Early intervention in schools needed to address Malta's obesity crisis

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A new study by the University of Malta and Staffordshire University highlights an urgent need for change in the curriculum and demonstrates how introducing longer, more frequent and more physically intense PE lessons can significantly improve children's weight and overall health.

Malta currently has one of the highest rates of obesity worldwide with 40% of primary and 42.6% of secondary school children being overweight or obese.

The World Health Organization (WHO) recommends that children engage in at least 60 minutes of age-appropriate moderate-to-vigorous physical activity (MVPA) daily, however Maltese children are among the lowest to achieve this.

Dr. Alfred Gatt, Associate Professor at the University of Malta said that "widespread obesity in Malta has physical, psychological and social implications, as well as crippling health costs for Malta of around 70 million euros each year for the treatment of complications of obesity. Childhood intervention is crucial, and we believe the school environment to be the best outreach system."

Dr. Amanda Fenech, a pediatric doctor at Mater Dei Hospital, who led the study says that "currently Malta has both an insufficient number of PE lessons—with only 31 hours in secondary schools annually compared to 108 hours in France—and low activity rates during those lessons. Our study investigates whether adopting an alternative, evidence-based PE education program alongside biomechanical testing could be used as a cost-effective way to address this."

120 children aged 9 to 10, attending state primary schools, participated in the study over one school year. While a control group was taught the national PE curriculum, an intervention group took part in the Sports, Play and Active Recreation for Kids (SPARK) PE education program,

which is specifically designed to achieve the recommended 50% of MPVA per PE lesson.

The impact of increased MPVA on BMI, waist circumference, and resting heart rate were measured alongside biomechanical tests to assess vertical jump height and postural stability.

Vertical jumps executed on a force platform measured sports performance by evaluating the explosive strength of the lower limbs, while the postural stability tests looked at gait pattern and balance which are often affected by being overweight.

Professor Nachi Chockalingam, from Staffordshire University's Centre for Biomechanics and Rehabilitation Technologies, explained that "the concept of biomechanical fitness testing is still relatively new and mainly performed by elite athletes. However, it is important to understand that biomechanical tests can also be used as educational tools for youths. Additionally, biomechanical assessments can objectively pinpoint those students who have the potential to become gifted athletes, as well as identify those students who might have structural or positional problems with their body and can therefore be picked up early in life and managed accordingly."

Over a period of eight months, the intervention group reported improvements in BMI, resting heart rate, jump height and balance parameters while overweight and obesity prevalence decreased by 15.7% compared to 3.2% in the control group.

Although the waist circumference increased in both groups, which is expected in a population of growing children, the prevalence of children with a waist circumference above the 90th centile decreased by 6.6% in the intervention group and increased by 6.8% in the control group.

Professor Chockalingam added that "these results prove that inexpensive methods can be adopted to raise the proportion of physical activity during PE lessons, leading to significant health benefits. The study also demonstrates the potential application of biomechanical tests, currently only used in professional athletes, as objective tools to assess children's fitness in schools."

Dr. Cynthia Formosa, Associate Professor and Head of Podiatry at the University of Malta said that "going forward, we hope that these findings can be used to integrate an evidence-based PE curriculum as a public health initiative against childhood obesity in Malta."

More information: Amanda Fenech et al, Longitudinal effects of evidence-based physical education in Maltese children, *Child and Adolescent Obesity* (2021). DOI: 10.1080/2574254X.2021.1915041

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