**Factsheet: The Relative Age Effect**

***1. What is it?***

In a football context, the "relative age effect" (RAE) refers to the way youth players whose birthdays fall in the first half of the calendar year are preferred over youngsters born in the second half of the same year. For example, a player born in January is likely to be picked ahead of a team-mate born in December, in large part because being 11 months older means they are likely to be physically stronger.

This age-related difference in physical maturity gives older players a temporary advantage in strength, coordination and athleticism. This can make them appear more technically proficient than younger children. As coaches look to pick the best team available to them, these older players often get more playing time and responsibility on the pitch, and better access to training facilities off it. That in turn accelerates their progress up the football pyramid, potentially at the expense of younger, more talented, team-mates.

***2. Why should we care?***

The relative age effect can cause clubs to miss out on young talent. Research has shown that players born late in the year are more likely to give up the game because of a lack of playing opportunities, or to be released from youth academies prematurely.

Perhaps the most famous example of this problem is England captain Harry Kane. Kane was famously released by Arsenal's youth academy at the age of twelve, on the basis that he was not physically strong enough to make it as a professional. He went on to join their north London rivals Tottenham, eventually becoming England's all-time leading scorer and one of Europe's best forwards.

The relative age effect is very important in the men's game, but there are indications that it might be even more marked in women's football. One recent study found evidence of RAE extending beyond youth football into Europe's "Big 5" *senior* women's leagues. According to that research, RAE affected selection decisions in goalkeepers, defenders, midfielders and strikers, albeit to varying degrees. This suggests that the bias associated with RAE can influence careers in all areas of the pitch, and all the way up to the summit of the women's football pyramid.

***3. What can we do about it?***

Researchers have suggested a number of different ways to counter the relative age effect. These include:

- Age-order shirt numbering

Numbering players' shirts in order from youngest to oldest could help coaches and scouts understand which players are likely to be disadvantaged by being younger than their peers, and to adjust their assessments of their performance accordingly.

- Age-based quotas

Requiring teams to field a certain number of players born in each quarter of the calendar year would prevent coaches from systematically picking older players over their younger team-mates. This would ensure that players born later in the year get their fair share of playing time

and development opportunities.

- "Bio-banded" competitions

"Bio-banding" is the practice of setting eligibility criteria on the basis of how physically mature the players are, as opposed to their chronological ages. This approach levels the playing field by ensuring that the players on the pitch are at comparable stages of their physical development, regardless of age. This means no player has a significant physical advantage over the others, and allows technical ability to shine through.

**4. Conclusion**

The goal of any club's youth development system is to help players maximise their potential and, ultimately, to bring them through to the first team. However, no two youngsters ever develop at the same rate, and these differences in development can cause clubs to overlook younger or less physically-developed players. Being aware of the relative age effect makes it more likely that clubs will give youngsters the time they need to show what they can do – and improve their chances of discovering their next star player.

Sources and further reading

This document is a summary based on material published by the FIFA Training Centre (https://www.fifatrainingcentre.com/en/). This material itself draws on the research of leading academics in the field. Links to relevant articles are provided below.

Jan Verbeek on the Relative Age Effect
https://www.fifatrainingcentre.com/en/environment/science-explained/high-performance/find/jan-verbeek-on-the-relative-age-effect.php

José Bonal on the Relative Age Effect in Women's Football
https://www.fifatrainingcentre.com/en/environment/research-brief/high-performance/find/bonal-rae-womens-game.php

How Denmark is addressing the relative growth effect
https://www.fifatrainingcentre.com/en/environment/good-practice/high-performance/talent-pathways/how-denmark-is-addressing-the-relative-growth-effect.php

Sean Cumming on bio-banding
https://www.fifatrainingcentre.com/en/environment/science-explained/high-performance/talent-pathways/sean-cumming-on-bio-banding.php

Sean Cumming on maturation in youth football
https://www.fifatrainingcentre.com/en/environment/science-explained/high-performance/talent-pathways/sean-cumming-on-maturation-in-youth-football.php