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Original Research Article

Medical care during preparations for Paralympics in Beijing 2008 (athletes' opinions)

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ABSTRACT

Introduction: Contemporary sport practiced by people with disabilities at the Paralympic level requires multi-specialized medical care similar to that of the Olympic sport, not only during the Games but mostly during the entire 4-year training program period. A medical team, managed by a physician, should also include a physiotherapist and at least a psychologist and a dietician.
Aim: This work aimed at evaluating the conditions which were provided for Polish athletes within the scope of medical care during preparations for the Summer Paralympic Games in Beijing 2008.
Materials and methods: In total, 89 athletes participated in the study: 31 females and 58 males, which constituted 97.8% of all Polish athletes taking part in the Games. These athletes represented 11 disciplines. The average age of the studied subjects was 32; the average period of practicing a sport as a competitor was 12 years. This study was conducted by the diagnostic survey method employing a questionnaire form authored by J. Kłodecka-Różalska.
Results and discussion: The conducted data analysis demonstrated that the athletes negatively evaluated access to medical care and means accelerating biological/ functional recovery after training sessions and competitions. Moreover, they did not positively assess cooperation with a physiotherapist and a masseur. During the preparatory period they also lacked consultations with a psychologist and a dietician.
Conclusions: It is suggested that the disabled sport federations and associations employ this detailed analysis of the conditions concerning medical care as a research material in order to obtain funds for initiating advantageous organizational changes

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for those athletes who will be selected for the national team competing in the next Paralympic Games.

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1. Introduction

Contemporary professional sport, including disabled athletes sport at the paralympic level, is characterized by an increase in training stress and strain, resulting in the increased risk of motor organs damage and body overload. Thus, continuous care during sport training is crucial.[5] It requires the involvement of a medical team managed by a physician – a sport medicine specialist. The team should consist of a physiotherapist, a psychologist, a dietician and other specialists acting as consultants, including a dentist and orthopedic specialists. Furthermore, it would be advisable if the entire team was supported by such specialists in particular branches of science as: an effort physiologist, a sport psychologist, a biochemist, a bio-mechanic, and a bio-engineer.[13] It must be emphasized that the members of the above-mentioned team should possess knowledge regarding specific medical problems depending on athletes' disabilities, e.g., autonomic dysreflexia, orthostatic hypotension, neurogenic bladder, and bone density.[26]

The depicted conception was not implemented in Polish sport with regard to disabled athletes. Medical care was usually limited to sporadic examinations of athletes[23] and mainly focused on ensuring medical safety directly before and during the Paralympic Games.[22]

Poland, until recently, lacked legal regulations specifying the range of treatment and care of disabled athletes. It was not resolved by the Ministry of Sport ordinance concerning medical care provided for both the national team of disabled athletes and the paralympic team. The item "medical care embraces health prophylaxis, treatment, rehabilitation and the actions coordinating the process of treatment and rehabilitation – provided by the Health Centre of Sport Medicine in Warsaw"[17] remained a dead regulation, completely divergent from reality. The appointment of two physicians–coordinators in 2007 by the Polish Paralympic Committee (PPC) was only a partial solution. In practice, their activities were mostly limited to anti-doping education during their visits at training camps and in becoming familiar with disabilities and health conditions of athletes, as well as in taking actions if athletes preparing to compete during the Paralympic Games in Beijing in 2008 developed some afflictions.[9] The issue of ensuring systematic and organized medical care by sport clubs and associations raised many objections from athletes and their coaches. This was also true with respect to accessibility to a physician or a physiotherapist and consultations with a psychologist or a dietician.

2. Aim

This work aimed at evaluating the conditions which were provided for Polish athletes within the scope of medical care during preparations for the Summer Paralympic Games in Beijing in 2008.

3. Materials and methods

3.1. *Subjects characteristics*

The study involved 89 athletes (31 females and 58 males), i.e., 97.8% of all Polish athletes preparing for the 2008 Beijing Paralympic Games. The average age of respondents was 32 (15–51 years), whereas the average sports training experience was 12 years. The studied athletes had two major types of disabilities: damage to the musculoskeletal system (85.4%) and impaired eyesight (14.6%). They were characterized by various education degrees, but most of them had completed general secondary school (about 34%) and higher education (about 22%).

3.2. *Study methods*

On the basis of the documentation of the Polish Sports Association for the Disabled "START," a list of competitors qualified for the national team for the XIII Summer Paralympic Games – Beijing 2008 was prepared, which comprised 91 persons: 33 females and 58 males. Athletes of 11 individual disciplines represented the following sports' associations: Polish Sports Association for the Disabled "START," Polish Wheelchair Tennis Federation, Physical Education, Sports and Tourism Association of the Blind and Partially Sighted "Cross," and The Association of Equitation of the Disabled "Hippoland."[15]

Having received official approval from the authorities of the aforementioned associations, coaches and then athletes were studied. Only 2 women out of the original 91 subjects did not participate in the research.

The study was conducted during the camps that were organized about 1 month before departure for the Paralympic Games. The method of diagnostic survey was applied through the use of a questionnaire devised by J. Kłodecka-Różalska and adapted to the needs of athletes with disabilities with consent of its author.[24] The examined individuals evaluated conditions offered to them during the preparations to Paralympic Games by means of a 5-point scale: 5 – very high, 4 – high, 3 – average, 2 – poor, and 1 – definitely negative.

Data generated from the questionnaire forms referred to the accessibility to: medical care, means of accelerating biological/functional recovery after training sessions and competitions and cooperation with physiotherapist, masseur, sport psychologist and dietician. Subsequently the collected data was categorized and presented in percentage values for each evaluation category marked by respondents (on a 5-point scale). Arithmetic mean was calculated from the sum of individual evaluations concerning conditions in which Polish athletes trained. Taking into consideration the

interpretation of mean values, 3 condition categories which were offered for the Polish representatives during paralympic preparatory period were differentiated: satisfactory (5.0–4.1); sufficient (4.0–3.0) and insufficient (2.9–1.0).[24] In addition, for each averaged opinion describing preparatory conditions, the consistency of answers provided by particular subjects was examined. The opinion was considered as coincidental if the range of trust for the average was lower than 1.0 ($\alpha=0.05$).

4. Results

The availability of medical care for the athletes who had been qualified for the national team was evaluated at first (Fig. 1). The examined athletes' opinions were differentiated – from very high to definitely negative (average – 2.4). Negative opinions prevailed – 39%, 21% of the respondents indicated that the accessibility was poor, 11% – high and 14% – very high.

Similar differences in the evaluation were noticed in particular groups of examined athletes. Every other man was definitely dissatisfied with access to medical care (50%), and among women it was every 5th person (approx. 19%).

Further analysis of the data also demonstrated a high level of dissatisfaction (Fig. 2). According to the examined athletes, the means of accelerating biological/functional recovery they were provided with after trainings and competitions in the preparatory period for the Paralympic Games satisfied their needs only at the sufficient level (approx. 3.1). Among positive

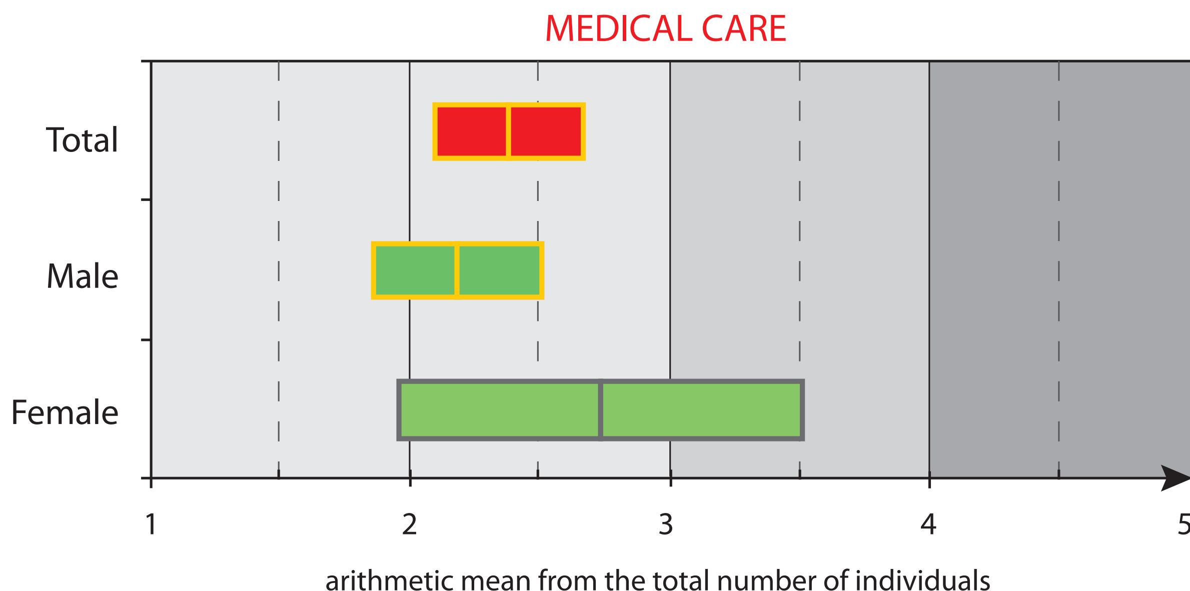

Fig. 1 – Evaluation of accessibility to medical care provided for athletes during the Paralympic Games preparation period ($p<0.05$ for the total number of the studied subjects and males).

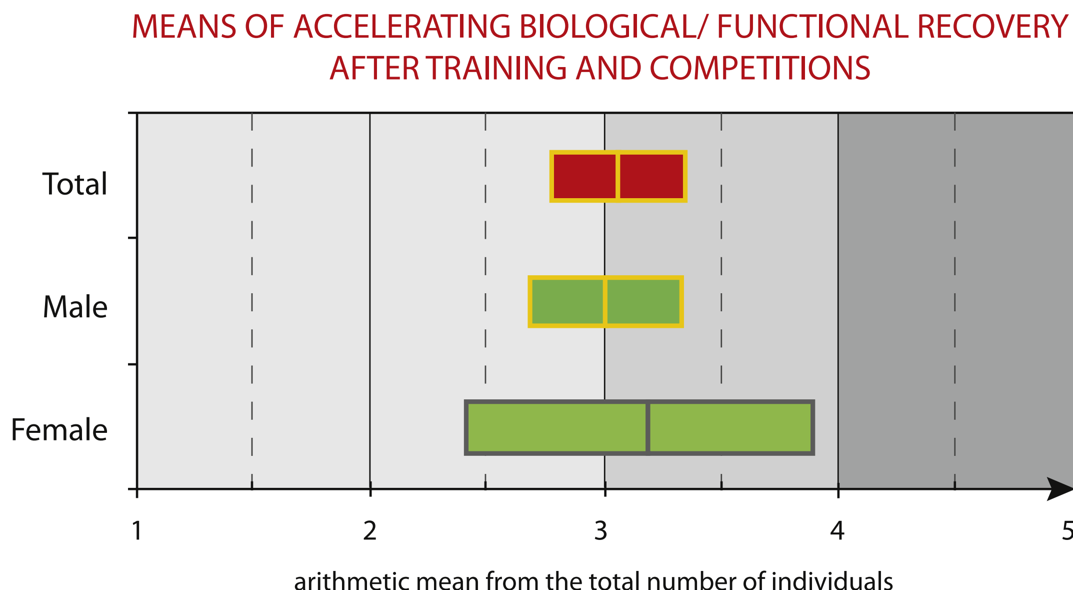

Fig. 2 – Evaluation of accessibility to the means of accelerating biological/functional recovery provided for athletes during the Paralympic Games preparation period ($p<0.05$ for the total number of the studied subjects and males).

opinions, the average ones prevailed – approximately 26%. About 18% of these athletes expressed definitely negative opinions.

Some differentiation was noticed when the scores of males and females were considered (average: 3.2 and 3.0, respectively). About 10% fewer women evaluated this issue as very good, and there were 12% fewer negative opinions among women.

It can be stated that only 56% of the athletes who were preparing to start in the Paralympic Games could count on cooperation with a physiotherapist (Fig. 3). Their opinions were divided from highest ranks (approx. 15%), through average ones (9%), to lowest ones (10%). The mean value was 3.2.

A similar situation occurred in groups of examined females and males (average: 3.4 and 3.1, respectively). Physiotherapy treatments in the period of paralympic preparations were guaranteed for less than 65% of female athletes and the number of males was lower by 13%.

Not all the athletes who were appointed to the national team had an opportunity to cooperate with a masseur (Fig. 4). During the preparatory period, only about 74% of athletes underwent massage treatments. It was noticed that the examined athletes varied in their evaluations. Among positive opinions, the ones which were very high constituted 25%, average ones constituted 10% and lower ones – 15%. Definitely negative opinions also appeared (9%).

Despite a considerable differentiation of particular evaluations, the average was the same for both male and female athletes.

On the basis of the obtained data, it can be concluded that not all competitors cooperated with a psychologist and a dietician. Such consultations were provided only to a limited number of athletes (18% and 11%, respectively). The opinions concerning this cooperation varied from very high to definitely negative ones (Figs. 5 and 6).

5. Discussion

According to Maddena[13] and Makowski,[14] it is necessary to establish a medical team in order to ensure proper training conditions for disabled athletes and, most of all, medical safety. This team should consist of a physician – a sport medicine specialist and also other consultant physicians and specialists in the fields of physiotherapy, physiology, psychology, and nutrition.

According to Dziak,[4] a physician's presence during trainings or competitions, if there is such a need, results in a quicker diagnosis and implementation of essential aid. This researcher also claims that prevention of chronic damage is very important in contemporary professional sport with respect to people with disabilities.

DePauw and Gavron[3] direct attention to the fact that disabled athletes who are in the process of preparing for competitions should not only be provided with basic rehabilitation treatments but also with massages and other physical treatments applied for the purpose of accelerating the process of an organism's recovery after intense trainings. Salvary's research[19] conducted on disabled athletes confirmed that a professional sports massage had a positive influence on efficiency and supported the training process of the athletes. Schlossberg[20] also paid attention to the positive influence of a massage and other means of accelerating biological/functional recovery. This very poor evaluation of medical care by Polish paralympians in Beijing 2008 arouses concern, especially when confronted with the Ministry of Sport ordinance concerning the medical care of both the national team of disabled athletes and the paralympic team implemented on January 8, 2007.[17] The quoted ordinance that had been put forward in order to guarantee disabled athletes not only initial, periodical or occasional check-ups, but also constant medical care embracing both professional prophylaxis and

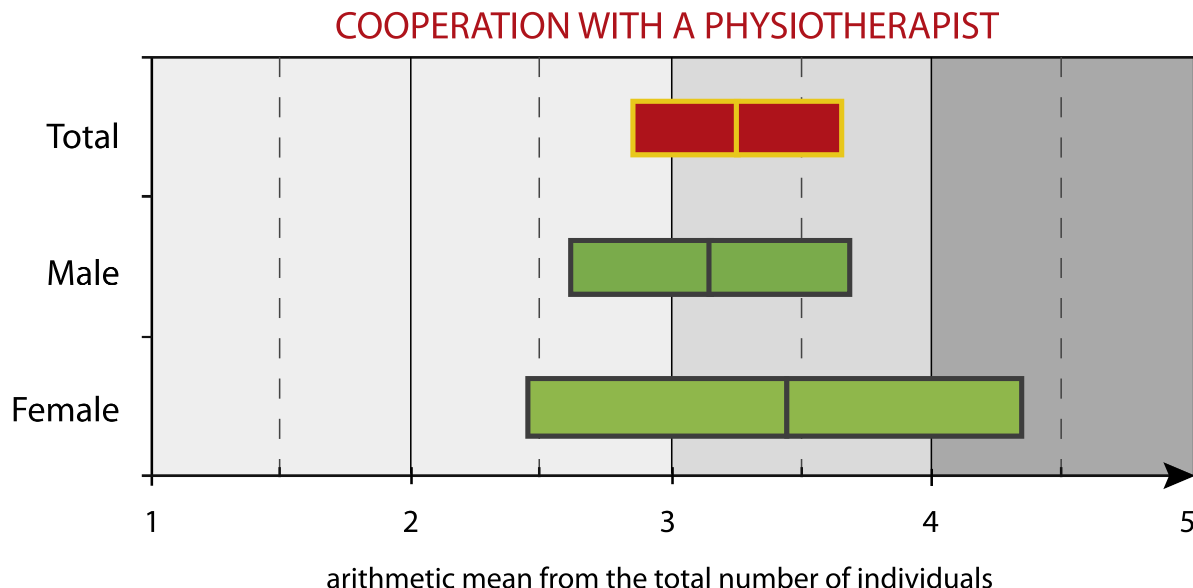

Fig. 3 – Evaluation of cooperation between a physiotherapist and athletes training to participate in the Paralympic Games ($p<0.05$ for the total number of the studied subjects).

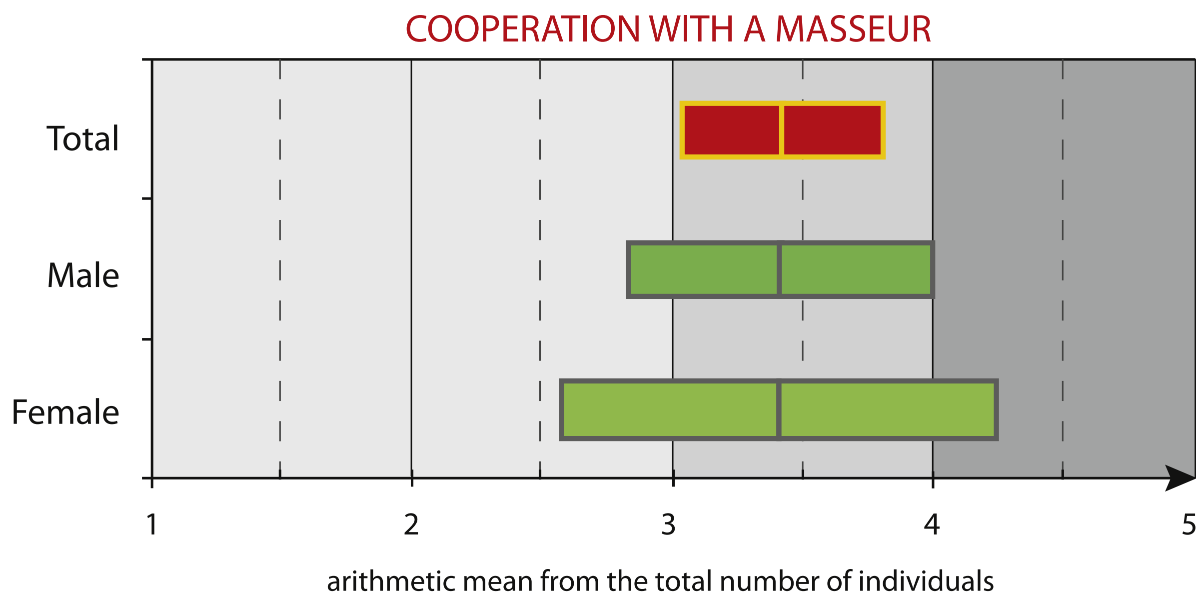

Fig. 4 – Evaluation of cooperation between a masseur and athletes training to participate in the Paralympic Games (*p* < 0.05 for the total number of the studied subjects).

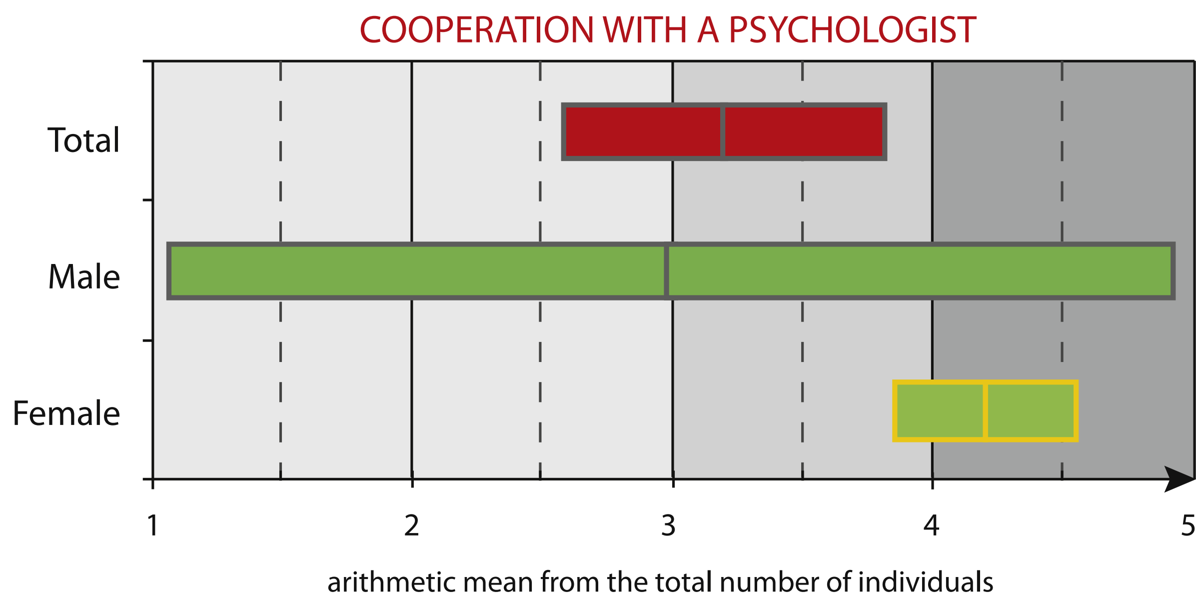

Fig. 5 – Evaluation of cooperation between a psychologist and athletes training to participate in the Paralympic Games (*p* < 0.05 for the total number of the studied females).

treatment together with rehabilitation, completely diverged from reality.

In the athletes' opinions, because prophylactic and proper medical and rehabilitative care was neglected, they suffered from many health problems.[23] Other studies point out that in Polish sport there is no systematic monitoring of injuries and illnesses that athletes develop during an annual training and competition season.[21] Moreover, during direct preparations prior to the Paralympic Games in Athens, medical care and cooperation with a masseur were not always provided. The representatives suffered from the lack of consultations with a physiotherapist and a psychologist.[22] Hence, it was justified that the athletes who belonged to the national team in the years 1992–1998 and 2000–2002 postulated that it was necessary to ensure proper prophylactic and medical care for disabled athletes.[24]

Gawroński,[8] who was in charge of the medical team at the Polish paralympic mission in Beijing 2008, paid attention to the lack of proper sport and medical care. According to him, it was a serious problem that only about 10% of the Polish representatives underwent reliably conducted periodical examinations. This negatively influenced the Polish medical mission's further work. Availability of a polyclinic, providing full diagnostics, located in the Olympic Village, inspired many competitors to broaden their knowledge about their organisms, even with regard to unknown afflictions, during

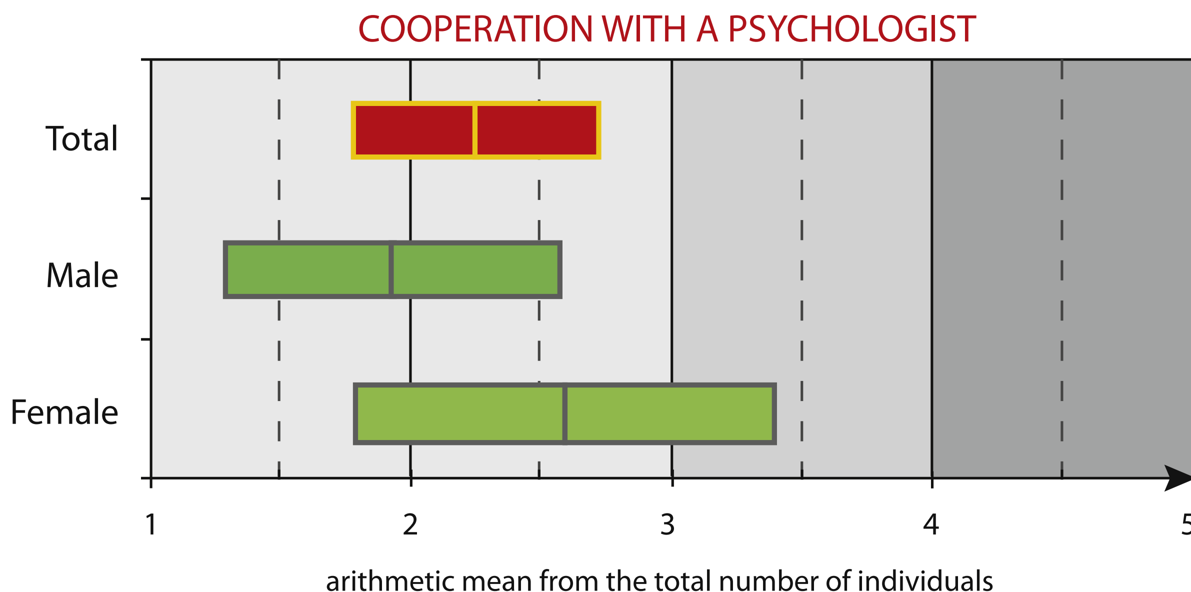

Fig. 6 – Evaluation of cooperation between a dietician and athletes training to participate in the Paralympic Games ($p < 0.05$ for the total number of the studied subjects).

a pre-start period. Consequently, many of them asked for being diagnosed, which – according to Gawroński[8] – should have been done in their own country.

During the athletes' paralympic preparation, their mental abilities should also be taken into consideration. Porter[16] confirms this opinion stating that success in sport is not only an effect of training an athlete physically, but is also related to their mental preparation and current disposition. Unfortunately, according to the data gathered during this research, only 1 out of 10 paralympians was guaranteed cooperation with a psychologist. According to Kłodecka-Różalska,[11] medical care is absolutely necessary in the preparatory period prior to competition, as it allows athletes to maximize their efforts to be fit. Herzig[10] additionally claims that a psychologist should play the role of an impartial observer who would be able to evaluate and influence the relations between a coach and an athlete.

It is disturbing that the majority of the examined athletes (approx. 72%) during the preparatory period were not provided with consultations with a nutritionist. According to Lane,[12] a dietician should be included in the team responsible for preparing athletes for the Paralympic Games. DePauw and Gavron[2] claim that nutritionists' recommendations should be imperatively included in the athletes' menu, because some athletes – because of their disabilities and the kind of medications they take – need individual diets. This problem should be immediately resolved, as aid given to athletes in terms of nutrition is absolutely vital due to their extended duration trainings.[1]

Today, paralympic sport does not vary from the professional sport of able-bodied athletes. In order to achieve success, all athletes must undergo harder and harder trainings. Under these conditions it is necessary, during the next preparatory period, to implement the conception of creating a medical commission of the Polish Paralympic Committee.[6] The presupposed aim – of organizing the system of sport and medical care for those athletes belonging to particular paralympic disciplines with the prospect of their participation in Paralympic Games – should be realized and executed by disabled sport associations.[7]

However, fulfilling these presupposed aims is unfortunately very difficult. The new Act on Sport (June 25, 2010) connected the sports of able-bodied and disabled athletes.[25] This is evident in the following quotation from the Minister of Health ordinance: "concerning the range and way of implementing medical care for athletes qualified for the national team in Olympic and Paralympic sports" – dated April 14, 2011.[18] Regulations that were put forward in this Act guarantee disabled athletes access to periodical examinations and medical care financed from the national budget, but only in the Health Centre of Sport Medicine in Warsaw, which still does not solve the discussed problem. Taking into consideration the aforementioned conditions, it seems that medical care guaranteed by Polish legislation is not fully satisfactory, despite legally binding rules, because it is not practically compatible with the specificity of the disabled athletes' sport.

6. Conclusions

1. The organizing and training authorities that were responsible for paralympic preparation did not guarantee all nominated athletes sufficient cooperation with a physiotherapist or a masseur.
2. Cooperation with a psychologist and a nutritionist was limited and provided only for some athletes.
3. It is suggested that sports associations of disabled athletes should employ this detailed analysis of the conditions concerning medical care in order to co-opt the financial means intended for introducing advantageous organizational changes for those athletes who are selected in the national team for the next Paralympic Games.

4. It is necessary to introduce changes in the regulations concerning the range and the manner of providing medical care for those athletes qualified for the national team in both Olympic and Paralympic sports. These changes should enable disabled athletes to undergo medical examinations and to obtain medical care in other clinics apart from the Health Centre of Sport Medicine in Warsaw.

Conflict of interest

None declared.

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