

## **TREATING ADOLESCENT DEPRESSION**

### **The application of beauty experiences and biofeedback to the traditional therapeutic process**

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A great deal of research has been conducted over the years in terms of alternatives to psychotropic medications as means for treating depression. One alternative that has the potential for being a particular asset to the treatment of adolescents with depression is the application of beauty experiences to the daily life of the depressed individual. Engaging in beauty inducing activities can positively affect depressed adolescents. The use of biofeedback to recognize bodily cues combined with beauty relaxation techniques can help diminish the presence of depression in suffering adolescents. Biofeedback, as a method of being aware of one's bodily functions, in conjunction with in-depth psychotherapy about one's personal life, can be very successful in this treatment when merged with daily beauty experiences, which serve the purpose of enhancing positive bodily chemicals.

### **Adolescent Depression**

Adolescence is a very complex stage in an individual's life and can add both internal and external stress to young individuals. "The transition to adolescence is marked by a sharp rise in the prevalence of depressive disorders and sub-threshold depressive symptoms" (Crisp, Gudmundsen, & Shirk, 2006). Depressed mood is seen as common in adolescents due to the "normal maturation process" in which adolescents experience both highs and lows with their

changing hormones (USNLM, 2007). In a vast number of adolescents, serious depressive issues are written off as hormonal changes and are left undiagnosed, which subsequently lead to difficulties that can persist into adulthood (Long, 2005). These depressed issues can sometimes lead to more serious consequences, such as suicide.

Risk factors of an adolescent's vulnerability for depression include, but are not limited to, stressful life events, physical and/or sexual abuse as a child, an unstable caregiving environment, substance use, early pregnancy, and a family history of depression (Watkins et al., 2006; Bhatia & Bhatia, 2007; USNLM, 2007). Younger adolescents may not have the vocabulary to express what they are feeling and may end up acting out their depression through antisocial or disruptive behavior (Watkins, Brynes, & Preller, 2006). Without professional help, depression in adolescents can "lead to an increased chance of suicide attempts and successful suicides" (Watkins et al., 2006). Symptoms that may be present in depressed adolescents may include depressed or irritable mood, agitation, loss of interest in normal activities, appetite/weight changes, insomnia or hypersomnia, difficulty concentrating, feelings of worthlessness, sadness, anger, or self-hatred, acting-out behavior, thoughts about suicide or obsessive fears or worries about death, and an excessively irresponsible behavior pattern (Teen Depression, 2005; Crowe et al., 2006; USNLM, 2007). The depressed adolescent may also present with a decline in academic performance, disruptive behavior, withdrawal from friends, substance abuse, irritability, and self-hatred (Teen Depression, 2005; Watkins et al., 2006). In order to treat adolescent depression, new methods are constantly being developed and tested. Key to these studies is the brain, the center where chemical imbalances take place and depression strikes and adolescent.

## **The Limbic System and the Nervous System**

The area of the brain most pertinent to feelings and behaviors is the limbic system (Vaillancourt, 2007). The limbic system is composed of the hippocampus, amygdala, hypothalamus, pituitary gland, and nucleus accumbens. The hippocampus is involved in memory functions, while the amygdala is involved with primarily negative emotional experiences (WUPN, 1997; Boeree, 2002; AHAF, 2007). The hypothalamus secretes antidiuretic hormone and is involved in aggression, blood pressure regulation, and temperature regulation (AHAF, 2007; UMMC, 2007). The pituitary gland secretes oxytocin, a chemical that reduces blood pressure and cortisol levels, increases tolerance to pain and reduces anxiety and fear, into the blood stream (UMMC, 2007). This gland is also involved in social recognition and bonding, and might be involved in the formation of trust between people. Finally, the nucleus accumbens is thought to play an important role in reward, pleasure, and addiction (Dubuc, 2007).

The reactions elicited from the limbic are regulated by the autonomic nervous system (ANS), which is responsible for largely involuntary responses to internal and external stimuli. A certain amount of conscious control can be exerted over the ANS (Vaillancourt, 2007). The ANS is divided into the sympathetic nervous system (SNS), which excites the body as it prepares one physically to respond with “fight or flight” to a perceived threat, and the parasympathetic nervous system (PNS), which conversely calms the body physically.

## **Biofeedback**

Through an understanding of brain and nervous system functioning, techniques for the treatment of adolescent depression can be developed. Biofeedback, or neurofeedback (EEG biofeedback), is “a treatment technique in which people are trained to improve their health by using signals from their own bodies” to control “patterns of physiological functioning” (Runck, 1983; AAPB, 2007). Biofeedback has been used for forty years to treat stress-related disorders (Kraft, 2006). Being able to recognize the signals from one’s own body allows for an increased awareness of bodily functioning and for the ability to remedy inappropriate levels of functioning where necessary (Sherman, 2004). Studies have demonstrated that individuals have more control over “involuntary” functions than initially realized (AAPB, 2007; Vaillancourt, 2007). Biofeedback teaches an individual to control largely involuntary bodily responses to external stimuli (e.g., heart rate, blood pressure, muscle tension), a technique also known as mind-body therapy; “biofeedback can train individuals with techniques for living a healthier life overall” (Mayo Clinic Staff, 2006; AAPB, 2007). Biofeedback allows for an individual to recognize negative bodily reactions, those associated with the SNS, and make conscious effort to regulate these reactions by promoting positive bodily responses, those associated with the PNS.

### **Biofeedback and Depression**

Biofeedback has been proven to “be effective in modifying brain function and producing significant improvements in clinical symptoms in several clinical areas,” and “depression is among the easiest conditions to treat with EEG biofeedback” (Boon, 2003; Hammond, 2005). In order for biofeedback to be effective as clinical therapy, it is necessary for the client to be an active participant in the therapeutic process. It is important, then, for the client to commit to practicing biofeedback or other relaxation techniques every day (Runck, 1983). The client must

additionally change bad habits and accept responsibility for maintaining his own health (Runck, 1983). If a client does not learn or apply the skills of biofeedback, his depressive condition will not improve, even if he “has been shown and convinced that the problem is due to a controllable physiological dysfunction” (Sherman, 2004).

### **Philosophizing Beauty**

Distinct parallels can be found between therapy and philosophy. With biofeedback, the purpose is to help an individual regulate negative neurological responses and transform them into positive ones. Similarly, with the application of the philosophical idea of beauty, an object that elicits a beauty response for the viewer can increase the functioning of the person’s PNS and decrease the functioning of the negative SNS. Beauty is comprised of:

1. *Objectivity* – An individual must go into each experience as if it is new and view it from all angles before casting positive or negative judgement.
2. *Value* – Beautiful objects/experiences contain both intrinsic value, meaning that there is an “imaginative experience” within the object, and inherent value, meaning not only that there is material value in beautiful things but also that “good art works are not dispensable” (Kieran, 2005).
3. *Form* – In each beautiful object there is an exhibition of “significant form” that adds to the beauty of the object as a whole (Carroll, 2005).
4. *Perception of the viewer* – The emotion of the artist while making the object does not matter so much as does the emotion that the artist imbued in the object for the perceiver to see (Matravers, 2005).
5. *Sensory perception* – The combination of Hutcheson’s externally sensible pleasure, internally rational pleasure, and internally sensible pleasure help determine beauty (Shelley, 2005).
6. *Power in an original* – There is nothing comparable to experiencing an object in its intended form.

7. *Assessment of previous beauty experiences* – As Richard Wollheim noted, “When we assign expressive value to a work of art, we invariably draw upon our knowledge of, or our beliefs about, the artistic process involved” (Matravers, 2005).

## **Scientific Evidence**

There is a need to investigate physiological responses to pleasant and unpleasant emotions by evaluating parameters of the autonomic nervous system, endocrine system, and immune system to validate the effects of exogenous stimuli on the living system. Several studies have been conducted that combine biofeedback with beauty experiences. One significant study conducted by Wantanuki and Kim (2005) demonstrated for two of the five senses that positive external stimuli can have a positive effect on the brain. Study results showed that brain activity in the left frontal lobe was heightened with the presence of a pleasant odorous stimulus (Image 2.A). In the same study, pleasant visual stimuli changed systolic blood pressure (SBP), mean blood pressure (MBP), and total peripheral resistance (TPR) compared with measures of the body at rest. It is most important to glean that the brain *can* be positively impacted by pleasurable stimuli. Duffy, of Harvard University, noted the need for improved and higher quality research. This is particularly true in the application of neurofeedback to the treatment of anxiety and affective disorders (Hammond, 2005). While additional research is needed, Wantanuki and Kim’s study is very significant in linking biofeedback and beauty experiences in the treatment of adolescent depression.

## **Summary**

Adolescence is very complex, and adolescent depression is equally intricate.

In itself, depression manifests in adolescents in a plethora of ways, each ailing individual experiencing depressive symptoms differently in conjunction with the bodily changes that come along with puberty. It would be nice to see some evidence linking hormones and the severity of adolescent depression. Studies of this nature could be helpful in the regulation of body chemical levels, thus assisting in lowering levels of adolescent depression, although it is necessary to conduct more in-depth studies on depression and the use of biofeedback, particularly involving adolescents, as biofeedback is still considered an experimental procedure. Elsa Baehr, Psychologist at Northwestern University, urges caution. "This is an experimental protocol," she notes. "Until there are controlled studies, we won't know how effective the therapy is." (Kraft, 2006). Adding to this, in regards to biofeedback independently, methods outside of EEG biofeedback need to be studied in greater frequency. Regarding the need for more empirical evidence, studies need to be conducted that involve regulating the neurological stressors identified with biofeedback measures through the application of beauty experiences. By combining these two disciplines, neurological evidence can be gathered that can further assist in the diagnosis and treatment of adolescent depression.

The use of biofeedback and positive beauty experiences are compatible in the treatment of adolescent depression. Biofeedback teaches an individual to recognize negative neurological responses. Beauty experiences assist in the transition of those negative responses into positive neurological reactions. While there is still a great deal to test and learn about treating adolescent depression with a combination of biofeedback and positive beauty experiences, science is on the right track for combining the two into an effective treatment method that has the power to benefit depressed adolescents during difficult times.

## Resources

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## **REACTION FROM GRADUATE STUDENT**

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Adolescent depression may consist of an irritable mood, loss of interest in normal activities, decreased energy, difficulty thinking and concentrating, feelings of worthlessness or suicidal ideation (American Psychiatric Association, 2000, DSM-IV-TR). Depression in adolescents may be difficult to detect for a variety of reasons. First, depressive thoughts and feelings may be confused with hormonal changes. Moreover, according to Melczer (2008), adolescents may not have developed the vocabulary to express their depressive moods. However, once depression is diagnosed in adolescents, it is important to consider a variety of treatment methods. While psychotropic medications may prove useful in treating adolescent depression, Melczer (2008) suggests alternative methods for treatment.

The first alternative method in treating adolescent depression is the application of biofeedback to the daily lives of depressed individuals (Melczer, 2008). According to Hammond (2005), depression has been commonly “associated with an activation difference between the right and left prefrontal cortex” (p. 131). The left frontal area is generally associated with positive affect whereas the right hemisphere recognizes negative emotion (Hammond, 2005). Typically, the left frontal area of a depressed individual is less activated. By understanding the neurological aspects of depression, biofeedback techniques emphasize the detection of imbalances in the brain. The purpose of these techniques is to help individuals regulate negative neurological responses and transform them into positive ones (Melczer, 2008).

Developing successful biofeedback techniques may be beneficial in understanding the brain's chemistry. However, it is difficult to determine the practicality of such techniques. Melczer (2008) states that in order for biofeedback to be as effective as clinical therapy, depressed individuals must actively participate in the process. They must commit to practicing biofeedback techniques every day (Runck, 1993). However, a depressed adolescent's level of commitment to the biofeedback process may be questionable. Depressed adolescents may also find it difficult to comprehend the impacts of negative neurological responses.

The second alternative proposed to treat adolescent depression is the application of beauty experiences with biofeedback techniques (Melczer, 2008). Research conducted by Watanuki and Kim (2005) demonstrate that positive external stimuli can have a positive effect on the brain. Results from this study indicated that activity in the left frontal lobe was amplified with the presence of positive stimuli (Watanuki & Kim, 2005). Melczer (2008) argues that an example of positive stimuli is beauty experiences. Anything that elicits a positive beauty response can increase the functioning of an individual's parasympathetic nervous system (PNS) and decrease the functioning of the negative sympathetic nervous system (SNS) (Melczer, 2008).

The idea that beauty experiences can be combined with biofeedback techniques is progressive. Melczer (2008) argues that biofeedback techniques can aid individuals in recognizing negative neurological responses. Combining beauty experiences with biofeedback techniques can assist with the transformation of negative responses into positive neurological responses (Melczer, 2008). However, the application of positive beauty experiences with biofeedback techniques need to be empirically investigated.

While biofeedback with the assistance of beauty experiences may be beneficial in the treatment of adolescent depression, these techniques do not take into consideration other factors such as developmental traumas and significant life events. From a strictly therapeutic perspective, Cognitive Behavioral Therapy (CBT) would draw a different conclusion. CBT emphasizes a holistic perspective in the analysis of depression, accounting for an individual's medical, environmental, and personal experiences. The goals of CBT are to "correct faulty information processing and to help clients modify assumptions that maintain maladaptive behaviors and emotions" (Beck & Weishaar, 2008, p. 275). By correcting faulty information processing, a depressed individual can begin to modify his/her cognitions, assumptions, beliefs, and behaviors. While biofeedback stresses the importance of changing bad habits, the significance of in-depth psychotherapy is overlooked.

According to Melczer (2008), applications of biofeedback techniques and positive beauty experiences may prove to be effective in the treatment of adolescent depression. However, further research needs to be conducted on the neurological impact of depression. Biofeedback techniques and beauty experiences need to be examined both dependently and independently as methods to treat adolescent depression. More empirical evidence needs to be reported before conclusions can be drawn about alternative methods for treating adolescent depression.

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## REACTION FROM GRADUATE STUDENT

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The idea of treating adolescent depression with a therapeutic technique juxtaposing the variables of beauty and biofeedback is both interesting and alluring. The numerous successes that have been reported using biofeedback are certainly impressive, and the concept of utilizing beauty as a therapeutic device is extremely appealing. However the idea of beauty is subjective, and perhaps more so for a person suffering from depression.

While Alissa Melczer has successfully summarized the numerous physiological and psychological agents that may be responsible for, or are representative of, a depressive state, and while she has outlined those limbic and nervous system factors that are most readily effected by certain and specific neurological agents, there may be, it seems, a concern as to the subjective nature of beauty and it's immediate ingress and internalization for a person suffering from depression.

One issue regarding the concept and subjectivity of beauty might entail interpretation. How does a person, who is suffering from depression, perceive beauty? It seems that a person suffering from depression may indeed be unable to appreciate or necessarily respond to accepted elements of beauty that may have otherwise elicited a positive response from the same person before the onset of depression. For example, Sally, when not depressed, may find red tulips beautiful. However, during the course of a depressive episode, her sense of beauty may be diminished, and the red tulip is little more than a random variable in the environment. The question becomes, is it necessary to ascertain, and possible recreate or encourage, a reawakening of a sense of beauty in the adolescent before the utilization and introduction of biofeedback and beauty?

A secondary concern may regard an inappropriate concept of beauty. As the author notes under the heading of *Philosophizing Beauty*, there are numerous variables that encompasses the nature of beauty. However, depending upon the nature and origination of the depression, a person may be functioning from a skewed perceptive of what is normally accepted a beautiful. In many cases, children and adolescents who have suffered from emotional or physical/sexual abuse may interrupt beauty, and its appreciation, in an inappropriate fashion. An episode of sexual abuse may elicit in a person an inappropriate sense of acceptable external stimuli. In such a scenario it seems likely that the clinician may need to both determine what the adolescent currently considers beautiful, and, in specific cases, to be prepared to alter or heal a client's sense of beauty.

Overall, the issue of using beauty to heal is exciting, and yes, very welcome. However, as in many cases, the subjective nature of any event needs necessarily be reviewed. Issues of abuse and neglect, as well a cultural, ethnic and religious instigation need possibly be considered when the construct of beauty is incorporated into the healing process. However unlikely, failing to thoroughly investigate and incorporate specific elements of a persons past, or even present circumstances, may detour from future mental and physical health.