

### MAPSE and TAPSE values in Healthy Children and Adolescents

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**Objectives:** Tricuspid annular plane systolic excursion (TAPSE) and mitral annular plane systolic excursion (MAPSE) are two echocardiographic measure to assess the right and left ventricular longitudinal myocardial function in adults and children. In recent years some investigators reported reference values and z-scores of MAPSE and TAPSE in children. These studies also found positive correlation between age and body surface area (BSA) with MAPSE and TAPSE. In the current study, we aimed to evaluate right and left ventricular systolic functions from infant to adolescents period. And to propose refence values.

**Methods:** We prospectively evaluated MAPSE, TAPSE, left ventricular ejection fraction (LVEF) and fractional shortening (FS) by two dimensional echocardiography in 1241 healthy children (age day 1 to 15 years). We determined the effects of age and BSA on MAPSE values and a possible correlation of MAPSE values with LV ejection fraction values.

**Results:** The MAPSE and TAPSE values range from 0.72 cm and 1.13 cm in term neonates from 1.76 cm and 2.74 cm in 15-year-old adolescents respectively. While, the MAPSE and TAPSE values showed a positive correlation with age ( $r=0.86$ ,  $p<0.001$  and  $r=0.65$ ,  $p<0.001$ ), there were no correlation was found with BSA. In all age groups, LVEF values showed positive correlation with FS values. But we could not find any correlation between MAPSE and LVEF. The regression equation relating age and MAPSE and TAPSE are:  $MAPSE_{pred} = 9.162 + (Age(year) \times 0.64)$ ,  $TAPSE_{pred} = 14.55 + (Age(year) \times 0.933)$ .

**Conclusions:** In this study, the MAPSE and TAPSE values were calculated by age, and percentile charts were established to serve as reference data for patients with congenital heart disease.