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Original Study Article

Results of the first Russian Delphi survey on the diagnosis and treatment of flatfoot in children

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BACKGROUND: To date, there is no consensus regarding the diagnostics of flatfoot in children and approaches to its classification and treatment.

AIM: This study aimed to demonstrate the results of the first Russian consensus, performed according to the Delphi method, for the diagnostics and treatment of flatfoot in children.

MATERIALS AND METHODS: The study was conducted in accordance with the principles of the Delphi survey and the RAND/UCLA and participated by 22 experts in their field. The questionnaire consisted of four main sections, namely, general clinical assessment, flatfoot diagnosis, classification approach, and treatment, including 179 close-ended and 11 open-ended statements in both rounds. A 5-point Likert scale was used to rank responses. The level of agreement was determined as follows: ⩾70% of the experts agrees, the statement is accepted; <55%, rejected; 55%–69%, reassessment by experts in subsequent rounds. To assess agreement among experts, parameters such as general agreement, agreement without doubt by experts, and percentage of doubting experts were calculated. Mean (M), standard deviation (SD), and Cronbach's alpha were calculated.

RESULTS: The statement was accepted with an agreement without doubt by experts ⩾ 70%, with Cronbach's alpha of ⩾ 0.8. According to the survey data, in the two rounds using 179 close-ended statements, 96 statements were accepted, 63 were rejected, and no consensus was reached on 20.

CONCLUSIONS: This scientific work presents the results of the first Russian Delphi survey on the diagnosis and treatment of flatfoot in children with a unique number of experts (n = 22). The lack of agreement on some of the statements, even among experts, showed that consensus was a necessary first step toward standardizing the diagnosis and treatment of flatfoot in children.

Keywords: flatfoot; children; diagnosis; treatment; Delphi survey; experts.

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Оригинальное исследование

Результаты первого российского Дельфийского консенсуса по диагностике и лечению плоскостопия у детей

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Обоснование. К настоящему времени в литературе отсутствует единое мнение в отношении способов диагностики плоскостопия, подходов к классификации, необходимости и сроках лечения, что стало главной предпосылкой для проведения консенсуса экспертов по Дельфийской методике.

Цель — продемонстрировать результаты первого российского консенсуса, выполненного по Дельфийской методике, по диагностике и лечению плоскостопия у детей.

Материалы и методы. Исследование проведено при соблюдении принципов Дельфийской методики и корпорации RAND/UCLA при участии 22 врачей-экспертов в своей области. Опросник состоял из четырех основных разделов (общая клиническая оценка, диагностика плоскостопия, подход к классификации, лечение), включал 179 утверждений закрытого типа и 11 утверждений открытого типа в обоих раундах. Для ранжирования ответов была использована 5-балльная шкала Ликерта. Уровень согласия определяли следующим образом: при согласии 70 % экспертов и более — утверждение принято, если единого мнения достигли менее 55 % участников — отклонено, если 55–69 % — повторная оценка в последующих раундах. Для оценки согласия среди экспертов рассчитывали такие параметры, как общее согласие, согласие без сомневающихся и доля сомневающихся экспертов. Из статистических параметров вычисляли среднее значение (M), стандартное отклонение (SD), альфа-Кронбаха.

Результаты. Утверждение принято при согласии без сомневающихся экспертов ⩾ 70 %, альфа-Кронбаха ⩾ 0,8. По данным опросника в двух раундах из 179 утверждений закрытого типа принято 96 утверждений, 63 утверждения отклонено, по 20 утверждениям консенсус не был достигнут.

Заключение. В данной работе представлены результаты единственного в России консенсуса по диагностике и лечению плоскостопия у детей с использованием Дельфийской методики и уникальным количеством приглашенных экспертов (22 человека). Отсутствие согласия по некоторым утверждениям среди экспертов продемонстрировало, что консенсус стал необходимым первым шагом на пути к стандартизации по диагностике и лечению плоскостопия у детей.

Ключевые слова: плоскостопие; дети; диагностика; лечение; Дельфийский консенсус; эксперты.

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BACKGROUND

Although platypodia in children has been studied for over a hundred years, there remain many questions regarding its diagnosis and treatment [1]. There is still no consensus among specialists regarding the prevalence of platypodia, diagnostic methods, the need for correction, and the optimum treatments [2]. According to the literature, most orthopedic specialists diagnose platypodia by visual examination [3, 4]. Because the subjective perception of foot arch height differs statistically significantly between practitioners, there is a need for validated visual assessment tools. The FPI-6 scale, for example, has demonstrated excellent inter-expert reliability. However, the spread of more accurate methods is hindered by a lack of consensus among orthopedic practitioners and specialists. This has resulted in the predominance of personal "expert" opinions [5–7].

The Delphi consensus, or the Delphi method, is a tool for developing an optimal protocol in the absence of a consensus on diagnostic methods and treatment approaches [8]. It was developed and introduced in the USA in the 1950s by the RAND Corporation, an American nonprofit organization, for the research and development of new methods of strategic analysis. The method provides a standard for qualitative research into controversial problems that do not have a single solution [9]. The term "Delphi" comes from Ancient Greece, where, in the sacred palace of Delphi, the Pythia (priestess) predicted the future with encrypted messages which were subsequently interpreted freely. The Delphi method involves the participation of experts in the field being analyzed, their interaction with controlled feedback, the presentation of results to the group using statistical analysis (including the use of the Likert scale), and anonymity [8]. The advantages of the Delphi method are accessibility, the option of participation of experts from different countries, a standard protocol which can be modified, anonymity and freedom to express any opinions, an immediate result, mutual knowledge sharing, and the economic benefits of not holding face-to-face meetings [10–12]. The disadvantages include doubts about the scientific nature of the method (although, it is a technique used in the absence of other methods of standardization), the need for strictly formulated criteria for selecting experts, and the need to achieve consensus on all statements [13, 14]. According to the literature, it is best to conduct 2 to 3 rounds of consensus to reach agreement. Any increase reduces the probability of consensus between the participants [15].

This method is widely used in medical research, including pediatric orthopedics [16, 17]. However, there has been only one consensus meeting performed according to the Delphi technique, on the diagnosis and treatment of platypodia in pediatric patients [18].

We organized and held the first consensus meeting of Russian orthopedic doctors on a wide range of topics related to platypodia in pediatric patients.

This study aimed to present the results of the consensus exercise, performed according to the Delphi method, on the diagnosis and treatment of platypodia in pediatric patients.

MATERIALS AND METHODS

The study was conducted according to the main principles of the Delphi Consensus and the principles of the RAND/UCLA corporation. All participants gave their consent to participate in the study. In preparation for the consensus exercise, we considered the potential limitations of the methodology and developed rigorous criteria for the selection of experts, the level of consensus, and consistency for accepting statements.

The preparations for the Delphi Consensus consisted of the following stages:

1) Analysis of the literature on this subject.
2) Drafting a preliminary list of questions (open and closed).
3) Determination of the scoring system (similar to the Likert scale).
4) Determination of the level of consensus at which a statement will be accepted or rejected.
5) Determination of the criteria for the selection of experts and the number of participating experts.

To maintain anonymity, an electronic questionnaire was developed. The questionnaire comprised open (allowing for a detailed answer) and closed ("yes/no" answer) types of questions. They were grouped into four sections, namely: general clinical assessment, diagnosis of platypodia, approach to classification, and treatment. There were 24 subsections with 168 closed statements in round 1, 27 subsections with 179 closed statements in round 2, and 11 open statements in both rounds.

The level of consensus was determined as follows: a statement was accepted with an agreement of 70% or more of the experts; if less than 55% of the participants agreed, it was rejected; if 55–69% of the participants agreed, it was re-evaluated in subsequent rounds.

Statements with a level of consensus of 55–69% but more than 20% experts who expressed doubt, were considered disputable.

To assess the degree of agreement among the experts, parameters such as general agreement (GA), agreement without doubting experts (AW), and the share of doubting experts (D) were calculated.

General agreement was defined as the ratio of the number of experts who agree with a particular statement to the total number of experts, expressed as a percentage. The calculation was performed using the equation OC = *a/n*,

where *a* is the number of experts who answered, "rather agree" and "completely agree," and *n* is the total number of experts.

Agreement without doubters is the ratio of the number of experts who agree with a particular statement to the total number of experts, excluding doubters, expressed as a percentage. The calculation was performed with the equation BC = *a*/*n* – *b*, where *a* is the number of experts who answered, "rather agree" and "completely agree," *n* is the total number of experts, and *b* is the number of experts who found it difficult to answer.

The share of doubting experts is the ratio of the number of experts who answered, "neither agree nor disagree," to the total number of experts. The equation C = *b*/*n* was used for the calculation, where *b* is the number of experts who found it difficult to answer and *n* is the total number of experts.

Consistency is a statistical parameter that describes the homogeneity of experts' answers for any statement.

Twenty-two experts participated in Round 1 of the study, and 21 in Round 2. The experts were orthopedic doctors from various entities of the Russian Federation, with at least 5 years of experience, who dealt mainly with foot pathology in pediatric patients and had published research on this topic.

A preliminary pilot test of the questionnaire was performed by two independent experts to clarify the wording of the questions and statements. These experts were not further involved in the main study.

A link to the electronic form was sent to the experts by email with a covering letter detailing the study aims and methods. Four weeks were allowed for questionnaire completion for each round. In the absence of a response, the expert was sent a reminder. If the questionnaire was not completed after a further two weeks, the expert was excluded from the study.

The stability of expert responses over time was taken as the difference between the results of responses in Rounds 1 and 2, characterized by the value of the standard deviation (SD). The lower the SD value in Round 2 relative to Round 1, the higher the stability of expert responses, that is, the more experts agreed with the statement.

From the statistical parameters, the mean value (M), SD, and Cronbach's alpha were calculated. Statistical processing of the results was performed using the IBM SPSS Statistic sv.23 program.

Statements were accepted with an agreement of ⩾ 70% (without doubting experts), Cronbach's alpha ⩾ 0.8.

RESULTS

In Round 1, all invited experts (22) filled out the questionnaire, while in Round 2, 21 experts participated. Over two rounds, 96 of 179 closed-type statements were accepted, 63 statements were rejected, and no consensus was reached on 20 statements. More than 1500 statistical parameters were analyzed in total. For Round 1, the average Cronbach alpha was 0.88, and for Round 2, it was 0.9, which corresponds to an excellent level of consensus. The results for all statements are presented in Appendix 1.

Overall clinical evaluation

Section 1 presented statements regarding the general examination of a child with platypodia. All experts agreed that the clinical examination of a child with platypodia should include the determination of age, body weight, joint hypermobility, deformity mobility, pain in the feet, rotational nature of the lower extremities, and axis of the lower extremities. Further, tenderness on palpation of the foot, signs of an inflammatory process, and concomitant neurological problems were agreed upon. Most experts agreed that it is necessary to evaluate such factors as sports activities (95.2%), pain in other parts of the musculoskeletal system (94.7%), and platypodia in relatives (90.0%).

When analyzing foot complaints, all experts (100.0%) agreed that it is necessary to consider the nature of the complaints (for example, pain, fatigue), the nature of the pain syndrome (aching, acute, extended), the time of day of maximum severity of complaints, localization of pain sensations, general tolerance to daily physical activity, and circumstances in which symptoms emerge.

When examining a child with platypodia, the experts considered it necessary to determine hypermobility of the joints according to the Beighton scale (100.0%) and the scale for assessing hypermobility of the lower extremities (81.2%).

The listed parameters show stability over time. The results are presented in Table. The stability parameters of the experts' answers over time for all statements are presented in Appendix 2.

Most of the parameters showed a decrease in the value of the standard deviation by Round 2. Table indicates the stability of the experts' answers, that is, a greater number of experts agree with this statement.

Diagnosis of platypodia

The methods for diagnosing platypodia, analyzed in this study, can be divided into four main groups: clinical, anthropometric, plantographic, and radiological.

Expert agreement on the appropriate methods for diagnosing platypodia, in routine clinical practice, are presented in Figure.

In all, 100% of the experts agreed that the visual assessment method should be used in daily clinical practice. If necessary (e.g., pain in the feet, limitation of mobility), the assessment should be supplemented with an X-ray examination (85%).

Table. The consistency of experts' answers in section 1

Agreement parameter	Study rounds			
	1		2	
Statement	M	SD	M	SD
If a child with a preliminary diagnosis of platypodia visits you, which of the following parameters should be assessed to plan further examination and treatment?				
Age	4.95	0.21	4.9	0.3
Body weight	4.5	0.6	4.5	0.6
Joint hypermobility	4.8	0.5	4.9	0.3
Sports activities	4.0	1.2	4.3	0.7
Deformity mobility	5.0	0.0	4.9	0.3
Pain in the feet	4.95	0.2	4.9	0.3
Pain in other parts of the musculoskeletal system	3.95	1.1	4.1	0.8
Rotation of the lower extremities	4.2	1.0	4.3	0.8
Lower limb axes (valgus, varus)	4.6	0.7	4.6	0.5
Tenderness on palpation of the foot	5.0	0.0	5.0	0.0
Signs of an inflammatory process	4.3	1.2	4.4	0.7
Concomitant neurological problems	4.9	0.3	5.0	0.0
Platypodia in relatives	4.4	0.95	4.3	0.95
If a child with platypodia and foot complaints visits you, the following are the most important parameters when evaluating complaints:				
Nature of complaints (e.g., pain, fatigue)	4.7	0.55	4.95	0.2
Nature of the pain syndrome (for example, aching, acute, extended)	4.5	0.7	4.9	0.3
Timing of the most severe complaints (for example, morning, afternoon, evening, night)	4.3	1.1	4.5	0.7
Localization of pain sensations (the child can indicate a specific place)	4.9	0.3	4.95	0.2
General tolerance for daily physical activity	4.8	0.5	4.8	0.4
Circumstances under which complaints appear	4.7	0.8	4.8	0.4
In a clinical examination of a child with platypodia, joint hypermobility is assessed using the following:				
General examination (yes, hypermobile; no, non-hypermobile)	4.3	1.4	4.6	0.8
Beighton scale	4.5	0.9	4.7	0.6
Scale for assessing lower limb hypermobility	3.9	1.15	3.7	1.0

Note: M — average value; SD — standard deviation.

As part of a scientific study, it is necessary to use the FPI-6 scale to quantify the external parameters of the feet (94.4%), and anthropometry (94.1%). Plantography can be included in scientific studies, mainly population studies, due to its availability and ease of implementation, with mandatory control of the posture of the patient with uniform distribution of body weight on both feet (94.1%). However, it was not agreed that this diagnostic method should be used in routine clinical practice (68.8%).

To assess foot mobility, the tiptoe test, the Jack test, the assessment of dorsiflexion of the feet, passive inversion, and eversion of the feet should be performed (100.0%).

When assessing the magnitude of dorsal flexion, the rearfoot should be in a neutral position (75.0%); for this purpose, the forefoot can be supinated (85.0%) or the toe I can

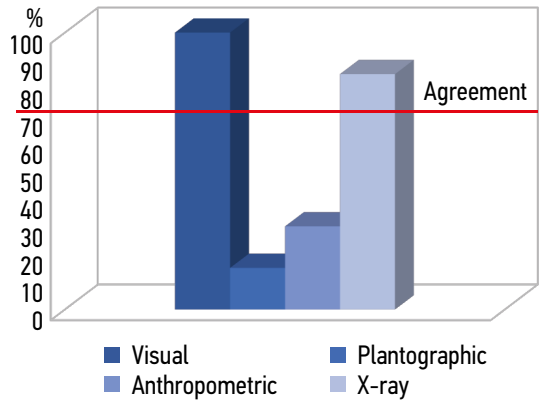

Figure. Parameters of expert agreement regarding the method of diagnosing platypodia in routine clinical practice. (The line marks Cronbach's alpha ⩾ 0.8)

be extended as much as possible at the metatarsophalangeal joint (95.2%).

In X-ray assessment of the foot parameters (primarily when planning surgical intervention), in addition to the angle of the longitudinal arch (95.0%) and the height of the arch (76.5%), it is necessary to calculate the calcaneus angulation (89.5%), talar-metatarsal Meary angle in the frontal (95.0%) and lateral (94.7%) views, angle of talar-calcaneal divergence (Kite angle) in frontal (94.7%) and lateral (95.0%) views, angle of talus-navicular ratio in frontal view (84.2%), talo-tibial angle (88.9%), and anterior part adduction angle (70.6%).

Approach to classification

Currently, there are several classifications of platypodia presented in the literature. The need for their use was assessed. According to the consensus data, in clinical practice, one should focus on the classifications, such as the mobility of the deformity (mobile or rigid) (100.0%), and the complaints (symptomatic and asymptomatic) (100.0%). It is important to recognize platypodia with a short Achilles tendon (90.5%). According to the experts, classification according to the degree of flattening of the longitudinal arch should not be used in routine practice (only 52.6% of experts recommended its use).

Treatment

When deciding on conservative treatment of platypodia, the deformity mobility (90.5%) and complaints (95.2%) should be considered.

If the child has:

- mobile asymptomatic platypodia: no treatment is required (95.0%);
- mobile symptomatic platypodia: physiotherapy exercises (84.2%), stretching of the calf muscles (61.1%), lifestyle modification, including reducing the intensity of training (56.2%), soft insoles (64.3%), and surgical treatment (14.3%) were prescribed;
- platypodia with a short Achilles tendon: stretching of the calf muscles (85.7%), physiotherapy exercises (73.7%), and surgical treatment (93.7%) were recommended.

In the textbook by Vincent Mosca, a prominent expert on the pediatric foot, the author noted: "Do not focus entirely on the foot. There is a whole child above the foot" [19]. Based on this principle, when deciding on the appropriateness of surgical treatment, all experts in our study (100.0%) recommended considering age, pain in the feet, mobility of deformity, the axis of the lower extremities, tenderness on palpation of the foot, concomitant neurological problems, and previous surgical interventions on the foot. Most experts also agreed with assessing body weight (88.9%), joint hypermobility (94.7%), sports activities (83.3%), pain in other parts of the musculoskeletal system (81.2%), rotational nature of the lower extremities (89.5%), and signs of inflammation (95.0%).

Indications for surgical treatment:

- complaints: pain in the feet (100.0%) (with other causes of pain, including osteochondropathy, ruled out), and problems with the selection of shoes with severe deformity (73.7%). The experts did not agree that the appearance of the feet (16.7%), decreased exercise tolerance (64.3%), and inefficiency of conservative treatment (64.7%) should be used as a basis for surgical correction;
- clinical manifestations: the severity of the foot deformity in general (71.4%), severity of valgus deformity of the rearfoot (73.3%), mobility of the rearfoot and midfoot (100.0%), limitation of dorsal flexion of the foot (100.0%), tenderness on palpation of the foot (94.1%), and gait disturbance (88.2%).

Radiological parameters are taken into account when choosing the surgical approach These are: the talar-metatarsal angle (Meary angle) in the frontal (100.0%) and lateral (94.1%) views, the talar-calcaneal divergence angle (Kite angle) in the frontal (94.4%) and lateral (94.7%) views, angle of talus-navicular ratio in frontal view (100.0%), calcaneal angulation angle (100.0%), talo-tibial angle (100.0%), and anterior part of the adduction angle of the feet (73.3%). The angle (66.7%) and height (64.3%) of the longitudinal arch should not be determining parameters.

In addition to the mobility and severity of foot deformity, one of the main factors influencing the choice of surgical treatment for platypodia is the patient's age. On average, up to the age of 7 years, surgical correction is not required (94.7%); in pediatric patients aged 7–11 years, the surgery of choice is subtalar arthroereisis with a locking screw (88.9%), and in older children, lengthening osteotomy of the calcaneus (Evans technique) is performed (100.0%).

DISCUSSION

Although platypodia is one of the most common reasons for pediatric patients to visit an orthopedic specialist, there is still no unified approach to its diagnosis and treatment among specialists. In such a situation, the Delphi Consensus is the best way to reach agreement on the main parameters.

In our study, the stability of expert responses between the first two rounds showed that there was no need to conduct a third round. Thus, statements that did not reach a consensus in Round 1 did not receive the required level of consensus in Round 2. Statements with a level of consensus of 55–69% in Round 1 reached agreement in 33.3% of the cases in Round 2.

There were three main groups of results: statements could be accepted, rejected, or controversial.

For example, 100% of experts in routine clinical practice when examining a child with platypodia recommended

using visual diagnostics and assessment of foot mobility (visual, manual). If there are foot symptoms or rigid deformity, visual examination should be supplemented with radiography (85% of experts). For scientific purposes, 94% of experts recommended using the FPI-6 scale and performing anthropometry and plantography in population studies. The consensus results are generally consistent with the literature. A 2018 systematic review concluded that FPI-6 and plantography (calculated with Staheli and Chippaux-Smirak indices) are valid assessment tools [2].

Most experts (95%) agree that there is no need for treatment in mobile asymptomatic platypodia. None of the experts recommended wearing orthopedic shoes and insoles, and surgical correction. The majority of experts (93.7%) agreed that platypodia with a short Achilles tendon is an indication for surgical treatment, but not earlier than primary school age (94.7%).

Controversial statements included the need to use the lower limb hypermobility scale in clinical practice (23.8% doubting experts). This is probably due to insufficient awareness of the scale.

Plantography was a controversial diagnostic method; 23.8% of experts believed that it should be used in routine clinical practice, while 23.8% of experts doubted it. For scientific research, 76.2% of experts advised the use of this method, while 19.0% doubted it. In addition, there was no agreement among the experts on which plantographic parameters should be assessed. For the Staheli index, 42.9% and 28.6% of experts agreed and doubted it, respectively; for the Chippaux-Smirak index, these figures were 38.1% and 33.3%; for the Clarke angle, it was 4.8% and 42.8%, respectively; regarding the linear height of the vault, the figures were 38.1% and 33.3%, respectively.

Although 94.1% of experts agreed on the use of anthropometric assessment within a scientific study, consensus was reached only on rearfoot deviation from the vertical (85.7%). A consensus was not reached on parameters such as the podometric index, for which 47.6% and 23.8%, agreed and doubted, respectively; for planar arch height index, the figures were 28.6% and 23.8%, respectively; and for navicular tuberosity height, they were 52.4% and 14.3%, respectively.

Many controversial issues arose regarding the treatment of mobile symptomatic platypodia. The definition of this category of foot deformity is ambiguous in the scientific literature. In our study, symptomatic mobile platypodia was defined as platypodia in which there is no restriction of passive inversion and eversion of the foot, and the angle of dorsal flexion of the foot is more than 10°. Further, the patient has complaints about the feet and, according to the Oxford Questionnaire for assessing the condition of feet in pediatric patients, the total score is less than 9 points for the emotional component and less than 15 points for the physical component [20]. For treatment, 42.9% of experts agreed and 23.8% of experts doubted lifestyle modification (reducing the intensity of loads); 42.9% of experts agreed, and 33.3% of experts doubted the advisability of prescribing soft insoles. Only 9.5% of experts were convinced of the need for surgical treatment, whereas 33.3% of experts doubted it. However, only 19.0% of experts agreed that treatment was not required, while 23.8% of experts doubted it. This heterogeneity of responses is probably because in most cases, complaints in pediatric patients with symptomatic mobile platypodia are not caused by the foot deformity, but by concomitant generalized joint hypermobility associated with a low threshold of pain sensitivity and a high level of anxiety [21]. The treatment of this group of children is difficult [22].

Thus, the absence of a single standard for diagnostics and treatment of platypodia in pediatric patients prompted the investigation of expert consensus with the Delphi method. The development and improvement of objective assessment methods, and the introduction of unified and validated tools for assessing subjective factors and the quality of life of patients with platypodia, will enable us to change the approach to their management significantly in the future.

CONCLUSION

This paper presents the results of the only Russian consensus meeting on the diagnosis and treatment of platypodia in pediatric patients, performed according to the Delphi method, with 22 invited experts.

Over two rounds, 179 statements were analyzed, 96 statements were accepted, 63 statements were rejected, and no consensus was reached on 20 statements.

A consensus was achieved on the most important approaches to the diagnosis and treatment of platypodia in pediatric patients. We also identified the indicators with the least agreement among experts. Before their clinical application, these recommended indicators and approaches to treatment should be critically reviewed by the professional community.

ADDITIONAL INFORMATION

Funding. The study had no external funding.

Conflicts of interest. The authors declare no conflicts of interest.

Ethical consideration. The experts received the consent to participate in the study.

Author contributions. *A.Yu. Dimitrieva* developed the study design, created the questionnaire, processed the results obtained and wrote the text of the article. *V.M. Kenis* developed the study design and edited the article text. *I.Yu. Klychkova, A.V. Sapogovskiy, V.V. Kozhevnikov* edited the article text.

All authors made a significant contribution to the study and preparation of the article, read, and approved the final version before its publication.

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Annex 1

	Agreement parameter	Agreement with the statement, %					
		Round 1			Round 2		
	Statement	GA	AW	D	GA	AW	D
	Section 1. General clinical evaluation						
	If a child with a preliminary diagnosis of platypodia visits you, which of the following parameters should be assessed to plan further examination and treatment?						
1	Gender	4.5	5.3	13.6	9.5	10	4.8
2	Age	100	100	0	100	100	0
3	Body weight	95.6	100	4.5	95.2	100	4.8
4	Joint hypermobility	95.6	100	4.5	100	100	0
5	Sports activities	78.3	85.7	4.5	95.2	95.2	0
6	Deformity mobility	100	100	0	100	100	0
7	Pain in the feet	100	100	0	100	100	0
8	Pain in other parts of the musculoskeletal system	73.9	80.9	4.5	85.7	94.7	9.5
9	Rotation of the lower extremities	78.3	90	9.1	80.9	100	19
10	Lower limb axes (valgus, varus)	91.3	91.3	0	100	100	0
11	Tenderness on palpation of the foot	100	100	0	100	100	0
12	Signs of an inflammatory process	78.3	90	9.1	90.5	100	9.5
13	Concomitant neurological problems	100	100	0	100	100	0
14	Platypodia in relatives	91.3	95.2	4.5	85.7	90	4.8
	If a child with platypodia and foot complaints visits you, the following are the most important parameters when evaluating complaints:						
1	Nature of the complaints (e.g., pain, fatigue)	95.6	100	4.5	100	100	0
2	Nature of the pain syndrome (for example, aching, acute, extended)	91.3	100	9.1	100	100	0
3	Timing of the most severe complaints (for example, morning, afternoon, evening, night)	82.6	85.7	4.5	90.5	100	9.5
4	Localization of pain sensations (the child can indicate a specific place)	100	100	0	100	100	0
5	General tolerance for daily physical activity	95.6	100	4.5	100	100	0
6	Circumstances under which complaints appear	91.3	95.2	4.5	100	100	0
	In a clinical examination of a child with platypodia, joint hypermobility is assessed using the following:						
1	General examination (yes, hypermobile; no, non-hypermobile)	82.6	82.6	0	90.5	95	4.8
2	Beighton scale	91.3	91.3	0	95.2	100	4.8
3	Scale for assessing lower limb hypermobility	69.6	78.9	13.6	61.9	81.2	23.8
4	Should not be assessed	0	0	13.6	0	0	0
	Section 2. Diagnosis of platypodia						
	What method of diagnosing platypodia do you use most often?						
1	Visual (examination of the patient)	100	100	0	100	100	0
2	Plantographic (footprint with subsequent evaluation of its parameters)	30.4	31.6	13.6	14.3	15	4.8
3	Anthropometric (measuring the height of the arch and calculating the indices on the medial surface)	30.4	41.2	22.7	28.6	30	4.8
4	Radiological	82.6	85.7	4.5	80.9	85	4.8
	As part of a scientific study to assess the arch height and the foot shape, the following should be used:						
1	Visual assessment				61.9	65.0	4.8
2	FPI-6 scale				80.9	94.4	14.3
3	Anthropometric assessment				76.2	94.1	19
4	Plantographic assessment				47.6	62.5	23.8
	Anthropometric assessment of the height of the longitudinal arch can be used:						
1	In routine clinical practice				38.1	61.5	38.1
2	As part of scientific research				71.4	83.3	14.3
3	Should not be used				0	0	47.6

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Continued app. 1

	Agreement parameter	Agreement with the statement, %					
		Round 1			Round 2		
	Statement	GA	AW	D	GA	AW	D
	Plantographic evaluation should be used:						
1	In routine clinical practice				23.8	31.2	23.8
2	As part of scientific research				76.2	94.1	19
3	Should not be used				4.8	7.7	38.1
	When evaluating the appearance of a foot with platypodia, the main parameters are the following:						
1	Valgus deviation of the rearfoot	91.3	95.2	4.5	100	100	0
2	Reducing the height of the longitudinal arch	95.6	95.6	0	100	100	0
3	Elevation of the metatarsal bone I	47.8	61.1	18.2	61.9	68.4	9.5
	What methods of assessing foot mobility do you use most often when examining a child with platypodia:						
1	Tiptoe test	95.6	95.6	0	100	100	0
2	Jack test	82.6	82.6	0	80.9	100	19
3	Assessment of passive inversion/eversion of the foot	91.3	95.2	4.5	100	100	0
4	Estimation of the dorsal flexion value	100	100	0	100	100	0
5	I do not use foot mobility assessment	0	0	0	0	0	0
	When assessing dorsal flexion, you most often use the following methods:						
1	Patient in the supine position, passive dorsal flexion of the foot in a neutral position with an extended knee joint	69.6	71.4	4.5	71.4	75	4.5
2	Patient in the supine position, passive dorsal flexion of the foot with supination of the anterior section, and extended knee joint	82.6	90.5	9.1	80.9	85	4.5
3	Patient in the supine position, passive dorsal flexion of the foot with hyperextension of toe I at the metatarsophalangeal joint	91.3	95.2	4.5	95.2	95.2	0
4	Silverskjöld test with neutral position of the foot (alternate assessment of the size of the dorsal flexion with the knee joint bent and extended)	73.9	73.9	0	71.4	75	4.5
5	Silverskjöld test with supination of the forefoot	65.2	73.7	13.6	76.2	88.9	14.3
6	Silverskjöld test with hyperextension of toe I at the metatarsophalangeal joint	60.9	68.4	13.6	90.5	90.5	0
7	I do not evaluate dorsal flexion	0	0	0	0	0	0
	In plantographic diagnosis of platypodia, you most often use the following indices:						
1	Staheli index	39.1	52.9	22.7	42.9	60	28.6
2	Chippaux-Smirak index	39.1	50	18.2	38.1	57.1	33.3
3	Clarke angle	17.4	26.7	31.8	4.8	8.3	42.8
4	Linear index of arch height	34.8	50	27.3	38.1	57.1	33.3
5	None	52.2	55	9.1	42.9	52.9	19
	In anthropometric diagnostics of platypodia, you most often use the following parameters:						
1	Podometric index	47.8	55.5	18.2	47.6	62.5	23.8
2	Arch height index	47.8	55.5	18.2	28.6	37.5	23.8
3	Height of tuberosity of the navicular bone, mm	60.9	68.4	13.6	52.4	61.1	14.3
4	Deviation of the rearfoot from the vertical, °				85.7	85.7	0
5	None	47.8	52.4	4.5	19.0	28.6	33.3
	In X-ray diagnostics of platypodia, you most often use the following parameters:						
1	Angulation of the calcaneus	73.9	80	9.1	80.9	89.5	9.5
2	Angles of the longitudinal arch	91.3	95.2	4.5	90.5	95	4.8
3	Height of the longitudinal arch	65.2	77.8	18.2	61.9	76.5	19
	Talar-metatarsal angle (Meary angle)						
4	• in frontal view	86.9	90.5	4.5	90.5	95	4.8
5	• in lateral view	86.9	90.5	4.5	85.7	94.7	9.5
	Angle of talar-calcaneal divergence (Kite angle)						
6	• in frontal view	91.3	95.2	4.5	85.7	94.7	9.5
7	• in lateral view	86.9	95	9.1	90.5	95	4.8

Continued app. 1

	Agreement parameter	Agreement with the statement, %					
		Round 1			Round 2		
	Statement	GA	AW	D	GA	AW	D
8	Angle of talus-navicular ratio in frontal view	82.6	90	9.1	76.2	84.2	9.5
9	Talo-tibial angle	73.9	94.1	22.7	76.2	88.9	14.3
10	Anterior part adduction angle	34.8	57.1	36.4	57.1	70.6	19
	Section 3. Approach to classification						
	In clinical practice, you primarily use the following classifications of platypodia:						
1	According to the severity of flattening of the longitudinal arch	65.2	65.2	0	47.6	52.6	9.5
2	According to the mobility of the deformity – mobile and rigid forms	100	100	0	100	100	0
3	By etiology (static, rachitic, traumatic, paralytic)	65.2	66.7	4.5	47.6	62.5	23.8
4	According to complaints (asymptomatic, symptomatic)	95.6	95.6	0	100	100	0
	Do you recognize short Achilles tendon platypodia as a separate form of platypodia in your clinical practice?						
1	Yes	91.3	91.3	0	90.5	90.5	0
2	No	8.7	8.7	0	9.5	9.5	0
	Section 4. Treatment						
	When determining the approach of conservative treatment of platypodia, the following should be considered:						
1	Degree of platypodia	47.8	71.4	36.4	33.3	46.7	28.6
2	Mobility of deformity	91.3	95.2	4.5	90.5	90.5	0
3	Presence of complaints	95.6	95.6	0	95.2	95.2	0
	If a child has mobile asymptomatic platypodia, the following should be used:						
1	Stretching of the musculus gastrocnemius	21.7	26.3	13.6	4.8	5.9	19
2	Exercise therapy	30.4	33.3	4.5	23.8	26.3	9.5
3	Physiotherapy	0	0	13.6	0	0	0
4	Wearing orthopedic shoes	0	0	4.5	0	0	0
5	Lifestyle modification — reducing the intensity of training	8.7	9.5	4.5	9.5	10	4.8
6	Individual rigid insoles	0	0	0	0	0	0
7	Soft insoles	13	14.3	9.1	9.5	10	4.8
8	Surgical treatment	0	0	4.5	0	0	4.8
9	No treatment required	86.9	86.9	0	90.5	95	4.8
	If a child has mobile symptomatic platypodia, the following should be used:						
1	Stretching of the musculus gastrocnemius	56.5	66.7	18.2	52.4	61.1	14.3
2	Exercise therapy	60.9	68.4	13.6	76.2	84.2	9.5
3	Physiotherapy	21.7	25	9.1	14.3	15.8	9.5
4	Lifestyle modification — reducing the intensity of training	34.8	44.4	18.2	42.9	56.2	23.8
5	Wearing orthopedic shoes	0	0	4.5	0	0	0
6	Individual rigid insoles	4.4	4.8	4.5	4.8	5.5	14.3
7	Soft insoles	30.4	46.7	31.8	42.9	64.3	33.3
8	Surgical treatment	21.7	29.4	22.7	9.5	14.3	33.3
9	No treatment required	26.1	37.5	27.3	19.0	25	23.8
	If a child has platypodia with a short Achilles tendon, the following should be used:						
1	Stretching of the musculus gastrocnemius	86.9	90.5	4.5	85.7	85.7	0
2	Exercise therapy	65.2	70	9.1	66.7	73.7	9.5
3	Physiotherapy	4.3	4.8	4.5	0	0	4.8
4	Wearing orthopedic shoes	0	0	4.5	0	0	0
5	Lifestyle modification — reducing the intensity of training	4.3	5.9	22.7	14.3	15.8	9.5
6	Individual rigid insoles	4.3	4.3	0	4.8	5.3	9.5
7	Soft insoles	13.0	17.6	22.7	19.0	25	23.8
8	Surgical treatment	69.6	83.3	18.2	71.4	93.7	23.8
9	No treatment required	4.3	6.2	27.3	4.8	5.5	14.3

Continued app. 1

Agreement parameter		Agreement with the statement, %					
		Round 1			Round 2		
	Statement	GA	AW	D	GA	AW	D
	When deciding on the advisability of surgical treatment, you take into account the following factors:						
1	Gender	0	0	9.1	4.8	5	4.8
2	Age	100	100	0	100	100	0
3	Body weight	60.9	68.4	13.6	76.2	88.9	14.3
4	Joint hypermobility	91.3	95.2	4.5	85.7	94.7	9.5
5	Sports activities	69.6	83.3	18.2	71.4	83.3	14.3
6	Deformity mobility	100	100	0	100	100	0
7	Pain in the feet	95.6	100	4.5	100	100	0
8	Pain in other parts of the musculoskeletal system	60.9	76.5	22.7	61.9	81.2	23.8
9	Rotation of the lower extremities	78.3	94.4	18.2	80.9	89.5	9.5
10	Lower limb axes (valgus, varus)	73.9	88.9	18.2	90.5	100	9.5
11	Tenderness on palpation of the foot	91.3	100	9.1	100	100	0
12	Signs of an inflammatory process	86.9	86.9	0	90.5	95	4.8
13	Concomitant neurological problems	95.6	100	4.5	100	100	0
14	Platypodia in relatives	56.5	66.7	18.2	42.8	56.2	23.8
15	Previous foot surgery	95.6	100	4.5	100	100	0
	Indications for the surgical treatment of platypodia are the following complaints:						
1	Appearance of the feet	17.4	20	9.1	9.5	16.7	14.3
2	Pain in the feet	91.3	91.3	0	90.5	100	9.5
3	Pain in other parts of the musculoskeletal system	21.7	29.4	22.7	14.3	20	28.6
4	Decreased exercise tolerance	52.2	70.6	22.7	42.9	64.3	33.3
5	Problems with the selection of shoes	60.9	73.7	13.6	66.7	73.7	9.5
6	Inefficiency of conservative treatment	60.9	66.7	4.5	52.4	64.7	19
	Indications for the surgical treatment of platypodia are the following clinical manifestations:						
1	Degree of decrease in the longitudinal arch height	17.4	21	13.6	14.3	16.7	14.3
2	Severity of foot deformity in general	56.5	65	9.1	47.6	71.4	33.3
3	The severity of the valgus of the rearfoot	52.2	63.2	13.6	52.4	73.3	28.6
4	The degree of mobility of the joints of the rear and middle sections of the foot	65.2	83.3	18.2	85.7	100	14.3
5	Restriction of the dorsal flexion of the foot	86.9	95.2	4.5	100	100	0
6	Tenderness on palpation of the foot	69.6	94.1	22.7	76.2	94.1	19
7	Gait disorders	60.9	77.8	18.2	71.4	88.2	19
8	Calluses and abrasions in sites of pressure on the skin	56.5	76.5	22.7	52.4	78.6	33.3
9	Presence of complaints	86.9	95	9.1	90.5	95	4.8
	Indications for the choice of approach for the surgical treatment of platypodia are deviations of the following radiological parameters:						
1	Angles of the longitudinal arch	47.8	55	9.1	47.6	66.7	28.6
2	Height of the longitudinal arch	47.8	55	9.1	42.9	64.3	33.3
	Talar-metatarsal angle (Meary angle)						
3	• in frontal view	65.2	83.3	18.2	80.9	100	19
4	• in lateral view	56.5	76.5	22.7	76.2	94.1	19
	Angle of talar-calcaneal divergence (Kite angle)						
5	• in frontal view	65.2	83.3	18.2	80.9	94.4	14.3
6	• in lateral view	65.2	78.9	13.6	85.7	94.7	9.5
7	Angle of talus-navicular ratio in frontal view	65.2	83.3	18.2	90.5	100	9.5
8	Angulation of the calcaneus	73.9	89.5	13.6	85.7	100	14.3
9	Talo-tibial angle	65.2	83.3	18.2	66.7	100	33.3
10	Anterior part adduction angle	47.8	73.3	31.8	52.4	73.3	28.6

End app. 1

	Agreement parameter	Agreement with the statement, %					
		Round 1			Round 2		
	Statement	GA	AW	D	GA	AW	D
	Additional studies necessary to determine the indications for the surgical treatment of platypodia:						
1	Plantography	17.4	23.5	22.7	4.8	5	4.8
2	Pedobarography	26.1	37.5	27.3	9.5	11.8	19
3	Electromyography/electroneuromyography	43.5	58.8	22.7	33.3	63.6	47.6
4	Computed tomography	65.2	71.4	4.5	57.1	80	28.6
5	Magnetic resonance imaging	17.4	26.7	31.8	4.8	7.7	38.1
6	Ultrasound examination	0	0	22.7	0	0	9.5
	The surgery of choice for platypodia in pediatric patients aged 2–6 years follows:						
1	Triple arthrodesis	0	0	9.1	0	0	4.8
2	Evans surgery	0	0	13.6	0	0	0
3	Osteotomy of the calcaneal tuber	0	0	13.6	0	0	4.8
4	Subtalar arthrodesis/Grice surgery	4.3	5.3	13.6	4.8	5.3	9.5
5	Tendon-muscle grafting	0	0	13.6	4.8	5	4.8
6	Arthroereisis with a subtalar implant	8.7	10	9.1	0	0	9.5
7	Arthroereisis with a locking screw	13	17.6	22.7	0	0	19
8	Surgical treatment at this age is not required	78.3	85	9.1	85.7	94.7	9.5
	The surgery of choice for platypodia in pediatric patients aged 7–11 years follows:						
1	Triple arthrodesis	0	0	9.1	0	0	4.8
2	Evans surgery	21.7	29.4	22.7	14.3	16.7	14.3
3	Osteotomy of the calcaneal tuber	13	17.6	22.7	9.5	11.1	14.3
4	Subtalar arthrodesis/Grice surgery	34.8	44.4	18.2	28.6	33.3	14.3
5	Tendon-muscle grafting	13	17.6	22.7	4.8	5.5	14.3
6	Arthroereisis with a subtalar implant	39.1	56.2	27.3	28.6	31.6	9.5
7	Arthroereisis with a locking screw	69.6	88.2	22.7	76.2	88.9	14.3
8	Surgical treatment at this age is not required	4.3	7.7	40.9	9.5	13.3	28.6
	The surgery of choice for platypodia in pediatric patients aged 12–17 years follows:						
1	Triple arthrodesis	26.1	37.5	27.3	23.8	38.5	38.1
2	Evans surgery	73.9	94.1	22.7	90.5	100	9.5
3	Osteotomy of the calcaneal tuber	39.1	56.2	27.3	42.9	69.2	38.1
4	Subtalar arthrodesis/Grice surgery	17.4	28.6	36.4	19	23.5	19
5	Tendon-muscle grafting	8.7	10.5	13.6	9.5	11.8	19
6	Arthroereisis with a subtalar implant	21.7	33.3	31.8	19	23.5	19
7	Arthroereisis with a locking screw	17.4	33.3	45.4	38.1	47.1	19
8	Surgical treatment at this age is not required	0	0	27.3	4.8	5.9	19

Notes: — accepted statements; — controversial; — statements with a high percentage of doubting experts (>20%). GA, general agreement; AW, agreement without doubting experts; D, doubting experts.

Annex 2

	Agreement parameter	Study rounds			
		I		II	
	Statement	M	SD	M	SD
	Section 1. General clinical evaluation				
	If a child visits you with a preliminary diagnosis of platypodia, which of the following parameters should be assessed to plan further examination and treatment?				
1	Gender	1.8	0.85	1.7	1.2
2	Age	4.95	0.21	4.9	0.3
3	Body weight	4.5	0.6	4.5	0.6
4	Joint hypermobility	4.8	0.5	4.9	0.3
5	Sports activities	4.0	1.2	4.3	0.7
6	Deformity mobility	5.0	0.0	4.9	0.3
7	Pain in the feet	4.95	0.2	4.9	0.3
8	Pain in other parts of the musculoskeletal system	3.95	1.1	4.1	0.8
9	Rotation of the lower limbs	4.2	1.0	4.3	0.8
10	Axes of the lower extremities (valgus, varus)	4.6	0.7	4.6	0.5
11	Tenderness on palpation of the foot	5.0	0.0	5.0	0.0
12	Signs of an inflammatory process	4.3	1.2	4.4	0.7
13	Concomitant neurological problems	4.9	0.3	5.0	0.0
14	Platypodia in relatives	4.4	0.95	4.3	0.95
	If a child with platypodia and foot complaints visits you, the following are the most important parameters when evaluating complaints:				
1	Nature of complaints (e.g., pain, fatigue)	4.7	0.55	4.95	0.2
2	Nature of the pain syndrome (for example, aching, acute, extended)	4.5	0.7	4.9	0.3
3	Time of day with the most severe complaints (for example, morning, afternoon, evening, night)	4.3	1.1	4.5	0.7
4	Localization of pain sensations (the child can indicate a specific place)	4.9	0.3	4.95	0.2
5	General tolerance for daily physical activity	4.8	0.5	4.8	0.4
6	Circumstances under which complaints appear	4.7	0.8	4.8	0.4
	In a clinical examination of a child with platypodia, joint hypermobility is assessed using the following:				
1	General examination (yes, hypermobile; no, non-hypermobile)	4.3	1.4	4.6	0.8
2	Beighton scale	4.5	0.9	4.7	0.6
3	Scale for assessing lower-limb hypermobility	3.9	1.15	3.7	1.0
4	Should not be assessed	1.3	0.7	1.1	0.5
	Section 2. Diagnostics of platypodia				
	What method of diagnosing platypodia do you use most often?				
1	Visual (examination of the patient)	4.9	0.3	4.95	0.2
2	Plantographic (footprint with subsequent evaluation of its parameters)	2.5	1.4	2.1	1.1
3	Anthropometric (measuring the height of the arch and calculating the indices on the medial surface)	2.6	1.3	2.5	1.2
4	Radiological	4.2	1.05	4.0	1.1
	As part of a scientific study to assess the arch height and the foot shape, the following should be used:				
1	Visual assessment			3.85	1.3
2	FPI-6 scale			4.2	0.9
3	Anthropometric assessment			4.05	0.9
4	Plantographic assessment			3.2	1.4
	Anthropometric assessment of the height of the longitudinal arch can be used:				
1	In routine clinical practice			3.2	1.1
2	As part of the scientific research			4.0	1.4
3	Should not be used			2.2	0.8
	Plantographic evaluation should be used:				
1	In routine clinical practice			2.6	1.3
2	As part of the scientific research			4.0	1.0
3	Should not be used			2.1	1.0
	When evaluating the appearance of the foot with platypodia, the main parameters are the follows:				
1	Valgus deviation of the rearfoot	4.5	1.0	4.8	0.4
2	Reducing the height of the longitudinal arch	4.6	0.7	4.8	0.4
3	Elevation of the metatarsal bone I	3.4	1.4	3.5	1.1

Continued app. 2

	Agreement parameter	Study rounds			
		I		II	
	Statement	M	SD	M	SD
	What methods of assessing the foot mobility do you use most often when examining a child with platypodia:				
1	Tiptoe test	4.8	0.7	4.9	0.3
2	Jack test	4.3	1.2	4.5	0.8
3	Assessment of passive inversion/eversion of the foot	4.6	0.8	4.9	0.3
4	Estimation of the dorsal flexion value	5.0	0.0	5.0	0.0
5	I do not use foot mobility assessment	1.04	0.2	1.0	0.0
	When clinical assessment of the amount of dorsal flexion, you most often use the following methods:				
1	Patient in the supine position, passive dorsal flexion of the foot in a neutral position with an extended knee joint	3.9	1.5	3.6	1.2
2	Patient in the supine position, passive dorsal flexion of the foot with supination of the anterior section, and extended knee joint	4.4	1.1	4.2	1.2
3	Patient in the supine position, passive dorsal flexion of the foot with hyperextension of the toe I in the metatarsophalangeal joint	4.4	0.95	4.6	0.7
4	Silverskjöld test with the neutral position of the foot (alternate assessment of the size of the dorsal flexion with the knee joint bent and extended)	3.95	1.5	3.8	1.4
5	Silverskjöld test with supination of the forefoot	3.7	1.25	4.2	1.0
6	Silverskjöld test with hyperextension of the toe I in the metatarsophalangeal joint	3.7	1.3	4.4	0.9
7	I do not evaluate the value of dorsal flexion	1.0	0.0	1.0	0.0
	In plantographic diagnostics of platypodia, you most often use the following indices:				
1	Staheli index	3.0	1.4	3.3	1.2
2	Chippaux-Smirak index	2.95	1.4	3.2	1.1
3	Clarke angle	2.45	1.2	2.4	1.0
4	Linear index of arch height	2.95	1.3	3.2	1.2
5	None	3.1	1.5	3.0	1.4
	In anthropometric diagnostics of platypodia, you most often use the following parameters:				
1	Podometric index	2.9	1.3	3.3	1.3
2	Arch height index	2.95	1.1	2.8	1.1
3	Height of tuberosity of the navicular bone, mm	3.4	1.4	3.2	1.2
4	Deviation of the rearfoot from the vertical, °			3.95	1.2
5	None	3.0	1.6	2.6	1.4
	In X-ray diagnostics of platypodia, you most often use the following parameters:				
1	Angulation of the calcaneus	3.95	1.1	4.2	1.0
2	Angles of the longitudinal arch	4.5	0.8	4.5	0.8
3	Height of the longitudinal arch	3.8	1.1	3.8	1.2
	Talar-metatarsal angle (Meary angle)				
4	• in frontal view	4.3	0.9	4.6	0.8
5	• in lateral view	4.4	0.95	4.5	0.9
	Angle of talar-calcaneal divergence (Kite angle)				
6	• in frontal view	4.4	0.8	4.5	0.9
7	• in lateral view	4.3	0.8	4.4	0.8
8	Angle of talar-navicular ratio in frontal view	4.1	1.1	3.95	1.0
9	Talo-tibial angle	4.2	1.0	4.2	1.0
10	Anterior part adduction angle	3.1	0.9	3.6	1.1
	Section 3. Approach to classification				
	In clinical practice, you primarily use the following classifications of platypodia:				
1	According to the severity of flattening of the longitudinal arch	3.45	1.5	3.0	1.2
2	According to the mobility of deformity (mobile, rigid)	4.9	0.3	4.9	0.3
3	By etiology (static, rachitic, traumatic, paralytic)	3.5	1.5	3.4	1.1
4	According to complaints (asymptomatic, symptomatic)	4.6	0.9	4.8	0.4
	Do you recognize short Achilles tendon platypodia as a separate form of platypodia in your clinical practice?				
1	Yes				
2	No				
	Section 4. Treatment				
	When determining the approach of conservative treatment of platypodia, the following should be considered:				
1	Platypodia degree	3.4	1.2	3.1	1.3
2	Deformity mobility	4.5	1.0	4.5	1.2
3	Presence of complaints	4.8	0.85	4.7	0.9

Continued app. 2

	Agreement parameter	Study rounds			
		I		II	
	Statement	M	SD	M	SD
	If a child has mobile asymptomatic platypodia, the following should be used:				
1	Stretching of the musculus gastrocnemius	2.2	1.6	1.9	0.9
2	Exercise therapy	2.3	1.8	2.3	1.4
3	Physiotherapy	1.3	0.7	1.0	0.0
4	Wearing orthopedic shoes	1.1	0.4	1.1	0.3
5	Lifestyle modification — reducing the intensity of training	1.45	1.1	1.6	1.0
6	Individual rigid insoles	1.0	0.0	1.0	0.0
7	Soft insoles	1.7	1.35	1.7	1.0
8	Surgical treatment	1.1	0.4	1.1	0.4
9	No treatment required	4.3	1.4	4.6	1.0
	If a child has mobile symptomatic platypodia, the following should be used:				
1	Stretching of the musculus gastrocnemius	3.3	1.6	3.2	1.4
2	Exercise therapy	3.5	1.65	3.8	1.2
3	Physiotherapy	2.1	1.5	1.9	1.1
4	Lifestyle modification — reducing the intensity of training	2.7	1.4	2.95	1.4
5	Wearing orthopedic shoes	1.1	0.5	1.1	0.3
6	Individual rigid insoles	1.3	0.8	1.5	0.9
7	Soft insoles	2.9	1.2	3.0	1.1
8	Surgical treatment	2.3	1.3	2.3	1.1
9	No treatment required	2.45	1.4	2.4	1.0
	If a child has platypodia with a short Achilles tendon, the following should be used:				
1	Stretching of the musculus gastrocnemius	4.45	1.1	4.2	1.2
2	Exercise therapy	3.7	1.55	3.7	1.5
3	Physiotherapy	1.4	1.0	1.2	0.5
4	Wearing orthopedic shoes	1.1	0.5	1.05	0.2
5	Lifestyle modification — reducing the intensity of training	1.6	1.0	1.8	1.1
6	Individual rigid insoles	1.2	0.7	1.4	0.9
7	Soft insoles	1.9	1.3	2.2	1.2
8	Surgical treatment	3.7	1.2	3.7	0.85
9	No treatment required	1.9	1.0	1.7	0.9
	When deciding on the advisability of surgical treatment, you take into account the following factors:				
1	Gender	1.3	0.6	1.3	0.8
2	Age	4.8	0.4	4.8	0.4
3	Body weight	3.5	1.4	3.9	1.0
4	Joint hypermobility	4.6	0.8	4.4	1.0
5	Sports activities	3.9	1.3	3.8	1.4
6	Deformity mobility	4.9	0.3	4.9	0.4
7	Pain in the feet	4.9	0.5	4.9	0.4
8	Pain in other parts of the musculoskeletal system	3.7	1.2	3.6	1.0
9	Rotation of the lower extremities	4.1	1.0	4.0	1.05
10	Lower limb axes (valgus, varus)	4.1	1.15	4.3	0.7
11	Tenderness on palpation of the foot	4.7	0.6	4.7	0.5
12	Signs of an inflammatory process	4.4	1.2	4.5	0.8
13	Concomitant neurological problems	4.8	0.5	4.7	0.5
14	Platypodia in relatives	3.4	1.4	3.0	1.3
15	Previous foot surgery	4.8	0.5	4.8	0.4
	The following complaints are indications for the surgical treatment of platypodia:				
1	Appearance of the feet	2.2	1.4	2.0	1.2
2	Pain in the feet	4.5	0.9	4.7	0.6
3	Pain in other parts of the musculoskeletal system	2.4	1.1	2.5	1.0
4	Decreased exercise tolerance	3.4	1.3	3.3	1.2
5	Problems with the selection of shoes	3.45	1.4	3.7	1.2
6	Ineffectiveness of conservative treatment	3.5	1.6	3.2	1.3
	The following clinical manifestations are indications for the surgical treatment of platypodia:				
1	Degree of decrease in the longitudinal arch height	2.2	1.2	2.1	1.0
2	Severity of foot deformity in general	3.3	1.4	3.4	1.1

End app. 2

	Agreement parameter	Study rounds			
		I		II	
	Statement	M	SD	M	SD
3	The severity of the valgus deformity of the rearfoot	3.2	1.3	3.3	1.0
4	The degree of mobility of the joints of the rear and middle sections of the foot	3.9	1.2	4.0	0.6
5	Restriction of dorsal flexion of the foot	4.4	0.95	4.4	0.5
6	Tenderness on palpation of the foot	4.1	0.9	4.0	1.0
7	Gait disorders	3.7	1.3	3.8	1.0
8	Calluses and abrasions on pressure sites of the skin	3.7	1.3	3.4	1.1
9	Presence of complaints	4.4	1.0	4.3	1.0
	Deviations of the following radiological parameters are indications for the choice of approach for the surgical treatment of platypodia:				
1	Angles of the longitudinal arch	3.1	1.3	3.3	1.2
2	Height of the longitudinal arch	3.1	1.3	3.3	1.2
	Talar-metatarsal angle (Meary angle)				
3	• in frontal view	3.8	1.0	4.2	0.75
4	• in lateral view	3.8	1.15	4.1	0.9
	Angle of talar-calcaneal divergence (Kite angle)				
5	• in frontal view	3.9	1.0	4.2	1.0
6	• in lateral view	3.9	1.1	4.1	1.0
7	Angle of talus-navicular ratio in frontal view	3.9	1.1	4.4	0.7
8	Angulation of the calcaneus	3.95	1.0	4.3	0.7
9	Talo-tibial angle	3.7	1.0	4.0	0.9
10	Anterior part adduction angle	3.45	1.1	3.3	1.3
	Additional studies necessary to determine the indications for the surgical treatment of platypodia:				
1	Plantography	2.4	1.2	1.6	0.8
2	Pedobarography	2.6	1.3	1.95	1.0
3	Electromyography/electroneuromyography	3.1	1.2	3.1	1.1
4	Computed tomography	3.6	1.3	3.4	1.0
5	Magnetic resonance imaging	2.6	1.1	2.2	0.9
6	Ultrasound examination	1.7	0.8	1.4	0.7
	The surgery of choice for platypodia in pediatric patients aged 2–6 years is:				
1	Triple arthrodesis	1.2	0.6	1.1	0.4
2	Evans surgery	1.4	0.7	1.1	0.4
3	Osteotomy of the calcaneal tuberosity	1.3	0.7	1.1	0.4
4	Subtalar arthrodesis/Grice surgery	1.5	0.9	1.4	0.9
5	Tendon-muscle grafting	1.45	0.7	1.3	1.0
6	Arthroereisis with a subtalar implant	1.6	1.1	1.2	0.6
7	Arthroereisis with a locking screw	2.0	1.25	1.5	0.8
8	Surgical treatment at this age is not required	4.1	1.3	4.4	1.0
	The surgery of choice for platypodia in pediatric patients aged 7–11 years is:				
1	Triple arthrodesis	1.3	0.6	1.1	0.5
2	Evans surgery	2.4	1.3	2.0	1.2
3	Osteotomy of the calcaneal tuber	2.0	1.25	1.7	1.1
4	Subtalar arthrodesis/Grice surgery	2.6	1.5	2.3	1.5
5	Tendon-muscle grafting	2.1	1.3	1.7	0.9
6	Arthroereisis with a subtalar implant	3.0	1.2	2.3	1.4
7	Arthroereisis with a locking screw	3.8	1.1	4.1	1.0
8	Surgical treatment at this age is not required	2.2	0.9	2.2	1.1
	The surgery of choice for platypodia in pediatric patients aged 12–17 years follows:				
1	Triple arthrodesis	2.6	1.4	2.6	1.4
2	Evans surgery	4.1	0.9	4.3	0.6
3	Osteotomy of the calcaneal tuber	2.95	1.3	3.3	1.0
4	Subtalar arthrodesis/Grice surgery	2.5	1.3	2.2	1.3
5	Tendon-muscle grafting	1.9	1.2	1.8	1.1
6	Arthroereisis with a subtalar implant	2.7	1.2	2.2	1.1
7	Arthroereisis with a locking screw	2.7	1.2	2.2	1.1
8	Surgical treatment is not required at this age	1.8	0.85	1.8	1.1

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