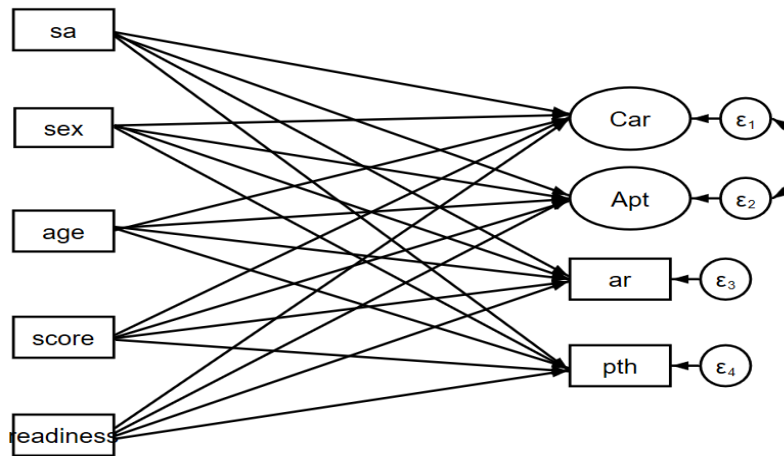


## Supplementary Materials

### 1. Regression Models

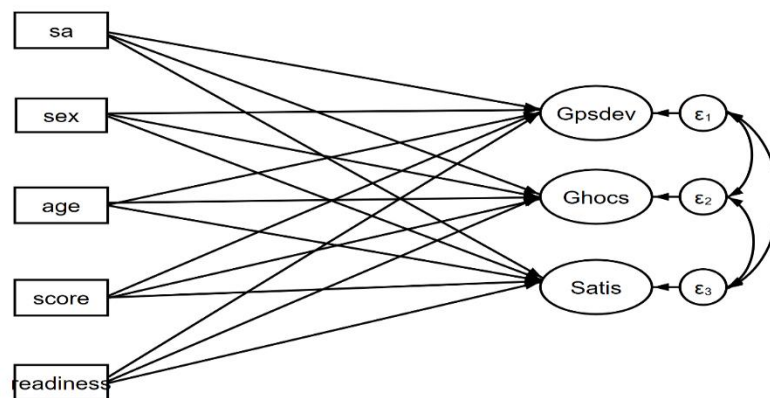
Four separate multiple regression analyses were conducted to examine the relationship between youth athletes' engagement and the five potential predictors. Figure S1 illustrates the model components and the relationships between the variables.



**Figure S1.** Regression models representing the relationships of contextual factors and engagement variables; sa: Sports academy, score: 10th Grade National Exam Score, Car: Coach–athlete relationship, Apt: Active participation and teamwork, ar: Attendance rate, pth: Personal training hours.

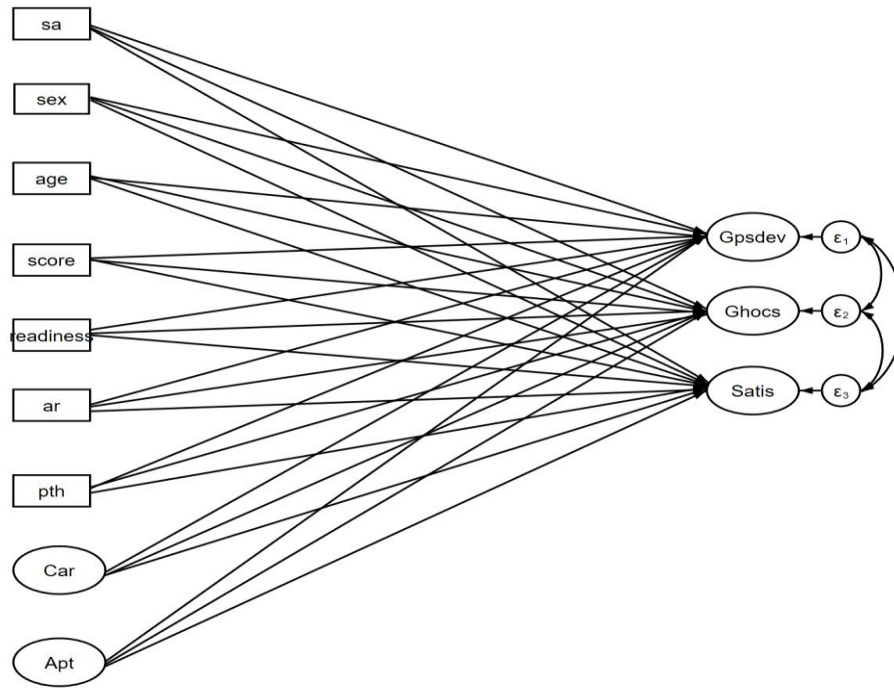
### 2. Two-Step Hierarchical Regression Models predicting developmental outcomes

Two-step hierarchical multiple regressions were conducted on the three youth athlete outcome measures, including perceived gains in personal and social development, perceived gains in higher-order cognitive skills, and satisfaction with the academy experience. Figures S2 and S3 present the first and second step regression models to give a clear visual representation of the multiple regressions used in the study.



**Figure S2.** Regression Models representing the relationships of contextual factors and youth athlete developmental outcome measures. sa: Sports academy, score: 10th Grade National Exam Score, Gpsdev: Gains in personal and social development, Ghocs: Gains in higher-order cognitive skills, Satis: Satisfaction.

As shown in Figure S2, each controlling variable has a regression line predicting each outcome variable. Figure S3 presents the linear models for the step-two multiple regression.



**Figure S3.** Regression models representing the prediction of contextual factors and engagement variables together on the three developmental outcome variables. sa: Sports academy, score: 10th Grade National Exam Score, ar: Attendance rate, pth: Personal training hours, Car: Coach-athlete relationship, Apt: Active participation and teamwork, Gpsdev: Gains in personal and social development, Ghocs: Gains in higher-order cognitive skills, Satis: Satisfaction.