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# Season Affective Disorder (SAD) and Vitamin D Deficiency

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**COLUMN ARTICLE**

Studies have demonstrated that vitamin D can affect general health not only by preventing chronic diseases such as cardiovascular diseases, Osteoporosis and diabetes but also by treatment of those diseases. Sunlight Vitamin orVitamin D can be manufactured in human body when expose the skin to the sun light. When dietary intake of vitamin D or exposure to sunlight is restricted or daylight is short deficiency of vitamin D will occur. This situation usually happens when day time becomes shorter especially in winter time when sunlight decreases and timespent indoors increases due to cold temperature.

During this time of the year, Seasonal Affective Disorder (SAD) is most common in these areas and although it's called winter depression but it can occur during any season but it is most common in the late fall to early spring. Its symptoms can be similar to those of disorder another which is major depressive disorder including increased appetite, declined energy levels, increased sleep desire, loss of interest in usually pleasurable or fulfilling activities, cravings for some food items, irritability, ruminations of guilt and suicidal thoughts and weight gain.

In the United States, depression is considered a widespreadhealth problem. 1 in 10 Americans have this health problem, aroundone third of the patients suffer from a severe case.

During summer when day time is longer and exposure to sunlight is more, people tend spend more time outdoors therefore Vitamin D levels are likely to be higher. Brain biochemistry can be affected by levels of Vitamin D because normal or high levels boostthe production of brain chemical serotonin, which is anin charge formood, hunger, and sleep. In winter time, when vitamin D levels are low, serotonin levels decline, mood plunge and people often experience cravings for carbohydrates as a means to increase serotonin levels.

Vitamin D affects the brain through its receptors which are found in many parts of the brainon the surface of a cell where they receive chemical signals. These chemical signals and after attaching themselves to a receptor, direct a cell to act which means that these receptors are found in the areas of the brain that are linked to the development of depression and therefore, vitamin D has been associated with depression and with other mental health problems.

Researchers have suggested that vitamin D may also increase the amount of monoamines, which may help treat depression since vitamin D affects the amount of chemicals called monoamines, such as serotonin which is considered as a treatment for many mental health problems including depression.

Studies have linked vitamin D levels to depression.Numerous research articleshave showna strong association between low levels of vitamin D and depression. A Nor-

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wegian study found in 2008 that people will show more symptoms of depression when their blood vitamin D levels are low of. Thesame study concludedthat vitamin D supplementation in large doses, improved the symptoms of depression.

In another studyin Norway examined the relationship between vitamin D blood levels and symptoms of depression and whether taking a vitamin D supplements affected the symptoms of depression in people who had low vitamin D levels. This study has shown that symptoms of depression are linked tolow levels of vitamin D.

A Swedish study related suicidal attempt to low vitamin D levels comparing with non-suicidal depressed patients or healthy individuals who had normal vitamin D levels. Also patient with low Vitamin D levels had higher concentrations of pro-inflammatory cytokines because Vitamin D is known to reduce the levels of pro-inflammatory cytokines.

In New Zealand, a study found that people with lower vitamin D levels had modestly higher depression score which have been observed in other suicidal patients.

A study carried out in Iowa, USA and lasted for 20 years, found that there was a slight increase in depressive symptoms in the winter months especially in March, for people with major depressive disorder. But new episodes were highest from October through January.

In a study in Finland found a significant inverse correlation between vitamin D levels and depressive disorder. People with vitamin D levels higher than 22 ng/mL (56 nmol/L) had a 35% lower risk of depressive disorder comparing with those who had vitamin D levels below 14 ng/mL (34 nmol/L).

A Japanese study was carried out on pregnant women found getting an average of 340 IU/d vitamin D3 reduced the risk of depression by 50% comparing with thosewho got Vitamin D in the amount of 124 IU/d.

For people who live in the northern part of the world, where day light is less especially during winter We recommend that they have to get Vitamin D supplementation in a dose of 500IU/day. In order to prevent SAD and to alleviate its symptoms, Exerciseand engaging in outdoor activities areconsidered beneficial tools because they can boost serotonin levels.For those who have symptoms of SAD, it is recommended that they regularly check their 25(OH) D3 levels and adjust their levels to at least 20 ng/mL in order to prevent the deterioration in their mental and cognitive functions.