

Selection in artistic gymnastics

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Abstract

This study envisages the analysis of the specific aspects of the selection process in artistic gymnastics, focusing particularly on the selection of Romania's recent years. In our opinion, the shift to a cone of darkness of the artistic gymnastics, an extremely popular sport in our country 20 years ago, is also based on and the orientation of children to other fields – unfortunately many of them outside sports and physical activities in general. In the present study, we shall present the stages of the artistic gymnastics, as its importance in the subsequent performances has been proven a long time ago. The plethora of qualities and skills which are necessary to select a child for gymnastics and those that this sport develops when performed as a spare time activity. The case studied in this endeavour is the one of the main centers for gymnast recruitment in Romania; the attention paid by the trainers to the selection for this sport makes the data regarding the number of children involved to increase once more. This is a satisfactory fact as it is a well-known fact that a wide range primary selection sets a serious basis for the secondary selection, and the third, respectively, envisaging the future performance and concurrently ensures the involvement of more children in a physical activity that will prepare them, both physically and mentally for a healthy life.

Key words: *artistic gymnastics, selection, criteria*

Rezumat

Acest studiu își propune să analizeze aspectele specifice ale selecției în gimnastica artistică și, în special, a celei din România ultimilor ani; trecerea oarecum „în umbră” a gimnasticii artistice, un sport extrem de popular în urmă cu peste 20 ani la noi are la bază, în opinia noastră, și orientarea copiilor spre alte domenii - din păcate, multe dintre ele din afara sportului și activității fizice, în general. În studiul de față, vom prezenta etapele selecției în gimnastica artistică, importanța ei în performanțele ulterioare fiind demult dovedită. Multitudinea de calități și aptitudini care sunt necesare pentru a selecta un copil pentru gimnastică sunt, totodată, și cele pe care acest sport, practicat ca activitate de timp liber, le dezvoltă. Cazul studiat în acest demers este acela al principalelor centre de recrutare a gimnaștilor din România; atenția acordată de antrenori selecției pentru acest sport face ca datele privind numărul de copii implicați să fie din nou în creștere, fapt îmbucurător pentru că se știe că o selecție primară de anvergură pregătește o bază serioasă pentru selecția secundară, respectiv terțiară – pentru performanța de mâine și, totodată, asigură implicarea mai multor copii într-o activitate fizică care îi va pregăti, fizic și psihic, pentru o viață sănătoasă.

Cuvinte cheie: *gimnastică artistică, selecție, criterii*

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The premises of the selection in artistic gymnastics

The scientific-technological revolution penetrated the field of sports, implicitly the one of gymnastics. There were invented many apparatus and methods for research and testing the human organism from a physiological, psychological and intellectual perspective. All these led to a considerable contribution in the solving of the selection problem according to the skills and dispositions of the individuals. The search and identification of talented children and young people, has gained a particular importance along the years, directly proportional to the intensification of composition at all levels.

The ordinary experience in the development and implementation of the training programs helps the improvement of the selection process *per se* through the setting of certain indices for particular sports and age groups or through the evaluation of the efficiency of the procedures used. Also, criteria and assessment tests of the individual particularities have been perfected. No doubt, the offer of the current research is really valuable because on the basis of the results a series of parameters were fixed for the registration of the children and young people in different stages of their training and development. This helps determining their prospective evolution. In performance sports, the role of the selection is to choose from the mass of children the ones with extraordinary skills and qualities, the most talented ones. (1)

It has already been proved that initial selection can seldom be used for specific sports. It represents only the first stage of a progressive succession. However, it is clear that physical education and sport training in general represent the starting point of competitive sports. Axiomatically, any discussion referring to the factors that influence the selection process in sports must be preceded by the brief reviewing of what can be considered as 'premises' (2). And gymnastics, as

a sport with complex technique, requires special qualities from those who wish to achieve remarkable results. One of the factors that determine the value of the high performance in artistic gymnastics is the selection and training process of the children and juniors. The selection is the foundation of sporting performance. In gymnastics, the primary selection deployed around the age of 6 reveals only the skills of the investigated subject. The selection is not a singular moment in gymnastics but it represents an evolutionary process where the investigations are carried out along the training, formation and development of the sportsperson. (3)

The selection is a determining factor of performance, its importance and necessity being nowadays understood by everybody. There is the practical experience as well as the written theory materials (4,5). Success in the selection is related to personal concept and experience according to the ideal model, methods, criteria, used trials, and the perseverance in this direction. The ideal model firstly implies a beautiful and harmonious conformation, with right segments, proportionality among the segments of the body, large shoulders, narrow basin, and supple abdomen, no deviations of the backbone or deformities of the articulations, a pleasant posture, attitude and expressive figure.

Talent in gymnastics is manifested similarly to the one in arts. Anyone can learn how to dance and sing but very few reach artistry. The same applies to gymnastics where anyone can learn certain exercises, this not meaning that everyone is endowed with the skill to naturally execute, not only correctly but also beautifully and expressively. For this reason, in the case of performance gymnastics, as in art, it is very essential to discover the inherent elements, select and then mould them into climbing the highest steps of excellence. In performance gymnastics, it is vital to consider the conformation of

the body, both as general aspect and partially. The conformation plays an important part mainly in feminine gymnastics.

If we analyze the representatives of the contemporary world gymnastics we shall see that renowned gymnasts: Nadia Comăneci, Aurelia Dobre, Daniela Silivaș, Lavinia Miloșovici, Gina Gogean, Maria Olaru, Simona Amânar, and others have an especially harmonious conformation which is doubled by the natural penchant to expressive motion (6).

Biotype for artistic gymnastics

According to most of the specialists, the determining sides of the ideal model of the performance gymnast include the following factors: physical, mental, aesthetic, functional.

Among the physical qualities that influence the great performance we mention: adroitness, coordination, force, mobility, resistance, détente, speed; among the mental factors:- will, intellectual capacity, emotional equilibrium; among the aesthetic factors: the harmony of the physical constitution, the expressivity of the movements, the sense of rhythm, the vestibular equilibrium.

The high level reached by gymnastics requires a sum of criteria and phases of selection. Currently, in our country and not only, performance training in gymnastics begins at the age of 5 to 7. The selection should be undertaken during this period if not earlier.

The first stage of the selection is the examination of the general conformation of the body, which allows choosing the children who have a harmoniously developed body. In this regard, at the first examination, we must consider the general posture of the body, the proportion and relation among the different segments of the selected (head, neck, body, shoulders, inferior and upper limbs).

Anatomically and physiologically, children aged between 5 and 6 are growing and the subsequent changes, particularly the ones from the period of puberty which can trigger essential changes. At this age, one can distinguish a series of particularities of the skeletal conformation and these can be altered or kept as a consequence of the training. In gymnastics, for the selection process, many teachers and trainers visually appreciate the target because the obvious posture deficiencies are the main reason for rejecting children in the selection. Particular attention must be paid to the morphologic type of the children and the proportions of the body. Children with large and short segments, legs that are too short compared to the trunk will not be selected. Nor will the ones who present the following shortcomings: asymmetrical axis of the shoulders, short shoulder blades, arms that reach the half of the thigh, insufficient extension or hyperextension of the arms, asymmetry of narrow torso, stern, large abdomen, prominent large basin, deformed bone support of the legs, flat foot and reduced mobility at the level of the articulations, of the feet (the point of the foot would not stretch).

At the same time, a medical control of the main functions can be carried out with the same criteria. The scope of the first stage of the selection is choosing the children capable for performance gymnastics, meaning in good health, with a harmonious conformation of the body and without physical deficiencies. Also, there must be a somatic-morphological and a medical-sporting examination before starting practical activity (7).

The next selection stage consists in a verification of certain physical qualities, such as force, speed, mobility, adroitness, coordination, posture, and form of execution, sense of rhythm, the capacity of assimilation and the degree of precision in rendering the exercises proposed for the control.

We present 8 trials of physical exercises recommended by the International Federation for Physical Education known as 'Standard Fitness Test'. These tests reveal the level of general-physical training, an expression of the degree of development of the movement qualities.

Children under 4 to 6 can be tested with these 8 trials.

- The length jump (Explosive force of the legs, détente) Performance is measured in centimeters from the starting point to the landing one. From the position of standing with the tips of the feet to the starting line, the take-off implies the oscillation of the arms and the bending of the legs.

- 50-meter sprint. (The trial verifies the speed on a distance of 20 m for the ages 4 to 6 and for 50 m for the 7-year-olds. The start is given from a standing position; the chronometer starts with the first movement of the performer. There are two runs with a 15' break between them. For the calculus of the score, the best performance is considered. Running on an out-of-level or slope track is not admitted.

- Lifting the trunk from a horizontal position to a sitting one and coming back. Lying in a horizontal position, hands at the back of the neck, clenched fingers, elbows on the mattress, legs bent from the knees, soles placed on the mattress with the tips leaning against the first ledge of the step ladder. The exercise consists in lifting the truck to a sitting position, the elbows touching the knees, and coming back to the initial position. The execution time is of 30'' at maximum speed. The result is the number of exercises effectuated in 30''.

- Hanging from the fixed horizontal bar. (Static force for the sustentation) This trial verifies the static force of the arm flexors. The starting position is hanging with bent arms, grasp from below, chin above the bar, and legs together. We chronometer the time to stay in this position. The trial is

performed only once. The result is expressed in minutes and seconds.

- Commutation. (Picking potatoes). Exercise for speed and adroitness. Two parallel lines are drawn at a distance of 10 meters. The space between them must be smooth and clear in order to ensure good running conditions. Two circles with a diameter of 50 cm are drawn so that they are tangent to the lines and themselves. In each of the two circles there is placed a wooden cube with a side of 5 cm. The performer stays at the opposite line with one foot in a circle and the other in the second one, pointing at the cubes, ready for the starting signal. At the signal, the performer takes off at maximum speed towards the cubes, brings one of them and places it in one of the circles he left. Then he runs for the second cube which he places in the other circle. The chronometer is set at the starting signal and stopped when the second cube was placed correctly in the circle.

- Coxo-femoral joint range of motion in anterior plan. (Mobility). On a chair with a plane surface, at 1.5 m above the ground, with the toes of the feet aligned with one of the margins of the chair. In front of the toes of the performer, there is a graduate line, with the gradation upwards. Bending the trunk in front, legs stretched, tips of the fingers try to go further than the gradation of 50 cm. This position is maintained about 3''.

- Rounders (Explosive force of the arm). The throwing is made from the spot, the ball being launched from the hand, over the head and not from one side. Two throws are performed. The best result is registered.

- Long distance run. The running track must be flat, without slopes. The running will be performed on a distance of 600m. If the performer passes from running to walking, it is considered abandon. The result is registered in minutes and seconds and then transformed into points. The data coming from the

tables we present have been established by the researchers of the Center for Physical Education and Sports of the Ministry of Education, Research and Innovation.

In the paper "Selection in Sports", it is mentioned that the equivalent in points for each average value has been calculated according to the Hull scale:

$$\left(M \pm \frac{3 \cdot 5 \cdot S}{50} \right)$$

In this calculation system, the average is always granted 50 points.

In conformity to the provisions of "The national System of Selection", the performers between 7 and 12 can be considered to have a general level of physical qualities that correspond with the requirements of performance physical activity if they achieve at least 480 points, resulted from the addition of the points in all 8 trials. 800 points can be accumulated from the 8 trials.

700 – 800 points = super-talented

600 – 700 points = talented

500 – 600 points = over the average

400 – 500 points = average

300 – 400 points = under the average

0 – 300 points = poor

In feminine artistic gymnastics, the selection begins at the age of 4 to 6. In this situation, we shall use 5 trials:

- running 20 meters for assessing the speed;
- length jump for determining the detente;
- commutation for the control of the adroitness;
- exercises for the abdomen;
- mobility.

The minimum score required is of 280 points. The sum of the points that can be achieved is of 500 for all 5 trials.

Children aged 4 to 6 are evaluated according to this classification:

450 – 500 points = super-talented children

400 – 450 points = talented children

300 – 400 points = over-the-average children

200 – 300 points = average children

100 – 200 points = under-the-average children

0 – 100 points = poor children

General considerations on the selection

The achievement of certain high performances can be obtained when the general premises of the training have been set in childhood. From the mass of selected children, we must work with the ones that have exceptional skills for gymnastics. The selection is the fundamental criterion and starting point of performance. It represents an evolutionary process and the investigations are deployed along the training. It represents a repetitive process that needs to be controlled rigorously from the morphological and force perspective of the sportsperson. From a psychological point of view, we must determine the interest and drive of the ones that want to practice gymnastics.

Considering the experience of our country, the selection of children can start at the age of 6, when they reach an organized environment or kindergarten. Premature selection (age of 4 or 5) has not given the wanted results and it was noticed that the losses were more serious during the training period. Trainers must not ignore the wish of the parents, hence the necessity of a close relation with them and a good propaganda among the children and parents.

An important role in attracting children to gymnastics is played by: the international results, the reputation of the club, of the trainer, the tradition of the sport (gymnastics), as well as by the material conditions. From the experience of the trainers, the conclusion was drawn that those who come to the selection

must be verified through some specific skills trials (8).

Trials for specific skills

1. Bend back into a bridge with the arms and legs stretched. The distance between the tip of the fingers and the heels is measured. For a satisfactory result – maximum 40 cm.

2. Side split. The distance between the soil and the basin is measured in centimeters. The maximum for a satisfactory result is 15 cm.

3. The ruler test. For measuring the reaction speed, we take a 40-cm ruler and we hold it above the open palm of the tested subject who is leaning her forearm on the table. After two attempts of accommodation, there is a third one with the registration of the number of centimeters where the ruler was taken from the high point. If the ruler was not taken, the points gained are 0.

4. Equilibrium walking on the bar, back and forth, only on tip toes. Maximum 14 seconds for a satisfactory result.

5. Push-ups from a lying face down on the ground. Minimum 6 correctly performed push-ups for a satisfactory result.

6. Standing on hands leaning against the fixed ladder or a wall, with that arms and body tensed. The position is maintained for minimum 10 seconds for a satisfactory qualification (5).

There can also be used other trials for specific tests, inspired from the personal experience of the trainers, which can verify other skills, such as: courage, space orientation, sense of rhythm, force memory, capacity to imitate movements, etc. Testing the courage and the space orientation can be determined by a leap from an obstacle of 1.5-2 m (from a pile of mattresses), perhaps with a 180-360°. For the vestibular apparatus, we can use the jump on the spot with a 360° spin from right or left and a flip back followed by running in the direction of the flip. For the force memory and the imitation spirit, we recommend the composition of an exercise combined with arm and legs movement for 6-8 measures that is to be reproduced accurately. The sense of rhythm and the musical ear can be tested through the reproduction of certain rhythms or simple movements to music (5).

Practical experience has shown us that we need to be attentive and understanding as there are exceptions to the rule. There might be children who score poorly in general or even specific tests but who excel in a certain trial of force or adroitness, thus compensating for the lacks in other directions. This can also be associated with an extraordinary mental strength that is an important lever for progress. Although high attention is recommended in the selection and a multilateral appreciation of the personality of every child, let us not forget that a good selection needs to be doubled by a volume of intense work, a systematic instructive-educational process conducted with competence and passion in order to obtain the wanted performance (9).

The last stage is the one of the closing of the selection. Children who have undergone the first two stages are organized in groups and subjected to a period of 6 to 9 months of training, twice or thrice a week, about 90-100 minutes. Within this period, there are effectuated basic exercises of aerobics,

Table I. Gauges for the 6 specific skills testes

Trial	1 (cm)	2 (cm)	3 (cm)	4 (sec)	5 (sec)	6 (X)
Age						
5 years	40	10	26	15	6	10
6 years	40	8	25	14	8	12
7 years	35	8	24	13,5	10	13

choreography, general physical development exercises deployed as games, various jumps from apparatus or in depth, climbing, baton, crawling, escalades, etc.

It is from this stage the trainer can form an opinion on each child whether they are valuable or not as future champions. The selection is a continuous process so some children may give up attending the training and those who have a very low success rate and have not gathered the necessary knowledge cannot be included in the performance or specialization groups (10). The selection thus becomes somewhat natural, maybe the child cannot deal with the requirements and is not capable of performing this sport or he fails to accommodate with the physical effort, or perhaps his parents forced them into this sport, or – rarely but still worth mentioning – despite the enthusiasm of the children the parents may decide to withdraw them for various reasons.

Stages of the selection alongside continuous training in gymnastics

Stage 1. It is the stage of the primary selection and initial training that includes children aged 6 to 7.

The main task is to discover the skills and talents of the children. It deals with the general physical development and elementary introduction into the technique of the simple elements in sport gymnastics, educating the constant interest and the love for gymnastics.

Stage 2 includes children aged from 8 to 9 who have been definitively selected and in whose case we look for: general and special physical development; acquiring the basic components for technical training and for some exercises and connectors; educating the mental and physical qualities and the knowledge of training and competing.

Stage 3 is the stage of specialization and it includes the girls aged 10 to 11 and the boys 10 to 13. It envisages intensive training for the enhancement of technical and physical performance.

Stage 4 is also called the stage of acquiring artistry in gymnastics, of special technical and physical training. It includes girls between 12 and 14 and boys between 14 and 17.

Stage 5 is the stage of perfecting the sport artistry and obtaining results. It includes girls aged 15 and boys over 18 (8).

Case study

Data on the gymnastics selection within the National Sports Colleague “Cetate” and the School Sports Club “Cetate” in Deva are presented in Table 2.

Table 2. Data on the gymnastics selection at the International Gymnastics Center of Deva

Year	Tested lot	Selected
2004	29 children (children 5-7 years)	26
	49 children (7 years)	42
2005	33 children (5-7 years)	30
	24 children (7 years)	24
2006	24 children (5-7 years)	22
	32 children (7 years)	32
2007	38 children (5-7 years)	37
	24 children (7 years)	
2008	38 children (5-7 years)	38
	24 children (7 years)	24

At the center of Deva, children come from all the country: the outskirts of the counties of Hunedoara, Mehedinți, Gorj, Tulcea and even Piatra Neamț, particularly the region of Moldova and Bucovina. An important factor in the decision of choosing this center for creating champions is that Deva is the cradle of Romanian gymnastics, a school with a tradition of decades and the most renowned gymnastics center worldwide. Here there is a mental selection where parents are concerned as they are aware of the fact that it is very difficult to be accepted unless you have genuine qualities and

skills for gymnastics. The selection is more natural in the process, as many give up and choose other sports since they have the possibility to shift to another section, such as aerobics or athletics, although very few have continued after the change. Usually these children lose their path as they do not manage to excel in either of the sports. I believe this method of organization and promotion of the selection in this center is inadequate and hardly updated. Public opinion should be informed on the way the selection is made, such as period, place, criteria of evaluation, age etc. The promotion of the event is also very important. The advertising of the event could be the main factor to influence, determine, inspire and call children to practicing this sport and this is highly dependant on the way the advertising is made, by who and how it is perceived. Hence, the involvement and the interest in the selection need to be increased, modernized and updated.

Table 3. Data on the gymnastics selection at the Town Sports Club in Onești - Bacău

Year	Tested lot	Selected
2004	-	-
2005	11 children (5-7 years)	7
2006	-	-
2007	19 children (5-7 years)	19
2008	-	-

Table 4. Data on the gymnastics selection at the „Nadia Comănechi” Sports Club in Onești-Bacău

Year	Tested lot	Selected
2004	23 children (7 years)	23
2005	22 children (7years)	22
2006	18 children (7years)	18
2007	16 children (7 years)	16
2008	18 children (7 years)	18

The productivity of this club is very low. As we can see from 2005 to 2008, only 30 children have been admitted and the selection has taken place only twice in these years because of the lack of children in the selection. Even these children that are selected and wish to practice gymnastics come from families with a low social status. This club is also the source for the Nadia Comănechi Sports College as

these children are preschool level and are trained until the age of 7 and then transferred. Their number is not relevant and as long as measures will not be taken for attracting again a high number of children for practicing this sport, the danger of dissolving the club.

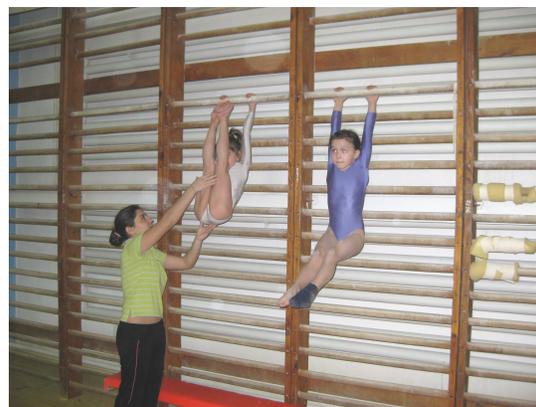


Figure 1. In hang on the trellis, leg lifts to touch the bar



Figure 2. Walk on the beamwith poise

Until the 90s, and even a few years afterwards, the selection was made from thousands. Children with genuine aptitudes for this sport could be chosen. Now we notice that all the children that were tested were also admitted which denoted the fact that once accepted those children were given the chance to practice gymnastics at the level they wished or could. A first category class of children can hardly be created. I would mention that this is rather the work

of the trainer, their effort and wish to create champions based on their previous experience. Later on, it is observed that at this center, children come rather late for the selection, the age of 7 being a rather late one to begin practicing this sport. There are, however, exceptions to the rule that manage to reach in a short while the level of the ones practicing the sport for one or two years. The center takes in children from Moldavia, the counties of: Suceava, Botoșani, Vrancea, Bacău and from around Onești. Worth mentioning is that children are usually brought in by grandparents as their parents are working abroad. We could consider this social issue as well. The decline of the selection, already a problem after the 90s and it has become even more acute since 1998. The main cause is the national decrease of the nativity, general lack of interest for sports, as well as for practicing any kind of physical exercise, the multitude of options at hand which were parallel to sports, education regarding a sport that no longer existed, the negative campaigns of the Romanian press on Romanian gymnastics in the recent years, and also the trainers that left abroad for better conditions. These are the principal causes of the decline, in spite of the changed regime and more democratic conditions, which should raise the number of the participants in the selection and afterwards. Gymnastics is a sport that needs to be taken up at a truly early age and where judgment practically does not exist and the role of the parents is very important in influencing and determining the decision of practicing this sport.

Table 5. Data on the gymnastics selection at the School Sports Club no. 1 in Timișoara

Year	Tested lot (children between 5-7 years)	Selected
2004	1500 children	60
2005	1530 children	60
2006	1500 children	60
2007	2250 children	195
2008	2300 children	217

Absolutely all these children have been selected from Timiș county by 6 trainers who personally went to 36 kindergartens in Timișoara and the villages near Timișoara, such as Sacalaz, Dumbrăvița and Beregsău. Here, thousand children have been tested as they were informed, but very few have been selected. Many of them do not have the skills for this sport, others are overweight, have various medical problems, corporal deficiencies that are atypical for the selection in gymnastics and so on. The fact that Timișoara does not have a specialized center similar to the ones in Deva and Onești is one of the reasons that determine parents to quit, disagreeing from the beginning and to refuse having their children submitted to such effort at such an early age, motivating it is too difficult a sport. Another inconvenient is the decision of the parents not to let their children be accommodated in a dormitory as cost are too high. They prefer their children to commute and that is a hindrance, it causes financial problems, lack of time and a busy program of the parents who cannot bring their children in for the training. The selection is a continuous process as other children come, those that have been selected already abandon on the way thus making the selection a natural process. Many of those who renounce gymnastics, do not give up practicing this sport for good at this club but choose other sports, for example modern dancing, ballet or rhythmic gymnastics.

Conclusions

The efficiency of the selection is high if it is applied to a large number of children. Success is determined by the exigency of the selection that envisages discovering the ideal model, exceptional individuality with a native talent and qualities for performance gymnastics.

The selection must not be considered a momentary action but an evolutionary process correlated with the training one. The top of the pyramid is reached only by those that harmoniously combine talent and perseverant work and respect the regime of a sportsperson with the required. The selection demands preoccupation, time and it depends to a large extent on the personal experience of the trainers and their perseverance.

It is obvious that Romanian gymnastics is in a quandary. The absence of children at the selection, the general lack of interest towards this sport and not only, show the decline that continues to exist and needs to be addressed to prevent it from becoming even more acute.

High performance gymnastics cannot be done by anybody and anyhow and nowadays, considering the change of mentality of the Romanian people, changes have been imposed in sports as well. The transformation needs to come from top to bottom, from the government, with more consistent financing, the introduction of new strategies and selection plans, finding new and modern ways to motivate the children and maintain them in this sport at optimal conditions, creating advertising

campaigns for information and promotion of everything that sports represent. I have the certainty that if these proposals shall be considered and applied (at least some of them), attracting children and young people to all branches of sports will increase and consequently so will their general health condition.

In the absence of commitment and maximum focus on the selection, things will worsen even more. The old selection methods are no longer valid. It is necessary for them to be updated and modernized.

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