

From physical competencies to physical literacy: issues in changing an elementary school physical fitness assessment campaign



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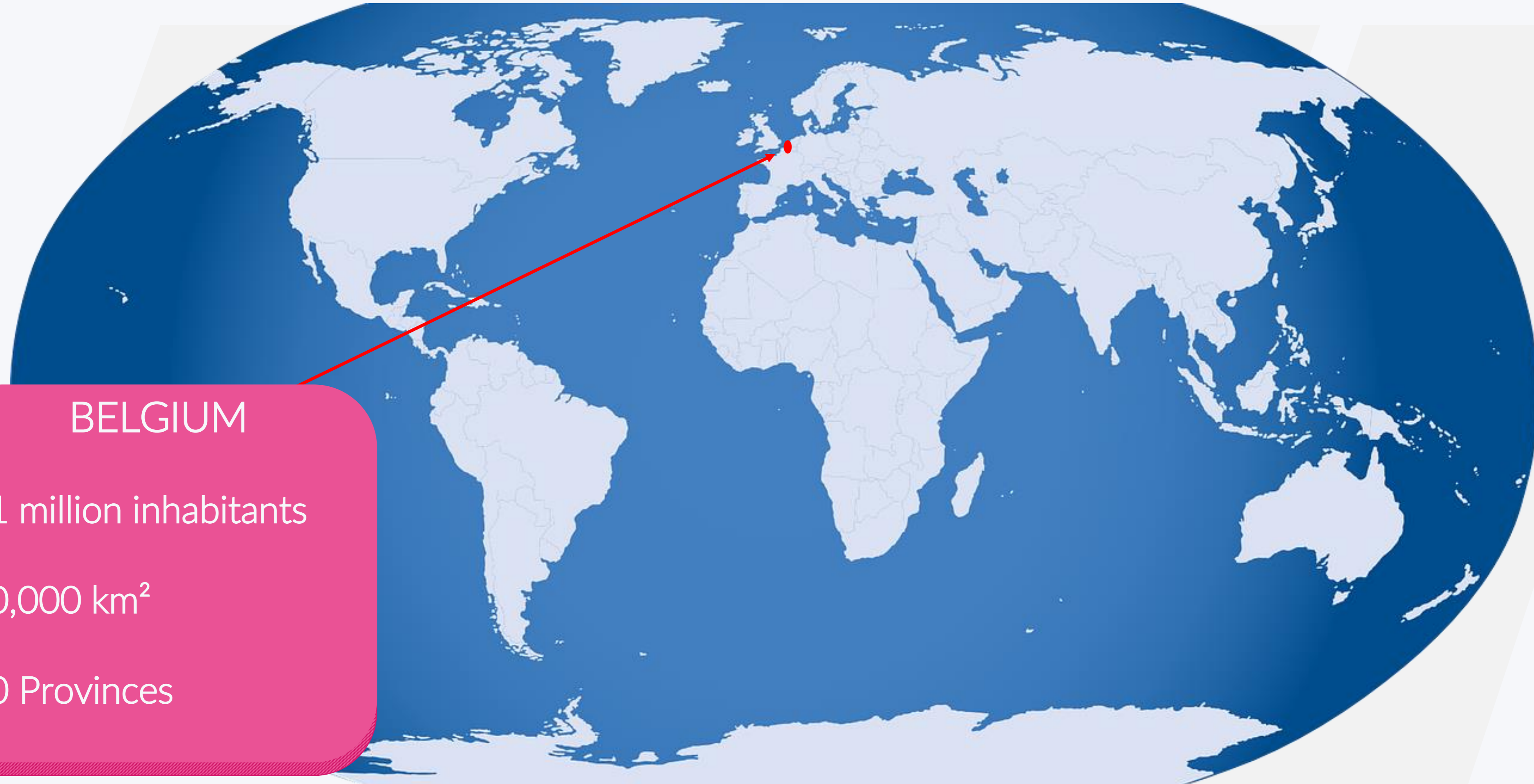
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Background |

1) BACKGROUND



BELGIUM

11 million inhabitants

30,000 km²

10 Provinces

1) BACKGROUND

● ● ●
Province of Luxembourg



French speaking
290 000 inhabitants



1) BACKGROUND

- Sports Campaign since 1991
- 8 physical fitness tests
- Between October and November
- 5000 pupils (aged 10-11) from elementary schools
- +/- 210 schools (2/3 of all elementary schools)



**Physical
fitness
evaluation
in the
Province of
Luxembourg**

2) PHYSICAL FITNESS EVALUATION IN THE PROVINCE OF LUXEMBOURG



Seat and reach Test



Cooper Test



Standing Long Jump Test



Vertical Jump Test



Modified Sit Up Test



20 m Sprint Test



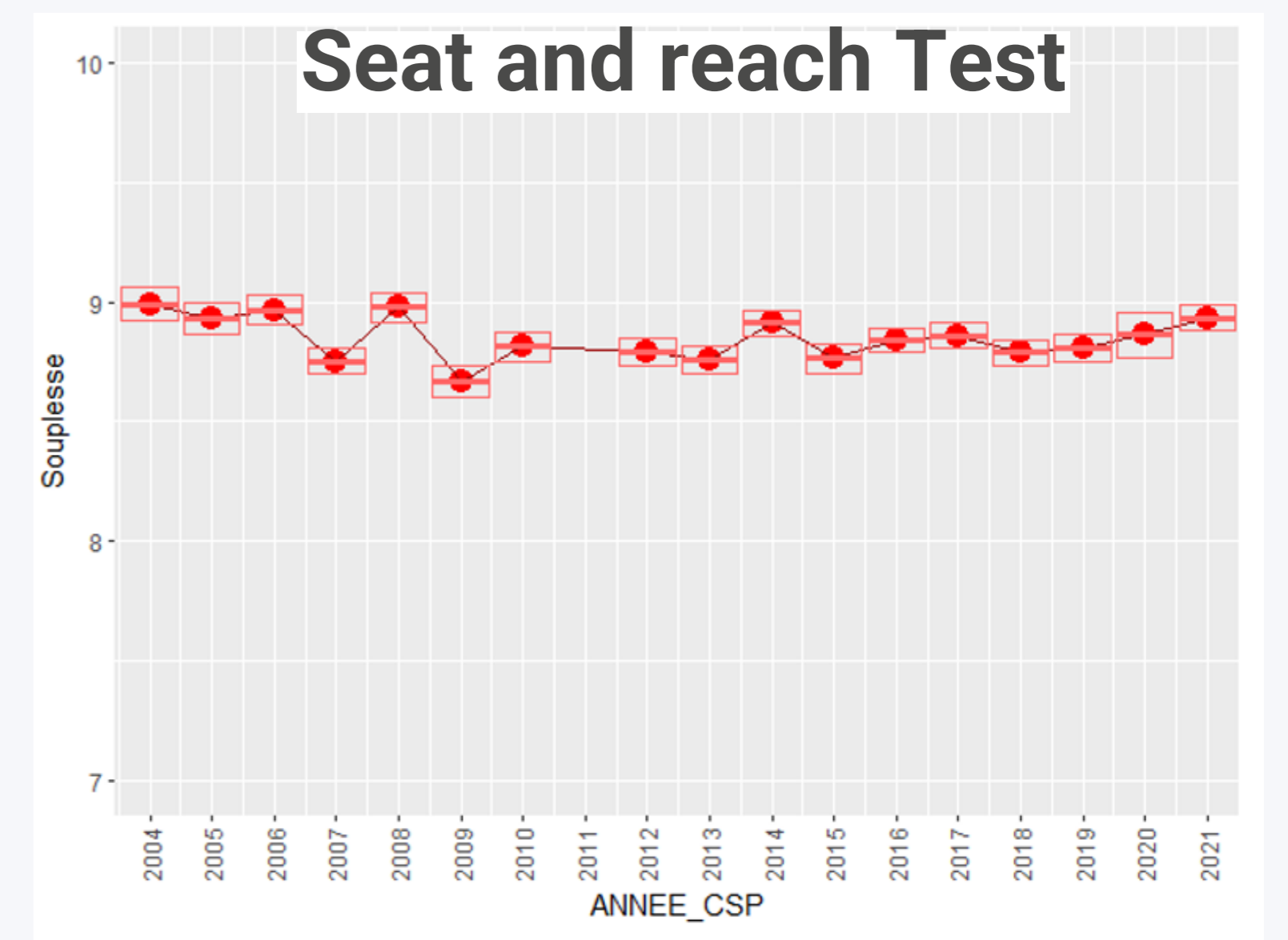
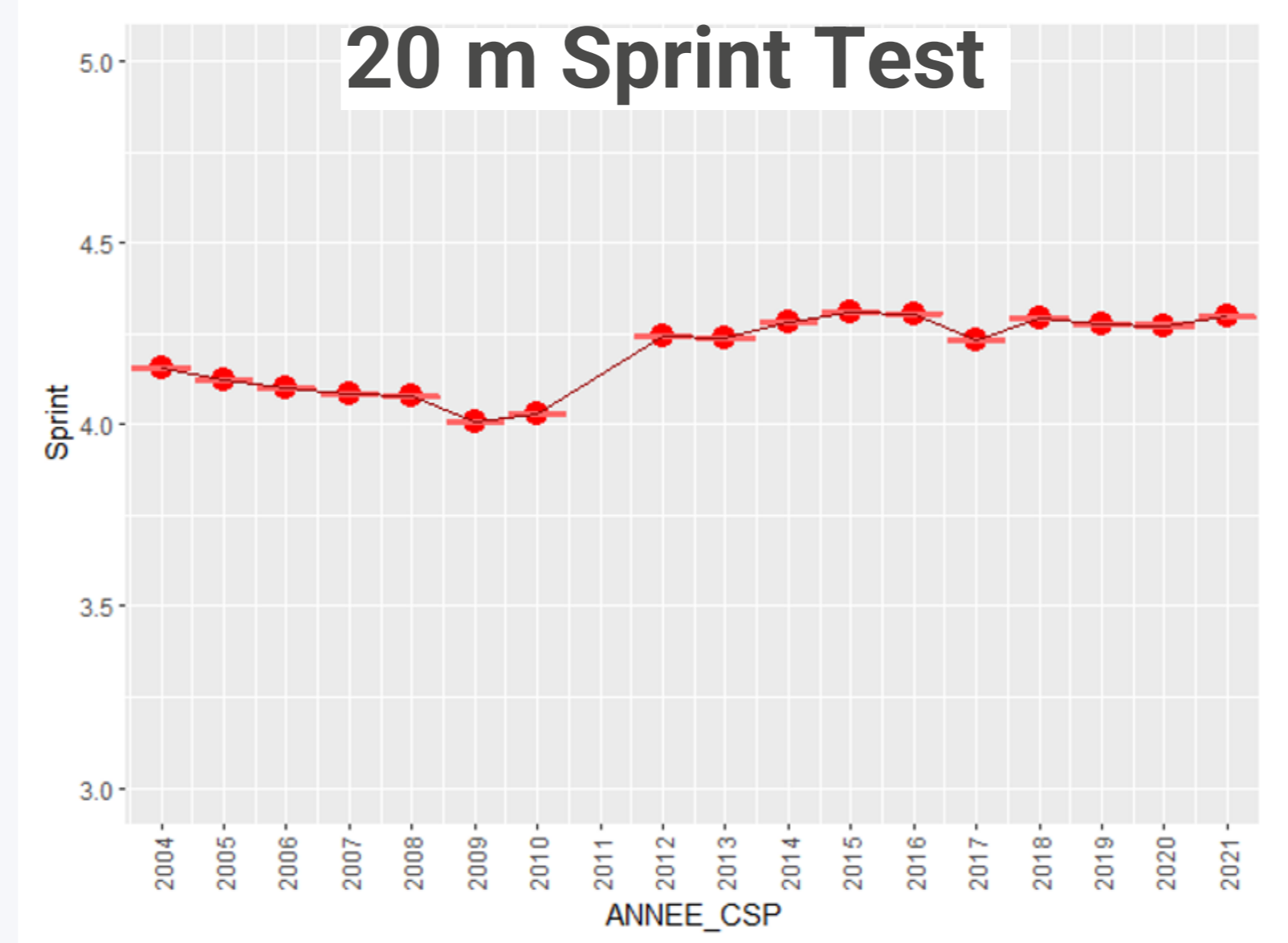
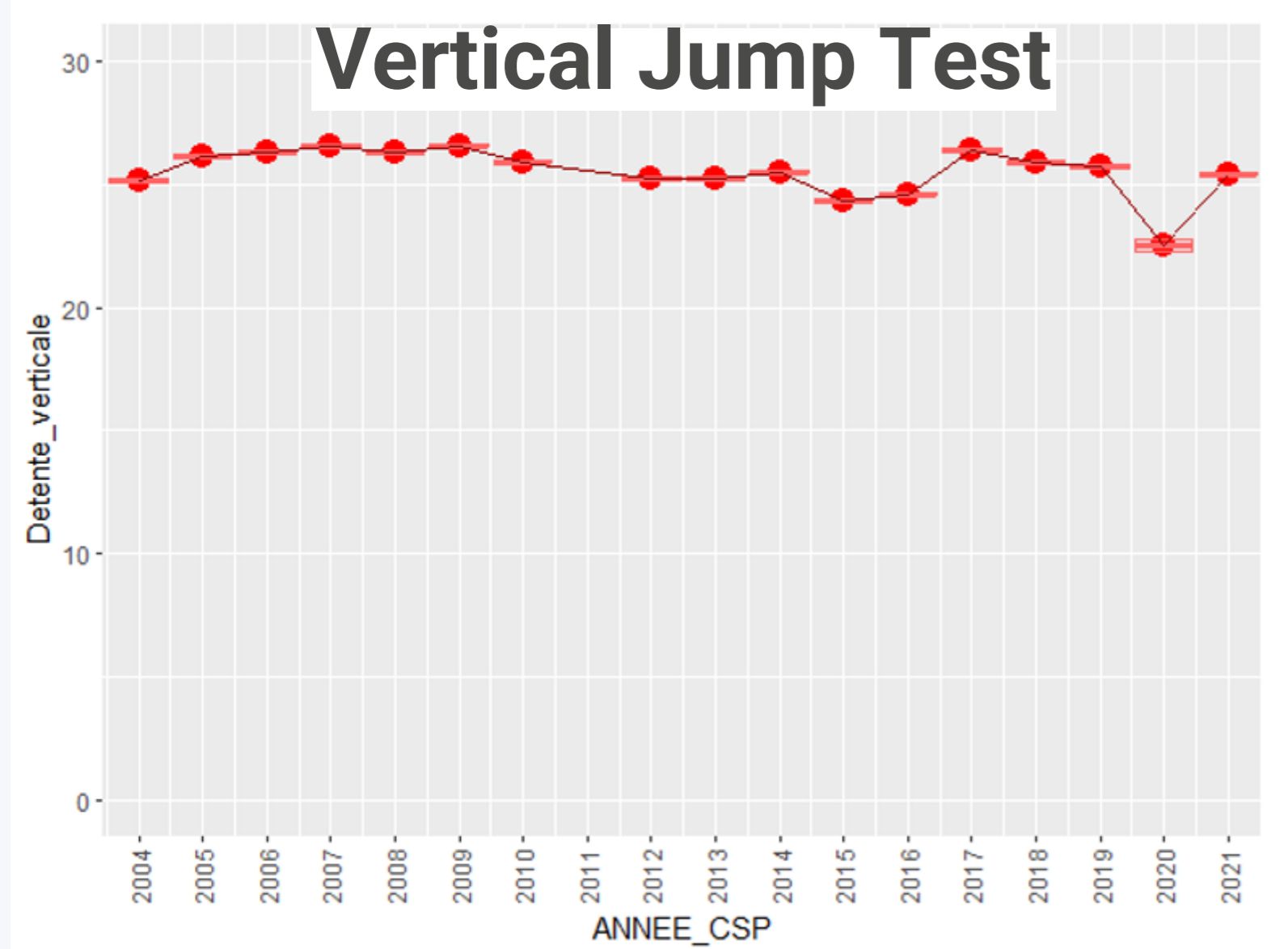
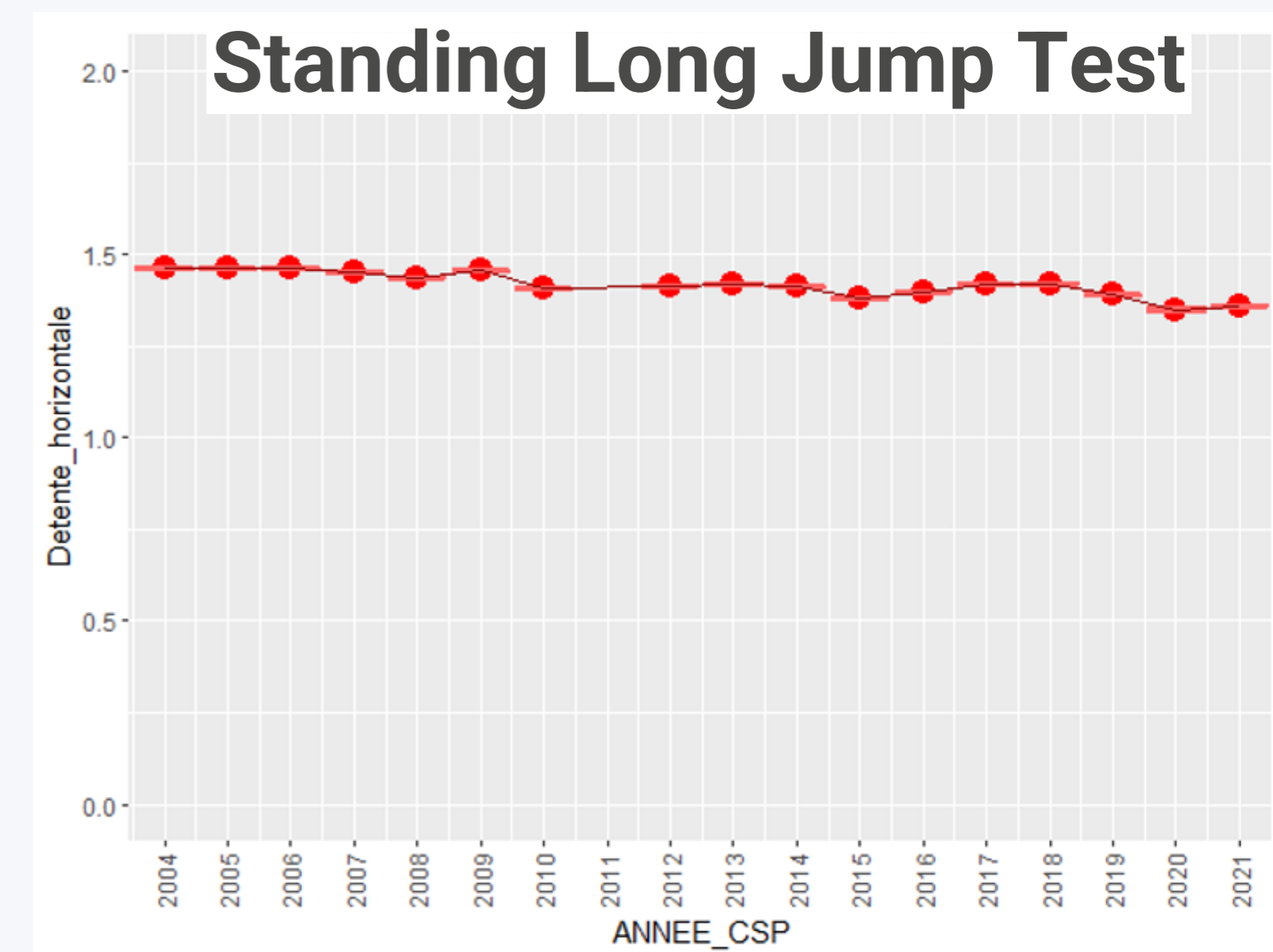
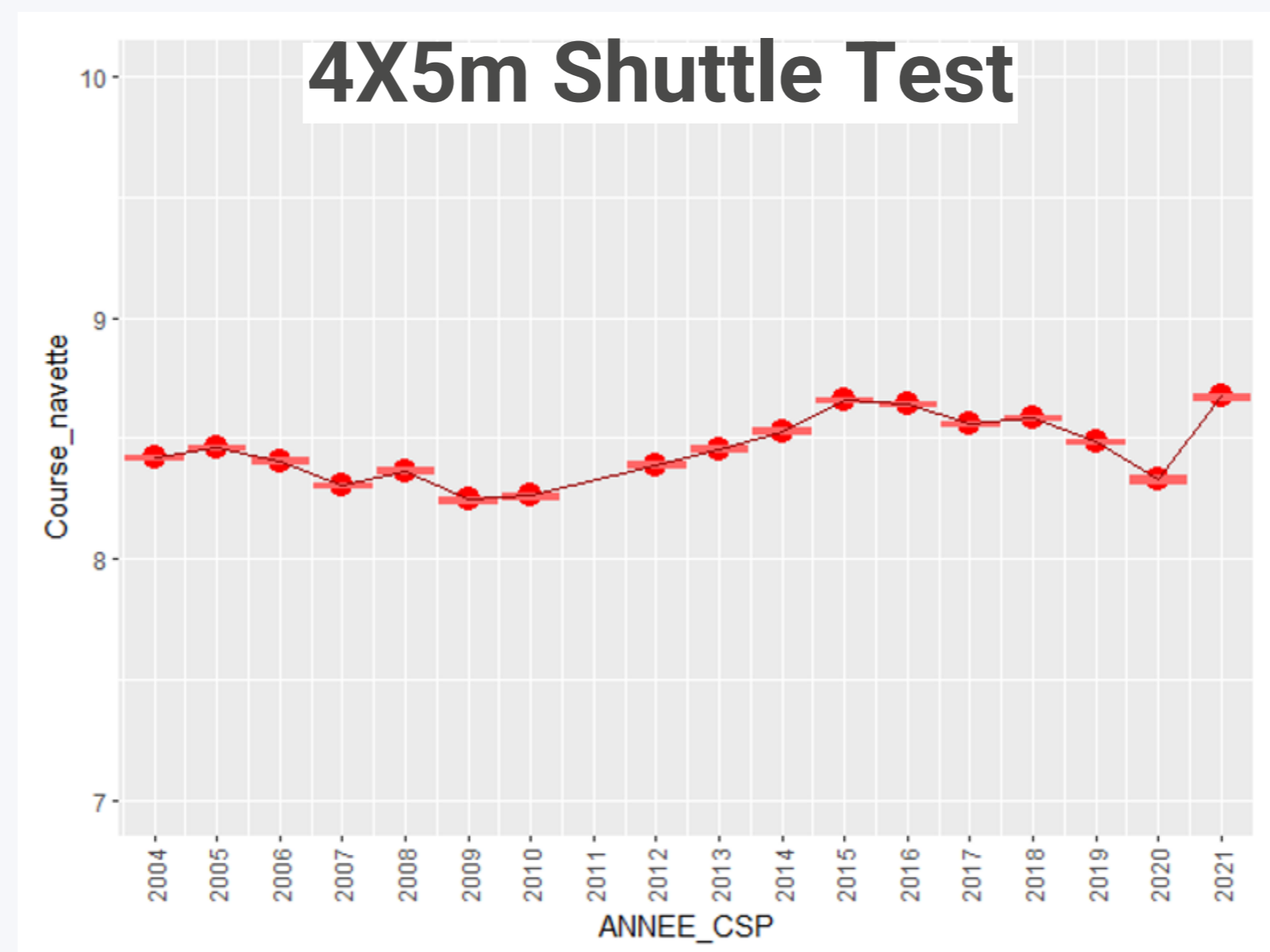
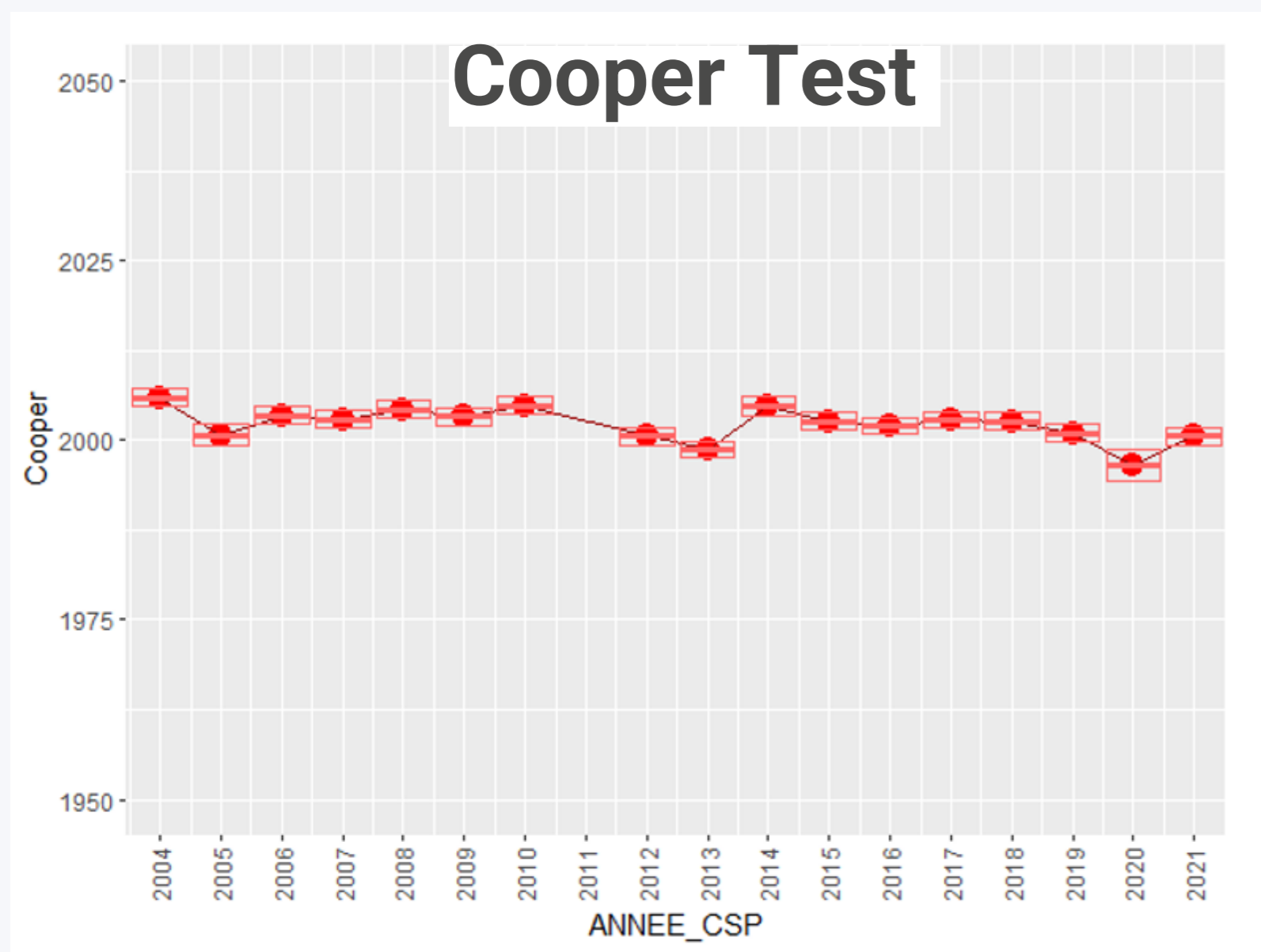
Seated Medicine Ball Throw Test



4X5m Shuttle Test



2) PHYSICAL FITNESS EVALUATION IN THE PROVINCE OF LUXEMBOURG



Limitations of sports campaign evaluation

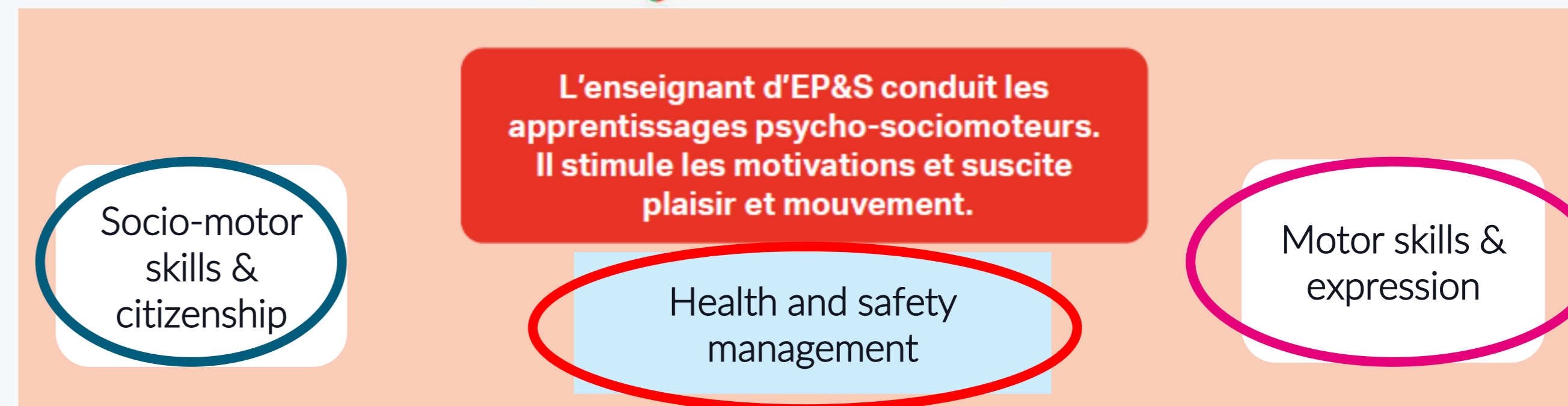
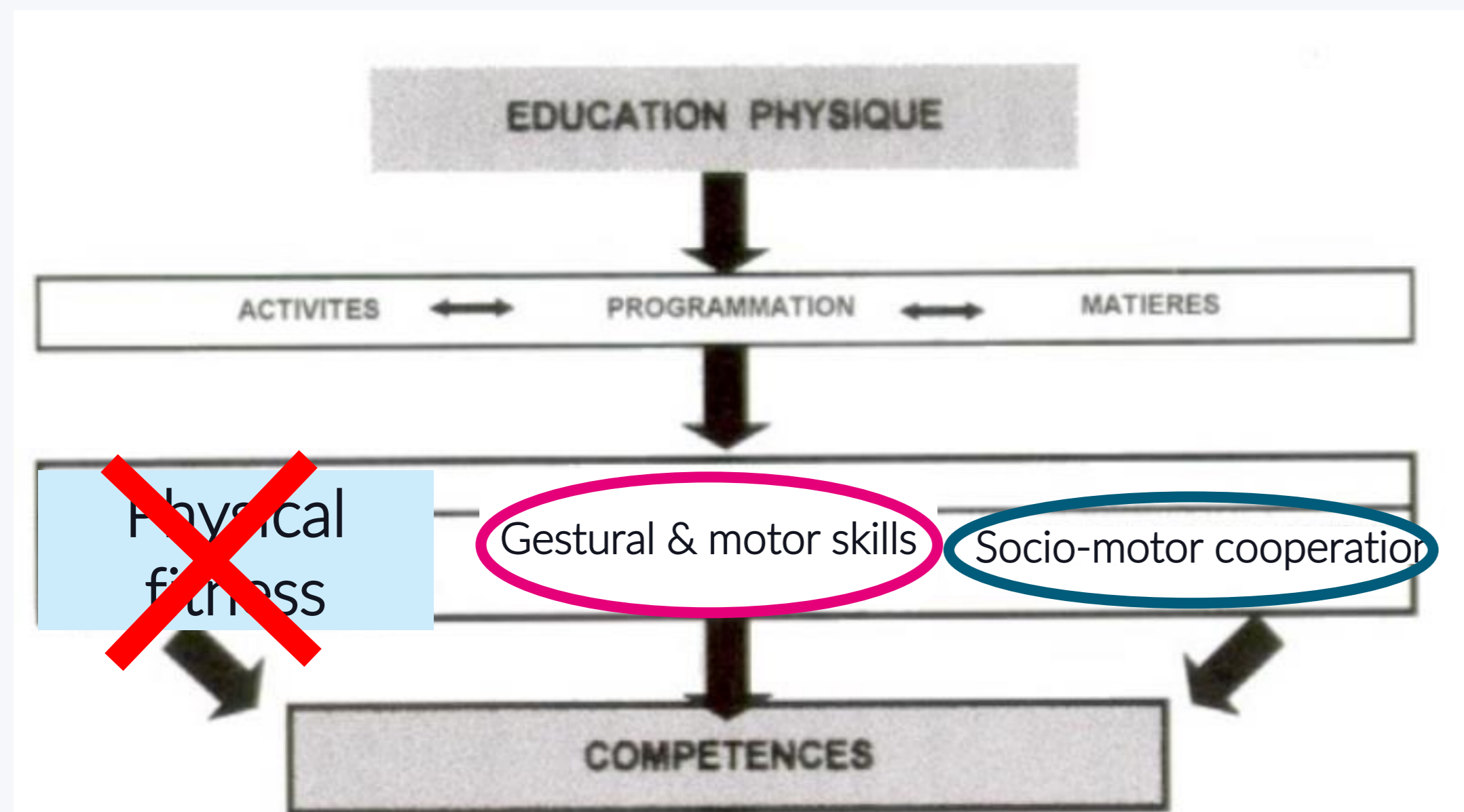
3) LIMITATIONS OF SPORTS CAMPAIGN EVALUATION



- Physical fitness assessment & performance tests
- The best participants receive medals
- No follow up between grade 5 and 6
- Tests not adapted to new education programs

3) LIMITATIONS OF SPORTS CAMPAIGN EVALUATION

Comparisons between previous and new education programs

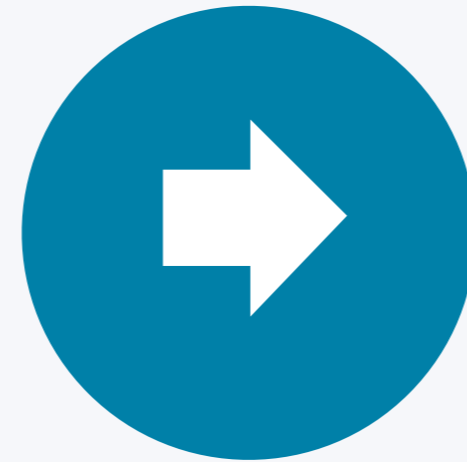


3) LIMITATIONS OF SPORTS CAMPAIGN EVALUATION



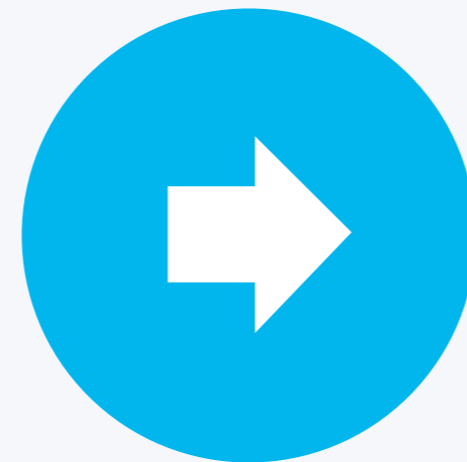
From physical fitness assessment

8 Physical fitness tests



To Physical literacy assessment

Assessment of all domains
of physical literacy



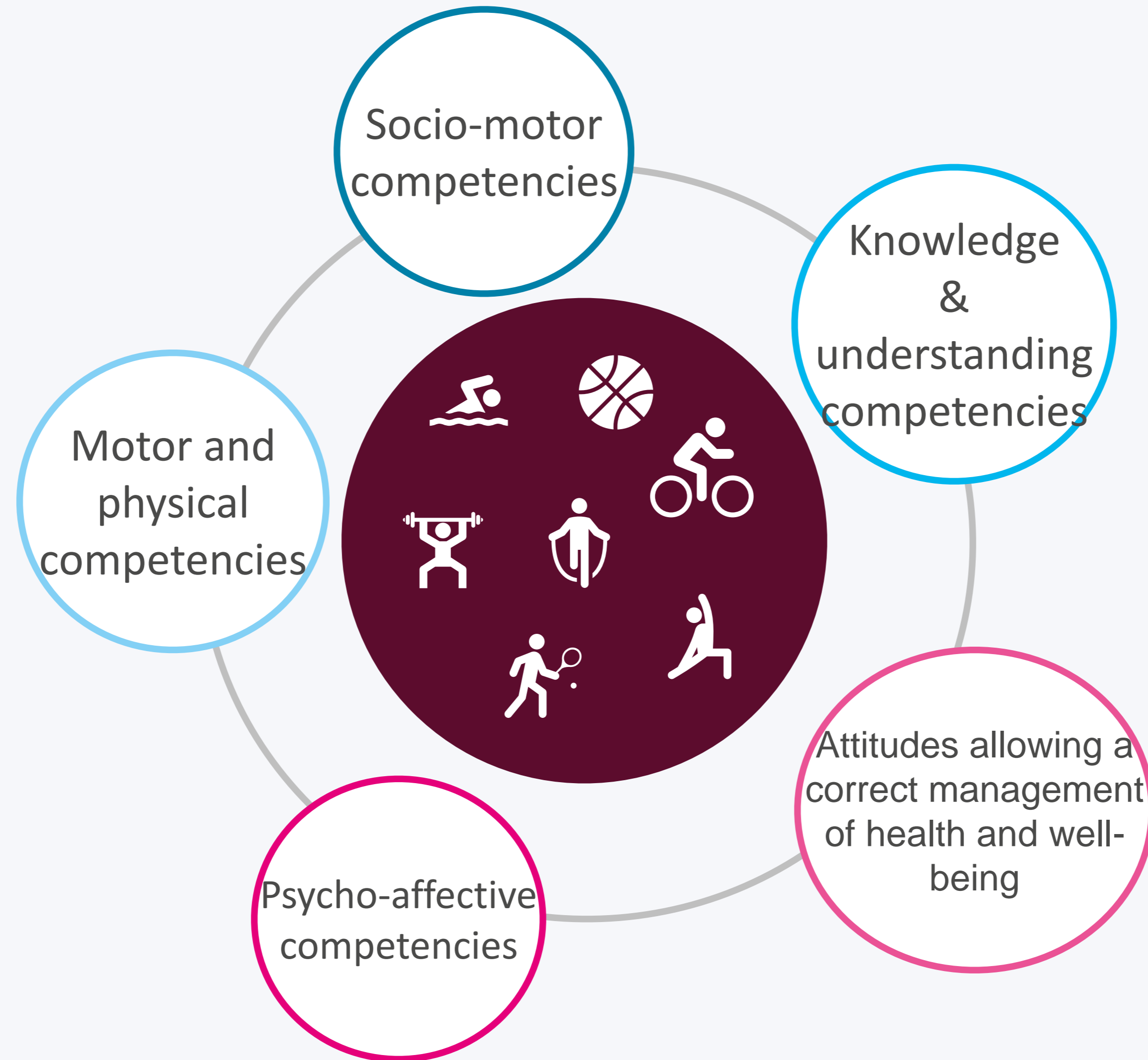
To new education programs

Pedagogical tool for PE
teachers

3) LIMITATIONS OF SPORTS CAMPAIGN EVALUATION



Physical literacy



3) LIMITATIONS OF SPORTS CAMPAIGN EVALUATION

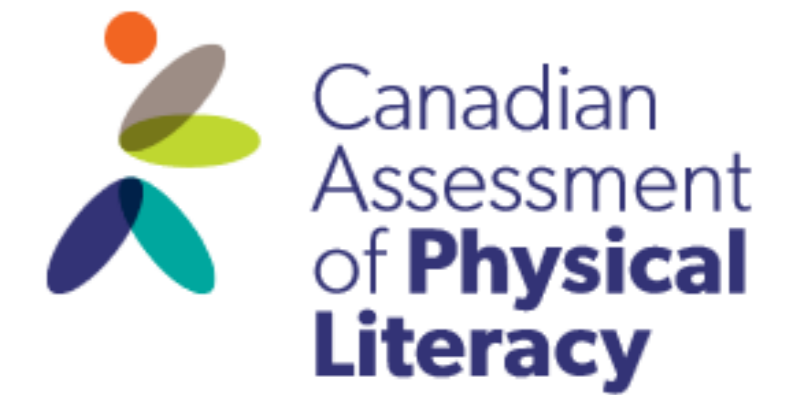


Is that possible to apply a physical literacy assessment tool, at school, for pupils who participated in the campaign ?



**Physical
literacy
assessment
tool**

4) PHYSICAL LITERACY ASSESSMENT TOOL

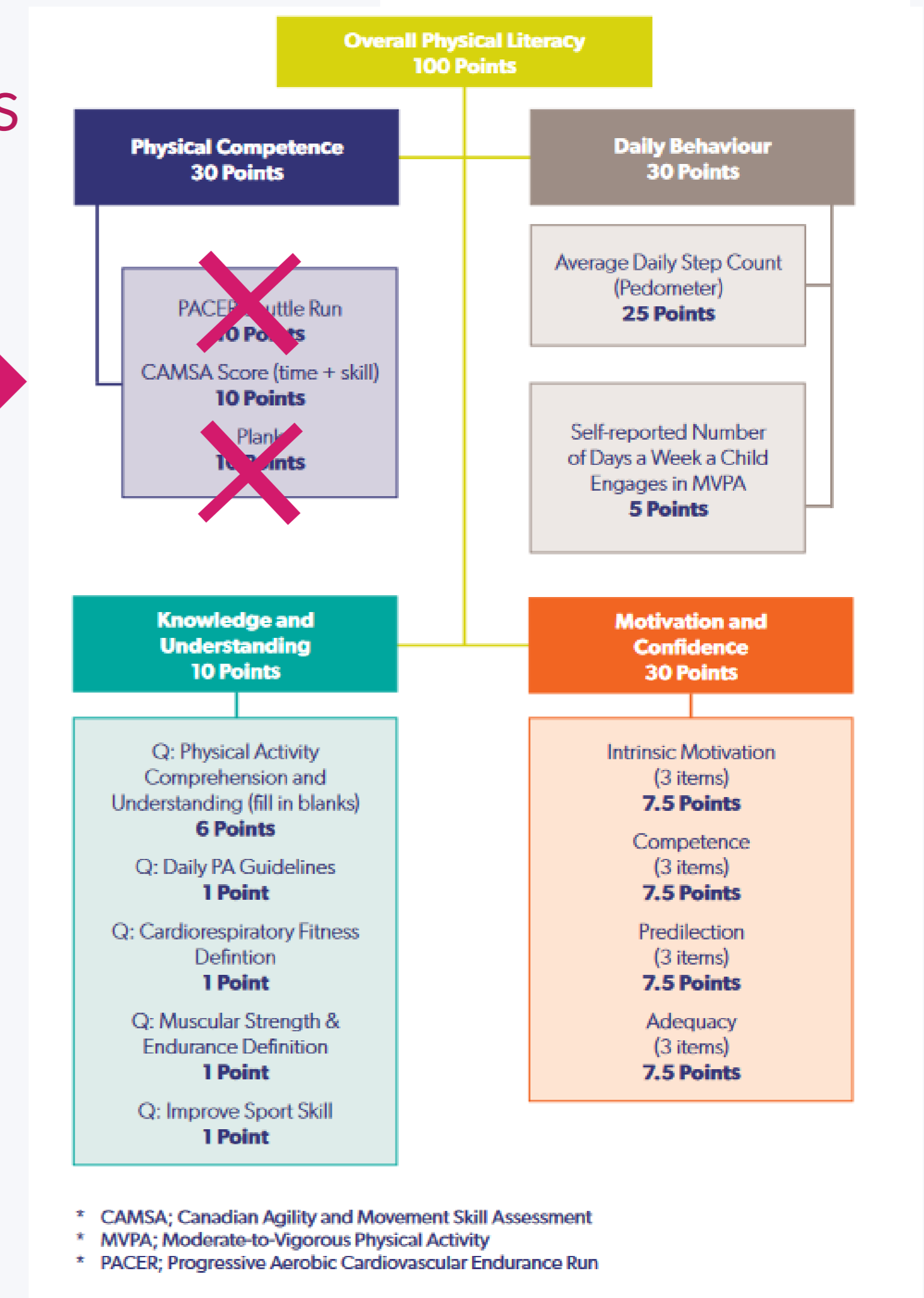


Pilot Study

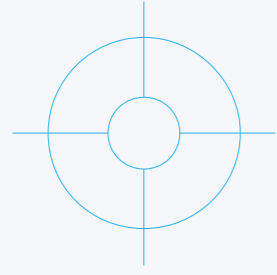
8 physical fitness tests

Application of an existing tool:
Canadian Assessment of Physical Literacy, Second Edition (CAPL-2)
(Longmuir *et al.*, 2018)

- Assessment of all 4 domains of physical literacy (Edwards *et al.*, 2017)
- Scientific publications (Gunnell *et al.*, 2018), (Longmuir *et al.*, 2018), (Li *et al.*, 2020)
- Available in French
- Detailed manual for CAPL-2 administration



Pilot Study



Purpose

The first aim was to examine the reliability of the CAPL-2 and physical fitness tests.

The second aim was to explore links between CAPL-2 tests and 8 physical fitness tests

4) PHYSICAL LITERACY ASSESSMENT TOOL



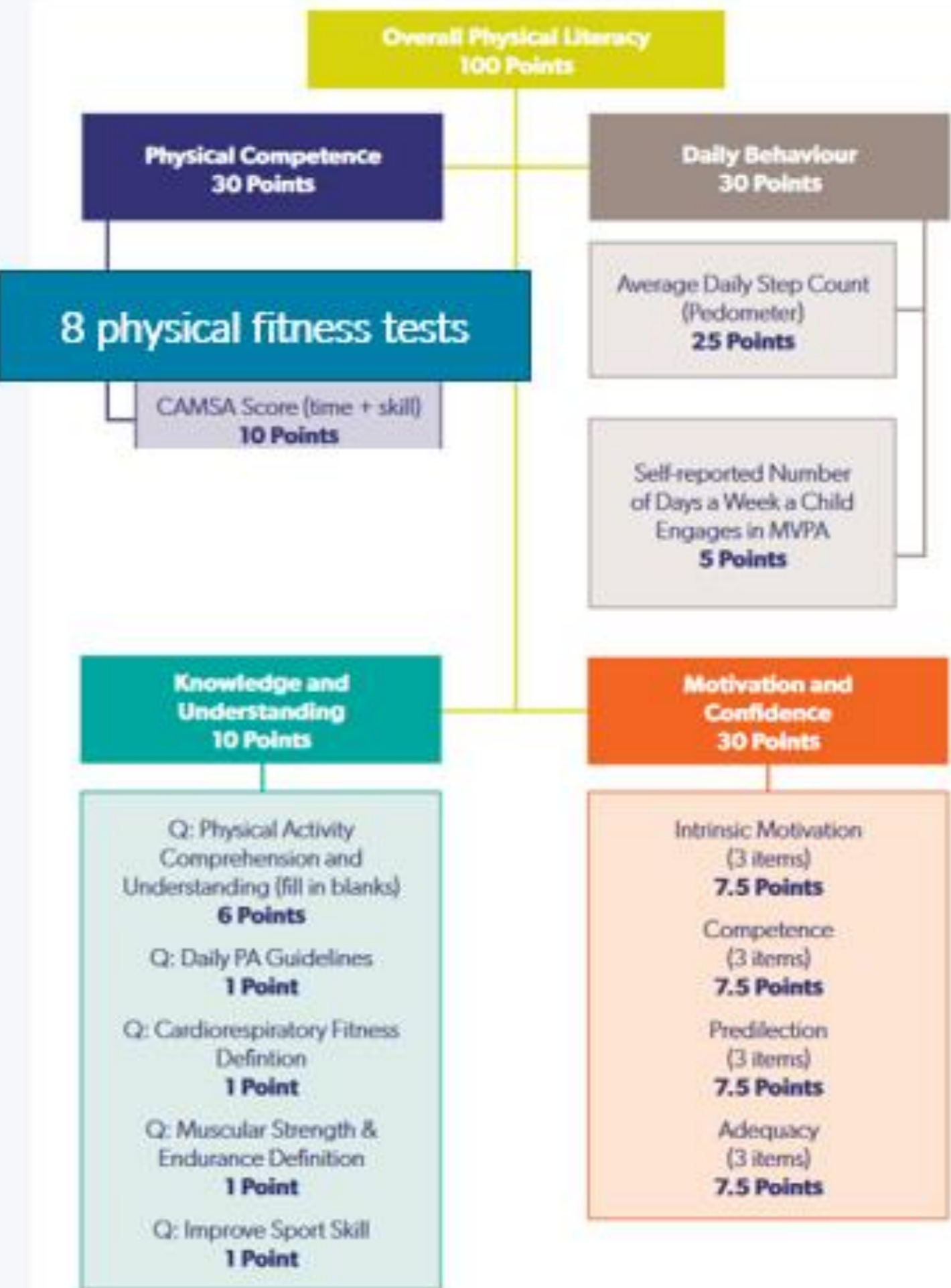
Methods

129 pupils in grade 5 and 6 (10-11 years old)

4 schools of the Province Luxembourg



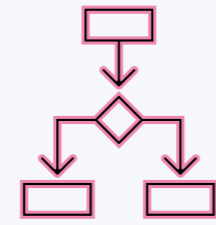
Measures



4) PHYSICAL LITERACY ASSESSMENT TOOL



Pilot Study

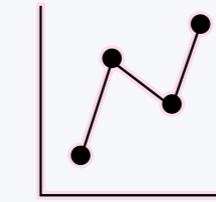


Procedures

1st school visit: Questionnaire
(external evaluator)

2nd school visit: CAMSA (external
evaluator + PE teacher)

3rd school visit: Pedometers (external
evaluator)



Data analysis

1) Internal consistency (Cronbach's Alpha)

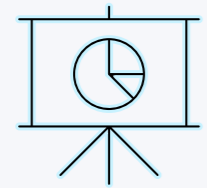
- 8 physical fitness tests
- CAMSA (agility and motor skills assessment)
- Knowledge/understanding questionnaire
- Motivation/confidence questionnaire

2) Correlation analysis

4) PHYSICAL LITERACY ASSESSMENT TOOL



Pilot Study



Results

1) Internal Consistency: Cronbach's Alpha (α)

- 8 physical fitness tests: very low ($\alpha = -0,34$)
- CAMSA: low ($\alpha = 0,59$)
- Knowledge/understanding questionnaire: low ($\alpha = 0,60$)
- Motivation/confidence questionnaire: good ($\alpha = 0,88$)

4) PHYSICAL LITERACY ASSESSMENT TOOL

2) Pearson's Correlation : Relationships between 8 physical fitness tests and tests from CAPL-2



		Modified sit up test	Seated Medicine ball throw test	Standing long jump test	Vertical jump test	20m sprint test	4*5m shuttle test	Seat and reach test	Cooper test
Mean Step Counts	r	0.38168	-0.00755	0.33892	0.36107	-0.44548	-0.40062	-0.12057	0.52877
	p	<.0001	0.9388	0.0004	0.0001	<.0001	<.0001	0.2183	<.0001
	N	106	106	106	106	106	106	106	106
Intrinsic Motivation	r	0.23798	-0.07824	0.21323	0.13837	-0.42597	-0.46963	0.00628	0.51576
	p	0.0131	0.4209	0.0267	0.1533	<.0001	<.0001	0.9486	<.0001
	N	108	108	108	108	108	108	108	108
Competence for PA	r	0.21565	0.07984	0.29410	0.37319	-0.56715	-0.46232	0.02188	0.46829
	p	0.0250	0.4115	0.0020	<.0001	<.0001	<.0001	0.8222	<.0001
	N	108	108	108	108	108	108	108	108
Knowledge/ Understanding	r	0.11704	0.21199	0.23633	0.19454	-0.17456	-0.34746	0.05571	0.19073
	p	0.2212	0.0255	0.0125	0.0408	0.0669	0.0002	0.5614	0.0449
	N	111	111	111	111	111	111	111	111
CAMSA timing	r	-0.02692	0.05864	0.10457	0.06269	-0.05826	-0.05369	-0.24771	0.03412
	p	0.7821	0.5466	0.2815	0.5192	0.5492	0.5811	0.0097	0.7259
	N	108	108	108	108	108	108	108	108

r = correlation coefficient between (0,19 & 0,53) (-0,25 & -0,57)

Low correlation

Moderate correlation

(Schober et al., 2018) (Mukaka, 2012)

Discussion|

5) DISCUSSION

CAPL2: reliability & characteristics

Motivation/confidence questionnaire: $\alpha = 0,88$ good internal consistency (Terwee et al., 2007) Findings Gunnell et al., 2018 & Li et al., 2020

Characteristics:

- 4 subscales, with 3 items: poor to calculate Cronbach's α in each subscale.

Knowledge/understanding questionnaire: $\alpha = 0,60$ low internal consistency Findings Li et al., 2020

Characteristics:

- Weighting of scores: 4 multiple choice questions + 1 text with fill in 6 missing words
- Cultural context influence
- Not adapted to Belgian physical education & health program

CAMSA (agility and motor skills assessment): $\alpha = 0,59$ low internal consistency

Characteristics:

- Results do not respect the validated protocol (Longmuir et al., 2017)
- 1 practice trial + 1 measured trial, evaluation grid completed by 2 examiners
- Pupils' help

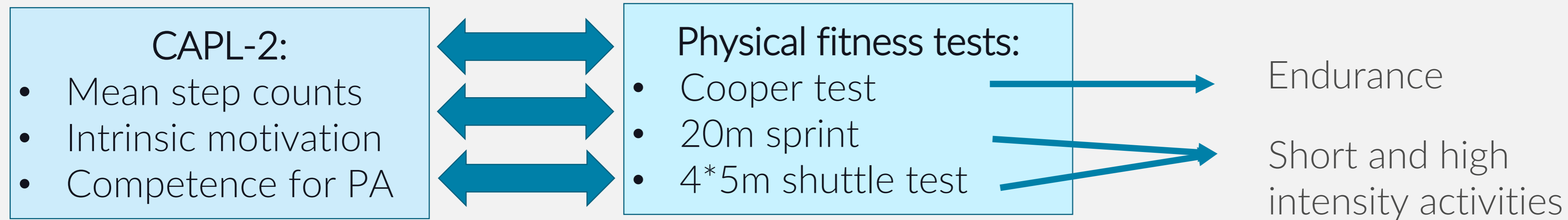


5) DISCUSSION



Pearson Correlation Coefficients

Moderate correlation coefficients:



Limits:

- Pedometers versus various intensity of PA
- Intrinsic motivation versus external motivation (PE teachers, parents)
- Physical and social environments
- Psycho-affective skills (enjoyment, engagement, self perception of emotions)
- Small sample n=129 (n=87 all evaluations)

5) DISCUSSION



Difficulties encountered in school context

- **Knowledge/understanding questionnaire**

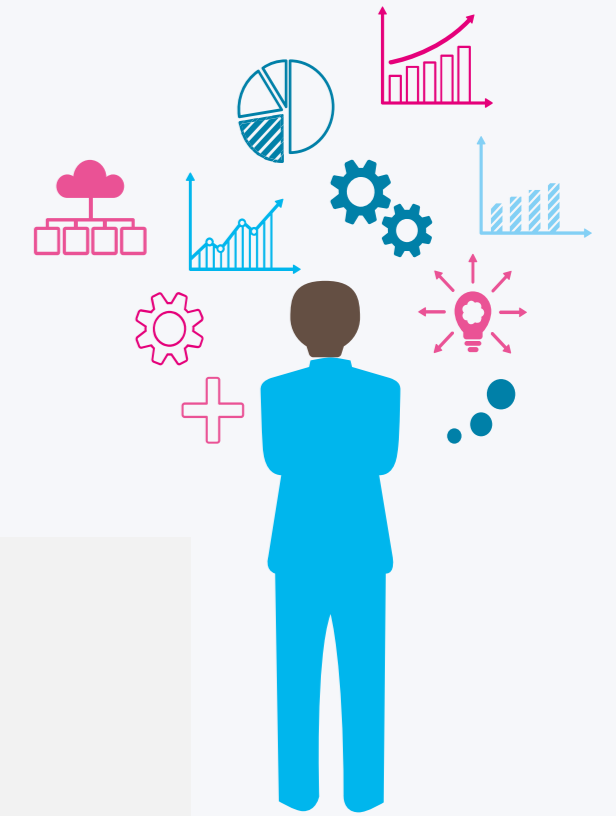
Content questionnaire limited

Active daily behaviour: in line with the new PE&H program

- **CAMSA: Agility and motor skills assessment**

Too many parameters to control for 1 teacher,

Not designed for PE teachers



Conclusion & Perspectives

6) CONCLUSION AND PERSPECTIVES



1) Conclusion:

Not possible to apply the CAPL-2 in Belgian school context

Good reliability only in motivation and confidence questionnaire

A few moderate correlations between CAPL-2 and 3 physical fitness tests

Contextual/practical difficulties to implement the CAPL-2 in Belgian schools

2) Perspectives:

To explore database on physical fitness

To involve PE teacher in physical literacy assessment

To be focused on PE teacher's adherence and provide a pedagogical tool

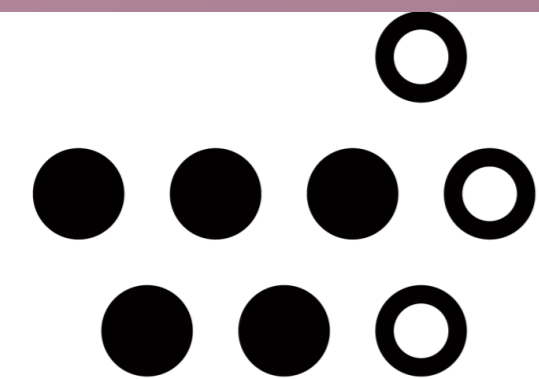
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THANK YOU FOR YOUR ATTENTION

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HAUTE ÉCOLE ROBERT
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