

Métabolisme et Cardiovasculaire/MCV-18

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

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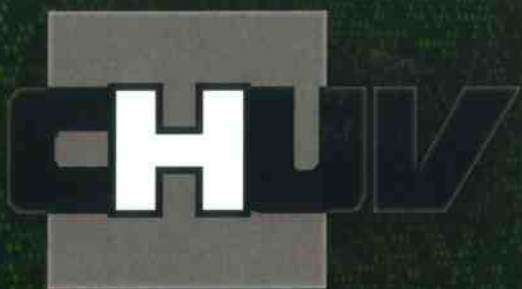
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**Objective:** to assess the contributions of body mass index (BMI) and body fat % on cardiorespiratory fitness (CRF) levels

**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

January 29, 2009  
César Roux Auditorium

## **Genes** *and* **Diseases**

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de la 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 Intégréatif de Génomique - CIG  
and Jérôme Thomas of the Lausanne DNA Array Facility, Centre Intégréatif de Génomique - CIG



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