Chapter I
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INTRODUCTION

“The body must needs be vigorous in order to obey the soul; a good servant ought to be robust. The weaker the body, the more it commands, the stronger it is, the better it obeys…. In order to think, we must exercise our limbs, our senses and our organs, which are the instruments of our intelligence. In order to derive all the advantages possible from these instruments, it is necessary that the body which furnishes them should be robust and sound.”

- Plato

Physical fitness is necessary for success in all games and sports. Without a high level of physical fitness, an individual will not be able to withstand the stress and strain caused on the body by various games and sports.

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health. It is performed for many different reasons. These include strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance and for enjoyment. Frequent and regular physical exercise boosts the immune system, and helps prevent the "diseases of affluence" such as heart disease, cardiovascular disease, Type 2 diabetes and obesity. It also improves mental health, helps prevent depression,
and helps to promote or maintain positive self-esteem and body image. Childhood obesity is a growing global concern and physical exercise may help decrease the effects of childhood obesity in developed countries.

Healthy living and physical fitness are closely connected. Being physically fit not only helps people live healthy lives; it also helps people live longer. People who make physical activity and exercise a part of their daily lives when they are young are more likely to keep it in their lives as they grow older and benefit from it throughout their lifespan.

People all over the world are becoming more and more health conscious, the priority has been shifting from everything else to the fact that the most important thing in life, is to keep oneself in shape and fit, to enjoy things in life. Man can give up everything for the sake of keeping himself young. It is very necessary to go for a complete fitness training, which takes care of all the aspects of making a fit body, beginning from making note about the right kind of diet and right kind of exercises which suits the physical conditions of the body.

Physical activity offers a broad range of benefits, including the prevention of obesity, improved self confidence, and an overall sense of well-being. Regular activity, fitness and exercise, are critical for the health and well being of people of all ages. Research shows that everyone, young or old can benefit from regular exercise, either vigorous or moderate. Millions of
people suffer from chronic illnesses that can significantly improve through activity.

Proper exercise is the basic factor in developing and maintaining health and fitness. In order to lead a quality life and enjoy the life fully one has to be fit and healthy. Fitness is the most important pre-requisite for the success in any sports. Depending up on the nature of the sports the quality will differs. People chose different types of sports events mainly depending upon the physical qualities. In sports training, emphasis is given for the development of those qualities which determine the basic performance structure of that particular game, and there are different kinds of training means for developing each of these qualities.

Today in school, colleges and in youth organizations a number of exercises are being organized. These exercises are performed in a systematic manner. The planned physical exercises which are performed systematically are called physical training. There are a number of advantages of these exercises. Physical training should promote health and develop physical strength and endurance. The diversity of physical training and its lack of uniformity through the world are due to its historical development.

Physical training now manifests a general tendency to become uniform in all countries, and similar results of change can be observed in many places. The word training in its broad sense refers to any organized and systematic
instructional process which aims at enhancing man’s ability with regard to physical, psychological and intellectual aspects. In the field of sports, training is a process which involves preparation of a sportsperson to attain highest level of sports performance.

To improve sports performance, one has to, regularly and systematically, performs a variety of exercises. Mere execution of an exercise does not ensure improvement of performance. Actual effect of exercise depends upon several factors of which the important ones are training load, means of recovery, assessment of loading and performance capacity, sports equipment, nutrition, psychological characteristics and methods adopted for imparting theoretical instruction.

Sports’ training is a systematic process extending over number of days and even moths and years. In the course of training, in addition to application of physical load through physical exercise, theoretical instructions are also imparted so as to provide necessary technical and tactical knowledge and intellectual developments. Sports training aims at improving sports performance through physical, physiological, psychological, social, intellectual and moral aspects thus contributing to development of all-round personality of the sportsperson. (Uppal 2001).

Strength training is performed by a wide range of people for a variety of reasons. Most are interested in gaining muscle strength and muscle mass with
a concomitant loss of body fat. In addition, many people expect this physical adaption to carry over into improvements in performance of athletic endeavours and daily life activates. Strength training can provide these adaptations as long as you follow certain principles, which are discussed here to help you realize your strength training goals, and how to change it to continue making adaptations as you progress (Jim Stoppani, 2006).

The average strength training program will last several weeks to several months before a new training phase implemented. Considering this time frame, a single workout may seem inconsequential to the overall program. Yet the design of each single workout is just as important as the overall program. This is because each workout adds up sequentially to create the long-term training program that will provide the adaptations that the program imparts.

Martial arts or fighting arts are systems of codified practices and traditions of training for combat. Martial arts all have a very similar objective: defend oneself or others from physical threat. In addition, some martial arts are linked to beliefs such as Hinduism, Buddhism, Daoism, Confucianism or Shinto while others follow a particular code of honor. Martial arts are considered as both an art and a science. Many arts are also practiced competitively, most commonly as combat sports, but may also take the form of dance.
The term martial arts refers to the art of warfare (derived from Mars, the Roman god of war) and comes from a 15th-century European term referring to what are now known as historical European martial arts. A practitioner of martial arts is referred to as a martial artist.

When originally coined in the 1920s, the term martial arts referred specifically to Asian fighting styles, especially the combat systems that originated in East Asia. However, the term both in its literal meaning and in its subsequent usage may be taken to refer to any codified combat system, regardless of origin. For example, Europe is home to many extensive systems of fighting, both living traditions that have existed through the present and others which are now being reconstructed. In the Americas, Native Americans have traditions of open-handed martial arts such as wrestling, while Hawaiians have historically practiced arts featuring small and large-joint manipulation. A mix of origins is found in the athletic movements of Capoeira, which African slaves developed in Brazil based on skills they had brought from Africa (Philip Zarlli 1988).

While each style has unique facets that differentiate it from other martial arts, a common characteristic is the systematization of fighting techniques. Methods of training vary and may include sparring (simulated combat) or formal sets or routines of techniques known as forms or kata. Forms are especially common in the Asian and Asian-derived martial arts.
The foundation of the Asian martial arts is likely a blend of early Chinese and Indian martial arts. Extensive trade occurred between these nations beginning around 600 BC, with diplomats, merchants, and monks traveling the sea route to and from South India as well as along the Silk Road. During the Warring States period of Chinese history (480-221 BC) extensive development in martial philosophy and strategy emerged, as described by Sun Tzu in The Art of War (c. 350 BC).

An early legend in martial arts tells the tale of a South Indian Pallava prince turned monk named Bodhidharma, believed to have lived around 550 A.D. Regarded as the founder of Zen Buddhism, the martial virtues of discipline, humility, restraint and respect are attributed to this philosophy. Thus the values of ethical conduct and self discipline have been intertwined with martial practice since the earliest times.

The teaching of martial arts in Asia has historically followed the cultural traditions of teacher-disciple apprenticeship. Students are trained in a strictly hierarchical system by a master instructor: Sifu in Cantonese or Shifu in Mandarin; Sensei in Japanese; Sabeom-nim in Korean; Guru in Sanskrit, Hindi, Telugu and Malay; Kruu in Khmer; Guro in Tagalog; Kalari Gurukkal or Kalari Asaan in Malayalam; Asaan in Tamil; Achaan or Khru in Thai; and Saya in Burmese. All these terms can be translated as master, teacher or mentor.
Europe's colonization of Asian countries also brought about a decline in local martial arts, especially with the introduction of firearms. This can clearly be seen in India after the full establishment of British Raj in the 19th century. More European modes of organizing police, armies and governmental institutions, and the increasing use of firearms, eroded the need for traditional combat training associated with caste-specific duties and in 1804 the Colonial government banned Kalaripayat in response to a series of revolts. Kalaripayat and other Dravidian martial arts experienced a resurgence in the 1920s in Tellicherry before spreading throughout South India, while other traditional systems like Thang-ta witnessed a resurgence in the 1950s. Similar phenomena occurred in Southeast Asian colonies such as Malaysia, Indonesia, Vietnam and the Philippines.

Living organisms cannot survive without being able to defend themselves against aggression - either escaping from predators or just ensuring an adequate supply of resources such as food and water. Human instinct is no different from that of an animal. Whenever conflict arises - either between individuals or between communities, fighting for supremacy or defending against aggression becomes inevitable. This is the reason for the evolution of the techniques for waging war and self-defense collectively called martial arts. For control of a greater share of available resources, human societies waged war from time immemorial. Those civilizations with better or more efficient fighting skills survived whilst others perished.
Among the ancient martial traditions that exist today, that of Kerala, is named Kalarippayattu and it can be considered as the most ancient and comprehensive. The origin of Kalarippayattu can be traced back to the Vedic period. Legends say that around 525 AD an Indian Buddhist monk named Bodhidharma traveled to China and preached at the Shaolin temple. On finding the monks weak and listless, Bodhidharma taught them the eighteen hands of Buddha - a special set of exercises and from this evolved the Chinese art of Shaolin Boxing. These eighteen hands of Buddha were said to be derived from the eighteen adavukal (adavu = technique), which form the base of the Vadakkan or northern style of Kalarippayattu. Slowly this fighting system spread to Japan and along with the fighting traditions already present in those regions, developed into many of today's martial arts. That is another story.

Kalarippayattu is as old as the great Indian philosophy and the Vedas. It is the martial tradition of Kerala and it has its roots deep in the Vedic culture of India. Kalarippayattu is considered by many as the most comprehensive of all the martial traditions.

There are different paths to Spirituality and Awareness. Martial Arts are the physical activity, which blends mind and body in perfect synchrony and procreates a high degree of positive energy. The learner in the beginning fights the enemy or combats with an excellence that raises his levels of
confidence. As he progresses a more lethal combat is fought with the enemies lurking in his mind akin to greed, lust, ego, selfishness etc and translates these emotions to altruistic giving, compassion and healing.

Kalari Payattu is the oldest Martial Art of the World. Kalari translates to Gymnasium and Payattu, Martial Arts. In the Classical literary works of Dhanur Veda, Agni Puranam, Natya Shastra, Hasthangastham and Srakraneeti mention that Sage Parasurama after creating Kerala from the Ocean, taught his twenty-one disciples this graceful lethal Art to protect and maintain peace in the land. Legend from antiquity asserts that Lord Shiva and Shakthi taught the Northern Style (Thekkan) to two disciples who later opened manifold Kalaris and promulgated this technique in Kerala. Maharishi Agasthya created the Vadakkan style (Southern Style). Kalari flourished up to the 18th Century. When British ruled India they banned Kalari, and probably was because of dexterous feats and fighting skills accomplished by the proficient. The Art was practiced in secrecy and thankfully survived a definite extinction for the only reason, that few sincerely interested Warriors and Gurus taught and kept it alive. Today hordes of people come to Kerala and learn Kalari Payattu, the Mother of all Martial Arts.

Around 520 AD Bodhi Dharma came from China to learn the Eight Fold path of Buddhism from Kerala. Fascinated by Kalari Payattu he took
with him over hundred experts back to the Shaolin Temple in China. The Art Form that evolved through Kalari Payattu became Kung Fu.

The Architecture of Kalari is as unique as the Martial Art. It is built three feet below ground level, and usually an area of 18, 32, 43 or 52 feet in length from East to West and width exactly half from North to South. There are five styles of Kalari and are Kurum Kalari meant for guerrilla training, Anka Kalari for duels, Cheru Kalari intended for healing and treatment, Kodum Kalari designed for meditation and teaching the Science of Marmam (Vital Nerve Centers) and Kuzhi Kalari for training and practicing.

A three feet wall is built all around the Kalari and a thatched roof of bamboo and coconut leaves cover it. The floor and walls are made of mud and beaten to make it smooth and level. The floor is subsequently disinfected with herbs; different kinds of oils and natural pigments to protect the bare body of the Martial Artist, and is then made slippery by applying oil made from the leaves of Kulir Maavu, which increases footwork ability and abdominal power.

The entrance is in center of the Eastern wall having three steps leading down. The Poothara or a seven-tiered conical shaped structure in the Southwest corner symbolizes the subtle and gross aspects of self and the Universe. The important zones inside the Kalari are determined through Vaasthu Shasthra. A flower or lamp is placed on top of Poothara and is the
focus point for eye exercises and concentration. This area is known as Trataka. On the right are smaller platforms representing seats of earlier Teachers (Guru Thara) and Ganapathi Thara, where Lord Ganesha is propitiated for positive thinking. All weapons are kept on the Western side and Gurukkal stands here when teaching facing east. No exercises are done either North or South. and according to Yoga and Ayurveda the magnetic fields in South and North have detrimental properties.

Two main styles of Kalari Payattu found within Kerala are Northern (Vadakkan) and Southern (Thekkan). Parasurama taught Thekkan style and Maharishi Agasthya, Vadakkan style. The other styles are Dronapalli, Odimurisseri, Valla Batta, Madhya Keralam, Kadathanadan, Thulunadhan, Pillathangi, and Malanadan etc. Instruction in all styles commences by massaging the novice with medicinal oils to improve litheness and endurance. The student's body is smeared with medicated oil and the guru massages it with his feet to make the body and muscles supple. Three forms of massage or Uzhichal are practiced in Kalari. Sukha Thirummu for physical comfort and relaxation, Raksha Thirummu to increase body resistance, with specially prepared Ayurvedic herbal oils and Katcha Thirummu, for flexibility of the body. The student wears a cloth Mundu (Dhoti) called Katcha, which supports the central muscles of the body. One end of this cloth is tied to a pillar or coconut tree and the learner begins to wind himself into it with elaborates series of movements called Katcha Kettal. The student begins his training by
offering obeisance to Goddess. This is done in a war dance ritual called Poothara Thozal, where the student salutes the lamp lit Poothara and performs Vandhanam in a crouched cat stance with the hands moving in a circular motion. The eyes are focused at a single point on the Poothara to improve vision and concentration. Every move is done with grace and synchronized breathing. The next aspect is Kalari salutation and are five yogic postures done in motion to instill body and mind coordination.

Other aspects of training are twelve leg movements (Kaal Ettuppu). After a certain stage flexibility achieved are immense and the legs become weapons of defense, offence and healing. Legend from antiquity asserts that Lord Shiva and Shakti taught Northern Style to two disciples who later opened manifold Kalaris and promulgated this technique in Kerala. Shiva’s style is known as Pillai Thangi and are aggressive with linear movements and represents the male form. Shakti Swaroopa or Arapu Kai have subtle, more circular and symbolizes feminity. Great emphasis is given to spontaneous and graceful body movements during combat in this style. Meythari are 12 movements, which include twists, turns, leaps and stances. With theses callisthenic maximum body- flexibility is achieved and difficult feats with weapons are wielded. The learner learns various leg-stretching exercises and several sequences of body exercises, which help in balance, body posture jumps. Training with weapons made of wood (Kolathiri) like long stick, short stick and curved stick (Otta) are also given. Kol means stick. Otta combat is
very graceful and needs a lot of practice. This S shaped two feet stick with a knob at the end is made out of tamarind tree and experienced fighters will use the stick to hit the Marmam or vital nerve points of opponents. Training is given with long canes, short wooden sticks and specially designed wooden weapons and maces. Practice with mace increases strength and judgment. The third phase of training is called Ankathari. The word Ankom mean combat. Sharp edged weapons (Angathari) are taught and include dagger, sword and shield, spear and perhaps found only in this Martial Art, the different and deadly flexible sword, the Urumi. This razor-sharp sword with a flexible blade when twirled correctly becomes a lethal weapon and produces a most terrifying sound. The next stage of unarmed combat is called Verumkai Prayogam or barehanded fight. Techniques like Kathiyum Thalayum (where attacks with a knife are defended with a piece of cloth) are also taught at this stage.

Puliyankam or sword fight is the ability to wield the weapon as an extension of the body with perfection and experience. Puliyankam mean the duel of Tigers having stealth and grace. Unarmed combat (Verum Kai), incantations, concentration and Kalari Chikilsa (Medicine and Treatment) are the other aspects of this style.

Southern Kalari gives more prominence to unarmed combat (Verum Kai). Movements are performed on a cross and square diagram drawn on the
floor. There is Siddha influence both in Yoga and Medicine in this style. This style has 64 Adimura (Blows and Holds). Thattumura, Pidimura, Marmamura and Marma Adi are the other unarmed combat techniques. Kicking is an integral facet of this discipline. There are 84 different techniques in kicking and are Ankachery Chavuthu (16), Balivazhi Chavuthu (18) Ankamvettu Chavathu (12), Nalani (16), Karinada Chavathu (8), Cheena Adhi (6 Drunken Style) and Thattu Marma Chavathu (8).

The Gurukkal or Gurunathan (Teacher) is the most revered person in the Kalari. The disciple offers his mind, body and soul and the Gurukkal moulds and creates the perfect warrior of peace who expels negativity and harmonizes positive vibrations.

The Teacher should have purity in mind and should be without politics, religion, caste etc. to edify the trueness of this ancient Martial Art. He should also be an expert in Ayurvedic Marma treatment.

Marmas are vital points in the body. This ancient treatment cures sprains, dislocated joints, fractures, back pains, rheumatism, sciatica, lumbago, anxiety, depression, insomnia, obesity, arthritis and paralysis etc.

Many classical folk art forms of Kerala, especially Kathakali dancers learn the basics of this Art to increase endurance and flexibility. Aromal Chekavar and Thacholi Othenan, who lived in Kerala in 18th century, are great Kalari Payattu Legends. At the same time lived Unniarcha, a lady
exponent of this art. Even today farmers while harvesting the lands sing Vadakkan Patthu (Folk Ballads), which are based on the heroic combats and adventures of these great warriors.

Kalarippayattu is the only form of the most ancient traditional systems of physical, culture, self-defence and martial techniques still in existence. It is believed to have had its origin in Kerala, the tiny state situated South West of India.

It was believed that the ‘Nayakanmar’ were given the charge of Kalaris. These Nayakanmar gradually came to be called the ‘Nayars’, in some regions, special titles like ‘Kurup’, ‘Nambiar’, ‘Panikar’ etc. The ‘Nayar’ who had charge of a particular Kalari or group of Kalaris for the training and upbringing of warriors was called the ‘Gurukkal’ (meaning teacher or instructor) of the Kalari or Kalaris. Kalaris were established in all the ancestral homes of those Nayars to impart training in the methods of welfare.

In Sanskrit language, the word ‘Khаloorika’ denotes a place where weapon training is practiced. It is believed that it was from the Sanskrit term ‘Khаloorika’, that the word ‘Kalari’ came into use in Malayalam for similar institutions imparting training in martial arts. Such institutions were there throughout the country where similar training was imparted. In each region, they are known by different names according to the differences, in the
regional languages as ‘Akhad’, ‘Garadi’ etc. All these terms are believed to have originated from the Sanskrit term ‘Khaloorika’ as in the case of the ‘Kalari’. The system of physical and weapon training imparted within the Kalari came to be called ‘Kalarippayattu', (Balakrishnan 1995).

The basic skill in the training of Kalarippayattu is the practice to achieve certain poses known as Chuvadukal. Basically, the Chuvadukal are divided into two. They are Aakkachuvadu and Neekkachuvadu. Taking a firm pose by firmly positioning the feet on the ground is called Aakkachuvadu. The positioning for a leap or for a careful move so as to avoid an onslaught or for making a sudden move backward etc is called Neekkkachuvadu. These two types of Chuvaduare again classified into four. (1) Vatta kaal chuvadu (2) Neetta kaal chuvadu (3) Kone kaal chuvadu and (4) Otta kaal chuvadu. All these four Chuvadukal are thoroughly practiced first as they have generally to be used in all the exercises in Kalarippayattu, both in ‘Mey Payattu’ and in the ‘Payattu’ using weapons.

In order to get more force and effectiveness in action, the body is to be positioned in a suitable manner. In Kalarippayattu, accepting the Chuvadukal as the basis, different forms are adopted for the above purpose. They are known as Vadivukal. There are eight different types of positions. These positions are adopted in order to achieve greater force and effectiveness in attacking. Mastery in different Vadivukal helps to increase the effectiveness
of these moves for attacks or defence and is, therefore, fundamental to achieving mastery in Kalarippayattu. (Vijayakumar, 2000).

Kalarippayatt is designed in four successive stages of training Meippayatt, Koltari, Ankatari and Verum Kaiprayogam. Word Mey Payattu means ‘body exercise’. This word has such regional variations as the terms Meyyirakkam, Meyyothukkam, Meyvazhakkam, Meyyadakkam etc. Before starting practice in the Meypayattu the trainee has to get himself acquainted with certain basic exercises for the legs and very difficult movements utilizing all parts of the body and also in various types of leaps and jumps. Applications of the various Chuvadukal, Vadivukal, leg exercises, leaps, bounds and other exercises are blended in a systematically graded series of movements in Mey payattu.

The basic steps of Kalaripayattu is ‘Meypayattu’ or the body control exercise. In the Southern Style the basic steps are called ‘Chuvadu’. Every conceivable form of stretching, turning and twisting of the body is mastered by means of practising this. The body control exercises include swinging of the legs, different methods of leaps and jumps. Concentration, agility, confidence, reflex action, physical and mental power are the result of these exercises.

In former days, for training in Kalarippayattu, the trainees used to wear a particular dress or clothing called the ‘Katcha’. The Katcha is a long strip of
cloth. There is a method for wearing the Katcha. Wearing the Katcha during practice session provides tautness to the hips and the abdomen and enhances the agility of movements and leaps.

Besides the above, there are many important details of the human physiology, which a Kalarippayattu trainee ought to know. There are certain vital points in the human body, where a hit or a blow received or a wound sustained may cause disability or even death. These vital points are called the ‘Marmas’. Devoted and faithful disciples are taught about the positions of those vital points.

All this knowledge of physiology is required for a Kalari trainee, because Kalari training is so comprehensive that it will not be complete if the unique system of treatment for various accidental illnesses like, bone-fracture, dislocation of joints, sprains and treatment for rheumatism, paralysis, low back pain, spondilities and various nervous disorders is not mastered (Vasudeva 2000).

The Meippayatt is a series of body control exercises, systematically designed and practised according to Vaytari or verbal instructions. It is also known as Meiotukkappayatt; that which gives proper orientation to the body, suppleness and flexibility. This also gives a natural mastery to the body for swift movements in attack and defense. After mastering Meippayatt, the student is initiated into the next stage of fighting with wooden weapons called
Koltari. Mastering Koltari leads to the Ankatari or technique of fighting with metal weapons. Lastly the student will be imparted training in empty hand fighting techniques called verumkai prayogam. Selected, well-disciplined and dedicated students will be given training in Marma prayogam or attack on the vulnerable points of the body. In earlier periods, training was given in the use of many other weapons like axe, three-proned spear, and ponti. Archery was also included in the scheme of training. All exercises in Kalari are performed in strict accordance with Vaytari or systematically developed verbal instruction given by the Guru. The Vaytari is designed specially to give strength, flexibility, endurance, reflex, nimbleness and precision.

In Kalarippayattu, different poses or vativus are designed and developed to get concentration for perfect power and force in carrying out a particular action or for being in readiness for action. There are eight such vativus namely- Gaja Vativu (elephant pose), Aswa Vativu (horse pose), Simha Vativu (Lion pose), Varaha Vativu (boar pose), Matsya Vativu (Fish pose), Marjara Vativu (Cat pose), Kukkuta Vativu (Cock pose) and Sarpa Vativu (Serpent pose). One more Vativu-Mayura Vativu (Peacock pose) is also practised in some Kalaries. Each Vativu has its own style, power combination, usefulness and effectiveness. Apart from these Vativus, there are basic foot positions and movements, which are technically called Chuvatus. These are designed to give more power, precision and concentration to the action against the opponent. In Chuvatu, the attention is centred on the role of the feet. There
are five such basic Chuvatus - Vatta Chuvatu, Aakka Chuvatu, Neekka Chuvatu, Kon Chuvatu and Ottakkal Chuvatu. These Vativus and Chuvatus are scientifically combined to form what is called Atavus.

Meippayatt is the body control exercise designed in a special sequence. It gives perfect control and flexibility to the body and is a combination of Vativu and Chuvatu with body movements, holds, kicks, jumps and cuts. There is a traditional saying that a kalari master is one, who has converted his body into an eye. Before training in Meippayatt, students are taught various leg exercises. The basic leg exercises are Nerkal, Veetukal, Konkal, Thirichukal, Iruthikkal and Pakarchakkal. The Nerkal is lifting the leg straight in the air till the knee touches the chest. This process with right foot is called Valatukal and with left, Etatukal - right up forward kick and left up forward kick. The Veetukal is the application of leg in the high swinging arc or circling kick. The Konkal is kick high to right or left ankles. In Iruthikkal or kick and sit, one will lift his leg like the Nerkal and bring back that leg and sit on the ground. The Pakarchakkal is a combination of Nerkal on either side in continuation. At first, the leg is pushed up in the air and without placing it on the ground the body will be turned into the opposite direction while the leg will be swinging in the air.

Some basic differences can be noticed in style, movements and even in the application of Meippayatt in different areas of Kerala. There are different
styles like - Vattakkan, Madhya Kerala and Tekkan; (Northern, Central Kerala and Southern). The regional differences in styles, might be due to the innovative differences of regional masters of ancient days. Such regional variations gave rise to differences in vaythari. The dialectical variations of language and character of each region also contribute to this change of vaythari.

Strength training is an essential element of fitness for virtually every sports man and woman. Long gone are the days when coaches believed resistance exercises only added unnecessary bulk to the athlete, hindering their ability to execute skill.

The benefits of strength training to athletic performance are enormous and many. Not only is it an integral conditioning component for power athletes such as football and rugby players, performance in the pure endurance events can be improved with a well-structured strength routine.

However, aside from perhaps bodybuilders, sport-specific resistance training requires a more refined approach than simply lifting heavy weights to complete exhaustion. A physiological analysis of any game or event will confirm that most athletes require explosive power, muscular endurance, maximal strength or some combination of all three in order to excel. Rarely is pure muscle bulk the primary concern and when it is, other elements of strength are equally as important.
Weight training is a common type of strength training for developing the strength and size of skeletal muscles. It uses the force of gravity (in the form of weighted bars, dumbbells or weight stacks) to oppose the force generated by muscle through concentric or eccentric contraction. Weight training uses a variety of specialized equipment to target specific muscle groups and types of movement (Delavier 2001).

Strength training is an inclusive term that describes all exercises devoted toward increasing physical strength. Weight training is a type of strength training that uses weights rather than elastic or muscular resistance to increase strength. Endurance training is associated with aerobic while flexibility training is associated with stretching exercise like yoga or pilates. Weight training is often used as a synonym for strength training, but is actually a specific type within the more inclusive category (DeLee 2003).

Hippocrates explained the principle behind weight training when he wrote "that which is used develops, and that which is not used wastes away." The genealogy of lifting can be traced back to the beginning of recorded history where man's fascination with physical abilities can be found among numerous ancient writings. Progressive resistance training dates back at least to Ancient Greece, when legend has it that wrestler Milo of Croton trained by carrying a newborn calf on his back every day until it was fully grown (Kennedy 1986).
There has been considerable debate among the public, educators, coaches, physicians, and scientists as to when it is appropriate to begin weight training in children and adolescents. A variety of apparently sound reasons have been provided as grounds for not training youth or training them only with the use of machines with pre-determined movement pathways. Every coach should be versed in the literature and theory surrounding his profession and be able to defend his methods of training. Lack of knowledge can be mistaken for lack of competency. Weight training has been portrayed as ineffectual in improving strength in younger children, as hormonal response is largely absent in preadolescents. Studies that demonstrated a lack of strength increase were inadequate in magnitude of training load, training volume, duration, or did not use the simple principle of progression (Ainsworth 1970).

Research points to the loads, volumes, and durations similar to those commonly used in the training of competitive weightlifters to be effective in increasing strength in children. A program’s ability to increase strength appears to be more closely related to the intensity of training than on volume (duration) of training. High intensity programs have been shown to increase strength in preadolescents in 6 weeks or less. If the conventional wisdom that weight training is ineffective in children, simply because they do not produce significant amounts of testosterone, were correct, females of all ages would be unable to get strong as they produce only a tenth of the amount secreted by an adult male (Mersch 1989).
Within the clinical community there is a general recommendation that all physical activity be prescribed at moderate levels. With respect to weight training, this recommendation excludes power lifting, weightlifting, bodybuilding, and general training with maximal weights until the completion of puberty. The utility of this recommendation points to inexperience, and a lack of understanding of the activity by the clinical community. By specifically naming these types of training on their contraindicated list, they propose to eliminate high volume – low intensity weight training (body building), low volume – high intensity weight training (power lifting), and moderate volume – moderate to high intensity training (weightlifting) from youth training. Any coach that attempts to use these overly restrictive guidelines will be ineffective in making a stronger, healthier young athlete. An analogy demonstrating the lack of reason within the clinical community’s recommendation would be to argue against sprinting (high speed – low volume training), against distance running (low speed – high volume training), and against middle distance running (moderate to high speed – moderate volume training) in the young trainee. To produce a track athlete within these guidelines would be virtually impossible. It is revealing that they fail to see this inconsistency (Mersch 1989).

Training programs in which training loads are prescribed and monitored and in which training activities are supervised have proven to be remarkably safe in terms of the frequency of injury occurrence. Several
studies have followed the rate of injury during training programs of several weeks to a year in duration. Rians’ 14-week long study (1987) reported only one minor shoulder strain which resolved itself by the end of the study (Pierce 1999).

The benefits of strength training are unquestionable. It is considered an essential element in preparing for competition in virtually every sport. The American College of Sports Medicine recommends that nearly everyone train with weights for the health benefits associated with resistance training. It is consistently one of the top three recreational exercise activities in the US, according to the Sporting Goods Manufacturers Association. An understanding of these benefits by parents, school personnel, and medical staff is important for acceptance of the use of weight training in school-age populations.

Many sports select directly or indirectly for very specific physical attributes (Duquet, 1978; Keogh, 1999) or involve competition against other youth regardless of body mass. Power lifting and weightlifting, with their multitude of weight classes and age groups, allow for athletes who traditionally have few competitive outlets the opportunity for competition in a controlled, equitable environment. Even in a non-competitive weight room, any student or athlete can experience success since any participant can improve his performance. As such the activity may be more suitable for child
participation than sports where success is measured simply by victory or defeat (Duquet, 1978).

Speed and strength are integral components of fitness found in varying degrees in virtually all athletic movements. Simply put the combination of speed and strength is power. For many years, coaches and athletes have sought to improve power in order to enhance performance. Throughout this century and no doubt long before, jumping, bounding and hopping exercises have been used in various ways to enhance athletic performance. In recent years, this distinct method of training for power or explosiveness has been termed plyometrics. Whatever the origins of the word the term is used to describe the method of training that seeks to enhance the explosive reaction of the individual through powerful muscular contractions because of rapid eccentric contractions.

The maximum force that a muscle can develop is attained during a rapid eccentric contraction. However, it should be realised that muscles seldom perform one type of contraction in isolation during athletic movements. When a concentric contraction occurs (muscle shortens) immediately following an eccentric contraction (muscle lengthens) then the force generated can be dramatically increased. If a muscle is stretched, much of the energy required to stretch it is lost as heat, but some of this energy can be stored by the elastic components of the muscle. This stored energy is
available to the muscle only during a subsequent contraction. It is important to realise that this energy boost is lost if the eccentric is not followed immediately by a concentric contraction. To express this greater force the muscle must contract within the shortest time possible. This whole process is frequently called the stretch shortening cycle and is the underlying mechanism of plyometric training.

Plyometric type exercises have been used successfully by many athletes as a method of training to enhance power. In order to realise the potential benefits of plyometric training the stretch-shortening cycle must be invoked. This requires careful attention to the technique used during the drill or exercise. The rate of stretch rather than the magnitude of stretch is of primary importance in plyometric training. In addition, the coupling time or ground contact time must be as short as possible. The challenge to you as coach or athlete is to select or create an exercise that is specific to the event and involves the correct muscular action.

Strength and conditioning professionals have long relied on plyometrics as one of the primary tools for developing athletic power and speed. It is not surprising that training exercises such as plyometrics, which are performed with high movement speeds would improve the performance of activities requiring speed, such as jumping, running, and agility. The technical term for this idea is "specificity." In other words, training that is "specific" or
similar to the activity to be performed is believed to be optimal. As a result, recreational athletes, as well as those who desire to increase their overall fitness and add variety to their training, often incorporate plyometric training into their programs.

Plyometrics can be thought of as exercises that train the fast muscle fibers and the nerves that activate them, as well as reflexes, and include a variety of hopping, jumping, and bounding movements, which ideally are organized into a cohesive program. The main difficulty with creating a plyometric program may be the choosing the correct exercises and progression of intensity (1). The focus of this article is to help the reader understand the basic types of plyometric exercises and to provide some guidelines regarding the progression of plyometric exercises through increasing intensity over the course of a program (William 2000).

As a performance enhancement consultant, it has been my experience that plyometric training is one of the most requested forms of training by athletes. All have heard the stories of great power development accredited to this method of training. To add to the mystery, plyometrics originated as a training method in the secretive eastern block countries where it was referred to as ‘jump training. As the eastern block countries rose to become powerhouses in sports, plyometric training was credited for much of their success. In the 1920s, the sport of track and field was the first to employ a
systematic method of using plyometric-training methods. By the 1970s this methods of power development was being used by other sports that required explosive power for successful competition.

Plyometrics comes from the Greek word pleythyein (to augment or increase). However, the actual word plyometrics was first coined in 1975 by American track coach, Fred Wilt. Based from the Latin root words plio (more) and metric (to measure). Plyometrics can best be described as explosive-reactive power training. This type of training involves powerful muscular contractions in response to a rapid stretching of the involved musculature. These powerful contractions are not a pure muscular event; they have an extremely high degree of central nervous system involvement. The event is a neuromuscular event, It is a combination of an involuntary reflex (a neural event), which is then followed by a fast muscular contraction (voluntary muscular event). The most common human movement, running, is completely a plyometric event. Other common plyometric events include throwing, swinging a golf club/bat, jumping and skipping. This stretching of the muscles, prior to the explosive contraction that follows, is often called loading. The faster and greater the load, the more powerful the reflex and subsequent contraction. The response to this greater load is a greater contraction by the legs and a higher jump height. The same phenomenon exists with all explosive actions. Many times people confuse some forms of power training for plyometrics. Plyometric training is only one form of power
training. A true plyometric exercise must contain a very fast loading phase. That is, for the stretch reflex (myotatic reflex) to invoke a powerful contraction, it must occur extremely fast. Inappropriate use of plyometric training has been associated with various forms of over-use injuries, especially in the lower extremities (e.g. patellar and Achilles tendonitis and plantar fasciitis). This type of training, especially when done at a very high intensity, is a high-risk endeavor (high returns but at high risk).

**STATEMENT OF THE PROBLEM**

The purpose of the study was to find out the comparative effect of Kalaripayattu, Plyometric exercise and Weight training on selected motor abilities among college males.

**DELIMITATION**

1. The study was delimited to 120 college level males, thirty in each of the four groups namely, Kalaripayattu, Plyometrics, Weight training, and Control group.

2. This study was further delimited to male students between the age group of eighteen to twenty one years.

3. This study was confined to training programme for 12 weeks, and the number of sessions per week was three.

4. The study was confined to assessment of the following variables
I. Speed (Acceleration speed)

II. Explosive strength.
   (a) Vertical jump
   (b) Standing broad jump

III. Arm and shoulder strength endurance

IV. Flexibility.

V. Agility.

LIMITATION

Though a sincere effort was made by the research scholar in having strict control over the subject, their diet, and other daily routine which are beyond the control of the researcher may be considered as limitation of this study.

HYPOTHESIS

It was hypothesized that there will not be any significant difference among Kalaripayattu, Plyometrics and Weight training on development of selected motor qualities.
DEFINITION AND EXPLANATION OF TERMS

SPORTS TRAINING

Training is a pedagogical process, based on scientific principles, aiming at preparing sportsman for higher performances in sports competitions (Singh, 1993).

Training may be defined as systematic process of repetitive, progressive exercise or work, involving the learning process and acclimatization (Daniel, 1985).

WEIGHT TRAINING

Weight training implies exercise consisting of gradual increase in the resistance against which a muscle must work. As the strength of the muscles improves in order to progressively maintain a high level of tension, following the principles of over load muscle are conditioned systematically (Arnold 1981).

Weight training is a form of training with external weights for the development of strength and endurance abilities. The term weight training is often used interchangeably with other terms such as ‘resistance’ training or ‘strength’ training. Regardless of which term is used, it is practice that is designed to enhance ‘ones ability to exert or resist force’ (Bompa, 1983) in
other words; weight training is used to increase an athlete’s muscle strength and endurance.

**PLYOMETRIC TRAINING**

Plyometrics is considered a valuable training method in achieving conversion of maximal strength into power, and has been specifically demonstrated to improve jumping ability (Bosco, 1979).

The term Plyometrics refers to a training method based on the belief that pre-stretching a muscle prior to a concentric contraction will result in a more powerful concentric contraction. This pre-stretching prior to contraction is referred to as the “stretch shortening” cycle. This cycle is considered a natural muscle function (Komi, 1984) and is detectable in many sporting activities, such as throwing and jumping.

**KALARIPPAYATTU**

The traditional training of Kalarippayattu, a martial art of Kerala a small state in south India, is always done inside the Kalari (literally, threshing floor or battlefield), which is a specially constructed practice area. Payattu means 'exercise in arms or practice'.

The term "Kalarippayattu" is a tatpurusha compound formed from the words kalari meaning "school, gymnasium" and payattu derived from
"payttuka" meaning "to fight". Together these two words in Tamil mean "Practice of arts of the battlefield"

**MEIPPAYATTU**

Meippayatt is the body control exercise designed in a special sequence. It gives perfect control and flexibility to the body and is a combination of vativu and Chuvatu with body movements, holds, kicks, jumps and cuts.

Maipayattu is a pattern of exercises that integrates all categories of body exercises. Regular practice of Maipayattu results in controlled, flexible and graceful movements of the body and helps develop breath control (Pranayama), strength, flexibility and stamina. The movements have to be performed with a continuous flow of energy.

Meythari is the beginner stage where rigorous body sequences comprising of twists, stances and complex jumps and turns are to be mastered. These exercises are termed as Meyppayattu and they impart excellent neuro muscular co-ordination in the practitioner.

**SPEED**

Speed by movement shall be defined as the rate by which a person can propel his body or parts of his body through space (Barry 1988).
EXPLOSIVE POWER

Explosive power is the ability to release maximum muscular force in the shortest period of time (Clarke 1971).

FLEXIBILITY

Flexibility is the degree in which an individual is capable of movement within the range of joint action of a functional combination (English 1980).

AGILITY

Agility is the ability of a man to coordinate his movements and synchronizes them according to the requirement of changing condition (Clayre 1979).

SIGNIFICATION OF THE STUDY

Sports training is complex multi faced discipline where knowledge from various sports science are being utilized over the years various scientific training programmes have been formulated for developing the motor fitness and performance efficiency of sports persons.

Training has been custom designed to assist coaches and athletes to plan, monitor and record their training programs. This system is easily accessible and is an important practical tool that can be effectively used by coaches of all sports to improve competitive performance. The most value a
coach can get from accurately monitoring training load is a better understanding of each individual athlete’s tolerance to their training. Research shows that individual athletes can have a different tolerance to the same training load. Factors such as fitness levels, training experience, age, environmental influences, athlete size, nutritional factors and recovery practices will influence an individual’s training load tolerance and therefore their performance outcome. Training Load will now allow coaches to accurately monitor and prescribe training loads according to an individual’s tolerance level and prescribe training to produce best performance.

Recent scientific research has shown that excessive training load with inappropriate recovery leads to a reduction in training and competitive performance as well as increased chance of injury and illness. Through the use of this system you will be able to minimize the risk of unexplained performance decreases, illness and injury.

1. The results of the study will reveal the comparative effect of Kalaripayattu, Plyometrics and Weight training on development of motor qualities.

2. The results of the study will provide a scientific basis for planning and developing systematic training programme.
3. The findings of the study will provide guideline to physical education teachers and coaches to prepare training schedules for specific events on the basis of the physical capacity of the athletes.

4. The findings of this study will add to the quantum of knowledge in the area of training methods.

5. The result of this study might help physical trainers’ and conditioning experts to select training methods for the development of motor qualities.