GHENT
UNIVERSITY

FACULTY OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT OF MOVEMENT AND SPORTS SCIENCES
BIOMECHANICS AND MOTOR CONTROL OF HUMAN MOVEMENT

ANTHROPOMETRY, PHYSICAL FITNESS, AND COORDINATION IN YOUNG CYCLISTS OF DIFFERENT DISCIPLINES

Mireille Mostaert, 5th of July 2018

GHENT UNIVERSITY

GHENT UNIVERSITY

DEPARTMENT OF MOVEMENT AND SPORTS SCIENCES
BIOMECHANICS AND MOTOR CONTROL OF HUMAN MOVEMENT

CYCLING VLAANDEREN

ACTIVE FOR LIFE

TRAIN TO WIN

LEARN TO WIN

TRAIN TO COMPETE

LEARN TO COMPETE

TRAIN TO TRAIN

LEARN TO TRAIN

FUNDAMENTALS

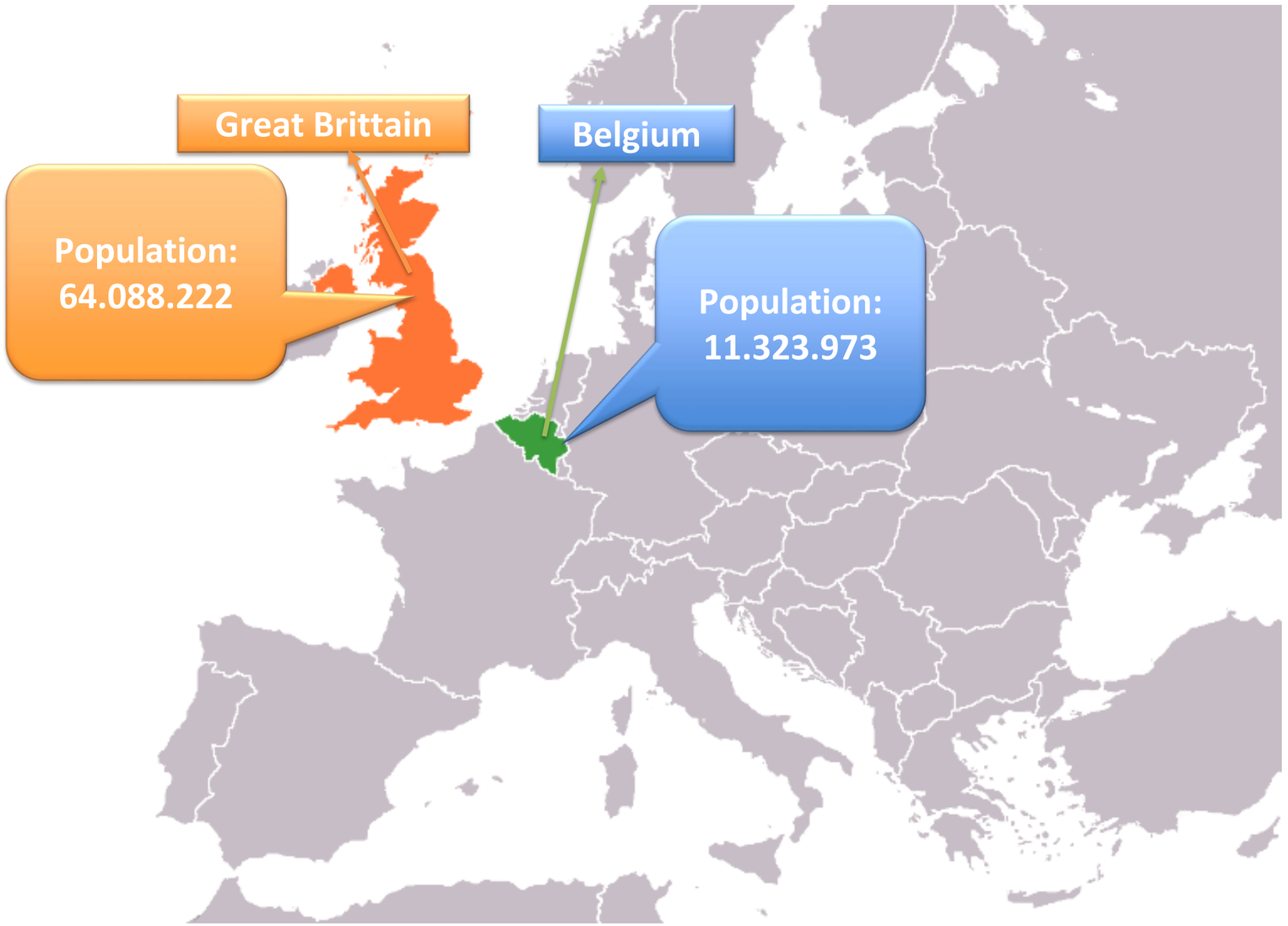
GHENT UNIVERSITY

Vaeyens et al. (2008); Pion et al. (2015)

Novak et al. (2001); Lee et al. (2002); Foley et al. (1989)

GHENT UNIVERSITY

Pion et al. (2014, 2015); Vandorpe et al. (2011, 2012)



GHENT UNIVERSITY

GHENT UNIVERSITY

BMX
- 40 – 45 sec
- Curvy and hilly trail

Road
- 3h – 6h
- Flat and hilly roads

Cyclo-cross
- 40min – 60min
- Winter and meadowland surfaces

Track
- 10sec – 1h
- Indoor

MTB
- 1h30 – 1h45
- Mountain landscape

...

GHENT UNIVERSITY

Craig et al. (2001); Lee et al. (2002); Padilla et al. (2001); McLean (1989)

1. <u>Talent detection</u>:
Reference values for young and adoldescent cycling athletes

2. <u>Talent orientation</u>:
Defining the differentiating characteristics between the five disciplines

GHENT UNIVERSITY

Population

332 male competitive cyclists

Sport discipline	Age group 7 – 11.99 yrs	Age group 12 – 16.99 yrs
Average age (yrs)	10.19 ± 1.21	14.14 ± 1.30
BMX	33	16
Road	16	73
Road + Cyclo-cross	43	64
Road + track	11	54
MTB	15	7
TOTAL	**118**	**214**
Reference population	815	

GHENT UNIVERSITY

Procedure

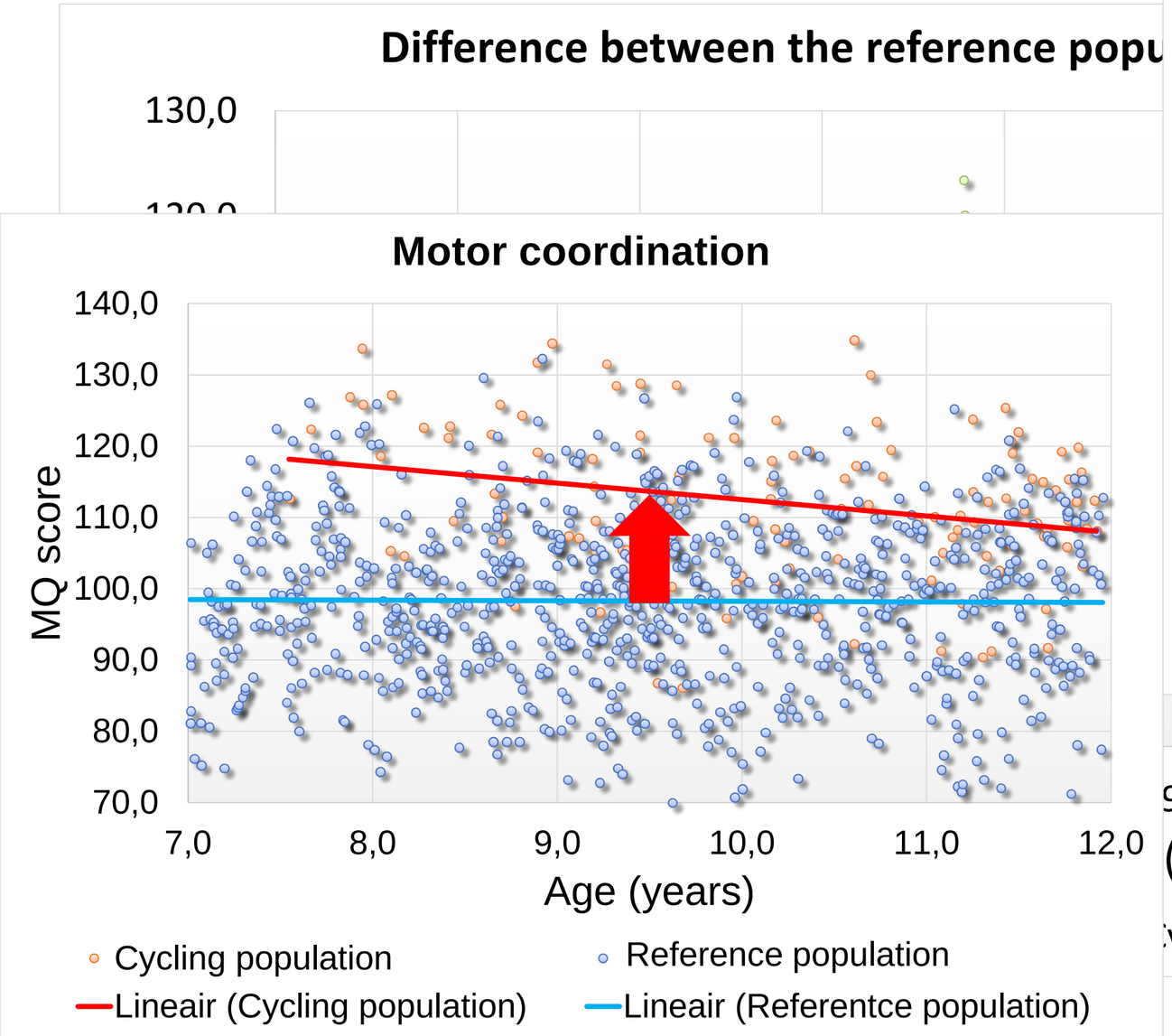
Anthropometry:
Body length, sitting height, body weight and BMI

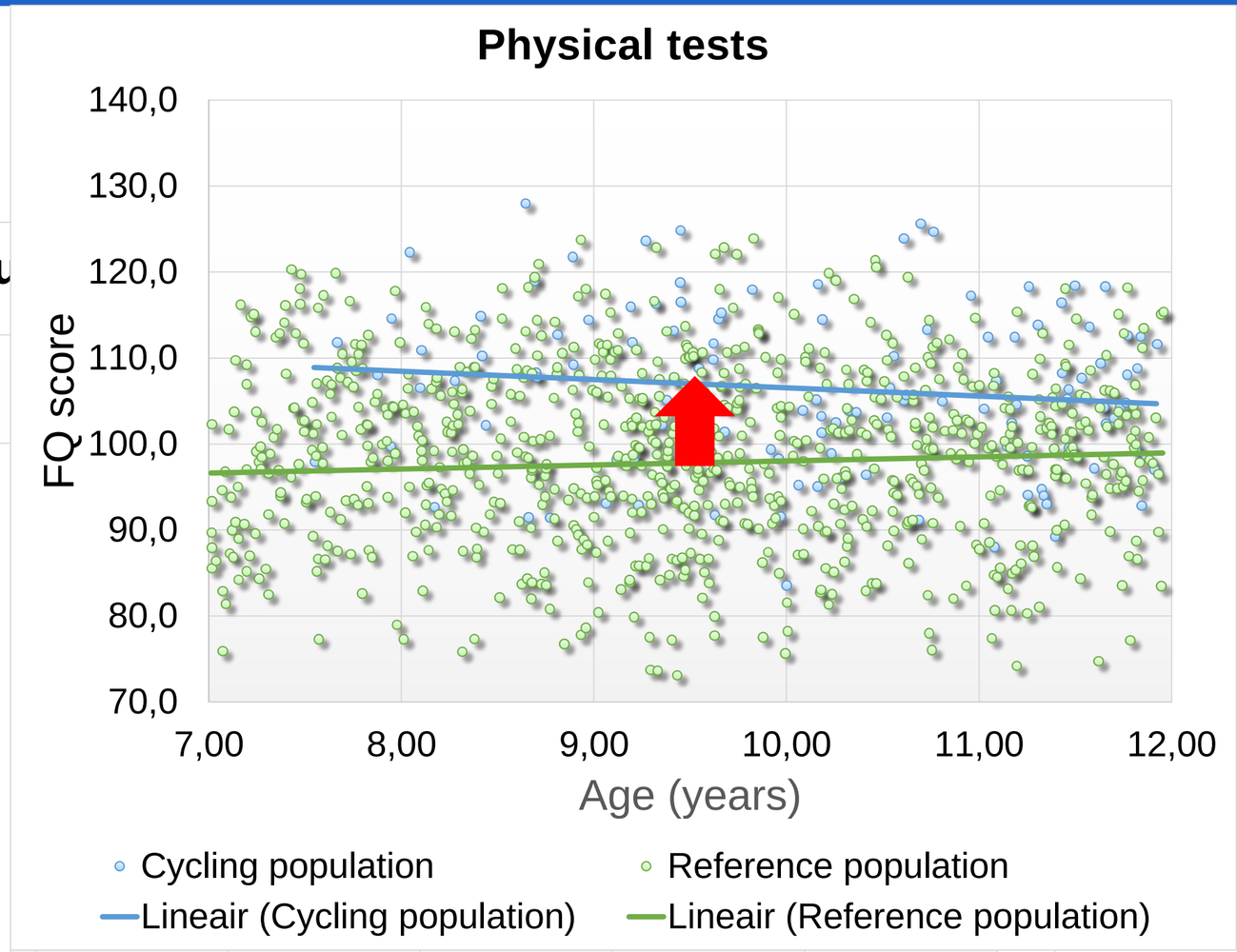
Physical tests:
Standing broad jump, sit and reach, endurance shuttle run, *plank position, and 30m sprint*

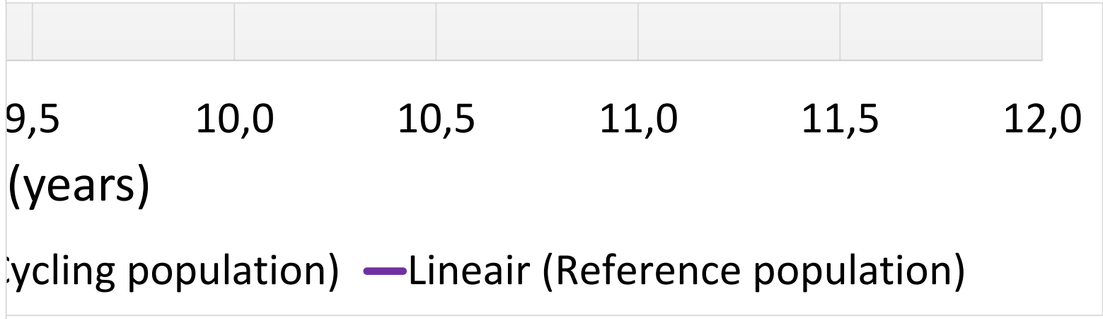
Motor coordination tests (KTK):
Jumping sideways, moving sideways, and balance beam

Cycling specific test:
Maximal cadence test

1. Talent detection







2. Talent orientation

	7 – 11.99 yrs MANCOVA Maturity offset F	12 – 16.99 yrs MANCOVA Maturity offset F
Anthropometry	**1.334**	**1.667***
BMI (kg/m²)		3.062*
Physical performance	**1.691***	**2.095****
Standing Broad Jump (cm)	4.510**	11.043***
30m Sprint Time at 5m (s)		3.712**
30m Sprint Time at 10m (s)	3.083*	4.984**
30m Sprint Time at 20m (s)	2.673*	3.935**
30m Sprint Time at 30m (s)	3.921**	4.681**
Motor coordination	**0.978**	**2.888****
Jumping Sideways (N)		3.698**
Balance Beam (N)		2.968*
Cycling specific test	**1.751**	**2.506***
Maximal cadence test (N)		2.506*

GHENT UNIVERSITY

7 – 11.99 yrs cyclists

>

Standing broad jump

30 m sprint (10, 30m)

12 – 16.99 yrs cyclists

>

(BMI)

Standing broad jump

30 m sprint

Jumping sideways

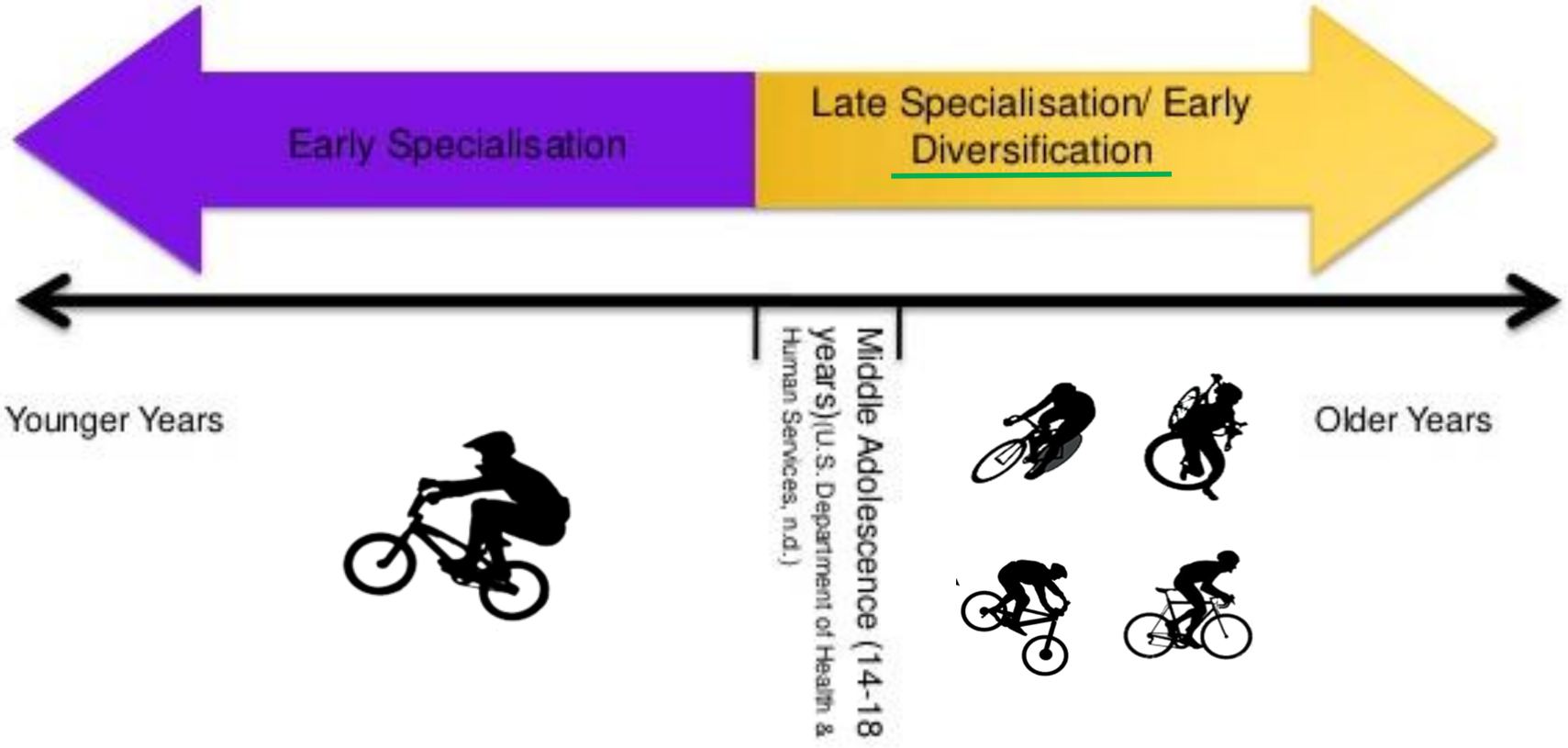
Balance beam

Maximal cadence test

>

Balance beam

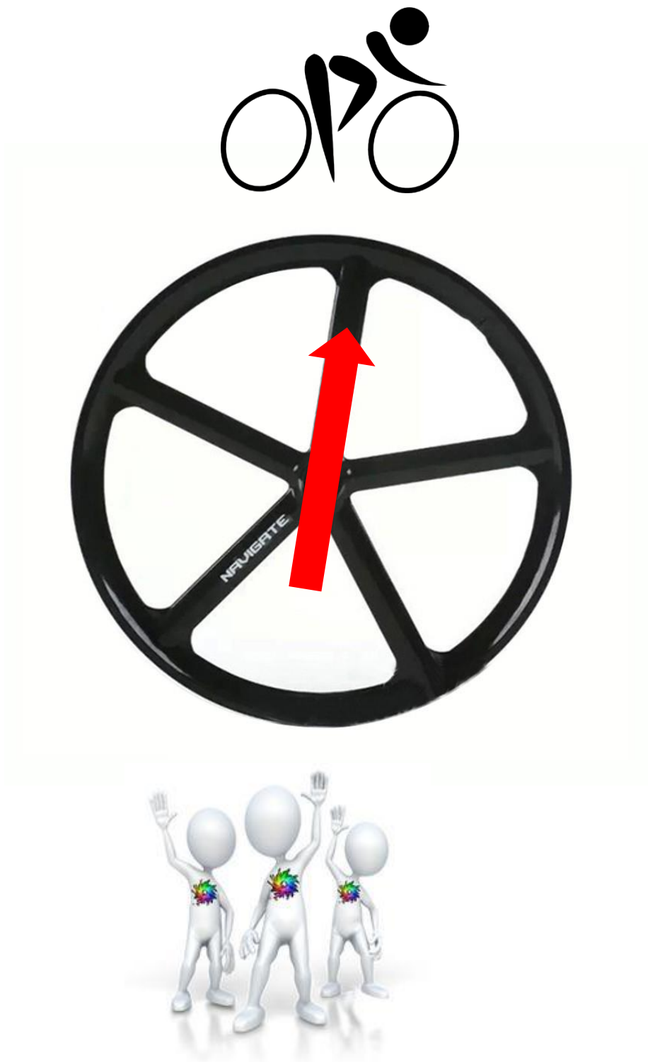
GHENT UNIVERSITY



GHENT UNIVERSITY

Coté et al. (2007, 2009); Moesch et al. (2011); Balyi et al. (2004); Mateo et al. (2013); Pion et al. (2015)

Talent detection



Talent orientation

FACULTY OF MEDICINE AND HEALTH SCIENCES

Mireille Mostaert

Research assistant Ghent University

DEPARTMENT OF MOVEMENT AND SPORTS SCIENCES

E mireille.mostaert@ugent.be

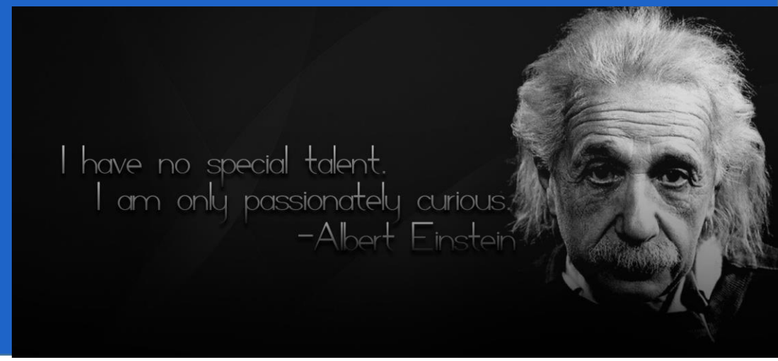
T +32 9 09 264 86 85

Ghent University

@ugent

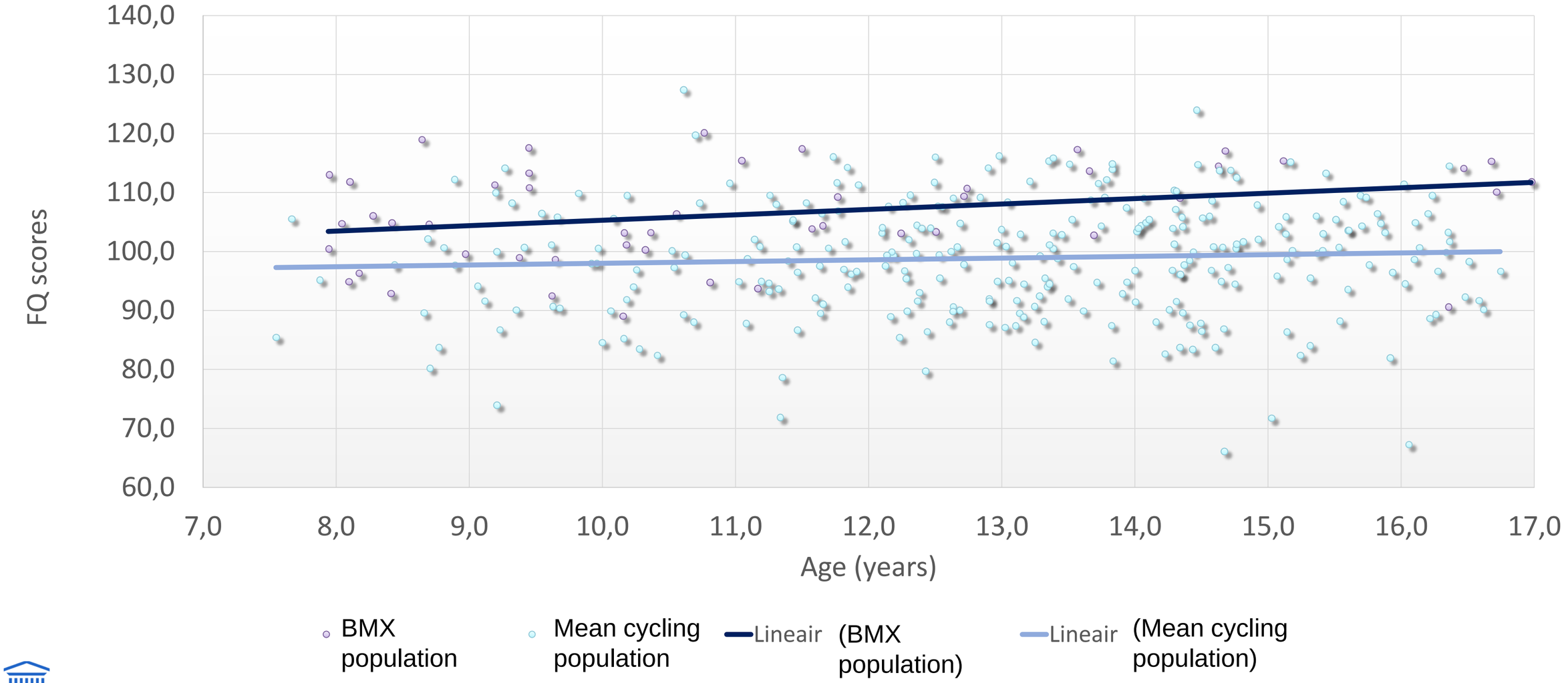
Ghent University

www.ugent.be



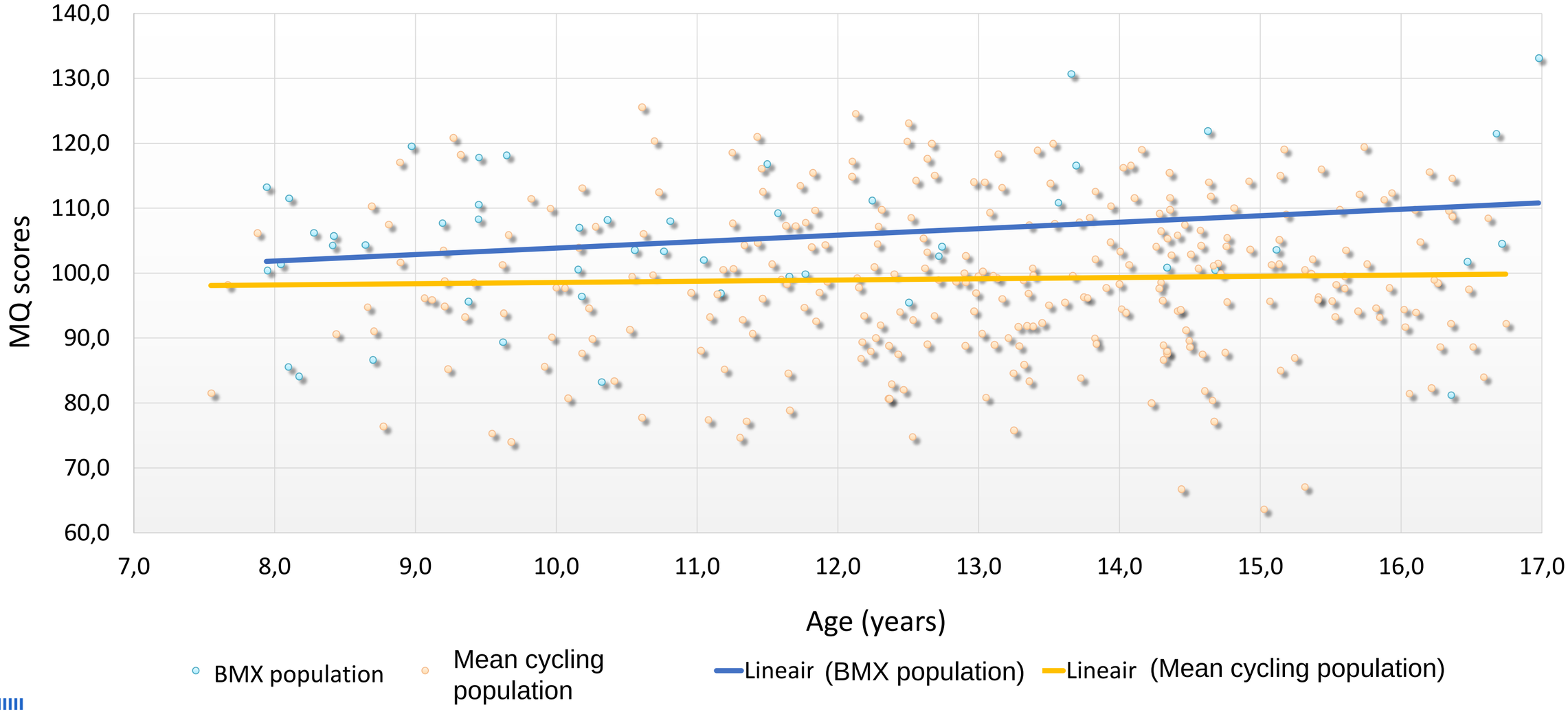
GHENT UNIVERSITY

Physical results for the BMX and other cycling disciplines



GHENT UNIVERSITY

Motor coordination results for the BMX and other cycling disciplines



GHENT UNIVERSITY