

# European Respiratory Society Annual Congress 2013

**Abstract Number:** 554

**Publication Number:** P3942

**Abstract Group:** 4.1. Clinical respiratory physiology, exercise and functional imaging

**Keyword 1:** Lung function testing **Keyword 2:** Physiology **Keyword 3:** Spirometry

**Title:** Estimated lung age in healthy Mediterranean adults cannot be predicted using reference equations derived from other populations

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**Body:** Background. Interpretation of “lung age, LA” data relies upon comparison of the chronological LA (CLA) with the estimated one (ELA) predicted from published reference equations (Morris and Temple 1985, Newbury 2010, Hansen 2010, Yamaguchi 2012). Aims. To test the applicability of the published ELA reference equations in healthy non-smoker Mediterranean aged 19-96 yrs. Methods. Published reference equations were applied to the spirometry results of 540 subjects (364 women, mean±SD of age and height: 48.8±13.1 yrs and 1.64±0.10 m). Spirometry measurements were done according international guidelines. Bland and Altman comparisons, for the same age range as in the corresponding study, between CLA and ELA were done. Results. Mean±SD ELA was significantly underestimated by 17±19 yrs (Hansen), by 12±23 yrs (Morris and Temple model using FEV<sub>1</sub>) and by 11±27 yrs (Yamaguchi) and was significantly overestimated by 2.8±19.3 yrs (Newbury). Conclusion. Published and locally applied spirometric ELA reference equations didn't reliably predict CLA data in Mediterranean population. Our results strongly suggest that existing ELA equations are in need of review. References: Morris J, Temple T. Spirometric “«lung age»” estimation for motivating smoking cessation. Prev Med 1985;14:655-62. Newbury W et al. Exploring the need to update lung age equations. Prim Care Respir J 2010;19:242-7. Hansen JE et al. Calculating gambling odds and lung ages for smokers. Eur Respir J 2010;35:776-80. Yamaguchi K et al. Novel regression equations predicting lung age from varied spirometric parameters. Respir Physiol Neurobiol 2012;183:108-14.