



# FLOURISHING THROUGH THE ARTS

Visual Arts

Music

Theatre

Dance

Singing

Writing

Introductory Guide to  
Research Regarding Flourishing Through the Arts  
by  
Shannon Robinson  
[www.windowstothedivine.org](http://www.windowstothedivine.org)

Adrienne Stein, *Wild Bird*, Oil, Private Collection



**Introductory Guide to Research Regarding  
Flourishing Through the Arts  
Flourishing Through Arts & Science Initiative  
Flourishing Through Arts & Science Council  
By Shannon Robinson, Chairperson  
September 26, 2025**

## Acknowledgements

My most heartfelt thanks to all artists of every age for the beauty they bring to this world. Through the work of their hands and minds, artists create indispensable experiences that are vital to our physical, mental, and spiritual well-being. I would also like to acknowledge the extraordinary enthusiasm and efforts of the following advocates for flourishing through the arts and science:

### **Members of Flourishing Through Arts & Science Council 2025**

Rachel Basye, Executive Director, Art Students League of Denver

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Adrienne Stein, *Dancing Muses*, Oil, Public Collection

# Preface

**Challenge:** Now more than ever, the world thirsts for connectivity, purpose, and union with others. Physical, mental, social, and spiritual well-being is at all-time lows. The need for community and to communicate effectively with each other in ways that are healthy, productive, compassionate, healing and hopeful has never been more pressing, and the need for the arts has never been greater.

**Solution:** The arts are not just a luxury, commodity, or mere entertainment. Highly credible scientific research within the rapidly developing field of neuroarts now confirms that every human being needs the arts and will benefit from their significant positive health impacts.

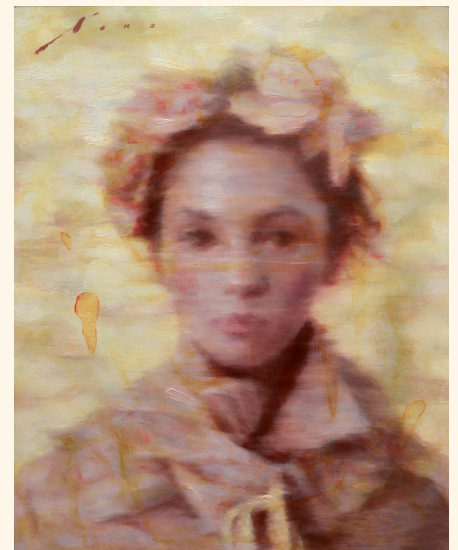
In 2024, to educate the public about this research and promote public health and increase participation in the arts, the Windows to the Divine Foundation (WD Foundation) established the Flourishing Through Arts & Science Council, chaired by Shannon Robinson, WD Foundation President with representatives from the Art Students League, Colorado Ballet, Denver Art Museum, Denver Center for Performing Arts, Gallery 1261, CU Anschutz Center for Bioethics and Humanities, Visit Denver, and Windows to the Divine.

In collaboration with the Denver arts and science communities, before and during Denver Arts Week, the Council will promote citywide educational and experiential public events that will encourage the public to improve their health and well-being by engaging in the arts. Free lectures, presentations, performances, exhibitions, receptions, and tours will be offered at various arts venues, including the Art Students League, Colorado Ballet, Denver Art Museum, Gallery 1261, and the University of Colorado (CU) Anschutz Medical Center. For the schedule of events:

<https://windowstothedivine.org/flourishing-through-the-arts-and-science-initiative/>

To assist our arts organizations in their educational programs and communications with the public about the research confirming the health benefits of engaging in the arts, and to advance the mission of the Flourishing Through Arts & Science Council, Shannon Robinson, Council Chairperson, compiled this Introductory Guide to Research Regarding Flourishing Through the Arts with Quotes and Sources. This brief and limited guide is neither exhaustive nor an adequate substitute for the sources cited herein and is intended solely as a layperson's tool to spark creative learning and marketing of health-related research that supports the important public policy goal of improving individual and community health through the arts. The Guide is not for commercial purposes. Users are responsible for their own interpretations and accurate attribution of sources.

*The arts are not just a luxury... every human being needs the arts.*



Vincent Xeus, *Moment of Metta*, Oil,  
Private Collection

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# Section 1: Flourishing and Neuroarts

## Humans Are Meant to Flourish

**Humans are meant to thrive physically, mentally, socially, and spiritually,  
and this is called flourishing.**

### Definitions Flourishing:

“Flourishing itself might be understood as a state in which all aspects of a person’s life are good. We might also refer to such a state as complete human well-being, which is again arguably a broader concept than psychological well-being. Conceptions of what constitutes flourishing will be numerous and views on the concept will differ. Most would concur that flourishing, however conceived, would, at the very least, require doing or being well in the following five broad domains of human life: (i) happiness and life satisfaction; (ii) health, both mental and physical; (iii) meaning and purpose; (iv) character and virtue; and (v) close social relationships.” [1]

### Flourishing Described Generally:

“Flourishing, we believe, is about living an authentic and full life. It’s feeling present and alive by noticing and appreciating what you already have around you. It’s about being in touch with yourself-what many refer to as mindfulness-in order to live with a sense of purpose and meaning, a moral compass and sense of virtue. Flourishing includes caring about the welfare of others and contributing to the greater good.”

“When you are flourishing, you are curious, creative, and open to new experiences, and there is a conscious commitment to fostering a positive mindset. You’re nurturing your mental, physical and social health. And you’re appreciating the time you have on this planet.” [2]

### Humans Are Wired for Art

“Research shows that art experiences, whether as a maker or a beholder, transform our biology by rewiring our brains and triggering the release of neurochemicals, hormones and endorphins.” [3]

“Scientific studies increasingly confirm what human beings across cultures and throughout time have long recognized: we are wired for art. The arts in all of their modalities can improve our physical and mental health, amplify our ability to prevent, manage, or recover from disease challenges, enhance brain development in children, build more equitable communities, and foster wellbeing through multiple biological systems.” [4]

*When you are  
flourishing, you are  
curious, creative,  
and open to new  
experiences...*



Daniel Bilmes, *Anonymous*, Oil,  
Private Collection

“Many experts agree that art is both an innate human impulse and a biological predisposition that has helped our species survive. It’s only a modern-day misconception that looking at art is purely philosophical or intellectual. At its core, art is a physical experience — and that applies not only to music — with its thrumming bass that you can feel — but also to painting and visual arts as well. For the past 100 years or so, society has focused on the ideas behind artwork — that the thought trumps the thing. But when you watch artists making art, it is a physical experience. It’s practically athletic.” [5]

### **What is neuroarts?**

“Neuroarts is the transdisciplinary study of how the arts and aesthetic experiences measurably change the body, brain, and behavior and how this knowledge is translated into specific practices that advance health and wellbeing.” [6]

“Achieving well-being is both an art and a science, and neuroarts bridges that gap,” [7]

### **How does neuroarts influence health?**

“Science demonstrates that art can work hand in hand with traditional medicine to improve mobility, memory, and speech; relieve pain and the after-effects of trauma; enhance mental health and learning outcomes; build resilience; and prevent disease. Among many other peer-reviewed research findings, we know that music improves cognitive function in people with dementia and relieves trauma, dance eases symptoms of Parkinson’s disease, poetry helps patients face end-of-life challenges, and architecture promotes healing in the clinic and wellness in the workplace. The arts are also a community-building tool that can improve health for all.” [8]

### **What is neuroplasticity?**

“Neuroplasticity is the fancy medical term used to describe your brain’s ability to learn and adapt. Think of it as an internal rewiring process that allows your mind to grow and meet new and increased demands.” [9]

*Achieving well-being is  
both an art and a  
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Nicholas Evans-Cato, *Ground Work #1*, Oil, Private Collection



## Section 2: Arts and Health Generally

*People who engage in the arts every few months, such as going to the theatre or to a museum, have a 31% lower risk of dying early when compared with those who don't.*



Dan McCaw, *NYC Light and Shadows*, Oil,  
Private Collection

**Do the arts improve life satisfaction, mental and physical health, and quality of life? Yes.**

“(P)eople who participated in arts activities at least once or twice per year, had significantly higher life satisfaction than those who did not. This was the same across socioeconomic levels. People who engaged in the arts were found to have lower mental distress, better mental functioning, and improved quality of life.”[10]

**Do the arts help you to live longer? Yes.**

“People who engage in the arts every few months, such as going to the theatre or to a museum, have a 31% lower risk of dying early when compared with those who don’t. Even if you bring the arts into your life only once or twice a year, you lower mortality risk by 14 percent. The arts literally help you live longer.”[10A]

**Do the arts make you smarter or to be more precise, do the arts improve your cognitive function? Yes.**

“(I)n study after study, arts participation and arts education have been associated with improved cognitive, social, and behavioral outcomes in individuals across the lifespan, in early childhood, in adolescence and young adulthood, and in later years.” [11]

**Do the arts improve life skills and behavior? Yes.**

An increase in cognitive function not only occurs with respect to art skills such as music, dance, drawing and writing, but also increases life skills in any activity that requires thinking, learning and memory. Researchers have concluded that learning any art skill translates or “transfers over into other aspects of our lives” and “translates into other life skills.” [12]

The arts develop executive function skills which are critical to lifelong learning, decision making and impulse control. “The arts activate the neural connections related to executive function as well as other regions of the brain and actively strengthen them.” [13]

“These neural connections evolve over childhood and adolescence, and the more you build these neural networks in your early years, the stronger the scaffolding for learning and execution of ideas and action.” [13A]

# Section 3: Arts Impact on Children and Older Adults

## Do the arts benefit children? Yes.

In a study of seven-year-olds, where half were provided a curriculum that included the arts and half did not, those in the arts-based group were found to have higher executive function skills “such as collaboration, conflict management, inclusion, vocabulary, and confidence....” [14]

“A lack of executive-function skills leads to kids who struggle not only in school but in life. Social function and overall cognitive and psychological development can be impaired.”[15]

“(W)hen kids are engaged in the arts in the pivotal age range of 0-8, they were better able to collaborate with peers and communicate with parents and teachers.”[16]

“Other studies of arts in education over the years have proven that students involved in arts are good academically. Students with access to arts education are five times less likely to drop out of school and four times more likely to be recognized for high achievement. They score higher on the SAT, and on proficiency tests of literacy, writing, and English skills. They are also less likely to have disciplinary infractions.”[17]

*Other studies of arts in education over the years have proven that students involved in arts are good academically. Students with access to arts education are five times less likely to drop out of school...*



Ramon Kelley, *Little Girl's Wishes*, Oil, Private Collection



## Do the arts benefit older adults? Yes.

“When older adults participate in the arts, they demonstrated statistically significant higher levels of five positive well-being indicators (interest, sustained attention, pleasure, self-esteem, and normalcy).” [18]

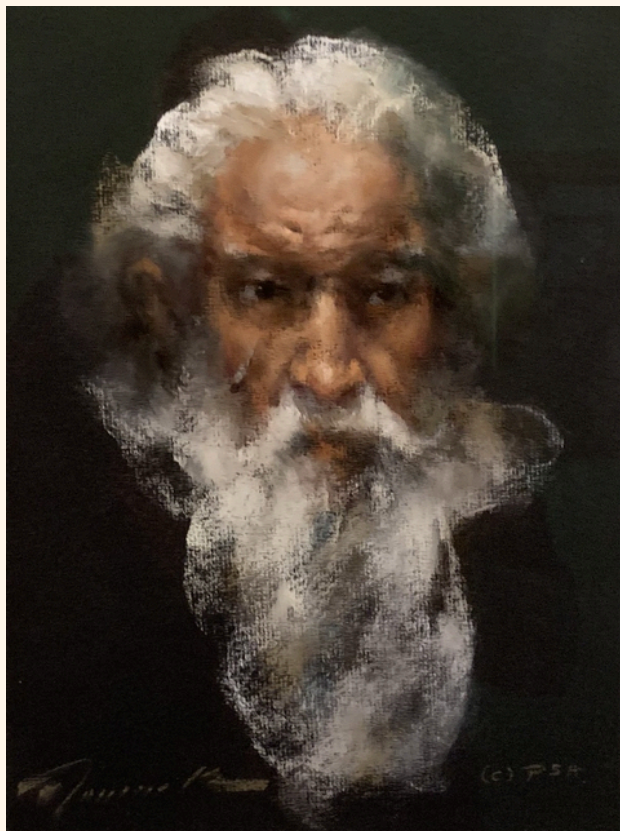
“Professionally conducted participatory arts programs impact older adults by improving health, decreasing depression and loneliness, and increasing participation in other kinds of activities.” [19]

“45%+ Decrease In Cognitive Decline. Engaging in both craft-and social-based art forms has been shown to decrease your risk of developing cognitive impairment and decline as you get older.” [20]

“63% Reduced Risk of Dementia. Activities like dancing, playing an instrument, and reading lower the risk of dementia. Older adults who do at least 11 cognitive or physical activities per month are 63 percent less likely to have dementia.” [21]

“Over the life-span, participating in arts activities like going to museums, concerts and the theatre, are associated with a slower rate of cognitive decline as we age. These activities are also associated with a lower risk of developing dementia.” [22]

*Over the life-span, participating in arts activities like going to museums, concerts and the theatre, are associated with a slower rate of cognitive decline as we age. These activities are also associated with a lower risk of developing dementia.*



Ramon Kelley, *Luke*, Pastel, Private Collection

## Section 4: Arts and Disease Prevention

**Do the arts help us to prevent disease? Yes.**

The arts “have a profound effect on our mental and physical health, both on the prevention of problems but also in managing and treating symptoms.” [23]

“Art and science together are potent medicine, capable of radically transforming our physical health.” [24]

*Art and science together  
are potent medicine,  
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Quang Ho, *Autumnal*, Oil, Private Collection



## Section 5: Arts and Mental Health

### **Do the arts improve mental health? Yes.**

The correlation between the arts and mental health are so persuasive that even traditional medicine is viewing the arts as a form of social prescription. “Physicians, psychologists, social workers and others are prescribing singing classes for stress, museum visits and concert tickets for anxiety, and nature walks for burnout-offering prevention and intervention. Social prescribing engages the arts as an immersive form of precision medicine, aligning cultural activities with individual needs.” [25]

“In an ‘arts on prescription’ program, physicians, mental health clinicians, social workers, and other care providers can refer patients or clients to these experiences right alongside traditional referrals to medication, specialists, and other services.” [26]

“While ‘arts on prescription’ is an emerging model in the U.S., early pilots show promising results. For example, the ‘CultureRx: Social Prescription Pilot’ launched in Massachusetts in 2020, and it allows physicians, physical therapists, mental health therapists, and others to prescribe visits to local museums, theaters, zoos, parks, and art and dance studios. Additional models have emerged in recent years, such as a partnership between the New Jersey Performing Arts Center (NJPAC) and Horizon Blue Cross Blue Shield of New Jersey (Horizon), which covers arts prescriptions for Horizon members at risk of overusing their insurance. Art Pharmacy, an Atlanta-based company, links U.S. clinical providers to local arts organizations through care navigators and a proprietary algorithm.” [27]

Check out the free [Arts on Prescription A Field Guide for US Communities](#) that was published by the Mass Cultural Council, University of Florida Center for Arts in Medicine, and Dr. Tasha Golden to help any community adopt an arts on prescription program.

### **Does the creation of art reduce stress for the maker? Yes.**

“(F)or the majority of people, making art for as little as forty-five minutes reduces the stress hormone cortisol.” [28]

“One study showed that doing just 45 minutes of any kind of art lowered the stress hormone cortisol by as much as 25%.” [28A]



Ron Richmond, *repose (no. 2)*, Oil, Private Collection

## Section 6: Arts and Chronic Pain

### Can the arts impact chronic pain? Yes.

“Research has found that people who engage in arts and cultural activities have a lower risk of developing chronic pain as they age.” [29]

### Can the arts treat headaches, one of the most common forms of chronic pain effectively? Yes.

Dance therapy (known as mindful-based dance movement therapy-MBDMT) and music have both been found to be effective.

“So, it might seem counterintuitive to suggest that when you have a headache you should get up and dance. But according to a study published in 2021 in the journal *Frontiers in Psychology*, there is mounting evidence that mindful-based dance movement therapy, or MBDMT, and psychological approaches to headaches can alleviate them.” [30]

“Other arts interventions, such as drawing and music, are also proving effective for headache relief.” [31]

“In one small study, researchers learned that having a personal playlist of music helped to control chronic headache pain. Those who listened to music with the goal of relaxing and alleviating pain lowered their pain and improved their symptoms.” [32]

*...there is mounting evidence that mindful-based dance movement therapy, or MBDMT, and psychological approaches to headaches can alleviate them.*



Scott Burdick, *Spanish Dancer*, Oil,  
Private Collection



## Section 7: Arts Therapy

### **Does art therapy provide cost-effective and beneficial outcomes to patients and healthcare facilities? Yes.**

A survey by Americans for the Arts concluded that “nearly 80 percent of hospital administrations say they invest in the arts because they’ve found that they dramatically improve the patient experience by both creating a healing environment and motivating patients during treatment and/or recovery.” [33]

“These reports and others have found that hospitals with arts programs report shorter patient stays, decreases in staff and clinician burnout, and a greater sense of well-being for both patients and staff. Studies have shown that making art, and the creative process it involves, helps hospitalized patients heal in quantifiable ways. Studies demonstrate statistically significant decreases in a broad spectrum of symptoms, including pain, fatigue, depression, anxiety, lack of appetite, and shortness of breath. Art in healthcare settings also helps to reduce apprehension, tension, nervousness, and worry.” [34]

### **How are arts interventions being used in healthcare facilities?**

“More than 50% of US hospitals now offer arts programming-and that number is rising.” [35]

“Traditional healthcare is now bringing arts programs and aesthetic treatments into hospital settings. Aromatherapy is being used to stop nausea; singing and music are being brought into surgical suites to reduce agitation in patients, doctors, and nurses; video games are a treatment for stroke rehabilitation. Today, there is a groundswell of interest in both arts-in-health and expressive-arts therapy in healthcare, resulting in a proliferation of bedside programs involving not only the visual arts and music but also dance and creative writing. Arts practitioners are working in hospitals as part of the care-plan team, working with clinical staff.” [36]

“\$56 Billion Savings: Patients who see nature or art from their hospital beds recuperate almost one day faster and require fewer pain medications. A single hospital day averages \$2,300, and about 25 million people per year stay at least one night in the hospital, which adds up to a potential of \$56 billion in savings per year.” [37]

*Today, there is a groundswell of interest in both arts-in-health and expressive-arts therapy in healthcare...*



Scott Fraser, *Central School Crabapples*, Oil, Private Collection

## Section 8: Health Benefits of Music

**Does music improve our health? Yes.**

Research studies have confirmed repeatedly that music positively affects both our physical and mental health.

“Music is a human universal: it exists in every society we know of, both now and throughout tens of thousands of years of human history.”

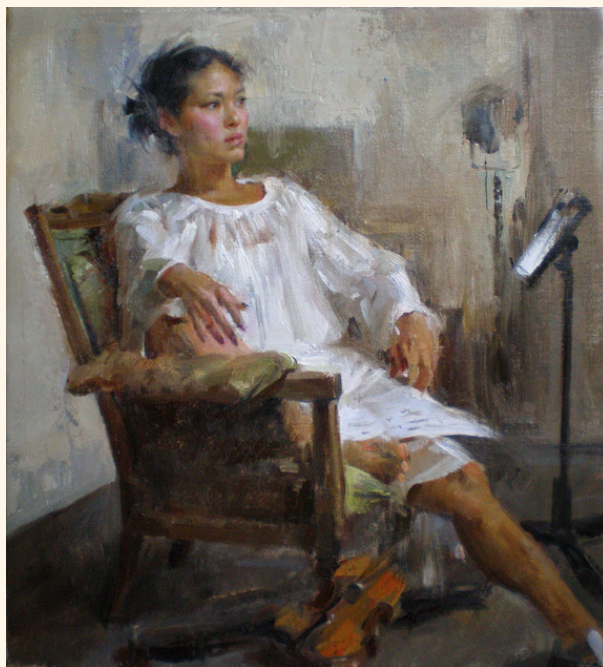
“Music appears to activate nearly every region of the brain that has so far been mapped, not just a single ‘music’ center. Like vision, music is processed component by component, with specific neural circuits handling pitch, duration, loudness, and timbre. Listening to music activates reward and pleasure circuits, modulating production of dopamine.” [38]

**What are the benefits of music training?**

Music training, whether it be through playing an instrument or singing, has significant health benefits. Music training develops our “listening skills, fine motor coordination, and timing.” [39]

“(I)n the first few years of life, musical training can promote the development of a more sophisticated auditory system in the brain, and that enhancement can benefit the child’s language skills.” [40]

*Music appears to activate nearly every region of the brain that has so far been mapped, not just a single ‘music’ center.*



Mary Qian, *Violin Lesson II*, Oil, Private Collection



Researchers concluded that pre-school children “exposed to music early on had developed brains that were more efficient at responding to speech in noise, compared to kids who hadn’t attended music classes.” These kids were better able to follow teacher instructions in noisy classrooms because their listening skills were better, and they were able to ignore irrelevant noise. [41]

“In one study, five-to seven-year-old kids who are better at clapping in time to a rhythm, a skill that develops with musical training, showed neurophysiological responses that signal better literacy skills, including the ability to process information more quickly, recognize speech sounds, read words, and spell and use grammar accurately.” [42]

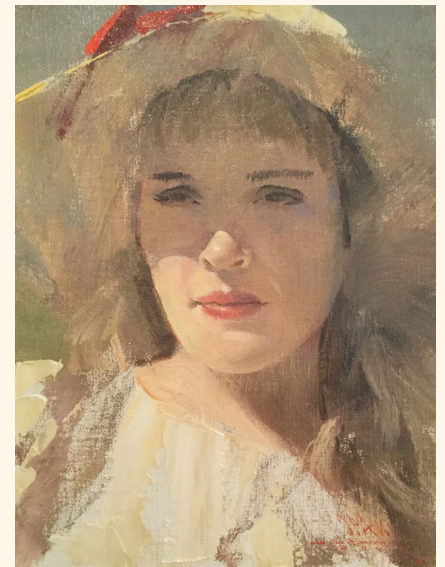
“(T)here’s a U.S. study in which teenagers who participated in performing arts programs were less likely to engage in risky behaviors, especially alcohol use, than their athletically engaged peers. They were also more likely to report liking high school and had a higher GPA in the twelfth grade. Long-term follow-up showed that they were also more likely to still be attending college at age twenty-one.” [43]

According to a 2013 report, attendance and graduation rates increased for students participating in music programs in Nashville public schools. “The students themselves listed the music program as one reason they showed up to school, and also said they felt happier, less stressed, and more accomplished. Participating students also had higher GPAs and other test scores, and fewer reports of disciplinary action, compared to their peers.” [44]

“(M)usical expertise has an effect on the structural plasticity of the brain in the hippocampus” –the area of the brain where memories are stored and retrieved. “The ability to learn and play music is very complex, and it marshals the hippocampus and its many connections to other brain areas.” In a 2010 study of adult professional musicians, Mathilde Groussard, an expert in the field of cognitive psychology, neuropsychology and brain imaging, concluded that “music increases our synapses and gray matter.” The study also showed that “when compared to nonmusicians, the musicians had formed more neural connections and gray matter.” [45]

Many studies have also confirmed that these results hold true with children who receive musical instruction and training. Using functional MRI imaging, a study by Dr. Assal Habibi from the Brain Creativity Institute “found that musical training changes the brain structure and boosts engagement in the brain networks responsible for decision-making. In one set of published findings, her lab showed that when young musicians performed intellectual tasks, they demonstrated a greater engagement of a brain network involved in executive function and decision-making.”

*...music increases our synapses and gray matter. The study also showed that “when compared to nonmusicians, the musicians had formed more neural connections and gray matter.”*



C.W. Mundy, *Portrait of Amber*, Oil, Private Collection.

*When sound becomes  
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Casey Childs, *Blackbird*, Oil,  
Private Collection

Further, they concluded “music training accelerates brain maturity in areas of the brain responsible for sound processing, language development, speech perception, and reading skills.” And “(p)laying music not only stimulates the motor, auditory, and visual areas of the brain, it strengthens the neural connections between them, and enhances memory, spatial reasoning and literacy skills in the process.” [46]

### **How can music therapy be employed to improve physical and mental health?**

Music therapy and music-based self-management interventions that employ “purposeful listening or active engagement with music” can be employed to reduce chronic pain and stress. “(I)t appears that it is the combination of music’s capacity to hold one’s attention and its ability to evoke experiences of pleasure, thereby activating the reward circuitry in our brains, that plays a role in music-induced analgesic effects.” [47]

Music is deeply embedded in our memories and can be particularly important in treating diseases that damage our hippocampus like Alzheimer’s, dementia, PTSD and simply getting old. “When sound becomes music, its capacity for mitigating the symptoms of dementia or rewiring the brain after a stroke is now well-documented.” [48]

“Because of its complexity, we know that music affects many regions of the brain. The auditory cortex lights up as we hear musical sounds and perceive and analyze tones. A song can trigger the nucleus accumbens and the amygdala, where we form emotional reactions. And then there’s the hippocampus. It’s here that we create context and memories around the experience of hearing music. Songs that we know and love go through the hippocampus to be stored and recalled. . . .” [48A]

Since music and memory are so connected, music therapists have been able to improve the quality of life for patients who are unable to remember loved ones by playing music that has a shared familiarity between the patient and family and friends. Shared familiar favorite tunes can cue the patient as to who the person is and become a “bridge that enables them to stay connected.” Recent studies also show that “when people with dementia who are agitated and exhibit various behavior issues are provided with a personalized listening program of their favorite music, their behavior becomes calmer and the need for pharmacological treatment (is) greatly reduced.” [49]



As more healthcare providers recognize the significant benefits of music therapy, including their low cost and effective applications to a wide range of physical and mental illness, skilled musical therapists will be in greater demand. “There are over 15,000 skilled nursing facilities in the US and millions of people with memory disorders. Of the 10,000 board-certified music therapists in this country, only 7-13% work in geriatric care. The need for more music therapists is great as is the need to train caregivers and health professionals in ways they can use music effectively in various aspects of geriatric care. . . .With such support music therapists can impact all aspects of care, from pain management to reducing agitation and behavioral issues, which are often treated with psychotropic medications that are costly and have many negative side effects. . . .” [50]

*...listening to music  
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treatment.*

A National Endowment for the Arts Report in 2020 that analyzed 116 studies regarding arts-based interventions for opioid disorders “revealed that listening to music reduces pain, lessening the need for potentially addictive medication and improving readiness and motivation to seek treatment.” [51]



Kevin Weckbach, Untitled, Oil, Private Collection

## Section 9: Health Benefits of Singing

*...singing with  
others stimulates  
the release of  
oxytocin, a  
hormone that  
promotes bonding.*



Lu Cong, *Hymn Without Words*, Oil,  
Private Collection.

### **Does singing improve our health? Yes.**

Like music, singing is another arts modality that offers many health benefits, including physical, mental, and social health.

“Singing engages multiple systems that are important to health, including physical, cognitive, emotional, and sensory systems. For example, singing relies on the body (e.g., vocal apparatus, motor system, chest-intercostal and neck muscles, diaphragm), sensory systems (e.g., auditory, visual, proprioception), and physiological systems (e.g., respiration).” [52]

“Group singing is also associated with a sense of belonging and higher levels of social interaction, social inclusion, and less loneliness, in addition to other mental health benefits, such as reduced symptoms of depression and anxiety.” [53]

Research indicates that “singing with others stimulates the release of oxytocin, a hormone that promotes bonding.” [54]

Singing can also be particularly beneficial for us as we age because mobility limitations may make it difficult to get sufficient exercise. But, singing, which “has almost no reliance on mobility or skeletal strength” is certainly physical exercise that requires both “passive and active breathing, muscle coordination, and various breathing techniques, including breath holds.” Moreover, singing is an art form that is universally accessible to anyone at low cost with low risk of physical injury. [55]

“\$43.3 Billion in Savings from Reduced Doctor Visits. After a year of singing in a chorale, older adults visited their doctor an average of 2.5 times less per year. This saves \$500 per person, or up to \$43.3 billion for the 86.7 million older adults in the United States each year.” [56]

## Section 10: Health Benefits of Visual Arts

**Does visual art improve our health? Yes.**

**Does visual art improve cognitive function and life skills? Yes.**

“10-Weeks of Arts Participation to a Stronger Brain. The arts literally make your brain grow. Participating in the visual arts for as little as 10 weeks has been shown to increase the resiliency and neural connectivity of the brain, making for increased self-awareness and better memory processing.” [57]

When we look closely and mindfully at visual art, we enhance our life skills by improving our critical thinking and other cognitive skills like decision making and problem solving.

“(T)hrough the visual arts, individuals were taught to observe and see with acuity; to envision by creating mental images and using their imagination; to express themselves and find their individual voice; to reflect about decisions and make critical and evaluative judgments; to engage and persist, by working even through frustration; and to explore and take risks and profits from their mistakes.” [58]

“18% Improvement In Critical Thinking. Just looking at art improves your ability to think critically. Students from high-poverty schools, according to one study, experienced an 18 percent effect-size improvement in critical thinking about art after a one-hour tour of a museum.” [59]

**Does visual art reduce stress and increase pleasure? Yes.**

When we view or create visual art, that process of looking at and experiencing art has physical effects. It changes our brain waves, increases blood flow to our brain and triggers dopamine through our reward pathways that produce pleasure and happiness.

“(D)oodling, coloring, and free drawing all activate the prefrontal cortex, that area of the brain that helps us focus and to find meaning in sensory information. . . .(T)he simple act of doodling increases blood flow and triggers feelings of pleasure and reward. It turns out doodlers are more analytical and retain information better and are better focused than their non-doodling colleagues.” [60]



Kazuya Ushioda, *Everglow*, Oil,  
Private Collection





Sprick, *Lilies*, Oil,  
Private Collection

*Art can influence brain  
wave patterns by  
stimulating various  
regions of the brain,  
particularly those  
associated with visual  
processing, emotion,  
and reward...*

### **Does visual art affect our brain waves? Yes.**

Using EEG technology, we are learning about how art can impact our brain wave patterns. When we create or experience art, various regions of the brain are stimulated, and this is reflected in the changes that occur in our brain waves.

“Art can influence brain wave patterns by stimulating various regions of the brain, particularly those associated with visual processing, emotion, and reward, leading to changes in brain activity that can manifest as altered alpha, beta, and theta wave patterns depending on the viewer's emotional response to the artwork. ...”

For example, studies have shown that viewing art that is aesthetically pleasing can increase our alpha brain waves “which are associated with a relaxed and focused state of mind.” [61]

### **Does visual art impact our blood flow to the brain? Yes.**

“Viewing art that people think is beautiful can increase blood flow to the brain's pleasure center.” When people “viewed the art they thought was most beautiful, blood flow increased by as much as 10% to the region of the brain associated with pleasure — the equivalent to looking at a loved one.” [62]

Research confirms the emotional benefits of engaging with art, particularly in settings such as museums and galleries, which include reducing feelings of isolation and promoting social inclusion, triggering positive memories, emotions and pleasure as well as inducing relaxed states.

While there is much more to learn and discover about how engaging with art triggers emotional states, there have, however, been neuroimaging studies that suggest that when we view art, certain regions of the brain associated particularly with emotion regulation, pleasure and reward are activated. [63]

## How does visual art therapy (drawing) improve our mental health?

Drawing “is tapping into a very old part of ourselves and moving into the emotional and intuitive parts of the brain.” Psychiatrist, James Gordon, founder of the Center for Mind-Body Medicine (CMBM) which endorses arts-based healing to deal with trauma and chronic stress. [64]

James Gordon has “found drawing to be one of the simplest, most reliable ways to access traumatic images and to move through and beyond fear to process what has happened.”

Research examining brain wave patterns “before, during and after drawing” triggers activity in “multiple parts of the brain,” including the brain’s left hemisphere where language is processed which means that drawing can be effective for processing and articulating trauma by “helping us to find the words.” [65]

Significantly, peer-reviewed studies of Gordon’s work in 2022 with victims of the war in Ukraine revealed that “(p)rograms that incorporate drawing as an early intervention reduced PTSD by more than 80 percent.” [66]

*...(p)rograms that  
incorporate drawing as  
an early intervention  
reduced PTSD by more  
than 80 percent.*



Skip Steinworth, *Apple #7*, Graphite Pencil, Private Collection

# Section 11:

## Health Benefits of Dance

### Does dance improve our health? Yes.

Dance has many benefits for people of all ages.

Supports Cardiac Health and Increases Weight Loss. [67]

Relieves Headaches and Migraines. [68]

Promotes Blood Flow and Brain-Wave Activity. [69]

Triggers “a quartet of feel good neuro-chemicals: dopamine, oxytocin, serotonin, and endorphins.” [70]

“Dancing has been shown to improve mood and to help stave off depression by releasing serotonin; while dance increases neural activity between brain hemispheres and helps develop new neural connections.” [71]

“Other studies have discerned that dance helps develop new neural connections, particularly in the areas of the brain involving executive function, long term memory and spatial recognition.” [72]

### How does dance benefit children?

“Children who regularly participated in dance classes experienced an increase in the mood-boosting neurochemicals. . . which resulted in social-emotional, physiological, and cognitive development, but it also offered a path for safe exploration and expression of feelings and emotions. It also helps to build strong spatial cognition in children, which has been associated with increased skills in math, science and technology later in life.” [73]

“And perhaps most vital for childhood development, Menzer (Office of Research and Analysis at the National Endowment for the Arts) found a research study indicating that children who regularly attend a dance group develop stronger prosocial behavior, like cooperation, while overcoming anxious and aggressive behaviors, when compared with kids who didn’t dance.” [74]

*Dancing has been shown to improve mood and to help stave off depression by releasing serotonin. . .*



Deborah Bays, *L'Etude*, Oil,  
Private Collection



### How does dance benefit older adults?

“Dancing is one of the best physical activities for older adults. Dancing provides the widest impact spectrum to the body. It impacts physical (endurance, muscular strength, flexibility), psychological (cognition) and social (ensuring the need of closeness, reducing loneliness) needs.” [75]

### How is dance therapy being used to treat disease?

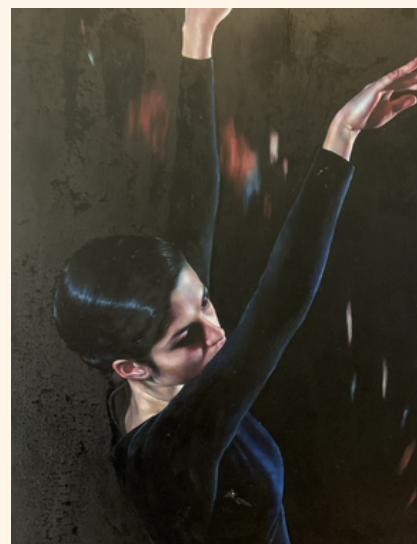
“Dance marshals multiple parts of the brain. . . including the basal ganglia, the cerebellum and the motor cortex.”

“The basal ganglia are responsible for our movement patterns and our learned steps so that eventually walking and other daily movements become habitual. The basal ganglia communicate with the cerebellum, which plays a role by helping with rate, range, and direction of movements. Neuroscientists now know that the cerebellum is important in the development of habitual movement formation.” [76]

Dance therapy is being used successfully to treat patients with various diseases such as Parkinson’s Disease, which “affects more than 10 million people worldwide” and is a brain disorder that leads to a precipitous drop in dopamine levels in the basal ganglia region of the brain responsible for automatic movements like walking. “The loss of dopamine results in abnormal nerve firing that inhibits movement and causes neural damage.” And as a result, PD patients experience a “range of physical difficulties including balance, coordination, shaking, and stiffness.” [77]

In 2001, the program called “Dance for PD” was started in Brooklyn, NY at the Mark Morris Dance Center. Dance for PD is now “an internationally-acclaimed program that offers research-backed dance classes for people with Parkinson’s disease online, in NYC, and through our network of partners and associates in more than 400 other communities in 30 countries.” [78]

*Dancing is one of the best physical activities for older adults. Dancing provides the widest impact spectrum to the body.*



Daliah Ammar, *You Just Want The Attention*, Oil, Private Collection

*People who are  
shuffling and not  
thinking about their  
walking were  
suddenly fully  
conscious and  
thoughtful about  
what they were  
doing in our class  
and why they were  
doing it.*

In 2021, a three-year longitudinal study was published that followed PD dancers who attended PD dance classes once a week. “They found that those in a dance class experienced less motor impairment and showed significant improvement in areas related to speech, tremors, balance, and rigidity as compared with those who did not do any dance exercise. They also reported an improvement in their mood and quality of life.” [79]

“Using EEG, other researchers have seen changes in the brain waves of PD patients who dance. Blood-flow increases were also seen in the basal ganglia, a region responsible for smooth muscle control and coordination of rhythm.” [80]

As explained by David Leventhal, program director of Dance for PD, “the studies tracked how the motor improvement that happened in class were significant, measurable, and most important, transferable or replicable, outside of class.” [81]

“People who are shuffling and not thinking about their walking were suddenly fully conscious and thoughtful about what they were doing in our class and why they were doing it. Dancing helped them pay attention to the quality of their movement. By rehearsing, then these movements start to become automatic again. So, it almost seems like dance is rewiring their brains to have movement in a new way that then becomes automatic.” [82]



Jane Hunt, *Stillness*, Oil, Private Collection

## Section 12: Health Benefits of Theatre

### Does theatre improve our health? Yes.

”Actors must draw upon the cognitive aspects of memory, observation, and imagination. Acting also triggers mirror neurons in the brain, which are how we understand ourselves and the actions of others. Mirror neurons are activated in the actors, as well as the audience. When you watch an actor give an authentic performance, you can feel what that character is feeling. In daily life, when you see someone smile, the mirror neurons in your brain for smiling fire as well. Mirror neurons help you to bridge the gap between self and other in order to build empathy, understanding, and to create shared human experiences.” [83]

“Advances in neuroaesthetic research are helping us to better understand the creative and transformative process of rituals and rehearsal. Theatre is more than a setting for performance; it is the place where you learn to work, in concert, with others, to create a shared work of art.” [84]

In a study of high school students in a theatre program, it was noted that the participating teenagers “experienced a range of emotions from frustration and nervous anxiety to anger and joy, and that theatre offered a constructive space for those emotions to play out safely. Drama helps with perspective-taking and empathy-building, which are vital to executive function. In the case of theatre, student actors are being asked to inhabit roles, to sympathize with characters, and to collaborate closely with other students in order to realize a shared outcome—the play.” [85]

Like drawing, theatre can be an extremely important avenue for stress reduction and dealing with trauma, and acute anxiety-related conditions. According to Nisha Sajjani, director of the Drama Therapy Program and the Theatre and Health Lab at New York University, difficulties in life can “lead to mental distress and a sense of disembodiment, or the disruption to bodily self-awareness.” Drama therapy can help people to “contextualize the struggles in their lives and reconnect with their bodies once more.” [86]



Jill Soukup, *White Rise*, Oil,  
Private Collection



*Theatre, and trauma-informed drama therapy involving movement and play, can help a person reconnect, physically, to their lived experiences and shape them in new ways.*

Sajnani's research regarding creative arts therapies concluded that "the act of movement and play" can help people to "remember difficult experiences and move them in physical expressions that are not jarring or overstimulating." Moreover, as explained by Sajnani, "what we know at this point, is that when we are frightened and go through life-threatening experiences, our immediate priority is not to talk about it. We experience it and we move into action around it in order to preserve ourselves." In discussing the role of theatre in dealing with trauma, Sajnani explains: "It's about organizing traumatic experiences through the arts so you can rejoin the world, rather than hold that experience internally and remain alone in it.

Theatre is particularly good at embodying an experience, paying attention to how you viscerally experience it, moving that into concrete, visible forms—a sound, a gesture, a drawing, a movement—and using symbolic metaphors to try to help you communicate the complexity of an experience without immediately having to reduce it." [87]

In discussing Sajnani's work, Magsamen and Ross state: "Theatre, and trauma-informed drama therapy involving movement and play, can help a person reconnect, physically, to their lived experiences and shape them in new ways. Using improvisational movement, storytelling, role-play, and performance, Nisha helps people to use their body as the basis to explore their lived experience and their relationships with others." [88]



Danny McCaw, *Attachment*, Oil, Private Collection

## Section 13: Health Benefits of Expressive Writing

**Does expressive writing improve our health? Yes.**

“(W)hen you intentionally tap into personal and emotional stories through writing, it helps reduce both mental and physical ailments.” [89]

Expressive writing can be especially beneficial in dealing with trauma particularly for people who keep their traumatic experiences hidden or secret from others. “In one study on the effects of expressive writing on the brain, researchers saw that the act of writing about a past traumatic event changed neural activity by activating the mid-cingulate cortex, an area that is critical in processing negative emotion. The act of putting words to our emotions and feelings can help us contextualize, and better understand, difficult events in our lives at a neurobiological level.” [90]

“Dozens of studies by (James) Pennebaker (social psychologist at University of Texas in Austin) have also found that expressive writing can reduce blood pressure, lower stress-hormone levels, lessen pain, improve immune function, and alleviate depression while also heightening self-awareness, improving relationships, and increasing our ability to cope with challenges.” [91]

“Increased Immunity For Those Battling Terminal Diseases. Creative writing offers physical benefits to those battling terminal diseases. HIV positive patients show a strengthened immune level after just 30 minutes of writing. Similar results were found with asthma, rheumatoid arthritis, and Hepatitis B patients.” [92]



Zoe Rizzo, *The Muse*, Charcoal, Private Collection

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## ABOUT THE AUTHOR

**Shannon Robinson**, a retired attorney is an Arts Advocate, Collector and President of Windows to the Divine and Collectors for Connoisseurship, a nonprofit foundation that promotes the importance of human flourishing, interfaith dialogue, philanthropy, and the special calling of artists. Through exhibitions, symposia and salons hosted in collaboration with museums, galleries and other nonprofits, the foundation encourages everyone to become a patron of the arts by participating in and supporting the visual and performing arts.

To promote artists, the foundation has exhibited the works of more than 352 artists from the U.S. and abroad and Shannon has curated more than twenty exhibitions and given more than forty educational presentations about art history, collecting, and flourishing. In 2015, the foundation launched Collectors for Connoisseurship (C4C), a group of art lover/collector members who along with the public participate in C4C Arts Weekends that feature a national exhibition, salon, and tours of private collections. These art weekends have been held in Denver, NYC, Paris, Atlanta/Savannah, and the Hamptons.

In 2024, to increase public participation in the arts and support artists, Shannon formed the Flourishing Through the Arts & Science Council in Denver which has representatives from the Art Students League, Colorado Ballet, Denver Art Museum, Denver Center for Performing Arts, Gallery 1261, University of Colorado Anschutz Center for Bioethics and Humanities, Visit Denver, and Windows to the Divine. From Nov 6-16, 2025, the Council will launch the Flourishing Through the Arts and Science Initiative 2025, a series of events to educate the public about the scientific research in the rapidly developing field of NeuroArts confirming the health benefits of engaging in the arts.

As an art collector for over 30 years, Shannon is passionate about the arts and education. Her work as an advocate for artists and art collecting has been featured in arts publications, including Southwest Art Magazine, Fine Art Connoisseur and Larry's List. With her master's certification from Regis University in Art History and Collecting, Shannon speaks on a wide range of topics at national conventions, podcasts, collector salons and symposia hosted by Windows to the Divine and its partners at museums and galleries in Colorado and around the country.

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