# **Resources for Art Can Heal Your Life**

# Bipolar Disorder, Sensory-Processing Sensitivity and the Creative Experience of Performing Artists A State of the Art Review

### Guidelines for PAMA/NASM Task Force on Psychological Health

# By Kathline Colvin, Ph.D.

Across the centuries the link between creativity and mental illness has been observed, and anecdotally, there have been many examples of compelling associations that suggest this relationship. This link between creativity and mental illness first appeared in the literature in the 1970's, but the notion of a connection of "madness" and "genius" dates back at least to Aristotle. The ancient Greeks believed that creativity came from the gods, particularly from the Muses (the mythical personifications of the arts and sciences). Romantic writers had similar ideas, as Lord Byron expressed "We of the craft are all crazy. Some are affected by gaiety, others by melancholy, but all are more or less touched".

However, to date, only a limited number of empirical research studies have been designed to examine mood disorders in highly creative individuals, and most of these studies have investigated writers (Andreasen, 1974, 1987; Jamison, 1989). In these studies the preponderance of the evidence indicated that in these creative subjects the rate of mood disorder is high, and that both bipolar and unipolar depression are quite common.

### **Bipolar Disorder and Creativity in Musical Artists**

Most artists speak about a strong relationship between their fluctuating moods and creative productivity, and of the necessity to modify the impact of these moods during periods of creative work. With this in mind, I designed a research study to investigate the relationship between moods, quality of object relations, the level of ego development, and their influence on the creative productivity of young classical solo musicians (Colvin, 1994). Although it is well documented that Bipolar Disorder or Manic-Depressive Illness is a genetically linked disorder (Goodwin & Jamison, 1990, 2007), my study was designed to probe the complementary influences of psychological factors that may predispose the artist to a mood disorder. It is suggested here that the artistic ability to successfully symbolize subjective experience arises from a confluence of a repertoire of feelings and moods, interpersonal experiences, and a sophisticated ego structure involving a complex matrix of cognitive schemas.

In summary, the research results of this study (Colvin, 1994) showed that musicians (N=40) reported a higher incidence of mood disorder than the non-musician control

group (N=40), with highly significant differences noted between the groups (results at the p<.001 level). A high total percentage of mood disorders in the musician group: 52.5% reported a Bipolar Disorder (25% with Cyclothymia; 12.5% with Hypomania (Bipolar 2 Disorder); 5% Bipolar 1 Disorder; 2.5% Cyclothymia – Balanced; 0% Cyclothymia - Depressed); and 7.5% classified as Hyperthymic (a constellation of symptoms described by Depue et. al. (1981) as a pre-hypomanic category). This rate is quite high when compared with lifetime prevalence estimates of 1% for Bipolar Disorder (Goodwin & Jamison, 1990, 2007). Further, musicians demonstrated highly significant differences from non-musicians on the General Behavior Inventory (GBI) Depression and Hypomania Score, and the overall Affective Dysregulation score. Additionally, musicians reported more disturbed patterns of object relations than non-musicians, with elevated Alienation and Egocentricity subscales (results were significant at the p<.05 level). Musicians also demonstrated higher overall scores on the Ego Development scale than the nonmusicians. Overall, the musicians group – 92.5% reported that they experienced a strong relationship between their moods and creative productivity, and that their moods were integral and necessary to their creative work. However, the musicians further reported that extremes of mood – either elation or depression – interfered with their ability to produce high-level performances. Yet, there was also a somewhat contradictory finding that suggested the positive effects of hypomanic symptoms during intense creative periods enhanced artistic productivity. Although these young musicians demonstrated substantial disturbance in their moods and object relations, as well as revealing more complex ego structures, they were regarded, at the time of this study, as being highly successful performing artists with the ability to consistently produce meaningful musical products, and the likelihood of a prominent career.

These findings have important implications: 1) if at this early stage in their development as performing artists these musicians are showing significant difficulties with mood regulation (meeting the diagnostic criteria for Bipolar Disorder) what are the predictions for their continued successful development as performing artists? 2) Musicians clearly rely on their moods as catalysts for achieving meaningful artistic products; and interestingly these results also suggest positive effects of hypomanic symptoms during creative periods. 3) This may indicate the function of ego strength, and a corresponding higher level of ego development. Here, they are seemingly able to modulate intense feelings in order to promote the symbolization process of making music, and facilitate an artistic product that is highly satisfying. 4) This more complex ego functioning in musicians can likely be meaningfully understood from the viewpoint of the organization of the artistic ego, where the musicians demonstrated a superior ability to filter subjective experience appropriate to the demands of the symbolizing activity required of the performing artist.

And finally, the psychodynamic profile that emerged from this research indicates a group of young artists who are summarily influenced by the symptoms of bipolar disorder including faulty mood regulation, disruptive interpersonal relationships,

and a highly complex ego organization. In reaction, they show a tendency to question their talents, and demonstrate a lingering need to be validated and appreciated. One of the musicians in the study concluded: "...although I find it necessary and important to think about music, I am always conscious of the fact that feeling must remain the Alpha and Omega of a musician, therefore my remarks proceed from feeling and return to it again."

### **Bipolar Disorder and Creative Artists**

How do we understand bipolar disorder? People with bipolar disorder experience both mania (an exceptionally elevated, irritable, or euphoric mood) and depression. While the frequency of episodes vary, they can be separated or symptoms of mania and depression can occur at the same time. At least four depressive, manic, hypomanic (the milder form of mania) or mixed episodes occurring within a year is known as rapid-cycling bipolar disorder.

Bipolar Disorder has been somewhat romanticized in the literature by its association with creative artists, but what sufferers' experience with this form of mental illness is far from glamorous. Sometimes bipolar patients require hospitalization because they can't function in their lives, or at worst they become suicidal, particularly if they don't take their medication as prescribed. During a manic or hypomanic episode the person can feel a euphoric mood and the world seems full of opportunity. They meet new friends, spend money on beautiful things, and sometimes feel invincible. So is there something about bipolar disorder that can be conducive to creative expression? Studies in both psychology and medicine offer evidence for the link, but to date they have only focused on well-known people diagnosed posthumously, or on small groups of patients.

Artists can describe their feelings during moments of creative activity as elated, expansive, and fluid. Some evidence exists regarding the experience of expansiveness of thought, a common feature in mild mania, which promotes an increased fluency of ideas conducive to creative productivity (Jamison, 1989, 1996). In her book Touched with Fire: Manic-Depressive Illness and the Artistic Temperament Dr. Kay Redfield Jamison (1996) has offered the definitive work to date on the compelling links between bipolar disorder and creativity. Through her research studies, she related what is evident in the biological foundation of bipolar disorder to the lives and work of some of the world's greatest artists including Lord Byron, Vincent Van Gogh, Virginia Woolf, Hemingway, Robert Schumann and Handel. For example, Schumann's depressive periods prevented any musical composition, while hypomanic periods appeared to have significantly enhanced his artistic output (see Figure 1). Handel also composed prolifically during his hypomanic phases, and accomplished little while depressed. And Van Gogh completed approximately 300 paintings, many of them his finest, during hypomanic episodes in the last years of his life. The volatile and intense moods associated with the artistic temperament were once thought to be a hallmark of artistic genius; but Dr. Jamison demystifies this notion and shows in her research that many artists who experienced euphoric

highs and despairing lows were in fact wrapped up in a struggle with clinically identifiable manic-depressive illness. She presents the argument that people with affective disorders tend to be overrepresented in the creative artist population, and that bipolar disorder may carry certain advantages for creativity, especially in those who have milder symptoms. Because hypomania decreases social inhibition artists can often be more daring and bold. Since these symptoms are not equivalent to the more severe symptoms of a clinical manic episode, the artist while experiencing milder symptoms of hypomania might find them conducive to creative expression.

In her moving scientific autobiography The Unquiet Mind: A Memoir of Moods and Madness (1997), Dr. Jamison describes her own experience of manic-depressive illness with its bitter costs and paradoxical benefits. She tells us "There is a particular kind of pain, elation, loneliness, and terror involved in this kind of madness ... it will never end, for madness carves its own reality". Her book is written with clarity, truth and insight into the human character. She goes on "We are all, as Byron put it, differently organized. We each move within the restraints of our temperament and live up only partially to its possibilities." Dr. Jamison has championed the study of manic-depressive illness and suicide both as a clinical researcher (as a Professor of Psychiatry at Johns Hopkins School of Medicine) and patient. In Night Falls Fast: Understanding Suicide (2000) she tells more of her personal story, about planning her own suicide at 17, and attempting to carry it out at 28: "Suicide is a particularly awful way to die, the mental suffering leading up to it is prolonged, intense, and unpalliated." She further writes "There is no morphine equivalent to ease the acute pain, and death not uncommonly is violent and grisly." Her goal in this book was to explore the complex psychology of suicide, especially in people under 40 years old, why it is one of our most significant mental health problems, and how it can be prevented and effectively treated. She discusses the close relationship of manic-depressive illness and suicide in different cultures, and illustrated her points with anecdotes about people who have attempted or committed suicide - some famous, some ordinary, and many of them young. In sharp contrast to the weighty themes of bipolar disorder and suicide, Dr. Jamison has written Exuberance: The Passion for Life (2005). Perhaps her enthusiasm and sense of wonder as she considers the contagious nature of exuberance, bears out her own conclusion that the milder effects of mania are conducive to creative activity. She defines exuberance as "a psychological state characterized by high mood and high energy", which in fact are symptoms of hypomania. She again offers diverse and delightful examples in personalities such as John Muir, FDR, Peter Pan, Mary Poppins and Snoopy.

Researchers have demonstrated that familial patterns of creativity and mental illness exist as well. In a study of writers, Andreasen (1987) showed that 80% met diagnostic criteria for bipolar illness or depression, and that the first-degree relatives of the writers were more likely to have mood disorders than were the relatives of the controls; they additionally were more likely to have histories of creative accomplishment. Harvard researchers, Richards and colleagues (1988), demonstrated in their study with non-eminent subjects, higher creativity scores in

individuals with bipolar and cyclothymic disorders, as well as their normal firstdegree relatives, than among controls.

A recent, large, well-designed population-based study adds further support to the relationship between creativity and bipolar disorder. Kyaga and his associates (2011) added to the body of evidence showing a disproportionately high rate of mental illness, especially bipolar disorder, in creative people. Their study was based on Swedish national registries, and considered the likelihood of holding a creative profession (artistic and scientific occupations) in individuals (n=300,000) with schizophrenia, bipolar disorder or unipolar depression and their healthy relatives was compared to that of controls. Results demonstrated that individuals with bipolar disorder and healthy siblings of people with schizophrenia or bipolar disorder are overrepresented in creative professions. Their results further support a genetic component in creativity, and support evidence for a familial consegregation of both schizophrenia and bipolar disorder with creativity, and suggests that this may be mediated through a genetic mechanism. Interestingly, researchers have suggested that some features of bipolar illness and schizophrenia may offer some adaptive advantage to the affected individuals and their relatives. Keller and colleagues (2006) suggest that whatever the genetic and environmental mechanisms for this may be they are complicated and will likely be addressed most decisively in the future by neuroimaging, genetic and neuropsychological research.

In his book <u>Tortured Artists: From Picasso and Monroe to Warhol and Winehouse,</u> <u>the Twisted Secrets of the World's Most Creative Minds</u> (2012), Christopher Zara offers a modern cultural viewpoint as he explores the "tortured artist" stereotype and how it applies to the creative disciplines. The profiles of celebrated artists from music, drama, literature and visual art have a specific goal – to show how pain and suffering inspired the artists' work, exploring the common thread that binds creative expression of every type of art. The surprising extent to which inner and outer turmoil drives the creative process is illustrated in the series of essays about the psychological issues of a mix of creative artists including Michelangelo, Warhol, Madonna, Charles Schultz, and many others.

### **Neuroscience and the Creative Brain**

Nancy Andreasen (2005) brings neuroscience to center stage in her book <u>The</u> <u>Creating Brain: The Neuroscience of Genius</u>, offering insight into the relationships between creativity, mental illness, intelligence and the social environment. Her earlier studies of participants of the Iowa Writer's Workshop (1987) showed a compelling correlation between mood disorders and creativity. Drawing from her own emerging research using positron-emission tomography (PET) scans of subjects brains during free association, Andreasen suggests that creativity arises largely from the "association cortex" – parts of the frontal, parietal, and temporal lobes that integrate sensory and other information. Her studies have led her to the preliminary conclusion that "extraordinary creativity" results from neural processes that "differ qualitatively as well as quantitatively" from those of other people. She further states that genetics may play some role, but there are other factors that predispose a person to creativity and mental illness. These factors include *"having an increased level of sensitivity*, increased tendency to be exploratory and adventuresome, and the tendency to go out on a limb and take a risk". These are the very things that allow the individual to see the world differently and express themselves through creative modalities.

In his article "The Real Neuroscience of Creativity" in Scientific American (2013) Scott Barry Kaufman discusses how cognitive neuroscientists are on the forefront of investigating what actually happens in the creative brain at work. He explains that contrary to the left brain - right brain distinction, creativity is much more complicated and doesn't depend on a single brain region, but rather the creative process involves many interacting cognitive processes and emotions, and depending on what the artist is trying to create, different brain regions are recruited. Neuroscientists suggest that in creative cognition three large-scale brain networks operate in dynamic interaction to produce results. Kaufman reviews them in this article: Network 1 "The Executive Network" is recruited for complex problem solving that puts demands on working memory, involving efficient communication between lateral (outer) regions of the prefrontal cortex and the posterior (back) area of the parietal lobe. Network 2 "The Imagination Network" is recruited for evolving dynamic mental simulations based on past personal experience, and when imagining alternative scenarios in the present. This network involves areas deep inside the prefrontal cortex and temporal lobe (medial regions), in communication with regions of the parietal cortex. Network 3 "The Salience Network" consistently monitors external events and internal consciousness and settles on whatever information is most salient to resolving the problem. This network involves the dorsal anterior cingulate cortices and the anterior insula and is significant for the dynamic switching between networks. So the new understanding of the neuroscience of creative cognition involves both the knowledge of large-scale networks along with the differing patterns of neural activations and deactivations at various stages of the creative process. Kaufman cites a recent large review where Rex Jung (2013) and colleagues offer a "first approximation" about how creative cognition might map onto the human brain. They suggest that to loosen your associations, let your mind roam free, imagine new possibilities without the influence of your inner critic. It's a good idea to reduce activation of the Executive Network, and increase activation of the Imagination and Salience networks. Recent interviews with musicians engaging in creative improvisation suggest that's exactly what's happening in the brain during a flow state. This model for creative cognitive processing proposes disciplined switching between the rational and imaginative thinking, each of which is supported by distinct networks in the brain. In conclusion, these researchers encourage us to ditch the outdated notions of how creativity works, and consider the many complications inherent in the creative process including dynamic brain activations and collaborations among many different regions of the brain that make it all possible. We can now hypothesize that the creative cognitive process involves the whole brain and how complex networks in both hemispheres communicate with each other. Although much more research is needed to investigate how the brain creates across the different domains, the

neuroscience of the creative process is well on the way to considering efficient working models of brain functioning to guide the creative artist in understanding how they work.

In their new book Wired to Create: Unraveling the Mysteries of the Creative Mind Kaufman and Gregoire (2015) offer a description of the habits and personality dimensions of the creative person, and tell us that openness to new experiences is the strongest and most consistent personality trait that predicts creative achievement in the arts and sciences, as exposure to new experiences can shift our perspective and inspire creative leaps. Paradoxically, higher dopamine levels drive creative exploration and boost creative thinking, but are also associated with an increased risk of mental illness. The authors propose a new model for creative cognitive processing that includes "leaky" sensory filters where highly creative people show a reduced latent inhibition and thus have the ability to tune into greater amounts of information from their surroundings rather than automatically filtering and compartmentalizing their data. The idea of reduced latent inhibition illustrates the concept of a "messy mind" associated with creative thinking, because this "messy mind" holds onto and explores thought fragments that might seem irrelevant to a more organized mind. However, this "leaky" sensory filter can make creative individuals highly distractible, as Darya Zabelina and her colleagues (2015) discovered. They found that people with a "leaky" sensory filter tended to be more creative than those with stronger sensory gating. Zabelina observed that highly creative people are more sensitive to noises in their environment than less creative people: "Sensory information is leaking in ... and the brain is processing more information than it is in a typical person". This hypersensitivity to sound is a wellknown characteristic in many eminent creators including Darwin, Kafka, and Proust. Although distractibility may at times be a hindrance to creative work, Kaufman suggests that sensory hypersensitivity most likely contributes to creative thinking by expanding the brain's scope of attention and allowing creative people to take in more subtleties in their experience. Taking in more information increases the chances of making new and unusual connections and thus producing novel ideas. The creative person copes with paradoxes, extracts meaning and order from disorder, takes risks, feels passion and perseveres. Creative people are typically more sensitive, and respond strongly to emotional, cognitive, and physical stimuli. Sensitivity is then a useful trait for artists, because it allows them to be more aware, vulnerable and open to new experiences, which can then facilitate creative productivity.

### Sensory-Processing Sensitivity and Creativity

"A truly creative mind in any field is no more that this: A human creature born abnormally, inhumanly sensitive." - Pearl S. Buck

Elaine Aron's groundbreaking research (1997) finally identified essential and relevant information needed to better understand the artistic temperament. The idea of "artistic" or "sensitive" temperament has been supported historically by

ample anecdotal evidence, and with Dr. Aron's research we now have systematic investigations supporting the idea of a distinct personality trait of high sensory sensitivity, which has broad implications for understanding the artists' behavior and experience. In a series of 7 studies, Dr. Aron developed and utilized her HSP Scale (Highly Sensitive Person Scale), with findings that identified a core variable of "Sensory Processing Sensitivity" with "High Sensitivity" as an internally consistent construct. She found that approximately 15% to 20% of the population – about 1 in 5 people, or about 50 million people in the United States - share this distinct personality trait. According to Dr. Aron's definition, a highly sensitive person (HSP) has a more sensitive nervous system, is acutely aware of more subtleties in their environment, is more easily overwhelmed when in a highly stimulating situation, is easily affected by other's moods, and is deeply creative and moved by arts and music. The key quality, when compared to the 80% without the trait, is that HSP's process everything around them in much greater detail, elaborating on every possibility and making inventive associations. While this cognitive processing is not always fully conscious, it can surface as intuition.

So, why are so many artists highly sensitive people? Dr. Aron tells us that HSP's have an inborn sensitive temperament, and along with other traits that make up the creative personality, including layers of depth, complexity and contradictions, sensitivity appears to be an essential ingredient for artistic expression. Aron's research subjects were immensely relieved to discover this common trait among many and one person remarked "I felt known, I felt affirmed, and found out that it is not only OK to be sensitive – it's a gift."

Since Dr. Aron first published her research on sensory processing sensitivity, later research (Smolewska et. al. 2006; Evans and Rothbart 2008) has demonstrated that Aron's unidimensional Highly Sensitive Person Scale is a valid and reliable measure of sensory processing sensitivity. Acevedo and her associates (2014) studied the neural foundations of sensory processing sensitivity by using functional magnetic resonance imaging (fMRI) technology to determine whether stronger neural activity would be found in the predicted brain regions in response to both positive and negative social stimuli. Positive findings showed greater brain activation in HSP's than others in an area called the insula, the part of the brain that integrates knowledge of inner states and emotions, bodily positions and outer events. Mind and body are integrated in the insula, which provides insight into human emotions. The insula is highly involved for HSP's in attention, empathy, higher order cognitive processing, integration of sensory information, emotional meaning making, the mirror neuron system, and self-awareness.

### **The Creative Personality**

As creativity researcher Csikszentmihalyi (1996) described in his book <u>Creativity:</u> <u>The Work and Lives of 91 Eminent People</u>, creative people demonstrate patterns of thought and behavior that in most other people are segregated. Creative individuals contain contradictory extremes, and instead of being an "individual, each of them is

a multitude". He outlines the 10 paradoxical traits often present in creative individuals that are integrated with each other in a dialectical tension. Three of these seemingly contradictory personality traits – openness/sensitivity, energy/rest, and extroversion/introversion, are linked to what Elaine Aron (1996) refers to as the Highly Sensitive Person (HSP). These traits are not discrete phenomena but are intricately related to one another and along with other traits form the essence of the creative performer's personality. Indeed, some of the most creative people have very high levels of sensitivity. The contrast of openness and sensitivity makes creative people vulnerable to suffering, but also available to experience a vast array of enjoyment. Csikszentmihalyi (1996) concludes that one word can summarize what makes creative individuals different from others – it's *complexity*. However, eminence "invites criticism and often vicious attacks". For the artist who has invested years in producing art it can be devastating if nobody cares. Yet perhaps the most difficult experience for creative artists is the sense of loss and emptiness when they can't work and fear their creativity is gone. Csikszentmihalyi (1998) describes the opposite state in the artistic experience of *flow* when the artist is intensely engaged, working in the area of their expertise, where all worries fall away and are replaced by a sense of bliss. This prominent quality, that is most consistently present in creative individuals, is the ability to enjoy the process of creativity for its own sake.

#### **Implications for Treatment**

It is becoming clearly evident that there is a relationship between psychopathology and creativity. Many creative individuals do not suffer from mental illness, and most people who are mentally ill are not especially creative. However, the compelling evidence shows that there is a disproportionate rate of psychopathology, especially bipolar disorder, in highly creative individuals. So what are the implications for the clinician who is caring for the creative artist struggling with symptoms along the bipolar disorder spectrum? And how do we understand and develop strategies for alleviating the stresses accompanying Sensory-Processing Sensitivity and creative activity? It is essential to integrate medical and psychological approaches. Goodwin & Jamison (1990, 2007) discuss the central issue in psychological management of bipolar patients as medication compliance, including the efficacy of lithium (as well as other medications such as antidepressants and anticonvulsants) for both depressed and manic patients, and the quality of prophylactic response. They also stress that bipolar illness can be lethal and emphasize that the best approach to preventing suicide is the effective treatment of the underlying illness. As clinicians we see highly creative individuals who are reluctant to seek treatment because of the stigma associated with mental illness. Creative individuals can also view their emotional problems as part of the price that they must pay for being too sensitive, for having an artistic temperament and leading a creative lifestyle. Many artists see emotional experiences as essential to their identity as creative or performing artists. and many will express their misgivings that psychiatric treatment will compromise their ability to create (Goodwin & Jamison, 1990, p. 364).

Daniel Siegel tells us in The Mindful Brain (2007) that experience can create

structural changes in the brain, and this phenomenon called *neuroplasticity* occurs when new neurons grow in the brain. Neural integration, the large-system view of how the brain functions, is influenced by the coordination and balance of neural activation. In Mindsight (2010) Siegel shows us how to observe our own minds at work – why we think, feel and act the way we do – and how we can literally change the wiring and architecture of our brains. Mindful awareness and mindfulness practices (such as Mindfulness Meditation) are forms of experience that appear to promote neural plasticity. Healthy lifestyle practices, such as a balanced diet, regular exercise, and sleep can set the foundation for promoting neuroplasticity. For our purposes, Siegel explains (2007) that affective styles appear capable of being shifted by mindful awareness practices toward resilience, including the capacity to rebound from negative affective states. Mindfulness requires the individual to develop the skill of perceiving sensory experience with a keen focus on nonverbal experience. This intuitive observation of one's sensory experience is crucial for understanding how the mind might be "drowning beneath waves of anxiety or depression" (p. 279). Knowledge of the nature of these sensory processes allows one to disengage the mind's stormy activity. Psychotherapeutic approaches that teach mindfulness practices enable the patient to utilize these skills to promote self-control, an overall sense of well-being, and physiological health. Blumberg and associates' (2004) proposal about bipolar disorder suggests that in patients coping with bipolar disorder "the neural circuitry connecting the ventral lateral prefrontal cortex to the limbic amygdala is deficient". This is part of the same circuitry uniquely harnessed in individuals who practice mindfulness with such regularity that is has become a trait. A number of studies have shown that mindfulness practices, specifically Mindfulness-Based Stress Reduction and Mindfulness Meditation (Kabat-Zinn, 1990, 2003; Davidson et. al. 2003), can improve anxiety, depression, immune, cardiac, psychosocial and interpersonal functioning.

Holistic and adjunctive therapies are essential to healing the whole artist, and developing comprehensive treatment plans focused on the individual needs of each artist is the evolving treatment model for the care of performing artists (Colvin, 2015).

### **Final Thoughts**

In considering the fragile balance of life and making art, we can empathize with Elton John's suffering, as he describes a dark period in the 1980's while he battled serious depression and drugs. When asked by the interviewer (CBS Sunday Morning 2015) how he kept going he replied "I did - and that's what kept me alive. If I would have stayed at home, and just shut my curtains, and not appeared for six months, I would not have appeared period, because I would have killed myself. The fact is that music kept me alive – it saved my life."

Being a creative artist in our society takes tremendous perseverance and courage. It means being your unique self with all its confusing contradictions, risk-taking and discoveries of the discipline necessary to develop as an artist. The external rewards may be few, and if they come they will likely be delayed. Yet, the internal rewards

can show up daily in the blissful state of making art for the sheer pleasure of doing it. Those of us involved in the field of educating and caring for the performing artist must also struggle, and continue to discover strategies and techniques to assist the artist in their creative endeavors with all its' messy, paradoxical twists and turns, and then the evolution of a special beauty.

~Kathline Colvin, PhD - February 2016

#### REFERENCES

- Acevedo, B., Aron, E., Aron., A., Sangster, M., (2014). The highly sensitive brain: an fMRI study of sensory processing sensitivity and response to others' emotions, <u>Brain and Behavior, 4</u>, (4), 580-594
- Akiskal, K. & Akiskal, H. (2005). The Theoretical Underpinnings of Affective Temperaments: Implications for Evolutionary Foundations of Bipolar Disorder and Human Nature, <u>Journal of Affective Disorders</u>, <u>85</u>, 231-239
- American Psychiatric Association (2013). DSM-5: Diagnostic and Statistical Manual of Mental Disorders, Washington, DC: APA
- Andreasen, N. & Canter, A. (1974). The Creative Writer: Psychiatric Symptoms and Family History, <u>Comprehensive Psychiatry</u>, <u>15</u>, 123-131
- Andreasen, N. (1987). Creativity and Mental Illness: Prevalence Rates in Writers and their First Degree Relatives, <u>American Journal of Psychiatry</u>, <u>144</u>, 1288-1292
- Andreasen, N. & Glick, I. (1988). Bipolar Affective Disorder and Creativity: Implications and Clinical Management, <u>Comprehensive Psychiatry</u>, <u>15</u>, 207-217
- Andreasen, N. (2005). The Creating Brain: The Neuroscience of Genius. Dana Press.
- Andreasen, N. (2008). The Relationship between Creativity and Mood Disorders, <u>Dialogues in Clinical Neuroscience</u>, 10, 251-255
- Aron, E. (1997). The Highly Sensitive Person: How to Thrive when the World Overwhelms You, New York: Broadway Books
- Aron, E. & Aron, A. (1997). Sensory-Processing Sensitivity and its relation to Introversion and Emotionality, <u>Journal of Personality and Social Psychology</u>, <u>73</u>
   (2) 345-368
- Aron, E., Aron, A., and Jagiellowicz, J. (2012). Sensory processing sensitivity: A review in the light of the evolution of biological responsivity, <u>Personality and Social</u> <u>Psychology Review</u>, 16, 262-282.
- Aron, E. (2012). Author's Note for the Highly Sensitive Person, hsperson.com
- Blumberg, H., Kaufman, J., Marin, A., Charney, D., Krystal, J., & Peterson, B., (2004). Significance of adolescent neurodevelopment for the neural circuitry of bipolar disorder, <u>Annals of the New York Academy of Sciences</u>, 1021, 376-83
- Colvin, K. (1994). Mood Disorders and Symbolic Function: An Investigation of Object Relations and Ego Development, Dissertation (Ph.D.), California School of Professional Psychology, San Diego
- Colvin, K. (2015). "Mindfulness Practices: Healthy Approaches in the Training of

Performing Artists", Presentation at the Creativity and Madness Conference, Santa Fe, NM, July 2015; and "Mindfulness Practices in the Training of Performing Artists" at the Performing Arts Medicine Association Regional Conference at Chapman University, Orange, CA, September 2015

- Colvin, K. (submitted). Moods and Music: The Creative Experience of the Performing Artist.
- Csikszentmihalyi, M. (1996). Creativity: The Works and Lives of 91 Eminent People, New York: Harper Collins
- Csikszentmihalyi, M. (1996). The Creative Personality, Psychology Today, 7, 1-6
- Csikszentmihali, M. (1998). Finding Flow: The Psychology of Engagement with Everyday Life, New York: Basic Books
- Csikszentmihali, M. (2013). Creativity: The Psychology of Discovery and Invention, New York: Harper Perennial, Reprint Edition
- Davidson, R., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S., (2003). Alterations in brain and immune function produced by mindfulness meditation, <u>Psychosomatic Medicine</u>, 65 (4), 564-570
- Depue, R., Slater, J., Wolfstetter-Kausch, H., & Klein, D. (1981). A behavioral paradigm for identifying persons at risk for bipolar disorder: A conceptual framework for five validation studies, <u>Journal of Abnormal Psychology</u>, <u>90</u>, 381-437
- Goodwin, F. & Jamison, K. (1990). Manic-Depressive Illness, New York: Oxford University Press
- Goodwin, F. & Jamison, K. (2007). Manic Depressive Illness: Bipolar Disorders and Recurrent Depression, Second Edition, New York: Oxford University
- Kabat-Zinn, J. (1990). Full Catastrophe Living: Using the Wisdom of your Body and Mind to face stress, pain, and illness, New York: Bantam Dell
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, Present and Future, <u>Clinical Psychology: Science and Practice</u>, <u>10</u> (2), 144-156
- Kaufman, S. (2013). The Real Neuroscience of Creativity, <u>Scientific American</u>, Beautiful Minds Blog, 8/19/2013, blogs.scientificamerican.com
- Kaufman, S. & Gregoire, C. (2015). Wired to Create: Unraveling the Mysteries of the Creative Mind. New York: Penguin Books
- Keller, M. & Miller, G. (2006). Resolving the paradox of common, harmful, heritable Mental disorders: which evolutionary genetic models work best? <u>Behavior and</u> <u>Brain Sciences</u>, 29, 385-404
- Kyaga, S., Lichtenstein, P., Bowman, M., Hultman, C., Langstrom, N., Landen, M.
  (2011). Creativity and Mental Disorder: Family Study of 300,000 people with severe mental disorder, <u>The British Journal of Psychiatry</u>, <u>199</u>, 373-379
- Jamison, K. (1989). Mood Disorders and Patterns of Creativity in British Writers and Artists, <u>Psychiatry</u>, <u>52</u>, 125-134
- Jamison, K. (1996). Touched with Fire: Manic-Depressive Illness and the Artistic Temperament, New York: Free Press
- Jamison, K. (1997). An Unquiet Mind: A Memoir of Moods and Madness, New York: Vintage Paperback

Jamison, K. (2000). Night Falls: Understanding Suicide, New York: Vintage Paperback

Jamison, K. (2005). Exuberance: The Passion for Life, New York: Vintage Paperback

Jung, R., Mead, B., Carrasco, J., & Flores, R. (2013). The Structure of Creative

Cognition, The Human Brain: Frontiers in Human Neuroscience, 7, Article 330

- Richards, R., Kinney, G., & Lunde, I. (1988). Creativity in manic-depressives, Cyclothymes, their normal relatives, and control subjects, <u>Journal of Abnormal</u> <u>Psychology</u>, <u>97</u>, 281-288
- Rodriguez-Carvajal, R. (2014). Mindfulness and Music: A Promising Subject of an Unmapped Field, <u>International Journal of Behavioral Research & Psychology</u>, <u>2</u>, 301-309
- Schou, M. (1979). Artistic productivity and lithium prolaxis in manic-depressive illness, British Journal of Psychiatry, 135, 56-65
- Siegel, D. (2007). The Mindful Brain, New York: W.W. Norton
- Siegel, D. (2010). Mindsight: The New Science of Personal Transformation, New York: Bantam Books
- Storr, A. (1992). Music and the Mind, New York: Free Press
- Zabelina, D., O'Leary, D., Pornpattananangkul, N., Nuslock, R., Beeman, M. (2015). Creativity and sensory gating indexed by the P50: Selective versus leaky sensory gating in divergent thinkers and creative achievers, <u>Neuropsychologia</u>, <u>69</u>, 77-84.

### CAROL ROSENBERGER RECORDINGS

### **Concerto Solo with Orchestra**

A Concerto Collection • Falla: Nights in the Gardens of Spain • Hanson: Variations on a Theme of Youth; Piano Concerto, Op. 36 • Haydn: Piano Concerto No. 2; Piano Concerto No. 5 • Strauss: Burleske • Gerard Schwarz, conductor; Seattle Symphony/New York Chamber Symphony/Scottish Chamber Orchestra/ London Symphony Orchestra • Delos DE 3306 • This two-disc set features concerto recordings originally issued on six separate Delos CD releases

Beethoven: Piano Concerto No. 4 in G Major • Gerard Schwarz, conductor; London Symphony Orchestra • Delos DE 3027

*Bridge: Chamber Concerto*, arr. Orbelian • Constantine Orbelian, conductor; Moscow Chamber Orchestra • *Delos DE 3263* 

*Hindemith: Four Temperaments* • James DePreist, conductor; Royal Philharmonic Orchestra • *Delos DE 1006* 

*Mozart Adagios (from Piano Concertos K. 595, K. 488, K. 491)* • Constantine Orbelian, conductor; Moscow Chamber Orchestra • *Delos DE 3243* 

A French Romance (Ravel: Piano Concerto in G Major, Adagio) • James DePreist, conductor; Orchestre Philharmonique de Monte-Carlo • Delos DE 3202

Shostakovich: *Piano Concerto No. 1* • Gerard Schwarz, conductor; Los Angeles Chamber Orchestra • *Delos DE 3021* 

#### **Piano Solo recordings**

Water Music of the Impressionists (Debussy, Ravel, Liszt, Griffes) • Delos DE 3006

Beethoven: Piano Sonatas: "Appassionata," Op. 57; Op. 111 • Delos DE 3009

Schubert: Sonata in B-Flat; Impromptus, Op. 90 • Delos DE 3018

Szymanowski: Masques, Études, Mazurkas • Delos DE 1002

Night Moods (Chopin, Debussy, Fauré, Griffes, Granados) • Delos DE 3030

Reverie (Bach, Chopin, Debussy, Fauré, Griffes, Liszt, Ravel) • Delos DE 3113

Singing on the Water: Piano Barcarolles (Bennett, Chopin, Debussy, Diamond, Fauré, Griffes, Liszt, Rachmaninoff, Ravel) • Delos DE 3172

The Boesendorfer Sound: (Debussy, Ravel, Chopin, Bennett, Griffes, Liszt) • DE 3460

*Piano by The Sea: Classical "Water" Masterpieces Surrounded by Surf and Stream* recreates the experience of listening to beautiful piano music near the seaside, lakeshore, or a flowing stream • *Delos DE 3242* 

### **Chamber Music Recordings**

Mozart, Beethoven: *Quintets for Piano and Winds* • with David Shifrin, clarinet; Allan Vogel, oboe; others • *DE 3024* 

A Brahms / Schumann Soirée: Sonatas and Fantasiestücke for Clarinet and Piano • with David Shifrin, clarinet • Delos DE 3025

Presenting Jian Wang • Chopin: Polonaise Brillante, Sonata Op. 65; Barber: Sonata Op. 6, Songs; Schumann: Adagio and Allegro Op. 70 with Jian Wang, cello • Delos DE 3097

*Bejun:* Songs and Arias of Handel, Schubert, Brahms and Britten • with Bejun Mehta, boy soprano; David Shifrin, clarinet; Principals of Los Angeles Chamber Orchestra • *Delos DE 3019* 

#### **Recordings for Young People**

Perchance to Dream: A Lullaby Album for Children and Adults (Kabalevsky, Tchaikovsky, Mozart, Schumann, Beethoven, Chopin, Bach, Haydn, Brahms) • Delos DE 3079

Such Stuff as Dreams: A Lullaby Album for Children and Adults (Mozart, Beethoven, Schubert, Kabalevsky, Schumann, Beethoven, Grieg, Ravel, Debussy, Satie, Mendelssohn) • Delos DE 3230

Baby Needs Lullabys (Schumann, Schubert, Mendelssohn, Liszt, Debussy, Tchaikovsky, Haydn, Bach, Brahms) • Delos DE 1619

Prince Ivan and the Frog Princess: A Fairy Tale Music of Prokofiev, with Natalia Makarova, narrator • Delos DE 6003

*The Snow Queen: A Fairy Tale* Music of Tchaikovsky, with Natalia Makarova, narrator • *Delos DE 6004* 

My Keyboard Friends: Piano Music of Bennett and Walton with Richard Rodney Bennett, narrator and piano • Delos DE 6002

*Heigh-Ho! Mozart: Favorite Disney Tunes in Classical Style* • Fraser: "Beauty and the Beast" in the style of Rachmaninoff; "With a Smile and a Song" in the style of Chopin • Donald Fraser, arranger and conductor; English Chamber Orchestra • *Delos DE 3186* 

*Bibbidi Bobbidi Bach: Favorite Disney Tunes in Classical Style* • Fraser: "A Whole New World" in the style of Chopin; "So This is Love" in the style of Debussy • Donald Fraser, arranger and conductor; English Chamber Orchestra • *Delos DE 3195* 

# **Resources for Art Can Heal Your Life**

### **References**:

Andreasen, N. (2005). *The Creating Brain: The Neuroscience of Genius*, Dana Press, New York, NY

Aron, Elaine, (1998). *The Highly Sensitive Person: How to Thrive When the World Overwhelms You*, Broadway Books, New York, NY

Colvin, K. (2016). "Bipolar Disorder, Sensory-Processing Sensitivity and the Creative Experience of Performing Artists", PAMA/NASM Task Force on Psychological Health. Colvin, K. (2015). "Mindfulness Practices in the Training of Performing Artists" at the Performing Arts Medicine Association Regional Conference at Chapman University, Orange, CA

Colvin, K. (1994). "Mood Disorders and Symbolic Function: An Investigation of Object Relations and Ego Development, Dissertation (PhD) California School of Professional Psychology, San Diego

Costandi, Moheb, (2016). *Neuroplasticity*. Massachusetts Institute of Technology Csikszentmihalyi, M. (1996). *Creativity: Flow and the Psychology of Discovery and Invention*, Harper Collins, New York, NY

Ferrucci, P. (2009). *Beauty and the Soul: The Extraordinary Power of Everyday Beauty to Heal Your Life*, Jeremy P. Tarcher/Penguin, New York, NY

Groopman, J. (2005). *The Anatomy of Hope: How People Prevail in the Face of Illness* Hanson, R. (2013). Hardwiring Happiness, Harmony Books, New York, NY

Jamison, K. (1996). *Touched with Fire: Manic-Depressive Illness and the Artistic Temperament*, New York: Free Press

Kabat-Zinn, J. (1994). *Wherever you Go There You Are: Mindfulness Meditation in Everyday Life*, Hyperion Books, New York, NY

Kaufmann, S. (2013). "The Real Neuroscience of Creativity, <u>Scientific American</u>, Beautiful Minds Blog 8/9/2013, blogs.scientificamerical.com

Kaufmann, D. & Gregoire, C. (2015) *Wired to Create: Unraveling the Mysteries of the Creative Mind*, New York: Penguin Books.

Siegel, D. (2010). *The Mindful Therapist: A Clinician's Guide to Mindsight and Neural Integration*, W.W. Norton & Co., New York, NY

Stegemoller, E. (2017). The Principles of neuroplasticity may underlie the positive effects of music therapy in treating a diversity of diseases

Tharp, T. (2003). *The Creative Habit: Learn it and Use it for Life*, Simon and Schuster, New York, NY

Winnicott, D. W. (1965). "Ego distortion in terms of true and false self". *The Maturational Process and the Facilitating Environment: Studies in the Theory of Emotional Development*. New York: International Universities Press, Inc: 140–57. Zara, C. (2006). *Tortured Artists: From Picasso and Monroe to Warhol and Winehouse, the Twisted Secrets of the World's Most Creative Minds*.