

MUSCULOSKELETAL CHANGES IN FEMALE IN DIFFERENT PHASES OF LIFE

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ABSTRACT

Women surpassing through different stages and phases prospers the household and society. The most changing phases are puberty, pregnancy and menopause. During puberty five important changes is mainly due to many important hormones and maturation of Hypothalamo-pituitary-ovarian (HPO) axis. *Ayurveda* says like *Shukra Dhatu* in males, *Artava* in females imparts *Bala, Varna Pushti* hence it is considered as a *Dhatu, Dhatu Rupa Artava* which is responsible for *Yoni, Garbhashaya, Stana Vriddhi* can be considered as ovarian hormones. Pregnancy is the most challenging phase in women's life. It brings about biochemical, physiological and structural changes for to

provide suitable environment for growing fetus to prepare mother for the process of parturition. In *Ayurveda* changes in female body explained in the *Lakshana of Sadhyograhita & Vyakta Garbha* and *Masanumasik Garbhini Lakshana*. Menopause is the last stage of the reproductive life, in this stage due to deficiency of oestrogen genital organ become shrink and show features of atrophy, in musculoskeletal system osteoclastic activity are increased. *Ayurveda* says After age of 50, the integrity of *Dhatu*s are lost leading to slow deterioration of *Raja & Stanya*. The treatment modality are different in every Phase according to different *Dosha*. During puberty *Dhatu Poshnatmak Dravya* can be used & Proper follow *Rajasvalacharya*, During pregnancy follow *Garbhini Paricharya* taken *Mradu, Madhura, Sheeta Dravya* and in menopause treatment and *Ahara* should be *Vata-shamaka*.

KEYWORDS: Puberty, pregnancy, menopause, *Shukra, Artava, Garbhashaya, Stana, Sadhyograhita Vyakta Garbha, Rajswala Charya, Garbhini Paricharya*.

INTRODUCTION

Skeletal muscle allow the body to move and maintain posture; by contracting, they also aid venous return of blood to the heart and also play a important role in maintain female genital organ as it in normal position in each phase of life and pelvic floor are the strongest support of uterus if it injured during labour, during heavy work, after menopause due to muscle atrophy leads to pelvic organ prolapse. Bones support the body, protect vulnerable regions and allow physical movement via joints. During puberty bone's epiphysis closed and start menstruation. Pelvic bone protect the internal genital organ and pelvic brim are important for fetal head engagement, it's all structure and joint are very important for process of normal labour. In menopause due to deficiency oestrogen degeneration start which leads to muscle atrophy and osteoporosis and joint pain like problems. Our *Acharya* explained beautifully changes in female body in different stages of life. We can treat age related problem through *Ayurveda*, our ancient *Acharyas* explained age related problem and their management and maintain equilibrium of *Dosha*. In *Ayurveda* the treatment start from *Swasthasya Swasthya Rakshana* so if we proper follow *Ritucharya*, *Dincharya*, *Rajaswalacharya*, *Garbhini Paricharya* are reduce the chance of age related problems and slow down aging process.

BACKGROUND

Many changes during the years from puberty to menopause are brought on by the changing levels of hormones through hypothalamo-pituitary-ovarian(HPO) axis.

Changes during puberty: Common changes in puberty is thelarche (breast budding), adrenarche (pubic and axillary hair growth), peak growth in height and menarche. muscular changes in reproductive organ are under the influence of Oestrogen, the uterine body and cervix ratio from 1:2 to 1:1 and marked proliferation of cells of vagina, vulva and breast. growth in height are due to growth hormone, oestrogen, insulin like growth factor.^[1]

If lack of gonadal steroid the organs are not fully developed like hypoplastic uterus.

If premature activation of hypothalamopituitary axis so premature development of secondary sex character and early menarche. Bone maturation is accelerated, leading to premature closure of the epiphysis and curtailed stature which leads to cephalopelvic disproportion or obstructed labour.

Acharya Sushruta says like *Shukra Dhatu* in males, *Artava* in females imparts *Bala*, *Varna Pushti* hence it is considered as a *Dhatu*, *Dhatu Rupa Artava* which is responsible for *Yoni*, *Garbhashaya*, *Stana Vriddhi* can be considered as ovarian hormones.

तासाम प बलं वर्णं शुक्रं पुष्टिं करोति हि।

एतेन स्त्रीणां सप्तमो धतुरार्तावन्.....॥ (भा.पू. ३/८८)

स एव गन्धो ववृतपत्रकेशरे....राज स चोपचीयमाने शनैः शनैः स्तनगर्भाशययोन्य भवृद्धिर्भवति।

(सु. सू. १४/१८ डल्हण टीका)

Acharya Shushruta says in boys *Shukra* appears after specific age similarly in girls *Romraji* (pubic & axillary hair) grows in specific age.

Acharya Dalhan in his commentary include *Artava & Stanya*.

Sushruta says due to accumulation of *Raja* there is gradual development of *Stanya*, *Garbhashaya* and *Yoni*.^[2]

Changes during pregnancy

Uterus: There is hypertrophy & hyperplasia of muscle fibers, these occur under the influence of hormones-oestrogen and progesterone limited to the first half of pregnancy, stretching of muscle fiber due to distension by the growing foetus. The wall become thin at term.

Isthmus: Isthmus hypertrophies and elongated 3 times its original length and become softer.

The circular arranged muscle fibers in the region function as a sphincter in early pregnancy. Incompetency of the sphincter leads to mid trimester abortion.

Cervix: There is hypertrophy and hyperplasia of elastic and connective tissue and increased vascularity all these leads to softening of cervix which is evident as early as 6 weeks.

Breast: There is also hypertrophy of connective tissue, myoepithelial cells become prominent. Vascularity also increase. The axillary tail (prolongation of the breast tissue under cover of the pectoralis major) become enlarged and painful.

Pelvis: Due to increase mobility of pelvic girdle during pregnancy, the muscle and ligaments are exposed to unusual strain, which is aggravated due to physiological lordosis in later weeks of pregnancy.^[3]

During labour

Retraction of uterine muscle: retraction is a phenomenon of the uterus in labour in which the muscle fiber permanently shortened due to synchronize contraction, the effect is dilatation and effacement of cervix and expulsion of fetus, effective haemostasis after the separation of the placenta.

Slope of pelvic floor: Two halves of levator ani form a gutter and viewed from above, the direction of the fibers is backwards and towards midline. Due to this structure during contraction, and relaxation of pelvic floor the occiput is placed anteriorly called rotation by law of pelvic floor.

Changes in pelvic bone: During pregnancy the hormone relaxin helps soften and relax pelvic ligaments. This gives the pelvic bones the ability to stretch and open more easily for the birth of baby.^[4]

In *Ayurveda* changes in female body explained in the *Lakshana of Sadhyograhita & Vyakta Garbha* and *Masanumasik Garbhini Lakshana*.

In *Vyaktagarbha* main changes are *Gurugatrata, stanya vradhi, Romraji-udgam, Yonyaschatalatvam*. In *Garbhini* monthly musculoskeletal changes are- In fourth month- *Garbhini Guru-Gatrta*, in fifth month- *Garbhini Karshyata*, in sixth month- *Bala, Varna Hani*.^[5]

Acharya Charak also explain changes in female body in the topic of *Garbha Poshana* that is स्त्रिया ह्यापन्नागर्भयास्त्रिधा रसः प्रतिपद्धते- स्वशरीरपुष्टये स्तन्याय गर्भवृद्धये च। (च.शा.६/२३)

The food ingested by mother is divided into three parts a part of it facilitates the growth of mother another part assists development of embryo third part assists in the growth of breast and formation of milk.^[6]

Changes in menopause: Few years prior to menopause, along with depletion of the ovarian follicles, the follicle become resistant to pituitary gonadotrophins. As a result effective

folliculogenesis is impaired with diminished oestradiol level. Due to lack of oestrogen ovaries become shrink and wrinkled, the muscle coat of fallopian tube become thinner, the cilia disappear and the plica become less prominent. The uterus become smaller and body and cervix ratio revets from 2:1 to 1:1. The vagina become narrow due to gradual loss of elasticity, the rugae progressively flatten. There is may be dysurea, frequency, urge and stress incontinence due to muscle weakening. Loss of muscle tone leads to pelvic relaxation, uterine descent. The pelvic cellular tissue become scanty and the ligaments supporting the uterus and vagina loss their tone.

Bone metabolism: In menopause due to deficiency of oestrogen osteoclastic activity are increased as a result loss of bone mass 3- 5% per year. In female in which severe deficiency of oestrogen leads to osteoporosis.^[7] Swabhavoparamvad says every substance, which is created on this earth, has to be destroyed. After 50 years, because of age the integrity of Dhatus are lost leading to slow deterioration of Raja and Stanya.

Management: During puberty the treatment modality is *Dhatu Poshnatmak* because it is a growing stage in which reproductive organ and other body organ developed properly, due to many hormonal changes muscle growth and bony changes also occur. So during puberty we choose which drug or *Chikitsa* which help to nourish all *Dhatu*. In reproductive period proper follow of *Rajaswala Charya* is must the indication is to take light diet *Vata Shamaka* which ease to menses. *Darbha Sanshtara Shayini* which help to relief back pain due to correct posture and release excessive heat from body. The drug like *Shatpushpa*, *Shatavari*, *Lasuna* are *Rasayan* for women in reproductive age. During pregnancy In *Garbhini Pricharya* all drug have *Rasayan*, *Madhur Rasa* property which help to maintain pregnancy so in body physiological change occur properly and fetal development also properly. *Dugda* advice in every month of pregnancy which help to reduce degenerative changes in bone and reduce the problem which develop in later week of pregnancy like back pain. In last month of pregnancy *Yoni Pichu* is advised which help to relax pelvic floor muscle and easy to delivery. In menopause; it is the period of *Vata Vraddhi*, so the selection of treatment and *Ahara* is *Vata-Shamaka*, *Balya*, *Jivneeya*, *Rasayan*, *Rasadi Dhatu vardhaka*. like *Bala*, *Ashwagandha*, *Shatavari*, *Brahmi*, *Shankhpushpi*. Procedure like *Vasti*, *Abhyang*, *Shiro -Dhara* and *Siro-Pichu*, *Yoni Pichu*.^[8]

DISCUSSION

In female body changes in every stage of life not only in physical change occur but psychological also occur. Proper follow of *Dincharya*, *Ritucharya*, *Rajaswalacharya*, *Garbhini Paricharya* we can cross every stage smoothly and age related problems do not occur. According to age *Dosh Pradhanyata* is in *Bala- Kapha Pradhanya*, *Yuvti/ Taruni- Pitta Pradhanya*, *Prodha/ Vriddha- Vata Pradhanya* so the treatment modality is different in each stage according to *Dosha*.

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