Seasonal Affective Disorder (SAD) sometimes known as "winter depression" or "winter blues" belongs to a group of depressive disorders known as major depressive disorder. Characterized by ongoing or recurrent depressive episodes that are associated with changing seasons into the winter months, with symptoms subsiding during the spring and summer months, SAD is a mood disorder associated with periods of depression and is related to seasonal variations of light. SAD may begin insidiously in younger people (20-30 years of age) appearing as mild to moderate depressive occurrences. Social withdrawal, sadness, anxiety, and irritability are key features, while associated atypical depressive symptoms of increased sleep and lethargy, and increased appetite (especially for "starchy" carbohydrates) and concomitant weight gain is common as well. Women are more often affected for unknown reasons.2

SAD was not officially recognized as a clinical disorder until the 1980’s. SAD is relatively common, occurring in 11% of patients who have major depression3 with a prevalence of 1%-3% in Canada, 1.3%-3% in Europe, and 0.9% or less in Asia4 while total North American incidence is 6%.5 It is estimated that SAD occurs in 13% to 17% of first-degree relatives of people with SAD.6 Symptoms of SAD include, but are not limited to:

- Regularly occurring symptoms of depression (lethargy, fatigue, anxiety, inability to cope, social avoidance, insomnia)
- Increased appetite, sleep time, and weight gain during fall or winter months
- Resolution of symptoms in the spring and summer months
- Symptoms have occurred during the past two years, with an absence of non-seasonal depressive episodes
- Loss of libido, not interested in sex or physical contact
- Craving for carbohydrates and sweet foods, increased appetite leading to weight gain

Humans, much like animals, are affected by seasonal light variation. Animals experience reproductive cycle, sleep/wake, and hibernation behavioral changes that are largely attributed to seasonal sunlight amounts. Although human activity patterns are largely governed by seasonal sunlight levels, human circadian rhythms (biologic clocks) are affected by sunlight despite the relative control of our living environments. With changing seasons, our internal rhythms begin to change and in susceptible individuals, their biologic clockwork may easily become out of sync with established daily schedules. Accordingly, the most difficult times of year for people with SAD are December, January and February.

Although the exact cause of SAD is not entirely known, much speculation rests on decreased exposure to sunlight during the winter months as the primary etiologic factor for this condition. Interestingly, a meta analysis of the research investigating the incidence of SAD in correlation with latitude revealed a relatively weak, albeit positive link between extremes of latitude and occurrence of SAD. The average prevalence of SAD is twice as high in North America compared to Europe, and a similar link does exist in Europe although this is much less than that of North America.7 The authors of this study concluded that the influence of latitude on SAD is relatively small in comparison to other factors such as climate, genetic susceptibility, and social-cultural context.

A definitive link between climate and SAD was explored in another study in which weather data was gathered in accordance with completed depression symptom surveys from study participants over a course of 4 years. No significant links between depression survey scores and cloud cover, rainfall or atmospheric pressure were noted, however a significant correlation between depression scores and amount of sunshine, global radiation, temperature and length of daylight was noted, emphasizing the role of sunshine deprivation as a contributory factor to SAD.8

Melatonin

Melatonin is a neurotransmitter produced within the pineal gland, located deep within the brain. It has numerous functions in the body, and levels are regulated to some extent by sunlight exposure. Melatonin secretion is increased during hours of darkness, and decreases with sunlight exposure. Various studies indicate that melatonin plays a role in the regulation of circadian rhythms,9 and investigations into the role of melatonin as a causative factor of SAD have revealed various results. Previously, excessive melatonin production was indicated as a main causative factor in SAD, partially because of the hypnotic, or sleep-inducing effects of it when administered outside of the body and because it was produced in higher amounts during times of darkness. Recently, it was recommended that melatonin be used as a treatment for SAD when administered in the late afternoon or early evening. This approach was used because it was thought that precise timing of melatonin administration could shift the sleep-wake cycle, decreasing daytime somnolence. Efficacy of this approach is yet to be clearly determined in treating SAD, however melatonin as a sleep aid is effective in people with insomnia from other causes.

Phototherapy

Phototherapy, also known as light therapy, is the use of certain wavelengths of artificial light to treat SAD. Phototherapy was put into clinical use after it was demonstrated that exposing animals to light altered their circadian and seasonal rhythms, and that light exposure had the ability to suppress nocturnal melatonin secretion. Multiple studies of light therapy and SAD exist, with most demonstrating a positive effect on SAD symptoms in 60% to 90% of those treated, with the average clinical response of approximately 65%.
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SAD. Again, SAD subjects responded favorably to the exercise and light therapy.16

It is known that exercise and physical activity play an important role in the treatment and prevention of depressive disorders and anxiety, and that depressed people tend to exercise less frequently than those who are not depressed. Specifically, strength training and aerobic exercise exert the greatest anti-depressive effects.17 In a study designed to measure various moods following exercise bouts, depressed mood scores were significantly reduced, while feelings of fatigue increased.18 The majority of studies involving exercise and depression positively indicate the antidepressant, anxiolytic, and mood-enhancing effects of aerobic exercise, not to mention protection from the harmful effects of stress on the depressed patient, whether symptoms are seasonal or continuous. Exercise is popularly known to increase the levels of “feel-good” chemicals in the body known as endorphins and enkephalins. Produced in the body as a “side effect” of exercise and other biologic processes, these chemicals are responsible for relieving pain and the so-called runner’s high, among other effects. It is possible that endorphins and enkephalins play a role in alleviating depression as well. Exercise provides lasting resilience to the effects of stress, and because of this, will serve people with SAD in alleviating the seasonal symptoms of depression and the stress that accompanies this occurrence.

Nutrition for Depression

Proper nutrition is essential for all people, and even more so for those with

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any type of adverse health conditions, including SAD. Complete nutrition provides the body with all of the materials it needs to perform at its highest levels. The natural state of the human body is one of perfect health and function. Supplying the body with the nutrients it needs to perform up to this standard is often a foregone conclusion. The highest state of being is health, and when the organism is lacking the raw materials necessary to achieve this state, imperfections in health begin to emerge.

Depressed individuals often have deficiencies of several different B vitamins, namely folic acid and vitamin B12, especially among the elderly. Both folic acid and B12 play essential roles in energy-producing biochemical processes. They act as molecular messengers in the formation of brain neurotransmitters, which act as the chemical messenger “language” of the brain, allowing it to perform its multiple functions. Folic acid and B12 play several roles in the formation of precursor molecules that allow the brain to manufacture two specific neurotransmitters that are important in depression, serotonin and dopamine. Deficiencies of both neurotransmitters are implicated as playing a role in the condition of depression. Supplying adequate amounts of each vitamin will allow the body to supply itself with the necessary precursors for optimal health status.

It is also important to mention that the role of nutrition, and of specific vitamins, (especially those belonging to the B-vitamin group) is at this time becoming more and more widely recognized for playing an important part in complete health. Oftentimes, vitamins are easily overlooked by conventional physicians as having no part in the overall scheme of health. However, the medical evidence that is mounting in opposition to this outlook continues to grow at an exponential rate. Providing the body with a complete armamentarium of necessary biochemical cofactors provides the greatest opportunity for disease-free performance. To summarize, a balanced diet comprised of lean proteins, complex carbohydrates, beneficial fats, and a multiminerai and vitamin supplement will afford the cleanest, most energetic fuel for the human organism.

Other possible nutritional/supplemental interventions in depression and SAD include 5-hydroxytryptophan (5-HTP) and S-Adenosylmethionine (SAMe). 5-HTP is a compound extracted from the seeds of Griffonia simplicifolia, a plant native to the African continent. 5-HTP is an amino acid that serves as the final precursor molecule in the formation of the neurotransmitter serotonin. 5-HTP is a more effective and efficient variation of the amino acid tryptophan, allowing for greater production of serotonin (low levels are implicated in depression) and other neurotransmitters responsible for feelings of well-being. SAMe is derived from another amino acid known as methionine. SAMe is useful in a number of clinical conditions, and is specifically used in cases of depression because of its action as a methyl donor. As a methyl donor, SAMe assists in the production of nucleic acids, proteins, phospholipids, monoamines, neurotransmitters and the metabolism of vitamin B12 and folate, all of which play a role in healthy brain function. A review of the studies investigating SAMe and depression have shown that SAMe performed better than placebo and was as effective as tricyclic antidepressants in relieving symptoms of depression, and that it has a quicker onset of action than standard antidepressant medications, is free of side effects, and is well tolerated as a medicine.

Conclusion

There are many theories about the causes of SAD and depression, most of which are tied into biochemical insufficiencies. SAD however, as a seasonal depressive disorder has a direct causative link to decreased amounts of sunlight during the winter months. This being said however, does not exactly provide a substantiative causative reason for why some people have SAD and others do not. Biologic theories provide some explanation for the cause of this cluster of symptoms, in that wintertime is a period of decreased activity, and conservation of energy for survival during these months of low food availability may lead to decreased activity. Despite this reasoning, and the fact that the majority of humans today do not need to “hibernate” throughout the winter months, a cause for the symptoms of SAD needs to be addressed prior to medicating the patient. Addressing fitness and exercise levels, nutritional adequacy, and providing regular exposure to light can be used to offset SAD symptoms. The addition of medication in the form of a botanical medicine (Hypericum perforatum) and nutritional supplements such as SAMe and 5-HTP provide another arm of defense for the person trying to cope with seasonal affective disorder.

References


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