



**A cross section study on anthropometry and motor skills in
Albanian Special Olympics athletes during 2021:
FUN fitness screening test battery**

REPORT 2022

Play Unified –Young Athletes



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About

Albanian Sports Science Association (ASSA)

“Connect community through physical activity and sports”



Our strategy is to connect, cooperate and collaborate with many partners that play a key role in the community that promote health, physical activity and sports.

www.assa.al

About ASSA

ASSA evolved from innovative ideas of dedicated sports science students. The organization was established in 2012 and registered as an NGO in the Republic of Albania located in Tirana. ASSA believes that human relationships are powerful, and interaction with each other are the foundation for change in creating a viable community that can bring positive and significant outcomes nationwide through physical activity and sports. Our goal is to establish relationships based on trust, understanding and shared values regardless of racial, ethnic, or socio economic status.

The ASSA provides opportunities through scientific information that will improve the quality of sport training and a healthy active lifestyle in all age groups. We encourage the incentives of youth to be a driving force of ideas who can further contribute to our activities and projects.

ASSA is always open to partnerships with major research funding bodies, academies, universities, regulators, NGO's, healthcare, sports participants and others willing to participate and promote sports, physical education, physical activity and health.

Vision

- *ASSA's vision is to become a leading research institution that provides high quality research in sports, physical activity and health.*

Mission

- *To contribute to the health outcomes of physical activity, sports by implementing education programs and projects that impact the communities.*
- *To perform research activities in sports, physical activity and health through education and training.*
- *Creating reference standardization of fitness, wellness and sports norms through research activities.*

Our Values

- *We are guided by a teamwork spirit and respect of individual ideas.*
- *Willing to create values and accept responsibility for our research activities.*
- *We are creative and open to new ideas and opportunities in scientific research.*
- *We are loyal in offering service for sport performance development.*

Play Unified –Young Athletes

Special Olympic- About FUN Fitness Screening project

As part of the project "**Young Athletes - Play Unified**" the **Albanian Sports Science Association** has conducted anthropometric measurements and physical tests of children with disabilities. This project is implemented by the **Special Olympics Albania**, funding from the **US Embassy** and with the support of **Tirana Municipality**.

These measurements are of particular importance not only for reflecting the current level of disabled athletes with but also for monitoring the quality of training program applied in this category.

ASSA team and researchers in cooperation with the coaches and staff from **SMART Sport Center** had composed a protocol of measurements based on **the European Protocol for Special Olympics** and protocol for anthropometric measurements and test on children.

This project plans to study basic movements of children with intellectual disabilities, flexibility and strength, finding a correlation between sports practice and physical wellness. Simple measurements were taken. Children enthusiastically introduced themselves and gave the team a warm welcome in their event.

While getting to know them, ASSA team took notes and asked questions about their lifestyle, how often do they train and participate in sportive events. Then they tested children's flexibility and strength with simple tasks such as task one two three.

These tasks were approved by the International Protocol and carefully applied by the team.

Protocols of the tests

Measurements and tests were divided into four categories targeting the main areas that contribute in the physical performance of the athlete. A survey that helps determine the demographics of participating athletes was used. Details such as disabilities, frequency of training, and other anthropomorphic measurements were included in the survey. Using the *Timed Stand Test*, ASSA lab team measured the strength of the athletes in 10 repetitions. Using a modified version of the *Single Leg Stance Test*, ASSA lab team measured the ability of the athletes to maintain balance on both right and left legs, with eyes opened and closed. To measure the flexibility of the athletes ASSA team used a modified version of the *Apley's Test* (Functional Shoulder Rotation). The results are calculated below.

TIMED STAND TEST – Sit and stand with NO assistance

The timed-stands test is a simple method to quantify functional lower extremity muscle strength (hip and knee extension). The test requires the athlete to complete 10 full stands from a seated position as quickly as possible without the use of the arms.

Mode of administration

1. Have athlete sit on a firm straight-backed chair
2. Use pieces of hard foam or wood to adjust the height of the chair seat and/or to position the feet flat on the floor as necessary to maintain a position with hips and knees at a 90 degree angle.
3. Have the athlete position the arms by the sides with the elbows flexed to 90 degrees. Arms remain in this position for the entire test.
4. Athlete is instructed to “stand from sitting, then sit down again, without using your arms. Repeat this 10 times as quickly as possible.”
5. PT demonstrates the test.
6. PT tells the athlete to start with a “ready, set, go.”

7. PT, PTA or student stands beside the athlete in case the athlete loses his/her balance during the task.

Scoring

8. PT or PTA starts a stopwatch or timer when he/she says “go.”
9. Timer continues until the athlete sits down from the 10th stand.
10. Record the time to perform the task in seconds.

Education: Time greater than 20 seconds or inability to do 10 stands indicates need for education.



FUNCTIONAL SHOULDER ROTATION – Modified Apely’s test

Participant testing position

1. Athlete stands or sits in a chair, if standing provide a chair or other support for the athlete to hold on to. (Athlete may also sit in a wheelchair.)
2. Athlete is instructed to reach one arm behind the head and down the back, while the other arm reaches behind the hip and up the back.

Physical therapist position

3. PT demonstrates the test.
4. PT then stands behind the athlete.
5. PTA or student stands in front of the athlete for safety.

Measurement

6. PT demonstrates the test position.
7. Athlete is instructed to “try to touch your index fingers together.” (one arm is in flexion/abduction/lateral rotation; the other is in extension/adduction/ medial rotation).
8. The measurement is the distance in centimeters between the index fingers

Recording

9. Use a tape measure to measure the distance between the index fingers in centimeters.
10. Determine the side being recorded by the arm on top (i.e., left arm on top = left; right arm on top = right).
11. If the fingertips touch, record the distance as 0 cm.
12. If the fingertips cannot touch, record the separation as negative (e.g., - 15.2 centimeters).
13. If the fingers overlap, record the overlap as positive (e.g., + 2.5 centimeters).
14. Symmetry occurs if each arm reaches equally toward the middle (approximately T7) or at the level of the inferior angle of the scapula.
15. Asymmetry occurs if the arms do not approach the midline evenly (i.e., one arm is more flexible and overreaches the midline, or is less flexible and cannot approximate the midline).
16. Repeat on both sides and record on the score sheet.

Education:

Recordings of -16 centimeters to -50 cm. (or more) (e.g., -18 cm.) or asymmetry indicate need for Education.

PARTIAL SIT-UP TEST

The Partial Sit-Up Test is a simple method to quantify abdominal muscle strength/ endurance. The test requires the athlete to complete 25 sit-ups within one (1) minute from a supine position.

Mode of Administration

1. Participant is positioned supine on mat. If athlete cannot get on the mat, the test can be carefully done on a sturdy table.
2. Athlete's legs are flexed to 90 degrees hips/90 degrees knees and placed on a chair or stool.
3. PT uses pieces of hard foam or wood to adjust the height of the stool if necessary.
4. Athlete arms are positioned straight out in front of the chest with the elbows extended. Arms remain in this position for the entire test.
5. Athlete is instructed to "lift your head and slowly sit up until you touch the target, then slowly lower back down again. Repeat this until I tell you to stop. We want you to do as many as you can in one minute".
6. Goal is to have athlete do a partial sit-up, defined as sitting up until the base of the scapula clears the floor or table, then returning the back and head to the floor.
7. PT must verify that the scapula has lifted off the mat.
8. Do a practice sit-up to determine how high the athlete needs to sit up to clear the scapula, then put a target at the position.
9. PT demonstrates the test.
10. PT coaches the athlete to begin when he/she says "ready, set, go."
11. PT sits near the athlete to encourage the athlete to continue the task correctly.



Scoring

1. PT or PTA starts a stopwatch or timer when he/she says "ready, set, go."
2. Timer continues until one minute has elapsed or until the athlete does 25 sit-ups correctly.
3. The number of sit-ups completed is recorded.
4. The athlete can stop to rest momentarily, then begin again.
5. If the athlete cannot continue for one full minute, the number of sit-ups completed is recorded.

Education

The inability to do 25 sit-ups indicates need for Education.

SINGLE LEG STANCE WITH EYES OPEN

The single-leg stance test with *eyes open* is a simple method to quantify balance with the assistance of visual cues. The test requires the athlete to stand on one leg with the eyes open. Balance must be maintained as long as possible.

Mode of administration

1. Athlete stands on both legs with feet shoulder width apart.
2. Athlete is placed within arms' reach of a chair for security.
3. The athlete is instructed to place hands on hips.
4. Athlete is instructed to “slowly lift one leg and balance. I will time you until you lose your balance.”
5. PT demonstrates the test.
6. PT stands in front of athlete to encourage the athlete to continue without fear of falling. PTA or student stands behind athlete for safety.
7. PT coaches athlete with a “ready, set, now stand on one leg.”
8. Test continues until athlete loses balance, or puts the other foot down (maximum time = 20 seconds).



Scoring

9. PT or PTA starts a stopwatch timer when he/she says “ready, set, now stand on one leg.”
10. Timer continues until balance is lost, or foot of the flexed leg touches the ground.
11. The time completed before loss of balance (up to 20 seconds) is recorded.

Education: Stance time of less than 20 seconds, or asymmetry might indicate need for Education.

The single-leg stance test with *eyes closed* is a simple method to quantify balance without the assistance of visual cues. The test requires the participant to stand on one leg, with eyes closed or wearing a blindfold. Balance must be maintained as long as possible.

Mode of administration

1. Athlete stands on both legs with feet shoulder width apart.
2. Athlete is placed within arms' reach of a chair for security.
3. Hands are placed on hips
4. Arms remain in this position for the entire test.
5. Athlete is requested to "lift one leg, then close your eyes and balance. I will time you until you lose your balance."
6. A blindfold may be used if the athlete is unable to maintain his/her eyes shut, and only if the athlete agrees to be blindfolded.
7. PT demonstrates the test.
8. PT stands in front of the athlete to encourage the athlete to continue with without fear of falling. PTA or student stands behind athlete for safety.
9. PT coaches the athlete with a "ready, set, stand on one leg, now close your eyes."

Scoring

10. PT or PTA starts a stopwatch timer when he/she says, "ready, set, stand on one leg, now close your eyes."
11. Timer continues until balance is lost, or foot of the flexed leg touches the ground.
12. The time completed before loss of balance (up to 10 seconds) is recorded.

Education: Stance time of fewer than 10 seconds or asymmetry might indicate need for Education.

SEATED PUSH-UP TEST

The Seated Push-Up Test is a method of assessing strength of the triceps, shoulder and scapular muscles. The test involves pushing the body up out of a seated position, holding, and slowly lowering it back to sitting.

Mode of Administration

1. PT positions the athlete on the floor (if the athlete uses a wheelchair he or she can push up on the armrests).
2. PT places the athletes' knees out straight with heels resting on the floor or table.
3. PT or PTA must guard the push-up blocks to prevent them from tipping.
4. PT instructs the athlete to push his/her body up from floor until the elbows are straight, hold for 20 seconds, then slowly lower back into the seat.
5. Athlete can practice prior to the test.
6. PT coaches the athlete to begin when he/she says "ready, set, go."

Scoring

1. PT times with a stopwatch the number of seconds that the athlete can hold in the push-up position.
2. Record the number of seconds held on the score sheet.

Education

An athlete who cannot hold for at least 5 seconds, twice, needs Education.



Results

QUESTIONNAIRE ASSESSMENT FOR ALL CHILDREN

Final report 2021, FUN fitness screening

Table 1 summarizes the number of participants, their gender and residence. There were 19 boys and 11 girl athletes from Tirana. The mean age by gender is determined in Table 1.

Table 1 Descriptive Statistics for Participants

Gender		N	Mean Age
Children	Tirana	30	14.9
Boys	Tirana	19	15.5
Girls	Tirana	11	13.0

Table 2 summarizes all the results from all the questionnaire, categorizing the athletes. Table below indicates whether the SO athletes use assistive devices (such as wheelchair, prosthesis, splint, brace etc.). 100% of the answers were NO.

Table 2-Questionnaire Assessment

Variable	Yes(%)	No (%)
Wheelchair	0	100
Prosthesis	0	100
Diseases or injuries that may affect the result?	0	100

The table nr 3 shows if any of SO athletes have currently experiencing any pain, injuries, joint sprains, muscle strains or skin problems or if any of them have fallen in their home in the last year.

The result indicated that no one of SO athletes have experience any of the health problems mentions above.

Table 3 *Questionnaire Assessment*

<i>Variable</i>	<i>Yes(%)</i>	<i>No (%)</i>
Joint injury	0	100
Pain	0	100

Table nr 4 shows if any of the participants have difficulties (such as stomach and hunchbacked) that may interfere in the project results. All boys and girls had revealed that no one of them have difficulties that are mentions above, thus there is no interfere in the measurements.

Table 4 *Physical problems with athletes (%)*

<i>Problems- 2021 Report</i>	<i>All %</i>	<i>Boys</i>	<i>Girls</i>
<i>No</i>	100	100	100
<i>Stomach</i>	0	0	0
<i>Hunchbacked</i>	0	0	0
<i>Total</i>	100	100	100

Table nr 5 summarize the ability of participants to perform simple stretching exercises. 20 % of boys fail to perform simple stretching exercises while 80 % of them are able to execute the simple stretching tasks. 100% of girls are able to carry out simple stretching exercises.

Table 5 *Ability to stretch (%)*

<i>Able to Stretch- 2021 Report</i>	<i>All %</i>	<i>Boys</i>	<i>Girls</i>
<i>No</i>	20	20	0
<i>Yes</i>	80	80	100
<i>Total</i>	100	100	100

Table no 6 present the answer of the question: “Have you fallen in the past year in your home?” No one of SO athletes had experience any fallen in their home so, 100% of the answer were No.

Table 6 The tendency to fall (%)

Have you fallen in the past year in your home? 2021 Report	All %	Boys	Girls
<i>No</i>	100	100	100
<i>Yes</i>	0	0	0
<i>Total</i>	100	100	100

Table nr 7 indicates the frequency of physical activity involvement throughout the week of SO athletes. 56% of children perform physical activities 1 day a week while 20% of them perform physical activities twice a week. 3% of the children engage themselves in physical activities 3 times per week whereas 15% of them participate in physical activities 5 days in week. No one of them perform physical activities every day.

Table 7 Weekly physical activity indicators (%)

PA per week- 2021 Report	All %
0	0
1 day	56
2 days	20
3 days	3
4 days	0
5 days	15
6 days	6
7 days	0

Total	100
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Data from table 8 indicate the involvement of children in the activities organized by Special Olympics Albania. 83% of children have been involved in SO activities while 17 % of them have not been part of Special Olympics Albania activities.

Table 8 SO participation (%)

SO training- 2021 Report	%
<i>None</i>	0
<i>Some</i>	0
<i>Most</i>	17
<i>All</i>	83
<i>Total</i>	100

QUESTIONNAIRE ASSESSMENT FOR ALL CHILDREN

Final report 2021, FUN fitness screening vs Final report 2017, FUN fitness screening

Data in tables nr 9 present the difficulties (such as hunchbacked and stomach problems) that may interfere the measurements in 2017 and 2021. No one of SO athletes have reported any difficulty. 3 % of SO athletes had difficulties in stomach and 3% of them had hunchbacked difficulties.

Tables 9 Physical problems with athletes (%)

Problems- 2021 Report	All %	Boys	Girls
<i>No</i>	100	100	100
<i>Stomach</i>	0	0	0
<i>Hunchbacked</i>	0	0	0
<i>Total</i>	100	100	100

Problems- 2017 Report	All %	Boys	Girls
<i>No</i>	94	94	100
<i>Stomach</i>	3	3	0
<i>Hunchbacked</i>	3	3	0
<i>Total</i>	100	100	100

Tables nr 10 indicate the ability of children to perform simple stretching exercises. In 2017 15 % of boys were not able to execute simple stretching tasks while in 2021, only 20% of them couldn't perform simple stretching exercises. 11% of girls in 2017 were not able to carry out simple stretching tasks while in 2021 all girls participated in the measurements were able to perform simple stretching exercises.

Tables 10 Ability to stretch (%)

Able to Stretch- 2021 Report	All %	Boys	Girls
<i>No</i>	20	20	0
<i>Yes</i>	80	80	100
<i>Total</i>	100	100	100

Able to Stretch- 2017 Report	All %	Boys	Girls
<i>No</i>	14	15	11
<i>Yes</i>	86	85	89
<i>Total</i>	100	100	100

Tables nr 11 show the tendency of the children to fall. Only 28% of children in 2017 had experienced any fallen in the past year in home while in 2021 no one has reported to experience such accidents. 33% of boys in 2017 answered "Yes" to the question "Have you fallen in the past year in your home?". 89% of girls in 2017 answered "No" to the question "Have you fallen in the past year in your home"?

Tables 11 The tendency to fall (%)

Have you fallen in the past year in your home? 2021 Report	All %	Boys	Girls
<i>No</i>	100	100	100
<i>Yes</i>	0	0	0
<i>Total</i>	100	100	100

Have you fallen in the past year in your home? 2017 Report	All %	Boys	Girls
No	28	33	11
Yes	72	67	89
Total	100	100	100

Tables below summarize the frequency of physical activity involvement throughout the week for the SO athletes. In 2021 data show that 56% of children participate in physical activity once on the week whereas 20 % of them are involve in physical activity twice a week. 15% of SO athletes in 2021 perform physical activity 5 days a week and 6% of them participate 6 days a week. In 2017 6% of children do not perform any physical activity at all. 11% of SO athletes engage themselves in physical activity every single day while 56% of them participate once in week.

Tables 12 Weekly physical activity indicators (%)

PA per week- 2021 Report	All %
0	0
1 day	56
2 days	20
3 days	3
4 days	0
5 days	15
6 days	6
7 days	0
Total	100

PA per week- 2017 Report	All %	Boys	Girls
0	6	8	0
1 day	20	19	22
2 days	9	4	22
3 days	26	23	33
4 days	0	0	0
5 days	29	31	22
6 days	0	0	0

7 days	11	15	0
Total	100	100	100

Data from tables no 13 indicate the involvement of the children in the activities organized by Special Olympics Albania.

In 2021, 100% of children have been part of SOA activities while 97% of participants in 2017 have been involved in SOA activities. 3% of children in 2017 were not engaged in activities organized by SOA whereas the percentage of participants not involved in SOA activities in 2021 was 0%.

Tables 13 SO participation (%)

SO training- 2021 Report	%
<i>None</i>	0
<i>Some</i>	0
<i>Most</i>	17
<i>All</i>	83
<i>Total</i>	100

SO training- 2017 Report	%	Boys	Girls
<i>None</i>	3	4	0
<i>Some</i>	59	48	89
<i>Most</i>	38	48	11
<i>All</i>	0	0	0
<i>Total</i>	100	100	100

PHYSICAL FITNESS TEST MEASURED FOR ALL CHILDREN

Final report 2021, FUN fitness screening

Table nr 14 indicate the number of children participated in the measurements, the mean and the standard deviation of flexibility test- left up/right up; right down/left down. The mean of flexibility test-left up; right down is -10.7 cm and the standard deviation is 7.6 while the mean of flexibility test-right up; left down is -7.9 cm and the standard deviation is 10.9.

Table 14 Summary of the Measured Variable- Modified Apley's.test
Final report 2021, FUN fitness screening

Variable	Unit	N	Mean	Std. Deviation
Flexibility test- left up; right down TOTAL	cm	30	-10.7	7.6
Flexibility test- right up; left down TOTAL	cm	30	-7.9	10.9

The table below show the mean, SD and the number of children participated in balance eyes open/close right leg-up test for 20 seconds. 30 SO athletes participated in the simple balance test.

The mean of balance eyes open; right leg-up to 20 seconds test is 10.1 seconds 6.8 SD. The balance test with the eyes close and right leg up for 10 seconds has the mean 6.7 second 5.1 SD. Children have performed the balance test with eyes close and left leg up for 5.7 seconds (mean) and 3.6 SD.

Table 15 Summary of the Measured Variable- Single Leg Stance test
Final report 2021, FUN fitness screening

Variable	Unit	N	Mean	Std. Deviation
Balance Eyes Open; right leg- up to 20 seconds	seconds	30	10.1	6.8
Balance Eyes Open; left leg- up to 20 seconds	seconds	30	8.7	4.9
Balance Eyes Close; right leg- up to 10 seconds	seconds	30	6.7	5.1
Balance Eyes Close; left leg- up to 10 seconds	seconds	30	5.7	3.6

Table nr 16 present the mean and the standard deviation of thirty children after performing the timed stands test -10 repetitions, timed partial sit-up; 1 min-up to 25 and seated push-up test. The mean of timed stands test -10 repetitions is 19.4 seconds 5.3 SD. Participants have performed the timed partial sit-up; 1 min -up to 25 for 12.7 times 8.5 SD. The mean of seated push-up test is 35 seconds 21.5 SD.

Table 16 Summary of the Measured Variable- Timed Sit to Stand test
Final report 2021, FUN fitness screening

Variable- Functional Strength	Unit	N	Mean	Std. Deviation
Timed Stands test- 10 repetitions	seconds	30	19.4	5.3
Timed Partial Sit-Up; 1 min- up to 25	number	30	12.7	8.5
Seated Push-Up Test	seconds	30	35	21.5

PHYSICAL FITNESS TEST MEASURED FOR BY GENDER

Final report 2021, FUN fitness screening

The table below indicate the mean and the standard deviation of flexibility test-left up; right down and flexibility test-right up; left down for girls and boys. The mean of flexibility test-right

up; left down is -18.7 cm 12.9 SD for boys and -12.3 cm 6.3 SD for girls. Boys have the mean of flexible test -left up; right down -11.2 cm 8.3 SD while girls represented by value -8.2 cm the mean and 82.9 SD.

Table 17 Summary of the Measured Variable by gender- Modified Apley's.test
Final report 2021, FUN fitness screening

Variable	Boys			Girls	
	Unit	Mean	Std. Dev	Mean	Std. Dev
Flexibility test- left up; right down TOTAL	cm	-11.2	8.3	-8.2	82.9
Flexibility test- right up; left down TOTAL	cm	-18.7	12.9	-12.3	6.3

Table no 18 show the mean and standard deviation of boys and girls after they performed the balance test eyes open/close; right/left leg-up to 20 seconds. The mean of balance test eyes open; right leg-up to 20/10 seconds is 8.7 seconds 5.7 SD for boys and 10.7 seconds 5.9 SD for girls. Balance test eyes open; left leg-up to 20 seconds show the mean 9.1 seconds 5.3 SD for boys and 6.5 seconds 4.9 SD. The mean and the standard deviation of balance eyes close; right leg up to 10 seconds is 6.2 seconds 5.2 SD for boys and 5.7 seconds 3.8 SD. The boys have the mean and standard deviation of balance eyes close; left leg-up to 10 seconds 5.1 seconds and 3.6 SD while girls are presented with the mean 4.9 seconds 4.1 SD.

Table 18 Summary of the Measured Variable by gender- Single Leg Stance test
Final report 2021, FUN fitness screening

Variable	Unit	Boys		Girls	
		Mean	Std. Dev	Mean	Std. Dev
Balance Eyes Open; right leg- up to 20 seconds	seconds	8.7	5.7	10.7	5.9
Balance Eyes Open; left leg- up to 20 seconds	seconds	9.1	5.3	6.5	4.9
Balance Eyes Close; right leg- up to 10 seconds	seconds	6.2	5.2	5.7	3.8
Balance Eyes Close; left leg- up to 10 seconds	seconds	5.1	3.6	4.9	4.1

The table no 19 indicate the timed stands test- 10 repetitions, timed partial sit-up; 1 min-up to 25 and seated push- up test for boys and girls. The mean of timed stands test-10 repetitions for boys is 21 seconds 5.9 SD and girls are presented with the mean 21.9 seconds 3.9 SD. Timed partial sit-up test; 1 min-up to 25 show the mean 14.3 reps 8.8 SD for boys and 11.6 reps 7.5 SD. Boys have the mean of Seated push-up test 37 seconds 22.1 SD while girls have the mean 31.2 seconds 20.9 SD.

*Table 19 Summary of the Measured Variable by gender- Timed Sit to Stand test
Final report 2021, FUN fitness screening*

Variable- Variable- Functional Strength	Unit	Boys		Girls	
		Mean	Std. Dev	Mean	Std. Dev
Timed Stands test- 10 repetitions	seconds	21	5.9	21.9	3.9
Timed Partial Sit-Up; 1 min- up to 25	number	14.3	8.8	11.6	7.5
Seated Push-Up Test	seconds	37	22.1	31.2	20.9

PHYSICAL FITNESS TEST MEASURED FOR ALL CHILDREN

Final report 2021, FUN fitness screening vs Final report 2017, FUN fitness screening

Tables below show the mean and standard deviation of flexibility tests in 2017 and 2021. Mean of flexibility tests with left hand up and right hand down is -10.7 cm 7.6 SD in 2021 while in 2012 the mean has the value -10.4 cm 9.3 SD. In 2021 the mean and standard deviation of flexibility test-right up; left down is -7.0 cm 10.9 SD whereas in 2017 this mean was -8.6 cm 9.4 SD.

Table 20 Summary of the Measured Variable- Modified Apley's.test

Variable- Final report 2021, FUN fitness screening	Unit	N	Mean	Std. Deviation
Flexibility test- left up; right down TOTAL	cm	30	-10.7	7.6
Flexibility test- right up; left down TOTAL	cm	30	-7.9	10.9

Variable- Final report 2017, FUN fitness screening	Unit	N	Mean	Std. Deviation
Flexibility test- left up; right down TOTAL	cm	37	-10.4	9.3
Flexibility test- right up; left down TOTAL	cm	36	-8.6	9.4

Tables no 21 present the mean and the standard deviation of balance tests with eyes close/open and right/left leg-up for 10/20 seconds in 2021 and 2017. The mean and the standard deviation of balance test eyes open; right leg-up is 10.1 seconds 6.8 SD in 2021 and 10.7 seconds 7.8 SD in 2017. Balance test eyes open; left leg-up has the mean 8.7 seconds 4.9 SD in 2021 while in 2017 this mean was 10.7 seconds 7.1 SD. In 2017 the mean of balance test eyes close; right leg-up was 6.5 seconds 6.1 SD while in 2021 this mean is 6.7 seconds 5.1 SD. The last balance test with eyes close and left leg-up for 10 seconds displays in the table has the mean 5.7 seconds 3.6 SD in 2021 and 5.3 seconds 5.3 SD in 2017.

Table 21 Summary of the Measured Variable- Single Leg Stance test

Variable- Final report 2021, FUN fitness screening	Unit	N	Mean	Std. Deviation
Balance Eyes Open; right leg- up to 20 seconds	seconds	30	10.1	6.8
Balance Eyes Open; left leg- up to 20 seconds	seconds	30	8.7	4.9
Balance Eyes Close; right leg- up to 10 seconds	seconds	30	6.7	5.1
Balance Eyes Close; left leg- up to 10 seconds	seconds	30	5.7	3.6

Variable- Final report 2017, FUN fitness screening	Unit	N	Mean	Std. Deviation
Balance Eyes Open; right leg- up to 20 seconds	seconds	32	10.7	7.8
Balance Eyes Open; left leg- up to 20 seconds	seconds	32	10.7	7.1
Balance Eyes Close; right leg- up to 10 seconds	seconds	32	6.5	6.1
Balance Eyes Close; left leg- up to 10 seconds	seconds	32	5.3	5.3

Table below indicate the mean and the standard deviation of functional strength test such as timed stands test- 10 repetitions for 2021 and 2017. The mean of timed stands test for 10 repetitions is 19.4 seconds 5.3 SD in 2021 and 21.4 seconds 5.3 SD in 2017.

Table 22 Summary of the Measured Variable- Timed Sit to Stand test

Variable- Functional Strength- Final report 2021, FUN fitness screening	Unit	N	Mean	Std. Deviation
Timed Stands test- 10 repetitions	seconds	30	19.4	5.3

Variable- Final report 2017, FUN fitness screening	Unit	N	Mean	Std. Deviation
Timed Stands test- 10 repetitions	seconds	39	21.4	5.3

PHYSICAL FITNESS TEST MEASURED BY GENDER

Final report 2021, FUN fitness screening vs Final report 2017, FUN fitness screening

Table nr 23 present the mean and standard deviation of flexibility test-leg up; right down in 2021 and 2017 for both boys and girls. Flexibility test-left up; right down has the mean -11.2 cm 8.3 SD for boys and -8.2 cm 82.9 SD for girls in 2021. In 2017 flexibility test -right up; left down has presented the mean -10.1 cm 10.6 SD for boys and -9.0 cm 7.2 SD for girls. The mean of flexibility test-right up; left down is -18.7 cm 12.9 SD for boys in 2021 while the mean of this test is -12.3 cm 6.3 SD for girls. In 2017 boys has the mean of flexibility test- right up; left down -10.1 cm 10.6 SD while the girls has the mean -9.0 cm 7.2 SD.

Table 23 Summary of the Measured Variable by gender- Modified Apley's.test

Final report 2021, FUN fitness screening	Boys			Girls	
	Unit	Mean	Std. Dev	Mean	Std. Dev
Flexibility test- left up; right down TOTAL	cm	-11.2	8.3	-8.2	82.9
Flexibility test- right up; left down TOTAL	cm	-18.7	12.9	-12.3	6.3

Final report 2017, FUN fitness screening	Boys			Girls	
Variable	Unit	Mean	Std. Dev	Mean	Std. Dev
Flexibility test- left up; right down TOTAL	cm	-12.2	10.4	-9.0	7.5
Flexibility test- right up; left down TOTAL	cm	-10.1	10.6	-9.0	7.2

Table no 24 indicate the mean and the standard deviation of balance test with eyes open/close and right/left test up to 10/20 seconds for both boys and girls in 2017/ 2021. The mean of balance test eyes open; right leg-up to 20 seconds is 2021 is 8.7 cm 5.7 SD for boys and 10.7 cm 5.9 SD for girls. In 2017 the mean of balance test eyes open; right leg-up to 20 seconds is 10.4 cm 8.0 SD for boys and 11.4 cm 7.9 SD for girls. Balance eyes close; left leg-up to 10 seconds is presented with mean 6.2 seconds 5.2 SD for boys and 5.7 seconds 3.8 SD.

Table 24 Summary of the Measured Variable by gender- Single Leg Stance test

Final report 2021, FUN fitness screening	Boys			Girls	
Variable	Unit	Mean	Std. Dev	Mean	Std. Dev
Balance Eyes Open; right leg- up to 20 seconds	seconds	8.7	5.7	10.7	5.9
Balance Eyes Open; left leg- up to 20 seconds	seconds	9.1	5.3	6.5	4.9
Balance Eyes Close; right leg- up to 10 seconds	seconds	6.2	5.2	5.7	3.8
Balance Eyes Close; left leg- up to 10 seconds	seconds	5.1	3.6	4.9	4.1

Final report 2017, FUN fitness screening	Boys			Girls	
Variable	Unit	Mean	Std. Dev	Mean	Std. Dev
Balance Eyes Open; right leg- up to 20 seconds	seconds	10.4	8.0	11.4	7.9
Balance Eyes Open; left leg- up to 20 seconds	seconds	9.6	7.4	10.7	6.6
Balance Eyes Close; right leg- up to 10 seconds	seconds	5.9	5.8	6.1	6.6
Balance Eyes Close; left leg- up to 10 seconds	seconds	4.4	4.2	5.9	6.9

The table below show the mean and standard deviation of timed stands test- 10 repetitions in 2017 and 2021 for both boys and girls. In 2017 girls had the mean of timed stands test- 10 repetitions

20.4 seconds 3.5 SD and 22.5 cm 5.9 SD for boys. In 2021 the mean of timed stands test- 10 repetitions is 21 seconds 5.9 SD for boys and 21.9 seconds 3.9 SD for girls.

Table 25 Summary of the Measured Variable by gender- Timed Sit to Stand test

Final report 2021, FUN fitness screening		Boys		Girls	
Variable- Functional Strength	Unit	Mean	Std. Dev	Mean	Std. Dev
Timed Stands test- 10 repetitions	seconds	21	5.9	21.9	3.9

Final report 2017, FUN fitness screening		Boys		Girls	
Variable- Functional Strength	Unit	Mean	Std. Dev	Mean	Std. Dev
Timed Stands test- 10 repetitions	seconds	22.5	5.9	20.4	3.5

Discussion

In 2021 children have tried to do as much physical activity in order to be active, despite the limits created by the pandemic COVID 19. There were no evidences of children falling into the home during 2021 thus, 100% of the answers were No. During 2021 more than half of the children have done physical activity only once a week, significantly reducing the percentage of participants who do physical activity every day.

There was less involvement in physical activity in 2021 compare to 2017 and 83% of the children were engaged in SO activities.

Beginning with the physical fitness test measured for all children, in 2021 flexibility test with right arm up and left down have better result compare to 2017. This shows that flexibility is improved but still there is room for further improvement, thus trainers should focus in this important component.

In 2021 the balance tests have revealed a very good job done by the trainers for the improvement of the results of the balance test with closed eyes but it is necessary to work more with the

improvement of the results of the balance test with open eyes. Balance is another necessary physical component that trainers should take into consideration.

There is considerable improvement of functional strength in 2021 compare to 2017. This means that the trainers have given more importance to strength ability.

In general children had improvement in most of the tested skills which comes as a result of a good work organized by SO Albania. Despite this there is plenty of room for further improvements in specific abilities such as strength, balance or flexibility. Periodical tests and measurements must be taken, in order to maintain relatively good physical health indicators.

Reference

Special Olympics. FUNfitness: Learn how to Organize, Promote and Present, Updated: September 2020