psychology*, which reports on the influences of nature, space, design, and architecture on various aspects of cognition, memory, attention span, concentration, and behavior. Recent investigations into the relationship between nature and cognition include work by Rachel and Stephen Kaplan from the University of Michigan that led to their "attention restoration" theory. Apartment dwellers who were given a view of the natural elements (e.g., trees) were reported to show significant increases in concentration skills when compared to residents who did not have natural element views. Through their extensive body of research, the Kaplans advocate nurturing a strong bond with nature as a means of promoting mental health (Kaplan, 1995, 2001).

■ Nature and the Art of Solitude

Experts in the field of sociology agree that modern life is not only fast-paced, but also crowded and noisy. Taking time to separate yourself from the cacophony of civilization and seek quiet solitude is a time-honored prescription for inner peace. In spending time alone, one gets the chance to clear the mind of mental clutter and put problems and issues in perspective. One also gains clarity in honoring the simplicity of life rather than the man-made complexities to which we have become so accustomed. Solitude is a different concept from isolation. Although many people have become isolated behind a computer screen, **solitude**—the intentional act of separation from friends and family—is anything but isolation. More than cleansing the mind, solitude becomes, for some, a spiritual experience. Early nineteenth-century British poet Lord Byron described it this way in his poem, *Solitude*:

To sit on rocks, to muse o'er flood and fell,
 To slowly trace the forest's shady scene,
 Where things that own not man's dominion dwell,
 And mortal foot hath ne'er or rarely been;

Solitude: The intentional act of separation from friends and family.

To climb the trackless mountain all unseen,
With the wild flock that never needs a fold;
Alone o'er steeps and foaming falls to lean;
This is not solitude, 'tis but to hold
Converse with Nature's charms, and view her stores
unrolled.

■ Spiritual Moments

To have a hummingbird gently perch on your finger as it drinks nectar from the cup of your palm, to swim alongside a baby humpback whale in the crystal blue waters of Tahiti (see **FIG. 28.4**), or to spot an elk or gaze at the aurora borealis with curtains of green, yellow, and red lights flashing across the winter sky is more than a brief connection to nature; by all accounts it's a spiritual experience. Quite simply, these moments take your breath away. In a stress-filled world it is easy to become myopic, if not egocentric, with a score of work and life responsibilities that obscure our vision to the bigger world we live in. These spiritual moments in nature serve as a gentle reminder that we are part of a much bigger universe; making this humbling realization puts our lives back in perspective. The awareness of the diurnal cycles and seasonal changes offers a tangible reminder to move with the flow of nature, rather than in opposition to it. In survey after survey, people cite ocean beaches, lakes, and mountain streams as being the most relaxing places to be in nature—anywhere



FIGURE 28.4 Swimming alongside a 2-week old, 12-foot baby humpback whale in the Tahitian island lagoon of Moorea is considered by many to be nothing less than a spiritual experience.

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there is water. Just as the human body has rivers of energy called meridians, so too does the planet have rivers of energy (often located by bodies of water) called ley-lines. Although wisdom keepers will tell you that the entire planet is sacred, it is common to find many energetic spots on the planet deemed particularly spiritual that some call heaven on earth.

■ Earning “Nature Points”

No one is keeping score, but racking up nature points is a good idea as a means to bring balance back into your life. How often do you get outside? If you answer “Every day,” but you are plugged into an electronic device or talking on your phone the whole time, you don’t score any nature points. (However, using your phone to take a few photos of nature will earn you a few points.) There are no nature points for having a dog or cat, but if you walk your dog outside, you do get points. If you see (and even more importantly, can identify) wildlife species, you definitely get nature points. In what phase is the moon tonight? If you have to look at a calendar for the answer, no nature points. If you make a point to watch the Perseid meteor showers or lunar eclipse, this scores you lots of nature points.

Securing nature points outdoors involves the use of all five senses at the same time; it requires you to be fully present in the moment of the experience. And although there is no official scorecard for nature points, scoring lots of points each day makes you a winner.

■ Best Application of Ecotherapy

The message of ecotherapy is clear. We need to spend more time outside in nature. Going for a walk or a run in the woods, taking time to watch the sunset or sunrise, or turning off your smartphone or tablet and going outside at night to become familiar with the constellations, phases of the moon, and occasional meteor showers are just some of the many ways you can return to the surroundings of your natural world. So is getting a bird feeder in your backyard. In doing any one of these things, you begin to see your life in correct proportion to the bigger picture of life. Dedicating time each day outdoors, even if it involves nothing more than getting some exposure to the sun to recalibrate your circadian rhythms, is as important as brushing your teeth or paying your bills. Nature can be found anywhere, including city parks and local floral greenhouse nurseries. Find some nature near you, and get to know it!



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SUMMARY

- For millennia, philosophers have touted nature as a great healing agent for mind, body, and spirit.
- Ecotherapy, originally a discipline of psychology, promotes mind-body-spirit health effects through the repeated exposure to nature.
- Nature deficit disorder is a term coined to explain the lack of exposure to nature due to people's love affair with technology.
- The physiological effects of spending time in nature include decreases in resting heart rate, blood pressure, and cortisol, and increases in white blood cell count and biochemicals that have calming effects on the brain.
- Exposure to nature has a calming effect on the mind and human spirit. Being in the presence of a force greater than yourself puts things in perspective by reducing the scale of personal problems.
- Circadian rhythms are based on a 24-hour cycle of Earth's rotation on its axis; these rhythms affect countless physiological aspects of health, including sleep patterns and various metabolic processes.
- Nature affects us both objectively (e.g., raising dopamine and serotonin levels, and decreasing cortisol levels) and subjectively (giving us a feeling of peace, wonder, and awe).
- Routinely exposing yourself to nature enhances mental cognition, including attention span and possibly memory and concentration skills.

STUDY GUIDE QUESTIONS

1. What is ecotherapy?
2. What is nature deficit disorder?
3. What is biophilia?
4. List three effects of nature on human physiology.
5. How does the concept of entrainment correspond to ecotherapy?
6. How do disruptions of circadian rhythms affect health and stress levels?
7. Explain how ecotherapy affects both mind and body.
8. Describe how solitude can be therapeutic.
9. Give three examples of how you earn nature points in your present weekly routine. Then describe changes to your routine that would allow you to score more points in future.

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