



# DETAILED BRIEF

Priority topic – 17<sup>th</sup> Cycle (2026/27)



ACADEMY

RESEARCH  
GRANT  
PROGRAMME

## Physical development pathways in youth football: Relative age, maturation and the role of mixed training models

### 1. Background

Youth football development is shaped by complex interactions between relative age, biological maturation, exposure to physical training and coaching methodology. Significant variations in relative age and maturation rates impact movement quality and skill acquisition, creating challenges for training prescriptions, benchmarking and talent identification.

Mixed training models, such as mixed-gender sessions, mixed-ability groups or cross-age coaching environments, are increasingly used across Europe to support technical, tactical and physical development. However, little research has been carried out to explore how these mixed environments influence training loads, physical development and long-term athlete outcomes.

At the same time, long-term athlete development (LTAD) principles emphasise developmentally appropriate training, exposure to diverse stimuli and holistic growth. This research theme seeks to examine whether mixed training models can support or enhance LTAD by improving physical readiness and creating more inclusive pathways for youth players.

### 2. Research aim

To investigate how relative age, maturation and mixed training models interact to influence physical development pathways, training responsiveness and long-term athlete development in youth football.

### 3. Priority research questions

Projects may explore, but are not limited to:

#### **Relative age & maturation**

- How do individual differences in relative age and biological maturation affect responses to strength, speed or endurance training?
- What maturation-adjusted benchmarks should be used in youth football?

#### **Mixed training models**

- How do mixed-gender or mixed-ability training groups impact physical development?
- Can mixed environments reduce drop-out rates, especially among late-born and/or late-maturing players?

#### **Training load & readiness**

- How can training be individualised according to relative age and maturation status while maintaining group cohesion?
- What is the impact of mixed training models on injury risk, readiness and progression?

#### 4. Expected outputs

**Successful projects should deliver the following:**

- Clear guidance on structuring physical development pathways across maturation stages;
- Practical recommendations for implementing mixed training models in youth football;
- Relative age and maturation-adjusted fitness benchmarks or profiles;
- Applied case studies from academies and/or grassroots programmes.

#### 5. Relevance to football development at UEFA

**This research aligns with the following UEFA priorities:**

- Improve long-term player development structures across member associations;
- Promote safe, inclusive and developmentally appropriate training and match environments;
- Enhance physical and athletic foundations for future elite performance;
- Provide evidence-based guidance for grassroots clubs, elite youth academies, coaches and fitness staff.

Findings will support UEFA's commitment to strengthening youth development, creating inclusive environments and ensuring that training and matches reflect the developmental, biological and psychological constraints on young footballers.

#### Further information:

For any questions or further information on the 2026/27 priority topic for the UEFA Research Grant Programme (UEFA RGP), please do not hesitate to reach out to: [academy@uefa.ch](mailto:academy@uefa.ch).



UEFA  
ROUTE DE GENÈVE 46  
CH-1260 NYON 2  
SWITZERLAND  
TELEPHONE: +41 848 00 27 27  
TELEFAX: +41 848 01 27 27  
[UEFA.com](http://UEFA.com)