BODY MASS INDEX AND BODY FAT INDEPENDENTLY AND NEGATIVELY INFLUENCE FITNESS LEVELS IN PORTUGUESE YOUTH

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Objective: to assess the contributions of body mass index (BMI) and body fat % on cardiorespiratory fitness (CRF) levels

Methods: cross-sectional study including 2361 girls and 2328 boys aged 10-18 living in the Lisbon area, Portugal. CRF was assessed by the 20-meter shuttle run and body fat was assessed by a hand-held bipolar bioimpedance device.

Results: the prevalence of low CRF was 47% in girls and 39% in boys; the prevalence of obesity (by BMI) was 4.8% and 5.6% (NS) and of excess fat mass of 12.1% and 25.1% ($p<0.001$) in girls and boys, respectively. Both BMI and body fat were negatively and independently related to low fitness in both genders; after adjusting for age, body fat explained circa 13% of total variance of the fitness test, vs. 1% for BMI. Compared to a participant with normal BMI and body fat, a participant with high BMI and high body fat had an Odds-ratio (OR) of 14.8 (95% confidence interval: 9.8 - 22.5) of being unfit. Conversely, the fitness levels of participants with a low body fat (irrespective of their BMI status), or with a low BMI (irrespective of their body fat status) were relatively similar to those of their normal BMI, normal body fat counterparts.

Conclusion: CRF levels are low among Portuguese youth. Both BMI and BF% are negatively and independently related to lower CRF, with a considerable deleterious effect when combined.
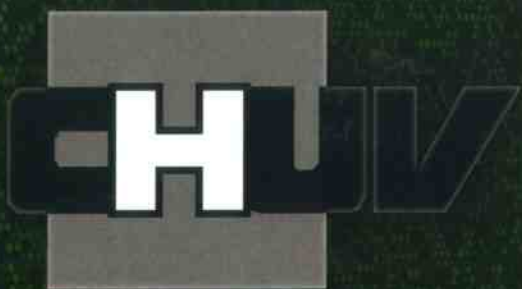
Research Day

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de a Faculté de Biologie et de Médecine

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Couverture : Yannick Krempp, Département de Biologie Cellulaire et de Morphologie – UNIL

Photo : DNA microarray image of an RNA expression profiling experiment provided by
Manuela Weier and Henrik Kaessmann of the Centre Intégratif de Génomique - CIG
and Jérôme Thomas of the Lausanne DNA Array Facility, Centre Intégratif de Génomique - CIG

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