

The evolution of the winter Paralympic games and sports

Vasilios Giovanis, Eriketti Margari

Faculty of Physical Education and Sport Science, National and Kapodistrian University of Athens, Greece.

Annotation:

Purpose: The aim of this research was to record and the evolution of the winter paralympic games and sports since 1976 until 2010. The history of the Winter Paralympic Games is relatively recent compared to that one of the Olympic Games. The first Games were held in 1976 in Ornskoldsvik, Sweden and the most recent, 38 years later in 2014, in Sochi, Russia. This article will examine the Winter Paralympic Games up until the ones in 2010 in Vancouver, Canada. During these years, there have been many changes in relation to the Games itself, the governing body of the Paralympic Movement, the sports' facilities, the sports involved and sports' categories. The motivation for writing this paper was the need to record and gather all of these items in one paper. Gathering information for the Winter Paralympic Games will be an important theoretical background. This information will create a database for the structure of the governing body of the Paralympic Games, for the organization of the Games [Local Organizing Committee (LOC), venues and equipment], for the evolution of the Winter Paralympic Sports and the categories of the athletes, as well as the evolution of the athletes' and sports' participation. **Material:** The research material that was used was mainly from the bibliography and records of the International Paralympic Committee (IPC), from the Official Post Games Reports and the Internet, while the research method that was used was descriptive. Moreover, the use of diagrams will depict the distribution of the participation of athletes and countries in each Games. **Results:** The participation of countries grew continuously and steadily from 16 to 44, during the years of 1976 to 2010 respectively. Regarding the athletes' participation, starting in the first Games with 198 athletes, they reached the number of 502 in the 2010 Vancouver Winter Paralympic Games. The participation percentages of the athletes coming from Europe constituted the bulk of the total participation from the Continents throughout the journey of the Games (1st Winter Paralympic Games: 95% - 10th Winter Paralympic Games: 61%). The proportion of men was at all events greater than that of the women. Starting with only two categories of impairment being part of the first Games (athletes with amputation and athletes visually impaired), in the 2010 Winter Paralympic Games in Vancouver, almost all categories were included (except the athletes with an intellectual disability). **Conclusions:** The sports included in the 1st Paralympic Games were the events of Alpine Skiing and one event of Cross Country Skiing, while in the 10th Paralympic Games were included all the disciplines of Alpine skiing and Cross-Country Skiing, Ice Sledge Hockey and Wheelchair Curling.

Keywords:

Winter Paralympic Games, evolution, sport, program, competition.

Гіованіс Василіус, Маргарі Ерікетті. Еволюція зимових Паралімпійських ігор та видів спорту. Мета: Метою даного дослідження було вивчити еволюцію Паралімпійських зимових ігор та видів спорту з 1976 року до 2010 року. Історія зимових Паралімпійських ігор починається відносно недавно в порівнянні з Олімпійськими іграми. Перші ігри були проведені в 1976 році в Швеції і останнім часом, 38 років потому, в 2014 році - в Сочі, Росія. У статті розглянуті Паралімпійські зимові ігри аж до 2010 року у Ванкувері, Канада. За ці роки було багато змін у ставленні до самих ігор, керівним органам Паралімпійського руху, суб'єктів спорту. Мотивація для написання цієї статті була в необхідності записувати і збирати всі ці елементи в одному документі. Збір інформації для зимових Паралімпійських ігор буде важливим теоретичним обґрунтуванням. Ця інформація створює базу даних для керівного органу Паралімпійських ігор, для організаційного комітету Ігор [Місцевий організаційний комітет, місце проведення та обладнання], для еволюції зимових Паралімпійських видів спорту та категорії спортсмени, а також еволюція спортсменів та їх участь у змаганнях. **Матеріал:** був використаний дослідницький матеріал, який складається в основному з бібліографії та зареєстрований у Міжнародному Паралімпійському комітеті як офіційний звіт Ігор в Інтернеті. Метод дослідження, який був використаний, носить описовий характер. Крім того, використання діаграм буде зображувати розподіл участі спортсменів і країни в кожній з ігор. **Результати:** участь країн безперервно зростала і зростає від 16 до 44, в роки 1976 до 2010, відповідно. Що стосується участі спортсменів, то починаючи з перших ігор (198 спортсменів) і до 502 в 2010 Ванкувері на зимових Паралімпійських іграх. У відсотковому відношенні участь спортсменів з Європи становило більшу частину від загального числа учасників протягом усього часу проведення Ігор (1-х Паралімпійських зимових ігор: 95% - 10-х Зимових Паралімпійських ігор: 61%). Частка чоловіків була на всіх заходах більше, ніж жінок. На початку в іграх брали участь тільки дві категорії спортсменів (спортсмени з ампутацією і спортсмени з порушеннями зору). Але, вже в 2010 році на зимових Паралімпійських іграх у Ванкувері, майже всі категорії були включені (за винятком спортсменів з обмеженими інтелектуальними можливостями). **Висновки:** в перших Паралімпійських іграх проводилися тільки гірські лижі і 1 програма для лижних гонок. У 10-х Паралімпійських іграх вже були включені всі дисципліни з гірськолижного спорту та лижних гонок. Також, хокей та Керлінг на візках.

Зимові Паралімпійські ігри, еволюція, вид спорту, програма, змагання.

Гіованіс Василіус, Маргарі Ерікетті. Эволюция зимних Паралимпийских игр и видов спорта. Цель: Целью данного исследования было изучить эволюция Паралимпийских зимних игр и видов спорта с 1976 года до 2010 года. История зимних Паралимпийских игр начинается относительно недавно по сравнению с Олимпийскими играми. Первые игры были проведены в 1976 году в Швеции и последнее время, 38 лет спустя, в 2014 году - в Сочи, Россия. В статье рассмотрены Паралимпийские зимние игры вплоть до 2010 года в Ванкувере, Канада. За эти годы было много изменений в отношении к самим играм, руководящим органам Паралимпийского движения, субъектов спорта. Мотивация для написания этой статьи была в необходимости записывать и собирать все эти элементы в одном документе. Сбор информации для зимних Паралимпийских игр будет важным теоретическим обоснованием. Эта информация создает базу данных для руководящего органа Паралимпийских игр, для организационного комитета Игр [Местный организационный комитет, места проведения и оборудования], для эволюции зимних паралимпийских видов спорта и категории спортсмены, а также эволюция спортсменов и их участие в соревнованиях. **Материал:** был использован исследовательский материал, который состоит в основном из библиографии и зарегистрирован Международным Паралимпийским комитетом как официальный отчет Игр в Интернете. Метод исследования, который был использован, носит описательный характер. Кроме того, использование диаграмм будет изображать распределение участия спортсменов и страны в каждой из игр. **Результаты:** участие стран непрерывно росло и растет от 16 до 44, в годы 1976 до 2010, соответственно. Что касается участия спортсменов, то начиная с первых игр (198 спортсменов) и до 502 в 2010 Ванкувере на зимних Паралимпийских играх. В процентном отношении участие спортсменов из Европы составляло большую часть от общего числа участников на протяжении всего времени проведения Игр (1-х Паралимпийских зимних игр: 95% - 10-х Зимних Паралимпийских игр: 61%). Доля мужчин была на всех мероприятиях, больше, чем у женщин. В начале в играх принимали участие только две категории спортсменов (спортсмены с ампутацией и спортсмены с нарушениями зрения). Но, уже в 2010 году на зимних Паралимпийских играх в Ванкувере, почти все категории были включены (за исключением спортсменов с ограниченными интеллектуальными возможностями). **Выводы:** в первых Паралимпийских играх проводились только горные лыжи и 1 программа для лыжных гонок. В 10-х Паралимпийских играх уже были включены все дисциплины по горнолыжному спорту и лыжных гонок. Также, хоккей и Керлинг на колясках.

Зимние Паралимпийские игры, эволюция, вид спорта, программа, соревнования.

Introduction

Since the ancient times, people realized the importance of exercise for a good health of the human being. Nevertheless, the concept of sport for people with a disability developed relatively recently. The academic interest developed in the early 20th century as a result of the First World War, where many soldiers wounded by the War, could profit from the benefits of sport by using the latter as a means of rehabilitation in military hospitals. However, the great revolution in sport for people with a disability, it was only imminent after the Second World War [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>]. Dr. Ludwig Guttmann, who is considered to be the father of modern sport for the athletes with a disability, campaigned to incorporate sports for people with a disability within the Olympic Games [21]. The organization of the Paralympic Games is being held today by the International Paralympic Committee (IPC), which is based in Bonn, Germany. The IPC is responsible for organizing the Summer and Winter Paralympic Games. In addition, it serves as an International Federation for nine sports, for which it supervises and co-ordinates the World Championships as well as an international competition calendar. The IPC was established in 1989 in Dusseldorf, Germany, organizing for the first time the 6th Winter Paralympic Games in 1994 [<http://www.paralympic.org/IPC>]. Originally, the term «Paralympic» was a combination of the words «Paraplegic» and «Olympic» fact, that was contradicting with the spirit of Olympism, which represents the excellence and perfection of the body. Over time, there was a redefinition of the term, and today it is considered to have its origins in the ancient Greek word «Para-» which means parallel and the word «Olympic». Thus, the Paralympic Games that are taking place alongside to the Olympics. The Greek Paralympic Committee uses the term «Paraolympic» and disagrees with this use of the term [<http://www.paralympic.org/IPC>].

According to Table 1, the athletes can be divided into three categories. In the category of «Standing» athletes with a disability on the upper and / or lower extremities (Standing), the category of athletes who are sitting and have a disability in the lower limbs (Sitting) and the category of athletes with an impairment in the vision

(Visually Impaired). The smaller their number of group is, the more severe the disability is [8].

Definitions

This study examines the evolution of the Winter Paralympic Games and Sports in relation to the countries and athletes participating in each Games, as well as the development of their organization.

As *Winter sports* are defined the sports included in each Winter Paralympic Games respectively, which are the following: Alpine Skiing, Biathlon, Cross Country Skiing, Ice Sledge Hockey, Ice Sledge, Speed Racing and Wheelchair Curling.

As *Nordic Skiing* is defined the Cross Country and Biathlon [http://www.ipc-nordic skiing.org/About_the_Sport/].

The *Winter Paralympic Games* are the ones that are recognized by the International Paralympic Committee (IPC) as «Paralympic» even though the first two Games do not have in their naming the word «Paralympic». In this article, the Winter Paralympic Games may also be referred to as the Games.

The *classification of the athletes* into categories is the separation of the athletes depending on their disability and their placement into groups with similar characteristics. In winter sports, we have three categories: athletes with visual disturbances (Visually Impaired - VI), athletes who use wheelchairs (Sitting - SIT) and athletes with amputations (Standing - STA) [<http://www.paralympic.org/Sport/Classification>].

Finally, it should be clarified that, for brevity reasons, and given that this article does not concentrates on the study of the Summer Paralympic/ Olympic Games or the Winter Olympic Games, the words «Winter» and «Paralympic» will be omitted. All references to the «Games» will refer to the Winter Paralympic Games. Exceptions might be eminent in the paragraphs that concentrate on the differences between the Winter Paralympics/ Olympics, in which the name of each of the Games are referred to specifically and separately.

Purpose

The aim of the study was to collect information for the Winter Paralympic Games, which will give an important theoretical background for the so far evolution of the winter sports for the specific population. This information will create a database in relation to the organization of the

Table 1.

Alpine/ Nordic Skiing Athletes' Categories [6, 8, 14].

Alpine/ Nordic Skiing Athletes		
Standing athletes with a disability in the lower and upper extremities. (Standing - STA)	Sitting athletes with a disability in the lower limbs. (Sitting - SIT)	Athletes visually impaired. (Visually Impaired- VI)
LW 1, LW 2, LW 3, LW 4	LW 10	B1
LW 5/7, LW6/8	LW 11	B2
LW 9/1, LW 9/2	LW 12	B3

Paralympic Games from the very first ones in 1976 until the ones of 2010. Thus, the reader will have the opportunity to follow the evolution of the second largest sporting event (after the Olympics) for athletes with a disability, the changes in the conditions of the organization, as well as the state of the sports in these 10 Paralympic Games.

Research Questions

The motivation for writing this study was the need to review and record all of the Winter Paralympic Games until 2010, as well as to collect data on the number of participating athletes, the sex, the country of origin and the sport that the athletes competed in. The hypothesis made in this study can be depicted in the following research questions:

How has the organization of the Winter Paralympic Games been developed?

How have the Winter Paralympic Sports and Games been evolved?

How did the participation of the athletes and countries evolve?

MATERIAL AND METHODS

The collection of the Greek and foreign literature was conducted from the internet, the library of the University of Athens (Department of Physical Education & Sports Science), the library of the International Paralympic Committee (IPC), personal library, as well as articles from specialized journals on Skiing. The methods that were used in this study were the descriptive and the comparative methods. From 1976 to 2010, there have been 10 Winter Paralympic Games, on which there have been examined the following fields: Naming of the Games, Local Organizing Committees (LOCs), Venues and Sports' Equipment, Logo / Mascot, categories of athletes with a disability over time, the number and percentage of the participating countries / athletes cumulatively and separately in each sport such as: Alpine skiing, Cross-Country Skiing, Biathlon, Ice Skating (Sledge Hockey, Skating and Curling).

RESULTS

1. Presentation of the historical development of the Winter Paralympic Sports

The pool of people with a disability that started training in the adapted skiing were coming mostly after a severe accident or the War. In 1942 -1943 the German athlete, Franz Wendel was the pioneer of the Paralympic sport «three track skiing». The sport has spread outside of Germany, in Austria, Switzerland, Scandinavia, America etc. Subsequently, the athletes' equipment evolved according to the needs of the type of disability «four track skiing», «bi ski» and «mono ski» [10].

The first winter sport that was developed was the Alpine Skiing for people with a disability in one leg, who were using the so-called «outrigger» - crutches with ski tips (http://www.ipc-alpineskiing.org/About_the_Sport/). Due to its nature, this sport has its roots in Switzerland, Germany and Austria, but was quickly spread throughout Europe. Towards the end of 1950s, a ski school for people with amputated body parts was founded, in Salzburg, and at the same time, the first technical manuals on «Special

Skiing Techniques» were published. This sport movement spread rapidly in the US, where in the early 1960s, took place the first test events on Alpine Skiing with outriggers, using borrowed equipment from Austria. During the winter period of 1962-1963, the first official coaches of Alpine Skiing with outriggers were trained from the Norwegian Department of Skiing Union of the United States of America [10]. Following that, Skiing for people with a disability evolved in the US into a competitive sport and in 1972 took place the first National Championship [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

During the period of 1950-1960, other winter sports came under the scope of attention such as Ice Skating (Ice Skating Speed Racing), Ski Touring (Hiking with skis), Cross-country Skiing, Sledge (Tobogganing) and Curling. As different types of winter sports were entering the competitive field, more opportunities were given to people with different type of disability to take part in the Games. For example, in 1960, visually impaired athletes started to participate in Alpine Skiing. The sport movement for athletes on a wheelchair evolved only in the late 1960s, when we had the first experiments on the construction of a Sled Ski [3].

Out of the most reliable information we have, the first sled model, was constructed by the German Josef Schräll, in 1967. Three years later, the Norwegian paraplegic Widar Jonson, built a plastic seat, which allowed him to use the sled during the winter months, to play Ice Hockey and to enjoy Cross-country Skiing. His discovery, inspired the Swiss Peter Gilomen, who built a sledge for Cross-country skiing, which consisted of two normal skis, attached to the seat. During 1970-1980, many different forms were given on the sled from countries like Norway, Germany and Austria up until 1980, when the Asians constructed the very first type of mono-ski. This type of sledge is being used today, with the consequent changes that came with the evolution of technology. Nevertheless, the actual evolution in the development of the sledge for the athletes on a wheelchair, took place after the International Winter Summit in Engelberg, Switzerland, in 1985, during which 85 persons on a wheelchair were gathered from 14 countries in order to demonstrate the equipment that they were using [4].

The growth in popularity of the winter sports, led to the introduction of new events of different categories for persons with a disability. The first National Winter Championships were held in 1948 for Skiers with an amputation with outrigger in Germany and Austria [10].

Just one year later, in 1949, the first World Championships were organized for visually impaired athletes. In 1970, as part of «Ridderrennet» (Knights' Competition) in Beitostolen of Norway, a combined event of Cross-country skiing and Shooting (Winter Biathlon) took place for visually impaired athletes. Two years later, in 1972, the first Norwegian Winter Championships was held for the same specific group of persons with a disability. Due to the late development of sports' equipment, athletes on a wheelchair did not participate

Table 2.

Dates and locations of the Winter Paralympic Games, 1976-2010 [http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing].

Date	City	Country
21-28 February 1976	Ornskoldsvik	Sweden
01-07 February 1980	Geilo	Norway
14-20 February 1984	Innsbruck	Austria
17-24 February 1988	Innsbruck	Austria
22 March- 04 April 1992	Tignes- Albertville	France
10-20 March 1994	Lillehammer	Norway
05-14 March 1998	Nagano	Japan
07-16 March 2002	Salt Lake City	USA
10-19 March 2006	Turin	Italy
12-21 March 2010	Vancouver	Canada

Table 3.

Sports or disciplines, as they were added in the Winter Paralympic Games of 1976-2010 [http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing].

Winter Paralympic Games	Sports or Disciplines
Ornskoldsvik, Sweden 1976	Alpine Skiing Cross- Country
	Alpine Skiing Cross- Country Ice Sledge Racing
Geilo, Norway 1980	Alpine Skiing Cross- Country Ice Sledge Racing
	Alpine Skiing Cross- Country Ice Sledge Racing
Innsbruck, Austria 1984	Alpine Skiing Cross- Country Ice Sledge Racing
	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon) Ice Sledge Racing
Innsbruck, Austria 1988	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon) Ice Sledge Racing
	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon)
Tignes- Albertville, France 1992	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon)
Lillehammer, Norway 1994	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon) Ice Sledge Racing Ice Sledge Hockey
	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon) Ice Sledge Racing Ice Sledge Hockey
Nagano, Japan 1998	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon) Ice Sledge Racing Ice Sledge Hockey
	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon) Ice Sledge Hockey
Salt Lake City, USA 2002	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon) Ice Sledge Hockey
Turin, Italy 2006	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon) Ice Sledge Hockey Wheelchair Curling
	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon) Ice Sledge Hockey Wheelchair Curling
Vancouver, Canada 2010	Alpine Skiing Nordic Skiing (Cross-Country, Biathlon) Ice Sledge Hockey Wheelchair Curling

Table 4.

Categories of athletes with a disability, as they were developed during the Winter Paralympic Games of 1976-2010 [http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing].

Winter Paralympic Games	Categories
Ornskoldsvik, Sweden, 1976	Amputees Visually Impaired
Geilo, Norway 1980	Amputees Visually Impaired Spinal Injuries
From Innsbruck, Austria, 1984 to Lillehammer, Norway 1994	Amputees Visually Impaired Spinal Injuries Cerebral Palsy Les Autres
Nagano, Japan, 1998	Amputees Visually Impaired Spinal Injuries Cerebral Palsy Les Autres Intellectually disabled
Turin, Italy, 2006	Amputees Visually Impaired Spinal Injuries Cerebral Palsy Les Autres
Vancouver, Canada, 2010	Amputees Visually Impaired Spinal Injuries Cerebral Palsy Les Autres

in an international winter competition, until the end of 1980s. Following the 1986 World Championships for sit Skiers (skiers on a wheelchair) as well as for athletes on a sledge organized by Norway- in 1988, it was the first time that events on mono-ski were included in the Winter Paralympic Games in Innsbruck, Austria [4].

Due to the fact that Sport for persons with a disability had become quite popular in an international level during the decade of 1970, and given the vast evolution of the Paralympic Movement and the Summer Paralympic Games, evidently, came the time of the realization of the idea to organize the first Winter Paralympic Games. However, because of the required weather conditions for winter sports, the latter, were originally developed only in countries with a tradition to winter sports [4].

2. Presentation of the historical development of the Winter Paralympic Sports

Table 2 shows the dates and locations of the Winter Paralympic Games during the period 1976-2010. We can notice that the vast majority (7 times, percentage of 70%) took place in Europe, 2 times in America (percentage of 20%) and 1 time in Asia (percentage of 10%). The predominant dates for conducting the Games was during the month of March with a percentage of 60%, followed by February and January with 20% each one respectively

[http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing].

In table 3, one can see the sports or disciplines, as they were added in Winter Paralympic Games during the period of 1976- 2010. We notice that Alpine Ski and Cross Country Ski were included from the very first Games of 1976 until the ones in 2010. Table 4 demonstrates the most representative categories of the athletes with a disability, as they were shaped during the Winter Paralympic Games of 1976-2010. During the years 1984-1998 the categories of the athletes with a disability remained the same [http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing].

Logos

Logos (Fig. 1) and mascots is the easiest way of making the corporate symbol easily recognizable by the vast public. In fact, logos are more expressive than words and favor on spectator's mind, the connection between the Games and the organizing country [4]. The emblem that was used in the first Winter Paralympic Games, has many symbolisms. The outer ring is bearing the paternity of the Games (ISOD), the name and year of the Games, as well as the organizing city. The inner ring, depicts the symbol of the organizing city, Ornskoldsvik, a Cross Country Skier on the left and an Alpine Skier on the right.



Fig. 1. The first (A) and second last logos (B) of the Winter Paralympic Games in 1976 (Ornskoldsvik) and 2010 (Vancouver) respectively [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

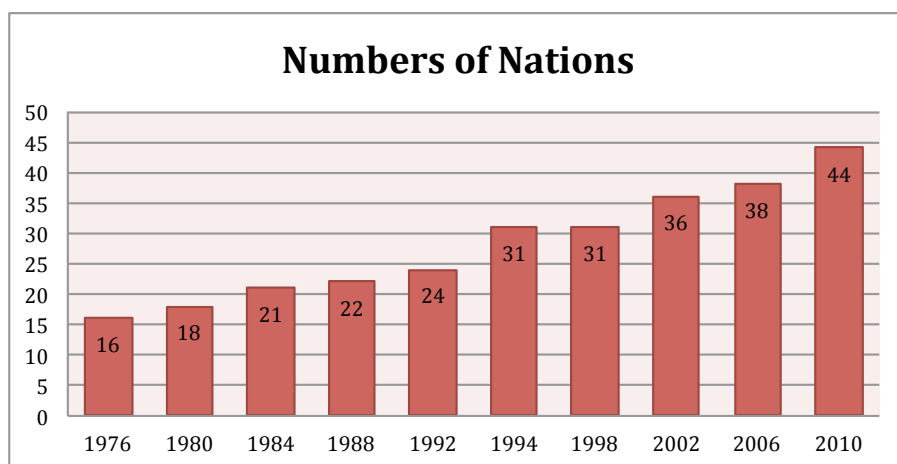


Fig. 2. Participation of nations in the Winter Paralympic Games from 1976 to 2010 [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

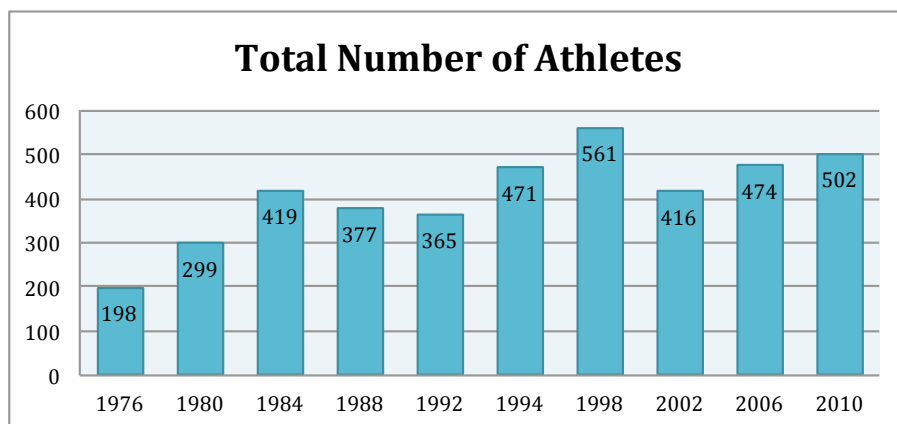


Fig. 3. Participation of athletes in the Winter Paralympic Games from 1976 to 2010 [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

In figure 2 and 3, it is shown the participating countries and athletes during the Winter Paralympic Games from 1976 to 2010. Observing the percentages of the participating countries and athletes, the largest number of nations took part in 2010 in Vancouver, Canada, while the highest participating number of athletes was in 1998 in Nagano, Japan.

In figure 4 and 5, we can see the numerical and percentage participation of the athletes per continent during the Winter Paralympic Games during 1978-2010 respectively. Looking closely at the participation rates of the Continents, it is easily recognizable that Europe is dominating from the very first Games of 1978 until the ones in 2010. In aggregation, from the 1st Winter Paralympic Games until the 10th, we see that the European continent

has a fall in participation from 94% initially, to 61%, a difference of 31%- whereas the Americas, has quadrupled its participation rate- from 4% to 20%.

In figure 6, the number of athletes is presented as a total, as well as the number of men and women that took part in Alpine Ski.

In figure 7, it is shown the participation of the athletes in Cross Country Ski (total, men and women). In figure 8, it is shown the participation of athletes in Biathlon (total, men and women).

As it is shown in the diagram, Biathlon, was included for the first time in the 4th Winter Games in Innsbruck in 1988 only for men, while the first female participation was only apparent in the 6th Winter Games in Lillehammer, 1994. In these Games we had the largest participation of

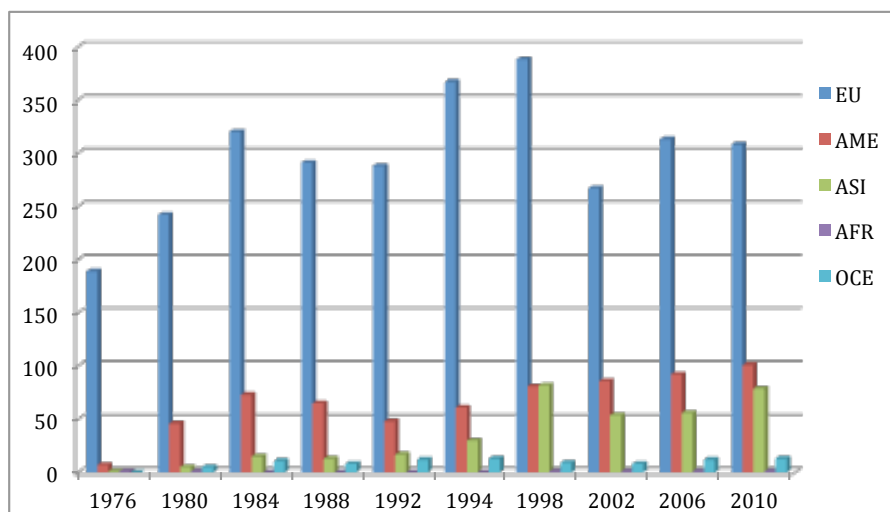


Fig. 4. Numerical participation of the athletes per Continent during the Winter Paralympic Games of 1976-2010 [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

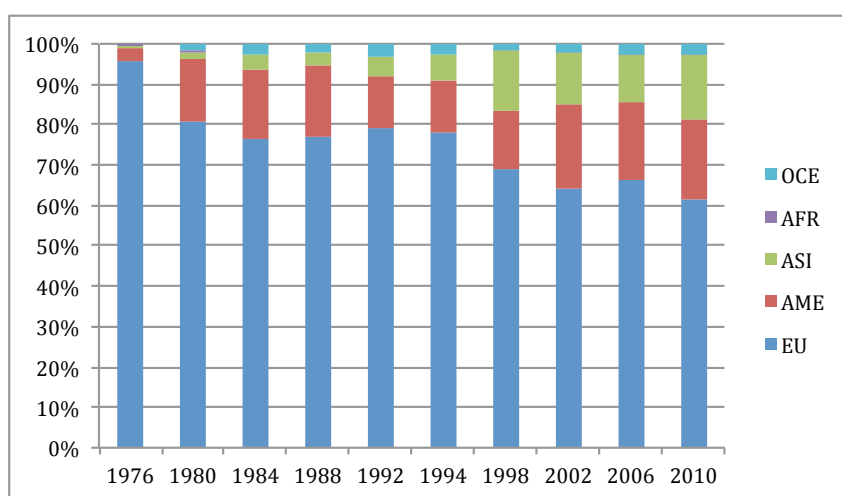


Fig. 5. Participation rate (%) of the athletes per Continent during the Winter Paralympic Games of 1976-2010 [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

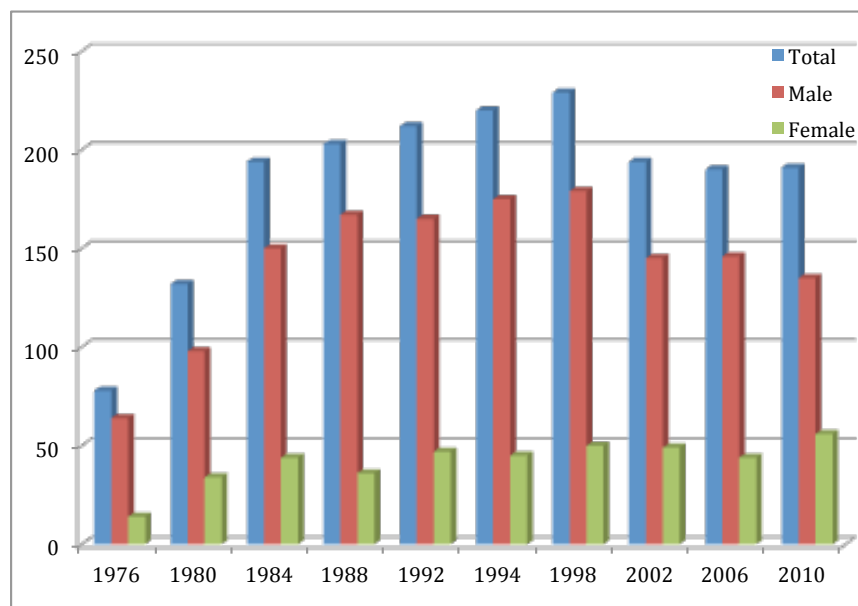


Fig. 6. Participation of athletes (total, men and women) in Alpine Ski [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

total athletes and male athlete participation.

In figure 9, it is illustrated the participation of the athletes in Ice Sledge Racing (total, man and women).

In Ice Sledge Hockey we can see that there is a small number of athletes participating compared to other sports. This sport reached its pick in the 3rd Winter Paralympic

Games in 1984, with a number of 29 participating male athletes and 11 female (40 athletes in total). In the following Games that it was included, the participations were half in numbers and there were no significant differences in variant. In 1992, it was not included in Games because there were no sufficient infrastructure,

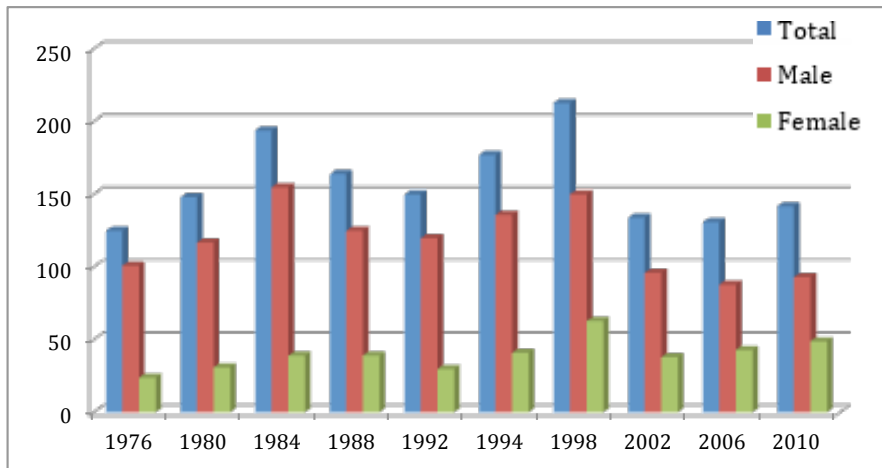


Fig. 7. Participation of athletes (total, men and women) in Cross Country Ski [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

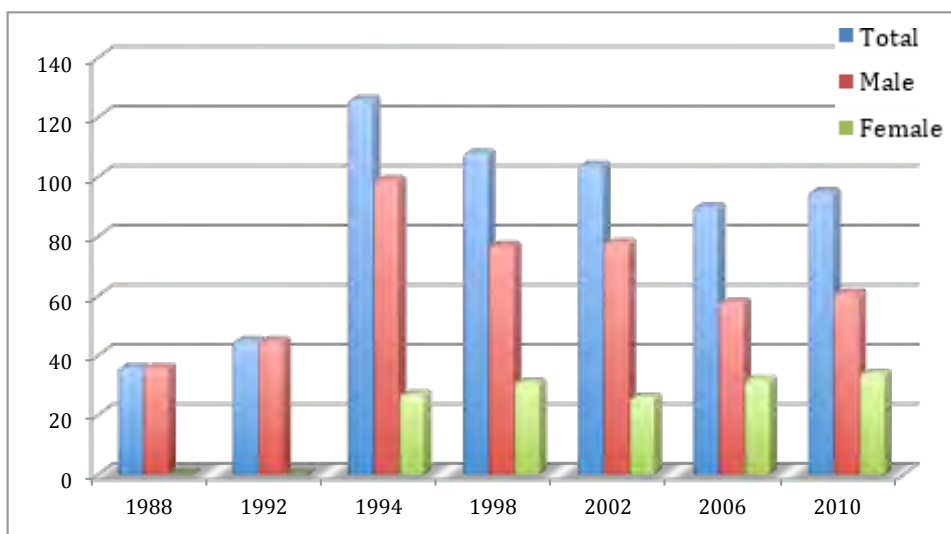


Fig. 8. Participation of athletes (total, men and women) in Biathlon [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

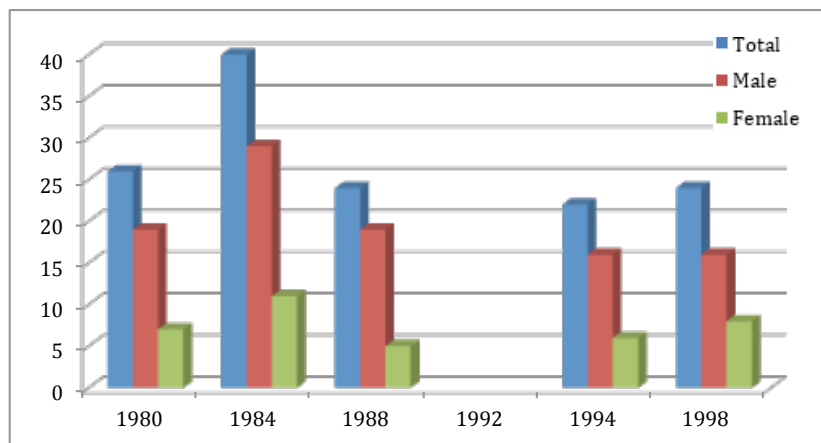


Fig. 9. Participation of athletes (total, men and women) in Ice Sledge Racing [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

while after 1998, it was removed from the program of the Paralympic Games.

Figure 10 shows the athletes' participation (total, men and women) in Ice Sledge Hockey. One of the most favorable sports by the spectators in the Winter Paralympic Games, Ice Sledge Hockey, radically increased athletes' participation in the 2nd Games that was included, while the participation of athletes' were doubled in the Vancouver Games of 2010 with a total athletes' number of 117. Unfortunately, there were no female participation in the specific sport until these Games.

In figure 11, it is illustrated the athletes' participation in Wheelchair Curling (total, men and women).

Wheelchair Curling, has been included in the Paralympic Games of 2006 and 2010 and on the second time, the participation increased by 10% in the total number of athletes. The number of men and women participants was increased respectively.

DISCUSSION

Up until today, the international literature for the Winter Olympic Games, refers to the athletes' training [17, 9, 5], the biomechanical analysis of sports movement [15,

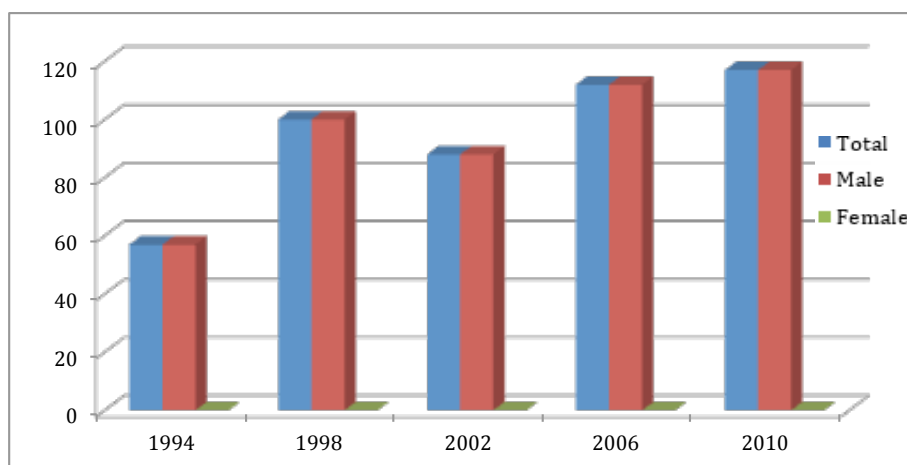


Fig. 10. Athletes' participation in Ice Sledge Hockey (total, men and women) [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

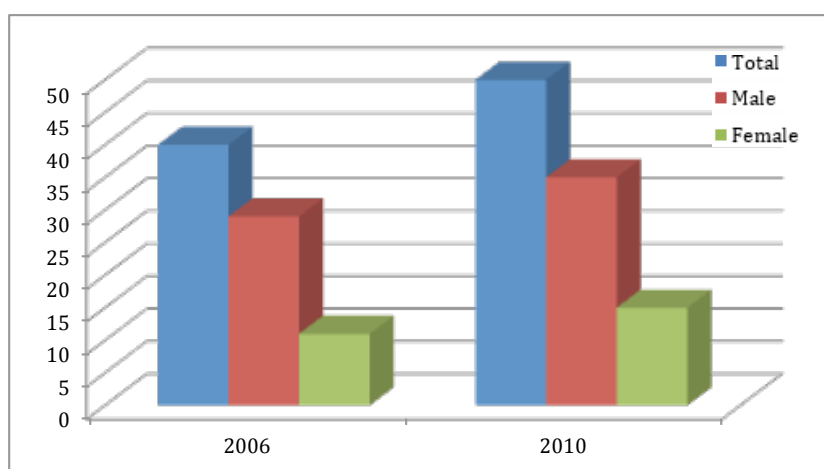


Fig. 11. Athletes' Participation in Wheelchair Curling (total, men and women) [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

2], the athletes' nutrition [18], as well as to the reasons that cause sport injuries during the Games [22, 23, 24], Few are the articles and researches that have been conducted for the history of the Winter Paralympic Games. The main sources are derived from the post Games reports of the Local Organizing Committees that are drafted after each Games. These reports started to become more systematic and reliable after the Paralympic Games in Nagano, in 1998 (Vanoc official reports, 2007; Vanov official post review, 2010; <http://www.InternationalParalympicCommittee,2010>) [16, 19].

Due to the non-existence of a united International Committee for persons with a disability until 1989, the systematic collection and collation of data was very difficult and the reports that were gathered up until then was with the initiative of the Local Organizing Committees in cooperation with International Organization for persons with a disability in force at that time, who was granting the rights for the organization of the Games. Of significant importance were the testimonies of people and different stakeholders that were active members during the organization and staging of the Games, such as the athletes, especially for the first 4 Winter Paralympic Games [22]. Due to this absence of systematic data collection, there are several inconsistencies in the numbers of participating countries and athletes per event, depending on the origin of the source [3].

This research was based solely on official figures and

information coming from the International Paralympic Committee's files [<http://www.disaboom.com/adaptive-skiing/from-rehab-tool-to-elite-sport-a-history-of-adaptive-skiing>].

From the first Winter Paralympic Games in Ornskoldsvik up until those in Vancouver, 34 years have passed. During these years, significant evolutions and progress have been made for the entire Paralympic Movement. The Winter Paralympic Games have been transformed from small events, mainly based on a voluntary initiative, into professional, enormous range events, that require a large and long-term preparation, as well as a sufficient number of permanent and specialized staff.

The first Paralympic Games can hardly be compared to the ones of today, as they were organized by the existing Organizations for persons with a disability (IOSD, ISMGF, ISMWSF, ISOD) and the respective Local Organizing Committee, who for the first 4 Winter Paralympic Games were working on a volunteering basis [22]. The selection process of the host country changed in 1988, when the IOC President-in-office, Mr. Samaranch, proposed for the Paralympic Games to take place right after the Olympic Games, in the same country. Following this agreement and the 1992 Games, we observe a variety of changes in the quality of the organization and infrastructure. The Olympic facilities (sports, medical, accommodation and events), were used now for the Paralympic Games as well,

from different at first, Organizing Committees, yet still, under the monitoring of a common President. This change brought closer the IOC and IPC, the two governing bodies of the two biggest sporting events worldwide, and encouraged the cooperation between them. Today, the candidate hosting countries when submitting the bidding document, are obliged to answer to specific questions on the organization of the Paralympic Games in their proposal for the Olympic Games.

The next important step for the Games, was made when the two Committees for the organization of the Olympic and Paralympic Games merged into one united team, which was first applied in the 8th Games in 2002. Having these Games as a starting point, the first medical surveys started to emerge, orienting towards the study of the frequency and type of injuries that appear in the Games, targeting to create a holistic and thorough content of the risks that may appear and how they can be avoided in future organizations. Moreover, the organizing committee, is being called to answer to increasingly more and bigger challenges, as both of these two sporting events, have many aspects that need to be taken into consideration [7]. Volunteering has helped enormously the respective Organizing Committees to carry out successfully the Games [1]. The governments of each hosting country help to cover the costs, but the sponsors have a great contribution as well [20]. However, reciprocal benefits are expected through advertising, for the organizing country and donors. A weak spot that the organizing country is called to resolve is the issue of the violation of human rights that may be affected during the Games, and that is caused due to the increasing number of athletes' participation [11]. An unfortunate fact that also emerges due to the evolution and impact of the Games, is the need of the athletes to drastically improve their performance, which several times, leads to doping [4]. The second part of the development of the Games is consisted of the participation of the athletes and countries, as well as the evolution of the sports and the categories of the athletes that nowadays are integrated into the program of the Games. In the first Paralympic Games the program was composed by two paralympic sports, while in the ones in Vancouver 2010, four additional sports were included. Over the course of the Games, some sports were added and some were removed because of low participation of athletes around the world and the lack of proper infrastructure. Moreover, from the 16 countries that initially participated in the Games, with a continuous upward trend of participation, in the Paralympics of Vancouver 2010, 44 countries were represented and the number of participating athletes increased from 198 in the

first Games of 1976, to 502 participants at the Games in Vancouver, 2010. In addition, while in the first Paralympic Games we had only two categories of persons with a disability that were eligible to participate, from 1984 onwards, almost all categories of persons with a disability could take part in the Games. Exclusively in the 1998 Paralympic Games the athletes with mental disorders were included in the program as well.

In conclusion, the Winter Paralympic Games have managed to evolve from a small organization, into a massive and prestigious event. This whole process has been described in this study to a greater or lesser extent. This is an important fact because, only through the knowledge of the past we can develop and support the Paralympic Movement and its vision, which is: "To Enable Paralympic Athletes to Achieve Sporting Excellence and Inspire and Excite the World" (<http://www.InternationalParalympicCommittee.com>, 2010) [12, 13].

CONCLUSIONS

Taking into consideration the results that are illustrated above, we are driven to the following conclusions:

1) The sports included in the 1st Paralympic Games were the events of Alpine Skiing and one event of Cross Country Skiing, while in the 10th Paralympic Games were included all the disciplines of Alpine skiing and Cross-Country Skiing, Ice Sledge Hockey and Wheelchair Curling.

2) The will and strength of the persons with a disability has touched many nations, for which reason they began to organize Games between the countries.

3) The most important goal in the training of the educators of customized ski, is to make them to be able to provide knowledge, skills and experiences to persons with a disability in order to live a healthy and productive life.

4) Since 1982, an evaluation system has been adopted in order to classify a large number of athletes. Now, the skiers with different kind of disability are able to compete based on this system to their corresponding category. The "A" athletes (elite) will qualify for the national and international championships.

5) There should be no confusion with the organization of the Special Olympics, which refer to the athletes with mental disorders. The Special Olympics, are more entertaining and educational oriented, and they are strictly differentiated from the competitive philosophy of the Paralympic Games.

6) Based on the literature, the participation of persons with a disability in various competitions and races of adapted skiing, contribute to the social, professional, therapeutic and personal rehabilitation.

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Информация об авторах:

Гиованис Василиус: <http://orcid.org/0000-0003-2511-8286>; vgiovan@phed.uoa.gr; Национальный Каподистрийский Афинский университет; ул. Этникис Артистассис 41, г. Афины, 17237, Греция.

Маргари Эрикетти: <http://orcid.org/0000-0002-9562-7177>; sportadmin@triathlon.org; Национальный Каподистрийский Афинский университет; ул. Этникис Артистассис 41, г. Афины, 17237, Греция.

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Information about the authors:

Giovanis Vasilios: <http://orcid.org/0000-0003-2511-8286>; vgiovan@phed.uoa.gr; National and Kapodistrian University of Athens; 41 Ethnikis Antistassis Str., Daphne 17237, Athens, Greece.

Eriketti Margari: <http://orcid.org/0000-0002-9562-7177>; sportadmin@triathlon.org; National and Kapodistrian University of Athens; 41 Ethnikis Antistassis Str., Daphne 17237, Athens, Greece.

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