

# The Effect of Individual Maturity Status on Performance in Professional Youth Academies

By Thomas Keuter (2018)

## Introduction

A footballer's potential skill level is determined by its innate abilities, while the talent development environment determines the amount of realized potential. Therefore, an increased level of one or the other, or both, will lead to an increase in player performance. In this study, the focus will be on an individual factor, maturation rate, and its relationship with the individual technical and physical performance of a player. It is proposed that individual maturity status has a positive effect on the endurance, the maximum reachable speed and the recovery abilities of players, which are all components of physical performance. Next to this, it is also proposed that individual maturity status has a positive effect on the overall level of technical abilities and indicators that relate to the passing network of a team, which are parts of technical performance

### The research question:

*"How does an individual's maturity status influence specific areas of player performance for youth players in professional football academies?"*

*"Unlike many other players, I have rarely played for representative teams. I am a late bloomer, these are the first qualifiers that I am experiencing. "*

*- Calvin Stengs (born on the 18<sup>th</sup> of December)*



### Method:

5 elite youth football teams participated in this study. Their age ranged from 12 till 16 years old. Biological age was calculated by using date of birth, date of measurement, standing height, sitting height and weight. Various tests were performed by the players for example the Loughborough Soccer Passing Test, Yo-Yo intermittent recovery test level 1 and several sprint tests. Biometric (technical) and physical characteristics were measured during a various games by using GenGee INSAIT KS.

### Data and test used:

- Loughborough Soccer Passing Test
- Biological age (PHV & Maturity offset)
- Sprint test
- Yo-Yo intermittent Recovery test level 1

### GenGee data used (e.g.):

- (Sprint) distance covered
- Sprints (at various speed)
- Number of (forward) passes & touches
- % succesfull passes (forward)
- Heart rate and recovered heart rate

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### **Results:**

It has been found that players with a higher maturity status cover less distance during training sessions. Also, maturity status has only a partial effect on speed. In fact, it does not affect acceleration or sprint speed, while it is positively linked to manoeuvrability and changes-of-direction. So, more mature players are more manoeuvrable.

Maturity has a positive effect on recovery ability, meaning that more mature players recover better from exercises.

Next to this, it has also been found that maturation does not have an effect on the overall level of technical abilities. Though, the more mature players were more accurate in their execution of the test that was used to measure the skill level, while they were also slightly slower. Finally, it was found that individual maturity status has no effect on the centrality of a player in the passing network either. This target was more so affected by the primary playing position. All in all, more mature players are not more technically skilled.

### **Recommendations:**

Foremost recommended that both professional and non-professional academies make individual maturation a key component of their routines. The development programmes of athletes should be tailored to their individual maturation rate as much as possible, so having an overview of the maturity statuses of all players is key to start with. Then, decisions and daily routines should be based on this information, such as training in biological age groups or reducing the training load of specific player that are less mature, in order to prevent injuries. Finally, the selection process of academies should keep in mind that the physical performance of youth players is more affected by individual maturation than technical performance is. This means that differences in technical abilities are there to stay in the long term when all players are fully matured.

### **Further research:**

What is the effect of cognitive and mental abilities as a predictor for individual technical performance?

### **Theories (e.g.):**

Koziel & Malina (2017)  
Krustrup, P. Et al. (2003)  
Serpello, F. R., et al. (2017)

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