


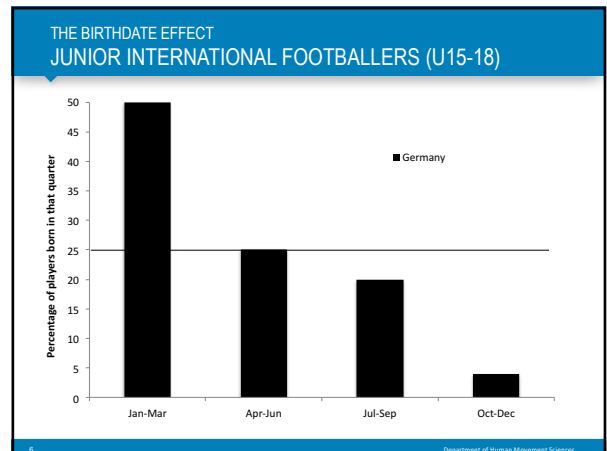
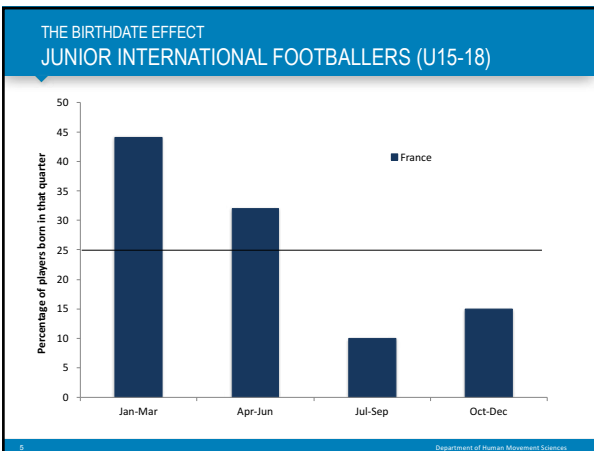
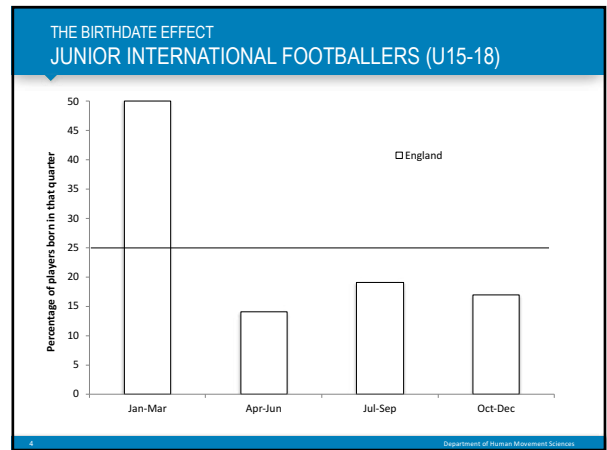
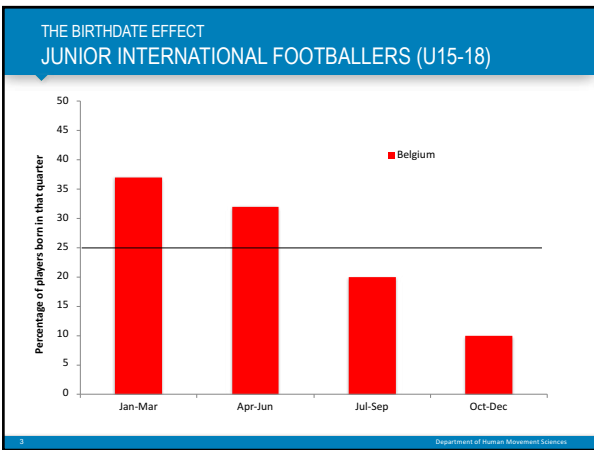
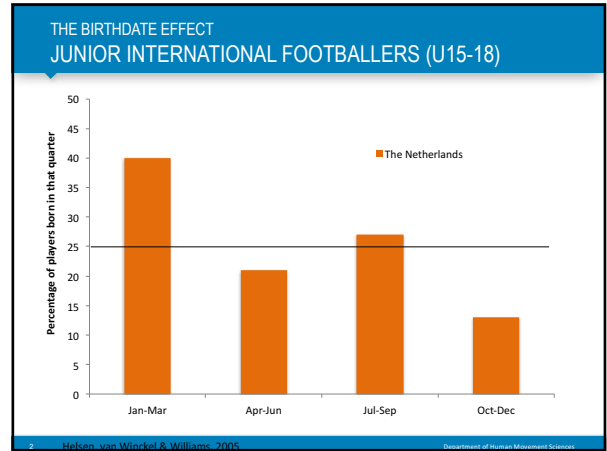
Detecting and Reducing Selection Biases in Talent Identification

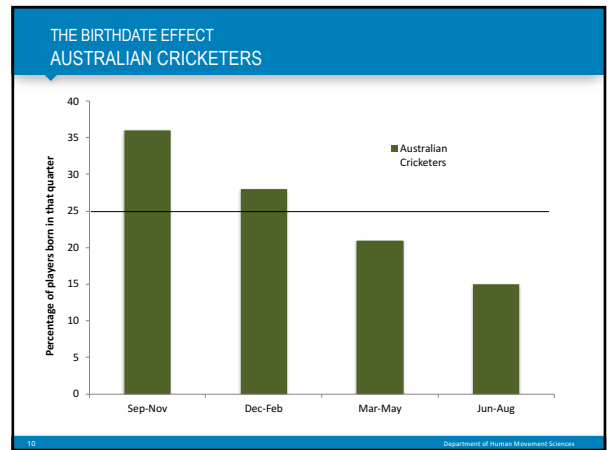
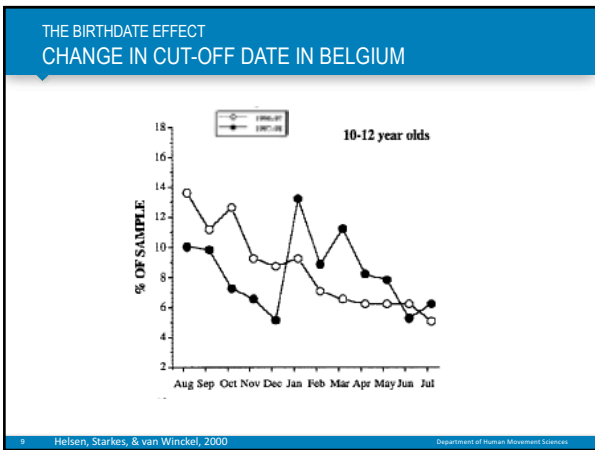
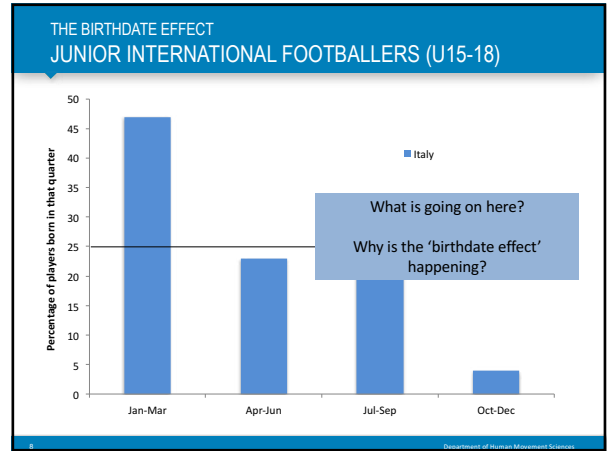
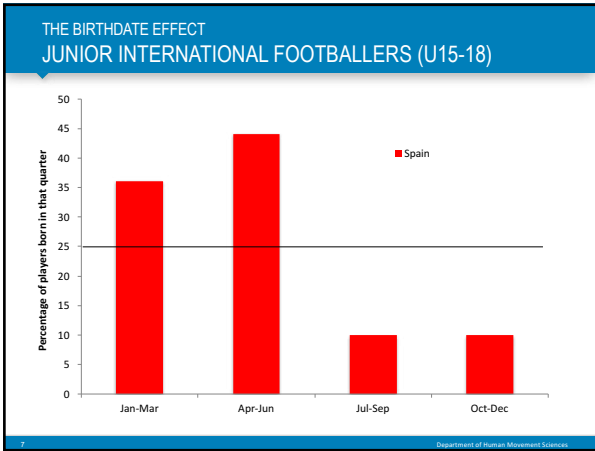
Singapore National Youth Sports Institute 2017

David Mann
Department of Human Movement Sciences
Vrije Universiteit Amsterdam
The Netherlands



IS VERDER KIJKEN





THE BIRTHDATE EFFECT ALSO KNOWN AS "THE RELATIVE AGE EFFECT"

The Relative Age Effect
Children born towards the start of the selection year are relatively older than those born later in the selection year.

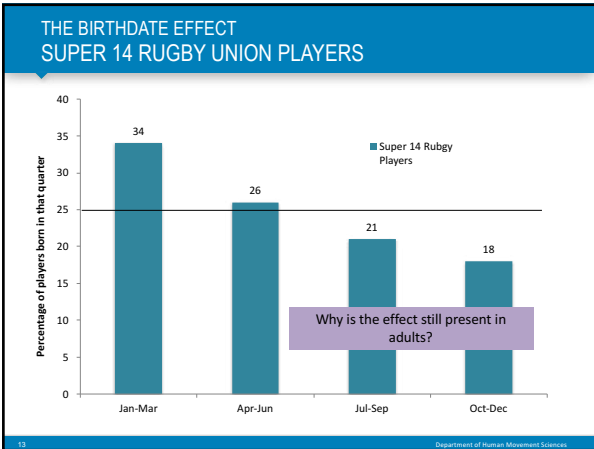
A child born at the start of a selection year (usually January) can be almost a full year older than a child born at the end of the selection year.

11 Department of Human Movement Sciences

THE BIRTHDATE EFFECT WHY DOES THE RELATIVE AGE EFFECT OCCUR?

- Being relatively older can afford a large advantage in terms of:
 - Height
 - Weight
 - Coordination
 - Strength
 - Cognitive development
 - Accumulation of practice volume
- Coaches might think that they are selecting the most talented players for their teams, but they are often just picking the oldest children.
 - They are confusing talent with age!
 - They are often choosing teams to win now rather than to develop the best players.

12 VU Department of Human Movement Sciences



THE BIRTHDATE EFFECT WHY DOES THE EFFECT CONTINUE INTO ADULTHOOD?

Why is the relative age effect still present even in adult teams when age cut-offs are no longer relevant?

- Children identified as being 'talented' get access to more opportunities:
 - Better coaching
 - Better facilities
 - Parents are more likely to support and encourage the child
 - The child believes they are good and are more likely to invest in practice
- Children who were not selected (generally those born later in the selection year) are more likely to drop out.

14

THE BIRTHDATE EFFECT STRONGER IN SOME SPORTS THAN OTHERS

The relative age effect tends to be stronger in sports where:

- Performance relies (at least in part) on size and strength
 - e.g., ice-hockey, American football, Basketball
- There is high cultural importance
 - e.g., football in Europe, ice-hockey in Canada, cricket in Australia
 - There is a lot of competition for positions, and so the smallest advantage counts!
 - Talented athletes tend to be identified at an early age in these sports, and relative age counts more the younger you are.

15

THE RELATIVE AGE EFFECT WIDER SOCIETAL IMPACT

The Telegraph
ADHD is early overmanagement and many children are just immature, say scientists

Percentage of boys diagnosed with ADHD by birth month

16

RELATIVE AGE EFFECT THEORIES

Direct effects: performance advantages as a result of differences in maturation (size, strength, fitness, cognitive development)
Indirect effects: evaluations and reactions of others

Maturation-selection hypothesis (e.g., Cobley et al., 2009)

17 Wattie, Schorer, & Baker, 2015; Sherar, Cumming, Eisenmann, Baxter-Jones & Malina, 2010

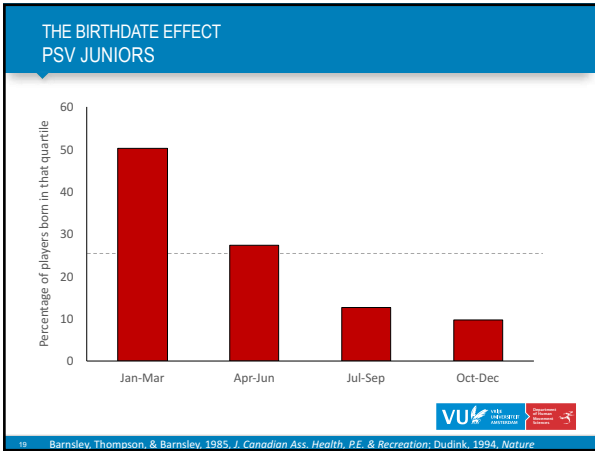
RELATIVE AGE EFFECT HOW TO OVERCOME IT?

Options:

- Alter the bandwidth of junior age-groups
- Birth-month quotas when selecting teams
- Group by height or weight (rather than age)
- Increase the awareness of the RAE

AIM
To determine whether the selection bias associated with the RAE could be reduced by providing information about the age of the players

18 (Barréau, Thumsson & Lemaire, 1997; Cobley et al., 2009; Helsen et al., 2012, 1998; Muech & Grandin, 2011)



METHOD

Participants

- 25 male talent scouts from PSV Football Club ($M_{age} \pm SD = 56.0 \pm 10.8$ years)
- Told taking part in a study of birthdate effect

Task

- Watch two 4 vs 4 small-sided football matches (U-11s)
- Scouts were asked to rank the players (1-8) according to their potential in the game

20 Mann & van Ginneken, 2017, *JSS*

METHOD THREE GROUPS

No-age group		
List with player names & nationality	List with player names & nationality	List with player names & nationality
	+ date-of-birth of each player	+ date-of-birth of each player
		+ knowledge that shirt number corresponded to player's age

21 Mann & van Ginneken, 2017, *JSS*

METHOD DATA ANALYSIS

Selection bias = correlation between the scout's rank order and the shirt numbers

1	2
2	3
3	5
4	1
5	8
6	7
7	6
8	4

$r = +0.50$

1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8

$r = +1.0$

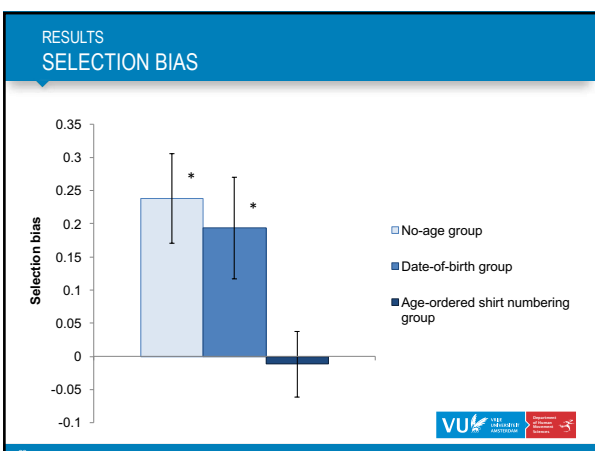
1	8
2	7
3	6
4	5
5	4
6	3
7	2
8	1

$r = -1.0$

1	4
2	6
3	2
4	3
5	8
6	7
7	1
8	5

$r = +0.02$

22 Department of Human Movement Sciences



DISCUSSION KEY FINDINGS

- Scouts have a bias to select relatively older players
 - Relatively older players benefit from indirect effect of age
- It is possible to reduce the selection bias associated with RA
- Knowledge of the effect and birthdates may not be enough
 - Scouts knew they were in a study about the RAE!
 - Demonstrates the pervasiveness of the effect
- A more salient intervention is required to reduce the selection bias
 - Shirt numbering presents information:
 1. In a way that is easy to understand
 2. In real-time


24

Let's look at the behaviour of talent scouts and coaches

25 Department of Human Movement Sciences

WHAT ARE TALENT SCOUTS ACTUALLY 'IDENTIFYING'?

What are the player characteristics that most strongly influence the selections of talent scouts?



- 15 scouts ranked U14 female hockey players seen in 4 vs. 4 small-sided games
- Rankings were correlated with the players' scores on a range of tests of:
 - i. Age and maturation
 - ii. Anthropometrics
 - iii. Physiological characteristics
 - iv. Technical skill
 - v. Tactical skill

26 Department of Human Movement Sciences

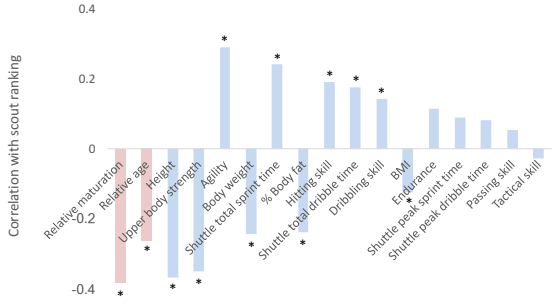
WHO DO THE TALENT SCOUTS THINK THEY ARE SELECTING?

Scouts said that they primarily look for players with good technical and tactical skill

Scouts report that they prioritise	% of scouts
1. Tactical skill	100
2. Technical skill (e.g., dribbling)	79
3. Passing ability	64

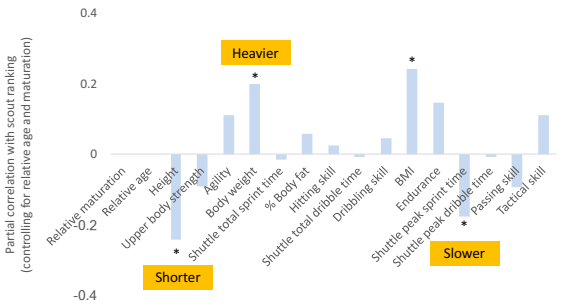
27 Department of Human Movement Sciences

WHAT ARE TALENT SCOUTS ACTUALLY 'IDENTIFYING'?



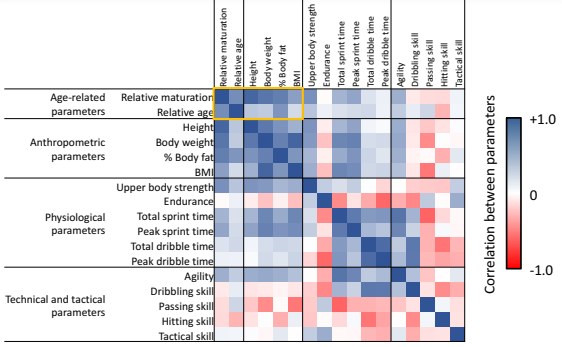
28 Department of Human Movement Sciences

WHAT ARE TALENT SCOUTS ACTUALLY 'IDENTIFYING'?



29 Department of Human Movement Sciences

RELATIONSHIP BETWEEN PLAYER CHARACTERISTICS



30 Department of Human Movement Sciences

WHAT ARE TALENT SCOUTS ACTUALLY 'IDENTIFYING'?

- Talent scouts said that they were scouting for tactical and technical skill
 - Their choices revealed that these were the factors least related to the selections they made.
- Scouts/coaches are influenced by other factors not necessarily related with long-term performance.
 - Scouts selected children largely on the basis of their maturation, rather than on parameters related to talent.
 - The influence of relative maturation outweighed that of age.
 - These biases ultimately led scouts to select players who were shorter, heavier, and slower!



31

Department of Human Movement Sciences

ACKNOWLEDGEMENTS

Students/Collaborators

Pleun van Ginneken
Ewout Timmerman
Anouk Schmidt
Sophie Veerman
Sam Coenen
Jorran van Santen



PSV Football Club

Rini de Groot
Mauro van de Looij
Ruud van Elk
Stan van Bijsterveldt
Bastiaan Riemersma
Luc van Agt

David Mann

d.mann@vu.nl



@david_l_mann



32