2. Kim HJ, Yeom JS, Lee DB, Kang KT, Chang BS, Lee CK. Association of benign joint hypermobility with spinal segmental motion and its clinical implication in active young males. Spine 2013;38:E1013-9.
3. Tobias JH, Deere K, Palmer S, Clark EM, Clinch J. Joint hypermobility is a risk factor for musculoskeletal pain during adolescence: findings of a prospective cohort study. Arthritis Rheum 2013;65:1107-15.
4. Zemek MJ, Magee DJ. Comparison of glenohumeral joint laxity in elite and recreational swimmers. Clin J Sport Med 1996;6:40-7.

Reply

To the Editor:

We thank Schikler for his comments. We did not collect data about sex maturity ratings or joint hypermobility, which could be done in future studies, but we do not believe that these influence our results. In fact, there is no clear effect of sport on sex maturity ratings, and a large number of papers conclude that only highly challenging sports, such as artistic and rhythmic gymnastics but not swimming, have an impact on growth during puberty.[1,2] Some studies have demonstrated a delayed age of menarche in competitive swimmers,[3,4] and others have found no differences,[5] or attributed the differences to familial characteristics more than the effect of training.[6] It is possible that athletes achieve premature maturation, but we do interpret that evidence to be consistently true. With regards to joint hypermobility, a correlation with low back pain during adolescence has not been found, but identified only with other pain localization.[7] The work of Kim et al does not generalize to our population because it included only young adult males and not adolescents.[8] Joint hypermobility in swimming has been demonstrated to be due partially to inherent factors and partially to training,[9] but this feature is also present in many patients suffering adolescent idiopathic scoliosis.[10] These findings could relate to common features, explaining the association found in our study between swimming and trunk asymmetries. It is also possible that our study included a self-selected population, but we recruited only adolescents performing competitive swimming, not elite athletes.

In conclusion, we do not think that the points you raise affect our results. Our study aimed to determine associations and not causal effects, because of its cross-sectional design.

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References

1. Georgopoulos NA, Roupas ND, Theodoropoulou A, Tsekouras A, Vagenakis AG, Markou KB. The influence of intensive physical training on growth and pubertal development in athletes. Ann N Y Acad Sci 2010;1205:39-44.
2. Baxter-Jones A, Maffulli N. Intensive training in elite young female athletes. Br J Sports Med 2002;36:13-5.
3. Malina RM. Menarche in athletes: a synthesis and hypothesis. Ann Hum Biol 1983;10:1-24.
4. Stager JM, Robertshaw D, Miescher E. Delayed menarche in swimmers in relation to age at onset of training and athletic performance. Med Sci Sports Exerc 1984;16:550-5.
5. Peltenburg AL, Erich WB, Bernink MJ, Zonderland ML, Huisveld IA. Biological maturation, body composition, and growth of female gymnasts and control groups of schoolgirls and girl swimmers, aged 8 to 14 years: a cross-sectional survey of 1064 girls. Int J Sports Med 1984;5:36-42.
6. Malina RM, Ryan RC, Bonci CM. Age at menarche in athletes and their mothers and sisters. Ann Hum Biol 1994;21:417-22.
7. Tobias JH, Deere K, Palmer S, Clark EM, Clinch J. Joint hypermobility is a risk factor for musculoskeletal pain during adolescence: findings of a prospective cohort study. Arthritis Rheum 2013;65:1107-15.
8. Kim HJ, Yeom JS, Lee DB, Kang KT, Chang BS, Lee CK. Association of benign joint hypermobility with spinal segmental motion and its clinical implication in active young males. Spine (Phila Pa 1976) 2013;38:E1013-9.
9. Zemek MJ, Magee DJ. Comparison of glenohumeral joint laxity in elite and recreational swimmers. Clin J Sport Med 1996;6:40-7.
10. Czaprowski D, Kotwicki T, Pawłowska P, Stoliński L. Joint hypermobility in children with idiopathic scoliosis: SOSORT award 2011 winner. Scoliosis 2011;6:22.

Anthropometric indices and metabolic co-morbidities

To the Editor:

Morandi et al[1] have demonstrated that commonly used anthropometric indices, Z-score of the body mass index (BMI), waist circumference, and waist-to-height ratio, are not satisfactory markers of metabolic disturbances among obese children and adolescents. Certainly, children with the same level of adiposity vary regarding the presence and level of cardiometabolic risk factors. The duration of obesity and the speed of weight gain could be important determinants of metabolic alterations, regardless of the present weight status. Factors beyond anthropometry (ie, lifestyle and family history of type 2 diabetes mellitus) also could modulate metabolic measures.[1-3] From this perspective, based on a longitudinal population-based study,[4] we tested the hypothesis that the degree of cardiometabolic disturbance associated with obesity varies depending on the timing of excessive weight gain.

Overweight or obese children at 12 years of age (BMI ≥85th percentile: 44 of 280 children in the cohort) were divided into 2 groups depending on the timing of the adiposity rebound: before 4 years of age (n = 30) and after 5 years of age (n = 14). We then compared cardiometabolic risk factors between the groups. Although the mean BMI at 12 years of age was not different (27.4 ± 3.7 vs 26.3 ± 2.2 kg/m^2, P = .315), overweight/obese children who developed adiposity earlier (≤4 years of age) showed more atherogenic lipid patterns compared with overweight/