Open field behaviour and habituation in rats irradiated

Research Assistant Yurri Severyukhin, Dina Utina,
Kristina Lyakhova, Maria Lalkovieova

North-West University

Shaba Tebogo
Madzunya Dakalo
Kgorinyane Koketso

Laboratory of Radiation Biology,
Joint Institute for Nuclear Research

Outline

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- Aim
- Equipment Used
- Work/Experiment description
- Results Obtained
- Conclusion
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Introduction

- Radiation – The emission of energy as electromagnetic waves or as a moving subatomic particles, especially high energy particles which causes ionization.
- Negative effects of radiation on the brain function.
- Negative effects of radiation on the central nervous system.

Aim of the project

- To study the effects of radiation on the central nervous system of mice using behavioural tests to assess the damage effect of radiation on the brain.
- Scientific problem: Radiation can possibly damage the central nervous system which can then results in brain damage
- Field of research: Radiation/Radiation physiology research.

Possible Applications

- To understand the cognitive behavioural changes in experimental animals and future applications in humans.
- Cosmic research on astronauts

Equipment description

- Open field test

- T-maze

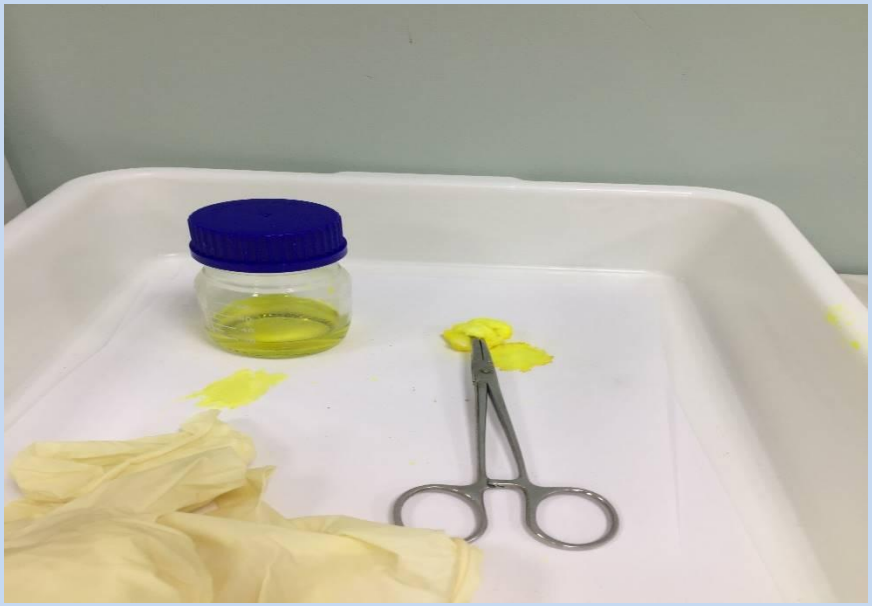
Equipment description cont..

- Camera

- Computer (software)

Equipment description cont..

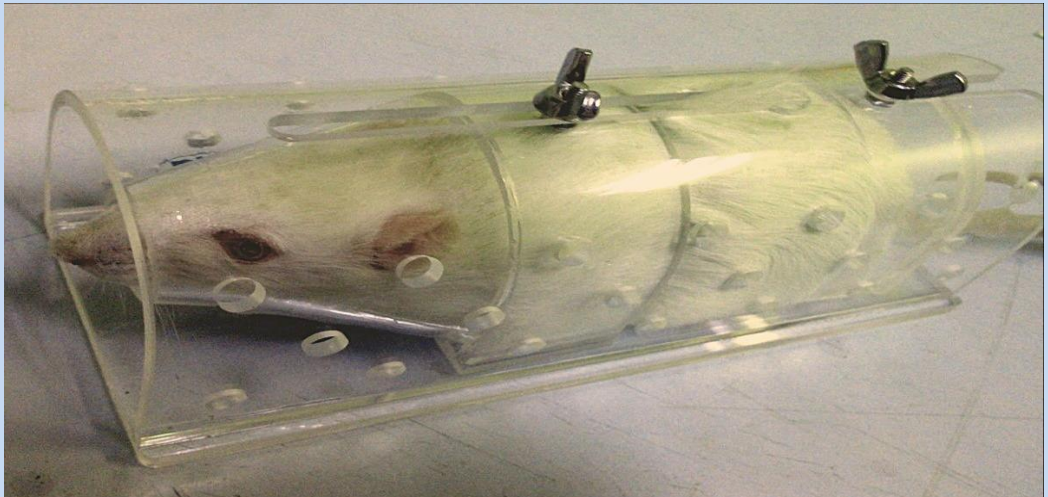
- Picric acid



- Mice cages

Equipment description cont..

- Irradiation box



Work/Experimental description

- Open field test
  - Grooming
  - Rearing
  - Defecation

- T-maze test
  - left-right discrimination tasks

Open Field Test results

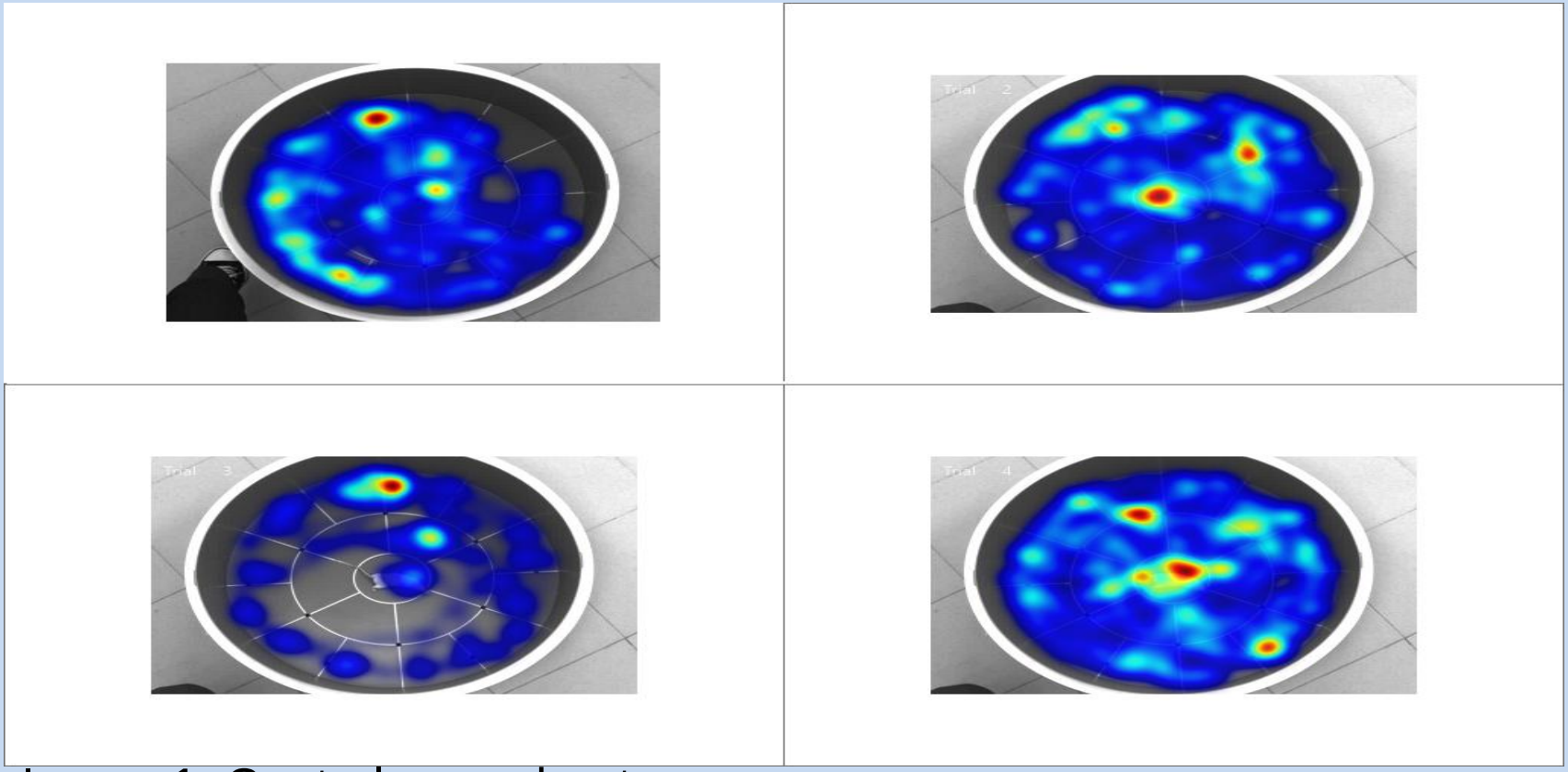


Image 1: Control group heatmap

Results cont..

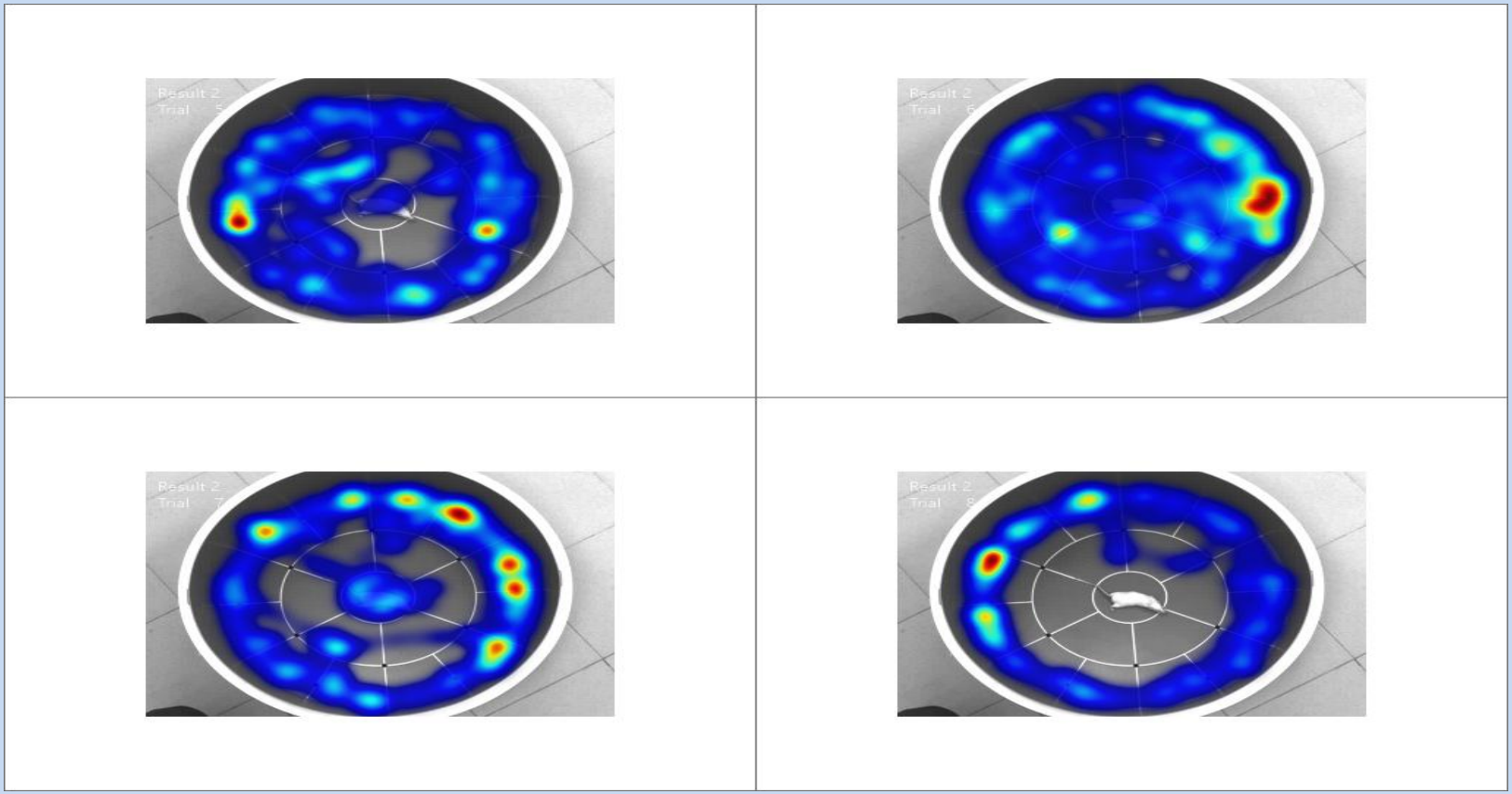


Image 2: Irradiated group heatmap

Results cont..

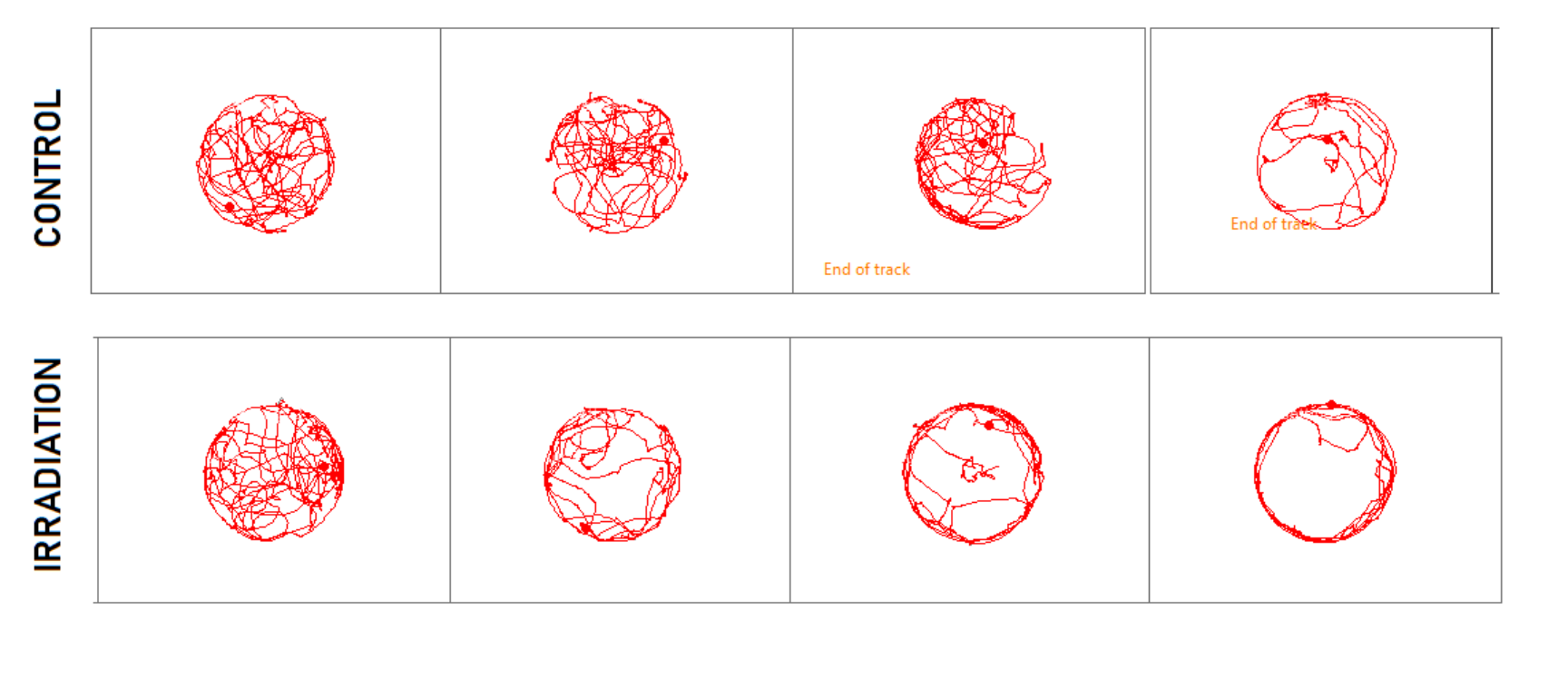
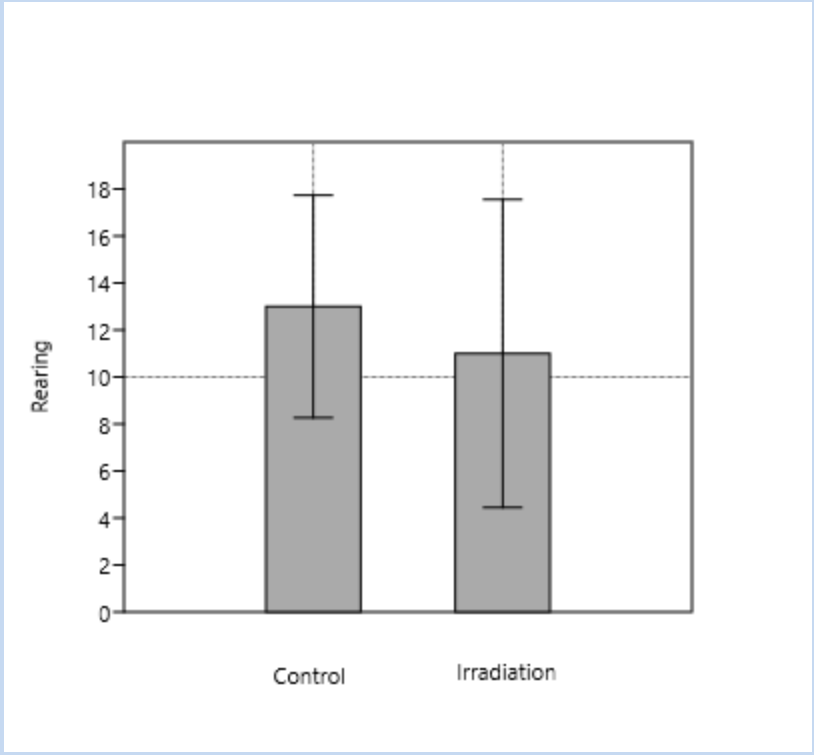
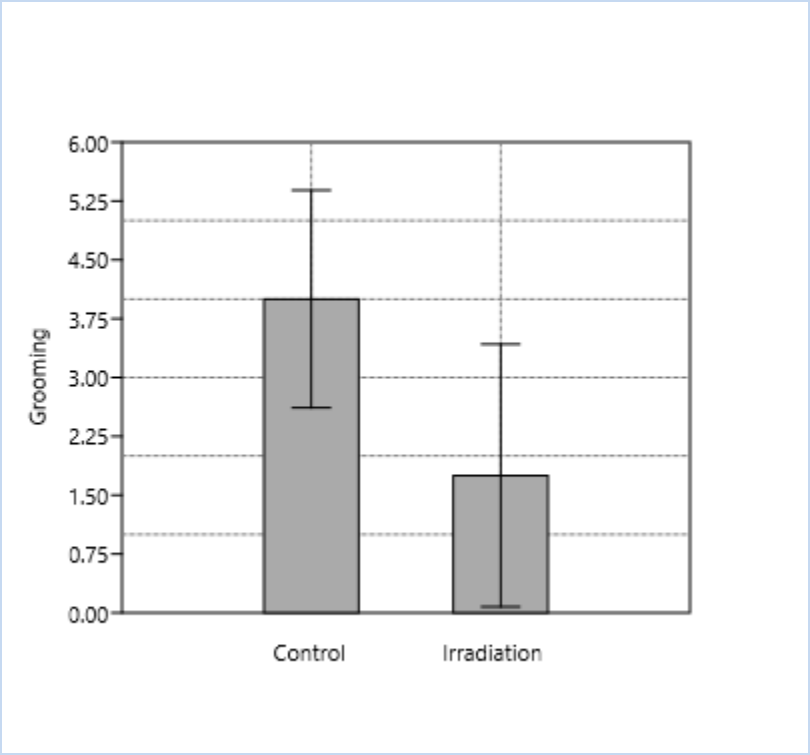


Image 3:Track visualization

Results cont..

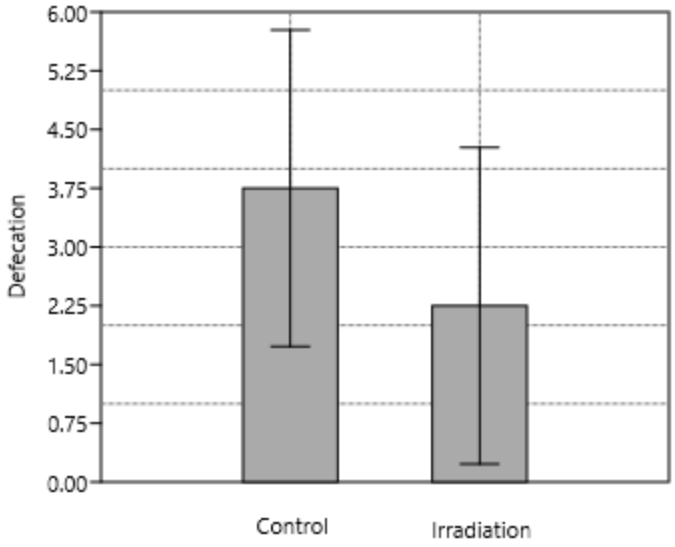


Graph 1: Rearing behaviour

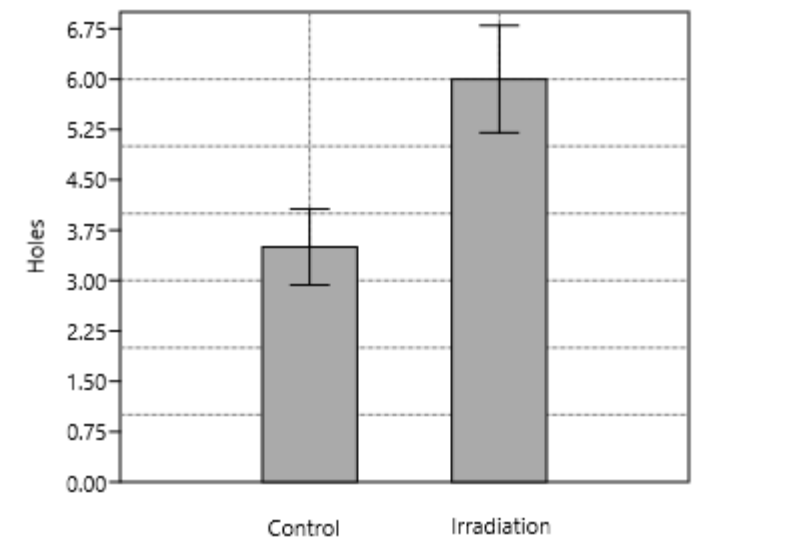


Graph 2: Grooming behaviour

Results cont..

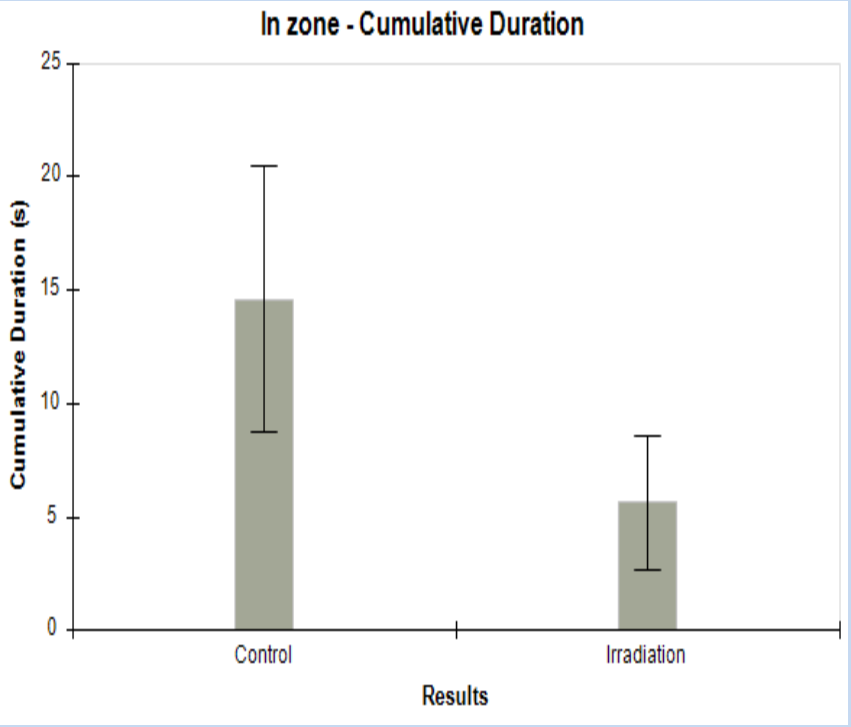


Graph 3: Defecation behaviour

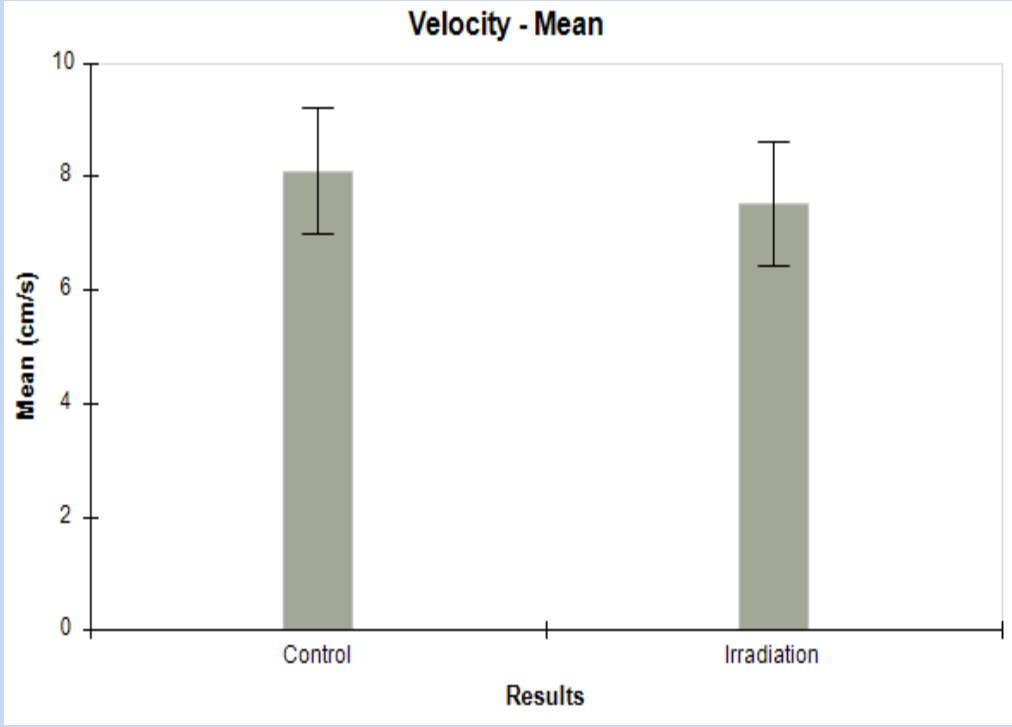


Graph 4: Holes in the field

Results cont..

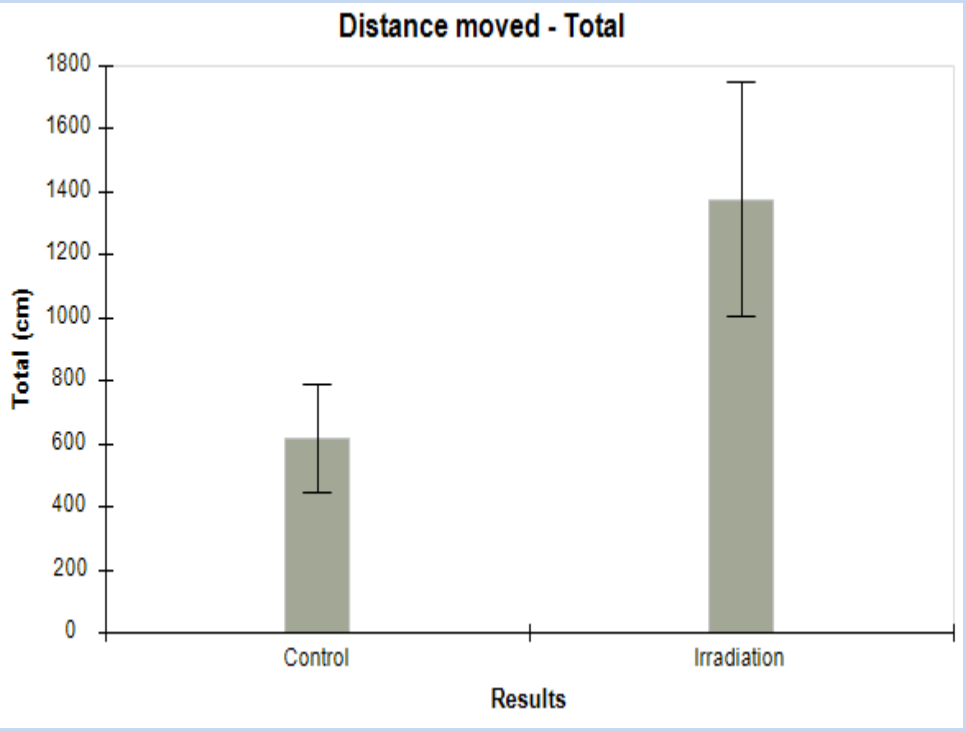


Graph 5: In zone period



Graph 6: Speed of mice

T-Maze Results



Graph 7: Distance travelled

	CONTROL	IRRADIATION	
1	LR	LL	1
2	•	RL	2
3	•	•	3
4	LL	RR	4

Table 1: Side preference

Results cont..

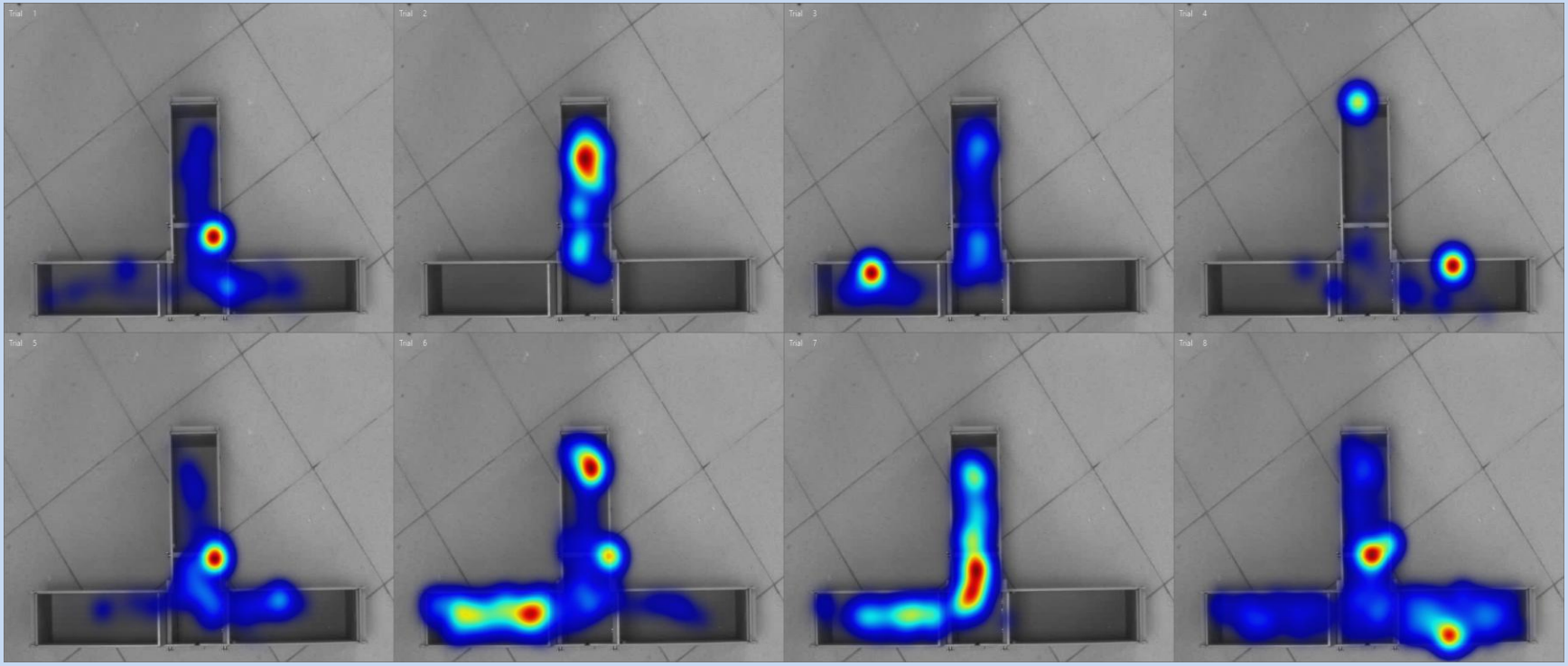


Image 4: The first row shows control group and the second row shows irradiated group

Conclusion

- The signs of stress and anxiety were experienced on irradiated mice compared to the control
- Possible damage of CNS

References

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Thank you!! Спасибо!!