

CHAPTER I

INTRODUCTION

Judo was created as a physical, mental and moral pedagogy in Japan, in 1882, by Jigoro Kano. It is generally categorized as a modern martial art which later evolved into a combat and Olympic sport. Its most prominent feature is its competitive element, where the objective is to either throw or takedown an opponent to the ground, immobilize or otherwise subdue an opponent with a pin, or force an opponent to submit with a joint lock or a choke. Strikes and thrusts by hands and feet as well as weapons defenses are a part of judo, but only in pre-arranged forms or kata and are not allowed in judo competition or free practice or randori. A judo practitioner is called a judoka.

1.1 COMPETITIVE JUDO

Judo is known as the gentle martial art, but when two judokas square off, the action is fast and furious. Yet the art and sport forms of judo both require great control and swiftness. Indeed, a key to greatness in the sport is the ability to use an opponent's own strength against him rather than trying to subdue or combat it. This area has grown drastically to an exciting game called competitive Judo. **(Ron Angus, 2006)**

1.2 HISTORY OF COMPETITIVE JUDO

Shiai or jiai with rendaku or Contest is a vitally important aspect of judo. In 1899, Kano was asked to chair a committee of the Dai Nippon Butoku Kai to draw up the first formal set of contest rules for jujutsu. These rules were intended to cover contests between different various traditional schools of jujutsu as well as practitioners of Kodokan judo. Contests were 15 minutes long and were judged on the basis of nagewaza and katamewaza,

excluding atemiwaza. Wins were by two ippons, awarded in every four-main different path of winning alternatives, by "Throwing", where the opponent's back strikes flat onto the mat with sufficient force, by "Pinning" them on their back for a "sufficient" amount of time, or by Submission, which could be achieved via "Shime-waza" or "Kansetsu-waza", in which the opponent was forced to give himself or herself up or summon a referee's or corner-judge's stoppage. Finger, toe and ankle locks were prohibited. In 1900, these rules were adopted by the Kodokan with amendments made to prohibit all joint locks for kyu grades and added wrist locks to the prohibited kansetsu-waza for dan grades. It was also stated that the ratio of tachi-waza to ne-waza should be between 70% to 80% for kyu grades and 60% to 70% for dan grades.

In 1916, additional rulings were brought in to further limit kansetsuwaza with the prohibition of ashigarami and neck locks, as well as dojime. These were further added to in 1925.

The first time judo was seen in the Olympic Games was in an informal demonstration hosted by Kano at the 1932 Games. However, Kano was ambivalent about judo's potential inclusion as an Olympic sport:

I have been asked by people of various sections as to the wisdom and possibility of judo being introduced with other games and sports at the Olympic Games. My view on the matter, at present, is rather passive. If it be the desire of other member countries, I have no objection. But I do not feel inclined to take any initiative. For one thing, judo in reality is not a mere sport or game. I regard it as a principle of life, art and science. In fact, it is a means for personal cultural attainment. Only one of the forms of judo training, so-called randori or free practice can be classed as a form of sport. Certainly, to

some extent, the same may be said of boxing and fencing, but today they are practiced and conducted as sports. Then the Olympic Games are so strongly flavored with nationalism that it is possible to be influenced by it and to develop "Contest Judo", a retrograde form as ju-jitsu was before the Kodokan was founded. Judo should be free as art and science from any external influences, political, national, racial, and financial or any other organized interest. And all things connected with it should be directed to its ultimate object, the "Benefit of Humanity". Human sacrifice is a matter of ancient history.

Nevertheless, judo became an Olympic sport for men in the 1964 Games in Tokyo. The Olympic Committee initially dropped judo for the 1968 Olympics, meeting protests. Dutchman Anton Geesink won the first Olympic gold medal in the open division of judo by defeating Akio Kaminaga of Japan. The women's event was introduced at the Olympics in 1988 as a demonstration event, and an official medal event in 1992.

1.3 JUDO IN INDIA

Judo is a sport which is widely played in India. The first written record about Judo in India in Kodokan is about demonstrations and coaching of Judo by Shinzo Tagaki arranged at Shantiniketan in 1929 by Rabindranath Tagore. The Judo Federation of India was formed in 1965.

By 1970, the judo community was increased to a sizeable chunk in India and JFI became hard-pressed to hire more professional trainers for the sport of judo from within India. A large number of coaches were required from within the country as trainers from abroad were not able to meet the training needs of a large and growing judo community. Mr. Takashi Ogata came to India on a welcome visit in 1976, and initiated a professional course in judo at NS NIS, Patiala. Another honorable Japanese judo guru Mr. Morio

Suganami graced the judo community in India by his 1979 visit, and gave tips and laid some action plans for the promotion of judo in India. The contribution of Indian gentlemen such as Mr. Khaniwale, Dr. Pisolkar and Mr. N.T. Bangera to the sport of judo is exemplary and memorable.

Indian Minister and President of JFI, Mr. Jagdish Tytler and Ex-General Secretary Mr. L.K. Daga also devised some action plans to boost the participation of Indian judo teams at the international events. At last, India got its much needed break in 1986 Seoul Asian Games, where Indians bagged four bronze medals for their country. It was a milestone for the team India and since then, India has been performing continuously at the international judo events.

Several Indian judokas have qualified for the Olympic Games. Mr. Sandeep Byala and Mr. Cawas Billimoria participated in 1992 Barcelona Olympics. Ms. Brojeshwori Devi qualified for the Athens Olympics 2000. : Mr. Akram Shah participated in the 2004 Sydney Olympics, on behalf of India. Ms. Kh. Tombi Devi & Ms. Diviya qualified for Beijing Olympics 2008.

Mr. Sandeep Byala, Mr. Cawas Kersap Billimoria, Mr. Akram Shah, Ms. Angom Anita Chanu, Mr. Narender Singh, Ms. Poonam Chopra, and. Mr. ShyamShekhawat, Ms Khumujam Tombi Devi received the prestigious Arjuna Award for their exemplary performances. In London Olympics 2012, India's only qualifier Garima Chaudhary lost to Japanese Judoka, Yoshie Ueno in the women's 63 kg category elimination round. (https://en.wikipedia.org/wiki/Judo_in_India)

Sport performance analysis is a technique that is becoming every year more important for athletes of every level. Many techniques have been developed to measure and analyse efficiently the performance of athletes in some sports, but in combat sports these techniques found in many times their limits, due to the high interaction between the two opponents during the competition. In this paper the problem will be framed. Moreover the physical performance measurement problem will be analysed and three different techniques to manage it will be presented. All the techniques have been used to analyse the performance of 22 high level Judo athletes. (Stefano Frassinelli, et al. 2015)

Evolution and dynamics of sport science records, requires domain specialists, finding new solutions to optimize athletic training in judo competition in accordance with specific requirements. Domain experts, (coaches, athletes, researchers) demonstrates the need to address training in judo competition activity directly related. The data obtained by us during the research, demonstrates that technical training and preparation tactics, are two “fundamental factors of performance in judo competitions”. Hypothesis that judo athletes optimizer technical training, provide the foundation for tactical preparation is confirmed by the data collected, representing an important direction of orientation training and competitive judo. Research findings, points out that high-level, competitive outcome is determined largely by the technical and tactical actions, the end result, an appropriate motor preparation. (Laurentiu Bocioaca, 2014)

According to Bianca Miarka, H. David Fukuda, Fabrício B. Del Vecchio and Emerson Franchini (2017) a method to identify successful technical-tactical (T-T) systems could produce important benefits for coaches and researchers. Therefore, the purpose of the present study was to conduct a discriminant analysis among T-T systems used by

winning and losing athletes during high-level judo competition. The sample consisted of 174 combats (145 winners and 39 losers) contested between 2011 and 2012 by 21 men from the half-middleweight class (-81 kg) who qualified for the 2012 London Olympic Games. The T-T variables were analyzed according to frequency of occurrence and included the following indicators: Approach (No Form, Right and Left Antero-posterior Positions and Attempted Gripping); Gripping (Left and/or Right Collar, Sleeve and/or Back Gripping combinations); and Attack (Ashi-waza, Koshi-waza, Te-waza, Sutemi-waza, Osae-waza, Shime-waza and Kansetsu-waza). Cluster analysis was used to group outcomes and T-T variables, according to homogeneous groups. Findings showed divergent T-T systems, where winning athletes showed lower values of Approach (Left Antero-posterior), and higher values of Gripping (Left Back/Right Sleeve and Right Sleeve) than losing athletes. Consequently, the prescription of T-T training should consider the specific tactical demands of the weight category. The results of the current investigation indicate that in male half-middleweight judo athletes, Approach and Gripping strategies are the main discriminant indicators of performance

1.4 WEIGHT DIVISIONS

There are currently seven weight divisions, subject to change by governing bodies, and may be modified based on the age of the competitors:

The Weight divisions for

Men are Under 60kg, 60-66kg, 66-73kg, 73-81kg, 81-90kg, 90-100kg, Over 100kg

Women are Under 48kg, 48-52kg, 52-57kg, 57-63kg, 63-70kg, 70-78kg, Over 78kg

1.5 COMPETITION SCORING

A throw that places the opponent on his back with impetus and control scores an ippon winning the contest. A lesser throw, where the opponent is thrown onto his back, but with insufficient force to merit an ippon, scores a waza-ari. Formerly, two scores of waza-ari equalled an ippon waza-ari awasete ippon and a throw that places the opponent onto his side scores a yuko.

The International Judo Federation recently announced changes in evaluation of points. There will only be ippon and waza-ari scores given during a match with yuko scores now included within waza-ari. Multiple waza-ari scores are no longer converted into ippon scores.

Ippon is scored in ne-waza for pinning an opponent on his back with a recognised osaekomi-waza for 20 seconds or by forcing a submission through shime-waza or kansetsu-waza. A submission is signalled by tapping the mat or the opponent at least twice with the hand or foot, or by saying maitta or I surrender. A pin lasting for less than 20 seconds, but more than 10 seconds scores waza-ari formerly waza-ari was awarded for holds of longer than 15 seconds and yuko for holds of longer than 10 seconds.

Formerly, there was an additional score that was lesser to yuko, that of Koka. This has since been removed. If the scores are identical at the end of the match, the contest is resolved by the Golden Score rule. Golden Score is a sudden death situation where the clock is reset to match-time, and the first contestant to achieve any score wins. If there is no score during this period, then the winner is decided by Hantei, the majority opinion of the referee and the two corner judges.

There have been changes to the scoring. In January 2013, the Hantei was removed and the "Golden Score" no longer has a time limit. The match would continue until a judoka scored through a technique or if the opponent is penalised (Shido).

1.6 PENALTIES

Penalties may be given for: passivity or preventing progress in the match; for safety infringements for example by using prohibited techniques, or for behavior that is deemed to be against the spirit of judo. Fighting must be stopped if a participant is outside the designated area on the mat.

Two types of penalties may be awarded. A shido literally "guidance" is awarded for minor rule infringements. A shido can also be awarded for a prolonged period of non-aggression. Recent rule changes allow for the first shidos to result in only warnings. If there is a tie, then and only then, will the number of shidos (if less than three) be used to determine the winner. After three shidos are given, the victory is given to the opponent, constituting an indirect hansoku-make literally "foul-play defeat", but does not result in expulsion from the tournament. Note: Prior to 2017, the 4th shido was hansoku make. If hansoku make is awarded for a major rule infringement, it results not just in loss of the match, but in the expulsion from the tournament of the penalized player.

1.7 JUDO PRACTITIONER (JUDOKA)

A practitioner of judo is known as a judoka. The modern meaning of "judoka" in English is a judo practitioner of any level of expertise, but traditionally those below the rank of 4th dan were called kenkyu-sei or trainees; and only those of 4th dan or higher were called "judoka".

1.8 JUDO DRESS (JUDO GI)

Judo practitioners traditionally wear white uniforms called keikogi (practice clothing or judogi, judo clothing). Sometimes abbreviated in the west as "gi". It comprises a heavy cotton kimono-like jacket called an uwagi (or jacket), similar to traditional hanten or workers jackets fastened by an obi (or belt), coloured to indicate rank, and cotton draw-string zubon (or trousers). Early examples of keikogi had short sleeves and trouser legs and the modern long-sleeved judogi was adopted in 1906.

1.9 ORGANIZATIONS

The international governing body for judo is the International Judo Federation (IJF), founded in 1951. Members of the IJF include the African Judo Union (AJU), the Pan-American Judo Confederation (PJC), the Judo Union of Asia (JUA), the European Judo Union (EJU) and the Oceania Judo Union (OJU), each comprising a number of national judo associations. The IJF is responsible for organising international competition and hosts the World Judo Championships and is involved in running the Olympic Judo events.

1.10 JUDO TECHNIQUES (JUDO WAZA)

There are three basic categories of waza (means techniques) in judo: nage-waza (or throwing techniques), katame-waza (or grappling techniques) and atemi-waza (or striking techniques). Judo is most known for nage-waza and katame-waza.

Judo practitioners typically devote a portion of each practice session to ukemi (means break-falls), in order that nage-waza can be practiced without significant risk of injury. Several distinct types of ukemi exist, including ushiro ukemi (or rear breakfalls); yoko ukemi (or side breakfalls); mae ukemi (or front breakfalls); and zenpo kaiten ukemi (or rolling breakfalls).

The person who performs a Waza is known as tori, literally "taker" and the person to whom it is performed is known as uke or "receiver".

1.10.1 THROWING TECHNIQUES (NAGE WAZA)

Nage waza include all techniques in which tori attempts to throw or trip uke, usually with the aim of placing uke on his back. Each technique has three distinct stages:

- Kuzushi means the initial balance break;
- Tsukuri means, the act of turning in and fitting into the throw;
- Kake means the execution and completion of the throw.

Before an effective kuzushi can be performed, it is important to establish a firm grip or kumi kata.

Nage waza are typically drilled by the use of uchi komi, repeated turning-in, taking the throw up to the point of kake.

Traditionally, nage waza are further categorised into tachi-waza or standing techniques, throws that are performed with tori maintaining an upright position, and sutemi-waza or sacrifice techniques, throws in which tori sacrifices his upright position in order to throw uke.

Tachi-waza are further subdivided into te-waza or hand techniques, in which tori predominantly uses his arms to throw uke; koshi-waza or hip techniques) throws that predominantly use a lifting motion from the hips; and ashi-waza or foot and leg techniques, throws in which tori predominantly utilises his legs.

1.1.2 GRAPPLING TECHNIQUES (KATAME-WAZA)

Katame-waza is further categorised into osaekomi-waza or holding techniques, in which tori traps and pins uke on his back on the floor; shime-waza means strangulation techniques, in which tori attempts to force a submission by choking or strangling uke; and kansetsu-waza or joint techniques, in which tori attempts to submit uke by painful manipulation of his joints.

A related concept is that of ne-waza or prone techniques, in which waza are applied from a non-standing position.

In competitive judo, Kansetsu-waza is currently limited to elbow joint manipulation. Manipulation and locking of other joints can be found in various kata, such as Katame-no-kata and Kodokan goshin jutsu.

1.10.2 STRIKING TECHNIQUES (ATEMI-WAZA)

Atemi-waza are techniques in which tori disables uke with a strike to a vital point. Atemi-waza are not permitted outside of kata.

1.11 JUDO PEDAGOGY

Judo pedagogy emphasizes randori literally "taking chaos", but meaning "free practice". This term covers a variety of forms of practice, and the intensity at which it is carried out varies depending on intent and the level of expertise of the participants.

1.11.1 FREE PRACTICE (RANDORI)

A compliant style of randori, known as Yakusoku geiko or prearranged practice, in which neither participant offers resistance to their partner's attempts to throw. A related concept is that of Sute geiko or throw-away practice, in which an experienced judoka

allows himself to be thrown by his less-experienced partner. At the opposite extreme from yakusoku geiko is the hard style of randori that seeks to emulate the style of judo seen in competition. While hard randori is the cornerstone of judo, over-emphasis of the competitive aspect is seen as undesirable by traditionalists if the intent of the randori is to "win" rather than to learn.

1.11.2 FORMS (KATA)

Kata (形, kata, forms) are pre-arranged patterns of techniques and in judo, with the exception of the Seiryoku-Zen'yō Kokumin-Taiiku, they are all practised with a partner. Their purposes include illustrating the basic principles of judo, demonstrating the correct execution of a technique, teaching the philosophical tenets upon which judo is based, allowing for the practice of techniques that are not allowed in randori, and to preserve ancient techniques that are historically important but are no longer used in contemporary judo.

There are ten kata that are recognized by the Kodokan today:

- Randori-no-kata or Free practice forms, comprising two kata:
 - Nage-no-kata or Forms of throwing: Fifteen throws, practiced both left- and right-handed, three each from the five categories of nage waza: te waza, koshi waza, ashi waza, ma sutemi waza and yoko sutemi waza.
 - Katame-no-kata means Forms of grappling or holding. Fifteen techniques in three sets of five, illustrating the three categories of katame waza: osaekomi waza, shime waza and kansetsu waza.

- Kime-no-kata means Forms of decisiveness. Twenty techniques, illustrating the principles of defence in a combat situation, performed from kneeling and standing positions. Attacks are made unarmed and armed with a dagger and a sword. This kata utilises atemi waza, striking techniques, that are forbidden in randori.
- Kōdōkan goshinjutsu means Kodokan skills of self-defence). The most recent recognised kata, comprising twenty-one techniques of defence against attack from an unarmed assailant and one armed with a knife, stick and pistol. This kata incorporates various jujutsu techniques such as wrist locks and atemi waza.
- Jū-no-kata or Forms of gentleness & flexibility. Fifteen techniques, arranged in three sets of five, demonstrating the principle of Jū and its correct use in offence and defence.
- Gō-no-kata or Forms of force. One of the oldest kata, comprising ten forms that illustrate the efficient use of force and resistance. Now rarely practiced.
- Itsutsu-no-kata or The five forms. An advanced kata, illustrating the principle of seiryoku zen'yō and the movements of the universe. The kata predates the creation of Kodokan and originated in Tenjin Shinyō-ryū.
- Koshiki-no-kata or Traditional forms). Derived from Kitō-ryū Jujutsu, this kata was originally intended to be performed wearing armour. Kano chose to preserve it as it embodied the principles of judo.
- Seiryoku Zen'yō Kokumin Taiiku or Maximum-efficiency national physical education). A series of exercises designed to develop the physique for judo.

- Joshi-goshinhō (or Methods of self-defence for women). An exercise completed in 1943, and of which the development was ordered by Jiro Nango, the second Kodokan president.

In addition, there are a number of commonly practiced kata that are not recognised by the Kodokan. Some of the more common kata include:

- Go-no-sen-no-kata (or A kata of counter techniques developed at Waseda University in Tokyo, popularised in the West by Mikinosuke Kawaishi).
- Nage-waza-ura-no-kata (or Another kata of counter techniques, created by Kyuzo Mifune).
- Katame-waza ura-no-kata (or Forms of reversing controlling techniques) a kata of counter-attacks to controlling techniques, attributed to Kazuo Itō.

1.12 STATEMENT OF THE PROBLEM

As researcher himself is a part of Kerala sports fraternity and a physical educationist as well as a qualified Judo coach, he understands that the most important factor that determines the success of a coach is to help the Judokas improve their judo skill in a wide range of tasks from sequential development and mastery of basic skills, to the more specialized physical, technical, tactical and psychological preparation. Sport performance analysis is a technique that is becoming every year more important for athletes of every level. Many techniques have been developed to measure and analyse efficiently the performance of athletes in some sports, but in combat sports these techniques found in many times their limits, due to the high interaction between the two opponents during the competition. In this context, the objective of this study is find out

the technical and tactical optimization factors in high performance judo by evaluating the performance of Indian male and female judokas participated in the 35th National Games 2015.

1.13 OBJECTIVE OF THE STUDY

1. To identify gender based throwing techniques used by National level Judo players.
2. To identify gender based grappling techniques used by National level Judo players.
3. To analyse gender based relationship of Throwing techniques used by National level judo players.
4. To analyse gender based relationship of the Grappling techniques used by National judo players
5. To determine the gender based successful throwing techniques used for tactical optimization of National level judokas.
6. To determine the gender based successful grappling techniques used for tactical optimization of National level judokas.

1.14 HYPOTHESES

1. There may be significant difference in the throwing techniques used by male and female Judokas taken part in the 35th National Games 2015 Thrissur, Kerala, India.
2. There may be significant difference in the Grappling techniques used by male and female Judokas taken part in the 35th National Games 2015 Thrissur, Kerala, India.

3. There may be significant relationship in the throwing techniques used by male and female Judokas taken part in the 35th National Games 2015 Thrissur, Kerala, India.
4. There may be significant relationship in the Grappling techniques used by male and female Judokas taken part in the 35th National Games 2015 Thrissur, Kerala, India.
5. There may be significant difference in the successful throwing techniques used for tactical optimization by male and female Judokas taken part in the 35th National Games 2015 Thrissur, Kerala, India.
6. There may be significant difference in the successful Grappling techniques used for tactical optimization by male and female Judokas taken part in the 35th National Games 2015 Thrissur, Kerala, India.

1.15 DELIMITATIONS

The following were the delimitations of the study

1. To achieve the purpose of the study 112 elite Judo players qualified for the Judo competition of 35th National Games 2015 Thrissur, Kerala, India was considered as samples.
2. Among 112 Judo players, 56 male Judo players are from Kerala, Madhya Pradesh, Chandigarh, Haryana, Services Sports Control Board (SSCB), Uttar Pradesh, Punjab and Rajasthan.
3. Among 112 Judo players, 56 female players are from Kerala, Manipur, Karnataka, Haryana, Uttarakhand, Punjab, Delhi and Meghalaya.

4. Technical and Tactical Analysis based on International Judo Federation (IJF) refereeing Rules and Regulations 2014-16.
5. The minimum age of samples (Judo Players) were fixed at 17 years of age.

1.16 LIMITATIONS

Following are the limitations of the study

1. External factors like diet, Lifestyle of the Judo players not be affecting the study
2. Training age of the players have not considered for the study.
3. Environmental factors like weather and climatic conditions during the competitions were not considered.

1.17 SIGNIFICANCE OF THE STUDY

1. This study will help Judo coaches and professionals to rectify the common mistakes done by the Indian Judokas.
2. This study will enable us to know more about Judo tactics and its influence on High performance Judo among Indian male and female judokas.
3. This study shows the way to identify the variations of Judo techniques.
4. To corroborate the existing coaching method followed by the SAI & State sports councils across India.
5. Based on the study coaches and professionals can provide specific technical and tactical training separately for male and female.
6. The technical and tactical skills of the judoka can be strengthened with the support of the study.

7. The Combination and counter techniques in Judo can be effectively utilized by the stakeholders with the support of the study.
8. The study throws light on the application of Ground/Pinning techniques which are neglected by the Indian Judokas when compared to throwing techniques.

1.18 DEFINITIONS & EXPLANATION OF TERMS

1.18.1 TECHNICAL

It means relating to practical skills and methods that are used in a particular activity. (www.dictionary.cambridge.org)

1.18.2 TACTICAL

It means tactics or done in order to achieve something.

(www.dictionary.cambridge.org)

1.18.3 TACTICS

The actual methods used to achieve that goal.

(Mastering Judo By Masao Takahashi)

1.18.4 OPTIMIZATION

It means the act of making something as good as possible.

(www.dictionary.cambridge.org)

1.18.5 JUDO

The word judo consists of two Japanese characters, ju, which means "gentle", and do, which means "the way". Judo, therefore, literally means the way of gentleness.

(<http://www.worldjudoday.com/en/whatisJudo-57.html>)

1.18.6 JUDOKA

Judoka means Judo student or Judo player

(www.wikipedia.org)

1.18.7 BOUT

Bout means a short period or involvement in an activity

(www.wikipedia.org)

1.18.8 NATIONAL GAMES OF INDIA

It comprises various disciplines in which sports men from the different states of India participate each other. (www.wikipedia.org)

1.18.9 HIGH PERFORMANCE JUDO

It means highest level of judo competition.

(www.wikipedia.org)