

Adaptive behaviour assessment in the classification system for athletes with intellectual impairment – do we need it?

K. McCulloch, D. Van Biesen*, I. Noens
& Y. Vanlandewijck



What is adaptive behaviour?

Conceptual



Communication
Function Academics
Self Direction

Social



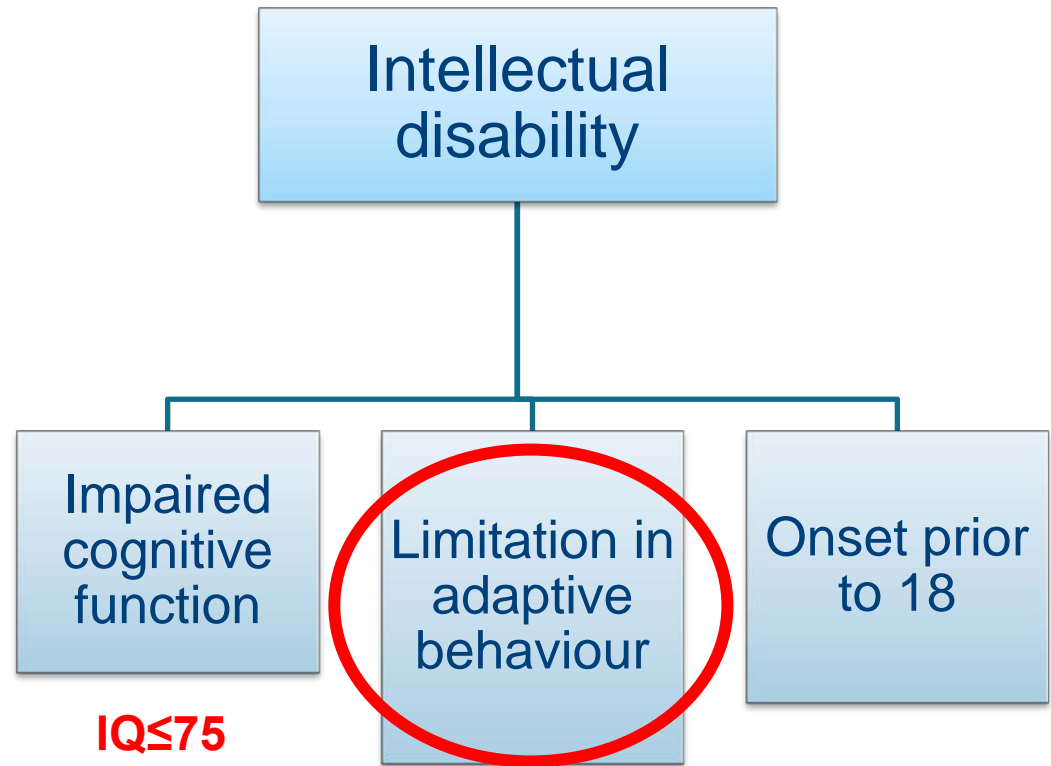
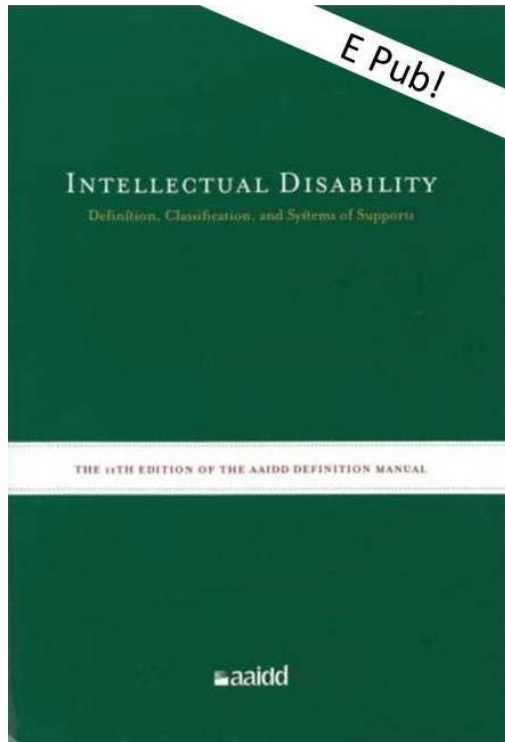
Leisure
Social

Practical

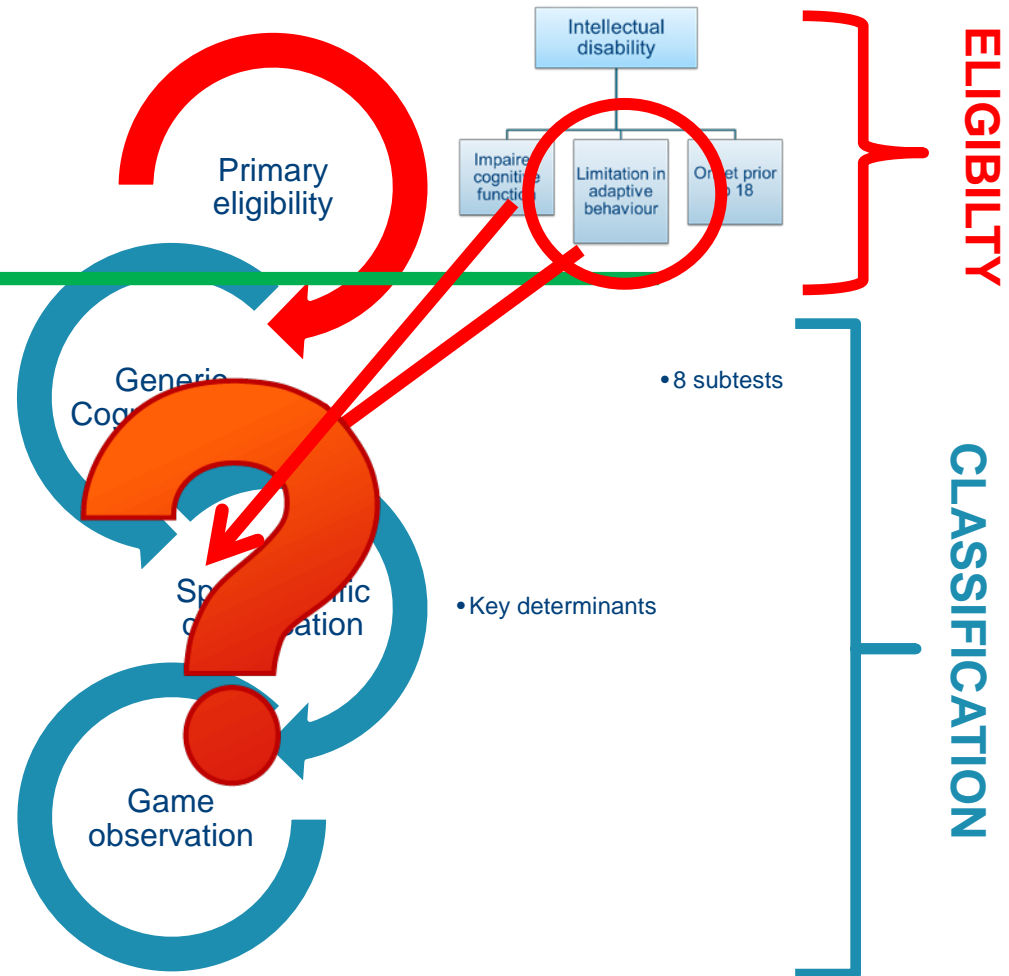


Community Use
Home/School Living
Health & Safety
Self-Care
Work

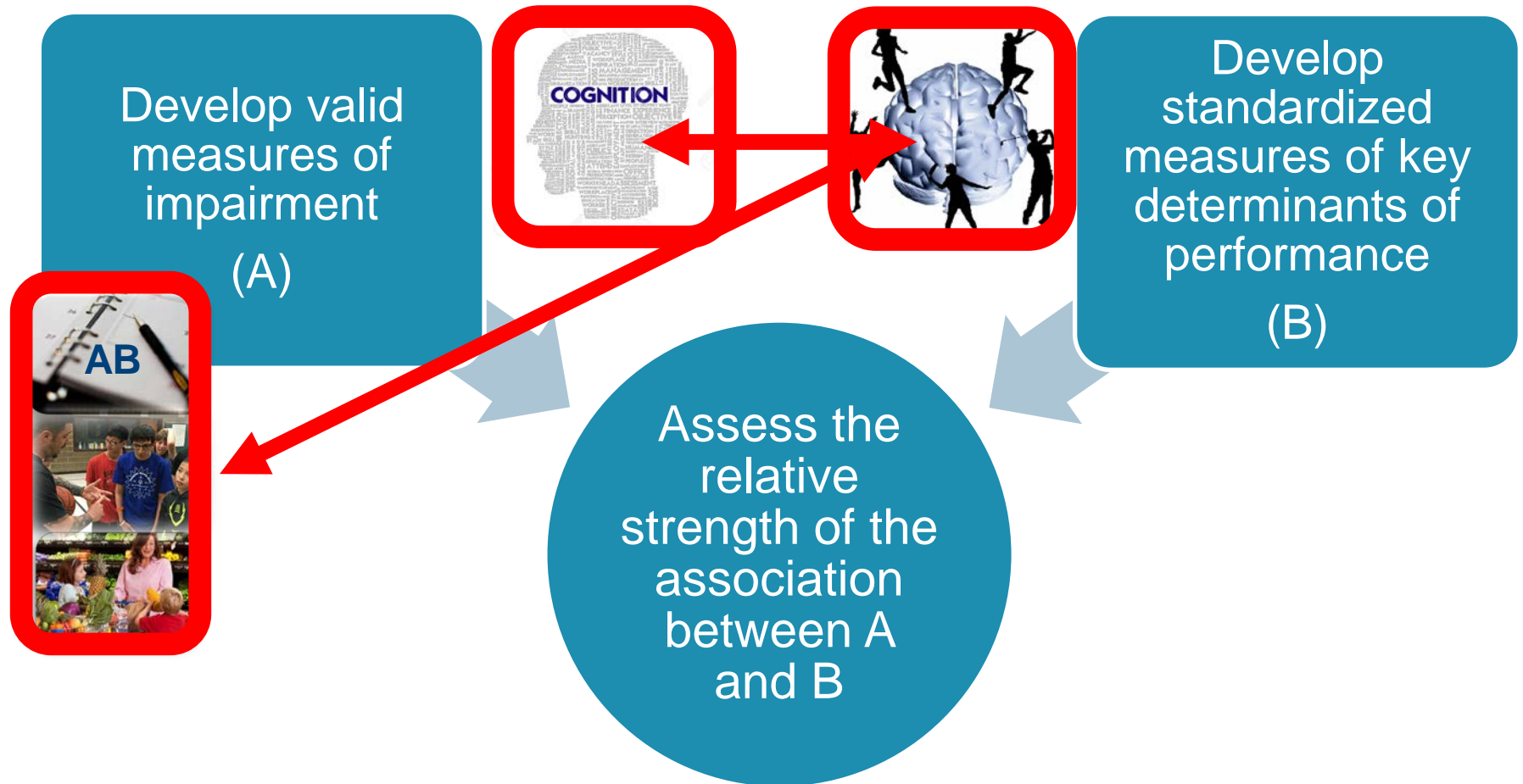
Intellectual disability: definition & diagnosis



Eligibility and classification II-athletes



Evidence-based classification



Is there an impact of AB on key determinants of sport performance?



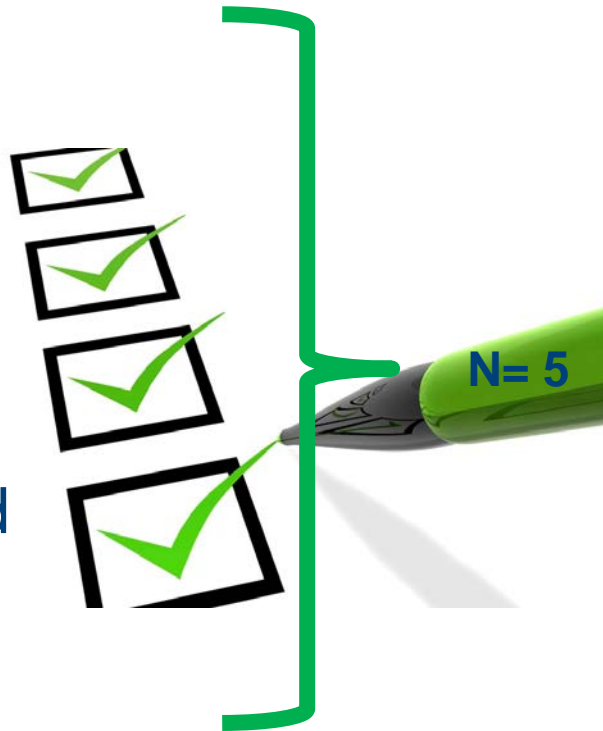
Key question #1: how will AB be assessed?

AB assessment



N= +200
options
available

- Theoretically & conceptually driven
- Valid & reliable
- Standardized on people with ID



1. Vinelands Adaptive Behaviour Scales – 2nd Edition (**VABS-II**)
2. Scales of Independent Behaviour – Revised (**SIB-R**)
3. Adaptive Behaviour Assessment System – 3rd Edition (**ABAS-3**)
4. Diagnostic Adaptive Behaviour Scale (DABS)
5. Adaptive Behaviour Scale – School version (ABS-S)

Key question #2: what is currently known about the relationship between AB and sport performance?

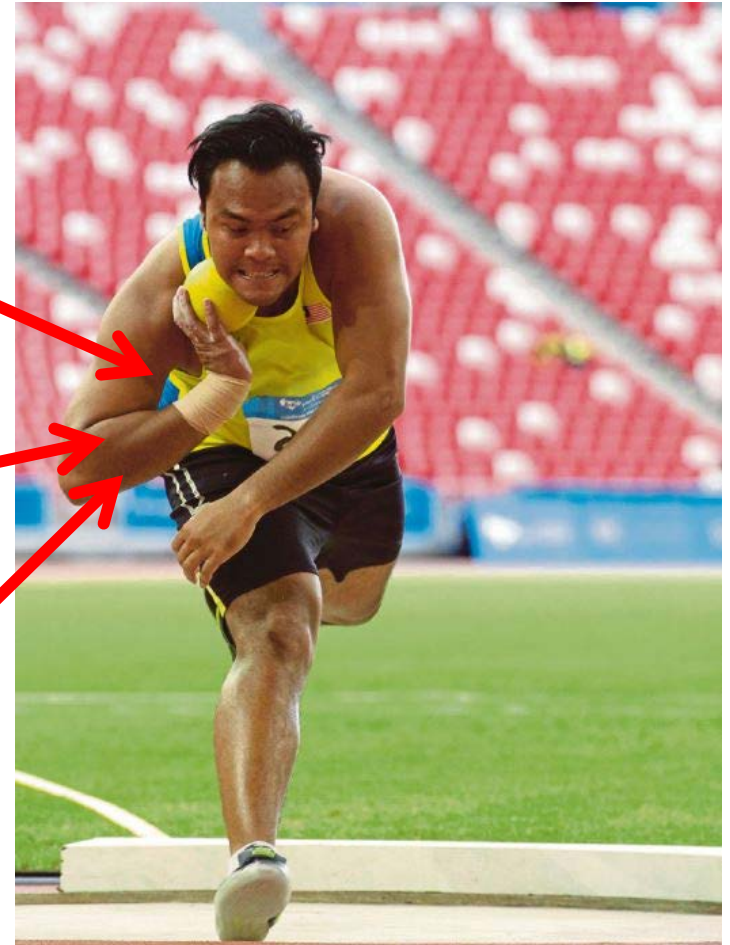
Communication
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Leisure
Social



Community Use
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Health & Safety
Self-Care
Work



Study 1: systematic review

- Search methodology

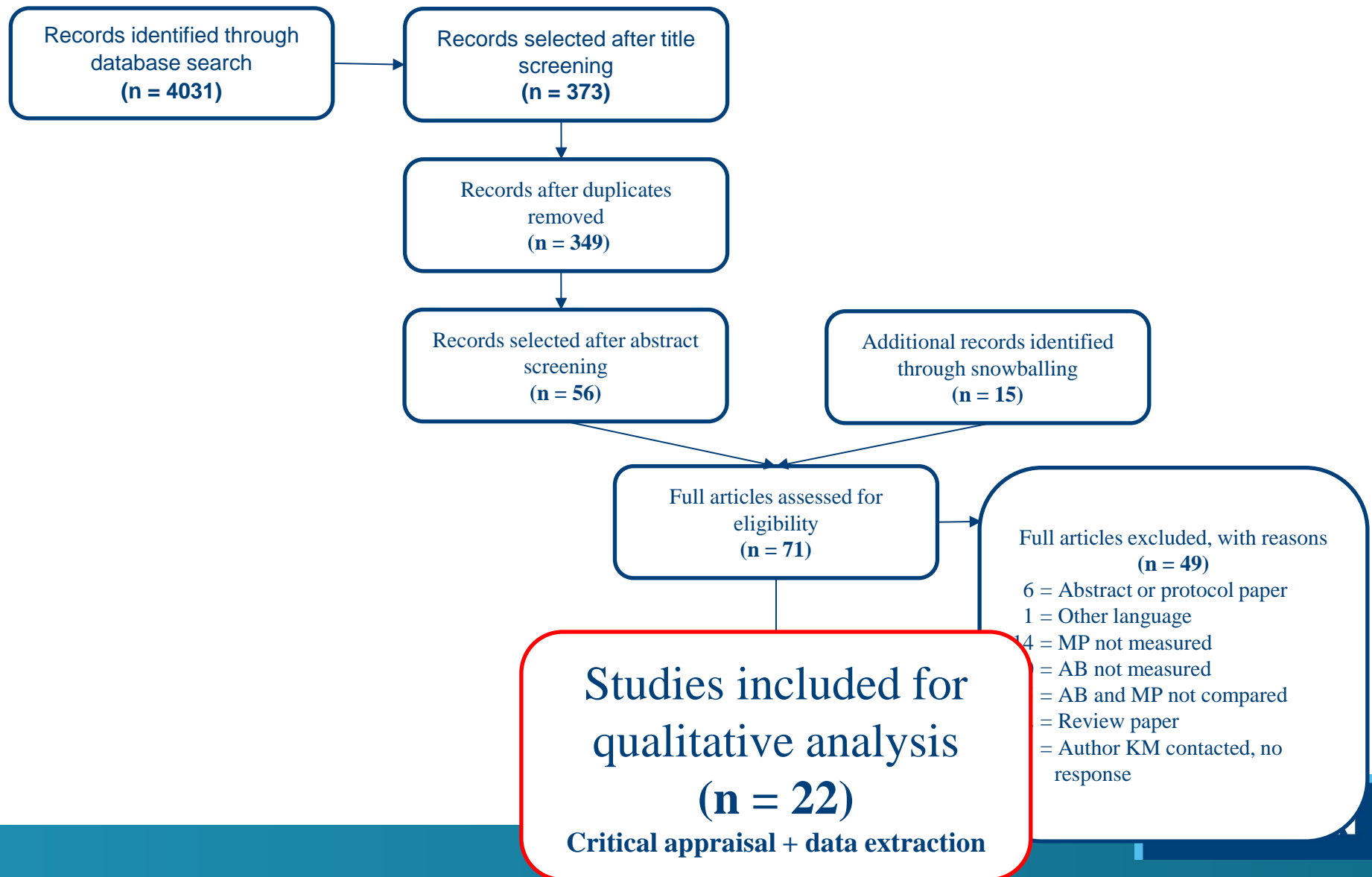
Databases: EBSCO (Sportdiscus, PsychINFO, CINAHL), EMBASE, Medline and Cochrane Database

Search terms: 'adaptive behaviour' or 'adaptive behavior' AND 'exercise' or 'sport' or 'physical activity' or 'fitness' or 'motor' or 'movement' or 'physical education'

Inclusion criteria: Open population - motor proficiency measured - AB measured by one of the five AAIDD accepted tools – open content - experimental and observational study designs

Exclusion criteria: Only the motor domain of AB measured - review articles, conference papers, position statements - non-human participants, 1996-2016

Results



Results

4

18

Study Design	Number of studies
Randomised Controlled Trial	2
Quasi Experimental	2
Cohort Studies	4
Case Control Studies	1
Cross-Sectional Studies	13

Results

Study	Score	Quality of Evidence
JBI Critical Appraisal Checklist for Randomized Controlled Trials (max. score = 13)		
Bremer et al., 2015	6	Low
Gabriels et al., 2015	8	Moderate
JBI Critical Appraisal Checklist for Quasi Experimental Studies (max. score = 9)		
Ajzenman et al., 2013	5	Low
Gabriels et al., 2012	8	High
JBI Critical Appraisal Checklist for Cohort Studies - control (max. score = 12)		
Leonard et al., 2015	7	Low
JBI Critical Appraisal Checklist for Cohort Studies – no control (max. score = 12)		
Howe et al., 2016	7	Low
Tan et al., 2013	3	Low
Vos et al., 2013	2	Low
JBI Critical Appraisal Checklist for Case Control Studies (max. score = 10)		
Fjortoft et al., 2015	7	Moderate
JBI Critical Appraisal Checklist for Cross-Sectional Studies (max. score = 9)		
Chien et al., 2012	5	Low
Donkervoort et al., 2009	6	Moderate
Fu et al., 2015	6	Moderate

Low ($\leq 59\%$) = 10

Medium (60-79%) = 9

High ($\geq 80\%$) = 3

#	Citation	Participants	Country	Adaptive Behaviour		Motor Proficiency	
				Test	Domains	Test	Component
1	Bremer 2015	8 ASD children	CA	VABS-II	all	PDMS-2	Motor function
2	Gabriels 2015	116 ASD children	US	VABS-II	all	MABC-2	Gross motor function
3	Ajzenman 2013	7 ASD children	US	VABS-II	all	BOT-2	Motor function
4	Gabriels 2012	58 ASD children	US	VABS-II	all	CoM, CoP	Postural control
5	Leonards 2015	101 ASD children	US	VABS-II	all	BOT-2	Motor function
6	Howe 2016	126 Premature					
7	Tan 2014	424 CP children					
8	Vos 2013	424 CP children					
9	Fjortoft 2015	69 CP children					
10	Chien 2014	153 DD children	AU				
11	Donkervoort 2007	103 CP children					
12	Fu 2015	125 WS adults					
13	Fulceri 2015	35 ASD children					
14	Green 2009	101 ASD children					
15	Jasmin 2009	35 ASD children					
16	Jirikowic 2008	51 FASD children					
17	Leung 2011	108 DD children					
18	MacDonald 2013	233 ASD children	US	VABS	all	MSEL	Motor function
19	Mattard 2013	30 ADHD children	CA	ABAS-II	all	BOT-2	Motor function
20	Pace 2015	20 ASD children	FR	VABS	all	Eurofit	Physical fitness
21	Tukel 2015	18 Apraxia children	SW	ABAS-II	all	VMPAC	Verbal motor function
						BOT-2	Motor function
22	Voorman 2006	110 CP children	NL	VABS	all	GMFM	Gross motor function
						GMFCS	Gross motor function

ASD = 10 (714)

CP = 5 (1,130)

Other = 7 (611)

II specific = 0

Total = 22 (2,455)

#	Citation	Participants	Country	Adaptive Behaviour		Motor Proficiency	
				Test	Domains	Test	Component
1	Bremer 2015	8 ASD children	CA	VABS-II	all	PDMS-2	Motor function
2	Gabriels 2015	116 ASD children	US	VABS-II	all	MABC-2	Gross motor function
						BOT-2	Motor function
3	Ajzenberg 2015			VABS-II	all	CoM, CoP	Postural control
4	Gabriels 2015			VABS-II	all	BOT-2	Motor function
5	Leahy 2015			VABS-II	Conceptual	MSEL	Motor function
6				VABS-C	all	MABC	Gross motor function
						AIMS	Motor function
7				VABS	Social	GMFCS	Gross motor function
8				VABS	Practical	GMFCS	Gross motor function
9	Fuchs 2015			VABS-II	all	MABC-2	Gross motor function
10	Cassidy 2015		W	VABS-C	Practical	ACHS	Motor function
11	Dorsey 2015			VABS	all	GMFCS	Gross motor function
12				SIB-R	all	VMI	Visual-motor function
13	Fuchs 2015			VABS	Practical	PDMS-2	Motor function
14	Cassidy 2015			VABS	all	MABC	Gross motor function
						DCDQ	Motor function
15	Jones 2015			VABS-II	Practical	PDMS-2	Motor function
16	Jones 2015			SIB-R	all	BOTMP	Motor function
17	Leahy 2015			VABS-CE	all	NEPSY	Sensorimotor function
18	Maer 2015			VABS	all	BOTMP	Motor function
						MSEL	Motor function
19	Maher 2015			ABAS-II	all	BOT-2	Motor function
20	Pace 2015	20 ASD children	FR	VABS	all	Eurofit	Physical fitness
21	Tukel 2015	18 Apraxia children	SW	ABAS-II	all	VMPAC	Verbal motor function
						BOT-2	Motor function
22	Voorman 2006	110 CP children	NL	VABS	all	GMFM	Gross motor function
						GMFCS	Gross motor function

VABS = 18

ABAS = 2

SIB-R = 2

All = 16

Practical = 4

Conceptual = 1

Social 1

#	Citation	Participants	Country	Adaptive Behaviour		Motor Proficiency	
				Test	Domains	Test	Component
1	Bre	110 CP children	NL	VABS	all	PDMS-2	Motor function
2	Gab					MABC-2	Gross motor function
3	Ajze					BOT-2	Motor function
4	Gab					CoM, CoP	Postural control
5	Leon					BOT-2	Motor function
6	Ho					MSEL	Motor function
7	Ta					MABC	Gross motor function
8	Vi					AIMS	Motor function
9	Fjo					GMFCS	Gross motor function
10	Ch					GMFCS	Gross motor function
11	Donke					MABC-2	Gross motor function
12	F					ACHS	Motor function
13	Ful					GMFCS	Gross motor function
14	Gre					VMI	Visual-motor function
15	Jas					PDMS-2	Motor function
16	Jirik					MABC	Gross motor function
17	Le					DCDQ	Motor function
18	MacD					PDMS-2	Motor function
19	Mat					BOTMP	Motor function
20	Pa					NEPSY	Sensorimotor function
21	Tu					BOTMP	Motor function
22	Voorman 2006	110 CP children	NL	VABS	all	MSEL	Motor function
						BOT-2	Motor function
						Eurofit	Physical fitness
						VMPAC	Verbal motor function
						BOT-2	Motor function
						GMFM	Gross motor function
						GMFCS	Gross motor function

Motor function = 14

Gross motor function = 9

Postural control = 1

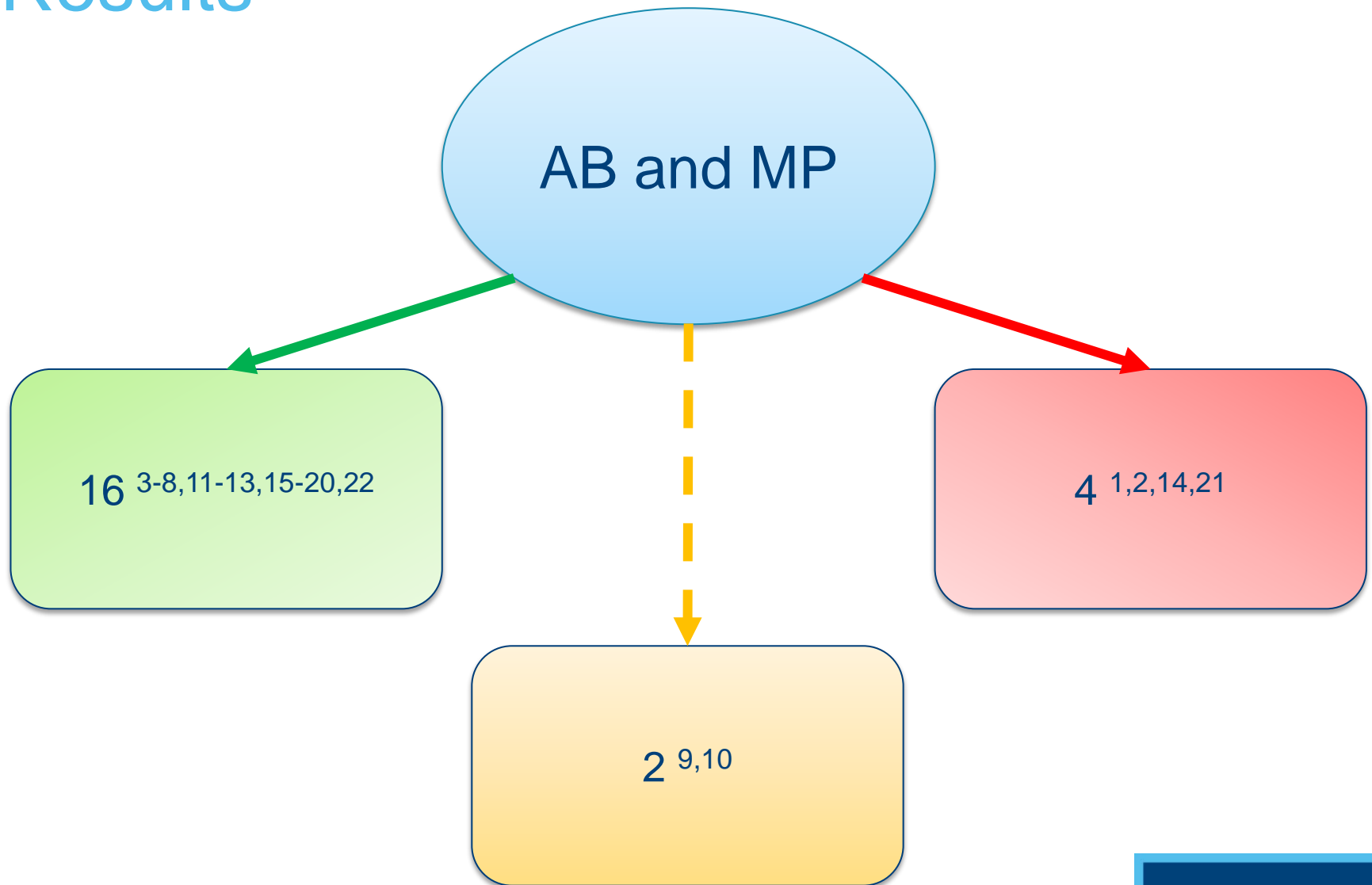
Visual-motor function = 1

Sensorimotor function = 1

Physical fitness = 1

Verbal motor function = 1

Results



Discussion

1. Included article quality ↓
2. II research ↓
3. Specific aim to measure AB/MP interaction ↓
4. Evidence that AB \leftrightarrow MP (+domain specific)

Conclusion

**Preliminary evidence for the support of a
relationship between AB and MP**

More research required in this field

Key question #3: do we need to consider AB in the classification assessment for II-athletes and how?

Part 1

Part 2

Part 3





Acknowledgements

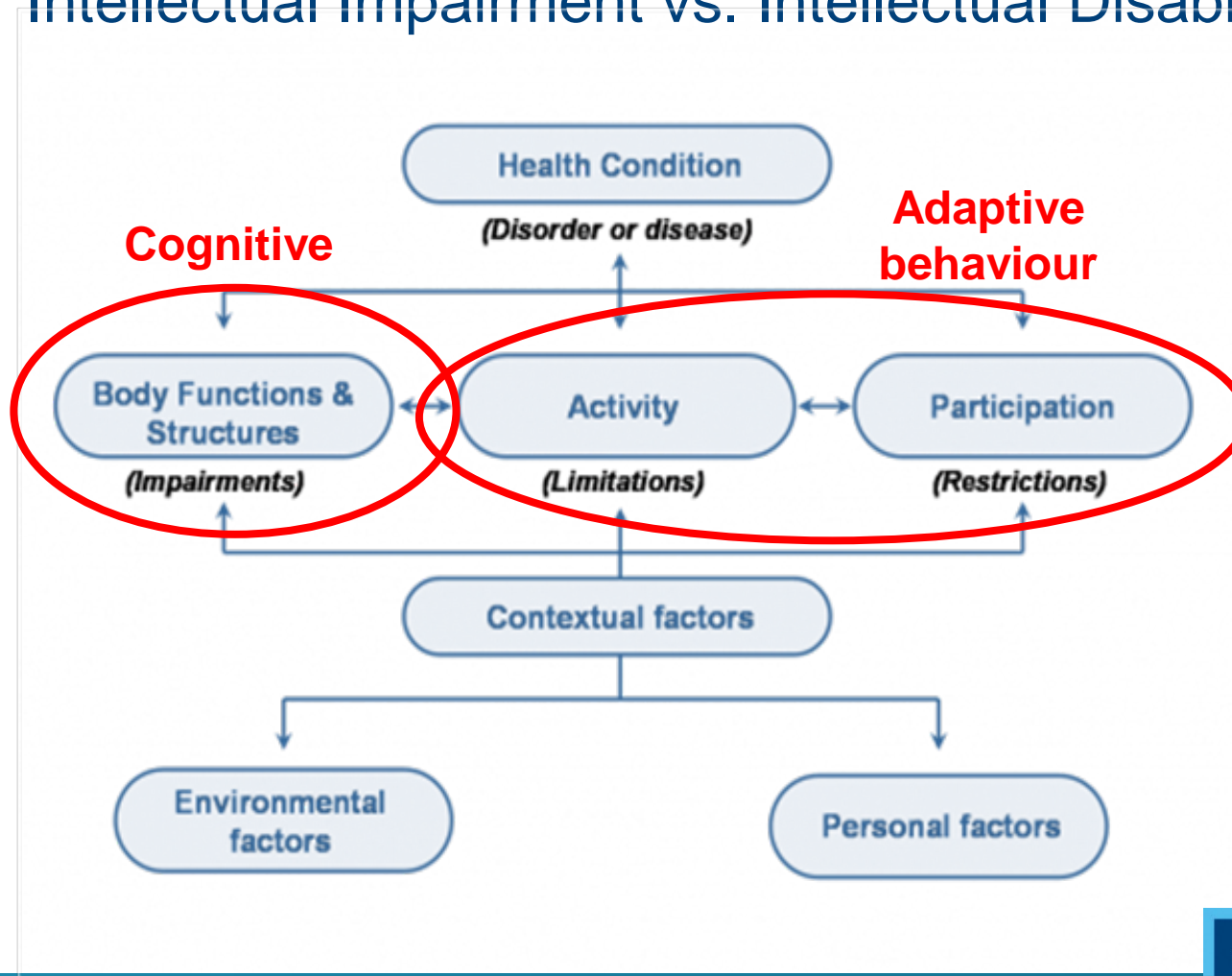
- IPC and INAS
- INAS/IPC Research group (Prof. Jan Burns, Prof. J. Mactavish, dr. P. Van de Vliet and Nick Parr)
- Agitos foundation



Contact: katina.mcculloch@kuleuven.be

Terminology

Intellectual Impairment vs. Intellectual Disability



Methodology

- Inclusion criteria (Joanna Briggs Institute¹)
 1. Population – open
 2. Concept – MP measured; AB measured by one of the five American Association on Intellectual and Developmental Disabilities (AAIDD) accepted tools
 3. Content – open; experimental and observational study designs
- Exclusion criteria
 1. Only the motor domain of AB measured
 2. Review articles, conference papers, position statements etc.
 3. Non-human participants (i.e. robotics, animals)
 4. 1996-2016

Methodology

- Critical appraisal – 3 reviewers
 1. Modified JBI Critical Appraisal Tools¹
 2. Followed self-created criteria
- Data extraction – 3 reviewers
 1. Study characteristics
 2. Primary results (statistical method, MP, AB, relationship between)
 3. Secondary results (IQ data etc.)

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