

Vertebral Column Deformity and hypoxia in *Salmo salar* Hipoxia relacionada a deformidad de columna vertebral en *Salmo salar*

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Vertebral Column Deformity (VCD) is a common pathology in Chilean salmon farms, lowering the quality and commercialization of the product. Hypoxia has been related to other musculoskeletal deformities, but not to VCD. This work analyzes the morphology of the vertebral column of *Salmo salar* alevins, cultured under hypoxic conditions (60% O₂ saturation in the water tanks) for different time periods after hatching (2, 4, 6 and 8 days). They are compared with their normoxic controls (100% O₂ saturation). Using histological (H/E), and morphometric techniques, it was found that the time of exposure to hypoxia is inversely proportional to the body length, notochordal diameter and thickness of its sheath. The organic response to hypoxia was quantified by immunohistochemistry for HIF-1a as the sensor of hypoxia. Its expression increased significantly ($p < 0.05$) in the experimental groups that exhibit VCD. Although etiology for VCD is probably multifactorial, this study allows for the conclusion t