Food is the source of bio-chemical energy that keeps the human body running continuously. Any discrepancy in the daily intake of food has a deteriorative effect on our body. Similarly, sleep is also needed in adequate amounts to rejuvenate the body. Proper sleep nourishes the body and provides the brain its much needed rest. Both Ahara and Nidra have been praised in Ayurveda as among the two pillars of the Tryaopstambha which help to lead a normal & healthy life. But is it possible that the various food stuffs we take have an effect on the sleep we get? What Ayurvedic classics have to say about it?

**Material and Methods:** Ayurvedic classical texts and contemporary modern science were thoroughly researched for the references regarding this article. **Result & Conclusion:** The foods we take have a profound effect on the sleep we get. Amongst the agrya for sleep, various food articles have been listed by the Acharya. Along with this, foods have been listed as swapna janaka hetu. It was observed that foods having Shleshma increasing property and Vata Shamaka properties are best suited for promoting sleep. Also, incorporating foods rich in Tryptophan and Melatonin in our diet helps to achieve sleep naturally.

**Keywords:** Ahara, Nidra, Sleshmakara, Biological clock, Melatonin, Tryptophan

**ABSTRACT**

Sleep is an integral part of one’s daily routine. Sleep is not the loss of consciousness but it is the transition from wakefulness to its loss. Benefits of sleep are numerous, having been praised in Modern Science as well as in Ayurveda. Food is the source of energy which keeps us energized so that we could do our daily work. One cannot think to survive without sleep and food; and thus these form the two very important pillars of human life.

**Conceptual Review:**

In Ayurveda food items have been classified into various Varga depending upon different criteria. One must wonder here whether any relation of various food items to sleep has been mentioned in Ayurvedic classics or not? A critical
review of the classics shows that many food items [eatables & drinkables] have been said to have a direct and profound effect on Nidra. Following description will help to make this point much clearer in understanding:

[A] Vegetarian food items:

1] Antariksha Jala:

It is said to be Pathyatama and also it is having the property of doing the Prashama of Tandra and Nidra. Antariksha Jala performs many other functions like maintaining life, does nourishment of tissues, provides relief from Shrama, Klama, Pipasa, Daha etc along with doing the Prasama of both Nidra and Tandra. Here Prasama of that Nidra is told which is caused by Kapha & Vata. The Prasama here is done by Sparsha of Antariksha Jala. But when it comes to natural sleep Antariksha Jala intake helps in begetting the Swabhavika Nidra².

2] Kshira:

Milk is beneficial for all the living beings because of being Jatisatmya. Milk is having many qualities like Balya, Vrishya, Medhya, Rasayana, Ojo Vardhana etc. Mahisha Kshira is said to be Mahabhishyandi, more Snigdha than cow’s milk and it is Nidrakara. This specific effect of milk on Nidra is found mentioned only for Mahisha Kshira³. Again Kshira has been mentioned as Nidrakara without specifying any particular milk⁴. Thus, it can be said that all types of milk are having the property of inducing sleep, but this quality is more so inherent in buffaloes’ milk.

Mahisha Kshira is beneficial for those who are having trouble sleeping. It is also Gurutara than cow’s milk⁵. Ashtanga Samgrahakara also shares the same opinion⁶. Thus, Mahisha Kshira is Gurutara, Mahasnigdha and beneficial for those having difficulty getting sleep⁷.

Ravigupta in Siddhasara says that Mahisha Kshira is Swapnala – induces sleep⁸. Kharanada says that Mahisha Kshira is more Swapnala than cow’s milk⁸. This brings to notice one more point that even cow’s milk induces sleep but compared to it Mahisha Kshira is having more Guru Guna and thus it is more Swapnala (sleep inducing).

Vagbhata mentions that the person who is having insomnia or is having difficulty in getting sleep at a proper time should make use of kshira⁹. This shows that Kshira is having the property of inducing sleep. Also, Charaka, while describing Swapna Janaka Hetus, mentions the use of Kshira¹⁰. This also proves the sleep inducing property of Kshira.

3] Dadhi:

Dadhi also has qualities like Guru, Abhishyandi, Kapha Vardhaka¹¹. The person who is having difficulty in getting sleep at a proper time should make use of Dadhi⁹ [as eatable]. This shows that Dadhi is having the property of inducing sleep. Charaka while describing Swapna Janaka Hetus mentions the use of Shali Anna with Dadhi¹⁰. This also proves the sleep inducing property of Dadhi.

Vagbhata also mentions that various substances/products made from Dadhi like Kurchika, Kilata etc also promote Nidra⁹.

4] Madhya:

By the virtue of having various qualities the Madhya upon reaching Hrudaya causes Vikshobha of Indriyas [organs of sensory perception] and Mana; and hence produces a feeling of Mada / Harsha. Different Satva persons get differently affected by Madhya. In Satvika and Rajas persons Madhya intake does not produce Nidra. But when a Tamasika person takes Madhya, it produces Nidra in such a person².
Acharya Charaka has not referred to Nidra causing effect of Madhya\textsuperscript{12}.

Vagbhata says that Madhya is having qualities like Deepana, Rochana, Tikshana, Ushna. When Madhya is taken following proper methods ascribed by Ayurveda it is a giver of many benefits like Tushti and Pushthi; but when it is taken by showing a blithe disregard for ascribed rituals it becomes Visha Tulya\textsuperscript{5}.

Vagbhata also brings to notice a very interesting property of Madhya. Madhya is beneficial for those persons who are having Nashta Nidra as well in those also who are having Atinidra i.e. Madhya is beneficial for both. Making this point clear Aruna Dutta commenting in the above verse says that Madhya is having this property because of its Prabhava. He further brings to light the opinion of other scholars regarding this: there are two types of Madhya: one which causes Shleshma Vardhana and the other which are Shleshma hara. Those Madhya which cause Shleshma Vardhana are responsible for inducing sleep; while those Madhya which are Shleshma hara are beneficial in persons having Atinidra\textsuperscript{5}.

Hemadri puts a question as to how it is possible that the same Madhya is having the property of inducing sleep as well as causing less sleep. Clarifying, he states that Pravridha Vata is responsible for Nashta Nidra, in such a state the Madhya wins over Vata and induces sleep. On the other hand Pravridha Shleshma is responsible for Atinidra, in such a state the Madhya causes Shleshma Kshapana and hence reduces excess sleep\textsuperscript{5}.

This explains the sleep inducing effect of Madhya.

5] Godhuma:
It is Guru, Madhura, Snigdha, Balya, and Shlesmakara; thus can be said to be promoting sleep. Dalhana clarifies that only Nava Godhuma is Shleshmakara, but the Purva Godhuma is not Shleshmakara and hence can be used in Vasant Ritu also\textsuperscript{2}. Vagbhata says that it is Guru, Madhura and Vata Pitta Hara\textsuperscript{14}.

6] Krishra:
It said to be kapha pitta kara and anila nashini\textsuperscript{2}.

7] Tila vikriti & pallala:
The items made from tila [modaka] and also after addition of guda to tila [pallala] are said to be shleshma janaka\textsuperscript{2}.

8] Gaudika bhakshya:
Those eatables which are prepared from guda are said to be guru, vatataara and shleshma vardhaka, so these might be playing a role in promoting sleep\textsuperscript{7}.

9] Ikshu varga:
Charaka opines that the products of ikshu are shleshmala and madhura – snigdha\textsuperscript{7}; they are also said to be guru, brimhankara and swadu in paka and rasa\textsuperscript{9}; so these can also be said to having an effect on the promotion of sleep.

10] Sneha:
Sneha has been mentioned as one amongst the swapna janaka hetus\textsuperscript{10}. Also, Ghrita is told as having vatataara property, madhura in rasa and paka and is responsible for kapha – meda i ncrease\textsuperscript{7}.

[B] Non-vegetarian food items:
1] Kukkuta mamsa:
It is vatataara, snigdha and guru, so, can be taken as promoter of sleep\textsuperscript{2}.

2] Gramya mamsa:
All the gramya mamsa like ashva, go, basta, mesha are vatataara, bramhanakara, kapha pitta kara and madhura in rasa and paka. Owing to these properties these can be taken as the promoters of sleep. Vagbhata says that gramya mamsa is shleshmala and guru\textsuperscript{14}.

3] Mahisha mamsa:
It is *snigdha, guru, tarpanakara* and is directly mentioned as having the property of *nidrakara*\(^2\). *Vagbhata* says that *mahisha mamsa* is *guru* and produces sleep\(^{14}\). *Charaka* also opines the same\(^7\).

4] *Varaha mamsa:*

*Vagbhata* says that *varaha mamsa* is having the same qualities as that of *mahisha mamsa* and it is *shramahara* also\(^{14}\).

5] *Matasya:*

*Matasya* are of two types: *nadeya* and *samudra*. Among the *nadeya matasya*, *pathina* type of fish is *shleshmala*, and *vrishya*, thus, can be taken as promoter of sleep. The *samudra* type of *matasya* are said to be *guru*, *vatahara* and *shleshmavardhaka*, so these can also be said of having a sleep promoting effect\(^2\). According to *Vagbhata*, *matasya* are *param kaphakara*\(^{14}\). *Vriddha Vagbhata* states them to be *vatahara* also\(^{15}\).

**Modern views:**

All this said and written about foods and sleep, one might wonder about the mechanism - how food is affecting our sleep?

The growing talk of the town is about the amino acid tryptophan and the role it might be playing in getting a good sleep. Tryptophan is a routine constituent of most protein based foods or dietary products. It is plentiful in oats, dried dates, milk, eggs, yogurt, fish, sesame, banana, peanuts, chicken, beef, wheat flour, white rice, cheese, potatoes & wheat flour (white)\(^{17}\). Tryptophan is needed for normal growth in infants and nitrogen balance in adults. Body uses it to make Niacin and Serotonin. It is also used by the brain to make Melatonin\(^{18}\). Serotonin has been thought to produce healthy sleep and a stable mood. Melatonin on the other hand is responsible for maintaining the circadian rhythm of our bodies – the biological clock. Melatonin released by the Pineal gland has also been known to promote sleep in the human beings\(^{19}\). The presence of carbohydrates in our food, as in a carbohydrate rich meal, makes tryptophan more available for brain; thus allowing brain to convert it into serotonin and melatonin and thus helping in the regulation and promotion of sleep\(^{20}\).

Many foods are known to be rich sources of tryptophan and melatonin. A few of them are listed below\(^{21}\):

- Milk & Cheese, Almonds, Bananas, Cherries, Walnuts, Peanut butter, Figs, White Mustard, Grapes, Turmeric.

All these foods are *Shleshma Vardhaka* and *Vatahara*.

A study conducted by Crispim CA et al at the University Of Sau Paulo, Brazil showed that intake of high carbohydrate foods preceding the sleeping period are associated with higher sleep latency\(^{22}\). In addition to the amount of carbohydrates, the glycemic index may have an important influence on sleep patterns, especially in inducing sleepiness\(^{21}\). St-Onge MP et al found that higher intakes of fat were associated with less sleep and subjective napping\(^{23}\).

**DISCUSSION**

Based on the above opinions, it can be postulated that those *Ahara* which are having the property of increasing *Shleshma* and decreasing *Vata* can be taken as sleep inducers; while those *Ahara* which are *Shleshma hara* can be said to have the property of reducing sleep. This rule is given further credibility by *Vagbhata*’s statement that by *Shleshma Kshapana* one can get rid of *Atinidra*\(^{13}\). Aruna Dutta and Hemadri commenting on the above verse state that one of the reasons for *Nidra Nasha* is the *Kshaya* of
Shleshma Dhatu\(^{13}\). Vata has been mentioned as one of the reasons for Nidranasha. Also, Shleshma Samudbhava Nidra and Tamobhava Nidra, which occur by the increase of Shleshma and Tamoguna respectively, are amongst the 7 types of Nidra.\(^{10}\).

Swapna janaka hetu: Acharya Charaka while describing sleep mentions the use of following ahara dravya for promoting sleep\(^{10}\):

Gramya mamsa, Audaka mamsa, Anupa mamsa, Shali anna with dadhi, Kshira, Sneha, and Madhya.

Acharya Vagbhata has also given names of ahara dravya which can be used in manda nidra persons\(^{14}\): Kshira, Madhya, Mamsa rasa, and Dadhi.

Agrya for swapna: While mentioning the best substances for inducing sleep, Charaka mentions that mahishi kshira is the best. He further states that pushit [proper nourishment] is also one of the agrya for swapna\(^{16}\). A better nourishment state leads to best rasa Dhatu. Rasa Dhatu is having properties same as that of Kapha. Thus, proper nourishment is the foremost requirement for good sleep. All the ahara dravya mentioned above promote pushit in one way or other thus justifying its swapnakara property.

Thus the postulation that Shleshma Vardhaka and Vata Hara Ahara might be taken as promoters of Nidra and the Ahara which do Shleshma Kshapana might be taken as having an effect on reducing Atinidra is fully justified.

**CONCLUSION**

From the above discussion it is observed that Ahara shapes our sleep in a profound way. Disturbed sleep not only affects daily work but also other bodily functions in a multitude of ways, be it a lack of concentration, fatigue, defects in skin repair, decreased motor performance etc. Intake of tranquilizers to address disturbed sleep has its own side effects. The need of the time is to address this problem naturally. The choice of our food determines and influences our sleep in a big way. Foods having Shleshma increasing property and Vata Shamaka properties are the best suited for promoting sleep. Also, incorporating foods rich in Tryptophan and Melatonin in our diet helps to achieve sleep naturally.

There is an urgent need to conduct research based on the content above, in both Ayurveda and modern Science, to back it with scientific evidence. Such evidence based research is the need of the time to tackle the issue of disturbed sleep in a healthy way.

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