



University of Physical Education in Krakow, Poland

Studies in Sport Humanities

24

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Kraków 2018

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From the Editor



Studies in Sport Humanities is a scientific journal that publishes original works regarding physical culture prepared on the basis of a multidisciplinary approach (including the perspectives of history, psychology, sociology, philosophy, cultural anthropology, Olympism, physical education theory, recreation and tourism theory, as well

as management sciences). The journal includes book reviews, polemics, conference proceedings and reports from other important scientific events. Detailed guidance for preparing texts, procedures for reviews and other editorial requirements can be found in the publishing regulations.

Issue No. 24 of *Studies in Sport Humanities* contains texts on the historical, psychological and sociological aspects of physical culture.

Here, the reader will find an article showing the Alpine context of the development of mountaineering until 1914. The reference to sport psychology is visible in the text about the personality and temperamental conditions of coping with stress by female and male footballers. The issue also presents the issue of extremely popular social media and their role in promoting a healthy lifestyle and undertaking physical activity. The issue is completed by an account of the international conference devoted to the International Olympic Academy.

The journal is published by the University of Physical Education in Kraków. The journal is indexed in the Index Copernicus international database. Since 2016, the journal has only been published in electronic version (open access). We warmly invite you to submit texts related to social studies and the humanities, linked with the broadly understood notion of physical culture.

Editor-in-Chief

A handwritten signature in blue ink, which appears to read 'Jan Blecharz'. The signature is written in a cursive style with a horizontal line underneath.

Associate Professor Jan Blecharz, Ph.D

The Alpine context of the development of Polish mountaineering up to 1914

Ewa Roszkowska

Department of Alpinism and Qualified Tourism, AWF – University of Physical Education in Kraków

From the very beginning, the interest of the Polish society in the Tatra Mountains was inspired by the Alpine example. The Tatra Mountains, alike the Alps, were a natural obstacle, with the difference that it was easier to get around them than to cross them. Because of this, for a long time, knowledge about them was faint, often false. Such Tatras were tackled by Stanisław Staszic. He did not get there by accident. Before he found himself in the Tatra Mountains, in 1781, he made a geological journey through the Alps and the Apennines. Thus, he was in the highest mountains of Europe when the first steps in their exploration were made, and the multi-volume work of the Geneva naturalist, geologist and initiator of conquering Mont Blanc – Horace-Bénédict de Saussure – *Voyages dans les Alpes*¹, became a popular work. He was also interested in the work published by Georges Buffon – *Les Époques de la Nature* (Theory of the Epochs)², which had impact on his interest in the Tatras:

“With frequent conversations with [Buffon] about this work, I thought of translating [sic!] the Epochs of Nature into my native language. Then, visiting the mountains of the Alps and the Apennines, and when I returned to the country, convinced me that this theory of epochs is witty, but incompatible with nature. This perception drew my attention more and more to the recognition of the ‘dirt’ of the Carpathians. In this intention, I began to collect all geological remarks, both in my own country and when revisiting Italy, the Alps, the Apennines, Vesuvius and Mount Etna. In the end, vis-

iting our native Carpathians for several years, led me to publish the work: “*O ziemiorodztwie Karpatów i ziemi dawnej Sarmacji*” [“On the Carpathian Lands and Old Sarmatia”]³”.

With this work, his readings and practical activities in the mountains, Staszic drew the attention of the Polish society to the Tatra Mountains. How strong this impact was is best demonstrated by the fact that, after many years, he was called “the father of Polish mountaineering”. In fact, mountaineering as an independent discipline developed almost a century later. Nevertheless, others followed his example. This interest of the Polish society in the Tatras was reinforced by press publications and literature as well as the cultural philosophy of the era – the Tatras began to play the role of an important place for the life of our nation. However, it was realised that in order for the upper layers of Polish society not to go to foreign waters or to go to the Alps, it was necessary to organise tourist traffic and develop the Tatra mountains. Efforts have been made to create a society to meet these tasks. And in this matter, Western European influences are visible. It is true that Polish historiography of Tatra tourism and mountaineering⁴ gives priority to the establishment of the Tatra Society to Feliks Pławicki – captain of the Austrian army, deputy to the National Sejm from the new area, in fact, there were more sources of inspiration. The first proposal is owed not to Pławicki, but to a great lover of nature, a physician of the Austrian army, Dr. Heinrich Wallmann⁵, who in the years 1867-1869, served in the 80th Infantry Regiment of the Imperial-Royal Infantry army stationed in

¹ H.B de Saussure, *Voyages dans les Alpes. Précédés d'un sur l'histoire naturelle des environs*, Vol. 1-4, Neuchatel 1779-1796.

² G. L. Leclerc comte de Buffon, *Les Époques de la Nature*, Paris 1778.

³ J. Klaczko, *Autobiografia Staszica*, “Goniec Polski” [“The Polish Messenger”], 1850, Vol. 130, 131. Given as: P. Daszkiewicz, R. Tarkowski, *Poszukiwania śladów Stanisława Staszica we Francji*, “Przegląd geologiczny” [Finding the Traces of Stanisław Staszic in France, “Przegląd geologiczny”] 2005, Vol. 53, issue 11, p. 1023.

⁴ *Sprawozdanie z czynności Towarzystwa Tatrzańskiego za czas od 3 sierpnia 1873 do 28 maja 1876*, “Pamiętnik Towarzystwa Tatrzańskiego” 1876 [“Report on the Activities of the Tatra Society from 3rd August 1873 to 28th May 1876”, “Diary of the Tatra Society” 1876], pp. 4-22; J. G. Pawlikowski, W. Szajnocha, *Czterdzieści lat istnienia Towarzystwa Tatrzańskiego w Krakowie 1873-1913* [“Forty Years of the Tatra Society's Existence in Krakow 1873-1913”], Kraków 1913; J. Reychman, *Początki Towarzystwa Tatrzańskiego*, „Wierchy” 1948 [“Beginnings of the “Wierchy” [“Peaks”] Tatra Society”], pp. 36-40. This issue is slightly more broadly tackled by W. H. Paryski, *Początki Towarzystwa Tatrzańskiego i Zakopane*, „Wierchy” [“Beginnings of the Tatra Society and Zakopane, “Wierchy” [“Peaks”]”] R.47:1978, pp. 20-32.

⁵ Dr Heinrich Wallmann (* 1827 in Mattsee, † 1898 in Wien), alias Heinrich von der Mattig – military doctor, poet, journalist.

Košice, where he was a doctor⁶. It was then that he met the Tatras and gave into their charm. He also noted that to arouse more interest among the public, they must be managed. How much this issue was in his heart, is indicated by him taking action to promote the Carpathians, and particularly, the Tatra Mountains. In Vienna, "Der Tourist" published an article about the Tatra Mountains, at the end of which he emphasized how useful and advisable it would be to put the idea of creating an organisation surrounding the care of the Carpathians with the model *Österreichischer Alpenverein* into practice (*ÖAV*, Austrian Alpine Association) as an example. Although Pest was proposed as the headquarters of the future society, it was to cover the entire area of the Tatras and Pieniny mountains⁷. Wallmann's appeal did not bring an official response, although it cannot be ruled out that there were people interested in the proposal. That is why 2 years later – in 1871, together with Gustav Jäger, founder of *Österreichischer Touristenclub*, Wallmann issued an appeal (in German, Polish and Hungarian) calling for the establishment of such an organisation, emphasizing its international character. It appealed to the patriotic feelings of all nationalities living in the Carpathians. It presented the objectives, tasks of the future society, the means of achieving them, its structure⁸. Among the few replies, one came from Galicia. It is widely accepted that its author was Józef Stefan Szalay – the owner of Szczawnica⁹. The initiative of Wallmann and Jäger resulted mainly in Spisz – it became a direct impulse for actions to establish the Hungarian Carpathian Society¹⁰. Regardless of Sza-

lay's decision, willing to cooperate with Hungary, about the need to establish a "society connecting all lovers of the Tatras"¹¹ was discussed in 1871 by Adolf Tetmajer and Karol Rogawski¹². Although their project was not implemented, the idea was not abandoned. At the same time, they also wondered whether to create their own society or a joint venture with Hungary. Polish efforts were intensified when it turned out that the efforts of Hungarians and Spis Germans were successful in this field.

The second source of inspiration came from Italy. Founded in Turin in 1863, *Club Alpino Italiano* (CAI), in addition to supporting the development of interest and access to the mountains, showed patriotic tendencies from the beginning. This attitude had its roots in the political history of Italy – in the struggles for independence and unification of the state. Therefore, it seems that the similarity of the political situation in Italy and Poland as well as private contacts with Poles, had impact on the interest of CAI in establishing a society to include the Carpathians. The most suitable person in the Italian environment at the time was a Neapolitan, a member of the CAI Section in Naples – Vincenzo Vittorio d'Arnese¹³. By decision of the 6th CAI Congress held in Bormio at the beginning of August 1873 – around the same time as the party was held in the Zakopane Zwierzyniec¹⁴ – Arnese was formally obliged to support activities to create the TT¹⁵. Chronologically, the Italian initiative was earlier than the idea by Feliks Pławicki¹⁶. Nevertheless, the found documents indicate that Arnese probably did not join the TT organisation process until 1874¹⁷. At

⁶ *Militär-Schematismus des Österreichischen Kaiserthumes für 1867*, Wien 1866, s. 336-337, 631; *Militär-Schematismus des Österreichischen Kaiserthumes für 1868*, Wien 1867, pp. 362-363.; *Kais.-Königl. Militär-Schematismus für 1869-1870*, Teil I, Wien 1870, p. 790; *Kais.-Königl. Militär-Schematismus für 1871*, Wien 1871, pp. 427, 799; *Kais.-Königl. Militär-Schematismus für 1869-1870*, *op. cit.*, pp. 429, 790 *Kais.-Königl. Militär-Schematismus für 1869-1870*, *op. cit.*, pp. 429, 790.

⁷ H. Wallmann, *Die Hobe Tatra*, "Der Tourist" 1869, issues 17-18, pp. 271-272.

⁸ German version of the response: *Aufruf zur Gründung des Karpathenvereins* published by T. Posewitz, *Geschichte des Ungarischen Karpathenvereins seit seinem Bestande*, part 1: *Vorläufer der Gründung eines ungarischen Karpathenvereines*, "Jahrbuch des Ungarischen Karpathenvereins" 1894, pp. 3-6 (footnote 3).

⁹ It, however, was not possible to find this letter – it is quite probable that it did not survive. Its existence is also mentioned by Hungarian materials (T. Posewitz, *Geschichte des Ungarischen Karpathenvereines ...*, *ibidem.*). There were also doubts regarding authorship: with Wallmann, in the 80th Infantry Regiment, served lieutenant Joseph Szalay; there is a supposition that this letter could have been authored by that Szalay, and not the owner of Szczawnica.

¹⁰ T. Posewitz, *ibidem.*, fragments of *Die Gründung des ungarischen Karpathenvereines* and *Die konstituierende General-Versammlung*, "Jahrbuch des Ungarischen Karpathenvereins" 1894, pp. 8–12.

¹¹ J. Reychman, *Początki Towarzystwa Tatrzńskiego* [The Beginnings of the Polish Society], [in:] *Z kart "Wierchów"* [From the Pages of "Wierchy" ["The Peaks"]], part: *Powstanie i ideologia Polskiego Towarzystwa Tatrzńskiego* [The Uprising and Ideology of the Polish Tatra Society], Warsaw-Kraków 1984, p. 7.

¹² J. Reychman, *Początki Towarzystwa Tatrzńskiego*, "Wierchy" [The Beginnings of the Polish Tatra Society "Wierchy" ["The Peaks"]] 1948, p. 36) and W. Krygowski (*Zarys dziejów polskiej turystyki górskiej* [An Outline of the History of Polish Mountain Tourism], *op. cit.*, p. 40), in their works, they give the name J. Rogowski. Meanwhile, as shown – referring to the note by Walery Eljasz, *Początek i rozwój Towarzystwa Tatrzńskiego* [The Beginning and Development of the Tatra Society] – W.H. Paryski, meaning Karol Rogawski (1819-1888), archeologist and political activist. W.H. Paryski, *Początki Towarzystwa Tatrzńskiego i Zakopane*, „Wierchy” [The Beginnings of the Tatra and Zakopane Society, "Wierchy" ["The Peaks"]] 1978 (1980), p. 24, (footnote 11).

¹³ In Poland, he was known as Wincenty Arnese.

¹⁴ Polish elaborationhs assume that it was at the initiative of F. Pławicki that the TT organisation began, cf.: B. Chwaściński, *Z dziejów taternictwa. O górach i ludziach* [From the History of Mountaineering. About Mountains and People], Warsaw 1979; V. Arnese, *Avant, durant et après la révolution polonaise de l'année 1863*, Posen 1882, p. 46; Z. Radwańska-Paryska, W.H. Paryski, *Wielka Encyklopedia Tatrzńska* [The Great Tatra Encyclopedie], Poronin 1996, p. 948.

¹⁵ *Club Alpino Polacco*, "Bollettino del Club Alpino Italiano" 1875, pp. 326-327, see also "Bollettino del CAI" 1875, p. 407.

¹⁶ L. Świerż, [An Outline of the Tatra Society Activity During its First Decade (from 1874 to 1883)], "Pamiętnik Towarzystwa Tatrzńskiego" ["Diary of the Tatra Society"] 1885, Vol. 10, p. 95.

¹⁷ V. Arnese's letter to the CAI administration from April 1874, V. Arnese, *Avant, durant et après ...*, *op. cit.*, p. 58.

that time, in April 1874, Walery Eljasz was interested in the information obtained from documents sent by the CAI, as well as the statutes of other Alpine societies. This probably caused the imperfections of the first statute, and thus, the structure of TT, to be realised and the first general assembly of members was asked to revise the existing statute¹⁸. Finally, a new statute was created, which explicitly made use of the provisions of the Italian statute and the tasks posed by the CAI. This convergence is perhaps the result of cooperation between Arnese and Eljasz, and Eljasz's in the creation of the Statute. Arnese, as the CAI official delegate¹⁹, on May 10, 1874, began the first assembly of the founders of TT, congratulating on behalf of Alpine associations²⁰.

And thus, the process of organising people fascinated by the Tatras was given an outline of Alpine societies. The situation repeated itself at the beginning of the 20th century, when it was decided to create an organisation to support the development of mountaineering as an independent discipline, independent of tourism²¹.

For many years, synonyms for mountaineer and mountaineering were the concepts of tourist, tourism, probably adopted from Western European experiences (Tourist, *Hochtouristik*). These two terms for a person wandering in the Tatra Mountains – a tourist, mountaineer – began to diverge significantly at the turn of the 19th and 20th centuries. However, it was not easy to replace the mountain travel model created by Tytus Chałubiński. When he arrived in Zakopane for a longer stay in 1873, Chałubiński already had some knowledge about the mountains, mountain experience and, as it seems, a crystallised view on the importance of mountains in human life²². He wandered around the Pyrenees (1859, 1869), the Central Massif in Auvergne (1868). There, he most likely confirmed his belief that the mountains are a remedy for all human ailments – they heal not only the body, but also the soul. This idea became the leitmotiv of his Tatra activities, and its practical expression – the famous “trips without a programme”. They were dependent on a highlander guide, whose hands were entrusted with the preparation and safe conduct of the trip, so that its participants could fully devote themselves to contemplating the charm of the Tatra Mountains and experiencing unusual understand-

ing. Emphasis was also placed on the emotions one experiences under the influence of the beauty of the view from the summit. From there, peaks were chosen as the target, from which the view was the widest. The entry route was irrelevant, which is why the most common were the already known routes.

The vision of new goals for mountaineering as a specialised form of tourism was initiated by Jan Gwalbert Pawlikowski. He was the first to turn towards the secondary in terms of height and irrelevant in terms of view, but technically difficult peaks. He did not, however, have successors. Ludwik Chałubiński, Karol Potkański and Władysław Kleczyński also failed. It seemed that the possibilities of developing Tatra tourism had ended. Looking for a way out of the situation around 1899-1900, it was realised that “the further development of Tatra tourism must follow a line of freeing oneself from the template of the current rules of walking in the mountains and getting closer to these slogans and methods of combating the power of Skalnemia (the Polish language from the interwar period) that prevailed then in Western European alpinism”²³.

At that time, European mountaineering began to evolve into sport. The symbol of this new orientation was turning to the difficulties of independently overcoming the terrain (*Schwierigkeitsalpinismus*) and, i.e. without the help of a guide, undertaking climbing (*Führerlose Bergsteigung*). At the root of this development of alpinism was the “exhaustion” of mountaineering problems, such as unconquered peaks, or easier accessibility of the mountains due to the opening of railway lines leading to the Alps, and even crossing their main ridge, as well as the fact that new generations entered the mountains already discovered, researched and described – there were not only accurate maps of individual regions, but also tourist guides, not to mention the specialised press, giving a number of practical tips for mountain activities. The socio-cultural and political situation of individual nations approving the search for risky and dangerous challenges was also important. On a massive scale, they began to climb the already conquered peaks by other, more difficult routes, looking for secondary alps as to height, but looking inaccessible. Winter climbing and skiing were also of interest as a form of mountain ex-

¹⁸ This regarded not only limiting the rights of the founders, but giving the company nationwide character limited by the name (Galicyjskie Towarzystwo Tatrzańskie [The Galician Tatra Society]), and the possibility of creating local circles and delegations. Apart from Arnese, Lutostański and Uznański also voted for such a conclusion, while T. Chałubiński and W. Eljasz opposed.

¹⁹ The fact that Arnese was an accredited CAI representative of the TT is also confirmed by protocol of the 7th CAI Congress, during which he performed such a role – *Verbale dell'Adunanza del VII Congresso degli alpinisti italiani, nel castello di Rivoli, il 10 agosto 1874*, “Bollettino del Club Alpino Italiano” 1875, p. 403.

²⁰ More broadly on the role of W. Arnese in creating the Tatra Society see: E. Roszkowska, *Wincenty Arnese – działalność na rzecz Towarzystwa Tatrzańskiego* [Wincenty Arnese – Activity for the Tatra Society], [in:] *Z najnowszej historii kultury fizycznej w Polsce* [From the Newest History of Physical Culture in Poland]. Scientific work from the summer school of physical culture historians, Vol. VII ed. L. Nowak, Gorzów Wielkopolski 2006, pp. 233-243.

²¹ See page 8 of this article.

²² More elaborately on this topic, E. Roszkowska, *W okowach “chałubińszczyzny”* [In the Shackles of “Chałubińszczyzna”], [in:] *Spoleczno-kulturowe studia z kultury fizycznej* [Social-cultural Studies in Physical Culture], eds. K. Obodyński, P. Król, W. Bajorek, Rzeszów 2012, pp. 544-557.

²³ *W dwudziestopięciolecie Sekcji Turystycznej Polskiego Towarzystwa Tatrzańskiego* [On the 25th Anniversary of The Tatra Society Polish Tourism Section], “Taternik” [“The Mountaineer”] 1928, issues 4-6, p. 78.

ploration. The precursors of such mountaineering types were Heinrich Hess, brothers Emil and Otto Zsigmonda, Ludwig Purtscheller, Hermann von Barth, Eugen Guido Lammer, Robert Hans Schmitt, Eduard Pichl, Mathias Zdarsky, Wilhelm Paulcke, Georg Bilgeri, and the apogee of the development of these new trends in alpine alpinism and Dolomites fell in the 1890s.

In the Tatras, Karol Englisch and Janusz Chmielowski began to propagate these ideas independently of each other. It can be said that the achievements of Western European mountaineering not only came to the rescue but became a “cure” for the Tatra exploration model created by Tytus Chałubiński.

The first to begin transplanting new ideological trends in mountaineering was Karol Englisch de Payne. He also showed the possibilities of their implementation in practice and “exposed” new motives for undertaking mountaineering activities – he rejected the scientific and aesthetic motives for mountain climbing, exposing the danger of mountain terrain and the heroism of the mountaineers defeating it, which - while taking care of publicity and recognition of his own achievements – he consciously disseminated the publication of his accounts and descriptions of his experiences²⁴. Englisch also competed with other mountaineers and was the first to use climbing equipment: ropes, ice axes, climbing-irons (crampons) and hooks²⁵. It can be said that – he was the “ambassador” of the idea of *Schwierigkeitsalpinismus*, and using Alpine patterns, he created the foundations for sport-oriented climbing, in which the competition and difficulty of climbed peaks play an important role. The essence of climbing was the path leading to the summit and overcoming its difficulties, which appeared as a technically defined opponent.

Janusz Chmielowski was the other climber who also introduced to climbing and promoted the achievements of Western European mountaineering in the field of mountain walking techniques and climbing equipment. He also created the foundations of mountaineering ideology and terminology, developing the first Polish mountaineer guide, climbing technique and introducing rules regulating mountaineering activity (decalogue), the basis and condition

sine qua of which was independency. In this matter, the patterns came from mountaineering, specifically from the achievements and views of Emil Zsigmondy:

“As he [Emil Zsigmondy] exerted huge influence on contemporary (sic!) tourism, pointing to his own example of personal independence as a climber’s goal, emphasizing the importance of walking without guides and the value of mountain tourism as a factor shaping the nature, so also the book [Die Gefahren der Alpen] was, one could say, a catechism of young mountaineers which has already brought up more than one generation. [...] Independence is the most important and indispensable feature of real tourism. Whoever always walks under the leadership of someone else, without making his/her own observations and not focusing attention, falls into childish failure, a lack of independence, which is a serious situation, can cause, to say the least, unpleasantness”²⁶.

In the mountaineering community, discussions, often of academic nature, began on whether to walk in the mountains with or without a guide. Drawing on confirmation of the value of independent exploration of the Tatra Mountains from Alpine mountaineering, it was believed that if the alps were considered impossible to pass without the help of a guide, then it is impossible to argue over the sense of climbing undertaken without the help of guides, on the contrary, it should be supported. The risk of mountain dangers remained a problem. Chmielowski managed to deal with it, specifying the conditions that an independent mountaineer should respect. He gave the mountaineers the skills necessary to manage risk. “Let us not attack tourism – that it hides dangers, because if they were not any, it would lose its grace”²⁷ – he wrote. As an argument, he presented the thesis by Albert Frederic Mummery stating that “in danger, lies an instructive and cleansing thought that is not found in any other school”²⁸. Chmielowski believed that “like everything, so as walking in the mountains, orientation in them, searching for the right path, and not losing the one already known or marked, you need to learn – it does not come by itself, and the mountains also set their conditions: we must learn them and learn to know them”²⁹.

²⁴ He first published in “Jahrbuch des Ungarischer Alpenvereins”, and later in Polish journals: “Giewont”, “Ilustracja Polska” [The Polish Illustration], “Przegląd Zakopiański” [“The Zakopane Review”]. Zakopane’s “Giewont” became the journal of his fight for Ostry Szczyt [Sharp Peak]. After his success, he sent a telegram with information about the climb to the editorial office. A. Englisch de Payne, Śpiczasty Szczyt w Tatrach Wysokich [Śpiczasty Szczyt [Pointed Peak] in the High Tatras], «Giewont» 1902, issue 8, pp. 13-14. A note about conquering Ostry Szczyt [Sharp Peak], entitled *Wzięcie Śpiczastego Szczytu. (2356)* [Conquering Śpiczasty Szczyt [Pointed Peak](2356)], stated that: “After many attempts, extremely difficult and dangerous, after a formal fight with this most obstinate of the Tatra peaks – he climbed to 25 b.m.p. Karol Artur Englisch de Payne, a Pole, a Cracovian, known to our readers from the description of numerous Tatra expeditions, published in Giewont”. *Ibidem*, p. 14.

²⁵ In the years 1897-1903, he conquered 30 virgin peaks – during the same period, 28 remaining mountaineers, climbed 26 peaks not yet conquered.

²⁶ H., E. Zsigmondy. *Die Gefahren der Alpen, Neugearbeitet u. ergänzt von W. Paulcke*, “Taternik” [“The Mountaineer”] 1908, issue 3, pp. 58-59.

²⁷ J. Chmielowski, *W głębi Tatr* [Deep in the Tatras], [in:] *Czarny Szczyt. Proza taternicka lat 1904-1939* [Czarny Szczyt [Black Peak], Tatra Prose in the Years 1904-1939], eds. J. Kolbuszewskiego, Kraków 1976, p. 54.

²⁸ *Ibidem*.

²⁹ *Ibidem*.

Also, the development of winter Tatra tourism, and then mountaineering, despite the fact that it was initiated by Hungarians: Eduard Blásy, Viktor Lorenz, Franz Dénes, and especially Miklós Szontagh's³⁰ dream, developed by the Germans Robert Bartsch and Johannes Müller from Wrocław in the company of Spis guides – Jakob Horvay and Jan Mahler, the right impulse was achieved by the activity of the mountaineer Theodor Wundt. Wundt made his Tatra winter expeditions in the company of the abovementioned Spis guide Jakub Horvay in 1884 and 1891³¹. The essence of Wundt's Tatra activity was conquering the peaks in winter, not wandering the valley to its end. With his activities, Wundt also proved that it is possible to conquer the Tatra peak in winter without a guide and without a partner (alone). Without glorifying his achievements, it can be said that they became a signpost for the development of native Tatra winter tourism, although there was not really interest in it until the turn of the 19th and 20th centuries³².

On the Polish side of the Tatra Mountains, winter trips were most often organised on sleds to Kościeliska Valley and Morskie Oko³³, and in the 90s, there was a trend for visiting Czarny Staw in winter. This state, as can be inferred from the Zakopane press³⁴, continued until 1902, when Karol Englisch developed his winter activities. His conquer with K. Jordán and Johan Hunsdorfer jun. and Johan Franz of Szczyt Sław-

kowski, the ridge of the Granaty Wielickie, and especially the passage through the Polski Grzebień, which he described³⁵, made a huge impression³⁶ and initiated the systematic exploration of the Tatra Mountains in the winter, based on the achievements of Western European mountaineering and using the latest tourist and mountaineering equipment³⁷.

Lack of interest in winter exploration of the mountains was probably also associated with the inability to overcome the snow-ice area. Unlike the Alps³⁸, in the Tatras, in the summer there was no need to learn how to navigate in such conditions. Glaciated patches of snow, which cover the northern slopes or nooks and crannies in summer, where the sun does not shine even in summer, have been avoided confirming the belief that snow is "a treacherous element, completely mysterious and unknown, forever closing the winter Tatra Mountains from human invasion"³⁹.

As earlier mentioned, Western European influences were also visible when organising the mountain-climbing movement. Following the Alpine pattern, it was thought that a club with strictly mountainous attitude should be created. It was considered whether such an association should be independent and hermetic because of the qualifications of its members, e.g. Akademischer Alpenverein München (1892), Akademischer Alpenclub Innsbruck (1893)⁴⁰, or rather formed in the bosom of TT, similarly as in Western Europe, where inside nation-

³⁰ J. A. Szczepański, *Początki taternictwa zimowego* [The Beginnings of Winter Mountaineering], "Szczyty" nie ma takiego pisma, są "Wierchy" i tak powinno pozostać!!!! ["Peaks"] 1933, p. 31.

³¹ During the first, in April 1884, he climbed Rysy, Krywań, Sławkowski Peak (the 3rd climb in general), passed through Przełęcz pod Kopą and Polski Grzebień; during the second – in December 1891 – first time i n d e p e n d e n t l y!, he reached Skrajna and Pośrednia Baszta, later, along with Horvay, he reached Łomnica (December 27) and Lodowy Szczyt (December 28) – T. Wundt, *Ich und die Berge*, Berlin 1917, pp. 57-73.

³² At that time, as Wundt climbed the high peaks and passes of the Tatra Mountains in winter, on the Polish side in 1890, as can be deduced from the article that appeared in "Pamiętnik Towarzystwa Tatrzńskiego" ["Diary of the Tatra Society"], it was only then "planned to visit Zakopane in full winter to get to know it in a different coat of snow and ice, to assess the winter Tatra scenery and take a look at the climate and local relations in the winter season" – S.P., *Zakopane w pełnej zimie* [Zakopane During Full Winter], "Pamiętnik Towarzystwa Tatrzńskiego" ["Diary of the Tatra Society"] 1892, p. 13.

³³ List of trips, see: L. Birkenmajer, *O stosunkach temperatury głębokich jezior tatrzańskich w różnych głębokościach i różnych porach roku* [On the Relations of Temperature of Tatra Deep Lakes at Different Depths and Different Seasons], R.4. *Zimowa fizjonomia Rybiego i innych jezior tatrzańskich* [Winter Physiognomy of the Rybie [Fish Lake] and Other Tatra Lakes], Kraków 1901, pp. 79-93.

³⁴ *Wycieczki w Tatry* [Trips to the Tatras], "Przegląd Zakopiański" ["The Zakopane Review"] 1902, issue 2, p. 16.

³⁵ K. A. de Englisch Payne, *W zimie przez Tatry* [Through the Tatras in Winter], "Przegląd Zakopiański" ["The Zakopane Review"] 1902, issue 25, pp. 220-222;

³⁶ This trek, considered extremely bold, was reported by "Przegląd Zakopiański" – *Zimowa wycieczka w Tatry* ["The Zakopane Review" – A Winter Trip to the Tatras], „Przegląd Zakopiański” [”The Zakopane Review”] 1902, issue 2, pp. 15-16.

³⁷ In his winter activities, Englisch used ice-axes, crampons, snow shoes, ropes.

³⁸ Both the Eastern and Western Alps, for tourism-related reasons, were already visited in the winter of the first half of the 19th c. In 1809, Valentin Stanig – on December 15th, independently climbed Untersberg (1851 m). In 1832, Hugi made his first winter expedition to the glaciers in the Grindelwald region, during which the participants climbed, among others Strahleggpass (3,351 m) – on the 4th of January, an attempt was made to reach Mönchjoch and Finsteraarjoch (16th and 18th January). In 1847, Prof. Friedrich von Simony climbed Dachstein three times (2,996 m). On the 13th of January, father F. Francisci from Heiligenblut climbed Kleinglockner; on the 26th of December 1861, Johannes Conz, along with three companions, reached Staesserhorn (2,579 m); on the 7th of January 1862, Thomas Stuart Kennedy with Peter Perren and Peter Taugwalder attempted a winter climb of Matterhorn (they reached 3,400 m) William Coolidge and Miss. Brevoort, along with guides Christia and Ulrich Almerami, climbed: Wetterhorn – 14th January 1874, Jungfrau – 22nd January 1874 and Mönch – 24th January 1874, Großglockner – 1st–2nd January 1875. On the 31st of January 1875, Chamonix Izabella Straton climbed Mont Blanc with guides – see W. Schmidkunz, *Alpine Geschichte in Einzeldaten*, "Alpines Handbuch". Vol. 1., Leipzig 1931, pp. 354, 359, 381, 382, 383; W. Schmidkunz, *Entwicklungsgeschichte der Wintertouristik in Einzeldaten*, "Winter" 1926-27, pp. 58, 59.

³⁹ J. A. Szczepański, *Początki taternictwa zimowego* [The Beginnings of Winter Mountaineering], *op. cit.*, p. 28.

⁴⁰ *Nasza ankieta turystyczna* [Our Tourism Survey], "Przegląd Zakopiański" ["The Zakopane Review"] 1902, issue 29, p. 261.

al associations, there were also elite academic sections, to which only active climbers were admitted, and according to the rules specified in the statute⁴¹. Ultimately, because of TT's well-established position in society, the latter option was chosen.

Created based on the model of the specialised sections of Deutscher und Österreichischer Alpenverein, the Tourist Section of TT took the Alpine experiences in its activities into account⁴². This is largely due to Janusz Chmielowski, who with his organisational commitment⁴³, his own systematic mountain activities, assimilation and propagation of technical achievements in mountaineering⁴⁴, laid the foundations for the development of guideless mountaineering. The Alpine direction of the Section's development had strong support in 1906, when Lvivans, creators of the Tatarnik Circle (later the Himalaya Club) were accepted as its members. They "came to its forehead the following year, transforming it into a strictly mountaineering club meeting the need of time"⁴⁵. Their independent mountain experience⁴⁶, transferring Western patterns to Poland (Maślanka was in the Alps in 1905), resulted in the increase of independent climbing activity and the flourishing of the Section⁴⁷ as well as a clear distinction between the concepts of a mountaineer and a tourist. This was also reflected in the title of the journal published since 1907 by the – "Taternik" ["The Mountaineer"] Section. Its editorial pages and internal structure were modelled on the "Österreichische Alpenzeitung" – the Austrian Österreichischer Touristenklub organ, and "Taternik" ["The Mountaineer"] "was

aimed at promoting mountain sport and serving Polish mountaineering"⁴⁸.

In 1907, Janusz Chmielowski and Adam Kroebl also left for the Dolomites and Wilder Kaiser. For the first time, they had the opportunity to confront the theoretical notion of alpine activity in practice and compare it with the achievements of mountain climbing.

"And this direction in Alpine tourism, consisting in conquering the most inaccessible walls, gaining only sporting interest awoken by denigrating the peaks and deliberately searching for difficult paths – is only with us at the beginning of its development. [...] It follows that the most difficult Tatra expeditions do not match the most difficult expeditions in the Dolomites and Kaisergebirge"⁴⁹.

– Chmielowski wrote in "Taternik" ["The Mountaineer"]. This comparison disadvantageous to mountaineers and the experience gained in the Alps became an impulse for the flourishing of Polish climbing activity in the Tatras and the Alps. It also helped to understand the organisation's proper goals to serve mountaineers, not tourists. This did not mean that the Section unanimously advocated such a direction of development. In ST TT, there were representatives of various ideological currents in mountaineering: aesthetic, social and sport-related. Before the protaternic (pro-sport) oriented programme was adopted, there was a conflict between representatives of the social and sport ideology of mountaineering⁵⁰. Ultimately, the programme supporting the

⁴¹ Up to 1900, the academic sections were created in almost all Alpine countries.

⁴² The Tatra Mountains Museum in Zakopane – Archives (hereafter: MT-ZA), Ref. AR/NO/227/13 – *Regulations and fees for Polish Tatra guides (effective from 1 July 1907). Circulation and ownership of the Tatra Society, Kraków 1907 – manuscript; MT-ZA, Ref. AR/NO/225/12 – Letter from the Board of the Tourist Section of the Tatra Society to the Faculty of the Tatra Society from October 7, 1907.*

⁴³ Chmielowski put the good of the Section above his own successes. He pursued, for example, the model of Alpine societies to insure the members of the Section against accidents, or at least guides, about which he wrote in a letter to Krygowski: "Having read in the Alpine newspapers that the Austrian and Swiss Clubs entered into relations with the insurance company and obtained % for their members, I wrote to the Viennese Society "Providentia" to send me a prospectus, [...] who knows if it would not be good if the Faculty decided to insure (for example) the 5 best Zakopane guides. [...] SAC spends several thousands of francs a year for this purpose. That is why only the top 5 so the cost is little and encourages others. Anyways, only these Tatra guides are worth insuring, those who take on the difficult trips. Well – and there are only a few of them". – Quote from Janusz Chmielowski's Letter to Stanisław Krygowski written on June 17, 1905, in the collections of the PTTK Central Mountain Library in Kraków (uncataloged material).

⁴⁴ Chmielowski not only brought from the West - hobnailed shoes, soft climbing ankle boots and ropes (1902), ice axes (1903), crampons (1904), later hooks - but he also promoted the use of climbing equipment. This equipment was not truly adopted until 1907.

⁴⁵ St. K. Zaremba, *Wspomnienie o Zygmuncie Klemensiewicz* [Memories of Zygmunt Klemensiewicz], "Taternik" [The Mountaineer] 1966, issues 1-2, pp. 3-6.

⁴⁶ In 1906, the slogan "without a guide" had its peak, implemented sporadically in the years 1902–1905 (in this period, a few people – Chmielowski, Kroebl, Łopuszański, Lustgarten, dared to independently climb only known peaks, most often already discovered routes, while avoiding the creation of new, long trails). This happened thanks to Klemensiewicz, Maślanka, and Kordys, who started the programme of guideless climbing (initially for prosaic reasons - they had no money to hire a guide). They also published descriptions of independent Tatra climbs in "Pamiętnik TT" ["The TT Diary"], and later in "Taternik" ["The Mountaineer"], thereby promoting this form of Tatra activity.

⁴⁷ In 1907, the mountain activities of the Section's members intensified, followed by its numerous growth (an increase in the number of members from 22 to 59).

⁴⁸ R. Kordys, *Do współpracowników i przyjaciół Taternika* [To the Colleagues and Friends of "Taternik" ["The Mountaineer"], "Taternik" ["The Mountaineer"] 1911, issue 2, p. 44.

⁴⁹ J. Chmielowski, *Z wycieczki po Alpach Tyrolskich* [From Trips to the Tyrolean Alps], "Taternik" [The Mountaineer] 1907, issue 6, p. 96.

⁵⁰ More broadly on the topic of mountaineering ideology, see E. Roszkowska, *Taternictwo polskie. Geneza i rozwój do 1914 r* [Polish Mountaineering. The Origin and Development up to 1914], Kraków 2013.

development of mountain climbing won. This happened thanks to the support of the Smoluchowski brothers: Tadeusz and Marian⁵¹, who grew up on alpinism, and in the years 1890–1894 were counted among the best Viennese climbers. The Smoluchówskis practiced mountaineering without the help of guides, being pioneers of this direction next to Zsigmondi, Purtscheller⁵². Climbing and organisational experience meant that Marian was elected chairman of the ST TT⁵³.

Relying on the activity of the alpine societies, Roman Kordys and Marian Smoluchowski showed what the Section should do to promote the development of mountaineering:

“The nature and direction of the Sekcyja is similar to foreign organisations such as the Alpine Club or Oest. Alpenklub, the programme of which is not to promote tourism, build shelters, etc. “,

but

“Climbing is not suitable for collective exercise. [...] Alpine societies do not organise collective tours, but teach tourist principles by introducing units to the mountains. The Tourist Sekcyja fulfils its tasks in a similar way”⁵⁴.

Thus, the discussion, threatening to change the tasks of the Section, thanks to the example flowing from the Alpine environment adopted a turn favourable for mountaineering, which was considered a sport activity. This was reflected in the change in the statute of the ST TT and a clear definition of the purpose of its existence and activities for the development of climbing. The ST TT Statute from 1912 can be defined by a document formally confirming the existing practical separation between mountaineering and tourist activities. The key task became to articulate the essence of this “new” mountain climbing. And here the help of the publications of Western European mountaineers came to the rescue. Adam Lewicki, recalling the thoughts of the Austrian mountaineer, the captor of all Alpine four-thousanders – Karl Blodig (1859-1956), recognised that three elements: intellectual, aesthetic and biological, relate to the three stages a mountaineer climber’s development. It all starts with the “desire to know”. If it is cultivated, it will turn into admiration for the beauty of the world of the mountains. This stage is a prelude to the need for “stronger impressions and greater efforts” in which

“manual labour, the hardship of tackling the mountain, has become no longer a means to an end, but the very goal: *labor ipse voluptas*. This last phase of passion that accompanies the whole of human life is already, in a way, the perfect moment of its development. This type of tourism concept has only been known recently, both as a phenomenon of life and as a literary definition. Mountain sport is an almost contemporary product, and referring to its significance in today’s relations of life, it could be called a »substitute« product, because it gives way to the eternal need of unleashing forces and the need for »gambling«, which in ancient times, was met in war or at bold parties and rowdy adventures”⁵⁵.

„Taternik” [“The Mountaineer”], as a journal involved in the dissemination of information about new phenomena in mountain sport (this is how extreme mountaineering was termed), recommended journalistic and literary news in the field of mountaineering, but provided it with its own commentary. When in 1907 the book by Erich König “Empor!” *Georg Winklers Tagebuch*, the polemical statements that appeared after its publication in the climbing environment were presented. This publication also became the starting point for the first discussion in Poland on the aspirations of modern mountaineering. At the time, mountaineering appeared to the editors of “Taternik” [“The Mountaineer”] as the result of “some pure mad drive” ordering mountaineers “no longer to fight the inevitable difficulties, but to search for them where they can be easily avoided”⁵⁶. The author of the text – Adam Lewicki, identified with the view of Ernst Enzensperger – the main adversary of the book by König, believing that this new direction is too weak to “create a new school in alpinism”, but can affect the youngest generation “by corrupting the healthy and noble idea of alpinism”⁵⁷. At the same time, Lewicki presented the views of Eugen Guido Lammer, radically different from those presented by Enzensperger, defending the “young and energetic idea of the” alpinist »act«”. In the perils of the mountains, Lammer saw a factor attracting action. A year later, the work of Erwin Keller appeared on the pages of “Taternik” [“The Mountaineer”], in which the author highlighted the essence of independent mountain activity, paying special attention to the impoverishment of the venture and handing it over to the guide. The consequence of this decision – Keller argued – is the release from the obligation to prepare

⁵¹ Both brothers: Tadeusz and Marian reported their success to ST TT in 1907 and 1908.

⁵² See more elaborately E. Roszkowska, *Alpejska działalność Mariana Smoluchowskiego* [Alpinist Activity of Marian Smoluchowski], “Folia Turistica” 2012, issue 26, pp. 213-238.

⁵³ He performed this function in the term 1911-1912.

⁵⁴ See protocols from the General Assembly of members of the Section published in “Taternik” [“The Mountaineer”] 1910, issue 5, pp. 116-117; 1911, issue 3, pp. 52-54; 1912, issue 4, pp. 67-69.

⁵⁵ A. Lewicki, *Alpinizm i taternictwo* [Alpinism and Mountaineering], “Gazeta Lwowska” [“The Lviv Newspaper”] 1906, issue 181, p. 5.

⁵⁶ A.[dam] L.[ewicki], “Empor!” *Georg Winklers Tagebuch*. Von E. König, “Taternik” [“The Mountaineer”] 1907, issue 3, p. 45.

⁵⁷ *Ibidem*.

for the theoretical preparation for climbing and its organisation (exploring the area, calculating the time needed for the transition, organising accommodation) and depriving it of the character of “playing with fate”, and thus, what makes it attractive in reality⁵⁸. Dense publications were also of great popularity, among which, the most-read was the fourth edition of *Die Gefahren der Alpen*⁵⁹. At the same time, “Taternik” [“The Mountaineer”] published a review of the work by Heinrich Steinitzer titled *Zur Psychologie des Alpinisten*⁶⁰. It is possible that under the influence of this publication, attempts were made to outline human attitudes towards the mountains and the activities conducted in them. People began to wonder why a man voluntarily searches for dangers and exposes his and others’ lives to experience only a transient state of supreme happiness, why does he provoke death? Nietzsche gave the answer: “A real man wants two things: danger and games”⁶¹.

It was recognised that mountain climbing makes sense when one is consciously looking for dangers. The foundation of a mountaineer’s existence is the will of power, because it translates into the will of action and success, which triggers an active attitude, forces one to overcome the resistance of the forces of nature. Focus on physical effort, the fight against nature, rocks, snow, firns – these are the goals of mountain climbing that the lowland people will not understand. In order for the mountaineer to win this fight, s/he must come to the mountains prepared (e.g. in rocks, ruins of buildings, trees).

In 1910, a study by Heinrich Stenitzer *Sport und Kultur. Mit besonderer Berücksichtigung des Bergsports* was published in Munich⁶². It met with great interest throughout the mountaineering world and with an even greater wave of criticism. “Taternik” [“The Mountaineer”] devoted a lot of space to it, which may indicate the need to deal with problems in the field of sport theory and emerging mountaineering theory. This work also became an impulse to manifest issues of cardinal importance at the time, because they talk about the nature of mountaineering as a sport. What was discussed in the hermetic Tatra environment, and what was hidden from the world, even exploded and was noticed by large crowds of society. It also showed typical motivations for dealing with sport and mountaineering as a sport. Anyway, looking for justification for the existence of a sport current in mountaineering in the innate inclinations seemed the only right way in the face of allegations. Mountaineering, as a concept and form of activity, was subjected to multidirectional analyses, the purpose of which was to determine the ideal of mountaineering and determine

its value, an ideal in which there is room for sports elements, because they cannot be rejected, because they result from human nature. Since the attraction to mountaineering is innate, it has biological justification. Thus, the acceptance or rejection of the idea of mountaineering as a sport was not determined by logical or substantive decisions, but subjective arguments, identified with innate dispositions of man.

As a consequence of the above, the Tatra Wall, or more precisely its difficulties, became the criterion for assessing the skills of a mountaineer, and the activities undertaken on it – a source of pleasure and a prelude to experiencing victory.

To sum up, the evolution of mountaineering until 1914 was conditioned by close contact of mountaineers with Western European mountaineering. It manifested itself in three dimensions:

1. The theoretical basis for which was mountaineers’ knowledge of mountaineering literature. Systematic study of articles describing the then mountaineering and books by Steinitzer, König (showing the thoughts of Winkler), Zsigmondy, or even catalogues with climbing equipment, became an impulse to manifest the issues about the essence of alpinism as a sport and provoked the comparison of mountaineering with mountaineering. Therefore, he provoked discussions on the directions of further development of mountain climbing. It also had practical significance – climbing guides popularised in “Taternik” [“The Mountaineer”] (among them, some were recognised as the best guides of the Eastern Alps, i.e. by L. Purtscheller, H. Hess, *Der Hochtourist in den Ostalpen*, as well as 2-volume (*Club-*) *Führer durch die Urner-Alpen*, created by the Akademischer Alpen-Club Zürich, and published by the Schweizer Alpen-Club in 1905). They were a model for the development of Polish mountaineering guides. Also, the structure of “Taternik” [“The Mountaineer”] (valid until modern times) adopted “Österreichische Alpenzeitung” as a model.

2. Direct contact of mountaineers with alpinism taking place during individual trips to the Dolomites and the Alps. Independent climbs on rock routes, joint climbing with the best mountaineers at the time: including, Tita Piaž, Robert Jäger, a were a great opportunity to confront mountaineering skills in the alpine terrain. Its effect was the transplantation of alpinism achievements in the Tatra region in the field of climbing approaches, techniques of movement in the mountain area, and in particular, the awareness of the need for comprehensive preparation for climbing, systematic improvement of skills, using modern mountaineering equipment.

⁵⁸ E. Keller, *Kilka wskazówek dla chodzących bez przewodnika*, “Taternik” [A Few Tips for Those Wandering Without a Guide, “The Mountaineer”] 1908, issue 1, pp. 12-14.

⁵⁹ E. Zsigmondy, *Die Gefahren der Alpen. Erfahrungen und Ratschläge*, Neubearbeitet und ergänzt von W. Paulcke, IV Auflage, Innsbruck 1908.

⁶⁰ H. Stenitzer, *Zur Psychologie des Alpinisten*, „Graphologische Monatshefte” 1907/08, Vol. IX, No. 9-12 and Vol. 10, issues 3-4.

⁶¹ F. Nietzsche, *Tako rzecze Zaratustra. Książka dla wszystkich i dla nikogo* [Thus Spoke Zarathustra: A Book for All and None], transl. W. Berent, <http://wolnelektury.pl/katalog/lektura/tako-rzecze-zaratustra.html>.

⁶² H. Steinitzer, *Sport und Kultur. Mit besonderer Berücksichtigung des Bergsports*, Munich 1910.

3. Practical support from mountaineers in the Tatras - Theodor Wundt, Ludwig Darmstädter, Hans Stabeller, Robert Bartsch, Johannes Müller, August Otto, Katherine Bröske, Simon Häberlein, the Smoluchowski brothers raised in the Vienna climbing atmosphere and the ideology of alpinism professed by E. Zsigmondy, to increase the level of difficulty of routes crossed in the Tatras, to open the Tatras in the winter season and to arouse interest in sport mountaineering,

The consequence of Alpine influences on mountaineering was its separation from Tatra tourism in the years 1902-1912 and the transformation into a separate, independent sport discipline. It was then considered that:

- the essence of mountain climbing is a fight with “adversities and dangers of the Tatra world; in the final conclusion – fighting yourself (alpinism makes sense when you are consciously looking for dangers), but also experiencing happiness, even ecstasy from overcoming difficulties, and thus, experiencing non-standard emotions that are conditioned by risk. This was where the game began, in extreme cases, the players were all in (life at stake). The mountaineer, being on the verge of his existence, realised himself most, his personal existence;
- this fight is to be fought alone, without the help of a guide
- the will of power is the foundation of a mountaineer’s existence because it translates into the will of action and success, which triggers an active attitude, forcing one to overcome the resistance of the forces of nature. Focus on physical effort, fight with nature, rocks, snow, firs – these are the goals of mountain climbing
- the wall, or more precisely its difficulties, became the criterion for assessing the skills of a mountaineer, and the activities undertaken on it – a source of pleasure and a prelude to experiencing victory
- it was necessary to use climbing equipment as an element guaranteeing safety in mountaineering.

Thus, in the words of Zygmunt Klemensiewicz, it can be assumed that: “*the evolution of modern mountain climbing consists {...}, above all, in shifting the centre of gravity of all activities covered by the name mountain climbing into one branch, for which we do not yet have a Polish name, which the Germans call “Klettersport”.*

This model of mountain climbing, although strongly marked by the cultural situation of the era, has not been lost, but still creates the basic framework for the development of modern climbing sports.

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Effects of Physical Activity on Income

Adam Metelski

Poznan University of Economics and Business, Poland

Summary

A growing number of publications indicate that being physically active can affect various aspects of life, including professional work. The aim of the article is to present the relationship between physical activity and income levels. The research involved the use of the integrated Social Diagnosis database. Social Diagnosis is a comprehensive survey of households and the conditions and quality of life of Polish people. The results of the conducted study show that there is a significant difference in the income of people who practice sport and those who do not. This research is also unique because it examines how taking up and discontinuation of practicing sport affects income. It can be concluded that undertaking of physical activity is connected with a higher average income, and to the contrary, a discontinuation of physical activity is connected with lower income.

Keywords: income, sport, physical activity, work.

Introduction

Physical activity and professional work are often treated as two different issues. However, more and more research results indicate that physical activity can affect professional life. It is possible to distinguish at least a few ways in which engaging in sports influences career success. The first is that during participation in sport, one can acquire very useful competences needed for the labour market, such as communication and team work skills, the ability to organise work and pursue goals (Bailey, Hillman, Arent and Petitpas, 2013). The second way is by building social capital (Skinner, Zakus and Cowell, 2008). By engaging in sport with other people, it is possible to make contacts that are useful in professional work. Physical activity can also affect career success by constituting a positive signal. It has been discovered that employers more often contacted work candidates who signalled sport-related abilities (Rooth, 2011). In addition, physical activity helps to cope with stress as well as anxiety and relieves depression (Swan and Hyland, 2012). Even short physical activity during work may improve efficiency and mood (Thogersen-Ntoumani, Loughren, Kinnafick, Taylor, Duda and Fox, 2015). It also cannot be forgotten that by being physically active, a person can improve his or her health (World Health Organization, 2010). In conclusion, it must be stated that there are many positive effects of participation in sport on professional work.

The results of research indicate that people who practice sport earn more than people who do not (Public Opinion Research Center 2013; Central Statistical Office, 2013). Hardly anyone, however, dealt with how

taking up and discontinuation of practicing sport affects income. Therefore, the purpose of this article is to determine the importance of physical activity for the level of income. It is worth adding that some studies even indicate that practicing sport at a young age may be conducive to higher income later in life (Barron, Ewing and Waddell, 2000; Kavetsos, 2011). Seemingly, it may appear that any activity limiting the time that could be spent on schooling does not serve young people well, however, this is actually to the contrary, because participation in sport has positive impact on school performance (Pfeifer and Cornelissen, 2010). Furthermore, students engaging in sports enjoy school and more frequently, decide to continue their education at university (Eccles, Barber, Stone and Hunt, 2003).

According to the definition established by the Council of Europe, "sport" is defined as: "all forms of physical activity which, through casual or organised participation, aim at expressing or improving physical fitness and mental well-being, forming social relationships or obtaining results in competition at all levels" (Commission of the European Communities, 2007, p. 2). Because sport is a form of physical activity, in this article, words such as sport and physical activity will refer to the same activity and will be used interchangeably.

The relationship between taking up physical activity and income level

The research involved the use of the integrated Diagnostyka Społeczna [Social Diagnosis] database. The Social Diagnosis is a comprehensive survey of households and the conditions and quality of life of Polish people (Czapiński-

ki and Panek, 2015). Research within the Social Diagnosis takes on a form of panel study. A question regarding sport was added to the questionnaire used as part of the Social Diagnosis in 2009. Therefore, the time range of the data used is 2009-2015. During this period, four measurements were taken, in 2009, 2011, 2013 and 2015. In 2009, 26 243 respondents took part in the Social Diagnosis survey, in 2011 – 26 453, in 2013 – 26 308 and in 2015 – 24 324. The research group is representative on a national scale, so it could also include few professional athletes, but the vast majority are people who amateurishly play sport only in their leisure time.

Firstly, the study verified whether there was a difference between the income of active and physically inactive people. It turned out that in each of the analysed rounds of the Social Diagnosis, people practicing sport earned more on average, and the average difference in wage was about 500 PLN. Detailed data are presented in Chart 1.

The results of the Mann-Whitney test (shown in Table 1) indicate that practicing sport significantly differentiates respondents' incomes (by value $p < 0.05$). The values of the magnitude of the η^2 effect can be interpreted as small.

On the basis of the obtained results, it cannot be unequivocally stated that it is the practice of sport that influences an increase in incomes, because it is possible that physical activity is undertaken by people with higher incomes. Therefore, an attempt was made to explain this relationship more accurately by analysing changes in physical activity over time and comparing income levels in groups that changed and did not change their lifestyles. It was decided that a good solution was to compare the incomes of people who were not active and remained physically inactive with the incomes of people who were not physically active at first and then started to play sports. That way, the influence of factors that may predispose one to being physically active is also limited.

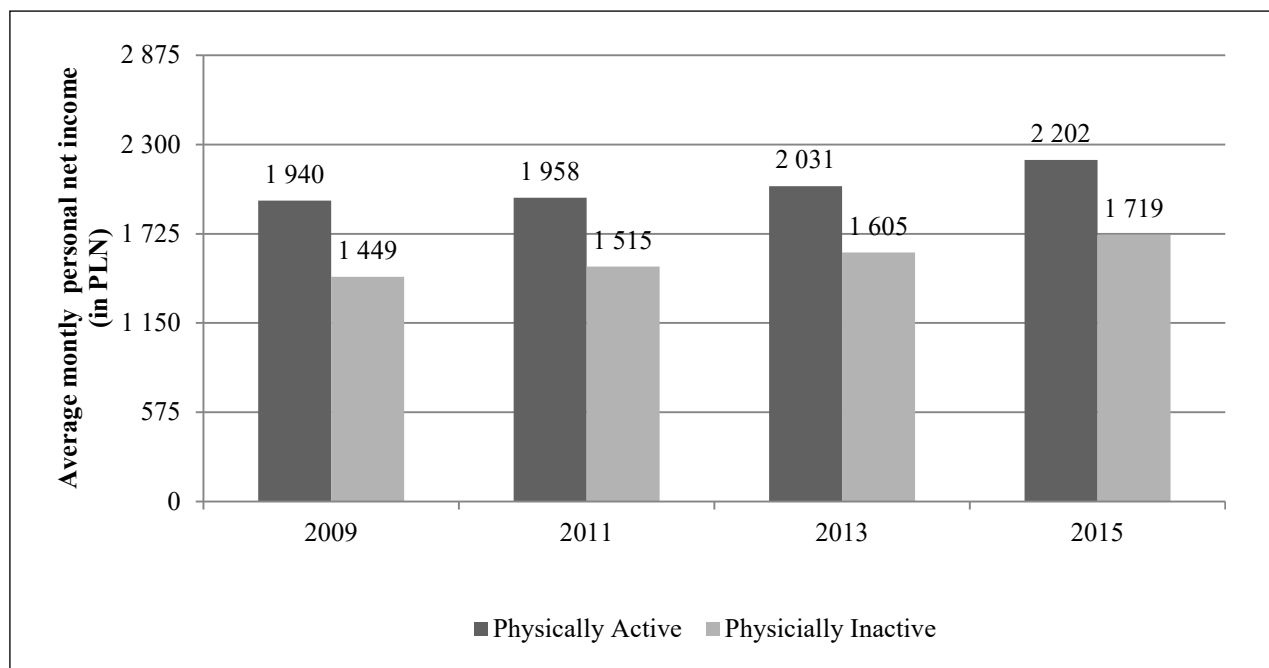


Chart 1. Average monthly personal net income of people physically active and inactive

Source: Created on the basis of the integrated Social Diagnosis database, www.diagnoza.com [09.05.2017].

Table 1. Results of the Mann-Whitney U test verifying the differences in net income of physically active and inactive people between 2009 and 2015

Year	Mann-Whitney U test	Standardised Z-test	Asymptotic significance (Bilateral)	η^2 effect magnitude
2009	21 229 271.00	-21.72	0.000	0.024
2011	31 893 902.50	-24.75	0.000	0.032
2013	32 785 220.00	-24.02	0.000	0.029
2015	22 855 337.50	-24.77	0.000	0.037

Source: Created on the basis of the integrated Social Diagnosis database, www.diagnoza.com [09.05.2017].

The first people to be selected were those who were not physically active in 2013. The next step was to check which of these people remained physically inactive and which started to play sports in 2015. Then, the income of those people from the beginning year (2013) was compared with that from after two years (2015). Such a procedure made it possible to check whether or not taking up physical activity influences incomes levels. The detailed results are presented in Table 2.

The income increased in both groups, with people who started engaging in physical activity in 2015 achieving a greater increase in income. Using the Mann-Whitney U test, it was shown that physical activity is a factor that significantly differentiated changes in income between 2013 and 2015 (the following results were obtained: $U = 3\,375\,584.50$, $Z = 2.06$, $p = 0.039$ and $\eta^2 = 0.001$).

The next stage of analysis was extension of the observation period from 2011. Three groups of people were formed by considering data from three rounds of the Social Diagnosis. The first group consisted of people who did not engage in sport in the years 2011–2015. The

second group comprised people who did not play sport between the years 2011–2013 and then in 2015, began to play sports. The third group included people who were not physically active in 2011, but engaged in sport in following years. The next step was to calculate changes in income between 2011 and 2015. The results of the calculations are presented in Table 3.

The most significant increase in income was gained by those who started playing sports in 2015 and had previously not engaged in physical activity. Using the Kruskal-Wallis test, it was shown that the differences in incomes between the distinguished groups are statistically significant, as evidenced by the value of $p < 0.05$. In turn, using the Mann-Whitney U test, it was verified that significant differences occurred between the first and the second groups ($U = 968\,893.00$, $Z = -1.99$, $p = 0.046$ and $\eta^2 = 0.001$).

Later, data from 2009 were included in the analysis. This enabled four groups to be examined. The research process was similar to that described earlier. The results of the calculations are presented in Table 4.

Table 2. Changes in physical activity of respondents versus the differences in average monthly personal income between 2013 and 2015

No.	Was the person physically active?		Sample size	Difference in income between 2013 and 2015
	2013	2015		
1.	No	No	6 158	125.87 PLN
2.	No	Yes	1 140	147.63 PLN

Source: Created on the basis of the integrated Social Diagnosis database, www.diagnoza.com [09.05.2017].

Table 3. Changes in physical activity of respondents versus the differences in average monthly personal income between 2011 and 2015

No.	Was the person physically active?			Sample size	Difference in income between 2011 and 2015
	2011	2013	2015		
1.	No	No	No	4 041	218.52 PLN
2.	No	No	Yes	507	235.99 PLN
3.	No	Yes	Yes	358	220.12 PLN

Source: Created on the basis of the integrated Social Diagnosis database, www.diagnoza.com [09.05.2017].

Table 4. Changes in physical activity of respondents versus the differences in average monthly personal income between 2009 and 2015

No.	Was the person physically active?				Sample size	Difference in income between 2009 and 2015
	2009	2011	2013	2015		
1.	No	No	No	No	2 764	337.60 PLN
2.	No	No	No	Yes	316	375.07 PLN
3.	No	No	Yes	Yes	183	319.47 PLN
4.	No	Yes	Yes	Yes	287	457.05 PLN

Source: Created on the basis of the integrated Social Diagnosis database, www.diagnoza.com [09.05.2017].

Among the analysed groups, the highest income increase occurred for those who started to play sport in 2011 and had remained physically active in following years. The income of such people in the years 2009-2015 increased, on average, by more than PLN 450; that is by at least PLN 80 more than in other groups. In order to check the significance of differences, the Kruskal-Wallis test was performed. The results indicate that the differences in income changes are statistically significant, as evidenced by the value of $p < 0.05$. The Mann-Whitney U test was used to check exactly between which groups the differences occurred. The results show that they were found between: the first and fourth groups ($U = 337\ 593.00$, $Z = -4.16$, $p = 0.000$ and $\eta^2 = 0.005$) and the third and fourth groups ($U = 22\ 418.50$, $Z = -2.68$, $p = 0.007$ and $\eta^2 = 0.015$).

The above analyses were aimed at showing that undertaking physical activity is connected with higher income. It should be noted that this relationship was confirmed in most cases. By analysing two consecutive So-

cial Diagnosis studies, it has been shown that engaging in sport is associated with a larger average increase in income. Also, in the case of examining the six-year period, the highest average increase in income occurred among people who had already been physically active in 2011. It can therefore be concluded that taking up sport practice is associated with a higher average income increase.

The relationship between the discontinuation of physical activity and income level

Similarly, it was decided to check how the discontinuation of physical activity affects levels of income. To do so, people who were physically active in 2013, some who were later still physically active in 2015, and those who stopped engaging in sports, were compared. Detailed data are presented in Table 5.

Table 5. Negative changes in physical activity of respondents versus the differences in average monthly personal income between 2013 and 2015

No.	Was the person physically active?		Sample size	Difference in income between 2013 and 2015
	2013	2015		
1.	Yes	No	1 219	211.41 PLN
2.	Yes	Yes	1 953	215.73 PLN

Source: Created on the basis of the integrated Social Diagnosis database, www.diagnoza.com [09.05.2017].

Table 6. Negative changes in physical activity of respondents versus the differences in average monthly personal income between 2011 and 2015

No.	Was the person physically active?			Sample size	Difference in income between 2011 and 2015
	2011	2013	2015		
1.	Yes	No	No	586	249.46 PLN
2.	Yes	Yes	No	352	324.99 PLN
3.	Yes	Yes	Yes	962	358.90 PLN

Source: Created on the basis of the integrated Social Diagnosis database, www.diagnoza.com [09.05.2017].

Table 7. Negative changes in physical activity of respondents versus the differences in average monthly personal income between 2009 and 2015

No.	Was the person physically active?				Sample Size	Difference in income between 2009 and 2015
	2009	2011	2013	2015		
1.	Yes	No	No	No	115	322.71 PLN
2.	Yes	Yes	No	No	86	405.46 PLN
3.	Yes	Yes	Yes	No	84	196.59 PLN
4.	Yes	Yes	Yes	Yes	354	508.24 PLN

Source: Created on the basis of the integrated Social Diagnosis database, www.diagnoza.com [09.05.2017].

The statistical test showed that practicing sport is not a factor which significantly differentiated changes in income in 2013 and 2015 among people who engaged in physical activity in 2013, and who in 2015 remained physically active or stopped undertaking physical activity. The following Mann-Whitney U test results were obtained: $U = 1\ 163\ 431.50$, $Z = -1.07$ and $p = 0.282$.

The next stage of analysis was extension of the observation period from 2011. Three groups of people were comprised when considering data from three rounds of the Social Diagnosis. The first group included people who were physically active in 2011, but did not play sports in the following years. The second group was created by people who practiced sport in 2011-2013, but were not physically active in 2015. The third group consisted of people who engaged in sports in 2011-2015. Later, changes in income between 2011 and 2015 were calculated. The results of the calculations are presented in Table 6.

The largest increase in average income was observed in people who were physically active in 2011-2015. The Kruskal-Wallis test showed that the differences are statistically significant, as evidenced by the value of $p < 0.05$. The Mann-Whitney U test showed that the differences are significant between the first and third groups (the following results were obtained: $U = 259\ 786.50$, $Z = -2.59$, $p = 0.010$ and $\eta^2 = 0.004$). Then, the data from the 2009 Social Diagnosis was added to the analysis. Four comparative groups were obtained. The results of the calculations are presented in Table 7.

Among the analysed groups, the highest average increase in income occurred in people who engaged in physical activity in 2009-2015. The income in this group during the given period increased by an average of over PLN 500, that is by at least PLN 100 more than in other groups. The results of the Kruskal-Wallis test indicated that the differences in income changes in 2009 and 2015 are statistically significant, as evidenced by the value of $p < 0.05$. The Mann-Whitney U test showed that the differences are significant between groups: the first and fourth ($U = 17\ 201.00$, $Z = -2.50$, $p = 0.012$ and $\eta^2 = 0.013$), the third and fourth ($U = 11\ 809.50$, $Z = -2.93$, $p = 0.003$ and $\eta^2 = 0.019$) as well as the second and third ($U = 2\ 897.00$, $Z = -2.30$, $p = 0.026$ and $\eta^2 = 0.029$).

Summarising the second way of explaining the relationship between physical activity and income, it should be noted that in the majority of cases, the discontinuation of sports activities was associated with lower average income growth. It was particularly visible in the 2011-2015 period. Among the three groups analysed during this period, the average income increased to the highest degree in people who were continuously physically active and earlier discontinuation of physical activity was associated with a smaller increase in income.

Conclusions

The above analyses were aimed at showing that undertaking physical activity is connected with higher in-

come, and to the contrary, discontinuation of physical activity is connected with lower income. It should be stated that this relationship was confirmed in most cases. It can therefore be concluded that changes in physical activity affect the level of income.

From a scientific perspective, the results can be treated as an argument that physical activity is an investment in human capital. It consists of the fact that physical activity has many positive effects, among others, it allows for the development of certain competences (Bailey et al., 2013), and also contributes to the improvement of health (World Health Organization, 2010). By practicing sport, a person invests in himself/herself, which brings measurable benefits in his or her professional career. The results are not only of scientific significance, but can also have practical applications in the work of people managing human resources and in implementing policies at various levels of public administration. The benefits of greater physical activity in society are a reduction of costs allocated to health care, as well as positive impact on employees, inter alia, by reducing the amount of absenteeism at work and increasing the efficiency of work (Polish Ministry of Sport and Tourism, 2015).

In addition, the dissemination of knowledge about the relationship between physical activity and an increase in income may contribute to arise in sport activity participation. This is especially important among young people, as almost 40% of people studying in Poland at upper-secondary schools do not participate in physical education lessons (Polish Supreme Audit Office, 2013). It is worth noting that the problems associated with physical education lessons are not only a Polish problem, because in other countries, a similar phenomenon can be observed (di Cola, 2006). Moreover, in Polish schools, over the course of four years (from 2012 to 2016), the percentage of overweight or obese children and adolescents increased by more than five percentage points, and in 2016, it amounted to as much as 22 percent (Polish Supreme Audit Office, 2017). As it is commonly known, physical activity and a proper diet are the best way to maintain the right weight. It is worth bearing in mind that health-oriented habits learned in childhood usually remain for life, which is why it is important to teach children how to behave right from an early age (Bailey et al., 2013, Kelder, Perry, Klepp and Lytle, 1994). The promotion of sporting activities in Poland should also be important, because in Poland, a definitely smaller percentage of citizens is physically active than the average in the European Union (European Commission, 2014). In addition, a small percentage of Poles meet the health requirements for the minimum level of physical activity created by the World Health Organization (Polish Ministry of Sport and Tourism, 2015a). In conclusion, it should be emphasised once more that information about the positive impact of physical activity on income may contribute to greater physical activity in society.

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Personality and temperamental determinants of styles of coping with stress in male and female football players

Magdalena Naczek-Musiał

University of Physical Education in Kraków, Faculty of Physical Education and Sport

Summary

The aim of this paper was to determine the patterns of personality and temperament conditions for coping with stress in football players. The study examined 252 people (168 men, 84 women, the average age was 24.09 years). The athletes were representatives of the Ekstraklasa, and the I and II football Liga. They formed 3 groups: the first group comprised men from the Ekstraklasa, the second - men from the II Liga and the third - women from the Ekstraklasa and the I Liga.

The research made use of the following tools: NEO-FFI Personality Inventory in the Polish adaptation by Zawadzki et al. (1998), FCB - TI Temperament Questionnaire (1997), Coping Inventory for Stressful Situations (CISS) by Endler and Parker, in the Polish adaptation by Strelau et al. (2007).

Analysis of the results showed that agreeableness (AG), conscientiousness (CS) and perseverance (PE) proved to be important predictors of the task-oriented coping (TOC). Emotion-oriented coping (EOC) is conditioned by: neuroticism (NEU), agreeableness (AG), conscientiousness (CS) and perseverance (PE). In the case of avoidance coping (AOC), extraversion (E) and activity (A) turned out to be important predictors. However, the style of coping oriented towards engagement in substitute activities (involving in substitute activities - ISA) is conditioned by: neuroticism (NEU) and extraversion (E). Extraversion is also the predictor of dealing with stress oriented towards searching for social contacts (social contacts seeking - SCS).

Introduction

Sporting activities are a specific form of participation in physical culture. During training or sports competitions, it is often associated with stress experienced by athletes, which is nowadays defined in various ways. The notion of stress can be classified as either subjective or systemic. The former treats stress as a process placed in the subject, the latter considers stress in terms of the relation between the subject and the environment (Łosiak, 2012). Taking the functioning of athletes into account, the relational approach to stress is the one that fits into the specificity of sports activity. Lazarus (Lazarus and Folkman, 1984) believe that the essence of a human relationship with the environment lies in mutual interaction, called a transaction. According to him, the stress mechanism is based on understanding of an individual's relationship with the environment as a cause and effect interaction (Lazarus and Folkman, 1984; Folkman and Lazarus, 1988). He defines coping with stress as continuous cognitive and behavioural efforts of a person to meet the internal or external demands arising from the human-environment relationship, assessed as requiring effort or exceeding individual resources (La-

zarus and Folkman, 1984). The primary task of coping is to change the situation or deal with it by regulating emotions or solving the problem. Lazarus and Folkman (1984) indicate two functions of coping processes: solving the problem, regulating emotions, which are manifested in actions directed at the problem, and actions directed at emotions. Problem-oriented actions are concrete ones taken by a human being in order to solve a problem. Emotion-oriented actions involve reducing unpleasant tension and mitigating negative emotional states. Coping based on regulating emotions may also lead to increased excitement, mobilizing to undertake action (Lazarus and Folkman, 1984; Lazarus, 1991). The styles of coping with stress by Endler and Parker (1990a, 1990b, 1994) adopted in this paper: task-, emotion- and avoidance-oriented, correspond to the described theory. In this research, the issues of temperament and personality are also discussed. With reference to temperament, the definition by Strelau (1993) was adopted, which perceives temperament as basic and relatively constant personality traits which are expressed in the formal characteristics of behaviour (in energy and time parameters). Personality will be considered with regard to Costa and McCrae's (1992) Personality Model, which includes five factors: neuroticism, extraversion, openness to experi-

ence, agreeableness, and conscientiousness. Neuroticism is a dimension that means susceptibility to experiencing negative emotions, extraversion determines the quality and quantity of social interactions, as well as the level of activity, energy and the ability to feel positive emotions. On the other hand, openness to experience describes an individual's tendency to seek and positively value life experiences, while agreeableness – a positive versus negative attitude towards other people, conscientiousness is characterised by the degree of organisation, perseverance and motivation of the individual in goal-oriented activities.

The issue of stress, styles of coping with it, as well as their connections with personality traits and temperament, is undertaken within the context of the functioning of athletes. The study by Basiaga-Pasternak (2007) showed that in senior footballers, low neuroticism is associated with less frequent use of task strategies. It also turned out that neurotics apply emotional strategies before, during and after a match. Neurotic footballers feel internal tension, hence, they adopt strategies aimed at regulating emotions (*ibid.*). In addition, players with a low level of neuroticism are more likely to use escape strategies than players with a high level of neuroticism, but the escape rate decreases during the match (*ibid.*). With regard to extrovert players, Basiaga-Pasternak (*ibid.*) showed that they apply emotional strategies effectively, but reduce their use during the match. Before a match, they more often apply escape strategies, while during a game, the intensity of their escape strategies decreases significantly and reaches lower values than in introverts. Similar dependencies were observed in players who were emotionally balanced and less anxious.

In the study on senior players by Plaatjie and Potgieter (2011), taking into account, as in Basiaga-Pasternak (2007), situations before, during and after a match, players apply different strategies, therefore, the authors of the study describe them as “multiple coping strategies”. They are mainly based on strategies oriented toward emotions and task. In pre-match situations, such as thinking about the opponent's strengths, high expectations of others and match situations, e.g. referee decisions, thinking about the result, players usually used problem-oriented strategies. In post-match situations, e.g. lost matches, reflection on evaluation by the club, players used emotion-oriented strategies more often. Athletes in a difficult and stressful situation, as in the case of the study by Plaatjie and Potgieter (2011) - made efforts to solve the problem during the match.

Vollrath and Torgersen (2000) showed that the relationship between extraversion and task-oriented coping with stress depends on a combination of other personality traits. The study by Allen et al. (2011) of athletes points to a combination of extraversion, emotional stability and openness to experience with problem-oriented strategies. In the case of extroverts, however, who are open to experience and agreeable - the use of emotionally oriented strategies (Allen et al., 2011).

In the research on trainers of elite male team sports in England (rugby, football, cricket) by Finn and McKenn (2010) it is shown that in top-level sport, according to trainers, athletes should cope with stress by applying problem-solving strategies, accepting responsibility, working on self-control and constructive reassessment of their strategies. Trainers believe that the cognitive functions exercised during mental training allow the players of “young” teams (e.g. in Poland, the equivalent in 2007-2013 was the Young Ekstraklasa) to be promoted to the senior team of the “Ekstraklasa”.

Studies on the relationship between athletes' temperament and coping styles show that this relationship is the strongest in the case of emotion-oriented style (Blecharz and Siekańska, 2007). In stressful situations, athletes using this style of coping concentrate on themselves, their own experiences, take actions aimed at reducing emotional tension. These are athletes who do not show a high tolerance for physical stimuli and the tendency to react quickly and adequately as well as to change behaviour in response to changing circumstances. In the same study, it is shown that in professional basketball and football players' activity, as a temperament trait, positively correlates with the avoidance-oriented coping, especially with its form – the search for social contacts. Briskness and endurance positively correlate with the task-oriented style, while perseverance and emotional reactivity – with the emotion-oriented style. In other studies on the structure of temperament and styles of coping, Turosz (2003) indicated a positive correlation of emotional reactivity with the emotion-oriented style, and a negative correlation between the emotion-oriented style, sensory sensitivity and endurance. The described effect concerned players practicing team sports. In the case of individual sport athletes, Turosz (*ibid.*) showed a positive correlation between perseverance and avoidance-oriented coping, and a negative one between perseverance and the task-oriented style, as well as between endurance and avoidance coping.

The above conclusions inspired the following research hypothesis:

1. The task-oriented style is conditioned by the following characteristics: extraversion, endurance and briskness.
2. The emotion-oriented style is conditioned by neuroticism and emotional reactivity.
3. The style oriented on seeking social contacts is conditioned by extraversion.
4. Male and female football players with a high level of extraversion prefer to apply task-oriented coping.
5. Male and female football players with a high level of neuroticism prefer the emotion-oriented style.
6. Male and female football players with high levels of endurance and briskness prefer the task-oriented style.
7. Male and female football players with high scores on the scale of emotional reactivity prefer to use the emotion-oriented style.

Materials and methods

The study involved 252 athletes – 84 women and 168 men, aged 18–38 years (mean age 24.09 years). Three groups of athletes were examined:

- the first group: men representing the following clubs of Ekstraklasa: Cracovia Kraków, Lech Poznań, Legia Warszawa, Ruch Chorzów, Wisła Kraków (84 players);
- the second group: men representing clubs of II Liga: Kolejarz Stróże, LKS Brukbet Nieciecza, Okocimski Brzesko, Przebój Wolbrom (84 players);
- the third group: women representing the clubs of Ekstraklasa and I Liga: AZS Wrocław (Ekstraklasa), Unia Racibórz (Ekstraklasa), AJD Częstochowa, Bronowianka Kraków, Górnik Łęczna, Podgórze Kraków, and football players representing the Polish National Team (84 players).

84 women from I Liga and Ekstraklasa were examined, treating these two groups as one. The reason for combining the groups was the very similar sports level and a major problem resulting from the small number of female football players in Poland. The criterion of comparison was oriented based on the personality of athletes of both sexes. It was decided to notice relationships related to ways of dealing with stress and personality traits.

The Costa and McCrae NEO-FFI Inventory in the Polish adaptation by Zawadzki and others (1998) was used to examine the personality traits of football players. It is used to measure basic personality traits included in the five-factor personality model defined as the Big Five model.

The inventory consists of the following scales: Neuroticism (NEU) – defining emotional adaptation versus emotional imbalance (susceptibility to experiencing negative emotions, e.g. fear, confusion, dissatisfaction, anger, guilt; sensitivity to psychological stress); Extraversion (E) – reflecting the quality and quantity of social interactions, as well as the level of activity, energy and the ability to feel positive emotions; Openness to experience (OP) – determining an individual's tendency to seek and positively value life experiences, tolerance to novelty and cognitive curiosity; Agreeableness (AG) – describing positive versus negative attitude towards people, interpersonal orientation, which manifests itself in altruism or antagonism experienced in feelings, thoughts and actions; Conscientiousness (CS) – characterising the degree of organisation, perseverance and motivation of an individual in goal-oriented activities (this feature describes a person's approach to work).

The FCB-TI Temperament Questionnaire by Zawadzki and Strelau (1997) was used to examine the temperament structure of the studied athletes. The Formal Characteristics of Behaviour – Temperament Inventory (FCB-TI) is a tool for diagnosing basic, primarily, biologically determined personality traits – defined as temperament (1997). The inventory was constructed to

operationalise the structural statements of the Regulatory Theory of Temperament (RTT) (Strelau, 1985, 1992, 1993, 1995). The FCB-TI Inventory is a tool to study the following characteristics of temperament: Briskness (BR) – defines the tendency to react quickly, to maintain a high pace of activity, to change easily from one behaviour to another, according to the changes in the environment; Perseverance (PE) is a tendency to continue and repeat behaviour after the cessation of the stimulus that triggered it; Sensory Sensitivity (SS) – is characterised by a tendency to react to sensory stimuli with a low stimulus value; Emotional Reactivity (ER) – is manifested by an intense response to stimuli that evoke emotions, characterised by a high sensitivity and low emotional resistance; Endurance (EN) – defines the ability to respond adequately to situations that require prolonged or highly stimulating activity and/or under conditions of strong external stimulation; Activity (AC) – characterises the tendency to adopt behaviours with a high stimulus value or to behaviours that provide stimulation from the outside (from the environment) (1997).

The CISS (The Coping Inventory for Stressful Situations) by Endler and Parker (1990a, 1990b, 1994) in the Polish adaptation by Strelau, Jaworska, Wrześniewski, Szczepaniak (2007) was used to investigate the styles of coping with stressful situations of football players.

The inventory consists of three scales that define three styles of coping with stress: task-oriented coping (TOC) – a style of taking on tasks; people who achieve high performance on the TOC scale in stressful situations tend to take action to solve the problem by cognitively transforming their own approach to the situation or attempting to change the situation, mainly focusing on the task or planning to solve the problem; emotion-oriented coping (EOC) – is a style characteristic for people who in stressful situations tend to concentrate on themselves, their own emotions, such as anger, tension, guilt; these people are often characterised by wishful thinking and fantasising (this action is aimed at reducing emotional tension associated with stressful situations; sometimes, however, the effect is the opposite); avoidance-oriented coping (AOC) is a style characteristic of people who in stressful situations tend to avoid thinking, living and experiencing the situation. This style can take on two forms that are, at the same time, subscales of AOC involving in substitute activities (ISA), social contacts seeking (SCS).

Results

In Table 1, the correlation between personality traits and styles of coping with stress is shown.

There was a positive correlation between extraversion (E) and the task-oriented style of coping (TOC), between neuroticism (NEU) and emotion-oriented coping (EOC).

In addition, a statistically significant result was found regarding the positive relationship between neuroticism

Table 1. Correlation between personality traits and styles of coping with stress.

Styles of coping with stress	Neuroticism NEU	Extraversion E	Agreeableness AG	Conscientiousness CS	Openness OP
Task-oriented coping TOC	-0.27**	0.20**	-0.28**	0.48**	0.01
Emotion-oriented coping EOC	0.57**	-0.23**	-0.14*	-0.39**	-0.01
Avoidance-oriented coping AOC	0.20**	0.22**	-0.17**	-0.13*	-0.01
Involving in substitute activities ISA	0.28**	0.07	-0.17**	-0.21**	0.01
SCS Social contacts seeking	-0.02	0.47**	0.17**	0.17**	0.00

* $p < .05$, ** $p < .001$

(NEU) and the escape style of coping (AOC), its subscale ISA -involving in substitute activities. Neuroticism (NEU) is negatively related to task-oriented coping.

A positive relationship was observed between extraversion (E) and the avoidance-oriented style and its subscale SCS – social contacts seeking. Extraversion (E) also has a negative relationship with emotion-oriented coping (EOC).

Agreeableness (AG) has a negative correlation with emotion-oriented (EOC), avoidance (AOC) and task-oriented (TOC) coping. Negative relationships also concern agreeableness (AG) and the scale of involving in substitute activities (ISA). A positive relationship exists between agreeableness (AG) and the subscale of searching for social contacts.

It was found that conscientiousness (CS) has a negative relationship with emotion-oriented (EOC) and avoidance-oriented coping (AOC). A negative correlation refers to conscientiousness (CS) and the subscale of involving in substitute activities (ISA). Contrary to the correlation between the sub-scale of social contacts seeking (SCS) with conscientiousness. Moreover, conscientiousness (CS) is positively related to the task-oriented coping (TOC).

In Table 2, the correlation between temperament traits and styles of coping with stress are demonstrated.

No statistically significant differences were found between endurance (EN) and applying the task-oriented coping (TOC). There is a statistically significant difference between briskness (BR) and task-oriented coping.

Table 2. Correlation between temperament traits and styles of coping with stress.

Styles of coping with stress	BR	PE	ER	EN	AC	SS
Task-oriented coping TOC	0.15*	0.02	-.17**	0.12	0.07	0.07
Emotion-oriented coping EOC	-0.27**	0.42**	0.52**	-0.34**	-0.13*	-0.09
Avoidance-oriented coping AOC	-0.15*	0.21**	0.24**	-0.25**	0.27**	0.01
ISA Involving in substitute activities	-0.17**	0.17**	-0.03	0.28**	-0.28**	-0.03
SCS Social contacts seeking	0.01	0.17**	0.11	0.05	-0.09	0.11

* $p < 0.05$, ** $p < 0.001$

BR – briskness, PE – perseverance, ER – emotional reactivity, EN– endurance, AC – activity, SS – sensory sensitivity.

Furthermore, a negative relationship was observed between briskness (BR) and emotion-oriented (EOC) as well as avoidance-oriented (AOC) coping, along with the AOC subscale of involving in activities (ISA).

A positive correlation of emotional reactivity (ER) with emotion-oriented coping was observed. In addition, emotional reactivity (ER) has a positive relationship with avoidance coping (AC) and a negative relationship with task-oriented coping (TOC).

Endurance (EN) was found to be negatively correlated with emotion-oriented coping (EOC) and avoidance-oriented coping (AOC), and also positively corre-

lated with the subscale of involving in substitute activities (ISA).

A positive relationship is between perseverance (PE) and emotion-oriented (EOC), as well as avoidance-oriented (AC) style of coping with stress, its subscale of ISA and social contacts seeking (SCS). In the case of activity (AC), a negative relationship with emotion-oriented coping (EOC), a positive relationship with avoidance-oriented coping (AOC) and a negative relationship with its subscale of ISA was reported.

Table 3 shows regression analysis for task-oriented coping.

Table 3. Regression analysis for task-oriented coping.

N=252	b*	Statistical significance with b*	b	Statistical significance with b	t(240)	p
NEU	-0.13	0.08	-0.14	0.08	-1.65	0.101
E	-0.07	0.08	-0.10	0.11	-0.89	0.373
OP	0.04	0.06	0.05	0.09	0.60	0.551
AG	-0.21	0.06	-0.32	0.09	-3.58	<0.001
CS	0.51	0.07	0.68	0.10	7.13	<0.001
BR	-0.02	0.07	-0.04	0.17	-0.23	0.820
PE	0.16	0.07	0.32	0.14	2.21	0.028
SS	-0.01	0.06	-0.02	0.15	-0.15	0.884
ER	-0.06	0.09	-0.11	0.16	-0.71	0.477
EN	-0.04	0.07	-0.07	0.14	-0.52	0.602
AC	0.03	0.07	0.06	0.15	0.39	0.699

NEU – neuroticism, E – extraversion, OP – openness to experience, AG – agreeableness, CS – conscientiousness, BR – briskness, PE – perseverance, SS – sensory activity, ER – emotional reactivity, EN – endurance, AC – activity.

Table 4. Regression analysis for emotion-oriented coping

N=252	b*	Statistical significance with b*	b	Statistical significance with b	t(240)	p
NEU	0,28	0,07	0,37	0,09	3,95	<0,001
E	0,05	0,07	0,09	0,13	0,69	0,493
OP	0,04	0,05	0,07	0,10	0,66	0,508
AG	-0,15	0,05	-0,29	0,10	-2,81	0,005
CS	-0,13	0,06	-0,23	0,11	-2,08	0,039
BR	-0,01	0,06	-0,04	0,19	-0,21	0,833
PE	0,22	0,06	0,54	0,16	3,35	0,001
SS	-0,07	0,06	-0,20	0,18	-1,17	0,244
ER	0,14	0,08	0,31	0,18	1,72	0,087
EN	0,00	0,06	0,01	0,15	0,07	0,947
AC	-0,06	0,06	-0,17	0,17	-1,00	0,318

NEU – neuroticism, E – extraversion, OP – openness to experience, AG – agreeableness, CS – conscientiousness, BR – briskness, PE – perseverance, SS – sensory activity, ER – emotional reactivity, EN – endurance, AC – activity.

The results indicate that personality and temperament traits explain 28% of the variability of task-oriented coping ($R=0.53$; $R^2=0.28$; $p<0.001$). Important predictors were agreeableness (the higher the level of agreeableness, the less task-oriented style), conscientiousness (the higher the level of conscientiousness, the more task-oriented behaviours) and perseverance (the higher its level, the higher the level of TOC).

Table 4 presents the regression analysis for the emotion-oriented coping.

The results indicate that personality and temperament traits explain over 42% of the variability of emotion-oriented coping ($R=0.65$; $R^2=0.42$; $p<0.001$). Important predictors were neuroticism (the higher the level of neuroticism, the more often the emotion-oriented style appeared), agreeableness (the higher the level of agreeableness, the less emotion-oriented coping), con-

scientiousness (the higher the level of conscientiousness, the less emotion-oriented behaviours) and perseverance (the higher its level, the higher the level of EOC).

Table 5 presents regression analysis for avoidance-oriented coping.

The results indicate that personality and temperament traits explain 23% of the variability of avoidance coping ($R=0.48$; $R^2=0.23$; $p<0.001$). Important predictors turned out to be: extraversion (the higher the level of extraversion, the more often the avoidance-oriented style appeared) and activity (the higher its level, the more frequent was avoidance-oriented coping).

Detailed analyses of the avoidance style are presented in Table 6 (ISA) and Table 7 (SCS).

The results show that personality and temperament traits explain 19% of the variability of coping associated with engaging in substitute activities ($R=0.43$; $R^2=0.19$;

Table 5. Regression analysis for avoidance-oriented coping.

N=252	b*	Statistical significance with b*	b	Statistical significance with b	t(240)	p
NEU	0.12	0.08	0.15	0.11	1.40	0.162
E	0.28	0.08	0.49	0.14	3.42	0.001
OP	-0.02	0.06	-0.03	0.12	-0.28	0.783
AG	-0.11	0.06	-0.22	0.12	-1.86	0.064
CS	-0.10	0.07	-0.16	0.12	-1.31	0.193
BR	-0.06	0.07	-0.18	0.22	-0.85	0.395
PE	0.05	0.07	0.12	0.19	0.67	0.505
SS	0.03	0.06	0.09	0.20	0.43	0.671
ER	0.09	0.09	0.19	0.21	0.94	0.350
EN	-0.12	0.07	-0.29	0.18	-1.65	0.101
AC	0.17	0.07	0.44	0.19	2.30	0.022

Table 6. Regression analysis for avoidance coping.

N=252	b*	Statistical significance with b*	b	Statistical significance with b	t(240)	p
NEU	0.19	0.08	0.15	0.07	2.20	0.029
E	0.18	0.09	0.20	0.09	2.14	0.033
OP	0.00	0.06	0.00	0.08	0.02	0.983
AG	-0.11	0.06	-0.13	0.08	-1.73	0.085
CS	-0.10	0.08	-0.11	0.08	-1.33	0.185
BR	-0.02	0.07	-0.05	0.14	-0.35	0.725
PE	-0.02	0.08	-0.03	0.12	-0.27	0.789
SS	0.01	0.07	0.02	0.13	0.16	0.870
ER	0.08	0.10	0.11	0.13	0.86	0.392
EN	-0.15	0.08	-0.22	0.11	-1.91	0.058
AC	0.12	0.08	0.20	0.12	1.62	0.106

Table 7. Regression analysis for coping oriented towards searching for social contacts.

N=252	b*	Statistical significance with b*	b	Statistical significance with b	t(240)	p
NEU	0.14	0.08	0.06	0.03	1.71	0.088
E	0.47	0.08	0.27	0.05	5.89	<0.001
OP	-0.07	0.06	-0.04	0.04	-1.13	0.261
AG	0.11	0.06	0.07	0.04	1.92	0.056
CS	0.02	0.07	0.01	0.04	0.30	0.768
BR	-0.07	0.07	-0.07	0.07	-1.03	0.306
PE	0.06	0.07	0.05	0.06	0.84	0.401
SS	0.09	0.06	0.09	0.06	1.48	0.139
ER	0.02	0.09	0.02	0.07	0.24	0.809
EN	-0.06	0.07	-0.05	0.06	-0.88	0.378
AC	0.07	0.07	0.06	0.06	1.03	0.306

$p < 0.001$). Neuroticism and extraversion turned out to be important predictors (the higher their level, the more often engaging in substitute activities occurred).

The results demonstrate that personality and temperament traits explain 29% of the variability of coping oriented towards searching for social contacts ($R=0.54$; $R^2=0.29$; $p < 0.001$). Neuroticism and extraversion proved to be important predictors – the higher its level, the more often the search for social contacts appeared.

Discussion

The relationship between personality and styles of coping with stress

In the conducted study, correlations between extraversion and task-oriented coping were shown, but regression analysis did not confirm the assumption that extraversion would condition the application of the task-oriented style of coping. Extraversion, on the other hand, is an important predictor of using the style focused on searching for social contacts. The assumption that neurotic male and female footballers would prefer to use the emotion-oriented style has been confirmed. Therefore, neuroticism is an important predictor of applying the emotion-oriented style by football players.

Extravert athletes feel comfortable in a starting situation, they like challenges and difficulties, it provides them with the stimulation they need to function effectively. Temporary failures do not cause disorganisation of their actions (Stronczyński, 1988). More often, however, they undertake task-oriented strategies, which has been confirmed by Basiaga-Pasternak (2007) and Allen et al. (2011). Rogowska (2018) showed that they avoid focusing on themselves and their own emotional experiences, such as anger, guilt and tension. In the research undertaken, this is suggested by the negative correlation

between extraversion and the emotion-oriented style of coping. An extrovert is a person who enjoys the company of others, in a stressful situation, seeking social support. In a meta-analysis on coping with stress by Connor-Smith and Flachsbart (2007), the authors showed that extraversion provides coping with stress by seeking social support.

Neurotic athletes, especially those with a high intensity of this trait, react with strong emotional excitement before a match. Basiaga-Pasternak (2007) showed such a dependence in the three moments analysed by her: before, during and after the match. Neurotic male and female footballers experiencing negative emotions associated with a sports competition, due to a lack of mental resources to confront their emotions, often yield or dissociate themselves from them by using the avoidance-oriented coping mechanism as well as engaging in substitute activities. A positive correlation between neuroticism and the escape style of coping obtained in the research was also observed by Basiaga-Pasternak (2007) and Allen et al. (2011). The relationship between neuroticism and the application of emotion-oriented and avoidance-oriented coping by athletes was demonstrated in the studies by Connor-Smith and Flachsbart (2007), Carver and Connor-Smith (2010) and Kaiseler, Polman, Nicholls (2012).

An interesting result in the presented research concerns agreeableness, which negatively correlates with three styles of coping with stress. A negative correlation of agreeableness with emotion-oriented coping was found in the general population by Carver and Connor-Smith (2010). Agreeableness in the undertaken research significantly determines the use of the task- and emotion-oriented style. The higher the level of agreeableness, the less frequent the application of task- and emotion-oriented coping. Agreeable individuals, due to the fact that they are very nice and collaborative, should be in a positive relationship with searching for social

contacts (Strelau et al., 2007). And this has been shown in the present study – a positive correlation between agreeableness and the style oriented towards seeking social contacts has been demonstrated.

Consistent with the results of Costa et al. (1996) for non-athletes, a correlation between conscientiousness and task-oriented coping has also been observed in this study. Conscientiousness in the described studies of male and female players significantly determines the use of the task-oriented style. Conscientious individuals are characterised by a strong motivation to act, as well as perseverance in achieving goals, which is explained by the dependence obtained in the research, which can also be proved by the observed negative correlation between conscientiousness and engaging in substitute activities. Perhaps the positive correlation between conscientiousness and the subscale of searching for social contacts is connected with the fact that conscientious athletes, striving to accomplish a task, when they cannot do it themselves, turn to others for help. The result of a negative correlation of conscientious male and female footballers with the emotion-oriented style of coping is not surprising. The higher the level of conscientiousness, the less frequent the use of the emotion-oriented style. Carver and Connor-Smith (2010) found a similar relationship in general population studies. Conscientious athletes who are task-oriented in solving a problem treat focusing on their emotions as distractors in the process of coping with the situation.

The relationship between temperament and styles of coping with stress

Male and female footballers who prefer the task-oriented style of coping with stress tend to make efforts to solve a problem. Situations during a match change dynamically, therefore, athletes using the task-based style of coping with stress quickly react to changes, as evidenced by the correlation of this style of coping with the temperament trait – briskness. Similar relationships are confirmed by research on athletes (Blecharz and Siekańska, 2007) and non-athletes (Strelau et al., 2007). In difficult situations, whether on the pitch or in everyday life, it is very important to react quickly and adequately, and to be able to change one's behaviour (reactions). During the match, players are constantly subjected to such attempts to change their behaviour (reactions). The consequence of inadequate reaction is an error, which may result in losing the goal.

In the undertaken research, a negative correlation between emotional reactivity and task-oriented coping was found. This is also confirmed by reports from the research conducted by Blecharz and Siekańska (2007). It can be presumed that athletes who effectively use the task-oriented coping style in stressful situations do not react with strong emotional stimulation, as it could cause a decrease in the effectiveness of their performance. In the research by Brudzicka-Wołowik and Góral-Radziszewska (2014), it was shown that female athletes

practicing martial arts in the master class achieved a low score on the scale of emotional reactivity. Martial arts are disciplines which, at the highest master level, require from a competitor to effectively cope in changing training and competition conditions.

Interesting is the proven relationship between the task-oriented style and perseverance. This temperament trait instinctively determines the use of the task-oriented style by male and female footballers. Perseverance is the tendency to continue and repeat behaviours after the cessation of the stimulus or situation that triggered it. A person with high scores on the perseverance scale shows high emotional sensitivity, a tendency to react with anxiety and emotional tension in a stressful situation. Perhaps players have a tendency to meticulously analyse (which is characteristic of perseverance), used for reflection after the match is over.

In her research, Turosz (2003) showed a positive correlation between activity and the task-oriented style of coping with stress in players practising team sports. In the case of players who are active, there is a behavioural pattern aimed at adopting behaviours and strongly stimulating activities. Players may seek sources of this stimulation outside. This might explain the positive correlation between footballers' activity and avoidance-oriented coping, especially its subscale of searching for social contacts and being less engaged in substitute activities.

The positive correlation obtained in the present study between emotion-oriented coping, perseverance and emotional reactivity was also demonstrated by Blecharz and Siekańska (2007) in research on professional footballers and basketball players. The study by Strelau et al. (2007) on non-athletes showed a strong positive correlation between emotional reactivity, perseverance and the emotion-oriented style. Athletes demonstrating perseverance tend to continue and repeat their behaviours after the cessation of the stimulus triggering the behaviour. The demonstrated correlation between perseverance and the emotional style may suggest that football players focus on experiencing emotions after the cessation of the factor causing them.

The obtained positive relationship between emotional reactivity and the emotion-oriented style in the studied players corresponds to the study by Turosz (2003), in which team sport players using the style of coping based on emotions, were emotionally reactive. Emotional reactivity in a stressful situation is manifested by strong emotional stimulation. This stimulation is the cause of ineffective and inadequate action. This may also confirm a negative relationship of endurance with emotion-oriented coping in the conducted research on footballers and in the research by Turosz (2003).

Blecharz and Siekańska (2007), in a study conducted among football and basketball players, also obtained a negative correlation between briskness and the emotion-oriented style. Lively players, who tend to react quickly and maintain a high reaction rate and to change behaviour quickly from one situation to another, do not prefer to focus on emotions or to avoid problems.

A similar tendency occurs in athletes with activity, as it is characteristic for them to undertake behaviours of high stimulative value, focusing on emotions, applying wishful thinking and fantasising aimed at reducing emotional tension, which is not rewarding for them. In this study, a negative correlation between activity and emotion-oriented coping was found.

The obtained positive correlation between perseverance and avoidance, as well as its two sub-scales: engaging in substitute activities and searching for social contacts, may indicate that athletes with a high intensity of this feature will seek social support or engage in activities that help to reduce emotional tension. In this study, activity is an important predictor of avoidance-oriented coping. Athletes with a high level of activity may tend to seek out challenges outside the "pitch" to prevent, e.g. training monotony.

A correlation between the positive direction of emotional reactivity with a style focused on avoidance and its subscale of engaging in substitute activities may suggest that athletes, under pressure and experiencing strong emotions, seek behaviours that reduces unpleasant sensations. The observed negative correlation between avoidance and briskness, as well as endurance, may indicate that athletes who respond quickly to a change in situation, effectively and adequately responding to situations that are strongly stimulating, will not use avoidance coping. In their case, applying this style will not be constructive and internally satisfying for them.

Summary

- The following correlations of personality traits and styles of coping with stress were found concerning:
 - a positive correlation between extraversion (E) and task-oriented coping (TOC);
 - a positive correlation between neuroticism (NEU) and emotion-oriented coping (EOC);
 - a positive correlation between extraversion (EX) and avoidance-oriented coping (AOC) and social contacts seeking (SCS) (stronger and more effective in the case of SCS);
 - a positive relationship between neuroticism (NEU) and avoidance-oriented coping (AOC), as well as involving in substitute activities (ISA) (stronger in the case of ISA);
 - a negative correlation between agreeableness (AG) and task-oriented coping (TOC) as well as avoidance-oriented coping (AOC), involving in substitute activities (ISA) and a positive correlation between agreeableness (AG) and social contacts seeking (SCS);
 - a positive correlation between conscientiousness (CS) and task-oriented coping (TOC), social contacts seeking (SCS), a negative correlation between conscientiousness (CS) and emotion-oriented coping (EOC) and avoidance-oriented coping (AOC), as well as involving in substitute activities (ISA).
- The following relationships between temperament traits and styles of coping with stress were shown:
 - a positive correlation between briskness (BR) and task-oriented coping (TOC);
 - a positive correlation between emotional reactivity (ER) and emotion-oriented coping;
 - a negative correlation between briskness (BR) and emotion-oriented coping (EOC), avoidance-oriented coping (AOC) and involving in substitute activities (ISA);
 - a positive correlation between perseverance (PE) and emotion-oriented coping (EOC), avoidance-oriented coping (AOC), involving in substitute activities (ISA), social contacts seeking (SCS);
 - a negative correlation between emotional reactivity (ER) and task-oriented coping (TOC), a positive correlation with avoidance-oriented coping (AOC);
 - a negative relation between endurance (EN) and emotion-oriented coping (EOC) as well as avoidance-oriented coping (AOC), a positive relationship with involving in substitute activities (ISA);
 - a negative correlation between activity and emotion-oriented coping (EOC), involving in substitute activities (ISA), a positive correlation between activity and avoidance-oriented coping (AOC).
- Important predictors of the task-oriented stress management style turned out to be: agreeableness (AG) (the higher the level of agreeableness, the less task-oriented coping), conscientiousness (CS) (the higher the level of conscientiousness, the more task-oriented behaviours) and perseverance (PE) (the higher its level, the higher the level of TOC).
- The determinants of emotion-oriented coping (EOC) can be found in the following features: neuroticism (NEU) (the higher the level of neuroticism, the more often the emotion-oriented style appeared), agreeableness (AG) (the higher the level of agreeableness, the less the emotion-oriented style), conscientiousness (CS) (the higher the level of conscientiousness, the less emotion-oriented behaviours), and perseverance (PE) (the higher its level, the higher the level of EOC).
- Important predictors of avoidance-oriented coping (AOC) turned out to be: extraversion (E) (the higher the level of extraversion, the more often the avoidance style appeared), and activity (AOC) (the higher its level, the more frequent avoidance-oriented coping).
- The style focused on involving in substitute activities (ISA) is conditioned by neuroticism (NEU) and extraversion (E), and the style focused on social contacts seeking (SCS) by extraversion (E).

Conclusions for coaching practice:

- Trainers' knowledge of styles of coping with stress used by athletes is quite important. This helps to individualise training. In light of the obtained results,

it would be appropriate for trainers to teach and strengthen effective styles of coping with stress, especially task-oriented coping. In stressful situations, neurotic players may concentrate too much on their own experiences, which can cause negative consequences on the pitch, e.g. unnecessary fouls. This could be prevented by increasing emotional self-control. In the case of neurotic and extrovert athletes, it is important to work on eliminating substitute behaviours and factors that disrupt the players' game. Extrovert athletes who tend to use avoidance, and in particular, search for social contacts, may find it difficult to focus before a match. In such a case, attention should be paid to shaping an appropriate mechanism of emotional self-control and developing a pre-match routine appropriate for a given player.

2. Players differ in terms of optimal demand for stimulation and processing efficiency. Knowledge of a player, due to his/her temperament traits, should result in an individualised transfer of tasks entrusted to them, as well as in an individualised formulation of messages, both in training situations and in mental preparation for a match.

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The Use of Selected Social Media: Instagram to Promote Physical Activity and a Pro-Health Lifestyle

Jarosław Nadobnik

University of Szczecin, Institute of Physical Culture Sciences

Summary

A pro-health lifestyle, recreation and sport, as well as social media are closely related. A lot of people want to look good, eat well, be fit and engage in physical activity. As a consequence, companies from the fitness industry and producers of dietary supplements employ social media specialists in marketing agencies. Information published on Facebook, Instagram, Twitter or YouTube reach up to thousands of people in a short time period. The Internet is full of profiles of people who publish their relationship with trainings, show progress on the way to a dream figure, talk about the fight against overweightness, diets rules, etc. The tools from the Instagram social network, as well as the number of users and hashtags associated with physical activity, fitness and promotion of a healthy lifestyle, are vast. On Instagram, the most popular hashtags were #love, #instagood, #me, #happy, #girl, but the #fitness hashtag was 18th, the #sport 152nd, place for a total of about 92 million hashtags. The matter of physical activity is important for many users of this social platform. If the user consciously makes use of the possibilities of digital technology and treats the Internet as a tool to satisfy higher needs, then one can certainly talk about the positive aspects of technological development and technology for the proper functioning of a pro-health lifestyle.

Keywords: physical activity, healthy lifestyle, fitness, social media, Instagram

1. Introduction

The omnipresence of advanced technologies is an aspect of contemporary civilizational progress that seems to be affecting nearly all areas of human life in a significant manner, physical activity included (Grandes et al., 2011). The intensive development of modern technology has made the Internet media an important source of information, including that concerning health and a maintaining a pro-health lifestyle (Syrkiewicz-Światła, 2014). Research indicates that there is a relationship between the everyday use of modern technological solutions and lack of exercise (Kooiman et al., 2016). It has been found that exercise correlates closely with health (Hardman et al., 2003) and, in particular, that sedentary lifestyle can often be detrimental to overall human wellbeing (Tabak et al., 2012). Lack of exercise has also been known to adversely affect human mood (Oreskovic et al., 2015). More importantly, for some time now, high rates of obesity in children and teenagers have been seen as indisputably related to the amount of free time they spend outdoors (Baranowski et al., 1993). Adults, too, often fail to reach the minimum levels of physical activity, for example, the recommended 10,000 steps a day (Tudor-Locke et al., 2008). Physical exercise includes recreational or leisure-time physical activity, transportation (e.g. walking or cycling), occupational (i.e. work), household chores, playing, games,

sports or planned exercise, in the context of daily, family and community activities (WHO, 2010). Physical activity is one of the main components of a healthy lifestyle (Morris et al., 1953). Tourism and active recreation are also forms of physical activity.

New technologies, certainly capable of improving the comfort of our lives, can therefore be quite harmful by contributing to the limitation of undertaken exercise (Sinelnikov, 2012).

This can result in increased strain on their nervous, circulatory, or other systems of their bodies, which, in turn, may lead to the development of life-threatening medical conditions (Bock et al., 2012).

Society is reflected in social media (Deluga, 2017), and the importance of the Internet in public space, the great potential of social media in creating social relationships is highlighted (Posytek, 2017). On the other hand, were it not for Internet-based mass media such as social networking services, information portals and websites, the operation of many businesses, those specialising in fitness, tourism, recreation, and sport included, could hardly be successful.

Due to a high level of saturation with IT electronic equipment, societies across the globe have gained almost instantaneous access to a virtually inexhaustible store of visually attractive information (Lepp, 2014). According to *We Are Social* and *Hootsuite Global Digital* – Internet-mon-

itoring companies, the number of people who have access to the Web worldwide topped 4.4 billion in early January 2019 (Imfnd ST, 2019). Not surprisingly, fitness and health-promoting companies have quickly become aware that their products and services will only succeed commercially if they manage to secure a strong online presence (Anderson, 2010). Many of these companies are solely web-based businesses, partly for reasons of cost-competitiveness, and partly because that is what the growing number of on-line shoppers expect (Wolny, 2013).

Contemporary teenagers tend to look up to individuals who exemplify qualities such as beauty, fitness and health. Social media influence lifestyle choices, interpersonal interactions and shape consumption habits (Deluga, 2017). Little wonder that popular athletes, singers and actors have become trendsetters and role models in a pop culture where body and appearance play an increasingly important role in the lives of hosts of young people (Mears, 2012). The market's response to this development is an ever increasing number of fitness-industry companies (fitness clubs, diet supplement manufacturers, sportswear and sports equipment makers), trying to win over potential customers, encouraging the use of their products and services with the help of social media marketing experts (Schau et al., 2009). That is where Facebook, Instagram, Twitter or YouTube come in, because information posted on these platforms takes a split second to reach hundreds of thousands of potential customers. In other words, the presence of businesses on social networking and communication services has become a must that directly translates into improving customer loyalty. Instagram is a photographic website with a social portal connected to the application of the same name (available for Windows Phone, iOS and Android operating systems) that allows users to edit photos, videos and share them on various social networking sites. Instagram can be accessed through a number of services, including smartphones, tablets, laptops, and other devices capable of working online. Owing to its intuitive operation and relatively low hardware requirements, the number of its users is constantly growing (Middelweerd et al., 2015).

It has been estimated that in January 2019, there were nearly 7 million active Instagram accounts in Poland. The largest profiles found on the platform are those of Polish celebrities, popular bloggers and brands. Interestingly enough, 63% of Polish Instagrammers are women, while elsewhere in the world, the split between men and women is more or less even. Other than that, Polish users fall within user-age categories seen elsewhere in Europe (Berezowski, Darecki, 2019). The most active users are individuals aged 18-24 (about 37%), the second most active are people 25-34 years of age (27%), these are followed by users aged between 13 and 17 (17%) and 35 and 44 (13%). Users 65 plus make up only 1% of the entire Polish Instagram community.

However, the online-media-supported consumer culture growing out of an ideal of a beautiful body does not always reflect reality. More often than not, images of individuals that can be viewed on-line are, in truth, com-

puter-enhanced pictures that seem to affirm a truly unattainable perfection in the quest for fame, acceptance or recognition. More importantly, they encourage comparisons that may result in lowered self-esteem and growing eating disorders on the part of many young viewers (Dittmar, 2008).

Therefore, the role of social media in marketing is very important. Over 66% of customers aged 18-34 declare that they choose products or services based on information and opinions posted online by other customers (Telus, 2019).

Nonetheless, fitness-and-health-product manufacturers and/or service providers are not the only ones interested in posting content on social media. The Internet is brimming with profiles of individuals who publicise videos of their day-to-day workouts, recount their success stories, tell of their struggle with weight-loss, or share diet recipes (Middelweerd, 2015).

The Web and social media are not the only sources of inspiration for those who want to improve their physique and overall condition. According to a report by Deloitte (UOKiK, 2019) titled 'The European Health & Fitness Market 2018', 2.91 million Poles were holders of fitness clubs membership cards in 2018, which is approximately 7.7% of the entire population. For the purposes of the report, 'fitness club' was defined as a room dedicated to physical activity, fitted with endurance and aerobic training equipment, and overall-stamina-building equipment. It had to be made accessible to members of the general public either in return for a monthly membership fee or on a single-session-fee basis. In 2018, there were 2,600 fitness clubs across the country.

2. Study aim

This paper is an attempt at identifying the extent to which content related to pro-health behaviour is present on selected social media. Based on a social networking platform by the name of 'Instagram', the number of accounts (profiles) of its users interested in the broadly understood subject of physical activity was identified. By comparing the number of active users posting images, videos and/or comments on physical culture and the promotion of healthy lifestyles, with the number of accounts held by other users (those who reveal little interest in these areas), the place and importance of the researched subject matter in the preferences of social media users is approximated. For the sake of simplicity, it shall be assumed that the larger the number of accounts dedicated to a given subject, the greater the interest in that subject and the subject's popularity on the part of Internet users.

3. Materials and Methods

One of the consequences of the quickening pace of contemporary life is fewer people being able to spare enough time to access information available to them in

the form of longer passages, for example, detailed scientific analyses and conclusions (Goff, 2013). Instead, they seem to have become increasingly drawn to much shorter and visually appealing messages that are typified by, for example, Internet memes, i.e. graphics with captions (Nowak, 2013). This is probably the reason why the promotion of physical activity and healthy lifestyles through images, videos and shorter rather than longer texts is gaining popularity and is generally seen as more persuasive and effective by today's audiences.

The object of study of this paper is analysis of user accounts and user channels found on one of the most popular (Kemp, 2019) online social portals - Instagram. This site is a photo-sharing social networking service and an application by the same name, allowing its users to edit photographs and short videos, put digital filters on them, and share via a variety of other Internet services. Owned by Facebook, Inc. and started in 2010, it focuses almost entirely on communicating content through photos, videos and short comments, which means that it is a medium particularly popular among children and teenagers.

Instagram has also helped to revolutionise the way smartphones, tablets and computers are being used today. It allows users to share unlimited quantities of text-and-graphics messages displayed on Internet sites, much like on Facebook. Initially, Instagram was used solely by iPhone owners, but within less than two years from the iPhone premiere, the number of active users rocketed to over one hundred million. By December 2014, that figure had trebled, reaching about 1 billion accounts at the beginning of 2019. In July 2015, the service received a new tool that has afforded its users swift access to hashtags, profiles and geographical location, solutions which have significantly improved searching for content that users find interesting.

Objects displayed on Instagram can be 'liked' by clicking a heart icon. They can also be commented on. The platform can be used very much alike a regular information service. It works fast and its operation is entirely intuitive. No wonder that, much like elsewhere in the world, it has become very popular in Poland.

In carrying out research, the author of this study relied primarily on a software called '*Thanh Toan Nguyen analytics tool for #hashtag*' (Nguyen, 2018), which allows searching for selected content publicised by other users. Research was carried out using the virtual research method, on the Internet – netnography (Jemiłniak, 2013). The study is quantitative, not qualitative. It is a professional tool applied by analysts and managers when setting up business and marketing strategies for companies that exploit social media in their market operations. For the purposes of this paper, the software was applied to do three things: run a quantitative statistical analysis of the publicised content, create graphs and diagrams, and identify relationships between relevant hashtags. Hashtags are words, phrases or tags preceded by the pound sign, or '#', used chiefly in online social networking applications. They facilitate finding and grouping content

elements such as photographs, tweets (short posts), links, videos, etc. On Instagram, the pound sign (#) serves to label content that is of interest to other users of the platform, for example: #film, #sport, #girl, etc.

Other analytical tools that proved useful in the researching process were those rendered available by Instagram, Inc. (Goff, 2013).

The notions of physical culture, physical activity and healthy lifestyle are, by definition, rather broad. In order for search words concerning any of these areas to be found and connected to relevant objects on the Internet more readily, it is important to keep hashtags clear, to the point, making them as brief as possible. Furthermore, to make users' websites understandable abroad, search words are usually translated into English. Therefore, instead of #kultorafizyczna, #zdrowystylzycia, #aktywnościfizyczna, one is more likely to see #fitness, #healthy, #diet, #active, #tourism, #recreation, etc.

The content that was put to analysis for the purposes of this paper comprised photographs, short videos and passages promoting exercise and healthy nutrition that have been posted online by fitness-industry businesses, TV and print media celebrities, as well as amateurs, i.e. individuals presenting their personal success stories related to, for example, losing weight, healthy eating habits or an active lifestyle.

4. Results

A review of Instagram profiles allowed to establish the numbers of online users, accounts and channels related to physical activity and the promotion of healthy lifestyles, based on search words customarily expressed in English, a language which appears to have dominated Instagram's hashtag identification system. Incidentally, some of the English hashtags were found to be misspelled, usually by having an incorrect or misplaced letter, rendering access to the content more difficult. Other mother tongues were found to be decidedly less frequently used for hashtagging. For example, tourism in Polish (#turystyka) was found on 19 profiles, in German (#tourismus) on 69, in Dutch (#toerisme) on 12, and in Lithuanian (#turizmas), not a single profile was found. On the other hand, as many as 865,508 posts and tags were found for the English (#tourism).

Due to this striking disproportion in the number of search words expressed in users' native languages and those expressed in English, as well as the limited length of this paper, when presenting the results of his research, the author focuses entirely on the English language hashtag searches.

Given the substantial number of used synonymic expressions and, as already mentioned, the occasional spelling errors, English hashtags identified by the computer system have been divided into three major categories: category one – search words containing the word 'fit', category two – search words with the words 'health' or 'healthy nutrition' in them, and category

three – ‘other’ search words, i.e. those with any other designations related to physical culture (including ‘activity’, ‘tourism’, and ‘recreation’). The number of posts (comments) per hashtag determines its global positioning on Instagram, i.e. it indicates the place the hashtag occupies on the list of most popular hashtags among social media users. Overall, the undisputed number one is #love, with 1,284,275,402 posts, followed by #instagood, with 753,438,850 posts, and #photooftheday, with 513,555,343 posts (Soo, 2019).

In the area that this paper is concerned with, Instagrammers’ most intense activity was discovered in the fitness-related category, propagated by #fitness, #fitlife, and #fitgirl channels. Interestingly enough, content geared towards senior citizens was found under #fitgrandma and #fitgrandpa, with information intended for senior females being decidedly more popular than that addressed to senior males (see Table 1).

Table 1. Numbers of ‘fit’-hashtags (source: author’s own figures).

‘fit’-hashtags	Numbers of comments
#fitness	284 777 529
#fitlife	26 505 419
#fitgirl	25 918 715
#fitspiration	15 921 868
#fitfamily	3 129 064
#fitgirlsguide	2 297 732
#fitnes	1 701 215
#fitnessfreaks	1 245 979
#fittes	1 208 028
#fitnesstrainer	920 634
#fitmen	703 462
#fitgrandma	84 394
#fitgrandpa	9 346
‘fit’-category total	364 423 385

Table 2. Numbers of ‘health-’ and ‘healthy nutrition’-related hashtags (source: author’s own figures).

‘health’- and ‘nutrition’-related hashtags	Numbers of comments
#healthy	126 162 310
#health	81 766 899
#diet	50 161 601
#healthydiet	1 956 331
#dietfood	1 757 979
#healthymeal	1 261 617
#healthyfoods	698 238
‘health-and-nutrition’ category total	263 764 975

Category two, i.e. health and healthy nutrition, comes in second. Information on these topics is usually conveyed through #healthy, #health, and #diet, less frequently through #healthymeal or #helathyfoods (see Table 2).

In category three, the most frequently found hashtag was #active, followed by #sportlife, #tourism, and #recreation (see Table 3). Many users tend to put words like ‘active’, ‘tourism’ or ‘recreation’, interchangeably or sometimes even collectively, on their profiles, failing to discern their different meanings. It is quite understandable since the colloquial definition of ‘active’ does encompass such aspects of human life as, for example, running (recreation) or sightseeing (tourism). Hence, Instagram is full of sites labelled, for example, #tourism, but showing photographs from a Nordic walking event or individuals relaxing by a hotel swimming pool.

Summing up, in the broadly understood field of physical culture, hashtags containing the word ‘fit’ were

Table 3. Numbers of ‘other’ hashtags (source: author’s own figures).

‘other’ hashtags	Numbers of comments
#active	18 431 912
#sportlife	2 612 438
#tourism	865 508
#recreation	722 543
‘others’ hashtag total	22 632 401

found to be used by the greatest number of active Instagrammers - 55.99% of all researched accounts. Another 40.53% of hashtag search words were related to health and healthy nutrition, whilst the least popular ones (3.48%) were words connected with tourism and recreation (see Figure 1).

5. Discussion and final conclusions

Modern technologies have had undoubtedly profound impact on the life of an individual and, more broadly, civilizational changes, even global ones. This is probably the reason why the promotion of physical activity and healthy lifestyles through images, videos and shorter rather than longer texts is gaining popularity and is generally seen as more persuasive and effective by today’s audiences. A quantitative analysis of comments found on researched Instagram accounts has revealed that the most frequently occurring hashtags on physical activity and healthy lifestyle channels are #fitness, #sport, #diet, and #fitlife (Nguyen, 2019). This seems to indicate that physical activity is important to many Instagrammers as it ranks high on the list of their priorities. Out of approximately 92 million Instagram channels, the #fitness comes in 18th, and #sport, 152nd. The social platform in question offers channels on an immense variety of topics and is capable of attracting different social groups. There

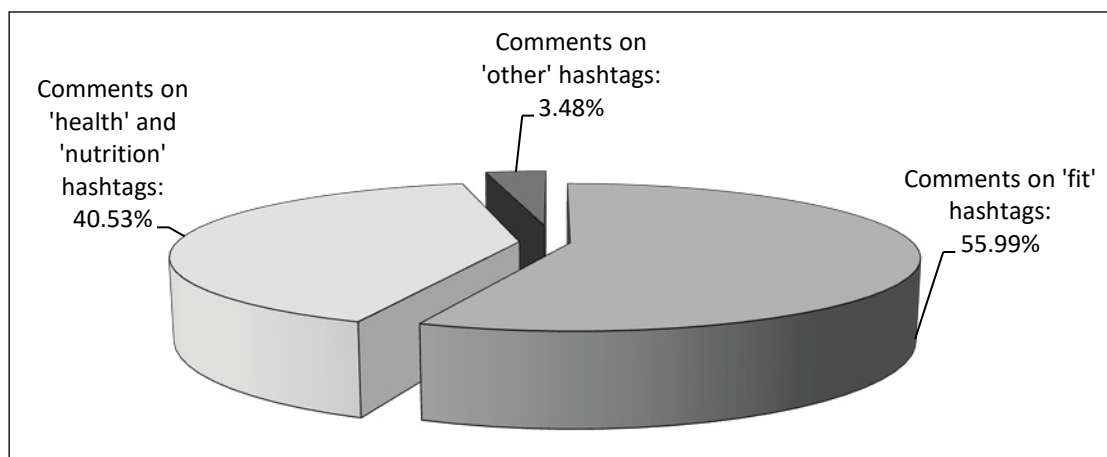


Figure 1: Pie chart illustrating percentage distribution of data shown in Tables 1, 2 and 3 (source: author's own figures).

are hashtags intended for children, teenagers, adults, seniors, beginners and professionals, for example: #fitfamily, #fitnesstrainer, #fitgrandma, #fitgirl and #fitmen, comprising 56% of all channels on the subject of physical culture and the promotion of an active lifestyle. Health and nutrition category hashtags make up another 41% of all researched channels. The least popular search words are those related to tourism and recreation (3%).

Instagram is one of those services that has revolutionised the use of smartphones, tablets and computers. The Internet content promoting exercises, healthy eating and physical activity includes various forms of communication, usually photographs, short films, animations and concise texts.

The author's research and observations confirm that technological progress does not have to negatively affect the behaviour of modern man. If the user consciously makes use of the possibilities of digital technology and knowingly treats the Internet as a tool to satisfy higher needs – then one can certainly talk about the positive aspects of technological development and technology for the proper functioning of a pro-healthy lifestyle for the individual and among the whole society. In the future, the author plans to conduct qualitative analysis of the content of Instagram accounts, which will be an interesting material to learn the motivation of users leading a healthy lifestyle. In the case of the YouTube social network, such analyses have already been published (vide Zmuda Palka, 2018).

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Report from participation in the 58th International Session for Young Participants of the International Olympic Academy in Ancient Olympia from 16th to 30th June 2018

Arkadiusz Włodarczyk

Józef Piłsudski University of Physical Education in Warsaw

From 16th to 30th June 2018, at the International Olympic Academy in Olympia, the 58th International Session for Young Participants took place. The International Olympic Academy is located on the Peloponnese Peninsula in the vicinity of the largest open-air sports museum – ancient Olympia, where the first Olympic Games were held. The Olympic complex included a sports stadium, gymnasium, palestra, baths and religious buildings, including temples: Hera and Zeus. In 1989, the archaeological sites of Olympia given on the UNESCO World Heritage List, and the International Olympic Academy is the world's centre of research on Olympism.

The first day of the session was devoted to the arrival and accommodation of participants, coordinators, lecturers and organisers in Athens. This year's edition was attended by 160 participants from all over the world (including most European countries, USA, Canada, Australia, China, New Zealand, Egypt, Zimbabwe, Colombia, Argentina, Bangladesh, the Cook Islands and Virgin Islands). Among them, there was one representative of Poland: Arkadiusz Włodarczyk (recommended by the Polish Olympic Academy) – researcher at Józef Piłsudski University of Physical Education in Warsaw, doctoral student and a member of the Olympism Department of Bronisław Czech University of Physical Education in Kraków.

The next day of the session was charged with content related to Greek culture, thus all participants went to Acropolis and visited the museum. The last point of the trip was the Panathenaic Stadium – the venue where the first modern Olympic Games were held in 1896. In the evening of 17th June, all participants took part in the opening ceremony of the 58th session, attended by the President of Greece himself, and in the evening, a lavish dinner was served to the participants. The next morning, the participants went to Olympia by buses, stopping at Delphi and visiting the local museum, stadium and the remains of the temple complex, where the famous oracle of Delphi was located. Late in the evening, the participants of the session reached Olympia.

The participants spent nearly 1.5 weeks (from 19th to 28th June) in Olympia, where they visited the archae-

ological part of the city, practiced various kinds of sports and traditional games, acquainting themselves with the cultures of different countries during social evenings. Dances and artistic activities were held, and above all, the participants studied Olympism from the Antiquity to modern times. The idea of the session for the young participants is to introduce them to Olympism and the Olympic movement. The International Olympic Academy conducts education in the field of the Olympic Games and the Olympic movement in its broadest sense, and in particular, aims to motivate participants by using their experience and knowledge acquired during the session to promote Olympic values in their home countries.

Since 2013, the International Olympic Academy has been formulating a main subject related to Olympism, which is dealt with by the participants of all sessions in a given year. The subject discussed during the 58th session for young participants was "Athlete as a role model". On the first day of the stay in Olympia, Prof. Konstantinos Georgiadis (Honorary Dean of the International Olympic Academy) officially welcomed each participant and lecturer, and the opening ceremony of the scientific part was honoured by the speech of Isidoros Kouvelos, President of the International Olympic Academy. The session itself consisted of two cycles, during which participants had the opportunity to listen to lectures given by eminent professors from all over the world, dealing with the history and sociology of sport in their research, as well as its philosophical and ethical themes. Among the lecturers were Prof. Stephen G. Miller, Prof. Ingo-Mar Weiler, Prof. Cesar Torres, Prof. Leslie A. Howe, and also titled Olympians like Kipchoge Keino. Each lecture was followed by a discussion during which participants asked the speakers questions. Lectures and conclusions from discussion panels were used in discussion groups into which the participants were divided. Each group, led by two coordinators, had to formulate two questions in a cycle, concerning the main topic of the session and then answer them on the basis of lectures and their own knowledge and experience, later presenting the results of work in a lecture summarising each cycle. Participants

wondered, among others, whether the Olympic athlete should be a “better” role model to follow and should be expected to do more than other athletes in connection with the promotion of Olympic values, and whether it is easier for Paralympians to become role models because of their dysfunctions and social compassion.

As already mentioned, in addition to participation in lectures and discussion groups, participants could present their country’s traditions and culture during social evenings, take part in sports events, try their hand at literature and poetry workshops or artistic activities, use the academic library or participate in the Olympic Day, which takes place on 23rd June each year around the world. The central event of the Olympic Day after lighting the Olympic torch and the relay with the flag of the academy, was a approx. 1,000 m run. According to the idea that it is not the place that counts, but participation, time was not measured, everyone received only a commemorative diploma without distinguishing the winner and rewarding the leading places. In addition,

the participants took part in lectures on films about the Olympic Games and visited the historical archive devoted to the 2004 Olympic Games in Athens. Among the participants of the session were also Olympic athletes, who had the opportunity to present their experiences of participating in the Olympic Games.

After both series of lectures and the presentation of conclusions by the discussion groups, a closing ceremony took place, during which each participant received commemorative diplomas signed by Thomas Bach, President of the International Olympic Committee. Two weeks spent with people from all over the world allowed to forge great friendships and exchange of valuable experiences on the subject of Olympics in its broadest sense. The closing ceremony of the 58th session summarised the time spent in the ancient Olympia – the cradle of the Olympic Games – reflecting on the timeless values of the Olympics, instilling the motivation in the participants to spread universal Olympic values in accordance with the motto *Citius, altius, fortius*.

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