

Impact of exercise training on pulmonary diffusing capacity in diabetes

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Introduction: Among complications of diabetes, fibrotic changes in the lungs and pulmonary capillaries impairments have been reported (Diez-Manglano & Samper, ERJ, 2021). In healthy subjects, it seems that exercise training (ET) could slightly improve the diffusing capacity of the lung for nitric oxide (DLNO) (Flaherty & al, Exp Physiol., 2014). It is yet to determine if ET can improve DL in diabetes.

Methods: Eighteen non-smoking adults with diabetes (12 type 2 and 6 type 1, 51 ± 9 years, $HbA1c = 7.5 \pm 1.6$) and 18 healthy sedentary adults (51 ± 12 years) performed measurements of lung diffusing capacity (DL) for carbon monoxide (CO) and nitric oxide (NO) at rest during a single breath maneuver. In the diabetes group, DL measurements were repeated after 12 weeks of exercise training, 3 times a week. A training session combined 35 min of high-intensity interval training on a cyclo-ergometer and 25 min of strength training.

Results: Main results are presented below.

	Diabetes Pre-training	Diabetes Post-training	Healthy Controls
DLNO (ml/mmHg/Min)	159 ± 29	159 ± 36	150 ± 26
DLNO (% predicted)	109 ± 15	111 ± 9	106 ± 12
DLCO (ml/mmHg/Min)	33 ± 9	32 ± 10	29 ± 4
DLCO (% predicted)	116 ± 20	114 ± 18	107 ± 13

Table 1: Pulmonary diffusion before and after training, and in healthy subjects. (Mean \pm SD)

No difference between adults with diabetes and healthy subjects were observed ($p>0.05$), nor between pre- and post-training in adults with diabetes ($p>0.05$).

Conclusions: The present results showed that well-controlled diabetic patients does not exhibit impaired DL. Contrary to the literature, exercise training did not affect DL in diabetic patients. Further investigations are ongoing to explore if this is a normal or pathological response.