

**Session 37**

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**The effects of antioxidant therapy on sheep pregnancies at high altitude are present before rapid fetal growing period**

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Sheep breeding is an essential activity for Andean highlands farmers. Newborn lambs at high altitude (HA, 3600 m) are smaller than at low altitude (LA, 500 m), due to hypoxia and oxidative stress. We demonstrated that the newborn weight in sheep natives from HA is higher than those of sheep natives from LA with pregnancy at HA. This difference appears to be associated to the higher placental weight and vascular area observed in HA natives sheep. We also demonstrated that antioxidant therapy during the entire pregnancy improve the fetal weight and normalize partially the placenta in pre-term pregnancies at HA. In this work we reported the effect of antioxidants on fetal and placental traits in sheep pregnancies, just before starting the rapid fetal growth period. Eight groups of pregnant sheep were used: HH, HA natives with gestation at HA; LH, LA natives with gestation at HA; LL, LA natives with gestation at LA; HL, HA natives with gestation at LA. The additional 4 groups were similar to the previous, but an antioxidant therapy (Vitamin C 500 mg and E 350 IU per animal per day) was started 30 days before gestation begins (groups HHV, LHV, LLV and HLV, respectively). At about 100 days of pregnancy, fetuses and placentas were removed. Fetuses were weighted. Placentas were weighted and fixed for histological measurement of vascular area. Fetal weight in LL group was the highest ( $860.3 \pm 200.6$  g), while in LH group the lowest ( $531.8 \pm 11.6$  g). The other groups showed intermediate values without significant differences. Placental weight was higher in HH, LLV, LL and LH groups, being HH the highest ( $528.8 \pm 56.4$  g). No differences in placental area surface occupied by vasculature were obtained. It is concluded that the effects of antioxidant therapy in pregnancies at HA is already present at about 100 days of pregnancy.

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