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## P-130

### Colostrum, n-3 FA status and immune response of newborn kids as influenced by maternal lipid supplementation

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Long-chain n-3 polyunsaturated fatty acids (LC n-3 PUFA), mainly EPA (C20:5 n-3) and DHA (C22:6 n-3) play a crucial role during pregnancy and peri-natal growth. In particular, for DHA, a specific role during fetal and neonatal development has been recognized, but DHA status of the mother and the new-born may be sub-optimal if maternal intake is insufficient. The aim of the study was to evaluate the effect of supplementing saturated fatty acids (FA) or LC n-3 PUFA to the diets of late gestating dairy goats on FA profile of colostrum and plasma of newborn suckling kids and on their immune response. The saturated FA supplement (calcium stearate, ST) was rich in 16:0 (26 %) and 18:0 (69.4 %) and the LC n-3 PUFA supplement (fish oil, FO) was rich in EPA (10.4 %) and DHA (7.8 %). Starting from the last wk of gestation until 3 wk after kidding, 23 multiparous Alpine dairy goats were divided into 3 groups: C (control diet), FO and ST. FO and ST diets were formulated to administer 30 and 50 g/head/d of FA during pre- and post-kidding. Newborn kids were fed colostrum from their own dam within 2 h of birth. Individual colostrum was sampled within the first 24 h postpartum for FA determination. Neonatal blood samples were collected weekly from birth until 21 d of life for evaluation of FA profile and immune response. The source of maternal lipid supplement did change the FA profile of colostrum and the n-3 FA status of newborn kids. Maternal FO supplementation enhanced total n-3 PUFA in colostrum (1.78 vs. 0.72 and 0.76 g/100g FA,  $P < 0.01$ ) and in plasma of suckling kids during the first 3 wk postnatally (5.27 vs. 2.32 and 3.27 g/100g FA,  $P < 0.01$ , in FO, C and ST respectively). IgA at 2 d after birth was higher in the plasma of kids born from ST dams (0.54 vs. 0.20 and 0.14 mg/ml,  $P \leq 0.01$ ) and also the overall mean was higher (0.18 vs. 0.07 and 0.07 mg/ml,  $P \leq 0.01$  in ST, FO and C respectively). Circulating concentrations of IgG were higher for the whole experimental period in plasma of kids born from ST vs. FO (17.14 vs. 9.80 mg/ml,  $P < 0.01$ ) and C dams (11.43 mg/ml,  $P < 0.05$ ). In conclusion, the n-3 FA status of newborn kids can be improved by supplementing the maternal diet

with n-3 PUFA and is associated to the increased supply of EPA and DHA from maternal circulation during fetal development and from colostrum during early neonatal period. Unexpectedly, in the present trial, kids from mother fed ST showed the most significant variations in immune response

## P-131

### Arterial blood gas analysis on acute lactic ruminal acidosis induced experimentally on Santa Inês sheep (*Ovis aries*)

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One objective of the production model in Brazil is to obtain high weight gain in shorter time, and this fact sometimes results on mistakes in feeding sheep, causing disorders such as acute lactic ruminal acidosis (ALRA), which can lead to organic disfunctions and metabolic acidosis. To show what happens on the arterial blood parameters, this study aimed to relate the changes on the values of hemogasometry. It was used 10 healthy ewes maintained on basal diet of Tifton hay *ad libitum*, with free access to water and mineral mixture during the period of one month. For the induction of ALRA, the animals received 15 grams of saccharose/kg of body weight, orally, before morning feeding. After the induction of ALRA the arterial blood for hemogasometry was collected from carotid artery on the following moments: 2, 4, 6, 8, 10, 12, 16, 20, 24, 28, 32, 36, 48, 72, 96, 120, 144 hours and on the second, third and fourth week; using syringes containing lithium heparin anticoagulant, and processed in Cobas b 121 System. The parameters obtained from the hemogasometry were: pH, partial pressure of oxygen- $PO_2$  and carbon dioxide- $PCO_2$  (mmHg), oxygen saturation- $SO_2$  (%), bicarbonate concentrations- $HCO_3$ ,  $Na^+$ -sodium ion,  $K^+$  potassium ion,  $iCa$ -ionized calcium,  $Cl^-$ -chloride ion and excess/base deficit-EB (mmol/L). Associations between the variables and time by linear, quadratic and cubic regression was assessed using statistical software (SAS 9.1, SAS Institute Inc., USA), with statistical significance set at  $P < 0.05$ . All blood gas variables showed significant differences, except  $SO_2$  ( $P > 0.05$ ). The results show marked changes on the parameters analyzed from 2 hrs after the induction of ALRA, such as initial occurrence of metabolic alkalosis evidenced by the average pH values in 7,50 after 06 hrs of induction and reaching its lowest average of 7,27 with 16 hrs, values that characteristic metabolic acidosis. Another important parameter altered was the values of base deficit averaging 6,46 mmol/L in 04 hrs, reaching values of -12,40 mmol/L after 20 hrs. The values