Who has better balance,
Ballerina or Non ballerina?

Abstract:

My project is about testing to see whether ballerinas or non ballerinas balance better. I tested this by taking both non dancers and dancers and having them do a series of balancing tests that involved elements like spinning, closing their eyes and standing on one leg.

I chose this project because my dad had a brain surgery that altered his balance, that made me realize just how important balance is to me and how significant it is in my life.

The result was that ballerinas do have better balance and training your balance can make a big difference. When other scientists tested this they found out by suppressing dizziness your cerebellum which processes the signal from the balancing organs became smaller, which means that their balancing organ became smaller so they feel less dizzy.

Introduction:

-Background Information and Rationale:

- Dancers have adapted to make their sense of balance stronger, this means that their cerebellum which is the organ found in your inner ear that controls balance is smaller.
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- Ballet dancers are very good at not getting dizzy, and this happens through training themselves for a very long period
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- your muscles, bones, joints, eyes, the balance organ in the inner ear, nerves, heart and blood vessels — must work normally for you to have normal balance.
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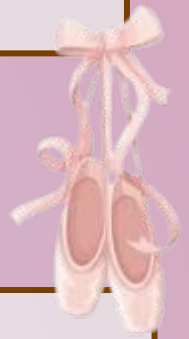
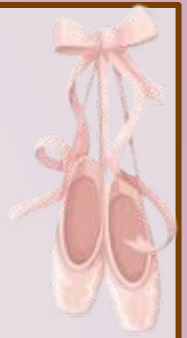
Who has better balance, Ballerina or Non ballerina? Why is it so interesting?



Finding the answer to this question can be very fascinating because we learn about multiple ways the brain adapts over time and just how large the differences are going both ways between dancers and non dancers. Previous scientists have used their discoveries to help patients with chronic dizziness decrease their symptoms, leading to what is considered a scientific breakthrough into better care in the medical world.

Materials:

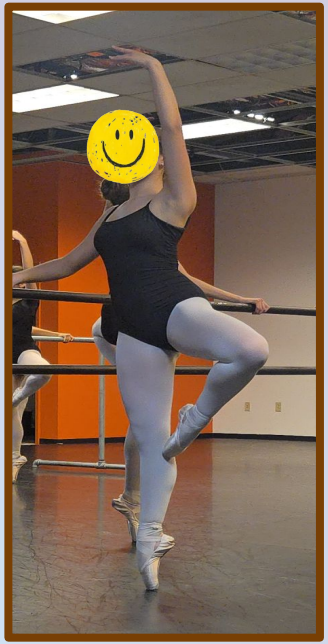
My Variables:



- One adult dancer
- One non adult dancer
- Three dancers around my age
- Three non dancers around my age
- A stopwatch
- Painters tape
- A graph to put results in

Procedure:

Pretest=
non-ballerina adult
ballerina adult



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Test all ballerinas and non ballerinas 2 times each using this procedure.

Test =

Spin 10 times walk straight line.

Spin 10 times stand on one foot.

Balance on one foot with eyes closed.

Pre test:

Person / tester	Test #1 spin 10x walk a line	Test #2 spin 10x stand on one foot	Test #3 stand one leg eyes closed
Non ballerina adult	Stepped off 3 times, very good 8/10	1 min	38 sec.
Ballerina adult	No steps off perfect 10/10	2min 36sec.	1min 47sec.

Results: The ballerina did much better than the non ballerina in Test #1. In Test #2 the ballerina did better by 1:36 and in Test #3 the ballerina did better by 1:09. This shows how ballerina's so far do have better balance and by seeing these results in adults we can better predict how the younger testers will be.

Round of testing number one

Tester /person	Test#1 spin 10x walk line	Test #2 spin 10x stand one foot	Test #3 one leg eyes closed
Non ballerina #1	Stepped off few times 7/10	18.16 sec.	22sec.
Non ballerina #2	Moved while spinning bad 4/10	2.97 sec.	14.44sec.
Non ballerina #3	Stepped off 7 times 5/10	23.69 sec.	13.93sec.
Ballerina #1	Steady spinns stepped off 2x 8/10	59.31 sec.	42.72 sec.
Ballerina #2	Stepped off but very steady 8/10	46.62 sec.	36.23 sec.
Ballerina #3	Little wobbly 9/10	1 min 29sec.	38.31 sec.

In test #2 the ballerinas were better by 40.46 average and in test #3 the ballerinas were better by 22.29 average showing ballerinas are better.

Round of testing number two

Tester /person	Test#1 spin 10x walk line	Test #2 spin 10x stand one foot	Test #3 one leg eyes closed
Non ballerina #1	Stepped off many times did wose 4/10	18.74 sec.	21 sec.
Non ballerina #2	stepped off 3 times 6/10	8.61 sec.	32.51 sec.
Non ballerina #3	Wobbles stepped off 4 times 6/10	19.62 sec,	16.78 sec.
Ballerina #1	Stepped off one time 9/10	62.85 sec.	55.39 sec.
Ballerina #2	Stepped off one time steady 9/10	50.14 sec.	43.49 sec.
Ballerina #3	Wobbly but good 8/10	1 min 37 sec.	1 min 10 sec.

In test #2 the ballerinas were better by 42.13 sec. on average and in test #3 the ballerinas were better by 29.56 on average showing again ballerinas are better.

Interpretation:

In the final results we can see that the ballerinas did have better balance in a large margin. Some of the averages of the dancers between non dancers were:

- 42.13 sec.
- 29.56 sec.
- 40.46 sec.
- 22.29 sec.

This proves that the ballet dancers had much better balance and how training to balance can work.

Implications for Future Research:

Something that I later realized while testing was that I didn't have great consistency throughout the process, so some other things that I would want to add to this project in the future would be

-making their time spinning more consistent and controlled

-how long the person is resting before trying the test again.

Other sources have shown that patients with balance problems have benefited from this research and techniques discovered by research about ballerinas.

Works Cited

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