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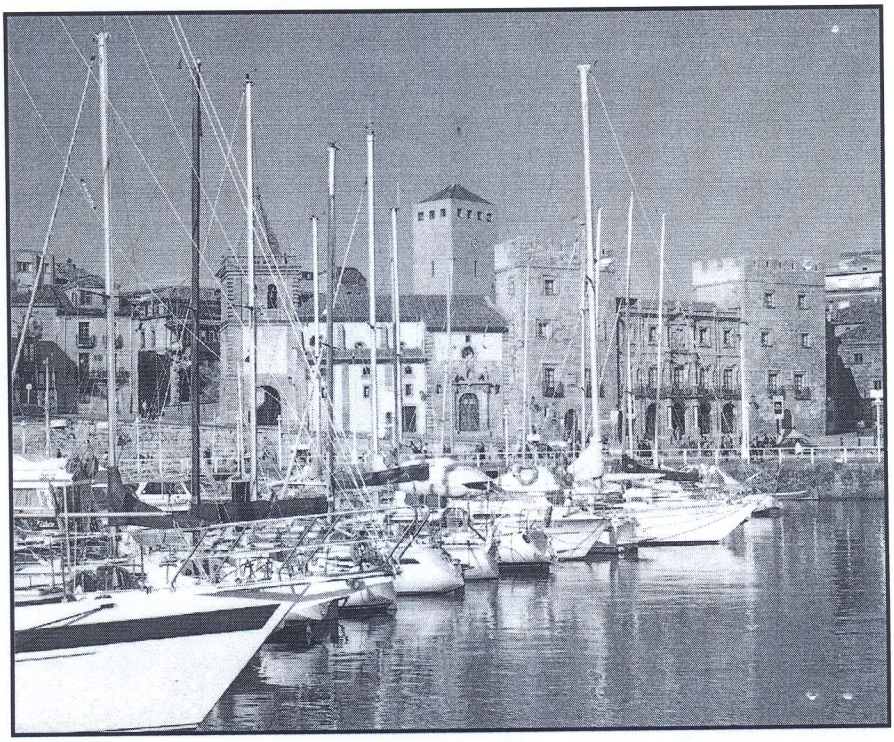
GEMINI

Maternal Communication with Gametes and Embryo



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Editors:
Alireza Fazeli and Enrique Gomez

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Toni Devonski

P. Trojacanec, Z. Hajrulai Musliu, B. Atanasov, R. Uzunov, B. Jasari, M. Dovenska, J. Grizelj

Lecturer

University Ss. Cyril and Methodius, Former Yugoslavic Republic of Macedonia

Comparison between fatty acid composition of follicular fluid and blood serum in dairy cows with ovarian disorders

Recent studies have shown that dietary fat is gainful to the reproductive performance of dairy cows. Polyunsaturated fatty acids (PUFA) are considered as significantly important since they are involved in prostaglandin synthesis and steroid metabolism. Our preliminary study of serum fatty acids composition reveals significantly lower concentration of total serum lipids and PUFA's in cows with ovarian disorders. The aim of this study was to evaluate differences between fatty acid content in follicular fluid (FF) and blood serum of cows with ovarian failures (cysts or static ovaries). Ten high yielding dairy cows from one farm were selected for this study during routine gynecological investigation by ultrasound. Group 1. (n=5) consists animals with cystic follicles (> 22 mm of inner diameter) and group 2. (n=5) cows more than 60 days p.p., with static ovaries (largest follicle <10 mm). Follicular fluid sampling was done by ultrasound-guided transvaginal follicle aspiration using Aloka SSD 500 Micrus machine and Cook's vacuum pump system. Blood sampling was performed by venepuncture. Fatty acids were determined by Gas Chromatography.

Total lipid concentration was non-significantly lower in cows with static than in cows with cystic ovaries; 0.21±0.04 vs. 0.28±0.07 g/100g and 0.23±0.04 vs. 0.27±0.05 g/100g, for FF and serum, respectively. Moderate dominance of PUFA's in comparison to SFA's (saturated fatty acids) was noticed in both groups 55.1±4.3% vs. 38.6±4.6%; and 50.1±6.7% vs. 45.9±7.6% for FF and serum, respectively. Higher % of CLA (Conjugated linoleic acid) was found in follicular fluid (6.4± 2.1%) then in serum (3.2±1.2%) for both groups. Positive correlation between concentration in follicular fluid and blood serum was determined for CLA (r=0.76), SFA (r=0.48) and Omega 6 (r=0.31), but negative for Omega 3 (r= -0.47). In conclusion, lower lipid and PUFA concentrations in serum and follicular fluid could be associated with certain ovarian failures.