

Social Jetlag and Human Health

SK Verma^{1*}, Riya Pareek² and Vartika Jain³

¹*Professor Emeritus, Department of Medicine, Pacific Medical College, Udaipur, Rajasthan, India*

²*Graduate Student in Public Health, Schulich School of Medicine & Dentistry, University of Western Ontario*

³*Assistant Professor, Department of Botany, Govt. Meera Girls' College, Udaipur, Rajasthan, India*

***Corresponding Author:** Dr. SK Verma, Professor Emeritus, Department of Medicine, Pacific Medical College, Udaipur, Rajasthan, India.

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Abstract

Social jetlag refers to the disruption in natural sleep – wake cycle in scientific term the circadian rhythm. It is commonly due to social or work-related obligations. It can cause acute or chronic effects, which vary from fatigue, mood disturbances and impaired cognitive function to increased risk of chronic metabolic and cardiovascular diseases. The preventive strategies rest on establishing consistent sleep schedule to avoid or reduce social jetlag and reinforcing the natural sleep-wake cycle.

Keywords: Circadian rhythm; Cardio-metabolic diseases; Night shift

Jetlag is typically referred to the disruption of body's internal clocks by travelling across time zones. Social jetlag, on the contrary, is caused by irregular sleep pattern. Social jetlag is defined as a difference in sleep timing between workdays and work-free days. It therefore occurs when there is a mismatch between natural circadian rhythms and demands of work, resulting in irregular sleep pattern. The common causes include irregular work schedule, late night parties, staying up late to watch TV, working night shifts etc. As has been said that jetlag is common with air travel across multiple time zones, social jetlag is experienced without going out of home. It causes fatigue and foginess, mood disturbances and disrupted appetite. Epidemiological studies suggest that the higher the social jetlag accumulation, the higher the prevalence and earlier the onset of clinical symptoms for many pathologies beyond metabolic dysfunction [1].

Human life is governed by three clocks: the biological clock that controls physiology (circadian system), the social clock that organizes individual life with others (local time), and sun clock that defines natural light and darkness. When these clocks get misaligned, there are higher chances of developing certain diseases [2].

The concept of social jetlag is as young as industrialization. Many epidemiological studies have demonstrated strong associations between social jetlag and the prevalence of diverse pathologies which range from depression and cardiovascular risks to metabolic dysfunction [3]. It has also been observed that the health effect of social jetlag has both acute and chronic components. The immediate result of interrupted and insufficient sleep contributes to the acute effect, while the strain on metabolism by being active and eating at wrong biological times will accumulate as the chronic effects [2]. These chronic consequences include the risk of obesity, diabetes, cardiovascular disease, impaired cognitive function, weakened immune system etc.

In a nut shell the effect of social jetlag accumulation is similar to the accumulating effects of sleep deprivation on human health [4]. In order to prevent harmful effect on health and to prevent disease, a reduction of enforced social jetlag should be central to the strategies adopted. The common measures to minimize social jetlag are establishing a consistent sleep schedule, creating a sleep-conducive environment, avoiding stimulating activities before bedtime, cutting down caffeine and alcohol, limiting screen time and gradually adjusting sleep timing.

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