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The COR-School Project: Physical Activity and Cardiometabolic Health in Spanish Youth

A research from the Human Movement Research Group (2021 SGR 01619), Universitat de Lleida.

INTRODUCTION

Physical activity during childhood and adolescence is fundamental for cardiovascular, metabolic, musculoskeletal, and psychological health, helping to build the foundation for a healthier adulthood. Despite these benefits, many young people remain insufficiently active, increasing their long-term health risks. Since growth and maturation are sensitive periods, exercise must be performed safely and appropriately. Cardiac biomarkers such as high-sensitivity cardiac troponin T (hs-cTnT) provide important insights into the physiological impact of exercise. While hs-cTnT is widely used to detect myocardial injury, it can also increase transiently after physical activity as a normal response. Evidence in youth is still scarce, and responses may vary depending on sex, maturational stage, and physical fitness. Understanding these mechanisms is key to distinguishing healthy adaptations from potential risks and to promoting safe physical activity during development.

The COR-School project aims to establish reference values for hs-cTnT after submaximal exercise in youth aged 8–16, while also examining other health-related variables such as physical fitness, dietary habits, sleep quality, and quality of life, to provide evidence for clinical guidelines and educational strategies.

METHODOLOGY

The COR-School project follows over 700 Spanish youths (8–16 years) for three years, assessing hs-cTnT responses to a submaximal 20mSRT at baseline and two follow-ups. Tests include fitness assessments, questionnaires on health habits, and anthropometric/body composition measures (Figure 1). Blood samples pre- and 3 h post-exercise measure cardiac biomarkers and lipid profiles, with cardiovascular responses tracked via heart rate monitoring. Analyses will explore effects of sex, age, and maturational stage, establishing reference hs-cTnT values and informing school-based health promotion.

FIGURE 1. DATA COLLECTION DAY PROCESS

1

1st Blood Sample

From antecubital vein, then labelled, centrifuged and stored.

2

Anthropometry

1. Weight
2. Height
3. Waist circumference
4. Skinfolds (triceps and subescapular)
5. BIA (hydration, fat, bone, muscle mass)

3

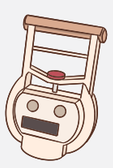
Warm-Up

Standardized dynamic bodyweight and running warm-up

4

Horizontal Jump + Handgrip

Participants will be given two attempts for the horizontal jump and for the handgrip strength tests.



5

20-m SRT

Run back and forth between two lines 20 meters apart, with increasing velocity every minute. Heart rate, velocity and accelerations will be monitored.

6

Questionnaires

During the 3h waiting with Tablets:

- PAQ-C/A
- IFIS
- PQSI
- KIDMED
- KINDL
- FAS
- Tanner Stage

7

2nd Blood Sample

3h post 20-m SRT. From antecubital vein, then labelled, centrifuged and stored.

MORE INFO https://corschoolproject.com/

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