

PHYSICAL CONDITION AND KLOTHO LEVELS IN ADULTS WITH CYSTIC FIBROSIS

Yvert T¹, Sosa-Pedreschi A², Sanz-Santiago V³, Renghea A⁴, Girón-Moreno R⁵, Lopez-Neyra A³, Burgos-Postigo S², Barceló-Guido O², Pérez-Ruiz M¹, Iturriaga T², Santiago-Dorrego C².

¹Departamento de Salud y Rendimiento Humano, Facultad de Ciencias de la Actividad Física y del Deporte-INEF, Universidad Politécnica de Madrid, Madrid, Spain. ²Faculty of Sport Sciences, Universidad Europea de Madrid, Madrid, Spain. ³Servicio de Neumología Pediátrica, Hospital Universitario Niño Jesús, Madrid, Spain. ⁴Facultad Ciencias de la Salud, Universidad Francisco de Vitoria, Madrid, Spain. ⁵Servicio de Neumología, Hospital Universitario de la Princesa, Madrid, Spain.

Introduction:

Physical condition level = main predictor of **cystic fibrosis** (CF) prognosis.

α-Klotho protein (αKl) = emerging biomarker of health and aging related to physical condition in healthy population.

In CF patients, recent publications suggest αKl could:

- improve lung mucus clearance (through K⁺ channels activation);
- regulate some inflammatory cytokines → control persistent inflammation.

Our aim in this study was thus to determine the possible relations between αKl levels and physical condition in CF adult patients and healthy controls.

Methods:

89 subjects:

36 CF patients (18 women)

53 controls (18 women)

Variables:

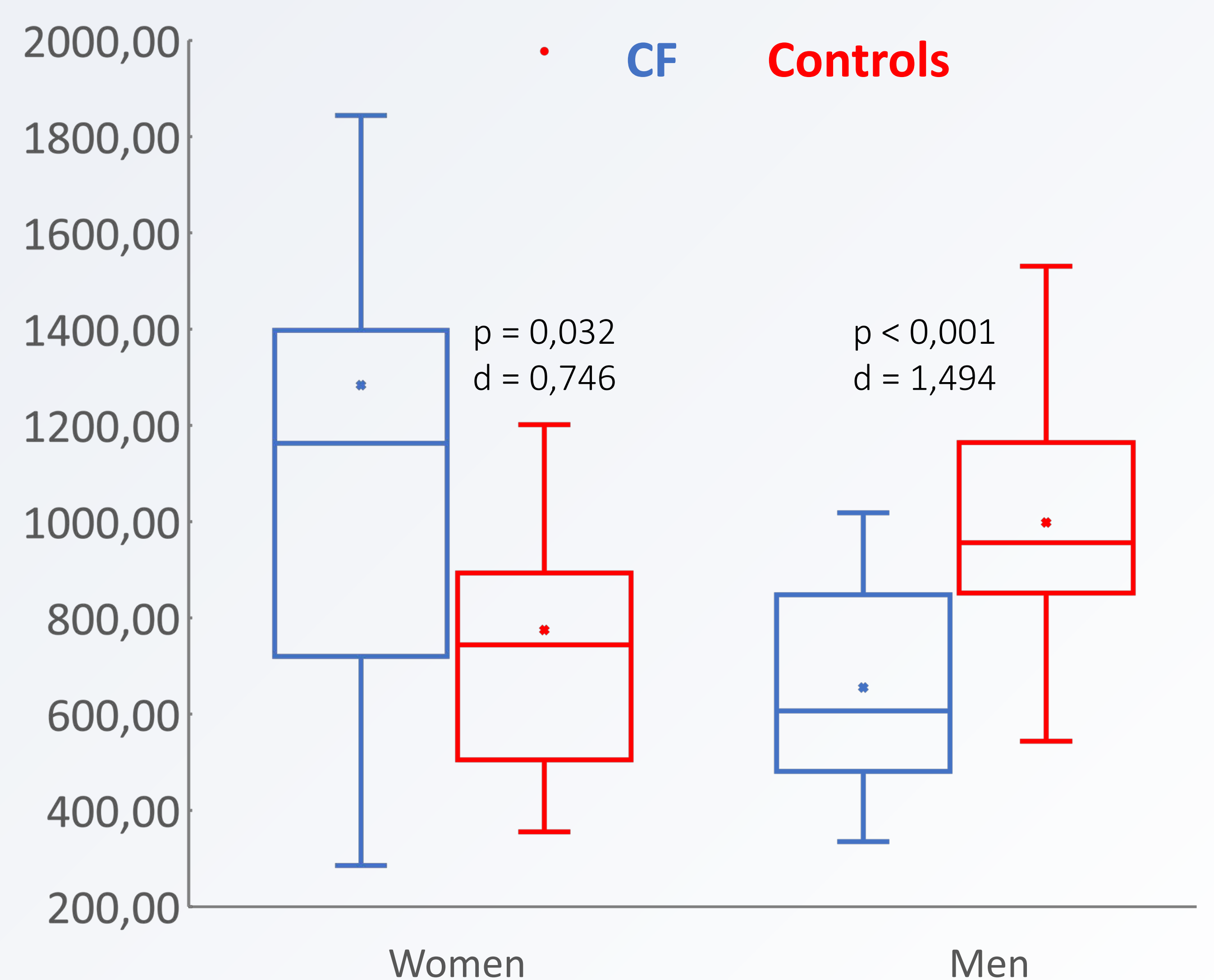
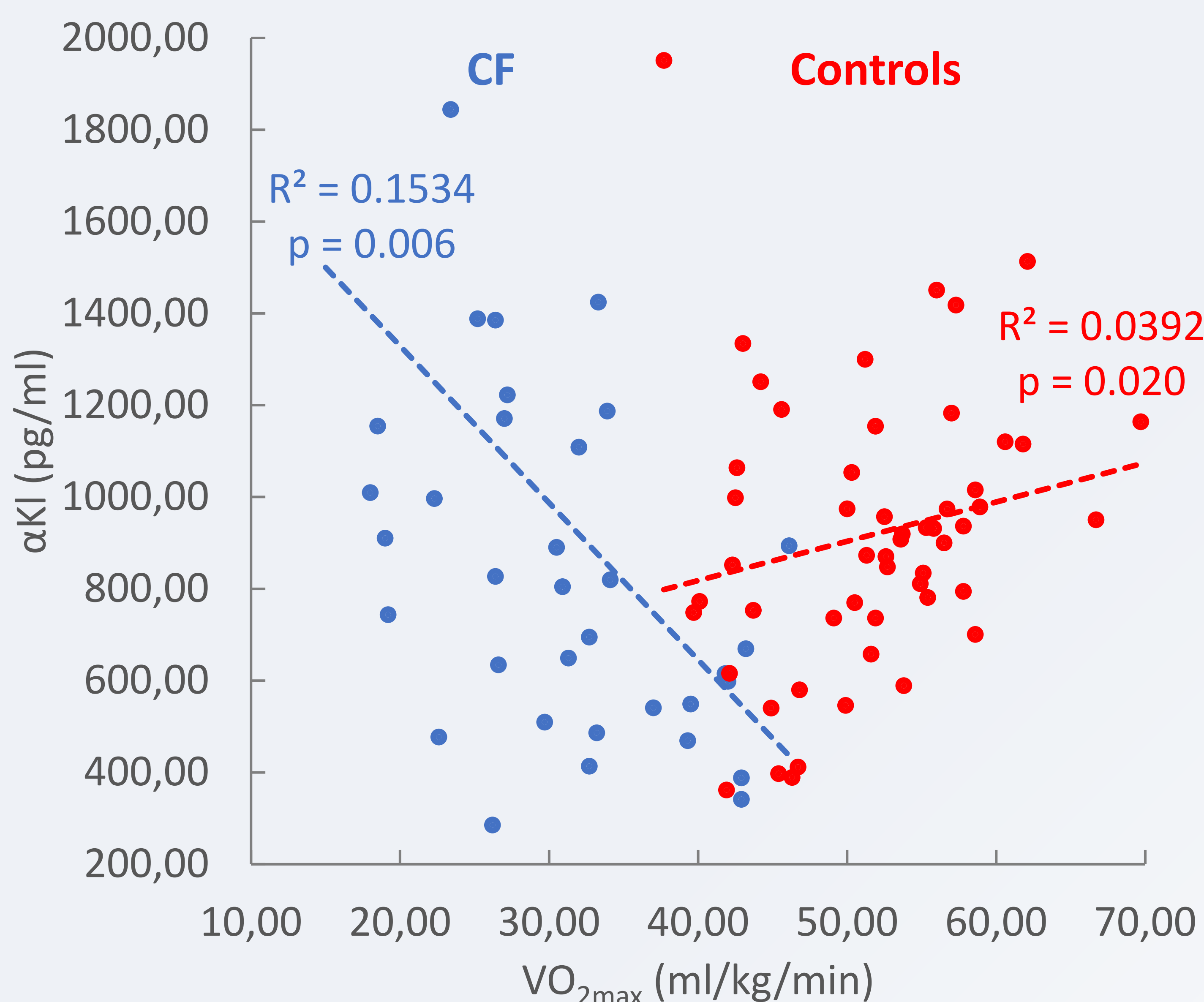
age, weight, height, BMI, VO_{2max}, blood levels of αKl and IL10.

Results:

	Men		Women		p
	CF	Controls	CF	Controls	
Age (years)	31.78±7.6	30.6±7.4	33.0±9.3	33.1±9.4	>0.601
BMI (kg/m ²)	22.8±2.3	23.3±2.1	20.7±2.1	21.5±2.6	>0.066
VO _{2max} (ml/kg/min)	34.7±8.3*	55.2±5.4*	26.4±5.6†	44.7±4.3†	*†<0.001
FEV ₁ (%)	70.72±20.72		62.17±15.59		0.086

36 CF patients:

12 (ΔF508/ ΔF508); 11 (ΔF508/other mutation)



Conclusions:

Opposite results found for αKl levels between men and women could be explain by possible relations between αKl and sex hormones previously described in the literature.

αKl levels and VO_{2max} are inversely correlated between patients with CF and healthy subjects. We hypothesize the higher αKl levels in CF patients with worse physical condition may be due to higher chronic inflammatory state that activates processes regulated by anti-inflammatory proteins, αKl being one of them.