

## INJURIES AND AILMENTS OF THE POLISH PARTICIPANTS OF THE 2000 PARALYMPIC GAMES IN SYDNEY

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**Abstract.** The aim of this paper was to document the injuries and illnesses that occurred to Polish disabled competitors during the 2000 Summer Paralympics in Sydney and also to present the obtained results to the Polish authorities responsible for sports for the disabled so that paralympic competitors would be provided with continuous medical care in a professional way, which is extended to well-bodied athletes. The studies were carried out on 114 competitors that were under medical care during 23 days of the Paralympics i.e. from the departure for Australia till their return to Poland. They belonged to the following competition groups: with impaired sight, amputated limbs, paraplegia, cerebral palsy, and intellectual disability. The studies revealed that they sought medical attention most frequently due to injuries to the motor system, common colds and slightly elevated body temperature. Moreover, medical attention was needed for headaches, insomnia, and stomachaches after meals as well as cases of hypertension, ischialgia, abrasions and bruises, sores of the buttocks, and menstruation-related complaints.

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### Introduction

For many years, disabled athletes in Poland remained on the backstage of appropriately planned and organised sports medicine. In most instances medical care for them was provided only occasionally before the most prestigious sports events on the European or worldwide scale.

The ongoing co-operation between health care services and The Polish Association of Sports for the Disabled, Polish Association of Tennis on Wheelchairs, and Polish Public Sports Society started in 1998 with the foundation of the Polish Committee for Paralympics. The first seminar for doctors, physiotherapists, and classifiers for Paralympics training was held in June 1999.

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Also the Medical Commission was established at that time. Since then an organised medical care has been provided for athletes with impaired sight, movement deficits and mental disabilities who were chosen for the Polish National Paralympics Team.

During the training season before the departure for the XIth Summer Paralympics, Sydney 2000, all the competitors underwent periodical medical check-ups by specialists (depending on the nature of their disability). Dental work was also made. The health status of all the athletes qualified for the Paralympics was satisfactory.

During the Paralympics all 114 competitors were under medical care provided by two physicians and three masseurs who went to Australia with them. The aim of the present study was:

- to document the injuries and illnesses that occurred to Polish disabled athletes during the Summer Paralympics in Sydney in 2000.
- to present the results obtained to the Polish authorities responsible for sports for the disabled so that paralympic competitors would be provided with continuous medical care in a professional way, which is extended to well-bodied athletes.

### Materials and Methods

The studies were conducted on 114 disabled competitors belonging to: the Polish Association of Sports for the Disabled 72.8% (74.1% women, 72.4% men); Polish Association of Tennis on Wheelchairs 1.8% (men only, 2.3%); Polish Public Sports Society 25.4% (25.9% women, 25.3% men). The participants suffered from: sight impairment - 9.7% (3.7% women, 11.5% men); post amputation of upper or lower limbs - 19.4% (22.2% women, 11.5% men); post poliomyelitis - 10.5% (14.8% women, 9.2% men); post spinal cord injury - 10.5% (7.4% women, 11.5% men); other impairments of limbs - 18.3% (18.5% women, 18.4% men), cerebral palsy - 6.1% (7.4% women, 5.7% men); intellectual deficits - 25.5% (26.0% women, 25.3% men). Those competitors were selected for the respective sports in accordance with the functional classification of the International Paralympics Committee<sup>1</sup>. The Polish participants of the 2000 Paralympics in Sydney received medical care during the whole 23 days of the Paralympics i.e. starting from their departure from Poland to Australia (October 9th, 2000) till their return (October 31st, 2000).

The medical documentation gathered during the 2000 Paralympics in Sydney was analysed by the co-ordinator of the Polish medical staff. These data included:

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<sup>1</sup> IPC Handbook Part II – Section IV – Summer Sports (II ed. January 2000, IPC).



sex, age, type of disability, and kind of pathology, mechanism of injury, body parts and restrictions in the competitions.

The data published in the "Index of Polish Participants of the Paralympics"<sup>2</sup> were also taken into account. The data provide information on sports, competition groups in which they competed as well as their age during the Paralympics and duration of their regular engagement in sports.

## Results

**Table 1**

Sports in which the Polish participants competed during the XI Summer Paralympics, Sydney 2000\*

Sport	Paralympians				Total	
	Women		Men		n	%
	n	%	n	%		
Athletics	6	22.2	21	24.2	27	23.7
Swimming	8	29.7	15	17.2	23	20.2
Standing Volleyball	-	-	12	13.8	12	10.5
Basketball	-	-	12	13.8	12	10.5
(Intellectual disability)						
Table Tennis	7	25.9	5	5.7	12	10.5
Powerlifting	-	-	10	11.5	10	8.8
Fencing	3	11.1	6	6.9	9	7.8
Archery	3	11.1	3	3.4	6	5.3
Tennis	-	-	2	2.3	2	1.8
Shooting	-	-	1	1.2	1	0.9
Total	27	100	87	100	114	100.0

\*Based on:

"Index of the Polish participants of the Paralympics", available at the Department of Rehabilitation of the Academy of Physical Education in Cracow and is being currently updated.

<sup>2</sup> Remains in Department of Rehabilitation Academy of Physical Education in Cracow and is currently completed.



During the Paralympics the studied subject were engaged in 10 various sports: athletics - 23.7%, swimming - 20.2%, volleyball in standing position - 10.5%, basketball - 10.5%, table tennis - 10.5%, weightlifting in the supine position - 8.8%, fencing - 7.8%, archery - 5.3%, tennis on wheelchairs - 1.8% and in shooting - 0.9% (Table 1).

**Table 2**

Mean age of the Polish participants competing at the XI Summer Paralympics, Sydney 2000\*

Paralympians with disability	Women			Men		
	n	$\bar{x}$	SD	n	$\bar{x}$	SD
Organ of vision	1	19.0	-	10	24.0	5.3
Motor system	19	29.6	12.2	55	34.3	9.5
Intellectual	7	20.7	1.4	22	21.2	2.0
Total	27	26.9	11.0	87	29.8	9.8

\*Based on: see Table 1

The mean age of the Polish participants at the time of the XIth Summer Paralympics in Sydney was 27 years for women and 30 years for men. Women with sight impairment were 19; those with movement disability were above 30, and with intellectual deficit 21 years old. The age of men competing in various sports also varied depending on the disability group: those with impaired sight were 24, with movement difficulty 34, and those with intellectual deficit 21 years old (Table 2).

**Table 3**

Mean time of regular engagement in sports by the Polish participants competing at the XI Summer Paralympics, Sydney 2000\*

Paralympians with disability	Women			Men		
	n	$\bar{x}$	SD	n	$\bar{x}$	SD
Organ of vision	1	5.0	-	10	9.6	7.7
Motor system	19	10.4	6.9	55	13.4	9.5
Intellectual	7	4.6	1.7	22	4.5	1.6
Total	27	8.7	6.4	87	10.7	8.8

\*Based on: see Table 1



The mean duration of regular involvement in sports by Polish Paralympics Team members was 9 years for women and 11 years for men. The longest time from the injury to the time of the Paralympics for women with movement disability was 10 years, while for those with sight impairment and intellectual deficit was about 5 years. Men with movement disability had the longest history of training i.e. 13 years (Table 3).

**Table 4**

Competition groups in which the Polish participants competed at the XI Summer Paralympics, Sydney 2000\*

Competition groups	Paralympians				Total	
	Women		Men		n	%
	n	%	n	%		
Blind	1	3.7	10	11.4	11	9.6
Amputees	6	22.2	16	18.4	22	19.3
Wheelchairs	6	22.2	18	20.8	24	21.1
Les Autres	5	18.5	16	18.4	21	18.4
Cerebral Palsy	2	7.4	5	5.7	7	6.1
Intellectual Disability	7	26.0	22	25.3	29	25.5
Total	27	100	87	100	114	100.0

\*Based on: see Table 1

The participants of the Sydney 2000 Paralympics belonged to the following competition groups: suffering from sight impairment - 9.6%, post limb amputation - 19.3%, paraplegics - 21.1%, suffering from other movement impairments - 18.3%, cerebral palsy - 6.1%, intellectual deficits - 25.5% (Table 4).

Table 5 shows the illnesses and injuries requiring medical attention, which occurred to the Polish participants during the XIth Summer Paralympic Games in Sydney. The most frequent were consultations concerning injuries to the neuromotor system (46.5%) as well as those concerning occurrence of colds and elevated body temperature (32%). Moreover, some of them complained of headaches (6.6%), insomnia (6.6%), stomach aches after meals (3.7%), and ischialgia (3.7%). There were also isolated cases of hypertension, abrasions and bruises, sores of the buttocks, and menstruation-related complaints.



**Table 5**

Kinds of illnesses and injuries requiring medical attention during the XI Summer Paralympics, Sydney 2000\*

Kind of a complaint or injury	Consultations	
	n	%
Injuries to the motor system	125	46.5
Common colds and slightly elevated temperature	86	32.0
Head aches	18	6.6
Insomnia	18	6.6
Stomach aches after meals	10	3.7
Ischialgia	8	3.0
Hypertension	1	0.4
Abrasions and bruises	1	0.4
Blisters on the buttocks	1	0.4
Menstruation-related complaints	1	0.4
Total	269	100.0

\*Based on the medical documentation and an interview with Professor Romuald Lewicki MD (XII/2002), chief doctor of the Paralympics team

## Discussion

The main aim of our studies was to present an analysis of injuries and illnesses which occurred to the Polish participants during the XIth Summer Paralympics in Sydney in 2000. Although before the journey all 114 members of the Polish National Team passed their medical examinations, they required 269 medical interventions during the event. The most frequent causes for seeking medical advice were injuries to the motor system such as subdermal and intramuscular hematomas, sprains in the joint and cuts. Eleven consultations were needed due to torn ligaments that occurred during training sessions and two of our representatives were excluded from the final competition: including the five-time Paralympics medallists in weight lifting. There was only one case of abrasion and bruising. It is worth noting that there were no cases of broken bones among the Polish Paralympians during the Paralympics.

Other ailments, which could have affected participation in training sessions as well as in the events were infections of the upper respiratory tract (32% of all consultations), head-aches, sleep disturbances, dyspepsia, and aches of the lower part of the spine (20%). Those complaints indicated, most probably, the presence



of jet lag syndrome connected with the very long 35-hour trip. The prophylactic measures recommended by doctors preceding their departure and during flight proved insufficient to those numerous groups of persons.

Our results are similar to those previously reported in the USA [12], Great Britain [11] and Canada [3]. It is believed that the incidence of sicknesses and injuries increases in the competition season of important competitions. This is connected with stress, climate change, and diet.

Wright *et al.* [14] stated that after the trip from the USA to Germany 30% of soldiers had symptoms of jet lag syndrome. Similar results were also obtained when analysing data published by Ferrara *et al.* [7] (approx. 30%). In our study these symptoms were noted in as many as 52% of competitors. The majority of participants took part in the Paralympics for the first time. For many of them, this was the first in the lifetime so long a trip and it was complicated by changing flights at Frankfurt and Seoul. Nevertheless it may be stressed that only one paraplegic (out of 24) had got sores on his buttocks during the trip.

In comparison with the results obtained by Ferrara *et al.* [7] the number of injuries noted among the Polish participants was lower by 16% than in the USA team. These discrepancies could result from a different proportion of competitors belonging to various competition groups. In our population of athletes, the majority of competitors could move on their own (e.g. sight impairment 9.6%, cerebral palsy 6.1%, other injuries to the motor system 18.4%, intellectual deficits 25.5%). Only 21% of the participants used wheelchairs on a regular basis. Boninger *et al.* [1], Burnham *et al.* [2], Burnham and Steadward [4], Taylor and Williams [13] reported that incidence of injuries was greater in those who are wheelchair-dependent than in other participants.

The studies presented here are the first report in Poland accounting for competitors representing various groups competing in the Paralympics. Therefore, the results above cannot be compared with other studies on the same group of disabled paralympians. The majority of studies published to date have related to particular sports pursued by athletes on wheelchairs e.g. basketball [5,8], tennis [9,10] fencing, and track and field [10].

It is assumed that injuries occurring to disabled competitors are not much different from the sport injuries in healthy athletes and should not be treated as a separate entity [5,7,10]. However, a direct comparison of these two groups is impossible because there are no data on that subject concerning the able-bodied competitors in the available literature.

Our studies included only the time of the Paralympics. There is no information as to the injuries sustained in the preparatory period before the Paralympics. Based



on the interviews with the physician of the Polish Paralympics Team it appeared that there was no documentation on the injuries from that period in Poland. Perhaps this is connected with the opinion among the participants that their injuries do not constitute a serious problem, while fractures and dislocations occur extremely rarely [5,10].

The injuries are more frequent among less fit athletes with short training experience and with poor technical skills. It can be inferred from the questionnaire that the Polish participants of the Paralympics had exceptionally long training experience. The mean period of regular involvement in sports was 9 years for women and 11 for men. According to the medal classification the Polish Paralympians won 53 medals and took the 8<sup>th</sup> position out of 127 national teams.

On the other hand, the information given by Burnham *et al.* [2], Burnham and Steadward [4], Ferrara and Palutis [6], Taylor and Williams [13] that a large number of disabled competitors may suffer from injuries but do not report them and do not seek medical advice may suggest that a similar situation could have happened in the studied population. Among our national Paralympians there are opinions that revealing their indispositions might exclude them from the National Team selected for the departure for the Paralympics.

The medical care for Polish disabled members of the Paralympics Team, who prepared for the Sydney Paralympic Games in 2000, focused on planned, expanded periodical medical examinations (carried out twice) by the respective specialists. Dental care was also made available. Only healthy athletes were classified as eligible for the departure for Sydney. Therefore, some ailments occurring in those competitors after their arrival to Sydney may have been caused by their long journey.

### Conclusions

1. The studies revealed a large number of injuries sustained by the Polish National Team members during the Paralympics.
2. The disorders presented in this study, related to jet lag syndrome, indicate that it is necessary to provide disabled athletes with direct transport to the location of the Paralympics, which should substantially shorten the duration of their journeys. In exceptional situations, the chief of the Paralympics mission should arrange for rest necessary during prolonged journeys.
3. Following the binding principle according to which sports training and participation in competitions by the disabled cannot lead to negligence or worsening of the condition of their affected limbs, at least the same medical care





should be provided to disabled competitors as it is extended to Olympic Teams, which has not been observed in Poland so far.

4. It is recommended that injuries among disabled competitors should be monitored systematically not only during the Paralympics but also in their year-long training and competition cycles.

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