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Kuṭī Prāveśikā Rasāyana: A Model of Human Hibernation

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ABSTRACT

Introduction: *Rasāyana* is a distinct therapy mentioned in *Āyurveda* to decelerate ageing and prevent associated diseases. *Kuṭī Prāveśikā Rasāyana* requires strict regimens under complete isolation. This *Rasāyana* is analogous to hibernation which helps certain animals survive in adverse conditions and increases their life expectancy. **Objective:** Conceptual exploratory analysis of the similarities between hibernation and the measures followed in *Kuṭī Prāveśikā Rasāyana (KPR)* with reference to physiological changes. **Methodology:** Detailed review and theoretical analysis on Hibernation and *KPR* was done on the basis of the parallelism identified in the external environment, influencing the internal physiological changes using classical āyurveda compendiums, modern physiology books, internet sources and journals. **Observation & Result:** Similarity in terms of preferred season, state of vital organs, reduced metabolic rate and state of mind is seen. These physiological changes help in reducing the oxidative stress thereby reducing the rate of senescence. By understanding the changes happening in hibernation, the effects of *KPR* can be inferred. **Conclusion:** *KPR* exhibits close resemblance with hibernation. Reduced systemic functions, provide the body a chance to scavenge the build-up of free radicals and revitalize the body tissues. Thus, *KPR* is one step ahead of hibernation as it is complemented with *Śodhana* and *Rasāyana* intake.

KEYWORDS

Kuṭī Prāveśikā Rasāyana, Hibernation, Autophagy, Antioxidant, Free radicals



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INTRODUCTION

Rasāyanatherapy is an exceptional form of treatment mentioned in Ayurveda in order to decelerate the process of ageing and prevent the diseases associated with the same. It bestows the process of forming the best tissues thereby sustaining the body in a better way. There are two types of *Rasāyana* based on the mode of administration¹.

a.) *Vātātapika Rasāyana* is derived from a blend of *Vāta+Ātapika* i.e. the mode of *Rasāyana* which can be taken while being in the norm of life without any restrictions to exposure of air and sunlight.

b.) *KPR* is the rejuvenation therapy in which the person is made to follow strict regimens under complete isolation from the outer world in a special sanatorium, following which, *Rasāyana* is administered. Moreover special pre-requisites in terms of physical and mental status have been mentioned for the persons undergoing *KPR*.

Among these the latter is the rejuvenation therapy which has more beneficial effects. So it must be due to the differences in the mode of administration. Hence it's necessary to explore the measures followed in *KPR* to understand the entire process and the changes it brings in the body. The environment of hibernation and the range of

changes occurring in the body at the level of vital organs, metabolic rate and body temperature express similitude with *KPR*.

NEED FOR THE STUDY

Mankind has remained aloof of all the miraculous benefits of *KPR* because of its peculiar pre requisites and complex execution. But the fact is that the benefits of this *Rasāyana* lie in the very same measures that are followed within the *Kuṭī*. It is essential to understand the scientific background behind these measures to make it a more accepted and practised therapy. A deep exploratory and explanatory analysis of the various aspects of this mode of *Rasāyana* administration, exhibits its close resemblance with the state of hibernation in animals which makes them capable to survive longer in unsuitable environment. Hence hibernation can form the scientific basis to apprehend the stringent measures followed in *Kuṭī Prāveśikā* and their beneficial impact.

OBJECTIVE

To analyse the similarities between the adaptation showed by hibernating animals and the measures followed in *KPR* by comparing the physiological changes.

METHODOLOGY

Detailed review has been done on hibernation and *KPR* which was followed



by a theoretical analysis of the similarity relations between the two. Basis of comparison is the parallelism identified in the external environment influencing the internal physiological changes. Classical āyurveda compendiums, modern physiology books, internet sources and journals were referred for the same.

Review of Literature:

Constructional Details of Sanatorium:

Deśa: The northern or eastern part of an auspicious place which is resided by noble professionals and where one can stay fearlessly with availability of all essential amenities².

Structure³:

1. *Trigarbha*-With three chambers one inside the other
2. *Sūkṣma Locana*: Small windows for ventilation and sunlight
3. *Ghana Bhittim*: *Kuti* should be made of thick walls
4. *Ṛtu Sukham*: Compatible for all seasons
5. *Manasaḥ Priyaam*: Creates pleasant mind
6. *Śabdādīnām aśastānām agamyam*: unpleasant sound, visuals, smell etc should not enter.

Admission Time: *Uttarāyaṇa*⁴ (Northern Solstice)

Preliminary State of Person for Admission⁵

1. *Dhṛti smṛti balam kṛtvā*-endowed with perseverance and memory
2. *Śraddha*-with full of faith
3. *Vidhūymāna manasa doṣan*-devoid of all mental afflictions
4. *Maitrīm bhuteṣu cintayan*-having compassion for all living beings

Suitability of person for *KPR* is also discussed under the fourth part of *Rasāyana Adhyāya* where following criteria have been considered⁶

Samarthānām: Capable and competent

Arogāṇām: free from diseases

Dhīmatām: endowed with intellect

Niyata ātmanām: self controlled

Kṣaṇinām: who has sufficient time to spare

Parichadavatām: who has all the necessary equipment.

Procedure

The person should undergo *snehana*, *swedana*, followed by *śodhana* with *Harītakādi cūrṇa*⁷ which includes *harītakī*, *saindhava*, *lavana*, *amalakī*, *guḍa*, *vacā*, *viḍanga*, *haridra*, *pippalī* and *śuṅṭhi* taken in equal quantity and made into *Cūrṇa* and taken with warm water subsequently *Samsarjana karma* with *Yāvaka+Ghṛta*⁸ can be followed for 3, 5 or 7 days based on the level of purification. *Cakrapāṇi* says *Yāvaka* refers to *yavāgū* made out of *Yava* and finally *Rasāyana* is administered in accordance with person's *Prakṛti*, *Vaya* and *Sātmya*⁹. In such a state



when *Rasāyana* is taken it bestows him the best result of *Rasāyana* in the form of *Parama deha bala*, *Indriya bala* and *Dīrghāyu*¹⁰.

Hibernation: Hibernation is a state of inactivity and metabolic depression in endotherms¹¹.

Hibernation improves the life expectancy of animals and slows down ageing by bringing rejuvenating physiological changes inside the body¹². Hibernation is characterized by:

a. Low metabolic rate

Role of Hibernation is to conserve energy when sufficient food is unavailable and to survive in adverse climatic conditions. To achieve this energy saving, an endothermic animal decreases its metabolic rate and thereby its body temperature. Animal basically survives on body's stored fat and there is no food intake. Physical activity is negligible as they enter into a dormant sleep phase thereby reducing loss of energy¹³. Reduction in metabolic rate begin before body temperature fall, suggesting active mechanisms of metabolic suppression rather than passive thermal effects. Mitochondrial respiration is reduced especially in liver mitochondria invoked quickly during entrance into hibernation¹⁴. Reduced metabolism gives rise to autophagy wherein cells capture their own cytoplasm and organelles and consume them in lysosomes. The resulting

breakdown products are input to cellular metabolism, through which they are used to generate energy and to build new proteins and membranes. Autophagy preserves the health of cells and tissues by replacing outdated and damaged cellular components with fresh ones. In starvation it provides an internal source of nutrients for energy generation and thus survival. A powerful promoter of metabolic homeostasis autophagy prevents degenerative diseases¹⁵.

b. Low body temperature: Hibernators reduce body temperature from normothermia (35-40 degree celsius) to 30 degrees on average and in some species it can fall by more than 40 degrees celsius. Over this entire temperature range, body temperature falls in line with the environmental temperature¹⁶. During entrance to hibernacula an active resetting of the hypothalamic thermostat regulates temperature in accordance with environmental temperature¹⁷. The lowered temperature is regulated at the new set point making fewer demands on metabolism and food stores¹⁸. Studies done at the Scripps Research institute reveal that prolonged lowering of core body temperature increases life span and reduces aging¹⁹.

b. Slow breathing: the key mechanism which helps animal to reduce respiratory



rate is the extreme reduction in energy metabolism within the cells²⁰.

c. Reduced Heart rate: Fall in heart rate begins before there is any noticeable fall in body temperature. Progressive decrease in heart rate is the result of a cyclic parasympathetic activation²¹.

A number of studies are being carried out to understand the secondary outcomes of Hibernation other than survival for its application in human life. Some of them are neuroprotective, cardioprotective and osteoprotective mechanism and also regeneration of visual cone cells.

Objective:

To analyse the similarities between the adaptation showed by hibernating animals and the measures followed in *KPR* by comparing the physiological changes.

METHODOLOGY

Detailed review has been done on hibernation and *KPR* which was followed by a theoretical analysis of the similarity relations between the two. Basis of comparison is the parallelism identified in the external environment influencing the internal physiological changes. Classical āyurveda compendiums, modern physiology books, internet sources and journals were referred for the same.

OBSERVATION

Kuṭī Prāveśikā Rasāyana is similar to hibernation in the following aspects: [Table 1]

Table 1 Points of Similarity

Factor Compared	Hibernation	Kuṭī Praveśika Rasayana
1. Period of entry	Winter	Winter
2. Cardiac Activity	Low	Low
3. Mental Status	Peaceful	Peaceful
4. Metabolic Rate	Low	Low

a. Weather of Hibernation and *Kuṭī Prāveśa Kāla:Uttarāyaṇa Kāla* i.e. when sun is in northern solstice, that is the winter season is the period of entry into *Kuṭī*²² and animals also go into hibernation in winters until the summer approaches to withstand the frosty winter²³.

b. State of vital organs:

Heartbeat of Polar bears during hibernation is less than 14 beats per minute as an adaptation to reduce the energy consumption²⁴.

Analogously in *KPR* also the cardiac activity may be low, considering the fact that the body is detoxified and also the state of mind that is recommended both before and after the entry into *Kuṭī* is a peaceful psychological status devoid of mental stress.

c. Decreased metabolic activity and increased Antioxidant defence: Calorie uptake is kept at minimum and the body is



given a chance to activate the mechanism of scavenging the accumulated free radicals by increasing the anti oxidants²⁵. Anti oxidants repair and rejuvenate old cells making them as good as new²⁶. In *Kuṭī* long with these physiological changes, one also gets the benefits of taking *Rasāyana* post *Śodhana*²⁷ which leads to best quality rasa formation, which increases the *Uttarotara Dhatu Pośana*. *Śukra Dhatu* and *Ojas* thus formed possess the best *Guṇa*²⁸ thereby increasing physical endurance, immunity, vivacity and virility.

d. State of Mind: In both these cases the state of mind is very peaceful which is a synergy to health. It is mentioned that the person should be devoid of all the *Mānasika Dośa* before entering *Kuṭī*²⁹. Moreover the person is alone, which gives place for introspective analysis and helps in throwing off all the accumulated stress.

CONCLUSION

Hibernation improves the life expectancy of animals and slows down ageing by bringing rejuvenating physiological changes inside the body. Same mechanism is set in within the body of a person who enters *Kuṭī*. Moreover undergoing *Śodhana* in a completely isolated chamber has an added advantage. It not only detoxifies the physical body but also gives the person a

chance to ward off all the mental and physical stress by giving complete rest to all *Karmendriya* and *Jñanendriya*. In such a state when *Rasāyana* is taken as per the *Prakṛti* of the person it bestows him the best result of *Rasāyana* in the form of *Paramadeha bala*, *Indriya bala* and *Dīrghāyu*. Thus, *Kuṭī Prāveśikā* is one step ahead of all the beneficial aspects of hibernation as it is complemented with *Śodhana* and *Rasāyana* intake.



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