

Importance of Light in Female's Life

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Summary

Even our early ancestors knew the Sunlight's importance for life. It gives "life" to life. Most living things have benefitted with it, not only animals, plants, it but even some germs also need it. Both men and women are benefitted with the sunlight, however it is noticed that women is more benefitted by the sunlight than men.

The sex differences in the human visual system, although controversial, are undeniable. But now sex differences in the human visual system is a well-established fact. We work it out and gave two important evidence; one, we had shown earlier that melatonin (anti cancerous hormone) secreted in the absence of light at night by pineal gland and estrogen produced by the ovary (mitogenic hormone) are inversely proportional and two, changes in the eye sight on three occasions in females life time; namely, at the time of menarche, during pregnancy and at the menopause.

The fact that disorders such as autism and schizophrenia are more prevalent in males than in females implies that there are corresponding sex differences in visual function because these disorders are frequently associated with abnormal visual processing, even at very basic levels. Further, many women noticed that their sleep is worse before their menstruation starts. This may be due, at least in part, due to a change in circadian rhythms. Some studies show that less *sleep* during this time can reset the body clock and give some relief.

In the course of human evolution light regulated biological clock and circadian rhythms were synchronized and in turn humans were dependent on light for many of their physiological functions including, menarche and menopause, the two very significant mile stones in female's life. Indirect evidence for a role of exposure to light in human puberty comes from the fact that blind girls have delayed menarche than normal sighted girls. Menarche varies from population to population and is influenced by a wide variety of factors including geographical connotations.

Several studies have suggested that menarche starts relatively more frequently in summer than in winter in normal girls, suggesting an inhibitory effect of photostimulation. However, in the Arctic area, the dark winter months may be associated with reduced pituitary-gonadal function and low conception rates. Thus, the influences of light and temperature on the human reproductive axis are uncertain and rather minor as compared with the seasonally breeding animals. The effects of light-darkness rhythms can be mediated through the pineal gland hormone, melatonin, which circulates in high concentrations at night.

The most obvious decrease in melatonin secretion, however, occurs after

onset of puberty. This might suggest that melatonin secretion decreases as a consequence of increase in sex steroid levels at puberty, a concept further supported by studies in isolated gonadotropin deficiency and delayed puberty. The role of melatonin in human puberty warrants further longitudinal and mechanistic studies correlating melatonin secretion with other hormonal parameters. An influence of seasonal factors on sexual precocity in migrating children cannot be excluded at this point, although the average period of 4 yr between migration and early onset of puberty is inconsistent with the time sequence of changes in melatonin secretion and puberty in normal children.

Deviation from this alignment was found to be the etiology for many diseases in humans including breast cancer. However, it is not yet very clear how these two important physiological events in visually handicapped female subject's life will be regulated.

From our blind women model it is indicated that the incidence of breast cancer in blind menopausal subjects is very low compared to sighted menopausal women. Encouraged with this observation, we tried to establish the relationship between age of menarche and menopause in blinds vis-a-vis incidence of breast cancer. Whether blind subjects experienced delayed menarche and menopause than sighted subjects was the question in our mind and therefore we surveyed blind female subjects of all age groups. Information was collected by epidemiological survey from 360 sighted and 486 visually impaired subjects for the age of menarche (age ranging from 9 years to 60 years) from southern part of India where day light is almost 12D/12L. Care was taken to select volunteer's belonged to similar socioeconomic conditions and food habits. The information on the month when each subject matured was also recorded to support the correlation between photoperiod and menarche.

The menarche is a "light dependant phenomenon" but fall in menarcheal age is certainly not due to light conditions, since there is no change in photoperiod in last 5 decades. More so both the groups showed the same rate of fall and therefore there is some other external factor which affects both the groups the same way. It may be due to xenoestrogens released in the atmosphere, by petroleum fumes, insecticides and pesticides.

The fact that blind do not suffer with breast cancer can be explained in terms of "delayed menarche and menopause" due to this they get less exposure to mitogenic hormone, estrogen, and the elevated levels of melatonin throughout their reproductive age and thereafter.