

# GAS THERAPIES IMPROVE CHRONIC ARTHRITIS AND PRODUCTION RATES IN DAIRY GOATS NATURALLY INFECTED BY SMALL RUMINANT LENTIVIRUSES

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## RESUMO

Small ruminant lentiviruses (SRLV) are chronic and progressive diseases that compromise animal health and production. This study aimed to evaluate the ozone therapy on different clinical, productive and ultrasound indices in dairy goats naturally infected by SRLV. All procedures described were approved by the Ethical Committee for Animal Use of the Fluminense Federal University (nº 5810141022). A total of 42 adult Saanen goats with chronic signs of arthritis and weight loss were used after molecular and/or seropositivity to SRLV confirmation. Animals were allocated into three experimental groups: G<sub>oxygen/ozone</sub> (n=14); G<sub>oxygen</sub> (n=14); and G<sub>control</sub> (n=14). A therapeutic ozone dose of 0.05 mg/kg was adopted. Monthly, throughout 90 days, all goats underwent a clinical examination, carpal ultrasound and production index collection. There was a treatment effect for productive (Body Condition Score [BCS] and live weight) and clinical (clinical articular index, biometric indices and carpal volumes) indices. G<sub>oxygen/ozone</sub> showed a greater BCS when compared to G<sub>control</sub>, and G<sub>oxygen</sub> had a score equal to other groups ( $2.7 \pm 0.4 \neq 2.5 \pm 0.3 = 2.6 \pm 0.4$  BCS). G<sub>oxygen/ozone</sub> and G<sub>oxygen</sub> had a greater live weight when compared to G<sub>control</sub> ( $62.0 \pm 9.9 = 61.2 \pm 11.3 \neq 57.2 \pm 9.5$  Kg). In clinical evaluations, G<sub>oxygen</sub> and G<sub>oxygen/ozone</sub> obtained lower carpal joint indices when compared to G<sub>control</sub> ( $8.2 \pm 1.0 = 8.2 \pm 1.3 \neq 8.7 \pm 1.0$  cm). Regarding joint ultrasound data, G<sub>oxygen/ozone</sub> and G<sub>oxygen</sub> had lower indices when compared to G<sub>control</sub>. The distance from the joint capsule to the subchondral space ( $8.7 \pm 3.4 = 8.6 \pm 3.2 \neq 11.0 \pm 4.3$  mm), area ( $153.7 \pm 68.1 = 156.2 \pm 69.4 \neq 239.0 \pm 89.3$  mm<sup>2</sup>) and perimeter ( $81.6 \pm 15.7 = 81.1 \pm 16.4 \neq 101.7 \pm 15.9$  mm) of the carpal lesion are highlighted. Likewise, there was found interaction between treatment and time for ultrasound parameters of the distance from the joint capsule to the subchondral space, area and perimeter of the carpal lesion. In conclusion, both gas therapies, under the current conditions, can be safely used to improve joint clinical signs and production rates in dairy goats naturally infected by SRLV displaying chronic arthritis and weight loss.

**PALAVRAS-CHAVE:** arthritis, goat species, ozone, retrovirus, integrative therapy

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