

RMRC, Bhubaneswar

(Laxmi Narayan Memorial Library)

Weekly Current Awareness Service

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"A library is treasure chamber of knowledge."

– Lailah Gifty Akita

About Monday Morning

Monday morning is a weekly E- CAS (Electronic Current Awareness Service) of RMRC Library, Bhubaneswar which carries one Biomedical & health science news item and some useful current medical research links so that the scientists can access the articles. This E- Bulletin starts its journey from 21st Nov. 2016. In this maiden attempt we cordially invite your inputs and suggestions to improve in future.

Dr. Banamber Sahoo, Lib & Inf. Officer
Poonam Singh Deo & Hemanti Mahali (Lib. Trainee)

Noble Prize in Medicine-2017

EXFILE

Life clock, tick, tock!

On Monday, Jeffrey Hall, Michael Rosbash and Michael Young took home the Nobel Prize for medicine for their work on circadian biology. *Express* takes a look at the role that their work plays in our lives...



Time running

Circadian rhythm can be considered as evolution's riposte to the day-night cycle. All the variables of life notwithstanding, the rising and setting of the sun is one constant that human bodies have imbibed genetically, developing genetic clocks for each cell over a few millennia. This, in turn, has allowed us to streamline day-to-day activities in accordance with a 24-hour cycle.

Keeping time

A challenge faced in this context is keeping all our internal clocks in sync with one other. This biological coordination is pertinent for functioning of our body, be it the matching-up of female pituitaries and ovaries before the beginning of ovulation, or the linking up of the pancreas, gut, and hypothalamus.



Lifestyle woes

Internal coordination in the 21st century has taken a hit due to various factors. These circadian disruptions can snowball into a nimety of health issues, which can be evidenced by the obesity and autism epidemics in many countries, and even by growing sense of unhappiness due to public education in US.

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A circadian rhythm is any biological process that displays an endogenous, entrainable oscillation of about 24 hours.

Aging:

As your body is put through the ravages of time, organs lose their internal sync, which, in turn, may culminate in age-related ailments. It has scientifically been proven that exposure to adequate sunlight during the day and being in a dark, quiet place at night improves our lifespan.

Metabolism:

Even our hunger is dictated by circadian rhythm. Similar to manner in which it imbibes information, our body's food-intake too is regulated by the time of the day. For example, food is converted into more amount of fat at night time.



The way ahead

The work put in by Hall, Rosbash and Young for conceptualising a mechanism to explain circadian adaptation that acts as a foundation for time-focussed biology. It can also help expand the ambit of sub-domains that pivot upon the concept of circadian rhythms, such as chronotherapy, which involves administering drugs in accordance with their time-related potency.

RHYTHM OF LIFE

Here's a list of how a disruption in our internal clock concretises into tangible after-effects.



Jetlag:

When time of day is changed in a sudden manner, some organs tend to catch up with it quicker as compared to others. This results in a timing mismatch, which, in turn, makes you feel woozy.



Focus: The ability to learn is deeply linked to our internal clock. For example, when we do something for the first time, that event is accorded with a circadian time-stamp. Since our entire neural network functions as per the time of the day, keeping a fixed routine for practising things pays off in the long run.

Virility: Even your sex drive hinges upon the time of the day. For example, circadian control ensures that ovulation generally happens early in the morning.

1. Scientists probe link between stroke and cancer

The study, which features at the European Society for Medical Oncology (ESMO) 2017 Congress, held in Madrid, Spain, is the work of lead author Dr. Jacobo Rogado medical oncology fellow at the Hospital de La Princesa in Madrid, and colleagues. He and his colleagues decided to carry out a study to probe the link and find out which factors might be involved.. For more details click on the below link

<https://www.medicalnewstoday.com/articles/319308.php>

2. Gravitational wave detection wins physics Nobel Prize-2017

Rainer Weiss, Barry Barish and Kip Thorne share the 2017 prize for their work at LIGO to detect ripples in space-time. For more details click on the below link

<http://www.nature.com/news/gravitational-wave-detection-wins-physics-nobel-1.22737>

3. Cryo-electron microscopy wins chemistry Nobel Prize-2017

The 2017 Nobel Prize in Chemistry has been awarded for work that helps researchers see what biomolecules look like. Jacques Dubochet, Joachim Frank and Richard Henderson share the prize for developing a technique to image biomolecules. Jacques Dubochet, Joachim Frank and Richard Henderson were awarded the prize on 4 October for their work in developing cryo-electron microscopy (cryo-EM), a technique that fires beams of electrons at proteins that have been frozen in solution, to deduce the biomolecules' structure. For more details click on the below link

<http://www.nature.com/news/cryo-electron-microscopy-wins-chemistry-nobel-1.22738>

4. Scientists have most impact when they're free to move

An analysis of researchers' global mobility reveals that limiting the circulation of scholars will damage the scientific system, say Cassidy R. Sugimoto and colleagues.. For more details click on the below link

<http://www.nature.com/news/scientists-have-most-impact-when-they-re-free-to-move-1.22730>



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