

## Sleep as Tax Payment

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Every living being distributes its duration of existence at least in two broad states, activity and rest. The former state may easily be identified by associated external manifestations of obvious behavioral expressions, which may vary in intensities. Rest state on the other hand usually is defined as the state of quiescence of the organism and unlike the active state, apparently it does not have any subtypes; in general, quiescence essentially is absence of activity. A living dividing cell also spends time in at least S, G and M phases. For the sake of argument can those states be compared with activity and rest? This is an open question primarily because we need to define these states more objectively using fundamental characteristics. In animals higher in evolution it has been relatively easier to objectively define activity and rest states. Using such criteria both the active as well as rest state has been subdivided into several subgroups. Furthermore, in evolved animals, in addition to physical rest, qualitatively another conscious state, sleep, has been identified. Subsequently the sleep state has been classified into rapid eye movement sleep (REMS) and Non-REMS.

Sleep is one phenomenon which has earned all sorts of adjectives from individuals from all walks of life including philosophers, painters, writers, poets, scientists and so on. It has earned kudos as refreshing, rejuvenating and balm of all sorrows, whereas some others (although fewer in number) have referred it as non-essential and wastage of time. The single most plausible reason why sleep has invited such diverse comments is that we do not know the precise function of sleep so much so that very recently REMS (an integral part of sleep) has been termed as biological and psychological paradox [1]. However, the very fact that it has attracted humans from every walk of life signifies its importance in life although we might not yet have been able to associate it with any one or a set of exclusive function(s). Notwithstanding, the fact remains that sleep is not only necessary, it is essential for leading normal life and it affects a wide spectrum of physiological processes, directly and/or indirectly [2]. It has recently been argued that REMS, an integral and important component of sleep, serves housekeeping function of the brain [3]. Whatever may be the function(s) of sleep, to understand it in its totality, first one must address the primary lacunae in the field and that is to define sleep preferably across species and based on some fundamental criteria, may be using molecular marker(s). It is also important to distinguish it from rest and to design a scale to estimate its depth and debt up on its loss. It may probably then be easy to study and understand its worth and necessity.

Almost each of us has experienced how we feel when we are sleepy, its consequences upon sleep loss and how we feel after a sound sleep. No special experiments are needed to arrive at this conclusion and it does not matter even if we do not know the fundamental mechanism of such action(s). Studies have shown that sleep loss adversely affects almost all patho-physiological processes in the body and its prolonged loss may even cause death. It is incorrect that as long as we remain ignorant (by choice or otherwise) about the functions of sleep, its loss would not affect us and sleep as such would remain unnecessary in leading a healthy life. Also, it may be argued that the common man does not need to know the detailed mechanism of action of sleep (or its loss) on normal body functions/ physiology as long as one appreciates and respects that it does help maintaining normal physiological processes.

Therefore, the operating principle remains that one must invest time in sleep and we must strive to understand it in its totality.

Here I argue that spending time in sleep is analogous to payment of tax in general including social security tax. There are variations in tax types and structure e.g. direct and indirect tax and it depends on ones income as well. Interestingly enough whether one pays additional income-tax or not, every individual pays (contributes) tax in some form or other, however, the quantity and quality may vary though e.g. while buying stuff for daily requirement to maintain normal life and so on. The collected tax is then spent on maintenance of general infrastructure, hospitals, judiciary, defense, academic system and so on. Also, part of the tax must be spent on social security at least for certain class of citizens. Thus, even if some people may not invest consciously in insurance, one does so indirectly through the payment of tax. The better the tax collection by the government, the better, healthier and protected is the society and the country at large. Ideally it is important that the collected tax is judiciously allocated so that all organizations get their due(s) and proportionate share so that they run optimally and in tandem with each other. Notwithstanding, although taxing the citizens is necessary, they should not be overtaxed so that it becomes a burden and public at large would like to evade it; should that happen to a significant proportion the system would collapse.

We may compare the body as a society or country and every system in the body as components (organizations) to be optimally maintained. Spending time in sleep may be compared to payment of tax, in which every living being must invest to run the whole body at an optimum level. Once an individual spends quality and adequate quantity of time in sleep, it enjoys healthy life. Healthy individual can better deal with and protect oneself from environmental (external and internal) challenges including physical, mental as well as psychological wrath and as a result it can give its best output.

Better are the systems in a body maintained, lesser are sufferings leading to investing maximum energy in constructive and creative pursuits. As an analogy it may be compared with banking and economic jargons that as lesser are bad debt and non-performing assets, better and profitable is the organization. This is because ultimately it prevents bad investment and protects investors. Better body and mind develop better interpersonal relationship and thus, it builds a better society and country at large. The quantity of tax levied depends on one's income; however, individuals are given several exemptions depending on personal as well as family needs, societal needs and so on. Similarly, quantity of sleep depends on the need of the person and

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ones surrounding e.g. babies need to sleep more than the adults, sick usually needs more sleep and so on. Interestingly, every individual must sleep and one cannot avoid it (e.g. sleep is never absent through life) with all its might (like one must pay tax to continue living healthy or otherwise).

The rate of taxation must be balanced and one should not be overtaxed. Similarly, one should not spend too much time in sleep no one should avoid sleep but at the same time one must sleep enough so that one does not feel sleepy through ones daily chore. Finally, persons in different income group(s) often invest additional sum in various insurance schemes. But the organization (government) must spend part of the collected tax in social security and other basic needs for all, irrespective of who pays how much tax, to run a system optimally. Similarly, sleep as general tax payment/investment helps to maintain the basic infrastructure and needs of the whole organization, the body; individual component/organ in the body may have specific need depending on conditions. All these then sum up to lead a normal healthy life and therefore, loss of sleep triggers or pre-disposes one to diseases. And once a person is not healthy the society is not healthy. Many studies have shown that sleep disturbance precipitates or predisposes one to several diseases; however, we need to systematically study the cause and effect relationship and mechanism of action of sleep loss.

Finally, in summary spending time in sleep is like paying tax for enjoying quality life. The way a properly planned tax regime is necessary to lead a healthy economy and nation, a good sleep habit and proper sleep regime is necessary for enjoying healthy living leading to healthy society and nation. At the end the food for thought is does sleep need to sleep and does tax need to be taxed? Are these terms only oxymorons or if at all they happen (or tend to happen), they should be considered signs and symptoms of systemic breakdown; I think the latter!

Never sleep on sleep,

And don't lose sleep on lost sleep;

Wise sleep when sleepy,

Lest you become slippery.

#### References

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