Role of Exercise in Prevention of Ageing from Ayurvedic Perspective

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Abstract

Media today is enriched having a lot of stories and fairy tales about the anti-ageing therapies. Life style is the way a person lives; this includes the daily set patterns of living, social relations, dietary regimen, behavioral aspect. Man has landed himself in the advanced, progressive and modern era indeed but still has not stopped his quest to define, to term or to postulate that this is the ultimate happiness (Sukha) factor which he was in search of. The quest of sukha has also led man into eagerness; curiosity to follow the same compensating own health. Ayurveda implies the concept of Swabhavaparamvada means natural destruction. The ageing broadly can be stated as the continuous, irreversible deterioration in the bodily structures and the efficacy with which they work. Simultaneously with the complete maturation and development of brain with its functional status of a human he is unable to stop himself by ceasing the age which is continuously growing. As the natural ageing (Swabhavaparamvada) cannot be avoided altogether, but the onset and manifestation of ageing occurring ahead of time can be prevented by the practicing regular exercise and rejuvenating herbs and similar therapeutics. This topic is concerned with the same subject enhancing the support of exercise in former age and rejuvenating medicines in later age which marks their influence in the process of ageing.

Keywords

Ageing, Swabhavaparamvada, Exercise

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INTRODUCTION
In this era everyone is having a clear research agenda to emerge with multiple new ways to stay young as if they are in search of holy nectar to stay young and envisage their victory over ageing. Even though cease of ageing is inevitable, it is essential to know and restrict the changes which diagnose the commencement of ageing.

According to the modern disciplines of medicines ageing is probably the result of the breakdown of the cellular safety factors. Accidental exposure to unfavourable environmental changes, genetics and inheritance stands as the other cause which contributes as the major share of the same. The free radicals necessary for physiological functions may play a role to damage the cellular integrity, accumulation of wastes and altering the natural physiological process by mutation leading to carcinogenic changes. Thus are meant to be highly reactive species. They hold a major share in ageing and development of degenerative disorders. The probable mechanism of any cell or tissue is to react with the free radical and inactivate them keeping them highly potent to create unwanted changes. Body itself is also capable for producing newer antioxidants with certain limits. The body which remains continuously in inactive state, cells tissues lethargic, leads to a condition where the nourishment necessary for cell is not provided properly and gets stagnated thus affecting nourishment of next coming tissue in the cascade.

It is also believed that the overuse and abuse of cells, damaged tissues of body and the factors contributing same include- ingestion and over accumulation of toxins in body through diet; excessive consumption of sugar, fat items; alcohol and nicotine; aerated drinks, soda; radiations; physical and mental stress and so on. This manifests the wear and tear theory principle. Altogether the movement of body is must which should be at gross level of whole body itself and subtle level at cells, tissues as well. The exercise, workout thus plays an important role in this entire scenario.

OBJECTIVES
1) Highlighting the process of Ageing
2) Knowing the role of exercise in prevention of premature Ageing
3) Role of Lifestyle and Rasayana therapy in management of Ageing
4) Role of Ayurveda in prevention of Ageing

MATERIALS AND METHODS
1) Detailed compilation regarding Ageing, Exercise and Lifestyle as mentioned in Ayurvedic treatise.
2) Literature about the exercise and sports physiology was screened.

REVIEW OF LITERATURE
SWABHAVAPARAMVADA-THEORY OF NATURAL DESTRUCTION\(^1\)-
This theory was postulated by Buddha and mentioned in Ayurved treatise. Any abnormality or alteration in factors responsible for growth, development and nourishment of any body tissues may lead to destruction, disequilibrium of the body tissues and internal environment as well. However, the tissues regains to normalcy automatically as soon as the causative factors fades away. It also states that there is a reason for origin and development of any object while there is no any reason for destruction or simply the absence of reason is sufficient for destruction of the object. It altogether concludes Ageing as physiological process with no any specific reason for it. This can be explained with the help of time viz., Kala. It is always unstoppable which cannot be either changed or altered and as it goes on it shows its impact by manifesting changes in bodily tissues. Thus all the things which are originated and developed are perishable without any specific reason. This makes a clear conclusion that there is no any alteration in destruction pattern of a human being which stands as a physiological process.

AGEING FROM AYURVEDIC PERSPECTIVE-
Ayurveda clearly states that the involvement of three doshas in the origin, existence and destruction\(^2\) of human body on gross and at its subtle level also. The working mechanism of three doshas is supported by the Panchamahabhuta\(^3\). The development process throughout life till death is accompanied by the inter conjugation of the doshas and thus Panchamahabhuta. These doshas work due to existence of extremely potential attributes in them namely-Guna.

The doshas have a very vital role to play throughout the age- diurnal regimen- dietary regime which is stated in Ayurvedic treatise\(^4\). The age factor here shows the rise of or precisely dominance of Vatadosha as the age advances. The three biological forces govern all the systemic and cellular activities of body in pursue of their equilibrium condition. As the age advances the gradual rise in Vatadosha ultimately land up into diminution of Dhatu, Oja, Bala, Indriya karma emerging as manifestations of ageing. The Agni responsible for basic metabolism of body maintains vigor and vitality and also keeps the continual growth and decay of body. With the progression in age the Ahara rasa formation is hampered due to practicing etiological factors supporting impairment of Jatharagni. The act of wear and tear with the progression of age gradually starts worsening; landing up in Jara stage. With this the major vitality force of body – Prana is somehow disturbed. Prana is the vital force acting in body and governs duos Oja and Teja principally. As the age advances the displacement of Oja from its own site tends to creates Kaphadosha related disorders broadly studied under – OjaVistramsaa. Also with the advancement of age there starts
quantitative depletion of Oja from body resulting into Vatadosha related disorders broadly studied under – OjaKshaya. Whereas the Teja factor with the advancement of age manifests by showing disturbances in metabolic activities of body. Aggravated and adultered Oja diminishes the strength and potential of Teja thus hampering metabolic activities. The aggravated Tejas induces

- **Karshya:** Emaciation as seen in Marasmus, prolonged starvation, impaired functioning of Jatharagni
- **Karshnya:** Blackish discoloration, Hyperpigmentation as seen in Cushing’s disease, Cyanosis.
- **Ushnakamita:** Desire for hot items-Hypothermia, Anemia
- **Kampa:** Tremors as like in parkinsonism, Tetanus, Epilepsy
- **Anaha, Shakrutgraha:** Constipation, Abdomen fullness, Ascites
- **Nidranasha:** Insomnia due to stress, anxiety, old age, severe medical ailments e.g. Arthritis
- **Alpabala:** Weakness due to excess protein depletion, Hypoglycaemic state.
- **Gadhvarchas:** Hard stool due to diet rich in starch, fibers causing obstruction
- **Alpavakatvam:** Dysarthria due to loss of muscle tone in articulatory system

extreme burning sensation inside body which may reduce Oja also it over stimulates the Prana thus leading to in-co-ordination of bodily activities. The effect of all these is seen throughout body on subtle as well as gross levels.

**Associate Ageing symptoms manifested in relevance with DoshaDhatu Mala:**

- **Mandacheshtata:** Sluggish or diminished movements specially seen in Lower Motor Neurons Defects
- **Apraharsha:** Depression, anxiety in deficiency specially Vit.B12 and Iron.
- **Samdnyamoha:** Dysfunction of sensory organs. Deficient to perceive senses of vision, hearing, taste, smell; sensory ataxia
- **Balahani:** Weakness. Loss of Proteins
- **Indriyadaurbalya:** Weak perception of senses due to non-efficiency of sense organs as age advances.
- **Mandoanala:** Hypothermia as in hypovolumic state
- **Prabhahani:** Loss of skin luster, tone as seen in hormonal disorders, decreased melanin secretion, Anaemia.
- **Agnisadana:** Loss of appetite, hypothermia, decreased metabolic rate
- **Prasek:** Dribbling saliva
- **Alasya:** Lethargicity, Inactiveness
- **Shwas, Kasa**: Breathlessness with or without productive cough as in respiratory distress syndrome.
- **Rukshata**: Dry and rough skin as in malnourished children, dehydration
- **Antardaha**: Burning sensation, hot flushes as in post menopausal syndrome
- **Amashayashunyata**: Deficient gastric juice secretion, Achlorhydria, shrinkage
- **Shleshmashayashunyata**: Deficient CSF production, loss of synovial fluid, less production of surfactant in respiratory membrane - Interstitial lung disease, etc
- **Shlathasandhita**: Loosened or Weakened Joints and its movement
- **Rasa dhatukshaya**: Agni Sadana (Weakened Digestive Fire), Shaitya (Hypothermia), Alasya (Inactive), Shlahangatva (Lethargicity), Shvasa (Dyspnoea), Kasa (Cough), Rukshata (Dryness), ShabdaAsahishnu (Irritability)
- **Raktdhatukshaya**: Parusha (Roughned Skin), Sphutita (Cracked Skin), SiraShaithila (Tortuous And Dilated Veins Over Skin)
- **Mamsadhatukshaya**: DhamniShailthila (Lack Of Elasticity Of Blood Vessels), SandhiVedana (Joint Pain)
- **Medadhatukshaya**: PlihaVruddhi (Enlargement Of Spleen), SandhiSphutan (Crepitation At Joints), AkshanoAyasa (Eye Muscle Fatigue), Krushangata (Emaciation)
- **Asthidhatukshaya**: Nakha (Nails), Asthi (Bones), Kesha (Hairs Over Scalp), Loma (Hairs Over Skin), Dvija (Teeth) – Toda (Pain), Patan (Shedding Off)
- **Majjadhatukshaya**: ParvaBheda (Joint Pain), Asthi Toda (Shivering And Pain At Bones), AlpaShukra (Quantity Wise Lack Of Seminal Fluid)
- **Shukradhatukshaya**: Daurbalya (Weakness), Pandu (Anemic), Klaibya (Impotency), AshaktiMaithun (Lack Of Libido), MedhraVrushanVedana (Pain In Genitals)
- **Mutra**: MutraKshaya (Scanty Urination), MutraKruccha (Difficulty In Micturition), SaraktaMutraPravruti (Hematuria), KruteApiAkrutaMutraSamvedana (No Satisfaction In Urination), MuhurmuhuMutraPravruti (Frequent, Dribbling Micturition)
- **Purisha**: UdarShoola (Pain In Abdomen), Aatopa (Abdominal Discomfort), SashabdaPurishaPravrulti (Flatulence)
- **Sveda**: StabdaromaKupata (Congested, Blocked Pores Over Skin)
**Sparsha Vaigunyata** (Lack Of Perception Of Tactile Sensation)

**Oja Kshaya** - Bibheti (Inferiority complex, feeling under constant threat),

**Durbalabhi kshna** (General debility),

**Dhyayati** (constant worrying without any specific reason),

**Vyathita Indriya** (impairment of functioning of sense and motor organs),

**Dushchaaya** (loss of luster, complexion),

**Durmana** (lack of self confidence),

**Moha** (fainting),

**Pralapa** (delirium),

**Maran** (death),

**Mamsakshaya** (loss of muscle mass)

Special set of ageing symptoms described by Sharangdhar:-

1. **Balya** (Childhood)
2. **Vruddhi** (Growth & Reproduction)
3. **Chavi** (Complexion)
4. **Medha** (Intellect)
5. **Tvak** (Skin attributes)
6. **Drushti** (Vision)
7. **Shukra** (Potency)
8. **Vikram** (Vigour and Vitality)
9. **Buddhi** (Reasoning & Aptitude)
10. **Karmendriya** (Motor organs)
11. **Chitta** (Mental State)
12. **Jivita** (Death)

**EXERCISE**

Exercise is a bodily activity performed to maintain the fitness and overall health of body. It has been called a wonder drug or miracle drug by some health care providers. Life is nothing but a mere movement. When there is no movement life ceases to exist. Vyayama as per Ayurveda carries a vital importance to sustain the Swasthaavastha of an individual. It is defined as the physical potential or strength to carry out any given task. It is again sub-classified as - Sahaja, Kalaj, Yuktikruta

Sahajbala:- It is the potential which is inherited from parents to their upcoming generation which tries to sustain and maintain the dhatusamya (homeostasis) of body. It may vary from person to person.

Kalajbala:- The whole universe is endorsed with the limitations of Disha and Kala one of the nine causative factors which are continuously running. This progression of Kala has a crucial impact over our body which is natural and cannot be changed but be prevented from being affected early.

Yuktikrutbala:- This being acquired after birth is achieved by well organized and planned dietary regimen which is chosen for achievement of proper growth, development of body and its organs and enhancing strength, stamina.

Benefits of exercise:-

1) Reduces body fat
2) Increases lifespan
3) Restricts the susceptibility of diseases
4) Boosts mood
5) Boosts immune response
6) Maintains mobility
7) Improves memory power
8) Improves neuro muscular coordination
9) Strengthens heart
10) Strengthens muscles
11) Strengthens bones
12) Detoxifies body
13) Decreases stress
14) Lowers blood pressure
15) Reduces cancer risk
16) Increases sexual performance
17) Improves physique

**Exercise and Ayurvedic examination parameter:**

*Dhatusarta* is one of the special concepts of *Ayurveda* depicting its actual role in career or profession choosing specially in up growing children. The main aim of examining *dhatusarta* is to validate the strength or *bala* potential of any individual\(^{10}\). Our body having seven different types of tissue framework which are again made of specific constitution endorsed with the five essential elements viz. *Mahabhuta*. This makes up the physical constitutional make up of that particular *dhatu* and ultimately of human being itself. Thus depending on the constitutional make up of *dhatus*, the resultant feature is manifested in human body as a are of interest in any particular routine activity which can later be counted as a hobby of that individual. Say for playing outdoor games, body building, glamorous and grooming, food addict, involves more in competitive intellectual events and many more.

The current property of exercise which may be physical or psychological or intellectual but here it means physical exercise is also relevant with the *dhatusarta*. When we come across the features mentioned in *Mamsa* and *Asthisarta* we can see the potential of such peoples for physical workout which can be later compared with peoples of *Rasa*, *Rakta*, *MedaDhatuSarta*. Following are features mentioned in some *dhatusarta* verse depicting the status of a individual for physical work out\(^{11,12}\).

**Physical potential weak**

1) Rasa sarta - Sukumara
2) Raktasarta – saukumarya, anatibal, kleshaasaishnu
3) Medasarta – upabhoga, sukumara, aayaasaahishnu
4) Majjasarta – mrudvanga,

**Physical potential strong**

1) Mamsasarta – guru sthiramamsopchita, balam
2) Asthisarta – kriyavanta, kleshasaha, sarasthirasharira
3) Majjasarta – balvanta, uttambala, sthuladirghavruttasandhi
4) Shukrasarta – balvanta

**Rasayanatherapy**

*Rasayana* therapy is a specialized branch of *Ayurveda*, having the potential in immune-enhancing and providing longevity especially at the older stage. It proves to be effective in minimizing the impacts of ageing. It mainly works to – provide *Rasa* (nourishing fluid) throughout body without any hindrance; enhancing *Agni* component to ensure correct metabolism; reassuring *Strotas* the micro circulating channels to maintain the nourishment. Any drug, medicine, herbs, diet or supplement supporting this property lists under *Rasayana*. Broadly these *Rasayana* therapies are meant to compensate the bio-losses. There are some *Rasayana* which are organ specific as – *MedhyaRasayan, Chakshusya, Hridya* and many more.

**Benefits of Rasayana Therapy:**

- *Rasayana* therapy nourishes the tissues by improving circulation of blood, lymph.
- It also improves the metabolic bio-transformations resulting into best quality body tissues
- It also helps to delay the senility and other metabolic diseases especially at older age.
- It also goes hand-in-hand with the *Vajikara* therapy by improving quality of *shukradhatu*.
- It boosts a natural resistance against susceptible diseases.
- It increases immunity by immune-modulator impact on body preventing auto-immune diseases.
- It reduces the oxidative stress by managing the free radicals and thus delays the ageing process.

**Principles for Management of ageing:**

It is a process of natural destruction as the age advances, which comes under the palliative care strategy. It is inevitable to avoid this process but can be prevented in the early age by practicing disciplined lifestyle.

Some of them are mentioned here-

1) Practice to prevent any deviation in the *doshas* either *vruddhi* or *kshaya* say for- suppression of natural urges, daytime sleep, vigorous physical work and many more.

2) Daily principles of lifestyle must be practiced as mentioned under *Dinacharya* say for- *BrahmyaMuhurtaUttishtayet, Abhyanga, Nasya*, cleaning and purification and many more.

3) Follow the principles as mentioned in *Sadavritta, AcharRasayana*
4) Following Seasonal regimen in diet, daily activities as described in *Ritucharya*.
5) Undergoing *Panchakarma* procedure for sustenance of healthy condition and longevity as per seasonal regimen.
6) Dietary regimen principle described by *Ayurveda* - *Laghu* (light) and *Santarpan* (nutritive).
7) *Rasayana* drugs for palliative care and prevention of future diseases. Some of them are mentioned below -

**Rasayana drugs**

1) **Heart**: *Terminalia arjuna* (Arjuna)
2) **Skin diseases**: *Semecarpus anacardium* (Bhallataka), *Embelia ribes* (Vidanga) and *Psoraliacorylifolila* (Bakuchi)
3) **Memory booster**: *Baccopamonnieri* (Brahmi), *Centelaasiatica* (Mandookaparani), *Celastruspaniculata* (Jyotishmati), *Mucunapruriens* (Kapikachhu)
4) **Musculo skeletal ailments**: *Boswelliaserrata* (Sallaki), *Commiphoramukul* (Guggulu) and *Zinziberofficinale* (Sunthi).
5) **Respiratory ailments**: *Albezialebeck* (Sirisha), *Inularacemosa* (Pushkarmula), *Curcuma longa* (Haridra) and *Terminaliachebula* (Haritaki).
6) **Diabetes**: *Trigonellafoenumgraecicum* (Methika), *Curcuma longa* (Haridra), *Cinnamomuntamala* (Tejpatra), *Black bitumen* (Shilajeet), *Emblicaofficinalis* (Amalaki).
7) **Hypertension**: *Rauwolfiaserentina* (Sarpagandha), *Valerianawallichii* (Tagara), *Nardostachysjatamansi* (Jatumansi).
8) **Immune health**: *Tinosporacordifolia* (Guduchi), *Emblicaofficinalis* (Amalak), *Withania somnifera* (Aswagandha).
9) **Geriatrics Care**: Formulatory preparations of *Commiphoramukul* (Guggulu), *Chyawanprasha*, *Medhyarasayanas*, *Ashwagandha*, *Triphala Churna*, *AmalakiRasayana*.
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