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Poster Presentations

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Effective roles of omega-3, omega-6 and the combination of omega-3 and omega-6 dietary fatty acids on mice semen parameters

Kian V¹, Alizadeh AR², Akbari M¹, Shaverdi A², Movassaghi Sh¹.

1. Department of Anatomical Sciences and Cognitive Neuroscience, Faculty of Medicine, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran.

2. Department of Embryology, Reproductive Biomedicine Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran.

Email: vahidekian@yahoo.com

Background: The roles of dietary fatty acids on male reproductive were reported; but to the best of our knowledge different roles of several unique fatty acids and the combination of them on semen parameters have not been addressed yet.

Objective: We investigated the influence of dietary omega-3, omega-6 and their combination on semen quality, body weight and food consumption of mice.

Materials and Methods: We divided 40 mature male NMRI mice into four groups (n = 10/each) in an experimental completely randomized design for six weeks: I. Control group (CTR): gavage with water (0.2 ml/head/day); II. Sunflower oil group (0.2 ml/head/day; gavage) (omg-6); III. Fish oil group (0.2

ml/head/day) (omeg-3); IV. Sunflower oil (0.1 ml/head/day) + Fish oil (0.1 ml/head/day) (omeg-6+omeg-3). The body weight, food intake, and sperm parameters were measured by computer assisted semen analyzer (CASA). All data were analyzed with SPSS software.

Results: Feed intake decreased in groups which were administered sunflower oil+ fish oil compared with the other groups (p < 0.05). In agreement with the feed intake behavior, body weight showed a tendency to be lowest in mix group than other groups (p < 0.05). However, the highest body weight was recorded in CTR and n-3 groups. The CTR group (7.4 ± 1.05) had a significantly lowest concentration of sperm compared with the other groups (10.1 ± 2.5 , 10.4 ± 2.5 , and 10 ± 2.03 for omega-6, omega-3 and (omega-6+omega-3), respectively; p < 0.05). omeg-3 (67%) showed significant (p < 0.05) improved progressive motility compared to the CTR (62%), whereas the omega-6 and omega-6+omega3 groups were in the middle.

Conclusion: Dietary fatty acids can improve sperm quality than control. Although mice sperm have high levels of the omega-6 fatty acids, our findings can be a focus for improvements in sperm quality and motility in fertile animals using only omega-3 sources which confirmed the pivotal roles of omega-3 in sperm.

Key words: Omega-3/omega-6 ratio, Semen parameters, Mice.