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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

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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) (omg-3); IV. Sunflower oil (0.1 ml/head/day) + Fish oil (0.1 ml/head/day) (omg-6+omg-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). omg-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.