ABSTRACT:

Research focus of the study:

Exposure to fluorescent light at night is unavoidable in night shift workers and it affects circadian rhythm, decreases work performance, efficiency and productivity. Light emitting diode (LED) light exposure is an emerging non invasive therapeutic tool for various ailments. Hence, the current study was undertaken to evaluate the damaging effects of 1800 lux fluorescent light exposure at night of varying duration and the biomodulatory effect of LED using Wistar strain male albino rats.

Methodology:

Male Wistar albino rats weighing between 150-170 gms were divided based on exposure regime as control, fluorescent light exposure, LED pre exposure with fluorescent light and only LED exposure. They were further divided based on the duration of exposure. In total there were 10 groups with 6 animals each. Exposure to fluorescent light of 1800 lux was for a period of 12 hours between 8 pm – 8 am. Near infra red LED light source of 670nm was used to expose the animals at energy density of 9J/ cm².

Results:

This experimental study on Wistar rats elucidated the cellular/biochemical mechanism behind the debilitating health effects of fluorescent light exposure at night. Potential benefit of LED pre exposure was also observed in most of the tissues studied.

Conclusion:

Exposure to light at night of varying duration is harmful to Wistar rats and LED light pre exposure can be used as a non invasive therapeutic/prophylactic tool.