
Cardiorespiratory fitness evaluation in obese youth

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Cardiorespiratory fitness: definition

Cardiorespiratory fitness, or aerobic capacity,

Ability to perform high-intensity activity for a prolonged period without undue physical stress or fatigue.

High level of cardiorespiratory fitness enables people to carry out their daily occupational tasks and leisure pursuits more easily and with greater efficiency.

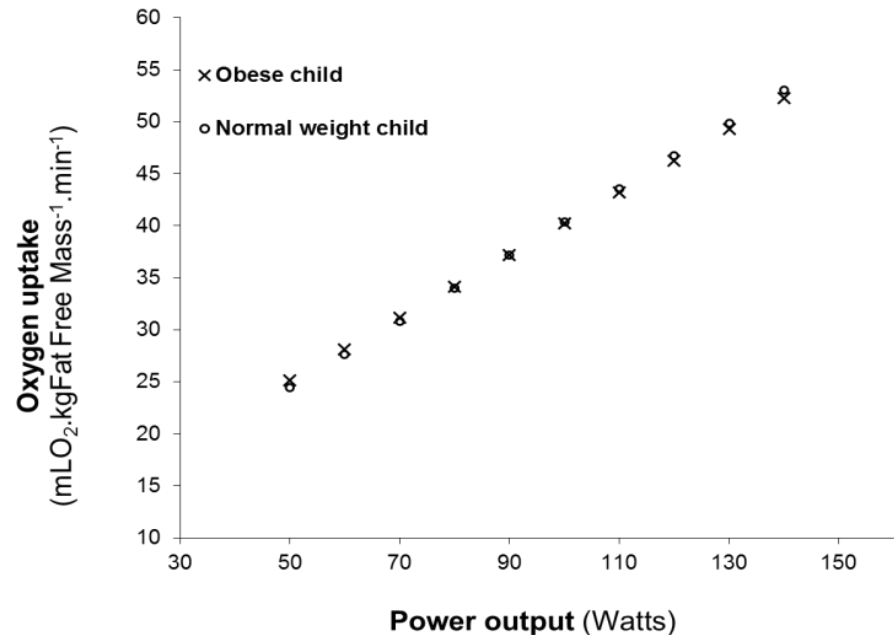
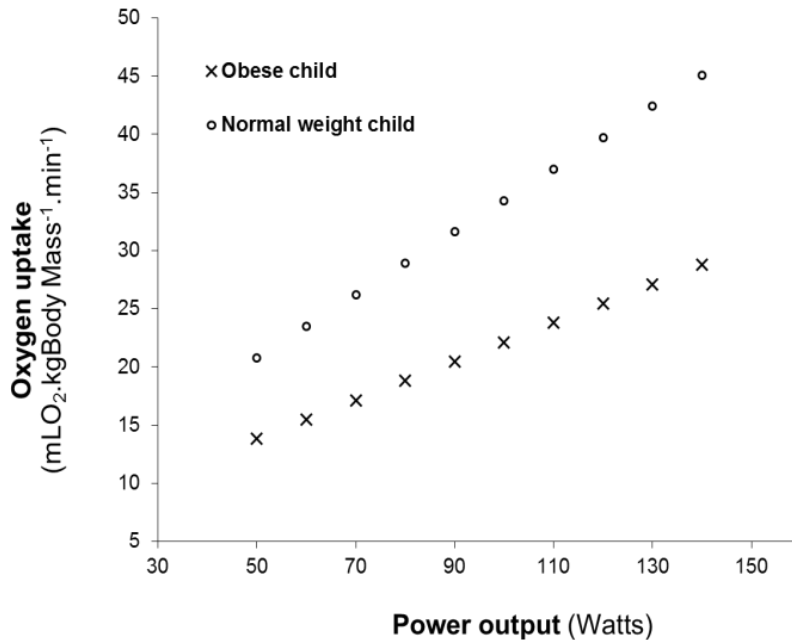
Cardiorespiratory endurance, or aerobic fitness

Ability of the cardiorespiratory system to supply oxygen to active skeletal muscles during prolonged submaximal exercise

Ability of the skeletal muscles to perform aerobic metabolism.

Cardiorespiratory fitness in obese children and adolescents

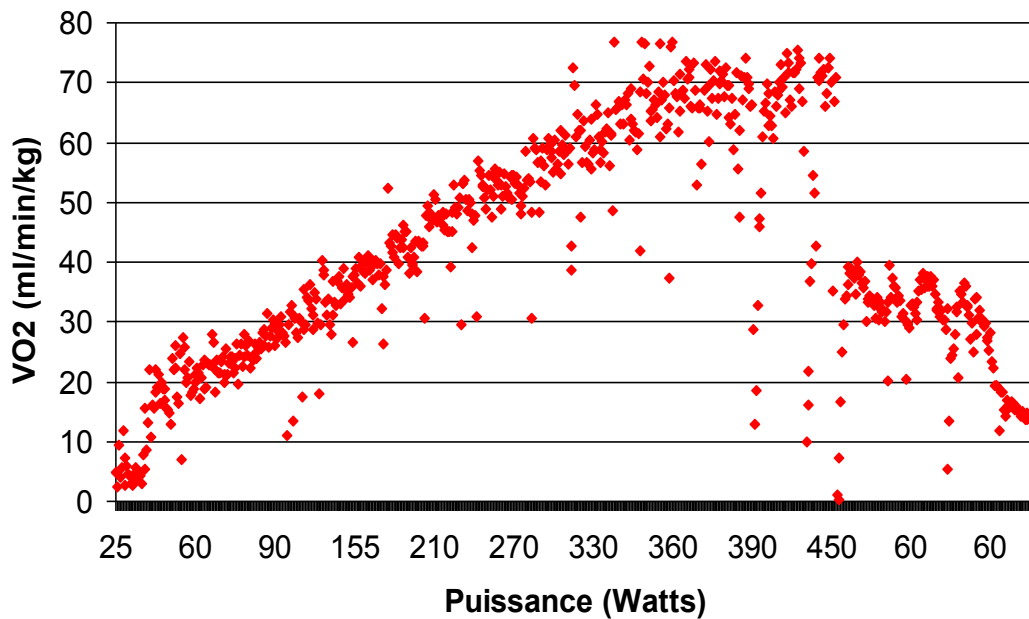
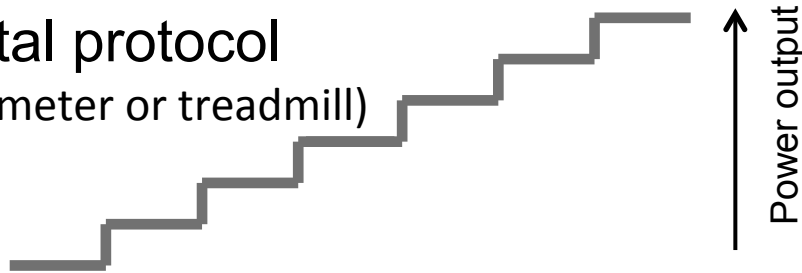
Although **lower** cardiorespiratory performances are observed in obese children and adolescents compared to normal weight when adjusted to **body mass**, **absolute** performances are often **higher**, and these differences **disappear** when performances are adjusted to **fat free mass**, suggesting that muscle maximal oxidative ability is not impaired with obesity in youth



Cardiorespiratory fitness: how to measure it?

Laboratory testing

Incremental protocol
(cycling ergometer or treadmill)



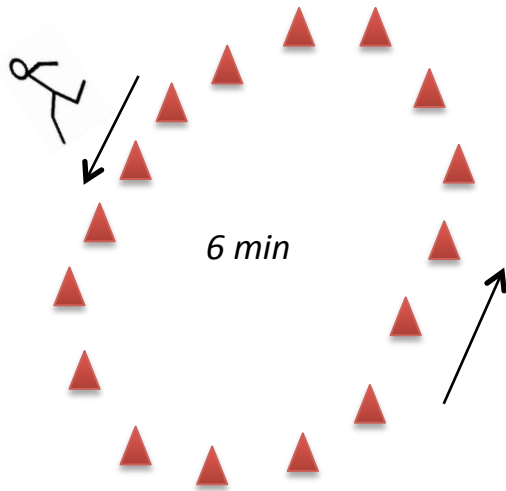
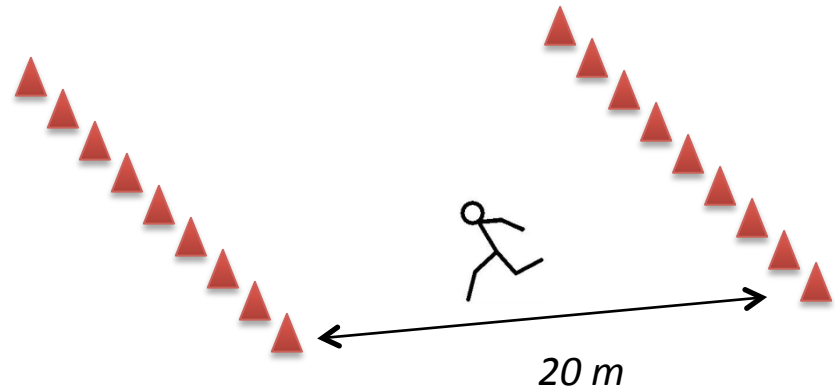
Maximal measure of
oxygen uptake (VO_{2max})
and power output

or

Submaximal test with
extrapolation of VO_{2max}
(using equations)

Field testing examples

The 20 meters shuttle run test
(exhaustive exercise test)



The 6 minutes walking test
(submaximal exercise test)

Indirect field tests are accurate and reliable indicators of CRF in obese youth and great tools to assess interventions' efficacy on CRF.