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**Title:** Effects of endurance training on pulmonary and systemic levels of interleukin-8 in patients with stable COPD

Dr. Ernest 17439 Sala ernest.sala@ssib.es MD , Dr. Catalina 17440 Balaguer catalina.balaguer@ssib.es MD , Dr. Feliu 17441 Renom frenom@gesma.caib.es MD , Mr. Ángel 17447 Ríos angel.rios@ssib.es , Dr. Raquel 17449 Extremera quelyta@hotmail.com MD , Dr. Alicia 17450 Binimelis aliciaa.binimelis@ssib.es MD , Dr. Bernat 17452 Togores bernardo.togores@ssib.es MD , Ms. Amanda 17453 Iglesias amanda.iglesias@ssib.es , Mr. Josep Lluís 17454 Valera josel.valera@ssib.es and Prof. Dr Àlvar 17455 Agustí aagusti@clinic.ub.es MD . <sup>1</sup> Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain ; <sup>2</sup> Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain ; <sup>3</sup> Servei de Pneumologia, Hospital Joan March, Bunyola, Spain ; <sup>4</sup> Servei de Pneumologia, FISIB, Palma Mallorca, Spain ; <sup>5</sup> Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain ; <sup>6</sup> Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain ; <sup>7</sup> Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain ; <sup>8</sup> Servei de Pneumologia, CIBER de Enfermedades Respiratorias, Palma Mallorca, Spain ; <sup>9</sup> Servei de Pneumologia, CIBER de Enfermedades Respiratorias, Palma Mallorca, Spain and <sup>10</sup> Institut Clínic del Tòrax, Hospital Clínic, Palma Mallorca, Spain .

**Body:** Background: Patients with Chronic Obstructive Pulmonary Disease (COPD) may show increased levels of interleukin (IL)-8 (CXCL8). Respiratory physiotherapy may reduce IL-8 in induced sputum, but no information is available about the potential effects of endurance training on systemic or pulmonary levels of IL-8. Objective: To investigate the effects of endurance training on pulmonary and systemic levels of IL-8 in patients with stable COPD. Methods: Levels of IL-8 were quantified in plasma and induced sputum (ELISA) in a group of patients with moderate to severe stable COPD (study group [S]: n=6, 64±4 [mean±SD] years, FEV1: 49.5±14.2% pred. post-bd.) before and after an 8 weeks controlled endurance training program, and in a control group ([C]: n=5, 61±5 years, FEV1: 45.4±9.6% pred. post-bd.), who did not perform such a program. Results: After 8 weeks, levels of IL-8 in plasma (S: from 4.2±4.3 to 3.9±4.0 pg/mL; C: from 4.4±1.2 to 6.5±6.2 pg/mL) and sputum (S: from 2217.1±1555.8 to 4153.2±3024.5 pg/mL; C: from 3012.88±1593.03 to 2599.92±1200.12 to pg/mL), remained unchanged in either group, despite that S showed, respectively, an increase of peak oxygen consumption (from 1.1±0.3 to 1.2±0.3 L/min, p=0.04), and a decrease of lactic acid levels at peak exercise (from 5.5±1.0 to 4.2±0.7 mmol/L, p<0.05). Conclusions: In patients with stable COPD, a controlled endurance training program does not modify the pulmonary and/or systemic levels of IL-8. Hence, the beneficial effects of physical training cannot be attributed to the reduction of systemic pro-inflammatory cytokines.