

A literature review on

# The Role Of Ayurveda In Promoting Graceful Ageing

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By Dolly Garton

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# Abstract

**Objectives:** To assess the role of ayurveda in promoting graceful ageing in light of ayurvedic literature and modern literature and research evidence.

**Scope of Dissertation:** The literature reviewed covers both ancient ayurvedic texts which constitute the primary source, as well as more recent literature covering modern understandings surrounding the subject matter. This secondary source constitutes scientific and medical literature including recent clinical trials as well as other relevant literature covering the spheres of sociology, anthropology, philosophy and economics.

**Interventions:** the emphasis in ayurveda is on prevention rather than cure. It is in this role that it addresses the promotion of graceful ageing. The interventions are two-fold: *swastha vrta*, the maintenance of health through regimens or practices throughout life; *rasayana*, treatments which target specific tissues.

**Conclusion:** Ayurveda has a significant role to play in promoting graceful aging. However more research has to be carried out. Many of the techniques prescribed by Ayurveda are being acknowledged today by organisations such as the WHO. In light of this, the validity of other proposed techniques in ayurveda should be assessed. It is seen that there is a strong rationale in Ayurveda and although much scientific research has been carried out on some of the *Materia Medica*, little emphasis is placed on the original conceptual framework of ayurveda. Thus, research should be carried out in the light in which it was intended, to truly assess its validity.

# Foreword

‘Kate’ [Carver, V. et al, 1978]

‘Kate’, the writer of this poem, was unable to speak, but was occasionally seen to write. After her death, her hospital locker was emptied and this poem was found.

What do you see nurses  
    What do you see?  
Are you thinking  
    When you are looking at me  
A crabbit old woman  
    Not very wise,  
Uncertain of habit  
    With far-away eyes,  
Who dribbles her food  
    And makes no reply,  
When you say in a loud voice  
    ‘I do wish you’d try’  
Who seems not to notice  
    the things that you do,  
And forever is losing  
    a stocking or shoe,  
Who unresisting or not  
    Lets you do as you will  
With bathing and feeding  
    The long day to fill,  
Is that what you’re thinking,  
    Is that what you see?  
Then open your eyes nurse,  
    You’re not looking at me.  
I’ll tell you who I am  
    As I sit here so still,  
As I use at your bidding  
    As I eat at your will.  
I’m a small child of ten  
    With a father and mother,  
Brothers and sisters who  
    Love one another,  
A young girl of sixteen  
    With wings on her feet,  
Dreaming that soon now  
    A lover she’ll meet:  
A bride soon at twenty,  
    my heart gives a leap,  
Remembering the vows  
    that I promised to keep:  
At twenty-five now  
    I have young of my own  
Who need me to build  
    a secure happy home.

A young woman of thirty  
    My young now grow fast,  
Bound to each other  
    With ties that should last:  
At forty my young ones  
    Now grown will soon be gone,  
But my man stays beside me  
    To see I don’t mourn:  
At fifty once more  
    Babies play round my knee,  
Again we know children  
    My loved one and me.  
Dark days are upon me,  
    My husband is dead,  
I look at the future  
    I shudder with dread,  
For my young are all busy  
    Rearing young of their own,  
And I think of the years  
    And the love I have known.  
I’m an old woman now  
    And nature is cruel,  
‘Tis her jest to make  
    old age look like a fool.  
The body it crumbles,  
    Grace and vigour depart,  
There now is a stone  
    Where once I had a heart:  
But inside this old carcass  
    A young girl still dwells,  
And now and again  
    My battered heart swells,  
I remember the joys,  
    I remember the pain,  
And I’m loving and living  
    Life over again,  
I think of the years  
    All too few – gone too fast,  
And accept the stark fact  
    That nothing can last.  
So open your eyes nurses,  
    Open and see,  
Not a crabbit old woman  
    Look closer – see ME.

# CHAPTER 1 - Introduction

## **Rationale for Choice of Subject**

Since time immemorial man has tried to become immortal. This is seen in the Middle Ages, in the interest of alchemists to produce an elixir of life; in the immortality of gods in the Greek and Roman mythologies, to name but a few examples. This is reflected in our society, which idealises youth. This quest for eternal youth is driven and sustained in present society by the media and advertising industries.

The paradox is that our society is an ageing one, and we see our elderly cast aside, and put in retirement homes. From an ayurvedic perspective, taking a holistic approach to health and care, it seems essential to explore this fundamental contradiction between our quest for youth and the reality of a senescent society, by finding a way of ageing gracefully. This dissertation comprises a literature review. It will be of the ayurvedic perspectives on the ageing process, as well as the interventions used to maintain health throughout life, and thereby its affect on improving the quality of life in older people.

Statistics show that by 2025, there will be about 1.2 billion people over the age of 60 in the world. A quarter of a century later by 2050, the number of over 60s will almost double to 2.4 billion, and 80% of older persons will be living in the developing countries (Brundtland 2002).

The reason for this population shift is a combination of both longer lives and declining birth rates due to technological, socio-economic and scientific advances put into motion several decades ago. In particular, medicine and public health advances have enabled people to live longer and the intervention of contraception has brought the birth rate down. In countries where these advances have not yet been fully implemented, high birth and infant mortality rates are still prevalent. However, here also the trend is gradually changing towards an ageing population (Brundtland 2002).

Accompanying this boom in the ageing sector of the population is an epidemic in Non-Communicable Diseases (NCDs), such as heart diseases and diabetes. These NCDs make up the large percentage of diseases by midlife, (40 to 45 years). They will go on to be responsible for the vast majority of deaths. Ageing in developing countries will be worst hit with doubling of NCDs, and insufficient resources to cope.

Developed countries, on the other hand, having become affluent before this population growth happened, are better equipped to face these challenges. Regardless of where they occur, these NCDs are expensive to treat, and once established, are long lasting, and often incurable (WHO 1997).

## Scope of Dissertation

Ayurveda's primary emphasis is on promotion of health and hence prevention of disease, above that of curing disease<sup>1</sup>. Thus, in its preventative role, it can have a great impact upon the health sector of age related physiological deterioration and NCDs.

Acknowledgement of the vastness of the subject to be explored, the areas to be focussed on in this dissertation are outlined below.

Chapter 2 will begin by looking at certain key philosophical concepts, which inform Ayurveda. It will provide a knowledge base from which to view and understand man. The concept of time will also be explored, ageing being defined by the Oxford Dictionary as phenomenon of time. Within this context, another concept mentioned in Ayurveda, 'Timely Death', will also be discussed.

The second part of chapter 2 will explore the concept of ageing. Many theories for the causes for the ageing process and its premature advent have been proposed in contemporary science. These are broadly categorised: the individual's response to and interaction with their society and environs and the physiological and structural changes, which are responsible for the person to age (Cormack, 1985). However, in this chapter, the ageing concept within the ayurvedic conceptual framework will be discussed. This will be done by first exploring the definition of health. Then the deviations from this state, as seen in *rtu-* and *vyadhi-kriyakala* will be explored. Finally, the state of the *sarira* and *manas* in old age will be discussed.

Chapter 3 will look at the cultural and social perspectives that provide man with a map of life. In the Hindu system, this comprises of two major concepts, the *purushartas* and the *asramas* (Radha Krishnan, 1980). The *purushartas* provide the purposes to life, and the *asramas* the stages to life. These will be explored and compared with the life map today. Finally, the attitudes towards older people will be

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<sup>1</sup> CS Chik 1:1:4

explored in this chapter, both in the times the ayurvedic treatises came about and today.

Chapter 4 will explore and discuss the therapeutic interventions described by Ayurveda, namely *swastha vrta* and *rasayana*. The purpose of *swastha vrta* is to maintain health in the body, by regimens or practices to live a healthy life on a daily and seasonal manner. As food plays an important part of treatment in Ayurveda, Charaka's eight factors of dietetics<sup>2</sup> will be explored. Conversely, the purpose of *rasayana* is to increase immunity in target organs. The *rasayana* most relevant to older age groups will be focussed on and their rationale discussed.

Chapter 5 will discuss the socio-economic, environmental and cosmic implications of ageing, before coming to a conclusion in the final chapter, Chapter 6.

A wide range of literature will be sourced. Ayurvedic literature, such as The *Brhat* and *Laghu Trayi*, as well as more modern Ayurvedic authoritative books, such as *Bhava Prakash* and dravyaguna texts such as *Sarangadhara Samhita*. Ancient religious texts, such as the *Bhagavad Gita* and the *Vedas* will be drawn on. These will provide insight into the social climate, the ethics and morals that pervaded society; at the time the ayurvedic texts were written. As this dissertation will be addressing all aspects of the human being, it is important to look at these texts to review the concept of ageing from a religious and social perspective in order to see how they translate into more contemporary surroundings.

A wide range of modern literature, such as medical books covering for example anatomy, physiology, pathology and geriatric medicine will be sourced. The paradigms used in this dissertation will be from an ayurvedic perspective. However, it is important, where appropriate, to look at the modern allopathic research evidence.

Journals from various disciplines will be used. Primarily ayurvedic journals will be used, such as the 'Journal of Research in Ayurveda and Siddha' (JRAS) and 'Ancient Science of Life'. They provide clinical research literature into the validity, safety and therapeutic benefits of various techniques, methods and herbs within Ayurveda.

Non-ayurvedic journals relevant to ageing, such as 'The Ageing and Society' journal, will provide an understanding of human ageing in the wider social and cultural

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<sup>2</sup> CS Vim 5:1-21

context. Medical Journals such as the British Medical Journal (BMJ) may provide research literature to justify, clarify or prove points where relevant.

Literature provided by the World Health Organisation (WHO), the United Nations agency for promoting health worldwide will be sourced. The WHO is finding that there is an increasing risk for chronic conditions beginning in early childhood or even earlier. Their policies reflect this and so will be sourced. In particular, their 'Policy for Healthy Ageing and Prevention of NCDs' as part of the 'Health for All Policy Framework for the WHO European Health: Health 21'.

## **Objectives**

Today, there is a shift of health values to more preventative aspects of medicine. Ayurveda demonstrates that preventative action is of primary importance in slowing down the onset of undue or untimely ageing. By looking at the various ancient literature sources, the concept of ageing in Ayurveda and the techniques used to age gracefully will be explored. To do this properly the philosophy behind the concepts regarding man and the universe must be understood. As ageing is not just a physiological phenomenon but has further cultural, social and environmental implications, these must also be addressed (WHO, 1997). This will allow for a critical discussion of the efficacy of the techniques used by Ayurveda in light of modern research evidence.

# CHAPTER 2 - Ageing and Older People in Ayurveda

The concept of ageing, within the ayurvedic conceptual framework, will be explored and critically evaluated in this chapter. Particular attention will be placed on the ayurvedic classical literature, the *Brhat* and *Laghu Trayi*. Prior to investigating this, some of the Indian philosophical concepts underpinning Ayurveda will need to be explored. Only then can we fully understand the ageing concept within Ayurveda.

## 1. Philosophical concepts

The fundamental philosophical concepts, such as that of *purusha* (human being) and *manas* are used to provide a knowledge base in Ayurveda. Some of these will be briefly discussed initially. The second aspect to be explored will be *kala* (time), as ageing is defined in the Oxford Dictionary ‘as an effect of the passage of time’.

### a Knowledge base

Charaka tells us that the *purusha* (human being) is made up of *satva* (mind), *atma* (soul) and *sarira* (body)<sup>3</sup>. *Atma*, which has consciousness<sup>4</sup>, is absolutely free to act as it pleases. *Manas*, which is active, but devoid of consciousness, can only manifest action when joined with *atma*. *Atma* has the choice of whether to use *manas* (mind) to take appropriate actions to live a healthier life<sup>5</sup>. Thus, there is the concept of free choice and responsibility towards one’s own state of health in Ayurveda.

*Manas* (mind), plays a vital role in the manifestation of health and disease<sup>6</sup>. The misuse of its faculties of *dhi* (intellect), *dhrti* (patience) and *smrti* (memory)<sup>7</sup> as regard to time, mental faculties and objects of sense organs<sup>8</sup> leads to *prajnaparadha* (intellectual blasphemy)<sup>9</sup>. This is one of the ways in which

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<sup>3</sup> CS Sutra 1:46-47

<sup>4</sup> CS Sari 1:75-76

<sup>5</sup> CS Sari 1:78

<sup>6</sup> CS Sutra 1:55

<sup>7</sup> CS Sari 1:102

<sup>8</sup> CS Sutra 1:54

<sup>9</sup> CS Vim 6:8

disease is caused, the others being *asatmyendriyārtha samyog* (wrong use of the senses) and *parinama* (seasonal perversions)<sup>10</sup>.

*Dravya*, which is the concomitant cause for both *karma* and *guna*<sup>11</sup>, is governed by the principle of *samanya-vishesa*<sup>12</sup>, borrowed from the Vaiseshika philosophy. *Samanya* is responsible for the augmentation by similarity of things. *Visesa* is responsible for its diminution<sup>13</sup>. Thus *samanya* and *visesa* operate simultaneously in maintaining or bringing the body back to homeostasis. It is the basis of treatment in Ayurveda.

## **b Kala (Time)**

The root word *kal* has two meanings, to count and to devour. Lord Krsna, in the Bhagavad Gita identifies with both of these. He declares ‘of calculators I am Time’<sup>14</sup> and ‘Time am I – world destroying’<sup>15</sup>. Also, the concept of Kala as the goddess, Kali, can be found in the Mahabharata (Mookerjee 1995).

In line with *Vaiseshika darshana*, Charaka regards *kala* as a substance existing as a separate entity. As such it is understood as one of the nine types of *dravya*<sup>16</sup>. *Susruta* however, being more faithful to the *Samkhya darsana* does not perceive it as such (Das Gupta, 1975, 372), but as one of the six-fold causes in existence<sup>17</sup>.

*Kala* is of two types in Ayurveda<sup>18</sup>. *Avastika kala* relates to *vikara* or state of imbalance. It is the specific time, day or season in which a disease manifests itself, such as *satakaka jvara*, which occurs twice in a day<sup>19</sup>. As ageing is *swabhavika* (natural)<sup>20</sup>, it is important to explore further the second concept, *nityaga kala*. *Nityaga kala* relates to the fixed cycles of time, where natural aggravation of dosas occurs in a particular time, such as a particular season or time of day.

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<sup>10</sup> CS Vim 6:8

<sup>11</sup> CS Sutra 1:51

<sup>12</sup> CS Sutra 1:44

<sup>13</sup> CS Sutra 1:45

<sup>14</sup> BG 10/30

<sup>15</sup> BG 11/32

<sup>16</sup> CS Sutra 1:48

<sup>17</sup> SS Sari 1:11

<sup>18</sup> CS Vim 1:22

<sup>19</sup> CS Chik 3:53-74

<sup>20</sup> CS Sari 1:115

Susruta terms the whole cycle of time as a *kala chakra*<sup>21</sup>, from a *nimesa* (twinkling of an eyelid) up to a *yuga* (an age). A year is divided into two periods. The six-month period when the sun is in its northern solstice is *agneya* (dominated by hot sun-rays). It leads to catabolic activities and is known as *Adana Kala*. The other period, when the sun is in its southern solstice is *saumya* (dominated by cold moon rays). It leads to anabolic activities and is known as *Visarga Kala*. Each of these, *Adana* and *Visarga Kala*, are each further divided into three, making the six *rtus* (seasons)<sup>22</sup>.

### Timely Death

The span of life in this age of *kaliyuga* was said to be 100 years initially<sup>23</sup>. However with the subsequent passage of 1/100<sup>th</sup> of this yuga, it gets reduced by 1 year<sup>24</sup>. As to whether death is determinate or not, there are numerous discussions by Charaka in *Vimanasthana* and *Sarirasthana*<sup>25</sup>. He argues that the life span is based on *yukti pramana* (common sense), and not only relies on *deva* (destiny), due to actions committed in the previous life, but also on *puruskara* (human effort), due to actions committed in this life<sup>26</sup>. Life span, according to Charaka is not fixed<sup>27</sup>. It can be prolonged by medicines and the adoption of other suitable measures, provided the sins of previous lifetime are not of great enormity. Das Gupta points out how Ayurveda differs in this way from current Indian schools where the laws of karma are immutable (Das Gupta, 1952).

## 2. Process of ageing

In Ayurveda, *jara* (old age) is known and described by the acharyas as being a *swabhavika vyadhi*<sup>28</sup>, a natural and inevitable process. Ageing starts from the moment the *matrja* and *pitrja bija* come together. Time subsequently takes its toll on the individual, manifesting as the ageing process, until death occurs. Acharya Sarangadhara gives a description of *jara*, where a growing human being is said to

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<sup>21</sup> SS Sari 6:49

<sup>22</sup> AS Sutra 4:5-6; SS Sutra 6:8

<sup>23</sup> CS Sari 6:29

<sup>24</sup> CS Vim 3:25-27

<sup>25</sup> CS Vim 3:28; CS Sari 6:28

<sup>26</sup> CS Vim 3:29

<sup>27</sup> CS Vim 3:36

lose specific physiological qualities, with each decade of life. These are *balya* (childhood), *vrddhi* (growth), *chavi* (complexion), *medha* (intelligence), *twak* (health of the skin), *drsti* (vision), *sukra* (semen), *vikrama* (colour), *buddhi* (Intelligence), *karmendriyas* (physical capacity), *chetana* (spirituality) and finally *jivita* (life)<sup>29</sup>.

Graceful ageing therefore signifies maintaining the best possible health throughout life. For this reason, initially, the concept of health will be explored in this section. When the balance of health is not there, then the ageing process is hastened. For this reason the second concept to be explored will be the fluctuations from the state of health. Finally the state of the individual in old age will be explored.

### a Concept of health

The definition of health is universal in Ayurveda, being redacted by all acharyas: Kashyapa Samhita<sup>30</sup>, Astanga Hrdaya<sup>31</sup>, and Susruta Samhita<sup>32</sup>. However, the most accepted and universally used definition, which was given by Susruta, will now be explored.

*'Samadosa Samagni Samadhatu Malakriya Prasannatmendriya Mana Swastha Itiabhidyate'*<sup>33</sup>

#### Samadosa

This is the state of equilibrium of dosas. This is individual to every person, and this individual balance is known as *prakrti*. *Prakrti* is dictated by the preponderance of *doshas* which are manifest at birth, primarily due to the sperm and ovum<sup>34</sup>, as well as other conditions such as the food and regimen of the pregnant mother<sup>35</sup>. Susruta adds that the *prakrti* never changes in the individual throughout their life, only as prelude to death<sup>36</sup>.

Charaka mentions the influence of *Sahaja* (the concept of hereditary) on the *prakrti*. He writes that defects of the seed of the sperm or ovum or parts

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<sup>28</sup> CS Sari 1:115

<sup>29</sup> S.S. Pu 6:19

<sup>30</sup> KS Khila 5:6.2-8

<sup>31</sup> AH Sutra 1:20

<sup>32</sup> SS Sutra 15:44

<sup>33</sup> SS Sutra 15:44

<sup>34</sup> SS Sari 4:61-62

<sup>35</sup> CS Vim 8:95

<sup>36</sup> SS Sari 4:78

thereof, termed, as *bija bhaga*, and *bija bhaga avayava* will affect the respective organs of the foetus<sup>37</sup>. Susruta also acknowledged this point<sup>38</sup>.

Someone born with *samadosa prakrti*, a balance of all three dosas from birth, are not susceptible to disease, but if dominated by one or other of the dosas, will be more predisposed to disease<sup>39</sup>.

The *dosas* have to remain in this normal balanced state of *samadosa* to maintain health. In this state they sustain the body<sup>40</sup>, whereas when vitiated, diseases ensue<sup>41</sup>. *Dosa vrddhi* (increase), according to the law of *samanya visesa* will be brought about by *ahara* and *vihara* of similar *guna* and *karma*, manifesting symptoms in accordance with the degree of aggravation<sup>42</sup>. On the other hand, *dosa ksaya* (diminution), brought about by the opposite *guna* and *karma* give up their normal symptoms, where those dosas in a state of equilibrium operate properly<sup>43</sup>.

## Samagni

*Samagni* is the balanced state of *agni* and the best type to have and maintain<sup>44</sup>. *Jatharagni* is the principal *agni* in the body, situated in the *kostha* and transforms food into a form in which the body can use. It is thus given great importance, being told as the essence of life, health and *ojas* among other things<sup>45</sup>. Its extinction leads to *marana* (death)<sup>46</sup>. This is why food plays such an important role in ayurvedic interventions.

According to the association of *doshas*, by either the *prakrti* or *vikrti* of the individual, the state of *jatharagni* will differ<sup>47</sup>. Thus an imbalance of Vatta will produce *visama agni*, which will be intermittently good then *manda* (slow); pitta on the other hand will influence the *agni* to become *tiksna*, which is excessively high; whereas an imbalance of *kapha* will lead to *mandagni*, a

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<sup>37</sup> CS Sari 3:17

<sup>38</sup> SS Sutra 24:5

<sup>39</sup> CS Sutra 7:39-40

<sup>40</sup> SS Sutra 21:8

<sup>41</sup> CS Vim 1:5

<sup>42</sup> CS Sutra 17:50

<sup>43</sup> CS Sutra 17:50

<sup>44</sup> AS Sutra 1:24

<sup>45</sup> CS Chik 15-3-4; AS Sutra 6:41

<sup>46</sup> AS Sutra 6:41

<sup>47</sup> AS Sutra 6:32; CS Vim 6:12

sluggish digestion. Once this imbalance happens, *ama* (undigested food material) is formed and *doshas*, which are dependant upon it get further aggravated<sup>48</sup> and thus the disease process starts<sup>49</sup>.

The state of all other *agni* in the body are subsequently reliant on it for their proper function; that is the *dhatu-agni*, and *bhut-agni* (these are the agni responsible for transformation of tissues and mahabhutas respectively).

Susruta discusses the relationship of *pacaka pitta* and *agni*<sup>50</sup>, and at this point subscribes to the view that they are the same. However this is debatable as some dravya such as ghee, has the property of alleviating pitta, but at the same time increases *agni*<sup>51</sup>.

There are two end products of the *paka* (transformation) of *agni*: *sara baha*, that part that is useful to the body and *kitta baha*, that part that is to be eliminated.

### Samadhātu

*Sara bhaga* goes on to nourish the dhatus<sup>52</sup>. If the *dhatus* are maintained in *sama* (normal) condition, they will be able to carry out their proper functioning in the body<sup>53</sup>. When there is either aggravation or diminution of the dhatus, ill health will manifest<sup>54</sup>. Thus, if the *jatharagni* is maintained properly, there will be *dhatu samya*, normalcy of the *dhatus*.

### Mala kriya

When the *kitta bhaga* produced by the *paka* of the *agni*<sup>55</sup> are still in the body they function as a *dhatu*<sup>56</sup> in the sense they are supporting the body. When they are no longer required, they are *mala* (waste products). *Malakriya* relates to their proper elimination from the body, by various means<sup>57</sup>. For

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<sup>48</sup> CS Chik 5:136

<sup>49</sup> AS sutra 6: 41

<sup>50</sup> SS Sutra 21

<sup>51</sup> SS Sutra 45:84; CS Sutra 27:231

<sup>52</sup> CS Chik 15:17

<sup>53</sup> SS Sutra 15:4.1

<sup>54</sup> CS Sari 6:4

<sup>55</sup> CS Chik 15:18-19

<sup>56</sup> SS Sutra 15:4.2

<sup>57</sup> CS Chik 15:18-19

example, *sweda*, the mala of *medo dhatu* is eliminated through the *twak* (skin)<sup>58</sup>.

### Prasannatmendriya mana swastha itiabhidyate

Good health is maintained by the proper functioning of the mind and sense organs<sup>59</sup>. Delicious and wholesome food ingested nourishes each of the sense organs<sup>60</sup>, whereas *asatmyendriyārtha samyoga* leads to their disturbance and so ill-health<sup>61</sup>. This is a major contribution of Ayurveda, where the mental happiness has been made part of the definition of health.

## b Deviations from health

*Kriyakala*, literally translated as the time for action, is when *doshas* fluctuate. It is of two types according to the causes for fluctuation. *Rtu-kriyakala*, are the fluctuations in line with natural seasonal changes. *Vyadhi kriyakala*, are the stages that occur in the pathogenesis of disease. As ageing is not a disease but *swabhavika* (a natural process)<sup>62</sup>, it is important to discuss *rtukriyala*. However, to be able to give early diagnosis of disease, *vyadhi kriyakala* will also be discussed briefly.

### Rtu kriyakala

The balance of health is very unstable and is constantly undergoing change due to the natural rhythms of time. *Rtu* (seasons) are given great importance in Ayurveda. The variation of *doshas* in the body according to these *rtu* is known as *rtu-kriyakala*<sup>63</sup>. They occur in three consecutive stages, *Samchaya* (accumulation), *Prakopa* (further aggravation) and *Prashaman* (alleviation)<sup>64</sup>.

In *hemanta*, *vasanta*, and *grisma* for instance, *kapha* is in *chaya*, *prakopa* and *sama* respectively<sup>65</sup>. This is due to the qualities of *kapha* such as *sita* and *guru guna* increasing in the environment in *hemanta* and *vasanta*. These cause an increase of the same *gunas* in plants which when ingested by human beings,

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<sup>58</sup> CS Chik 15:18

<sup>59</sup> CS Sutra 8:18

<sup>60</sup> CS Chik 15:12

<sup>61</sup> CS Sutra 8:16

<sup>62</sup> CS Sari 1:115

<sup>63</sup> AS Sutra 4; SS Uttara 54; CS Sutra 6

<sup>64</sup> SS Sutra 6:13; CS Sutra 17:114

<sup>65</sup> AS Sutra 4:8-26

according to the law of *samanya visesha*, leads to a corresponding increase in the body<sup>66</sup>.

### Vyadhi kriyakala

*Vyadhi kriyakala*, the six stages of disease pathogenesis<sup>67</sup> is a great contribution of Susruta to the understanding of pathogenesis of disease in Ayurveda. Susruta elaborately describes these stages in his chapter on *vraṇa prasna adhyaya* (causes of ulcers)<sup>68</sup>. It allows for early recognition and treatment of the disease process.

When the aggravated dosas in each particular season do not get eliminated at the appropriate time, or for other reasons of dosa aggravation by way of *mitya ahara* and *vihara* due to *prajnaparadha* and *asatmyendriyarthasamyoga*<sup>69</sup>, disease begins to occur. Each disease has its own the *nidana pancaka*<sup>70</sup>.

In the prevention of disease, the aim is to deter the dosas from further aggravation when they are in the initial stages; in the later stages they become more potent<sup>71</sup>. These first stages are difficult to detect, as the symptoms are so subtle. However, once in the third stage, it is difficult for the dosas to be brought back to the *kostha* by simple methods of changing diet and lifestyle. It is at this stage that through chronic aggravation, *khavaigunyata* can be formed and the disease process is seen to really set in.

### c Old Age

At the various stages of life, there is a predominance of a certain *dosha*. *Kapha* predominates up to the age of 30 years, and corresponds to more anabolic processes<sup>72</sup>. *Pitta* predominates between 30 and 60 years, and corresponds to more metabolic process<sup>73</sup>. *Vatta* predominates thereafter, and corresponds to more catabolic process<sup>74</sup>.

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<sup>66</sup> SS Sutra VI:11 .

<sup>67</sup> SS Sutra 21:21-44

<sup>68</sup> SS Sutra 21

<sup>69</sup> CS Sutra 11:43

<sup>70</sup> CS Nid 1:6

<sup>71</sup> SS Sutra 21:37

<sup>72</sup> CS Vim 8:122

<sup>73</sup> CS Vim 8:122

<sup>74</sup> CS Vim 8:122

In old age there will be more or a tendency to *visamagni* due to a preponderance of *vatta dosha*<sup>75</sup>. There will also be a gradual break down of the body, with symptoms of diminution of *dhatu*s, strength, sense organs, *ojas*, manliness. *Vatta vikara* such as *aswapna* and *asabdasravana*<sup>76</sup>, or sleeplessness and tinnitus respectively become more prevalent (Cormack, 1985).

The link between *vata prakrti* with a predisposition to *vatta vikara* is demonstrated in the following. On a study on *anavasthitacittatva*<sup>77</sup> (psychiatric symptoms) of geriatric patients, Diwvedi et al. (2001) found that the prakrti of the aged persons was 64% *vata* predominant and 70% *rajas* predominant (the *manodosa* of *vatta*).

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<sup>75</sup> AS Sutra 6:32; CS Vim 6:12

<sup>76</sup> CS Sutra 20:2-11

<sup>77</sup> CS Sutra 20:9-11

# CHAPTER 3 - Mapping Life

To understand the attitude towards ageing and the aged in Ayurveda, to then relate it to today, it is fundamental to explore some of the socio/cultural concepts underpinning Ayurveda.

## 1. Purushartas (Pursuits of Life)

According to Indo-Aryan tradition of living, the purposes of life are elaborately described in the *purushartas*. They are four: *artha* (wealth) and *kama* (desires of the flesh) addressing more secular values and *moksha* (liberation from transmigratory existence) and *dharma* (righteousness) more spiritual values.

The real source for these is to be found in the Vedas that are the primary scriptures, *srutis*. For instance, the *Katha Upanishad* describes two ideals, *preyas* and *sreyas*, which correspond to worldly happiness in every form and spiritual emancipation. These two ideals have been clearly formulated later on as the *purusharthas* in the secondary scriptures, *smritis*, such as the *Mahabharat*<sup>78</sup>.

The purushartas, mentioned immediately at the beginning of the *Charaka Samhita*<sup>79</sup> as well as the *Astanga Samgraha*<sup>80</sup> are made reference to throughout the texts. For instance, in the choice of a profession, *dharma* and *moksa* are always kept in view<sup>81</sup>.

Charaka devotes a chapter to the 'desires of life', namely '*Tisraisanīya Adhyaya*'<sup>82</sup>, which encompass the purushartas. The first of these is *pranaisana*, the pursuit of life that leads to the ultimate fulfilment of worldly desires, *kama*. It is attained by following the prescribed regimens, as will be discussed in the next chapter. The second, *dhanaisna*, covers secular necessities, by means of choice of profession and is the ultimate fulfilment of *artha*. The last, *paralokaisana*, is the pursuit of more spiritual values, and so covers the objectives of *moksa*. *Dharma* is covered by all three objectives<sup>83</sup>.

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<sup>78</sup> Mahabharata: Udyogaparva 124.34 to 38

<sup>79</sup> CS Sutra 1:15-17

<sup>80</sup> AS Sutra 1:3

<sup>81</sup> AS Sutra 3:38-40

<sup>82</sup> CS Sutra 11

<sup>83</sup> CS Sutra 11:6-15

## 2. Asramas (Life Map in Ayurveda)

Dividing life experience into numbered stages is as old as the study of age and ageing. In the Hindu system, these are known as the four-fold asrama.

These are *bramhacharya*, the stage of initiation, celibacy, and study; *grhasta*, the stage of the householder, where worldly responsibilities are taken on; *vanaprasta*, the stage where worldly responsibilities are gradually relinquished; finally, *sanyasa*, the stage where there is final retirement from the world, and requires the old to retire to the woods to be able to contemplate on more spiritual aspects.

*Asrama* is a relatively new term in the Sanskrit vocabulary as it does not occur in the Vedic Samhitas and Brahmanas or even in early Upanishads (Olivelle 1993). The system came about between the 6<sup>th</sup> and 4<sup>th</sup> century BCE, at a time of radical social and economical changes in northern India, particularly the area of the upper Ganges valley (Olivelle 1993).

The origin of the fourth stage of *sanyasa*, has been debated. It might have come from the ancient custom of killing or exiling old people. This was a custom prevalent among many Indo-European peoples, especially those who were not economically advanced, and so was of great benefit for the society as a whole (Olivelle 1993). But after the aforesaid economical developments in India around the 5<sup>th</sup> century BCE it was possibly modified into this final stage of *sanyasa*.

There have been many attempts to correlate the four purushartas and the asramas. Olivelle (1993) proposes that there is little evidence to support this. However, it can be said that there is a difference in emphasis on each purusharta in the different *asrama*.

## 3. Life Map Today

Today, there are many misconceptions about age and ageing. Taking the minority of the problematic elderly, the chronically sick, those who cannot look after themselves, those who have to live in institutions, those about to die, for the whole body of the retired, is the most damaging survival from the past. Lancet divides this group of the population into the Third and Fourth Age (Lancet 1996). The Third Age is made up of those older people who are still able to work. With their wealth of knowledge and experience, they are of extreme value to society. The Fourth Age is made up of those older people who need care interventions. This

four-stage life map has become, to some degree, current in Britain, possibly due the publication of Lancet's (1996) first edition. However, it must be remembered that the world of age and ageing is perpetually changing, as today's youth form the old people of tomorrow.

#### **4. Attitudes towards older people**

Reference is made throughout all the ancient texts to the respect one should have towards the 'elders'. For example, in *sadvrta*, *Vagbhata* says that right of way should be given to the aged, and that one should keep the company of the aged<sup>84</sup>. Today, on the contrary, we see a youth oriented culture, where issues such as 'elderly abuse' are becoming more common (MacLennan 2003).

In Ayurveda, the expertise of 'friendly, affectionate, experienced' elderly women is called upon during parturition, where their role in facilitating labour is crucial<sup>85</sup>. These are ideas that are beginning to take hold today with 'Active Ageing' now being a central feature of policy and practice in the UK and forms a cornerstone of the EU, WHO and UN policies on ageing. Older people, who are healthy, are a precious resource not only to the nation but also to the general community, whether it is through voluntary or non-voluntary work (Brundtland, 2002). The idea of 'Active Ageing' will be a valuable asset not only to the individual but also to society as a whole.

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<sup>84</sup> AS Sutra 3:50

<sup>85</sup> K. S. Sari 5:24; SS Sari 10:8

## CHAPTER 4 - Ayurvedic Care Interventions

*Jara* (ageing) is a natural and inevitable process<sup>86</sup>. As such it is irremediable. However, the rate at which and the way in which *jara* occurs is reliant on *bala*<sup>87</sup>, which can be correlated to the strength or immunity of the individual. The main factors influencing *bala* are three-fold<sup>88</sup>:

1. *Sahajabala* relates to the genetic factor; Modern allopathic research, supports the concept of *sahajabala*. It indicates that a person's genetic make-up is more important in determining the likelihood of developing certain diseases than previously acknowledged (WHO, 1997).
2. *kalajabala* relates to the environmental factor and the physiological state/age of person; this has been explored in chapter 2, by looking at the affect of time and seasons on the individual;
3. *yuktikritabala* relates to the acquired factor; *Chakarapani*, on his commentary of *jara*<sup>89</sup>, tells us that no treatment is effective in delaying ageing except *rasayana*<sup>90</sup>. It will delay but not prevent the process of ageing. However, *puruskara*, human effort<sup>91</sup>, applied to *swastha vrta* will also delay the process of aging<sup>92</sup>. Thus these will now be explored in this chapter, keeping the above two points in mind.

Ayurvedic care interventions start prior to conception with a specific regimen prescribed prior to conception<sup>93</sup>, and during pregnancy<sup>94</sup>. Modern science acknowledges the same. For instance, folic acid supplementation is prescribed in pre- and peri- conceptual women in the hope of preventing recurrent neural tube defects (MRC Vitamin Study Research Group 1991).

In Ayurveda, these care interventions are continued in the early years of a child's life. This is exemplified in the practice of administering equal quantities of *madhu* and

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<sup>86</sup> CS Sari 1:115

<sup>87</sup> SS Sutra 15:20

<sup>88</sup> CS Sutra 11:36

<sup>89</sup> CS Sari 1:115

<sup>90</sup> CS Sari 1:115

<sup>91</sup> CS Vim 3:29

<sup>92</sup> CS Sutra 7:46-50

<sup>93</sup> SS Sari 2:25-30

<sup>94</sup> CS Sari 8: 32

ghrta in the first days after birth<sup>95</sup>. The combination of *madhu* and *ghrta* is in equal quantities is *virudha* (incompatible)<sup>96</sup>. In this particular case vatta is increased. By its administration, the baby's natural response to excess *vatta* is encouraged. This is at a time of life when *kapha* is more dominant, and *ojas*<sup>97</sup> is high, a time when they are more able to withstand *vatta*<sup>98</sup>. It can thus be seen to act as an immunisation against *vatta*, in particular for the latter stage of life, when *vatta* becomes more prevalent (Kamath, 1981).

## 1. Swastha Vrttam

The aim of ayurvedic interventions, as regards the maintenance of health, is to advise a lifestyle and diet that is conducive to the balance of health in the individual in line with the natural rhythms. This is epitomised in the following verse.

‘As a vehicle with an axle endowed with all good qualities and driven on a good road gets destroyed only after the expiry of its normal life, similarly the life inside the body of an individual endowed with strong physique and wholesome regimen will come to an end only at the end of its normal span. This is a timely death. Similarly, in the event of overstrain, eating in excess of ones own digestive power, irregular meals, irregular posture of the body, excessive indulgence in sex, association with wicked persons, suppression of manifested urges, non-suppression of urges which should be suppressed, affliction with evil spirits (germs), poison, wind and fire, exposure to injury and the avoidance of food and medicines, the life of an individual may soon come to an end. This is called premature death”

CS Vim 3:38

The importance of this preventative aspect in Ayurveda is seen in that both *dinacharya* and *rtucharya* are amongst the first chapters to be redacted elaborately in *Charaka* and *Vagbhata's Sutrasthana*<sup>99</sup>. Although Susruta does not enumerate an elaborate *dinacharya*, the emphasis of his treatise being more on surgery, he does make reference to various aspects of *dinacharya*, eg. *hitahitiya-adhyayam* deals with the salutary and non-salutary effects of regimen although not in so much detail<sup>100</sup>. He also enumerates the effects of time according to the seasons and the regimen to be followed accordingly.<sup>101</sup> *Dinacharya* and *rtucharya* will now be discussed.

<sup>95</sup> CS Sari 8:46; SS Sari 10:71-73

<sup>96</sup> AS Sutra 9:5

<sup>97</sup> SS Sutra 15:22

<sup>98</sup> SS Sari 10:71

<sup>99</sup> AS Sutra 3; CS Sutra 5

<sup>100</sup> SS Sutra 20

<sup>101</sup> SS Sutra 6; SS Uttara 54

## a Dinacharya

*Dinacharya* is the daily routine prescribed by the acharyas to maintain health<sup>102</sup>. It is prescribed in accordance with the individual *prakrti*. The list being so vast<sup>103</sup>, only the practices most relevant to ageing today will be discussed.

### Abhyanga (Oil bath)

*Twak* (the skin) is the site of *Vatta*, and *Vatta* being responsible for *sparsa indriya* (the tactile sensation) manifests itself in the skin<sup>104</sup>. *Sparsa indriya* pervades all *indriyas* and is permanently associated with the mind<sup>105</sup>. As *sparsa indriya* and *manas* are the two types of contact that can bring about happiness and miseries<sup>106</sup>, through touch one can directly affect the state of mind. This is important in older age group where depression is a major feature of the group of illnesses experienced (Cormack, 1985).

*Twak* (the skin) is the largest organ of the body according to the modern conceptual framework, and provides a large surface area through which *dravya* can be absorbed into the body. *Abhyanga* (massage) with oil is said to be *vayastapana*. It does this by its *snidga guna*, which according to the law of *samanya vishesha* mitigates *vatta's ruksa guna*. McKeown (1996) carried out an experimental study on 30 volunteers. She showed, that after treatment with oil massage, there was significant improvement in both physical tension and emotional states. However, few objective studies have been carried out today to evaluate the effect of massage.

### Snana (bath)

Hot bath is *ayusya*, improves the span of life, aswell as being *vrsya* and *depanam*<sup>107</sup>. It is required after *abhyanga* to open up *parmanu*, allowing the oil to be absorbed through the *srotas* of the skin.

### Vyayama (exercise)

Charaka advocates *vyayama*<sup>108</sup> to alleviate *dosas*, specifically *kapha dosha* as it stimulates *agni*. *Susruta* also advocates it saying it is absolutely conducive

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<sup>102</sup> CS Sutra 5; AS Sutra 3

<sup>103</sup> CS Sutra 5; AS Sutra 3

<sup>104</sup> AS Sutra 3:55

<sup>105</sup> CS Sutra 11:38

<sup>106</sup> CS Sari 1:133

to a better preservation of health<sup>109</sup>. However excessive exercise is contra-indicated in older persons, in particular if they are *vattika prakrti*<sup>110</sup>, as it further exacerbates vatta. There has been extensive research carried out today to support this. McCrea et al. (2003) in a study carried out on older people, found that depression is associated with becoming sedentary, irrespective of a person's disease status at baseline. The WHO state that the benefits of physical activity as part of a lifestyle throughout life contributes towards a reduction in premature mortality, obesity, raised blood pressure, cardiovascular disease and osteoporosis (WHO 1997).

### Marma Protection

The importance of protecting the *marmas*<sup>111</sup> by such practices as washing of the feet and wearing of footwear and the wearing of gems are an important feature of dinacharya. These marma are crucial points in the body that affect other tissues and parts of the body. If not protected the consequences may be simple disorders or more radically death<sup>112</sup>.

### Vegavidharana (Suppression of natural urges)

Charaka mentions two types of *vega* (urges). *Adharniya vega* are urges that should not be suppressed such as the urge to pass flatus, urine and faeces<sup>113</sup>. *Dharniya vega* are the ones that should be suppressed such as the urges of greed, grief and fear<sup>114</sup>.

The 13 *adharniya vegas*, if suppressed will go on to be the causative factors for a number of diseases, which *Charaka*<sup>115</sup> and *Susruta*<sup>116</sup> enumerate elaborately. They are categorised as *prajnaparadha*, as *prajna* (psyche) is primarily involved and then the somatic involvement occurs.

Shukla M et al (1991) carried out a study in clinical as well as experimental subjects of both normal healthy volunteers as well as patients of hypertension and peptic ulcer. It found that suppression of the urine urge produced stress in

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<sup>107</sup> AS Sutra 3:67-70

<sup>108</sup> CS Sutra 7:32

<sup>109</sup> SS Sutra 20:5

<sup>110</sup> AS Sutra 3:61-64

<sup>111</sup> SS Sari 6

<sup>112</sup> SS Sari 6

<sup>113</sup> CS Sutra 7:3-4

<sup>114</sup> CS Sutra 7:26-30

<sup>115</sup> CS Sutra 7:25

the body. This was demonstrated by monitoring the neuro-humor activities and physiological variables such as blood pressure, which were both altered in the experiment.

## Sadvrta

*Sadvrta*, is the code of conduct to be followed in life. *Vagbhata* mentions it in his chapter on *dinacharya*<sup>117</sup>. However, *Charaka* places it in his chapter on the ‘Description of Sense Organs’, thereby demonstrating its connectedness with the latter<sup>118</sup>. The role of *Sadvrta* is to strengthen the *prajna*, the discriminatory capacity related to wisdom, understanding and intelligence thereby preventing diseases caused by *prajnaparadha*<sup>119</sup>. *Sadvrta* covers all types of *karma* (action); that is *vak* (vocal), *manas* (mental) and *sarira* (physical)<sup>120</sup>. Guidelines as to the proper use of *vak* are seen in the discouragement of speaking untruths and harsh words; the proper use of *manas* by the restraint of negative emotions as seen above by *dharniya vega*, such as grief and fear, anger etc.; the proper use of *sarira* by *vegavidharana* as well as other regimens as described above. Thus guidelines for all actions, which prevent psychosomatic diseases are provided in *sadvrta*.

## b Charaka’s eight factors of dietetics

Food plays an important part of treatment in Ayurveda. The concept of food, in particular Charaka’s eight factors of dieting<sup>121</sup> will now be explored.

### Prakrti

*Prakrti*<sup>122</sup> is the natural property inherent in food, such as *rasa*, *guna virya* and *vipaka*. For example, *phaseolus mungo* is *laghu guna*, whereas milk is *guruguna* and so is not so easily digested<sup>123</sup>. The *prakrti* of the food for older people should be with the focus on *vatta hara*, ie. more *madura*, *lavana*, *amla rasa*; and *laghu* and *usna guna*. This factor is relevant today, where we see

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<sup>116</sup> SS Uttara 55:77

<sup>117</sup> AS Sutra 3:30-112

<sup>118</sup> CS Sutra 8:18-19

<sup>119</sup> CS Sutra 8:17

<sup>120</sup> CS Sari 11:39

<sup>121</sup> CS Vim 5 1:21

<sup>122</sup> CS Vim 1:21.1

<sup>123</sup> AS Sutra 10:3

nutrition is a problem in the older people, malnutrition being found to be prevalent both in First and Third World countries (Burr et al., 1982).

### Karana

Karana<sup>124</sup> is the processing involved, such as cooking, churning, or impregnating. It is always carried out by *tejas mahabhuta*, which is fundamental to all transformation. This processing results in the transformation of the natural inherent qualities of the food.

### Samyoga

Samyoga<sup>125</sup> is the combination of foods. Certain food combinations are *virudha* (incompatible) in Ayurveda<sup>126</sup>, such as equal amounts of honey and ghee, or fish and milk. Fish and milk individually are not harmful, but combined are a causative factor for *kustha*<sup>127</sup>. Susruta also enumerates a long list of foods that are incompatible<sup>128</sup>.

### Rasi

Rasi<sup>129</sup> describes *parigraha* (the individual amounts) as well as *sarvagraha* (the total amount) of food to be taken. The proper quantity depends on the power of digestion<sup>130</sup>, which is indicated when food is digested in time. One should take food according to Charaka's concept of the three-fold belly, one third for each of solid, liquid and doshas<sup>131</sup>.

### Desa

*Desa*<sup>132</sup> relates to the habitat in which the food substances are grown. *Dravya* grown in the desert will have more *laghu guna*, likewise the animals that inhabit that land. Whereas plants, which grow in marshy land, will have more *guru* and *manda guna*. This is a factor that is becoming more difficult to consider today, where foods are imported from all over the world.

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<sup>124</sup> CS Vim 1:21.2

<sup>125</sup> CS Vim 1:3

<sup>126</sup> CS Sutra 26:84

<sup>127</sup> SS Chik 9:3

<sup>128</sup> SS Sutra 20:12-13

<sup>129</sup> CS Vim 1:22.4

<sup>130</sup> CS Sutra 5:3

<sup>131</sup> CS Vim 2:3

<sup>132</sup> CS Vim 1:22.5

## Kala

This relates to the effect of time as regards food. Both on the individual, that is in relation to the avastha they are in as well as on the environment, in relation to seasons. This has been discussed previously.

## Upayogasamstha

Upayogasamstha<sup>133</sup> are the ten dietetic rules, laid down by Charaka in order to maintain agni. These are:

*Ushnamasniyat* - food should be warm as it tastes good, kindles the *agni*, is digested quickly and is *vatahara*. This is especially so in older people, who's *agni* is not so strong.

*Snigdhamasniyat* - food should be unctuous to provoke the subdued *agni*, so allowing for better digestion and downward movement through the *kostha*.

This is contrary to today's tendency to drier foods, which are *vatta* aggravating and particularly to be avoided in the *vatta avastha* of older age (Marshall 1997).

*Matra vadashniyat* - food should be taken in proper quantity, so as not to impair digestion. Too much will subdue *agni* and too little will increase *vatta*. As *matra* will be less in older people, in accordance with *visamagni* as they are in their *vatta avastha*, is better for them to eat little and often, when they are hungry (Cormack, 1985).

*Jirna ashniyat* - one should eat only when the previous meal is digested. By eating before the previous meal is digested, the ingested food is added to immature *rasa*, or partially digested food, which is already in the *kostha*. This provokes all three *doshas*, creates *ama* and leads to blockage of channels and subsequent disease. Later on in life, it is better to eat smaller amounts and often.

*Virya virudhamasniyat* - as explained earlier in the section on *rasi*, meals should be compatible.

*Ishta desha ishta sarvopakare namasniya* - food should be eaten in surroundings which are pleasant to the individual, so as not to disturb *manas*, and also *agni*.

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<sup>133</sup> CS Vim 1:24-85; AH Sutra 8:54-55

*Natidrutamashniyat* - meals should not be eaten in a hurry as it may enter the wrong passage and not enter the stomach properly. The rasa is not properly savoured and its benefits not maximised. Foreign bodies, like hair might get mixed up with the food and not noticed.

*Natibilambita mashniyat* - meals should not be eaten too slowly as the food loses its warmth and so digestion will become irregular.

*Ajal phanahasan tanmana bhoonajeeta* – meals should be eaten with concentration and mindfulness, not talking or laughing as the mind is *anutva* and *ekatva*<sup>134</sup>, only being able to focus on one thing at a time.

*Atmanamabhismikshya bhoonjeete samyaka* - meals of food that is known to be wholesome and *satmya*<sup>135</sup>, should be taken. This refers to the customisation of the individual to certain foods. One man's nectar may be another man's poison.

## Upayoktr

Upayokta is the individual consumer. They are responsible for *oka satmya*, the wholesomeness of their diet, by the habitual intake of appropriate foods, taken in the correct manner.

## c Rtucharya

The prescribed *dinacharya* differs in each *rtu* (season). These regimens have been elaborately described by all acharyas<sup>136</sup>. In between each *rtu*, there is a *rtu-sandhi*<sup>137</sup>. This is a 14-day period at the end of the old season and at the beginning of the new season, where the new regimen can be slowly adjusted to. A sudden change in routine may lead to diseases of *asatmya*.

One of the prescribed regimens of *rtucharya* is *pancakarma*, according to specific seasons<sup>138</sup>. *Pancakarma* will rid the body of excess *doshas* that have accumulated in the previous seasons<sup>139</sup>. It thus helps to maintain homeostasis and ensure proper growth of dhatus and delay the process of aging<sup>140</sup>. For example, *Kapha*

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<sup>134</sup> CS Sari 1:19

<sup>135</sup> CS Sutra 1:126 SS Sutra 20:3

<sup>136</sup> CS Sutra 7, SS Uttara 54; AS Sutra 4; AH Sutra 3

<sup>137</sup> AH Sutra 3:59; AS Sutra 4:61

<sup>138</sup> AS Sutra 4:42

<sup>139</sup> AS Sutra 4:26

<sup>140</sup> CS Sutra 7:46-50, AH Sutra 13:33

that has been gradually accumulating in the body during *hemanta* and *sisira*, should be eliminated by *vamana* in *vasanta*<sup>141</sup>.

Sexual intercourse has been indicated in *hemanta* and *shishir rtu*, whilst contra-indicated in *grishma* and *varsha*. Singh et al. (1994), on a study carried out on 2372 women, over a period of three years, observed that conception in *hemanta* and *shishri* rtus advances to full term with ease. Conception in *grishma* and *varsha* comes across with many complications and a fewer number of women achieved full term pregnancy. This may indicate why the acharyas prescribed this regimen in respect of sexual intercourse.

## 2. Rasayana

One of the eight branches of Ayurveda, rasayana is sometimes termed as geriatrics<sup>142</sup>. Whereas the purpose of *swastha vrta* is to maintain health in the individual, that of *rasayana* is to increase the immunity in target organs<sup>143</sup>. It is the first treatment to be redacted in Charaka's *Chikitsastana*<sup>144</sup>. The properties of *rasayana tantra* are *vayasthapana*<sup>145</sup> (arrests age by restoring the lost balance of *agni vyapara* in the body by regularising metabolism) and *dirgajivanam* (increases longevity)<sup>146</sup>.

Everyone is eligible for *rasayana*, except for those that show signs of imminent death as stated in Charaka's last chapter of the *Indriyastana*. However, this process should be done in younger age or midlife, as the approach in Ayurveda is more preventive rather than curative<sup>147</sup>.

*Pancakarma* must be administered prior to administration, in the case of *sama* condition, to do *sodhana* and thereby cleanse the body. If it is not done, complications may arise due to *ama* (undigested food material), which can further exacerbate any latent disease process<sup>148</sup>.

Bala et al (1991) opines that *rasayana* acts at 3 different levels: *rasa* by improving the quality of *rasa*; *agni* by enhancing all *agnis* in the body; *srotamsi* by improving drug absorption.

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<sup>141</sup> AS Sutra 4:23; SS Uttara 54:32-39

<sup>142</sup> SS Sutra 1:8

<sup>143</sup> CS Chik 1:1:7-8

<sup>144</sup> CS Chik 1

<sup>145</sup> CS Chik 1:1:3

<sup>146</sup> CS Chik 1:1:7-8

<sup>147</sup> AS Uttar 49:3

<sup>148</sup> CD 56:2

Due to the vastness of the subject matter, and the numerous types of rasayana, two types of rasayana relevant to older age groups will be explored in more detail. These are *amalaki*, *trifla* and *medya rasayana*.

### Amlaki rasayana

Amlaki (*emblica officinalis*) is said to be the best *vayasthapana*<sup>149</sup>. Due to its complex nature of having all six *rasas* present except *lavana*, it is *tridosha hara*. It mitigates *vata* by its *amla rasa*, *pitta* by its *madura rasa* and *sita virya*, and *kapha* by its *ruksha guna* and *kashaya rasa*<sup>150</sup>. It is said to cure diabetes<sup>151</sup> and allow for 100 years of life without ageing<sup>152</sup>. Its benefits are numerous and it is the basis of many rasayana multiple formulations eg *Cyvana Prash*<sup>153</sup>

Today, it has been studied in respect of two major health areas: cancer and heart disease. Studies in animals have suggested that *amalaki* may slow the development and growth of cancer cells. One such study, where mice were given a known cancer-causing chemical along with *amalaki*, had significantly fewer harmful genetic changes than those given the carcinogen alone (Nandi et al, 1997). Khalekar et al (1999), in a more recent study, demonstrated *amla*'s effectiveness as a rasayana by its anti-oxidant property, and its ability to prevent diseases among elderly by its hypocholesteromic and hypolipidemic action.

### Trifla Rasayana

*Trifla* is the combination of 3 fruits, of which *amalaki* is one; the others are *bibhitaki* (*terminalia belerica*), and *haritaki* (*terminalia chebula*).

*Haritaki* is similar to *amalaki*, except it has *usna virya*<sup>154</sup>. Like *amalaki* then, its properties are numerous<sup>155</sup>, and when combined they act synergistically, covering a wider range of disorders.

*Bibhitaki* is *kashaya rasa* and pacifies *kapha*; is *sita virya* and *madura vipak* and so mitigates *pitta*<sup>156</sup>

In *rasayana chikitsa*, *trifla* has been used to act on the mind promoting intelligence, *smrti* and *buddhi*, and on the *deha prakrti*, as a rejuvenator,

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<sup>149</sup> CS Sutra 25:40

<sup>150</sup> BP Purva 1:6

<sup>151</sup> BP Purva 1:6

<sup>152</sup> CS Chik 1:1:7

<sup>153</sup> CS Sutra 1:1:62-74

<sup>154</sup> CS Chik 1:1:29-33

<sup>155</sup> BP Purva 1:6

promoting long life to a hundred years, disease free.<sup>157</sup> Vani et al (1997) found that *trifla* as a whole and its constituents were individually strong antioxidants, by acting as radical scavengers thus preventing the rate of cellular degeneration, which may lead to diseases such as cancer, rheumatism and ischaemic heart disease.

### Medhya Rasayana

*Cittanasa* (*citta*, lit. mind and *nasa*, lit. loss of), the ayurvedic term for dementia, constitutes one of the most common and serious groups of illnesses in old age (Cormack 1985).

*Manduka parni* (*centella asiatica*), more commonly known in the western world as 'Gotu Kola' is placed in Charaka's grouping of *vayastapana*<sup>158</sup>. It is mentioned in the Bhava Prakash as a *medhya* as well as *vayastapana*<sup>159</sup>. *Brahmi* (*bacopa monierii*) is quite often interchanged with *manduka parni* as a *medhya dravya* (improving the functioning of the mind). *Brahmi* has *tikta rasa* more predominantly than *manduka parni*, the latter also having a little *swadu rasa*. The properties of the two thus act slightly differently: *brahmi* is more *medhya* than *rasayana*, whereas *manduka parni* is more *rasayana*.

*Dravya* may cover a wide range of properties. For example *aswhwagandha* (*withania somnifera*) is commonly known in ayurveda for its aphrodisiac properties. However, in a recent study by Diwvedi et al (2000) it was seen to have notable adaptogenic effects as well as the ability to promote cognitive functions in treated subjects.

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<sup>156</sup> BP Purva 1:6

<sup>157</sup> AS Uttara 49:50-51; CS Chik 1:3:41

<sup>158</sup> CS Sutra 4:18

<sup>159</sup> BP Uttara 2

## CHAPTER 5 - Discussion

In this chapter, the socio-economic, environmental and cosmic aspects of ageing will be discussed.

### **Socioeconomic**

The impact of an ageing population is having serious economic consequences on the infrastructure of society. One survey found that people older than 75 accounted for nearly 30% of total health expenditures despite comprising only five per cent of the population (Brundtland 2002). This strain will increase as the extreme old age dependency ratio will rise. The rise in the dependency ratio in the Western World (including Japan) over the next 30 years will place a tremendous fiscal burden on public finances in the following form: fewer taxpayers and the need to fund health services and in particular long term care in increasing numbers of pensioners. This population sector is experiencing a crisis once again in the UK pensions system, as stock markets have plummeted, sharply reducing investment returns both for savers and pension funds.

### **Environmental**

From an environmental angle, human health depends on the state of the surroundings. The interconnectedness of man with the universe is a fundamental concept in Ayurveda. The principle of *loka-purusha samanya*<sup>160</sup> says that the individual (microcosm) and nature (macrocosm) are intimately connected.

This has been clearly demonstrated in man's destructive interventions on the planet. Extensive deforestation has had subsequent dire consequences, leading most notably to the greenhouse effect (University of Oxford, AOPP, 2002). The increased ultraviolet light that subsequently comes through has had subsequent repercussions on us, and our environment (Ryden, 2002). The American Cancer Society estimates an increase of 230 percent in incidents of melanoma, during a period when the population of the U.S. increased by only 50 percent.

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<sup>160</sup> CS Sari 5:6

The increased proportion of our species in their *vatta avastha* reflects as a planetary environmental shift towards *vatta*. *Charaka* clearly elaborates the symptoms of abnormal functioning of *vatta* both in the individual human being as well as in the environment<sup>161</sup>. These include such natural disasters as flooding, tremors and abnormal natural imbalances that could destroy all the four *Yugas*<sup>162</sup>. These are seen today in such instances as the Gujarat earthquake in January 2001 and more recently the extensive flooding in Sri Lanka in May 2003 to name but a few (BBC).

## Cosmic

The *kali yuga* is the last of these *yugas*, and the *yuga* in which we are in at the moment. *Charaka* gives direct correlations between the universe and man, and in this context correlates the *kali yuga*<sup>163</sup> with old age. It thereby links human time with cosmic time. It is no surprise then that this population shift towards older people is occurring at the present time of *kali yuga*.

At the end of this *yuga*, at the time of the Great Dissolution, *Kali* the dark goddess as the Power-of-Time, is said to destroy or absorb *Mahakala* (the all-Destroyer) back into herself (Mookerjee 1995). This is illustrated in the following hymn to Mother *Kali* as *Dakshinakalika*.

‘O Mother, Thou givest birth to and protectest  
the world, and at the time of dissolution dost  
withdraw to Thyself the earth and all things;  
therefore Thou are Brahma, and the Lord of the  
Three Worlds, the spouse of Sri, and Mahesa, and  
All Other beings and things.’

( from the *Karpuradi-stotra*)

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<sup>161</sup> CS Sutra 12:7-8

<sup>162</sup> CS Sutra 12:7

<sup>163</sup> CS Sari V:5

## CHAPTER 6 - Conclusion

Ageing and the problems associated with ageing, such as the rise in NCDs (Non Communicable Diseases), are causing ever-increasing demands both on the infrastructure of society, as well as on the environment as a whole. Most of these problems can be prevented by the implementation of interventions, in line with Ayurvedic principles.

Ayurveda takes a holistic approach to life and as such considers man to be made up of mind, body and spirit. This holistic approach is demonstrated by the importance placed on social, religious and cultural influences in the ancient Ayurvedic texts regarding the well-being of the individual. These aspects are now being more accepted by governmental and non-governmental bodies such as the UN and WHO, who are accepting that health-enhancing behaviours are often constrained by broader physical, social, economic and cultural factors (WHO 1997).

The literature research carried out here shows some of the many ways in which graceful ageing can be promoted according to Ayurvedic principles. *Swastha vrta* encompasses those daily and seasonal regimens that can be commenced prior to conception and continued throughout life. It places much importance on diet and there are numerous rules as to dietetics. As well as this and other practices which focus on the physical well-being such as *vegavidharana* of *dharniya vega*, Ayurveda acknowledges the interconnectedness of body and mind. It thereby prescribes practices which promote the well-being of the mind, such as *sadvrta*.

Whereas *swastha vrta* acts as a general preventative measure, *rasayana* is more specific. It can be used to target certain tissues and as such it is effective in specific conditions. For example *medhya rasayana* can be used for dementia. In this dissertation it is seen that Ayurveda over 2000 years ago promoted strategies that bodies such as the WHO are only now implementing. For instance, the WHO are focusing on the promotion of healthy lifestyles through such strategies as diet and exercise, these being appropriate from early on in life and at different steps of the individual life cycle such as (WHO 1997).

Looking at all the information for, and beyond the scope of this dissertation, it is seen that the conceptual framework used in modern medicine and that used in Ayurveda are quite different. Although some research has gone into specific areas such as the *materia medica* using the modern scientific conceptual framework, very little research

has been carried out using the ayurvedic conceptual framework. The understanding of Ayurveda needs to be understood more fully in the light in which it was proposed. It is seen that although many clinical trials have been carried out on the various herbs used in *rasayana* using the modern scientific conceptual framework, little has been carried out to ascertain the validity of *swastha vrta* using either conceptual framework. Research has to be carried out to ascertain its effectiveness using ayurvedic paradigms. Only then will the full potential of Ayurveda be understood, standing strong in its own roots of knowledge.

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