



AN ANATOMICAL CONSIDERATION OF CONCEPT OF *SROTAS* IN PRESENT ERA AND ITS CONSEQUENCE IN SPORTS

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ABSTRACT

Sharir is the basic subject of medical science. Without knowledge of the *Sharira*, a physician can never be successful in his field. The knowledge of this is very important to the right concept of *Roga* and *Arogya*. The importance of the knowledge of *Shareera* is evident from the fact that all *Acharya* have described *Sharir Sthana* before starting with *Chikitsa Sthana*. The core of *Ayurvedic* medicine is the *Srotas*, an interconnected web of bodily functions said to conduct a healing, sacred energy from head to toe. The *Srotas* which means channels or path are often through to be different part of the body's transportation system. Every *Srotas* has its own *Srotomool* which carry or create the *Ras Raktadi Bhava Padarth* through it. As a tree is seriously affected by injury to its root, similarly the channels of circulation in the human body are seriously affected when their *Srotomoola* is being injured or get vitiated. *Srotas* are very important structure present in our body. Proper functioning of the *srotas* improves the physical and mental health of the body. Exercise is a form of physical activity. Exercise usually describes a pre-planned physical activity that involves a series of repetitive movements that are performed to strengthen or develop a particular part of the body, including the cardiovascular system. In sports physical activities like walking, running, climbing etc. and physical and mental stamina is very necessary. *Srotas* like *Asthivaha*, *Majjava*, *Mamsvaha* etc. have great importance due to their use in sports. While playing any outdoor sport we must have good physical and mental stamina for continuation of the game. Scientific knowledge of the *Srotas* regarding their *Moolsthsna*, *Dushtilakshana*, *Vidha Lakshana*, herbal formulation for improving the function of the *Srotas* and their management. Play key role in sports activities.

KEYWORDS: *Sharir*, *Srotas*, *Srotomoola*, *Asthivaha*, *Majjava*, *Mamsvaha*, sports.

INTRODUCTION

The concept of *Srotas* is defined vividly and scientifically in *Ayurvedic* texts. It is stated that any corporeal entities do not arise or decay without *Srotas*. They are defined as the transporting passages of *Dhatu*s undergoing transformation. According to physical structure, *Srotas* are transport food, plasma, blood and the *dhatu*s, *dosas*, *malas*, life-force and so on. Transports food nutrients from the gastro-intestinal tract to their respective *dhatu*s to nourish them and making it possible for them to regenerate. It cleanses the body by transporting wastes such as feces, urine and sweat to their sites of elimination, thus keeping the body fit and healthy. No chemical element in the body can be produced, nourished or suffer an increase or decrease without the help of the *srotas*. They are central to all the functions of the body, being responsible for all

movements like transport of *malas*, sensory or tactile feelings, emotions, desires and so on. Hence, they help in performing all body activities. *Srota* are present in every part of the body from the smallest cell of the body, to all minor and major body organs. The importance of *srotas* for the smooth functioning of bodily processes is evident. Consequently, it is of utmost importance that the *srotas* remain in their natural healthy state.

Anatomy and Physiology of Srotas

According to *Charaka*, *Srotsas* have their color similar to that of the *Dhatu* they transport; they may be cylindrical *Sthool* (Gross/Macroscopic) or *Anu* (Atomic in Size/Microscopic), *Dirgha* (Large) or *Pratana* (Reticulated) in shape. According to *Sushruta*, *Dhamni* have pores in their walls very much like the minute

passages present in the stem of a Lotus, through which they supply Rasa to all parts of the body.

Vagbhatta has followed the view of Sushruta and he has compared *Srotas* as fine passages and pores present in the lotus stem. He observes Rasa spreads throughout the body through the *Dwaras* (pores) of *Srotamsi*, which are distributed extensively in the body, very much like the minute channels present in the stem of a Lotus flower. Sushruta has further stated that the *Pratana* (Reticulate or ramified) *Srotas* are found in *Mamsdhara Kala*. After going through the views mentioned above, the following facts about structure of *Srotas* can be concluded:

1. The *srotas* are similar in colour to the *Dhatu*, they are associated.
2. They are cylindrical, macroscopic, microscopic, long or straight and might also be reticulated.
3. *Srotas* are very minute branches of gross channels originating from organs or cavities in the body like heart.
4. The structures called *Srotas* don not include- *Sira* and *Dhamni*.
5. *Srotas* are the pores in walls of *Dhamnies* like minute passages, present in lotus stem.
6. *Srotas* transport Rasa and supply to all parts of the body.
7. All *Dhatus* of the body get nourished by oozing or permeation phenomenon through the pores present in the *Srotas*.
8. *Srotas* is a hollow structure.

Function of *Srotas*

According to *Ayurveda*, *Srotas* which represent the internal transport system of the body, especially at the level of *Sthayi Dhatu*, exercise a selective discrimination, as regards the supply of nutrition to these *Dhatus*. This idea is implicit in *Charaka's* observation that nutrient substances which nourish the *Dhatu* undergo *Paaka* by the *Ushma* of *Dhatu*. They are then made available to the *Dhatu* through their own *Srotas*.

The principle of specificity of *Dhatu Vaha Srotas* in *Ayurveda* is important and a concept similar to that which are seen to emerge from modern scientific research, in the field of physiology and bio-chemistry, relating to the "mechanism and dynamics of exchange of fluid across capillaries". Like *Ayurvedic* concept of *Khalekapota Nayaya* modern physiology too has recognized the specificity of the substances, different kinds of tissues need. Thus, recent studies in the metabolism of proteins have shown that "The pattern of Amino Acid mixture supplied to the tissue will determine the suitability of these substances for the synthesis of a specific type of cellular protein". The views of *Punavasua Aatreya*, cited earlier, that structural peculiarities that is the elements that compose the *Srotas*, the materials they transport, the tissue to which they serve channel of transport, and the regions of the body they cover, constitute the significant features of *Srotas*,

finds an echo in modern views relating to the properties of capillary walls and plasma membranes of the cells.

The functions of *Srotas* are as follows

1. All the structural entities are originated from *Srotas*.
2. *Srotas* carries the *Dhatu*, undergoing transformation to their destination.
3. *Srotas* maintain or nourish the structural entities of the body to prevent their diminution.
4. As long as these channels of circulation perform their normal functions, the body is free from diseases.
5. Excrete the *Malas* from the body.

Consequences of *Srotas* in Sports

Physical activity keeps our body fit and active, builds muscles, and strengthens all internal organs. Playing sport is healthy, but overdoing it can be more destructive for your health, than just suffering a strain or sprain. Certainly, sport should be fun, both during and after exercise. The long-term effects of overdoing sport are especially unhealthy: Your body loses its balance and its resources are depleted. Sports should help to maintain inner balance throughout the body, to strengthen all organs, and to make the immune system stronger. In the right amount, sport increases well-being and reduce the stress. A different type of *srotasa* possesses different function and qualities that help to individual while playing sports activities. *Srotas* play important role and shows its significance in sports under following consideration.

Prakruti(body constitution)

According to *Ayurveda* every individual have its own body constitution according to the three *Dosha*(*Vata*, *Pitta* and *Kapha*) or their combinations. There can be ten such combinations. This constitution is formed at the time of fertilization and remains unchanged till death. For a person with *Vata* (lean) type of body constitution, slow and light sports, which include walking, swimming, dancing and cycling. A person with *Pitta* (with moderate to vigorous physique) type of body constitution have good thermo stasis, whose heat production is balanced, can tolerate more exercise. The type of sports which they can take up are swimming and surfing, all sports that are practiced in the open air such as, skiing, climbing, cycling, light jogging and all ball and team sports and a person with *Kapha*(overweight) types, may often not be very motivated, but, they will especially benefit from regular exercise. They may make their sport sessions a little more intense and longer. Recommended sports include jogging, long distance running and rowing.

Sara (constitution of the *dhatu*)

There are seven *dhatu*(*sara*) in our body. Among these the *asthisara* and *majjasara* individuals can be a better sports person who can perform well in outdoor events.

People exhibiting *Asthi Sara* have strong bones, prominent joints at heels, ankles, elbows, shoulders, chin,

thick nails and prominent teeth. They possess high energy and are addicted to actions. They are capable of bearing pain and fatigue. Their body will be slim but strong and firm. They are best suitable for hard physical activities, sports and war. While *Majjasara* are small built and having good strength, strong bones and joints. They are oily in complexion and are very responsive. They are blessed with good physical stamina, power, knowledge, and demand dignity and respect.

5) *Samhananam (Compactness)*

A compact body is characterized by symmetrical and healthy grown bone, well-knit joints and well bound muscles. Individual with compact body is very strong and vice versa. Compactness of the body can be taken as an indication for athletic ability. Compactness of a particular part of the body or group of muscle will be corresponding to their particular sport event. Compactness has significance in events such as weight lifting sprinting etc. Here hypertrophy of a certain group muscle is unavoidable.

DISCUSSION AND CONCLUSION

Healthy *srotas* enhance the smooth circulation of *dosas*, *dhatus* and *upadhatus* throughout the body and speed the movement of *malas* to their excretory orifices. Diseased *srotas* pass on their state of imbalance to the *dosas*, *dhatus* and *malas* they carry, which in turn further corrupt the *srotas* due to the circulation of vitiated *dosas*, *dhatus* and *malas*. It becomes a vicious cycle. If *dhatus* or *malas* accumulates in the *srotas*, the metabolic process of that *dhatu* is hampered. The adjoining *dhatus* are also adversely affected, due to the obstruction in the circulatory process of the *dhatus*. This leads to *ama dosa*, which travels to other parts of the body, blocking other *srotas* and causing ailments. The common cold and related diseases are a good example. The out-of-balance *dosas* travels from the diseased nasal channel (*srota*) to the *srota* in the thoracic region causing cough. Through these channels, *dosa* reaches the ear and it causes earache, heaviness and deafness. When it flows to the head, it causes sinusitis. It causes bronchitis on reaching the lungs and dysentery on reaching the bowels. Hence, it is necessarily required to keep all the *srotas* clean and in good health. It is the capacity to perform physical exercise. The physical fitness are influenced by many factors such as age, *sara*, *ahara*, *samhananam*, mental stability. The challenges faced by a modern sports person are not just musculo-skeletal but it also includes physical, physiological psychological social, economical, environmental stresses. Ayurveda aims at the preventive, promotive, curative corrective and rehabilitative aspects of a sportsman. The approach in Ayurveda is holistic, where in it *Srotas* have a profound impact on not just the physical problems but the much more important psyche of the sportsperson. It can effectively work towards stress relieving and in developing concentration.

CONCLUSION

Ayurveda incorporate several concepts regarding *Srotas* like *Saar Samhanana*, *Prakriti* that can be effectively used for improving the sports activity, quality, stamina and concentration of sports person. Detailed studies using modern principles of investigation should be initiated as a combined project between the practitioners of different body systems so as bring out the benefit for sports.

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