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Title: Quantifying the variability of physical activity in daily life caused by seasonality in smokers

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Body: Background: The level of physical activity in daily life (PADL) depends on many factors, such as social, economical, physiological and demographic aspects. Despite these many causes of variability, the influence of the seasons of the year on PADL is unknown in smokers. Aims: To compare changes in the level of PADL in apparently healthy smokers who started in different climatic conditions a protocol aiming at improving PADL; and to quantify the proportion of subjects who achieved 8000 steps/day before and after the intervention. Methods: 20 smokers with normal lung function were submitted to a 5-month protocol using booklets and pedometers (or step counters) in order to improve PADL by aiming to increase the number of steps/day. They had their baseline PADL assessed for 6 days with a pedometer during Spring/Summer (SS: n=10, 5 men, 51[39-59] years, BMI 26[23-29] Kg/m^2, 36[14-49] pack-years) or Autumn/Winter (AW: n=10, 5 men, 53[48-57] years, BMI 26[24-28] Kg/m^2, 38[17-50] pack-years). Reassessment was performed after the protocol, in the opposite climatic condition as compared to baseline. Results: Both groups improved their PADL after the protocol (Δ steps/day = SS: 3191[1888-4461] and AW: 2903[517-5377]; p=0.002 for both). There were no between-groups statistical differences concerning baseline PADL, changes after the protocol, and proportion of subjects who reach 8000 steps/day before and after the protocol (SS: from 40% to 80%; AW: from 30% to 70%). Conclusions: These preliminary results showed that climatic variation does not incur in significant impact in the level of PADL in apparently healthy smokers, since the same benefits could be achieved regardless of the seasonality.