PHYSICAL ACTIVITY ATTENUATES THE DETRIMENTAL ASSOCIATION OF SITTING TIME WITH CARDIORESPIRATORY FITNESS IN ASIAN YOUTHS: THE ASIA-FIT STUDY

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Introduction
High levels of cardiorespiratory fitness (CRF) has been associated with lower risks of many health outcomes. Physical activity has been associated with a higher CRF. Recently, growing evidences have showed that high amounts of sedentary behavior are associated with a lower CRF (Carson et al., 2016). However, it is unclear whether physical activity attenuates the detrimental effects of the prolonged sitting. Therefore, the purpose of the present study was to examine the joint associations of physical activity and sedentary behavior with cardiorespiratory fitness in Asian youths.

Methods
A total of 9,747 youths (aged 12-15 years) were recruited from eight Asian metropolitan cities, which were Hong Kong, Shanghai, Tokyo, Seoul, Kuala Lumpur, Taipei, Singapore and Bangkok. Cardiorespiratory fitness was assessed by a 15-meter progressive aerobic capacity endurance run (PACER) test. The time spent in moderate-to-vigorous physical activity (MVPA) and television (TV) time were assessed by self-report questionnaires.

Results
Compared with the referent group [i.e., those in the least active category (MVPA < 30 min/day) in combination with most sedentary (TV time ≥ 3 h/day)], PACER scores were significantly higher for those who met the physical activity recommendation (≥ 60 min/day in MVPA). There was no significant associations between amount of TV time and PACER score for those who were active (≥ 60 min/day in MVPA) (p > 0.05). Conversely, negative associations were found between daily TV time and CRF for girls who did not meet the physical activity recommendation (< 60 min/day in MVPA).

Discussion
Sufficient physical activity (MVPA ≥ 60min/day) could attenuate the detrimental association of excessive TV time with CRF in Asian youths. However, for inactive girls (<60 min/day in MVPA), reducing sedentary behavior may still be beneficial for improving CRF.

References