

Open Science - Gerontology



Experiment plan

- Total number of mice – 1100
- Number of groups - 11
- Each group contains 100 mice (for good statistics)
- Experiment duration – 2-3 years
- Measurement methodology - average, median and maximum life expectancy (chronological age)
- Number of researchers in the beginning – 2: Shishparenok A.A., Vekshin N.L.
- Data access – full for everyone
- Reward - depending on contribution and participation
- Project cost: 1) the institute-dependent option (~18055 dollars) and the institute-independent option (~32716 dollars)

Groups

1. Control
2. Resveratrol
3. NMN
4. Mild intermittent fasting
5. Metformin
6. Fisetin
7. Physical exercises
8. NMN + Resveratrol
9. NMN + Resveratrol + Metformin
10. NMN + Resveratrol + Metformin + Physical exercises + Mild intermittent fasting
11. Second control (Ad libitum)*

* Mice that will eat a variety of foods and eat them at will at any time. The first control mice cannot eat overnight like other geroprotective groups. Because I need to whet their appetite before breakfast containing eggs, milk and geroprotectors. The second control group of mice will allow me to compare them with the first control group and see how well I have made the diet for the first and other groups. Does it have enough vitamins, minerals and a good ratio of proteins, fats and carbohydrates?

■ geroprotectors ■ food restriction ■ physical exercises

Mouse diet

1-3 and 5-9 groups. The eating window from 7:00 to 20:00. Breakfast consists of a mixture of eggs, milk and geroprotectors. Then I give an abundance of wheat grains and And then I give a lot of wheat grains and pick up the remaining grains at 8:00 pm to whet their appetite for the next breakfast.

4 and 10 groups. Mild intermittent fasting. Mice have two different days. On the first day, they have a diet of 1-3 and 5-9 groups. However, on the second day, their diet is different: the meal window is from 12:00 to 15:00 and includes only one meal with 25% of the required daily calories.

11 group. Ad libitum.

Rationale for the choice of diet

All plant foods contain polyphenols, even small amounts in potatoes and wheat. Polyphenols need to be limited in the diet to detect the effects of resveratrol and fisetin. This means the mice will eat animal products and wheat grains. Because cereal grains are their food base. Also, multivitamins cannot be added because most of them are made from plant materials. We will have to combine animal products in order to eliminate deficit. The mice diet consists of three products: wheat grains, boiled eggs and milk. Eggs are high in vitamins, while milk is rich in minerals and it's fat is necessary for the dissolution of geroprotectors.