

**A ROLE OF AYURVEDA IN SPORTS MEDICINE- A REVIEW STUDY****<sup>1\*</sup>Dr. Rahul A. Sonkamble and <sup>2</sup>Dr. Mukund D. Bamnikar**<sup>1</sup>MD Scholar, Department of Swasthavritta, R.A. Podar Medical (Ayu) College, Mumbai.<sup>2</sup>HOD & Professor, Department of Swasthavritta, R.A. Podar Medical (Ayu) College,  
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*Ayurveda* is the ancient Indian system of medicine. The term *Ayurveda* combines two *Sanskrit* words *Ayu* which means life and *Veda* which means knowledge. It is one of the oldest system of medicine in the world. Sports medicine is a branch of medicine that deals with physical fitness and the treatment of injury related to sports and exercise. Sports medicine has always been difficult to define because it is not a single speciality, but an area that involves many branches. *Ayurveda* is related about prevention as well as curative aspects, so it is best science which play major role in sports medicine. There is no direct references regarding sports medicine in the *Ayurvedic* literature. Even there is no ready-made management plans regarding sports related things. But

when we observe with open mind, we can find enormous things. *Dinacharya, Rutuchaya, Rasayana chikitsa, Panchakarma chikitsa, Marma sharir, Achara rasayana, Yoga therapy, Vyayama, Pathya-Apathya etc.* each and every thing is play important role in sports medicine. The aim of this review study is to exploring hidden references and scope of *Ayurveda* in sports medicine.

**KEYWORDS:** Ayurveda, Sports medicine.**INTRODUCTION**

The ancient medical system called *Ayurveda* is one of the main systems of Alternative medicines of Indian origin. The *Ayurveda* being one of the leading system of Alternative medicine cannot be away from new inventions to enter into new fields. This is found very practical even in the modern era of medicines due to its unique unbeatable philosophy. The sports is one of such field where it has to show its power of cure and power of preventing

diseases. It can also show its significance of regimen that to be followed for better healthy life even in this modern era of medicine.

Sports medicine is a branch of medicine that deals with physical fitness and the treatment of injury related to sports and exercise. In today's world, Sports and physical training have become very professional and competitive. Aggressive competition and intense desire to excel in his field leads to unbearable stress for sports persons. More over physical training and fitness has become an important aspect of any sport. This is the main reason behind increasing incidence of sports injuries. Simultaneously increasing ratio of psychological and psychosomatic disorders are also the subjects of worry for the sports persons. Sports medicine has always been difficult to define because it is not a single specialty, but an area that involves health care professionals, researchers and educators from a wide variety of disciplines. Its function is not only curative and rehabilitative, but also preventative, which may actually be the most important one of all. Now a day this science is developed as a super specialty branch of the medical science. Importance of sports medicine is therefore increasing day by day. *Āyurveda* being a complete science of health care can contribute in this field also. Principles, regimen, treatment modalities, dietetics and drugs of *Ayurveda* can play very useful and important role in this field.

Sports medicine is a separate medical speciality in medicine field. *Ayurveda* act as preventive and curative both sides, so it is a best medicine which play major role in sport medicine. As we go through the Ayurvedic literature, there is no direct references regarding sports medicine. Even there is no ready-made management plans regarding sports related things. Therefor most of the people concluding that there is no role of *Ayurveda* in sports medicine. But when we observed with the open mind with curiosity, we find enormous things about sports medicine in *Ayurveda* science. There are seven Dhatu (Body tissues) described by *Ayurveda* that give form and shape to the human body. In sports medicine *Mansa* (Muscles) and *Asthi* (Bones) is main *Dhatu* and *Snayu* (Ligaments), *Kandara* (Tendon) are Upadhatu which deals with sports injury. According to Ayurveda function of asthi dhatu is giving shape and structure to our body. Ligaments, muscles, tendons are connected to *Asthi* (Bones). Having strong bones means having a strong body. *Dinacharya*, *Rutucharya*, *Panchakarma*, *Rasayana chikitsa/Achara Rasayana*, *Marma sharir*, *Yoga*, *Vyayama*, and *Pathya-Apathya* etc. each and every thing is play important role in sports medicine.

## AIM AND OBJECTIVES

- 1) To review the preventive and curative role of *Ayurveda* in sport medicine.
- 2) To review role of *Ayurvedic* Regimen, Principles, Diet etc. in Sport medicine.

## MATERIALS AND METHODS

This is an Extensive literary work conducted using different classical textbooks of *Ayurveda* along with electronic databases. Literature regarding the aspect of sports medicine in *Ayurveda* was properly explored and screened in *Ayurvedic* Texts.

## AYURVEDIC CONCEPT IN SPORTS MEDICINE

There are seven *dhatu* (body-tissues) described by *Ayurveda* that give form and shape to the human body. In sport medicine *mansa* (Muscles), *asthi* (bones) are main *dhatu* & *snayu* (ligaments), *kandra* (tendons) are *upadhatu* which deals with sport injury. According to Ayurvedic system of medicine, Functions of *asthi* (Bones) is giving shape and structure to our body. Ligaments, muscles and tendons are connected to *asthi*. Therefore having strong bones means having strong body. Some Ayurvedic concept can be correlate with sport medicine are listed below.

### 1) Symptoms of *Asthivridhi*<sup>[1]</sup>

- a) *Adhyasthi* (Bone hypertrophy)
- b) *Adhidanta* (Extra teeth formation)

### 2) Symptoms of *Asthi*kshaya<sup>[2]</sup>

- a) *Asthibhagna* (Pathological fracture)
- b) *Asthi*kshaya (Osteoporosis)
- c) *Asthotoda* (Inflammation of bones and joints)
- d) *Asthivrana* (Osteomyelitis)
- e) *Dwijaprapatana* (Falling of teeth)
- f) *Phakkaroga* (Rickets)
- g) *Sadana* (weakness)
- h) *Shrama* (Fatigue)

### 3) Sports injuries as per *Ayurveda* Concept

- a) *Bhagna* (Bony injuries/Fracture and dislocation)
- b) *Sadyovrana* (Acute wound)

- c) *Snayugata vata* (ligament, Nerve, Bursa injuries))
- d) *Vrana* (Wound)
- e) *Vranashotha* (Inflammatory condition)
- f) *Kandaragatavata* (Tendon injuries)
- g) *Mamsagatavata* (Sprain and Fatigue syndrome)
- h) *Sandhimukta* (Joint injuries, Dislocation, Subluxation)

## DISCUSSION

### AYURVEDIC INTERVENTIONS IN SPORT MEDICINE

*Ayurveda* is the oldest system of medicine with an aim of prevention of health of healthy person and cure illness. The *Ayurveda* can be effectively incorporated in all the fields of sports beginning from training to the treatment. In ancient times many ayurvedic treatments, regimen and herbal preparations were used by the warriors to enhance their performance during war. Same in today's era we can use *Ayurvedic* principles, Regimen, herbal preparation in sport medicine to prevent and to cure illness. *Ayurveda* can intervene at various levels in sports medicine from selection of athlete or sports persons to diet and daily regimen of a sports man. Various important aspects of *Ayurvedic* sports medicine are summarized below-

#### 1) ROLE OF *DASHAVIDHA PARIKSHA* IN SPORT MEDICINE

Modern science conducts many exams for fitness like weight, chest, running etc. in sport medicine. Same, in *Ayurveda* there are 10 examinations are mentioned by acharya, which is known as *dashavidha pariksha*.<sup>[3]</sup> This *Dhashavidha Pariksha* can be used to examine and selection of sport person.

##### A) *Prakruthi* (constitution of the body)<sup>[4]</sup>

There are total 7 *Prakruti* according to *Vata*, *Pitta* and *Kapha* and their combinations. They will remain unchanged till the death of the individual. *Prakruti* is formed at the time of fertilization. The physical fitness and performance are important in sport area. It's influenced by the constitution of the human body. From observation it is conclude that *vata prakruti* person can be a better athlete than a *kapha prakruti* person. Similarly a person specializing in chess should be *kapha* predominant person.

##### B) *Vikruti*<sup>[5]</sup>

It guess on the bases of *dosha-dushya*, *prakruti*, *desha*, *bala*, *kala*. Modern medicine can be similar to *vikruti pariksha*, in which they do study of disease then study of patients and

afterward disease management.

### C) *Sara* (Excellent essence)<sup>[6]</sup>

Acharya *Charaka* has described *Sara* examination and the term *Sara* means the essence. This is the highest purity of specific *dhatu*. Depending upon the dominance of the *dhatu*s individuals are categorized as; *Tvak sara*, *Rakta sara*, *Mamsa sara*, *Medo sara*, *Asthi sara*, *Majja sara*, *Sukra sara*, *Satwa sara* /*Ojo sara*. The eight subtypes of *sara* may be assessed in term of relative quality i.e. *sarva sara purusha*, *madhyama* and *asara* or *avara purush*. If we refer to the characteristics of all these forms, we observe that among these the *asthisara* and *majja sara* individuals can be better sports person who can perform well in outdoor events.

- 1) ***Asthisara Purush***<sup>[7]</sup>- Bones are strong, prominent joints at *gulfa* (heels), *janu* (ankles), *Aratni* (elbows), *jatru* (shoulders), *Nakha* (nails), *sthuladanta* (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.
- 2) ***Majjasara Purush***<sup>[8]</sup>- It is related to *Majjadhatu*. *Majjasara* are with small body and having good endurance, strong bones and joints. They are oily in complexion and are very agile. They are endowed with good physical stamina, power, knowledge, and demand dignity and respect.

### D) *Samhananam* (Compactness)<sup>[9]</sup>

*Samhananam* denotes compactness of the body. A compact body is characterized by symmetrical and well grown bone, well-knit joints and well bound muscles. It's decide power of person. Evenly well-demarcated bones, well bound joints, well formed muscles are known as compact body Individuals having well compact body are strong and having good strength. 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.

### E) *Pramana* (Measurement)<sup>[10]</sup>

The word *pramana* means measurement. By the measurement of the body organs the, quality and strength of a person can be ascertained. It gives idea of life of person. This is determined by measuring the height, length and breadth of the individual organs in comparison with the

other organs. To be an outstanding athlete one should possess unique proportion of the body other than the normal individual.

**F) *Satmya* (Suitability or examination of homologation)<sup>[11]</sup>**

*Satmya* is defined as the inbuilt ability to withstand. It stands for such factors which are wholesome to the individual even when continuously used. Individuals for whom ghee, milk, oil and meat soup as well as the drugs and diets having all six *rasa* are wholesome are endowed with strength, the power of facing difficult situations and longevity. There are four types of *satmya* out of which *Oka satmya* of *Charaka* or *Vyayama satmya* of *Susrutha* can be dealt in detail here. *Oka satmya* means the adaptability of a person to a particular activity. It depends upon the daily activity and repetition of an activity increases the ability of the body to continue the same. *Sushruta*, in the context of *Vyayam Satmya* has considered three types of *Vyayam* i.e. physical exercises, pertaining to body, speech and mind.

**G) *Satva* (psyche-examination of mental faculties)<sup>[12]</sup>**

*Satva* is mind and it regulates the body because it is associated with soul. *Satva* controls the body by conjunction with the self. Based on *sattva* persons there are three types of *sattva* having superior (*pravara*), medium (*madhya*) and inferior (*avara*) *satva*. Among them, those having superior (*pravara*) *sattva* are in fact *satva sara purusha*. Their stout body frame seems to be stable even in severe affliction either innate or exogenous because of the dominance of *satva lakshnas*. *Satva* is mind. To be a good athlete one should not only have a strong body but a capable mind. Therefore it can be conclude that *sattva sara* individuals will be better in sports.

**H) *Ahara Shakti* (Examination for intake of food)<sup>[13]</sup>**

Digestive capacity of individual can be examined by two ways that is *abhyavaharana shakti* (the power of ingestion) and *jarana shakti* (power of digestion). Person having excellent power of ingestion and digestion of food are claimed to be healthy persons. This kind of person endowed with excellent strength, longevity, joy, good physique, superior mental faculties, full of essence of *dhatu*s, power of resisting any sort of difficulties etc. Thus a good sports person needs to acquire good *Ahara Shakti* so that he can digest the adequate food in adequate quantity because nutrition is an important aspect for every athlete and sports person.

**I) *Vyayama Shakti*<sup>[14]</sup>**

*Vyayam Shakti* is the capacity to perform physical exercises. There are numerous references

related to *Vyayama* in the literature of *Āyurveda*. The training in sports is of prime importance for fitness, and involves physical exercise, which improves the tonicity and strength of muscles and also tones up cardiac and respiratory functions. Obviously our ancient Acharya know of these benefits and have stressed upon regular *Vyayama* (exercise) not merely as a part of sports but as a daily regimen they also know that apart from many general advantages, Musculature is developed due to *Vyayama*.

#### **J) Vaya (Age)<sup>[15]</sup>**

It is also important factor related to sport medicine. Young person is best for sport because he have best energy level. As age increased body start to degenerate hence power of person getting decreased.

### **2) ROLE OF *DINACHARYA* & *RUTUCHARYA* IN SPORTS MEDICINE**

*Ayurveda* describes not only how to cure diseases but also its lights up on preventive aspects, which are effective in maintaining health of the body, mind and soul. Concepts of lifestyle told in *Ayurveda* are very unique, evidence based and aims at physical, mental and spiritual well being which are practical even in the present era. *Ayurveda* points the importance of daily regime (both day and night) and seasonal routine for preventing the diseases and promoting the health of the individual. It deals with the mental, vocal and physical aspects of well being that should be followed every day. It is essential for sports person to follow the concept of *dinacharya* and *rutucharya* because to maintaine hygiene of the body as well as mind, to prevent disease in long run, to cleanse and promote the health and the brightness of the sense organs, to enhance and maintaine the physical strength, to keep the mind in peace and harmony.

In many of the disorders *Ayurveda* advocates *Vyayama*, *Snana* (bath), *Snehana* & *Abhyanga* (massage), various types of *Swedana* (heat application) etc. which are the part of daily regimen. *Ayurvedic* physicians can use these techniques to relieve the pain, stiffness, heaviness and for relaxation etc. actions. Many of them are the chief treatment for *Vata Doṣa*, which is prime and most common cause of sports related disorders.

### **3) ROLE OF *ABHYANGA* (MASSAGE) IN SPORT MEDICINE**

In *Ayurveda* there are different types of Massages mentioned according to the need. The Sanskrit term *Abhyanga* coined by two words *Abhi* (against or opposite) and *Anga* (body part or movement) is one of the main massage type thus indicating the movements in different

directions. A person who wishes for positive health has to perform this massage every day for better results according to the *Ayurveda*. This *Abhyanga* massage not only promotes the health of the person but also prevents and cures the diseases. By nourishing the body it promotes clear vision, shines the skin and gives the good desired physique.<sup>[16]</sup>

Another type of upward and downward massage with various medicated oils called *Udavartana* and with dry powders *Udgharshana* alleviates vitiated *Kapha* and dissolves fat and makes the body strong and fit. This method of massage is advisable to strengthen the calf and thigh muscles. The massage types *Mardana* downward movement of hands while squeezing the muscles after exercises and *Unmardana* (opposite to the former) are found helpful in alleviating *mamsagata vata*. Another type of massage called *Samvahanam* can increase strength by alleviating the vitiated *Vata* and *Kapha doshas* and thus takes away tiredness and fatigue. According to ancient teachers it helps in regaining the vitality in muscles. The massage with feet called *Padaghata* is helpful for making the muscles stronger and stress resistant.

The *Abhyanga* (massages) can promote the health of the sports persons by healing damaged muscles, stimulating the blood circulation, releasing the stress and reducing pain and tension. The oils, powders, pastes and such other materials used during *Abhyanga* (massage) have potentiality of improving the fitness of the sportsman and obviously have place in injury too.

#### 4) ROLE OF SWEDANA IN SPORT MEDICINE

*Swedan karma* (Sudation) therapy too can be of great use in the injury of sports. *Swedan* is a steam treatment explained in Ayurvedic medical science. *Swedan* is the process of inducing sweat with the help of steam, generated from medicated herbal decoction. *Ayurvedic* fomentation is usually given after an oil massage. Due to *swedan* all toxic material, oxidants in the body removed out from body. Its combine act as painkiller action also. *Swedan karma* increases circulation, reduce inflammation, revitalize and rejuvenates the skin, acts on fat tissue, relieve stress, reduce numbness, stiffness, rigidity, heaviness and improves mobility.<sup>[17]</sup>

#### 5) ROLE OF PANCHAKARMA IN SPORT MEDICINE

*Panchakarma* is getting popularity due to its instant magical result & prevent recurrence of disease. Sport medicine also concentrated on curative and rehabilitative & also preventive like *Ayurved*. In sport filed person need daily exercise and follow his schedule to achieve his

target. Ayurveda give best schedule via *Dinchrya* and *Rutuchrya* and *panchkram* can keep them healthy. Ayurveda described *Vamana*, *Virechana*, *Basti*, *Raktamokshan* and *Nasya* as a *Panchakarma*. This *karma* can very useful in prevention and treatment of sports related illness. Many of them are the chief treatment for *Vata Dohṣa*, which is prime and most common cause of sports related disorders. Even in trauma like condition *Raktamoskna* is best *panchakrma* which give instant relief from pain and prevent occlusion of blood.

## 6) ROLE OF RASAYANA THERAPY IN SPORT MEDICINE<sup>[18]</sup>

*Ayurveda* advocates promotion of health with *Rasayana Aushadh* therapy. This part of *Ayurveda* can play the vital role for enhancing health status of sports man by improving strength, vitality and even immunity. Many kinds of herbal, mineral and herbo- mineral *Rasayana* drugs can provide good alternative to modern vitamins. *Ayurvedic Rasayana* may help to reduce the cases of doping (taking of banned drugs) due to their similar kind of effects without any disadvantage. The physical and mental stamina of sportsman indicate perfect health with *tridosha* and *Saptadhatu* in their normal condition.

However for *Dhatupachaya* (conditioning of *Dhatus*) and *Balavridhhi* (Strength) naturally the *Rasayana* Therapy is most suitable. It can be adopted during the training programme. For practical purposes *Kuti praveshika* (Indoor) type of *Rasayana* can be prescribed. Single *Rasayana* drug herb or formulation of various such drugs can be prescribed for general health, and specific formulations are indicated by choosing such *Rasayana* drugs, which would improve the *Mamsadhatu* and *Snayu* (Musculature).

They may be selected as per the need and individual of the sports person from the following- *Ashwagandha* (*Withania somnifera*), *musali* (*Asoaragys adscebdebs*), *ksheerini* (*Mimusps hexandra*), *Bala* (*Sida cardifolia*), *vidari* (*Pueraria tuberosa*), *kushmanda* (*Benineasa hispida*), *shaliparani* (*Desmodium gangeticum*), *kharjura* (*Pheonix sylvestris*), *Amra* (*Mangifera indica*), *kadali* (*Musa paradisiacal*), and mineral drugs like *shilajatu* (*Bituman*) and *Abhraka* (*Mica*).

By *Rasayana* therapy an individual will get longevity of lifespan, memory power, intelligence, health, youth, lustre, and complexion, and good voice, stronger sensory and motor organ. *Vacha*, *Raupyabahsama* are *Rasayana dravya* which act on *Majjavaha strotas*. While *abha* like *Rasayana dravya* useful in *Asthivaha strotus*.

### 7) ROLE OF VYAYAMA (DAILY EXERCISE) IN SPORTS MEDICINE

For a sports person the health and physical fitness are very important and for the physical fitness they are doing various physical exercises. Planning the daily routine of exercises by reorganizing and scheduling based on the Ayurvedic principles might be a better step. The *Ayurveda* defines *vyayama* (exercises) as any physical activity which is desirable and capable of bringing about bodily stability and increases the strength of body when done in proper measure. Physical exercise brings about lightness, ability to work, stability, resistance to discomfort and alleviation *doshas*. It stimulates the power of digestion.<sup>[19]</sup> It should be always performed by considering the age, habitat and food, physique and strength and must be very much designed according to the climatic changes or season. By incorporating the field of *Ayurveda* in physical exercises it can not only benefit the physical body but also the mind, senses and spirit for better results. The better determinant stress free mind with strong senses play the major role in achieving success by better performances. This we can observe by critically analyzing the performances of many well-known sports persons who perform poor during the qualifying and finals. The major reason is none other than the lack of peaceful mind and *Ayurveda* and Meditation alone can significantly improve the quality of mind and not by medications.

### 8) ROLE OF YOGA IN SPORT MEDICINE

*Yoga* plays an important role in sports medicine. *Asana*, *Pranayama*, *Surya namaskara*, *trataka*, *kapalbhati*, *mudra*, *Meditation* and *Chalan kriya* etc. are usually performed by sports person for various purposes. *Yoga* improve their concentration. It helps in developing physical fitness and it is also good for relaxation, good for rehabilitation after injury.

Some *yogasana* (balancing pose), *Pranayama* like *anulom-vilom*, *bhramari*, relaxation poses, meditation helps to increase concentration and helps in cure stress and anxiety. Sportsmen often gains weight during off season. This can easily be prevented by practicing all *yoga* techniques. It increases the immunity and improve all body systems. Daily practice of *yoga* improves glandular function. It develops high level of physical fitness especially flexibility and endurance, tone up muscular and nervous system. The breathing exercises of *yoga* helps to control the breath which is very important for any sportsperson. *Yoga* cure all components of physical like speed, strength, flexibility etc.

### 9) ROLE OF AYURVEDIC DIET IN SPORT MEDICINE

A role of diet is very important in sports person. *Ayurveda* gives comprehensive description

of food substances that can increase muscle mass and physical proficiency. Food should be taken according to eight factors such as nature of food, processing of food, combination, quantity, place, time, dietetic rules, constitution, and combination.<sup>[20]</sup> *Sarvagraha* and *Parigrah* are two nomenclatures used for total quantity of food and quantity of individual items of food respectively.

The list of wholesome items in food would be red *Shali* rice among cereals, green gram among pulses, rock salt among salts, *Jeevanti* (*leptadenia reticulata*) among herbs, meat of deer among animal meats, meat of quail among birds, meat of Iguana among the animals living in holes, *Rohita* among fish, *Amalaka* (*emblica officinalis*) among Fruits, barley, water, cow's milk among milk, ghee among clarified animal fats, sesame oil among vegetable oils and honey can be prescribed to sports person.<sup>[21]</sup> The diet mentioned for treating *Rajayakshma* for improving the various essential dhatus can promote the general health and stamina of the sports person.

### **ROLE OF MARMA SHARIR & BHAGNA CHIKITSA IN SPORT MEDICINE**

*Marmas* are vital points in the body. Ayurveda described 107 vital points in body which called as *marma*. An injury to any of these *marmas* may cause severe pain, swelling, disability and even death. Many of the *marma* points have great importance in the treatment of sports injuries. Injuries, trauma are common in the sports. This can be physically or mentally. Trauma or injury on this point can be brings disability or death.

Fracture is one of the common hazards in sports medicine. *Ayurvedic* approach to fracture- especially the role of medicinal herbs and minerals, is noteworthy and can become revolutionary in the treatment of sports fractures. *Sushruta* and many other acharya have dealt with fractures elaborately. *Ayurveda* indicated many herbs like *Manjistha* (*Rubia Cardifolia*), *Yasthimadhu* (*Clycyrrhiza Glabra*), *Rakta* (*Chandana* (*Pterocarpus Santalinus*), *Asthi Shruankhala* (*Cissus quadrangularis*), *Guggulu* (*Balsemodendron mukul*) which will help in acceleration of callus formation. The drugs noted in *Sandhaneeya* group by *charaka* can be used for fracture treatment.<sup>[22]</sup> *Sushruta* have prescribed *Bhagna-Sandhanaka* taila and similar other oils obviously medicated, can also be used in fracture.<sup>[23]</sup> *Shilatiji* (*Bitumen*) is important among minerals can be used for fracture treatment. It can be used for prevention and treatment of fractures.

## 10) ROLE OF NATURAL ENHANCING AGENT IN SPORT MEDICINE

In any heavy work, person needs instant energy. In ancient times also warriors use some herbal drugs to enhance their performance during war and from which they not getting tired easily. Acharya *Charaka* described the 50 *Mahakashaya* in *charaka Samhita*.

*Brumhaneeya dasaimani* (Muscle builder), *Jeevaneeya Dasaimani* (Vitaliser), *Balakara Dasaimani* (Promotes strength) and *Sramahara dasaimani* (Promotes cheer) drugs are said to have components that can enhance the performance level. These drugs are non-steroidal and probably act by increasing the secretion of the biological hormones and enzymes. *Draksha*, *Priyala*, *Barbara*, *Dadima*, *Parooshaka*, *Iksu*, *Yava*, *Shastika*, *Phalgu*, *Jeevaka*, *Rishabhaka*, *meda*, *Mahameda*, *Kakoli*, *Ksheerakakoli*, *Mudgaparna*, *Mashaparni*, *Jeevanti* are examples of such Natural performance enhancing agents.<sup>[24]</sup>

## CONCLUSION

*Ayurveda* has a very strong foundation of basic principles related to various medical specialties. Majority of these principles can be used in the field of sports medicine. Selection of the sports persons based on various factors described in *Ayurveda*, daily and seasonal regimens and proper nutrition advised in *Ayurveda* science, and various *Ayurvedic* formulations advised for various illnesses can provide solutions to the sports persons.

The *Ayurveda* can be effectively incorporated in all the fields of sports medicine beginning from training to the treatment. The curriculum of the sports training can be effectively modified by including the *Ayurvedic* concepts of healthy living by following the regimen. The exercises and diet can be designed based on *Ayurveda* and Yoga for strong physique and mind for better performances. It can also incorporate *Rasayana* Therapy for building the required stamina according to the personalized needs and requirements. The classical and various medicines of *Ayurveda*, *Panchakarma*, *Snehana*, *Swedana*, *Marma sharira*, *Bhagna chikitsa* etc. can be effectively included for better results. The incorporation of the successful methods and medicines of alternative medicines can minimize the usage of modern medicines and hence avoid the risk of side effects for a better career and performances.

Use of external application and internal medication found to be best in the healing of injuries and prevent edema, stiffness, muscle wasting compared to modern treatment. *Ayurveda* can create miracles in various kinds injuries like tennis elbow, heel pain, plantar Fasciitis, heal spur, highland's syndrome, Achilles tendinitis, tenosynovitis, groin injury, long Lasting

patellar tendinitis, supra spinatus tendinitis with shorter duration of time compared to modern medicine. Many surgical conditions like meniscal tear, rotator cuff tear, ligament tear, condylar fracture. Patellar dislocation, recurrent shoulder dislocation, back pain and neck pain due to inter vertebral disc disease can be treated and recovered in shorter span of time by integrated method. Degenerative diseases like osteoarthritis, per arthritis affecting the old age can be successful brought back to normal stage and patient can move without pain safely in low treatment cost. Performance enhancement and attaining physical and mental fitness all this can achieve with *Ayurveda* science.

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