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ANALYSIS AND OVERVIEW WHEELCHAIR BASKETBALL

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Abstract. Wheelchair basketball (WB) is a variation of basketball and is played by people with various physical disabilities that are characterized by chronic or severe conditions that limit the ability to use the lower limbs to play basketball in running. The present study is a review study that presents the critical points of existing knowledge about a theoretical approach to the topic of "wheelchair basketball". The aim of this study was to provide an analysis and overview of WB. WB game rules are different compared to running basketball game rules due to the manner of moving, type of faults, and functional classification of players on the court. The basic equipment for the game is wheelchairs and therefore special attention is paid to them and they developed as the sport developed. Each competitor, depending on the degree of disability, has a certain number of points, and the international classification range is from 1.0 to 4.5 points. In conclusion, WB is an intermittent team game for people with physical impairments characterized by chronic or serious conditions limiting their ability to use lower limbs to play running basketball. Therefore, the recommendation to future researchers is to do more research on Paralympic sports, and thus WB, which is one of the most interesting and demanding sports for people with disabilities.

Key words. *Paralympic sport, International Wheelchair Basketball Federation, Game rules, Classification in sport, Match analysis, Adaptive sports.*



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INTRODUCTION

Wheelchair basketball (WB) is considered one of the most widespread sports for people with disabilities. WB is a variation of basketball and is played by people with various physical disabilities that are characterized by chronic or serious conditions that limit the ability to use the lower limbs to play basketball in running, e.g. spinal cord injury, cerebral palsy, musculoskeletal conditions, spine, amputation, poliomyelitis¹. The basic rules of WB can be compared to pedestrian basketball. However, there are some differences such as differences in dribbling and bouncing the ball due to simultaneous wheelchair maneuvering². Although Olympic sports are intensively researched³⁻⁵, Paralympic sports have not been examined in such detail. However, despite these data, it can be said that there are more recent studies examining WB⁶⁻⁹.

WB first appeared around 1946 in the United States as a form of rehabilitation for a damaged World War II serviceman. Most were formerly able-bodied players, who wanted to continue the game. The goal of this game is to score more points than the opposing basketball team. The team that scores more points before the time runs out wins. WB can be played by any person with a disability and it is not necessary that the disability is such that the competitor uses a wheelchair in everyday life.

In 1973, the first International Wheelchair Basketball Federation (ISMGF) was founded, which in 1989 changed its name to the International Wheelchair Basketball Federation (IWBF). The IWBF organizes official world championships since 1975, which are currently played every 2 years after the summer Paralympic Games (POG)². The IWBF gained full independence in 1993, and has been the global governing body of sport ever since. The headquarters are in Switzerland, the president is Ulf Mehrens. Currently, 57 countries are members, there are 82 national alliances operating in the world, and that number is increasing every year. It is estimated that over 100.000 players around the world play WB today, whether recreationally, competitively through clubs or in national teams. WB is played by girls, boys, women and men. The IWBF has four zones: Europe, America, the African-Arab Zone and the Asia-Oceania Zone.

The present study is a review study that presents the critical points of existing knowledge about a theoretical approach to the topic of "wheelchair basketball". There is no specialized and comprehensive research in this area. This study attempts to fill this gap and may be a useful aid for those who will make similar efforts in the future. Therefore, the aim of this study was to provide an analysis and overview of WB.

THEORETICAL CONSIDERATION OF THE PROBLEM

History of the Paralympic Games

The first official WB game was played on September 25, 1946 among a group of war veterans in the United States (Corona Naval Station, California, and in Framingham, Massachusetts, USA, two of the many US Veterans Administration Hospitals (VAH). The most important person for WB development is Sir Ludwig Gutman. Apart from being important to WB, his importance in the field of sports for people with disabilities is that he is the founder of the Paralympic movement. He was tasked with adapting a basketball game for the rehabilitation of people at Stoke Hospital in Mandeville, Aylesbury, UK with spinal cord injuries. The British government funded this action in 1944, to help individuals cope with their disability. This game was known as wheelchair netball.

The WB as we know it today was first played in 1956 at the International Games in Stoke Mandeville. WB developed rapidly as a Paralympic sport. WB is a Paralympic sport since the first POG were held in 1960 in Rome and are now practiced in almost 100 countries. While the United States won by far the most gold medals in the men's competition, their dominance was recently overshadowed by Australia and Canada, which had a better chance of winning four of the last five POG. The European Women's Competition is between Germany and the Netherlands, which continued in Rio 2016. The Dutch women's basketball team has not played in the final since Atlanta in 1996, but bronze in London in 2012 and their current form at world and regional championships gave them the best chance to winning the POG in Rio in 2016. WB is one of eight sports that was part of the first POG in Rome. In earlier games, the United States and Israel were the two main countries. United States won the POG final in 1972 and 1976. At the same time, other European countries have made great strides in the development of the WB. The Continental

Club competitions gave them the opportunity to improve their skills so that they could be more competitive internationally, and that proved to be good.

The French also emerged as a top nation after the 1984 conquest against the Netherlands. In Seoul in 1988, the Dutch were beaten by the United States, but won gold in Barcelona in 1992. They won silver once again in Sydney in 2000. The Americans are on the podium three times in the last six POG. Canada became the first country to win three consecutive POG, with victories in 1992, 1996 and 2000. Australia has also been represented on every POG podium since Atlanta in 1996, and they have won a total of eight medals. The defeat in the regional championship by China was a big step backwards for the Australian women's team, which was not in Rio. In Rio 2016, in the men's and women's competition, the Americans won gold medals. It was the first time that a country had won double gold since Canada in Sydney in 2000 (Photo 1).



Photo 1. Photo by Joe Kusumoto/Courtesy U.S. Olympic & Paralympic Committee¹⁰

Rules of the game

WB game rules are different compared to running basketball game rules due to the manner of moving, type of faults, and functional classification of players on the court¹¹. This sport is played according to rules that are almost identical to the rules of the International Basketball Federation

(FIBA). The match lasts 40 minutes. etc. everything is the same as with walking basketball. All time rules, size of the court, the ball, passing the ball over half of the court, duration of the attack, seconds in the racket, personal fouls of the player, height of baskets and point scoring system are the same for WB and running basketball¹¹. Players are often divided into two categories: A (1.0–2.5) and B (3.0–4.5)¹².

In 1964, basic international rules were adopted to meet the needs of wheelchair play. There are specific rules regarding the movement of players, since the competitors are in wheelchairs. It should be said that WB is a top sport like any other. The same principles, the same theories and the same laws of training apply to basketball for people with disabilities as to top basketball. It is not resocialization, nor reintegration, nor therapy, it is a top sport! Here, maximum results are achieved, the number of points per game is similar to running basketball, threes are shot, attacks are performed and the defense is organized, the ball is lead, he adds exactly, in one word-there is no difference from running basketball. Except athletes are in sports wheelchairs, from where it's a lot harder to hit the basket! These are just some of the comparisons between the two versions of basketball.

Court: Court length 28 m, width 15 m. Players on the court: 10 players, five from each team. Duration: four quarters, 4x10 min. Attack length: 24 s. Line for 3 m: 6.75 m.

Scoring: One point free throw; when the basket is scored from a distance within the marked arc in front of the opponent's basket with a radius of 6.75, it is worth two points; a basket outside the bow is worth three points.

Dribbling: The player's position is determined where the cart touches the floor. A player can drive a wheelchair and hit the ball on the floor at the same time. However, if he picks up the ball or places it in the wing, he is only allowed to push the big wheel twice, before he shoots, passes or leads again. There is no double guidance in WB. A step error occurs if a player has more than two wheel pushes while in possession of the ball and is not leading it.

Personal fouls: Violation of the rules relating to illegal personal contact with a wheelchair opponent is considered part of the player. When a player is firmly fastened with a wheelchair belt

and then when his movement, during a shot, jump, lifting the ball from the floor or blockade has neither hand on the wheels and lifts both rear wheels then he is judged a technical fouls.

Play equipment

The basic equipment for the game is wheelchairs and therefore special attention is paid to them and they developed as the sport developed. Initially, players used a typical steel wheelchair for everyday use with a foot and arm rest and weighed about 15 kg. Today, basketball is played in sports wheelchairs that are significantly lighter, stronger, structurally different in order to increase speed, maneuverability, and especially safety, in order to achieve top results (Photo 2).



Photo 2. Sport Wheelchair Equipment. Original Design Classic model for disability athletes¹¹

- The total height of the wheelchair, including the seat cushion, must not exceed a height of 63 cm for players with a score of one to three,
- the total height of the wheelchair, including the seat cushion, must not exceed a height of 58 cm for players with a rating of 3 to 4.5,
- the front guard bar at the farthest point must be 11 cm high when the wheelchair is in the forward position,
- they must not be low and made of such material that they can damage the substrate,

- the trolley may have three or four wheels, provided that the largest wheel must not be larger than 69 cm,
- there must be a smaller driving wheel on each large wheel,
- controls, brakes, gears must not be on the wheelchair,
- wheels and anti-tilt wheels must not leave marks on the surface,
- the armrest and other supports must not be outside the line of the player's legs or torso in a natural sitting position,
- the maximum height of the anti-tilt wheel must not exceed 2 cm,
- carts are made for each player individually to his liking.

As with running basketball, the players are uniformed and everyone from the same team wears equally designed jerseys of the same colors. The standard jersey consists of a lower part and a sleeveless jersey. Each player is marked on his chest and back, on his jersey with a visible, unique number, different from the numbers of his teammates. Professional basketball players use special shoes with high heelsole which provide additional support heels. In addition to the number, the T-shirts also contain the names of the club, players and sponsor^{11,12}.

Classification

Most people when they watch WB become surprised by their playing skills and abilities. Soon, however, one question comes to mind: "How can athletes with different functional abilities play fair against each other in this match"? Equality of basketball players is achieved by classification. Classification is a process by which the total potential of basketball players on the court is equalized with the potential of the opponent. This functional assessment takes into account that each player has the ability to perform a specific skill for a sport such as WB, and includes driving, guiding, passing, reaction to contact, shooting and jumping. Each player is then awarded a point value based on his functional ability. This point value determines its classification.

WB can be played together by women and men in the same team. If there is one woman in the top five then that five on the field can have 1.5 points more than allowed and also if the junior is in the senior team then the five on the field can have one point more, and if the five plays a

woman and plays a junior then those five on the field can have a maximum of 17.0 points, and in the national team 16.5 points^{11,12}.

Points

Each competitor, depending on the degree of disability, has a certain number of points. The points refer to the specific requirements of WB and the less physically capable a competitor is to perform certain basketball skills, the lower the number of points he has. The international classification range is from 1.0 to 4.5 points. Players of the lower classification class are more limited in their functional capabilities. Players who have a higher classification have little or no hull functionality. The total number of points on the court in the game when each player is counted must not exceed 14 points for the national team, and for competing clubs the number of points must not exceed 14.5 points. The purpose of this rule is to include people with a higher degree of disability on an equal footing.

Points from one to two are very similar players in that no one can control their sitting base and they are mostly disabled with a diagnosis of paraplegia. For example, most require upper torso support to be able to return to a sitting position after stretching forward to guide, catch, pass, or kick.

Class 1.0 players are generally unable to move their torso in any plane of movement. For example, most are unable to move their upper body to receive a shoulder pass in the counter.

Class 1.5 is, according to the ability classifier, something between 1 and 2.

Class 2.0 athletes are able to rotate their upper body without using their support arm. This greatly improves their ability to receive the ball or shoot from different directions.

Class 2.5 is, according to the ability classifier, something between 2 and 3.

Class 3.0 and 4.0 athletes are similar in that they both have control over their sitting base and they are mostly players with double amputation, polio, paresis. Class 3.0 athletes are able to turn their shoulders as well as lean forward without difficulty. They can run the ball far in front of the

cart. They, however, cannot lean to the side and return upright, without the use of their hand; most class 3.0 athletes do not have enough leg strength to perform such an action.

Class 3.5 is, according to the ability classifier, something between 3 and 4.

Class 4.0 athletes are able to move their torso in all levels of movement. They can rotate, lean forward to at least one side without difficulty. Athletes in this category can lean to the side, shoot, protect the ball from an opponent, or catch the ball on a jump. Class 4.0 differs from class 4.5 athletes in that they are very often unable to stretch to the side equally on both sides due to limited strength in the legs.

Class 4.5 are players with minimal disability, single amputation below the knee, knee injury. In this position, leaning forward or sideways is almost impossible. The only possible movement is shoulder rotation. Leaning forward and turning the torso to look over the shoulder will be easy to accomplish, leaning to the side to pick up an object from the floor will not be easy, if not impossible to implement^{11,12,13}.

Wheelchair basketball in Serbia

WB is one of the most demanding sports for people with disabilities. It takes a lot of physical preparation to do the same. It should also be said that this sport is extremely useful for people with disabilities because it brings to the development of psychophysical abilities and competitive spirit.

There are currently several WB basketball clubs in Serbia. In Belgrade, there is a WB basketball club "Singidunum", Apatin "Danube", there are "Vojvodina" from Novi Sad, "Vožd" from Velika Plana and "UPČ" Čačak, "Paraćin".

The league of true champions is over and it certainly doesn't sound like a phrase if we say that all the participants won. However, the competitive charm existed and the champion is the Singidunum team. The match for the third place was played first and Paracin took a convincing victory over the team of Vojvodina 44:25. A somewhat more exciting final followed, in which the Singidunum team was better than Apatin, winning 58:44. In the national championship,

Singidunum is the vice-champion of Serbia from the season 2004/2005 to 2009/2010, and from the season 2010/2011 it is the champion of Serbia. At the end of the autumn part of the 2014/2015 season, they were the first without a single defeat.

21.07.2004 The Association was founded in the year, by uniting seven clubs, and now it has four clubs. The Alliance operates in the territory of the Republic of Serbia. The federation is a national branch sports federation and the only one competent to organize and arrange WB of the Republic of Serbia for men and women. The Federation is the highest institution in the field of WB in the Republic of Serbia for men and women and is organized in accordance with the Law on Sports of the Republic of Serbia and the rules of the IWBF. The national team of WB Serbia participated in the European Championship, which was held in Lisabon, from July 5 to 12. The European Championship of Division C, organized by the IWBF, was attended by the national teams of Bosnia and Herzegovina, Finland, Ireland, Greece, Denmark, Belarus, Serbia, Ukraine, Romania and Portugal. 12/2/2014 A friendly match between the national teams of Montenegro and Serbia was played in the hall of the Gymnasium "Slobodan Škerović". The first game of this kind in our country, in which the Serbian basketball players triumphed 65:52, was organized by the Association of Paraplegics of Montenegro in cooperation with the Basketball Club "Paramont"¹³ (Photo 3).



Photo 3. A friendly match between the national teams of Serbia and Montenegro

CONCLUSION

In conclusion, WB is an intermittent team game for people with physical impairments characterized by chronic or serious conditions limiting their ability to use lower limbs to play running basketball. It should also be said that this sport is extremely useful because it contributes to the development of psychophysical abilities and competitive spirit. Although Olympic sports are intensively researched, Paralympic sports, and therefore WB, have not been examined in such detail. Therefore, the recommendation to future researchers is to do more research on Paralympic sports, and thus WB, which is one of the most interesting and demanding sports for people with disabilities.

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 14. <https://www.portalanalitika.me/clanak/168875--prvi-mec-u-kolicima-crna-gora-porazena-od-srbije> (first-match-in-cart-montenegro-defeated-by-serbia)

