



REVIEW ARTICLE

# Grounding To Treat Anxiety

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## ABSTRACT

**Background:** Anxiety disorders are prevalent worldwide, affecting approximately 34% of the U.S. population and contributing significantly to global disability and disease burden. While effective treatments exist, access remains limited, with only 25% of affected individuals receiving care. This review explores grounding, a holistic practice that connects individuals to the Earth's electrical field, as a potential adjunctive treatment for anxiety.

**Methods:** This review examines the existing literature on grounding and its physiological effects on anxiety. Key mechanisms of action include the regulation of the autonomic nervous system, reduction of muscle tension, improvement of mood and cognitive clarity, with a focus on how this support can help reduce anxiety and anxiety related symptoms.

**Results:** Grounding has been shown to provide immediate benefits, such as the regulation of heart and respiratory rates, reduction of muscle tension, and calmer brain wave patterns. Long-term effects include improved mood, enhanced cognitive function, and better sleep quality. Grounding may also decrease markers of inflammation, potentially reversing the telomere shortening associated with anxiety disorders.

**Conclusion:** Grounding presents a safe, accessible, and cost-effective strategy for alleviating anxiety symptoms and improving overall well-being. Given it is a free healing modality that offers immediate and long-term benefits, and that it is a universally available treatment world wide that removes the obstacles of cost and access to healthcare facilities, grounding should be integrated into comprehensive anxiety treatment plans. Further research is warranted to explore its full potential and mechanisms of action in anxiety as well as other mental health disorders..

**Keywords:** Grounding, Earthing, Mental Health, Anxiety, Anxiety Disorders, Autonomic Nervous System, Cortisol, Sleep Quality, Circadian Rhythm, Inflammation, Telomere Shortening, Mood, Cognitive Function, Muscle Tension, Heart Rate Variability, Adjunctive Treatment, Vagal Tone

## Introduction

Anxiety disorders are extremely common in every country in the world. Not only is it the most common mental disorder in the United States, affecting about 34% of the US<sup>1</sup>, it's the most common mental disorder in the entire world collectively<sup>2</sup>. Anxiety has a major impact on daily function and can cause significant impairment as well as a huge impact on the global burden of disease<sup>3</sup>. Anxiety can impact school attendance, job performance, harm important relationships including marriages and friendships, increase the incidence of other comorbid health conditions as well as increase the risk of substance abuse<sup>4</sup> culminating in one of the top causes of disability in the world<sup>5</sup>.

While anxiety has major health effects, it's equally clear that those deleterious health effects can be reversible. When looking at telomere length relative to chronological age, there is significantly accelerated aging in all anxiety disorders including social phobias, agoraphobia, panic disorder and generalized anxiety disorders (GAD). On average, anxiety disorders significantly shortened telomere length by 75 base pairs, the equivalent of aging more than 5 year. However, adequately treating anxiety resulted in a restoration of telomere length to almost the same length as non-anxious controls, and the longer the patient has been anxiety free, the closer it was in telomere length to those who had no history at all of any anxiety disorder<sup>6</sup>. Unfortunately only about one in every four people who suffer with anxiety get medical treatment<sup>7</sup>.

It's important to increase global access to competent medical care, as well as increase awareness for safe, effective treatments that patients utilize in addition to, and in between medical appointments that provide significant anxiety relief. Breath-work<sup>8</sup>, mindfulness meditation<sup>9,10</sup>, music therapy<sup>11</sup>, exercise<sup>12,13,14,15,16</sup>, dietary changes<sup>17</sup>, and readily available supplements such as probiotics<sup>18,19</sup>, omega-3 fatty acids<sup>20</sup>, magnesium<sup>21</sup>, and ashwagandha<sup>22</sup>, have been shown to provide benefit in reducing anxiety. Another one of those holistic healing modalities is grounding,

an easily accessible healing modality that is absolutely free and globally available, with immediate neuromodulative benefits<sup>23</sup>.

Grounding is the healing practice of directly touching the earth outside, touching the human body to the surface of the earth, which connects the conductive human body to the global electrical circuit that the earth produces in order to regulate and calm the central nervous system<sup>24</sup>. Although there are many reasons that patients may have difficulty obtaining treatment for anxiety, from poor access to medical services, to the high cost of anxiety treatment medications and mental counseling, touching the earth outside routinely is an option that is a round-the-clock, readily available treatment option easily accessible to everyone on the planet.

Grounding to the earth helps regulate the body's fight or flight anxiety state, and brings balance back to the autonomic nervous system by instantly boosting vagal tone, activating the parasympathetic nervous system and decreasing over all markers of stress on the body (including the brain<sup>25</sup>. Grounding can begin to work to alleviate anxiety immediately (as the entire human body becomes grounded within milliseconds upon contact with a grounded surface) and provides long term anxiolytic benefits too<sup>26</sup>. Here are what we know so far about how grounding can help with decreasing anxiety, from short term immediate benefits to long term support.

### 1. Grounding instantly regulates heart and respiratory rate

Connecting the fully conductive human body to the global electrical output of the earth grounds the body from head to toe immediately, providing immediate regulation to the central nervous system and directly support healthy autonomic nervous system function<sup>27</sup>. In anxiety, hyperventilation, heart pounding, syncope, and other anxiety related symptoms that occur because of the activation of the sympathetic nervous system going into fight or flight, panic mode can be counterbalanced by the

activation of the parasympathetic system that occurs during grounding.

This includes a boost in vagal tone support by almost 70%<sup>28</sup> with the parasympathetic nervous system immediately supporting healthy heart rate, respiratory rate, improved oxygenation<sup>29</sup> and a significant reduction in autonomic nervous system stress<sup>30</sup>.

## 2. Grounding releases muscle tension immediately

When you touch the earth outside, your entire body is instantaneously grounded and that includes every single muscle in the body<sup>31</sup>. Because the entire musculoskeletal system is conductive, grounding leads to a near instantaneous effect of decreasing muscle tension, reducing muscle inflammation, and ameliorating muscle soreness.

For those with anxiety, this offers the immediate relief of relaxing muscles that are being held tight in fight or flight mode, even loosening trigger points in tight neck and shoulders muscles and stopping a tension headache in it's tracks. Medical studies have found that grounding immediately and significantly reduced muscle tension within seconds, and that this lowering of muscle tension is effective even in distal points of the body far removed from the point of contact of grounding<sup>32</sup>.

Multiple studies using many different muscle straining exercises have all found that this protective benefit of grounding translates into decreased muscle damage and reduced delayed onset muscle soreness, of example one study had subjects carry one-third of their entire body weight in barbells on their shoulders and perform repetitive toe raises until total muscular exhaustion and found grounded subjects had significantly reduced muscle soreness and enhanced muscle recovery after exertion compared to ungrounded controls<sup>33</sup>. Not only do grounded subjects report lower pain levels after a muscle loading challenge, but they also have significantly lower creatinine kinase levels, confirming a protective effect of grounding against muscle damage during

exertion<sup>34</sup>. Another double blinded medical study found the same significant muscle protective benefits during an exhaustive deep knee bend challenge<sup>35</sup> as well as decreased muscle damage and improved muscle recovery when test subjects were grounded on a downhill stress test challenge as opposed to ungrounded control subjects<sup>36</sup>.

## 3. Grounding lowers blood pressure

Blood pressure can significantly raise during anxiety and panic states, as a result of skyrocketing heart rates and a over activated sympathetic nervous system response<sup>37,38,39,40</sup>. As a result of the calming effects of grounding that include a reduction in muscle tension as well as a boost to vagal tone and a calming of the autonomic nervous system, a regular grounding practice can help lower high blood pressure as well. Grounding was found to significantly reduce blood pressure, with an average decrease in systolic pressure of 14%<sup>41</sup>.

## 4. Grounding shifts brain waves instantly

Anxiety can make the body on extreme alert mode, not just with a heightened autonomic nervous system response and tightened muscles on alert, but also with a brain that is hyper alert. Thankfully, connecting our electrically based central nervous system to the electrical output of the earth via grounding makes an immediate impact on how the human brain functions.

Because the brain is an electronic organ that sits in an electrolytic solution of cerebrospinal fluid that has been evolving for over 7 million years in cohesion with the earth's electrical field, it is very easy to understand why the calming, natural, gentle electromagnetic output from the earth helps to boost healthy brain function near instantaneously<sup>42</sup>. Getting into the relaxed but alert alpha brain wave pattern, which is seen in calm, alert meditative states, is one of the hallmarks of grounding. Grounding provides an immediate shift in brainwaves — within milliseconds — measurable on an

Electroencephalogram (EEG)<sup>43</sup>. This calming shift that grounding provides significantly influences brain function, documented in neuroimaging studies<sup>44</sup>.

This may translate from not just a more calm, less anxious brain, but into behavioral patterns that move an anxious person away from anxiety provoke behaviors. While more research is needed in this area, a recent animal study found that grounding reduced stress-induced anxiety behaviors<sup>45</sup>.

## 5. Grounding improves mood

This improved, healthy brain function translates into improvements in mood, And that's exactly what researchers found, statistically significant improvements in mood after just 40 minutes of grounding in a double blinded study<sup>46</sup>.

We know that inflammation in the body worsens mood and even plays a role in clinical depression<sup>47,48</sup>. Grounding is a crucial way the body keeps inflammation down<sup>49</sup>. So one mechanism of action in grounding's ability to boost mood is that grounding results in statistically significant decreases in blood markers of inflammation, compared to non-grounded subjects<sup>50</sup>.

Grounding decreases multiple different markers of whole body inflammation, such as dropping c-reactive protein levels by almost 60%<sup>51</sup>, and it also specifically decreases the exact same inflammatory cytokines that have a direct impact on dopamine levels. Researchers found that cytokines such as such as IP-10, MIP-1 $\beta$ , and sP-Selectin, all decreased in grounded subjects, and that the average drop induced by grounding a patient was a 10 — 20% drop in inflammatory cytokine concentration<sup>52</sup>. And because research shows that inflammatory cytokines have a direct reflection in our mood and motivation levels<sup>53,54</sup> we can see a potential direct explanation for why grounding boosts mood. By decreasing inflammatory cytokines, it's reasonable to suggest that grounding gives a natural dopamine boost to the brain.

## 6. Grounding helps boost mental clarity

Beyond simply impacting mood, anxiety can cause rumination and intrusive thoughts which impair the ability to think clearly and act in an effective way. Grounding is a great way to boost cognitive clarity, on top of improving mood.

The electrical output of the earth — the Schumann Resonance — acts as a globally available synchronization system to our brains<sup>55</sup>. Using EEG imaging and Schumann Resonance frequencies to evaluate this interaction between our human brains and the earth's electrical field, research has shown that electrical activity from the earth makes a measurable synchronization in the cerebral cortex that allows for real-time coupling between the Schumann resonance and cerebral activity<sup>56</sup>.

Even more exciting, the area of the highest cohesion between the earth's Schumann Resonance and the human brains is in the parahippocampal gyrus, the area of the brain that provides meaningful interpretation of visual input. Research into the parahippocampal gyrus of the brain utilizing fMRI has found that brain damage to that area of the cortex results in patients being able to generically identify images and items that are viewed, but not be able to meaningfully interpret these images<sup>57</sup> and is a sensitive early indicator of Alzheimer's Disease<sup>58</sup>. The parahippocampal gyrus is responsible for the meaningful interpretation of our surroundings, our environment, and for support in making life decisions in a contextually appropriate way<sup>59</sup>. This gives a very real explanation for why time spent in nature, on the earth, grounded, can enhance clarity and meaning through this earth-to-brain coherence<sup>60</sup>.

## 7. Grounding decreases signs of brain stress

Beyond improving mood and boosting mental clarity, grounding has also been found to directly decrease over all brain stress and boost cognitive function. Researchers found that walking barefoot outside

significantly boosted alpha waves, significantly decreased beta waves, and that this translated cognitively into a significant increase in cognitive speed and concentration along with a significant decrease in overall brain stress. The control group that did the same walking activity but wore sneakers had no significant change in any of the mental performance tasks. The researchers concluded that grounding through barefoot walking improved cognitive ability, particularly in information processing and complex reasoning, while simultaneously reducing mental stress and brain fatigue<sup>61</sup>.

And because inflammation is now being linked with cognitive disorders such as mild cognitive impairment and dementia (including Alzheimers),<sup>62,63,64</sup> the long term effects of grounding to protect cognition may come from its ability to decrease inflammation and potentially decrease neuroinflammation over time<sup>65</sup>.

### 8. Grounding improves digestion

Digestion is largely driven by the vagus nerve, which guides the function of the entire gastrointestinal tract, from salivary glands to esophageal swallowing to digestive enzyme secretion and gut peristalsis, so when anxiety causes a decrease in vagal tone and a shift away from parasympathetic activity, it can result in many digestive symptoms, from nausea, heartburn, indigestion, even irritable bowel symptoms.

The vagus nerve even plays a role in metabolism<sup>66</sup>, appetite regulation<sup>67</sup>, and is such a dynamic part of our entire digestive system that it is able to change in response to both intrinsic factors (like stress) as well as extrinsic factors (such as grounding)<sup>68</sup>.

Grounding eases the body back into a healthy rest and digest state, reactivating healthy digestion as it releases fight and flight mode with the vagal tone boost it provides<sup>69</sup>.

In fact, the vagus nerve isn't just tied in with digestion and intestinal function, it also may play a role in mood and appetite<sup>70</sup> suggesting yet another mechanism of action that grounding boosts mood as well as

support digestion, and that is through direct vagal tone stimulation.

### 9. Grounding improves sleep

Anxiety is a hyper-stimulated state of the body where there are perceived stressors that often interfere with sleep. Insomnia is a very common symptom reported in anxiety disorders<sup>71</sup> and conversely, improving sleep can actually help treat anxiety and decrease severity<sup>72,73</sup>.

Although the sun is commonly thought to impact circadian rhythm and sleep patterns, the earth's electromagnetic field has as much, if not more, to do with our sleep/wake pattern than exposure to the sun does. Experiments as far back as the 1970s have shown that contact with the earth's electrical output is crucial for maintaining health sleep patterns. Test subjects who are shielded from sun exposure but still in grounded to the earth's electrical field were able to keep patterns that were close to a 24 hour rhythm, while those in the bunker that was completely shielded from the earth's energies became internally desynchronized and experienced significantly longer, more irregular rhythms<sup>74</sup>. When subjects were cut off from the earth had the earth's electrical output re-introduced, normal sleep/wake patterns were restored<sup>75</sup>.

More recent research backs this up. One study found that sleeping grounded completely normalized cortisol patterns, improved sleep, and established a healthier 24 hour circadian rhythm<sup>76</sup>. Another study found that patients with Alzheimer's Disease had significantly improved sleep quality, improved by an average of 62% on Pittsburgh Sleep Quality Index (PSQI) after 12 weeks of sleeping grounded<sup>77</sup>. The end result is an improvement in the natural circadian rhythm of the human body through routine grounding practices<sup>78</sup> possibly even slowing the aging process down as inflammation in the body is kept at bay<sup>79</sup>.

### Conclusion

From decreasing insomnia to calming the autonomic nervous system to reducing cortisol to relaxing



tense muscles to helping move the brain into more healing brainwave patterns, there are many reasons that grounding is a great adjunctive treatment plan for a variety of anxiety disorders. Add to that the fact that the earth outside is available no matter where you live, is accessible day and night, and is completely free to implement, I strongly feel grounding should be added on to every anxiety treatment plan. Treating anxiety not only provides relief of uncomfortable symptoms that affect daily living and cause a tremendous impairment in functionality along with a huge amount of disability and worldwide disease burden, but treating anxiety helps long term to decrease the rate of aging and even reverse telomere shortening, in addition to many other potential longevity boosting benefits<sup>80</sup>. Let's be sure to advocate the healing practice of grounding to anyone experiencing anxiety as a way to help improve both subjective and objective health and protect longevity.

### **Conflicts of Interest:**

The author has no conflicts of interest to declare.

### **Affiliations:**

I hereby declare that I have received no affiliation, funding, sponsorship, or financial support from any medical or business institutions related to the content discussed. My work and opinions are based solely on independent research and analysis.

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