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An Ayurveda approach for managing Geriatric Sleep Disturbances: A Comprehensive Review

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ABSTRACT

Background: Ageing is defined as the progressive deterioration in structure and function of the body organs. In *Ayurveda* literature ageing (*Jara*) has been given importance since *Vedic* period as the natural, progressive phenomenon. In *Ayurveda*, Sleep (*Nidra*) is one of the *Upasthambha* (Sub-Pillar) which is essential for overall health. Ageing causes multiple changes in sleep patterns, and various diseases can further disrupt sleep. *Ayurveda* describes the physiological increase of *Vata Dosha* in old age which causes *Vata Prakopa* in body leading to degeneration of *Dhatu* (*Dhatukshaya*) which alter the sleep patterns. **Aim:** The paper aims to review common sleep disturbances seen in ageing and their prevention and management through *Ayurveda*. The study discusses various patterns of sleep during ageing and their possible management through *Ayurveda*. Primary sleep disorders common in the geriatric population such as; insomnia, obstructive sleep apnea, restless leg syndrome, circadian rhythm sleep-wake disorder was discussed and their management through *Ayurveda* was reviewed. The selection of *Ayurvedic* treatment and procedures which nourishes *Dhatu* and pacify *Vata Dosha* are effective in managing sleep disturbances. **Result:** The study finds that *Vatashamak Chikitsa*, regulation of *Agni*, *Dincharya*, *Ritucharya*, *Vegdharan*, use of *Rasayana*, *Panchakarma*, *Yogasana* are beneficial for the management of sleep disturbances. **Conclusion:** Sleep disturbances are common in ageing and can be managed efficiently through *Ayurveda*.

Key words: *Jara*, *Upasthambha*, *Vatadosha*, *Primary sleep disorder*, *Rasayana*

INTRODUCTION

Ageing, defined as the inevitable, progressive, and irreversible decline in structure and physiological function over time and varies widely among individuals. It increases the risk of disease due to changes in biochemical composition, decline in homeostasis, and therefore susceptibility to disease

progresses. Consequently, ageing impairs the physiological function of cells, tissues, organs, and body systems.

Sleep is one of the important factor of life which is crucial for health, physical as well as mental relaxation and wellness throughout life. Multiple changes in sleep pattern occurs in ageing. A significant portion of the elderly population experiences sleep disturbances, with 36-69% of older adults reporting such issues.^[1] The study conducted among community-dwelling older adults aged 65-79 in California, revealed significant sleep changes in ageing; 30% of older adult slept less than 7 hours per day. Women had a higher prevalence of insomnia (16%) compared to men (11%).^[2] With ageing, sleep becomes more fragmented and lighter, characterized by more frequent EEG arousals and awakenings, which leads to decreased sleep efficiency and total sleep time. Both sleep architecture and sleep parameters undergo significant changes throughout ageing.^[3]

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In Ayurveda, ageing can be related as *Jara* or *Vardhakya*. *Jara* (ageing) is a natural phenomenon like hunger, thirst, or sleep. Ayurvedic literature suggests that while the onset and manifestations of ageing can be delayed, it cannot be entirely avoided. *Acharya Charak's Swabhavoparamavada* theory of natural destructions assume that death following birth is a natural flow. *Acharya Sushruta* also identifies ageing as naturally occurring conditions like *Kshuta* (hunger), *Pipasa* (thirst), *Nidra* (sleep), and *Mrityu* (death). According to Ayurveda literature, sleep (*Nidra*) is one of the three great sub-pillars (*Tryopasthambha*) essential for good health and equilibrium. It is important for growth, development, and nourishment of the body, therefore called as *Bhutadhatri* (nourishes all living beings). Sleep occurs when *Tamo Guna* (one among the three main qualities which is characterized by darkness and ignorance) increases naturally and the mind and intellect are in deep rest.^[4] Proper sleep restores the regenerative power of the mind and memory. The significance of sleep is extensively described in the *Charaka Samhita*, where *Acharya Charaka* describes that proper sleep leads to cheerfulness, while improper sleep results in unhappiness. This article discusses the Ayurvedic perspective on sleep disorders and the various therapeutic measures recommended for promoting healthy sleep patterns in old age.

Sleep disturbances in Ageing

Structural and physiological changes in the brain during ageing alter sleep patterns, leading to sleep disturbances. Sleep-wake cycle is regulated by two mechanisms: the circadian rhythm cycles and homeostatic processes. The Suprachiasmatic nucleus (SCN) of the anterior hypothalamus controls these rhythms, including sleep-wake cycles, cortisol, and melatonin levels. In ageing, changes in sleep architecture include a decrease in the amplitude of the sleep-wake circadian rhythm and a tendency for desynchronisation of rhythm. This results in lower body temperature and decreased melatonin production, along with declines in cholinergic and serotonergic pathways and neuron numbers in the hippocampus, amygdala, and basal ganglia, all

contributing to sleep deterioration.^[5] Common sleep disturbances in ageing include frequent awakenings during night, prolonged time to fall asleep, fragmented sleep, and decreased daytime alertness which impair the sleep quality and ultimately, the quality of life. Underlying medical and psychiatric disorders also contribute to sleep disturbances. Poor sleep quality can disrupt circadian rhythms and trigger metabolic diseases such as diabetes, obesity, and cardiovascular disease.

Sleep is categorized into non-rapid eye movement (NREM) and rapid eye movement (REM) sleep. NREM sleep includes light sleep (stages N1 and N2) and slow-wave sleep (stage N3). Majority of sleep during the night is of the slow-wave variety, which is deep and restful. REM sleep, occurring in cycles of approximately 90-120 minutes, is associated with rapid eye movement, dreaming, and irregular heart rates. NREM sleep repairs the body and helps in regeneration of tissues. Therefore, it is essential part of sleep which strengthens the immune system and boost overall health. Ageing leads to decreased total sleep time, sleep efficiency, and slow-wave sleep, and increased waking after sleep onset. These changes reduce homeostatic sleep pressure and circadian signals, resulting in reduced core body temperature and altered sleep and wake times.^[6] Common primary sleep disorders in the geriatric population include insomnia, obstructive sleep apnea (OSA), circadian rhythm sleep-wake disorders, Rapid eye movement sleep behaviour disorder and sleep related movement disorders like restless leg syndrome (RLS), and periodic leg movements in sleep (PLMS).^[7] A global meta-analysis of 252 studies involving 995,544 older adults from 36 countries found high prevalence rates of sleep disturbances: obstructive sleep apnea (46.0%), poor sleep quality (40.0%), other unspecified sleep problems (37.0%), insomnia (29.0%), and excessive daytime sleepiness (19.0%).^[8]

Insomnia: The most common sleep disorder where people experience difficulties initiating or maintaining sleep. There is a high prevalence of reported sleep disturbances in the elderly. Multiple factors contribute to the increased risk of developing insomnia in older

adults which involves difficulty falling asleep, maintaining sleep, early awakening, and poor sleep quality, leading to daytime symptoms like fatigue or moodiness, often associated with depression, anxiety, and substance intake. 18% of individuals aged 65 years and older affected by insomnia.^[9]

Obstructive Sleep Apnea (OSA): It is characterized by recurrent collapse of the upper airway during sleep, leading to reduced (hypopnea) or absent (apnea) airflow causing sleep disturbances, frequent awakenings, loud snoring and daytime sleepiness.^[10] Also associated with medical comorbidities like obesity and heart failure. Its prevalence increases significantly with age. In older adults, OSA can affect up to 70% of men and 56% of women.^[11]

Restless leg syndrome (RLS): More common in females, characterized by unpleasant sensations in the legs with an intense urge to move, especially at night resulting in sleep initiation or maintenance problem. It may be idiopathic or secondary to other medical condition like iron deficiency anaemia, peripheral neuropathy etc.^[12] Prevalence increases with age, often linked to dopaminergic neural functioning. Estimated prevalence is of 10-35% above 65 years of age. Most individuals with RLS also exhibit Periodic Limb Movements (PLMs) during sleep, characterized by repetitive, stereotyped movements typically involving the big toe and ankle, and sometimes the knee and hip. However, PLMs can also occur without RLS in approximately 70% of cases.^[13]

Rapid eye movement sleep behaviour disorder (RBD): It is a REM sleep parasomnia characterized by individuals acting out their dreams through behaviours like talking, shouting, limb thrashing, and punching, primarily affecting older adult males.

Circadian rhythm sleep-wake disorders (CRSWD): It occur when sleep timing is disrupted due to changes in circadian rhythms or a mismatch between an individual's internal body clock and their required sleep schedule. In ageing, the circadian rhythms become weak and become less responsive to external stimuli.^[14]

Therefore, in older age, typical changes in sleep architecture and continuity includes reduction in slow-wave sleep (SWS), a decrease in the percentage of rapid eye movement (REM) sleep, a reduction in total sleep time (TST), and decreased sleep efficiency (the proportion of time in bed spent asleep). Additionally, there is often an increase in sleep onset latency (the time it takes to fall asleep) and decline in circadian oscillations, such as reduced melatonin peaks, leads to advanced sleep phase syndrome, characterized by earlier sleep onset and waking times. Bright light therapy is recommended to counteract reduced light exposure in older adults. The weakening of the internal circadian clock, particularly the suprachiasmatic nucleus, results in disrupted sleep patterns and affects various physiological and behavioural functions, including energy metabolism and locomotor activity. Ageing involves complex molecular and cellular changes, such as mitochondrial dysfunction and genomic instability, increasing the risk of metabolic disorders, cardiovascular diseases, neurodegenerative diseases etc. Telomere deterioration is associated with insomnia in older adults, and sleep disturbances may accelerate cellular ageing. EEG studies show decreased delta power and increased beta wave power in older individuals, linked to sleep initiation difficulties and cortical arousal.^[15]

Ayurveda and Sleep Disturbances

Ayurvedic texts highlight the importance of sleep and describe various measures for preventing ageing and related disorders (*Jarajanya Vikar*). Key factors affecting healthy ageing include *Kalaprmana* (time), *Prakriti* (constitution), *Dosha*, *Ahara* (diet), *Achara* (behaviour), and *Jatharagni* (digestive fire). Ayurveda, based on *Tridosha* theory, emphasizes the balance of *Vata*, *Pitta*, and *Kapha doshas*, which determine sleep quality. *Vata* dominance in old age leads to increased awakenings and daytime naps in persons over the age of 60 years.^[16] In *Ayurveda* ageing (*Jara*) is the result of *Kala* (time) and *Parinama* causing physical and mental transformations. *Jara* or ageing, is characterized by a natural decline in physiological functions of body. The processes of tissue formation (*Dhatu* synthesis) also diminish, leading to *Dhatu Kshaya*, or the degradation

of bodily tissues. The predominance of *Vata Dosha* exacerbates *Dhatu Kshaya*, accelerating degenerative changes due to the deterioration of *Rasadi Dhatus* (major structural component of body), *Srotas* (body channels), and *Agni* (digestive and metabolic fire). Consequently, both the quantity and quality of all *Dhatus* decrease. This degradation also impacts sensory and motor functions, reducing the perception abilities of the *Indriyas* (sensory system). Moreover, ageing is associated with declines in physical strength, coordination, cognitive functions, memory, and intellect.

Preventive measures in Ayurveda

Ayurveda offers a comprehensive approach to addressing sleep disturbance in the ageing. The primary focus is on balancing the *Vata Dosha*, which is the predominant factor in most geriatric problems, including insomnia, irritability, and degenerative changes. *Ayurvedic* texts describe numerous preventive measures and treatments for sleep disturbances and ageing-related issues. Some of them are described below;

Rasayana Therapy

Rasayana, described in *Ayurveda* literature represents a specialized therapeutic approach aimed at delaying aging, promoting health, and enhancing longevity. It includes various herbal preparations, dietary guidelines, and lifestyle practices aimed at rejuvenating the body's tissues, enhancing vitality, and maintaining overall well-being. Particularly effective in addressing age-related ailments (*Jarajanya Vikaras*). *Rasayana* therapies nourish bodily tissues (*Dhatu*) and promote longevity. *Rasayana*, according to *Acharya Sushruta*, stabilizes lifespan, enhances strength, and prevents diseases by rejuvenating bodily functions. It targets the *Rasa Dhatu* (Primary product of digested food), *Agni* (digestive fire), and *Srotas* (channels of the body). *Acharya Charaka* has described various drugs possessing *Rasayana* effect and emphasizes on the concept of *Rasayana* therapy for mental health called *Medhya Rasayana* which includes plants like *Centella asiatica*, *Glycyrrhiza glabra*, *Tinospora cordifolia*, *Convolvus pluricaulis*. These plants alleviate stress,

anxiety, and depression, supporting mental well-being in geriatric populations. *Ayurveda* also describes certain drugs/herbs that produce calming and relaxing effect on mind by increasing the level of neurotransmitter like serotonin and melatonin hormone thereby inducing sound sleep such as *Brahmi* (*Bacopa monnieri*), *Shankhpushpi* (*Convolvus pluricaulis*), *Vacha* (*Acorus calamus*), *Sarp Gandha* (*Rauwolfia serpentina*), *Ashwagandha* (*Withania somnifera*) and *Jatamansi* (*Nardostachys jatamansi*) etc. They have calming effects, beneficial for treating insomnia and other sleep disturbances.

Table 1: Specific Rasayana Herbs for Sleep Enhancement

Rasayana drugs	Mode of action
<i>Shankhpushpi</i> (<i>Convolvus pluricaulis</i>)	Promotes the intellect, <i>Bala</i> (strength), <i>Varna</i> (Complexion), <i>Ayu</i> (Lifespan), beneficial in sleep disturbances by calming effect on mind. ^[17]
<i>Brahmi</i> (<i>Bacopa monnieri</i>)	<i>Medhya Rasayan</i> , neuroprotective action, intellect promoting drug and restores memory power and induces sleep. ^[18]
<i>Ashwagandha</i> (<i>Withania somnifera</i>)	Hypnotic and sedative action, promote healthy sleep patterns, delays ageing process. Provide strength and nourishment to body. ^[19]
<i>Vacha</i> (<i>Acorus calamus</i>)	Promotes the intellect, memory, relaxing and calming effect on mind, thus induces sleep, aids in mental development. ^[20]
<i>Jatamansi</i> (<i>Nardostachys jatamansi</i>)	CNS depressant action (sedation), calms the mind by relieving anxiety and induces sleep due to its <i>Nidrakar</i> (Sleep inducing) property.
<i>Tagara</i> (<i>Valeriana wallichii</i>)	<i>Tagara</i> is having the property of <i>Nidrajanana</i> (sedative and hypnotic). It rejuvenates and relax nerves.

<i>Mandukaparni (Centella asiatica)</i>	Inhibits the memory impairment and has neuroprotective action.
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Therefore, the concept of *Rasayana* covers the welfare of the structure, function and the psychological aspect of the human body both in health and diseased condition.

Panchakarma Therapy

In *Ayurveda*, *Vata Dosha* is considered the main aggravating factor in geriatric conditions, leading to issues such as insomnia, mobility disturbances, and irritability. Therefore, *Vata Shamaka Chikitsa*, like *Basti* (enema therapy) and *Snehana* (oleation therapy) are primary aim of treatment. *Panchakarma* therapy has both health promoting and therapeutic role in cleansing the body toxins. It includes cleansing body toxins like Periodical detoxification, purification, rejuvenation therapies and nourishing deeper tissues, there by pacifying age-related disturbances. It includes detoxification and rejuvenation therapies like *Matravasti* (oil enemas), *Abhyanga* (oil massage), and *Shirodhara* (oil pouring on the forehead) to balance *Doshas*, reduce stress, and enhance sleep quality.

Basti

Basti Karma involves administering medicinal substances via the rectum and retaining them for a specified duration. *Matrabasti* (Therapeutic enema) is highly effective in managing geriatric conditions, primarily due to its potent *Rasayana* (rejuvenative) properties. *Basti* helps in reducing the hyperactivity of *Vata*, thereby alleviating pain, improving mobility, and enhancing sleep quality. It works by delivering medicated oil directly into the large intestine, where it is absorbed and circulated throughout the body by nourishing and rejuvenating tissues. *Acharya Sushruta* compared the mechanism of *Basti* to water nourishing a tree's roots and spreading to all parts of the tree. Similarly, the medicated *Basti* spreads from the *Pakwasaya* (large intestine) through appropriate channels, providing systemic benefits.^[21,22]

Shirodhara

Sirodhara is a therapeutic procedure in *Ayurveda* that involves the continuous, rhythmic pouring of herbal medicated oil or liquid extracted from above

mentioned plants onto the forehead. This technique is particularly effective in reducing the hyperactivity of the nerves, alleviating stress, and calming the mind. By stimulating the pituitary gland, *Sirodhara* promotes the proper functioning of other endocrine glands, thereby enhancing hormonal balance and inducing better sound sleep.^[23]

Abhyanga

In the context of *Dinacharya* (daily regimen), *Abhyanga* (oil massage) should be performed daily as it nourishes tissues, strengthens the body, and enhances *Agni* (digestive fire). Special emphasis is given in the head (*Shiroabhyanga*) and feet (*Pada-Abhyanga*). Sleep disturbances and night time awakening can aggravate *Vata Dosha* and decrease *Snigdha Guna*. Therefore, oil massage on the feet reduces the *Ruksha Guna* of *Vata Dosha*, facilitating natural, sound sleep. *Abhyanga* strokes and rubbing establish the free flow of energy and control *Prana*, which governs the sensory and motor systems. A study found that massage with moderate pressure increases tryptophan levels. According to the National Sleep Foundation, tryptophan is an essential sleep-inducing amino acid necessary for producing melatonin, and a small percentage in producing serotonin.^[24] *Abhyanga* also reduces stress, and anxiety by lowering cortisol levels, epinephrine, heart rate, and blood pressure.

Yoga and Pranayama

Daily practice of *Yoga*, meditation, and *Pranayama* (breathing exercises) helps delay the ageing process, improve sleep quality and improve physical and mental health by enhancing flexibility, reducing anxiety, and promoting a balanced state of mind and body. The integration of *Shirodhara* with these daily practices offers a holistic approach to managing stress, improving sleep quality, and maintaining overall well-being. Several studies have investigated the impact of *Yoga* on sleep. One study found that *Yoga* reduced the time required to fall asleep and increased total sleep duration by reducing arousal and anxiety manifestations.^[25] The practice of *Yoga* and *Pranayama* has demonstrated a reduction in plasma catecholamine levels, reduction of blood pressure,

alleviating anxiety, decreasing sleep disturbances, and improving the serum lipid profile. In various randomized controlled trials (RCTs), elderly participants who practiced *Yoga* for six months experienced a significant reduction in the time to fall asleep, decreased night time sleep disturbances, improved sleep quality, and reduced use of sleep medications compared to control groups. Regular yogic breathing exercises have been found to strengthen upper airway muscles, thereby decreasing sleep disturbances.^[26] Additionally, *Yoga* exercises improve joint flexibility, prevent the decline in physical function, and enhance the quality of life (QOL) of elderly individuals.^[27]

Ayurveda and Circadian Rhythm

The body has its own natural rhythm, essential for a healthy life. Adopting healthy behaviours and following a proper daily regimen (*Dinacharya*) and seasonal regimen (*Ritucharya*) can restore disturbed natural rhythms. These regimens regulate biological rhythms for maintaining sleep patterns. Maintaining circadian rhythm involves waking up during *Brahmuhurta* (two hours before sunrise) and engaging in specific activities at prescribed times, and following a structured routine throughout the day. This practice is designed to help one lead a healthy and disciplined life, reduce stress, and purify and detoxify the body. The practice of *Dinacharya* also aligns with the natural circadian rhythm, which is explained in Ayurveda through the *Tridosha* cycle, which maintains bodily functions and homeostasis. Individuals can maintain synchronicity with their circadian rhythms, promoting health, vitality, and immunity while delaying ageing. Various factors such as *Desh* (place), *Kala* (time), *Ahara* (diet), *Vihar* (lifestyle), *Agni* (digestive fire), and *Ritu* (seasons) can affect the equilibrium of these *Doshas*. Therefore, diet and regimen must be according to the body's *Dosha* status in each season to maintain circadian rhythm and overall health. This balance controls daily routines, including sleep patterns, by influencing hormone levels and body temperature. *Ritucharya* (seasonal regimen) involves dietary, behavioural, and habit changes in accordance with seasonal variations. Environmental changes in various

seasons also affect the *Tridosha* balance. Studies indicate that Seasonal Affective Disorder (SAD) results from circadian cycles improperly adapting to the lengthening of the day as the seasons change. Disruptions in *Agni* (digestive fire), *Vega Dharana* (suppression of natural urges), improper *Ahara* (diet), and *Nidra* (sleep) can desynchronize circadian cycles.^[28] Modern science describes natural sleep as a manifestation of the rhythmical activity of nerve cells. It also recognizes circadian rhythm's role in regulating hormone levels, body temperature, and metabolism.

Among several *Dinacharya* practices, such as *Pratimarshnasya* (nasal application of medicated oil), *Shiroabhyanga* (head massage), *Pada-abhyanga* (foot massage), *Abhyanga* (body massage), *Snana* (bathing), *Udvardana* (powder massage), and *Utsadana* (herbal paste massage), are documented to promote good sleep and overall health.^[29] For example, *Pratimarshanasya* (low dose medication through nasal route) with *Anu* oil, known for its *Tridosahara* (balancing all three *Doshas*) properties and boosts the function of all body parts above the clavicle. *Chakradatta* text recommends administering *Pratimarshanasya* at the end of the day (before bedtime) for its *Strotoshuddhi* (channel-cleansing) and *Sukh Nidradayak* (sleep-inducing) effects, with 2-2 drops in each nostril.^[30]

Udvardana, the procedure of massaging the whole body with *Churna* (powder) below the neck in a direction opposite to hair growth with some pressure. It has various therapeutic effects, including *Gaurvahara* (removing heaviness in body), *Vatahara* (alleviating Vata), and *Strotorodhahara* (clearing channels). It enhances blood circulation and boost natural sleep.

Sadvritta is defined as moral reasoning, a code of ethics, or good conduct which is essential for daily living and maintaining a balanced state of mental and physical health. It aims to develop a harmonious balance between mind and body, enhancing personal growth. Therefore, maintaining mental health is as crucial as physical health in elderly individuals, making the practice of *Sadvritta* is helpful for mental development.

Behavioural Interventions (*Achara Rasayana*): *Achara Rasayana* involves behavioural modifications that act as psycho-immune modulators, reducing stress and preventing free radical release.

Many studies and researches have explored the relationship between bathing and sleep. Evening warm baths, by manipulating body temperature before sleep, positively impact sleep quality for healthy elderly individuals with insomnia (Liao WC. Int. J Nurs Stud. 2002). Warm water stimulates the hypothalamus (thermoregulatory system) in the brain, regulating body temperature and the sleep-wake cycle. The hyperthermic action after a bath induces vasodilation, increasing blood flow and eliminating metabolic waste, which may help reduce stress, anxiety, and depression.

DISCUSSION

Ageing is a natural, progressive and inevitable phase of human life. It is accompanied by significant structural and physiological changes in the brain, impacting sleep quality. Sleep can be influenced by various factors, including age, lifestyle, daily routines, diet, and environment. Poor sleep patterns can trigger age-associated pathological conditions, hastening the ageing process. Various researches indicate that insufficient sleep disrupts circadian rhythms, leading to negative health outcomes such as obesity, cardiovascular disease, and cognitive impairment. Moreover, lack of sleep is correlated with an increased risk of glucose intolerance, which predisposes individuals to diabetes, obesity and other metabolic disorders. Common sleep disturbances in the elderly like insomnia, sleep apnea, circadian rhythm disturbances etc. lead to a decline in overall health and quality of life.

In old age, although disturbance in equilibrium of three *Doshas* is common with a predominance of Vata dosha in this age. Quantity and quality of all the *Dhatu* decreases. The combination of *Vata* dominance and deterioration of *Rasadi Dhatu*, *Srotas* and *Agni* are responsible for the various degenerative changes, *Dhatukshaya* and process of decay in the body. *Rasayana* therapy, a rejuvenative treatment in *Ayurveda*, plays a significant role in promoting health

and longevity. Specific *Rasayana* herbs such as *Ashwagandha*, *Brahmi*, and *Shankhpushpi*, *Vacha*, *Tagar* etc. have been traditionally used to enhance sleep and delay aging. Health is regulated by an internal clock synchronized with the 24-hour light-dark cycle. *Ayurveda* outlines daily (*Dinacharya*), night (*Ratricharya*), and seasonal (*Ritucharya*) routines, prescribing optimal times for activities like waking, sleeping, and eating.^[31] These harmonious routines maintain circadian rhythm synchronicity, promoting health, vitality, and immunity, and delaying ageing. These routines include cleansing procedures, bowel habits, yoga, breath practices, and massage. These regimens should be adopted as drugless therapy (*Adravayabhuta Chikitsa*) and lifestyle modalities to maintain health, improve work efficiency, and ultimately reduce sleep disturbances. Adherence to these practices minimizes acute and chronic conditions that negatively influence the ageing process. *Charaka Samhita* (the ancient text of Ayurveda) highlights various remedies for sleep disturbances such as *Abhyanga* (oil massage), *Utsadana* (massage with herbal powders), *Snana* (bathing), consumption of meat soup from domestic and aquatic animals, *Shalichawal* (a variety of rice), curd, milk, and *Sneha* like ghee and oil also, *Netratarpan* (pouring oil around the eyes), applying *Lepa* (herbal pastes) on the body, using comfortable beds and maintaining regular sleep timings.^[32]

Ayurveda is a holistic science aimed at maintaining *Dhatusamyā*, a state of equilibrium in anatomical, biological, physiological, mental, and spiritual functions. Hence a balanced state of *Dosha*, *Dhatu*, *Agni*, and metabolic wastes (*Mala*) constitutes homeostasis in *Ayurveda* that leads to proper sleep and graceful ageing. By focusing on achieving a balance between mind and body, *Ayurveda* aims to address these sleep imbalances, promoting overall health and well-being, particularly in the ageing. Modern medical treatments for sleep disturbances often include pharmacological interventions, cognitive-behavioural therapy, and lifestyle modifications. Integrating Ayurvedic practices with these modern approaches can provide a holistic solution.

CONCLUSION

In conclusion, sleep (*Nidra*) is a fundamental pillar of health in *Ayurveda*, crucial for maintaining physical and mental well-being. Through the implementation of daily routines, dietary practices, and specific treatments, *Ayurveda* provides a comprehensive approach to managing sleep disturbances and promoting a healthy, balanced life. *Ayurveda's* holistic approach, incorporating *Dinacharya*, *Ritucharya*, *Rasayana* therapies, and other practices, promotes a healthy lifestyle that supports circadian rhythm, enhances sleep, and delays aging. This approach optimizes bodily functions and supports mental growth in elderly individuals and can significantly improve the quality of life and promote healthier ageing.

REFERENCES

- Smagula SF, Stone KL, Fabio A, Cauley JA. Risk factors for sleep disturbances in older adults: evidence from prospective studies. *Sleep medicine reviews*. 2016 Feb 1;25:21-30.
- Gordon, N.P., Yao, J.H., Brickner, L.A. et al. Prevalence of sleep-related problems and risks in a community-dwelling older adult population: a cross-sectional survey-based study. *BMC Public Health* 22, 2045 (2022). <https://doi.org/10.1186/s12889-022-14443-8>
- Tatineny, P., Shafi, F., Gohar, A., & Bhat, A. (2020). Sleep in the Elderly. *Missouri medicine*, 117(5), 490–495.
- Baghel AS, Vyas MK, Vellela J. Relevance of Sleep for Healthy Living: An Ayurvedic Perspective.
- Espirito JR. Aging-related sleep changes. *Clinics in geriatric medicine*. 2008 Feb 1;24(1):1-4.
- Dijk, D. J., Duffy, J. F., Riel, E., Shanahan, T. L., & Czeisler, C. A. (1999). Ageing and the circadian and homeostatic regulation of human sleep during forced desynchrony of rest, melatonin and temperature rhythms. *The Journal of physiology*, 516 (Pt 2) (Pt 2), 611–627. <https://doi.org/10.1111/j.1469-7793.1999.0611v.x>
- Vitello MV. Sleep in normal aging. *Sleep Med Clinic*. 2006;1:171-6.
- Canever JB, Zurman G, Vogel F, Sutil DV, Diz JB, Danielewicz AL, de Souza Moreira B, Cimarosti HI, de Avelar NC. Worldwide prevalence of sleep problems in community-dwelling older adults: A systematic review and meta-analysis. *Sleep Medicine*. 2024 Apr 5.
- Reynolds AC, Adams RJ. Treatment of sleep disturbance in older adults. *Journal of Pharmacy Practice and Research*. 2019 Jun;49(3):296-304.
- McNicholas WT. Diagnosis of obstructive sleep apnea in adults. *Proceedings of the American thoracic society*. 2008 Feb 15;5(2):154-60.
- Bloom HG, Ahmed I, Alessi CA, Ancoli-Israel S, Buysse DJ, Kryger MH, Phillips BA, Thorpy MJ, Vitiello MV, Zee PC. Evidence-based recommendations for the assessment and management of sleep disorders in older persons. *Journal of the American Geriatrics Society*. 2009 May;57(5):761-89.
- Allen, R. P., Picchietti, D. L., Garcia-Borreguero, D., Ondo, H. B., & International Restless Legs Syndrome Study Group (2014). Restless legs syndrome/Willis-Ekbom disease diagnostic criteria: updated International Restless Legs Syndrome Study Group (IRLSSG) consensus criteria--history, rationale, description, and significance. *Sleep medicine*, 15(8), 860–873. <https://doi.org/10.1016/j.sleep.2014.03.025>
- Vaz Fragoso CA, Gill TM. Sleep Complaints in Community-Living Older Persons: A Multifactorial Geriatric Syndrome: (See Editorial Comments by Dr. Michael V. Vitiello on pp 1882–1883). *Journal of the American Geriatrics Society*. 2007 Nov;55(11):1853-66.
- Tatineny, P., Shafi, F., Gohar, A., & Bhat, A. (2020). Sleep in the Elderly. *Missouri medicine*, 117(5), 490–495.
- Gulia KK, Kumar VM. Sleep disorders in the elderly: a growing challenge. *Psychogeriatrics*. 2018 May;18(3):155-65.
- Telles, S., Pathak, S., Kumar, A., Mishra, P., & Balkrishna, A. (2015). Ayurvedic doshas as predictors of sleep quality. *Medical science monitor: international medical journal of experimental and clinical research*, 21, 1421–1427. <https://doi.org/10.12659/MSM.893302>
- Kumar S, Patel D, Tiwari A, Dwivedi A, Prajapati BL, Verma M. A Review on Role of Shankhpushpi Kalka and Yashtimadhu Taila Shirodhara towards the Management of Anidra. *Journal of Drug Delivery and Therapeutics*. 2019 Dec 6;9(4-A):884-6.
- GK S, MS Bharath M. Exploring the role of “Brahmi” (*Bacopa monnieri* and *Centella asiatica*) in brain function and therapy. *Recent Patents on Endocrine, Metabolic & Immune Drug Discovery*. 2011 Jan 1;5(1):33-49.
- Cheah KL, Norhayati MN, Yaacob LH, Rahman RA. Effect of Ashwagandha (*Withania somnifera*) extract on sleep: A systematic review and meta-analysis. *PloS one*. 2021 Sep 24;16(9):e0257843.
- Arathi R. *Study of sleep-wake properties of α-Asarone, an active principle of acorus calamus linn, in animal insomnia model* (Doctoral dissertation, SCTIMST).
- Sushruth Samhita –Ayurveda TatwasandipikaDipika, edited by Kabiraj m Dr. Ambikaduttshastri, Chowkhamba Sanskrit Santhan, Varanasi, Edition reprint 2022.
- Dornala SN, Sharma OP. Effect of matravasti (medicated oil retention enema) as rasayana (rejuvenative therapy) in jarajanya vikar (problems of aging)-A clinical study. *Indian*

- Journal of Ayurveda and Integrative Medicine KLEU. 2021 Jul 1;2(2):64-72.
23. Tiwari S, Talreja S. Insomnia: A study on sleeping disorder with the reference of ayurvedic herbs. *Journal of Pharmaceutical Sciences and Research*. 2020 Nov 1;12(11):1375-9.
 24. Shrivastava M, Gupta AK, Gupta T. CONCEPTUAL APPRAISAL OF DAILY REGIMEN TO PREVENT AND CURE NIDRANASH WSR TO INSOMNIA.
 25. Manjunath NK, Telles S. Influence of Yoga & Ayurveda on self-rated sleep in a geriatric population. *Indian Journal of Medical Research*. 2005 May 1;121(5):683.
 26. Mehra R, Stone KL, Blackwell T, Ancoli Israel S, Dam TT, Stefanick ML, et al. Prevalence and correlates of sleep-disordered breathing in older men: Osteoporotic fractures in men sleep study. *J Am Geriatr Soc*. 2007;55:1356-64.
 27. Bankar MA, Chaudhari SK, Chaudhari KD. Impact of long term Yoga practice on sleep quality and quality of life in the elderly. *Journal of Ayurveda and integrative medicine*. 2013 Jan;4(1):28.
 28. Khatri B, Kumar M, Niranjana Gautama DV, Yadav SK, Herswani I. DINCHARYA AND RITUCHARYA WSR TO CIRCADIAN RHYTHM AND SLEEP.
 29. Charak samhita - Ayurveda Dipika Commentary of Chakrapanidatta, Tattvaparakasini, edited by Dr. Lakshamidhar Dwivedi, Chowkhamba Krishnadas Academy, Varanasi, Edition reprint 2021.
 30. Chakradutt of Sri Chakrapanidatta with Vaidayaprabha hindi commentary, by Dr. Indradeva Tripathi, Chaukhambha Sanskrit Bhawan, Varanasi. Edition 2022.
 31. Rao RV. Ayurveda and the science of aging. *Journal of Ayurveda and integrative medicine*. 2018 Jul 1;9(3):225-32.
 32. Charak Samhita - Ayurveda Dipika Commentary of Chakrapanidatta, Tattvaparakasini, edited by Dr. Lakshamidhar Dwivedi, Chowkhamba Krishnadas Academy, Varanasi, Edition reprint 2021, page 411.

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