

RAPID REVIEW OF PERFORMANCE DETERMINANTS IN PARA-DRESSAGE

DR. SARAH JANE HOBBS

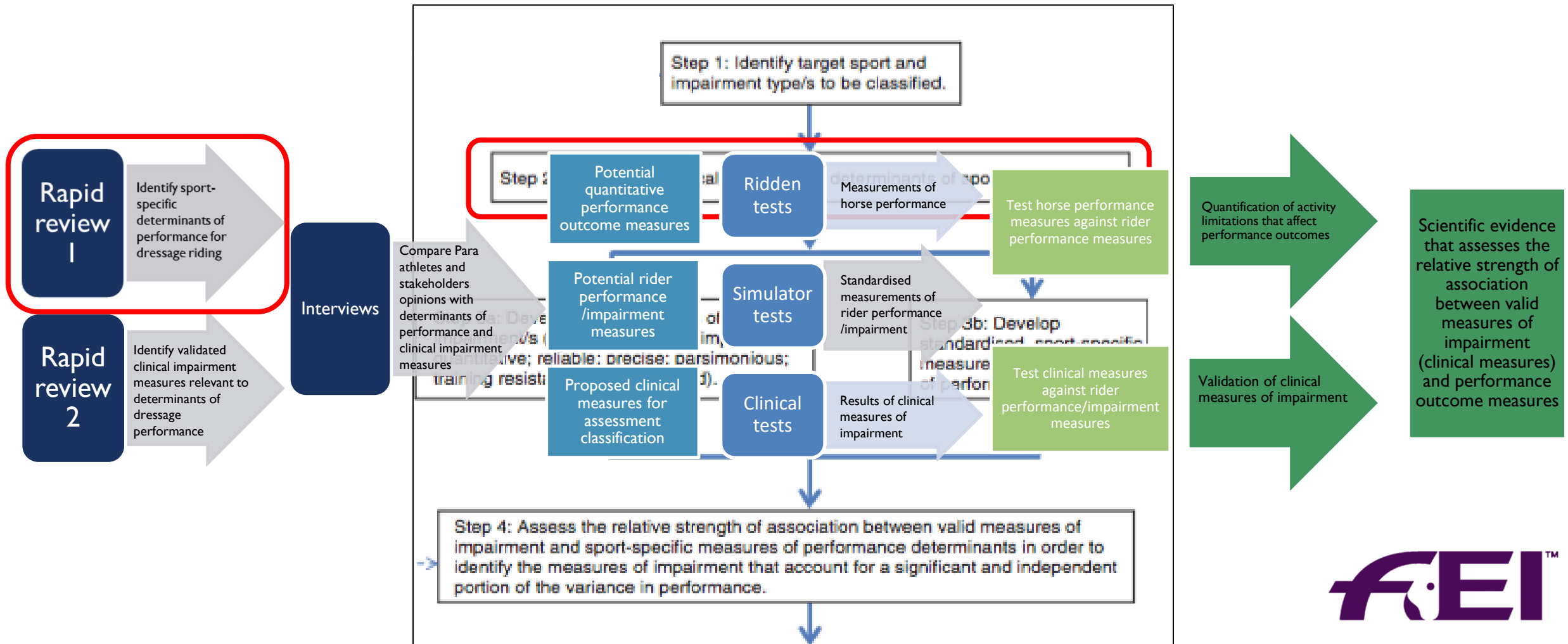
DR. LINDSAY ST GEORGE, JANET REED, ELIZABETH LITTLEFAIR, DR. RACHEL STOCKLEY, DR. CLARE THETFORD, DR. JONATHAN SINCLAIR, DR. JANE WILLIAMS, DR KATHRYN NANKERVIS, PROF. HILARY CLAYTON



INNOVATIVE THINKING
FOR THE REAL WORLD



RESEARCH PROJECT OUTLINE



Speed, Acceleration:



Distance:



Weight:



VS.



PARA EQUESTRIAN DRESSAGE TEST 2018 20x40 Arena GRADE III

INDIVIDUAL TEST

Event : _____ Date : _____ Judge : _____ Position ☐

Competitor No : _____ Name : _____ NF : _____ Horse : _____

Time 5'00" (for information only) Minimum age of horse: 6 years

No	Letter	Movement	Marks	Mark	Correction	Coefficient	Final Mark	Directive Ideas	Remarks
1.	A X C	Enter in working trot Halt. Immobility. Salute. Proceed in working trot. Track left	10					Quality of pace, halt, and transitions. Straightness. Contact and poll. Bend through turn at C.	
2.	CH HXF F	Working trot Medium trot Working trot	10					Regularity and quality of trot, elasticity, engagement of hindquarters.	
3.	FA	Transitions at H and F Working trot	10					Lengthening and shortening of steps and frame, maintenance of rhythm, quality of trot.	
4.	AD D	Down the centre line Volte right (10m Ø)	10					Regularity, balance and bend through turn and in volte, size and shape of volte.	
5.	DXG G GC C	Down the centre line Volte left (10m Ø) Down the centre line Track right	10					Regularity, straightness and balance on centre line, bend and balance, size and shape of volte. Bend in turn at C,	

MEASUREMENTS OF DRESSAGE PERFORMANCE

ARTICLE 432 MARKING

1. All movements, and certain transitions from one to another, which have to be marked by the Judges, are numbered on the Judge's sheet.
2. They are marked from zero (0) to ten (10) by each Judge, zero (0) being the lowest and ten (10) the highest mark.
3. The scale of marks is as follows:

10	Excellent	7	Fairly good	4	Insufficient	1	Very bad
9	Very good	6	Satisfactory	3	Fairly bad	0	Not executed
8	Good	5	Sufficient	2	Bad		

1.	A	Enter in working trot	10					Quality of pace, halt, and transitions. Straightness. Contact and poll. Bend through turn at C.
	X	Halt. Immobility. Salute. Proceed in working trot. Track left						
	C	Working trot						
2.	CH	Working trot	10					Regularity and quality of trot, elasticity, engagement of hindquarters.
	HXF	Medium trot						
	F	Working trot						
3.	FA	Transitions at H and F	10					Lengthening and shortening of steps and frame, maintenance of rhythm, quality of trot.
		Working trot						
4.	AD	Down the centre line	10					Regularity, balance and bend through turn and in volte, size and shape of volte.
	D	Volte right (10m Ø)						
5.	DXG	Down the centre line	10					Regularity, straightness and balance on centre line, bend and balance, size and shape of volte.
	G	Volte left (10m Ø)						
	GC	Down the centre line						
	C	Track right						Bend in turn at C,

Measurement	Definition
Rhythm	Regular, that is correct for each pace and at the same tempo with a pronounced beat.
Relaxation	Suppleness and elasticity, free from resistance.
Contact/connection	Light, even and elastic contact, working though from the hind limbs. Indicates a level of thoroughness with the horse functioning in one piece.
Impulsion	Elastic loading and unloading of the limbs during stance that springs the horse off the ground. Indicates the amount of energy being created and contained, but without resistance.
Straightness	Symmetrical propulsive power in both hind limbs, symmetrical lifting and stabilization by both forelimbs and symmetrical contact (mirrored on left and right turns/circles) in the left and right reins.
Collection	Control of the horse's trunk rotations and maintenance of an uphill trunk orientation. Greater weight distributed to the hind limbs from the forelimbs.

m and regularity)	10			1	
e to move forward, steps, suppleness of agement of the hind	10			1	

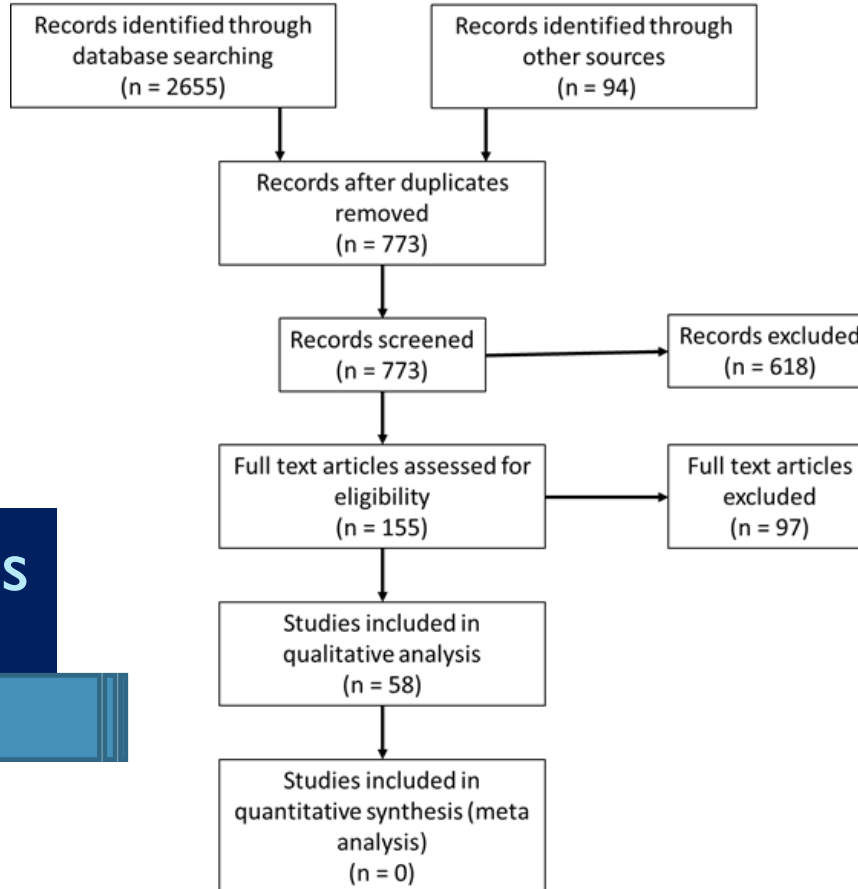
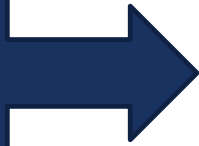


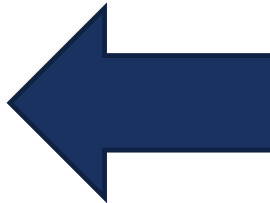
Project Aim:

The aim of this study was to systematically review current knowledge on the fundamental performance attributes, skills and abilities required for dressage.

METHODOLOGY

SportDiscuss
CINAHL
MEDLINE
EMBASE
VetMed



- 
- 1) English language
 - 2) Objective outcome measures
 - 3) Demands of dressage/riding
 - 4) Superior horse performance

44 Athlete
14 Horse

= 584 able-bodied athletes
= 311 horses

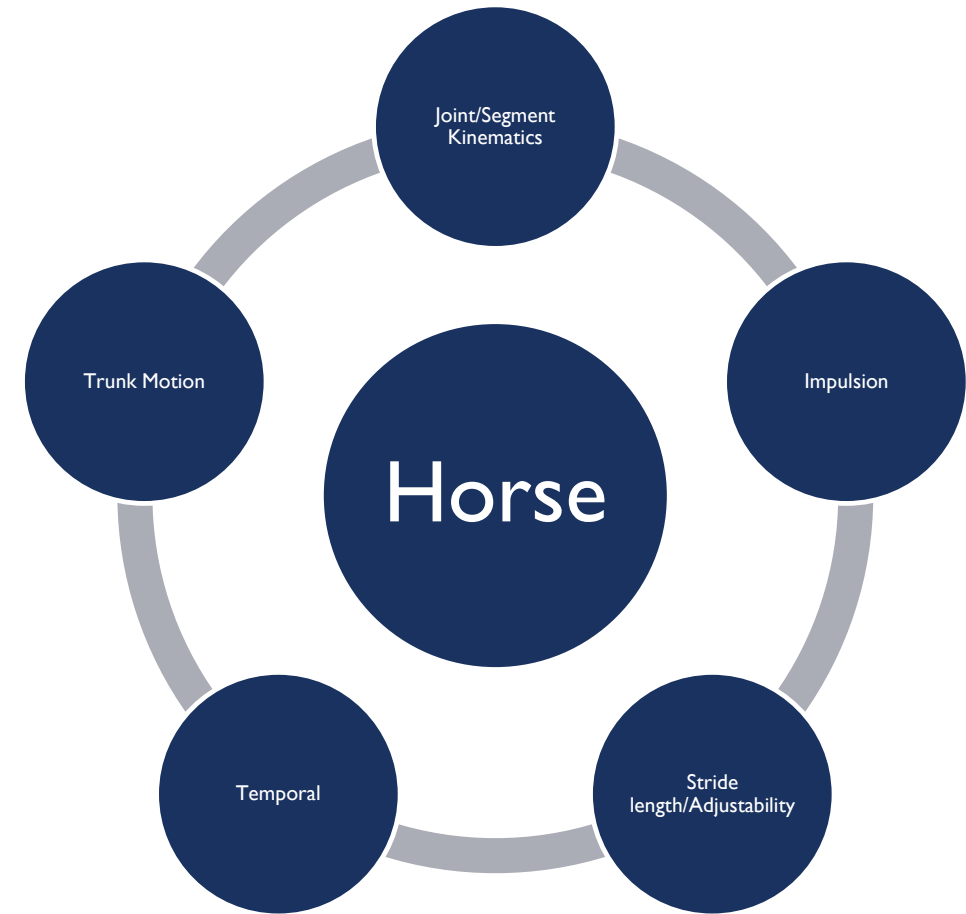


$72.7 \pm 14.7 \%$
 $63.5 \pm 15.3 \%$

METHODOLOGY

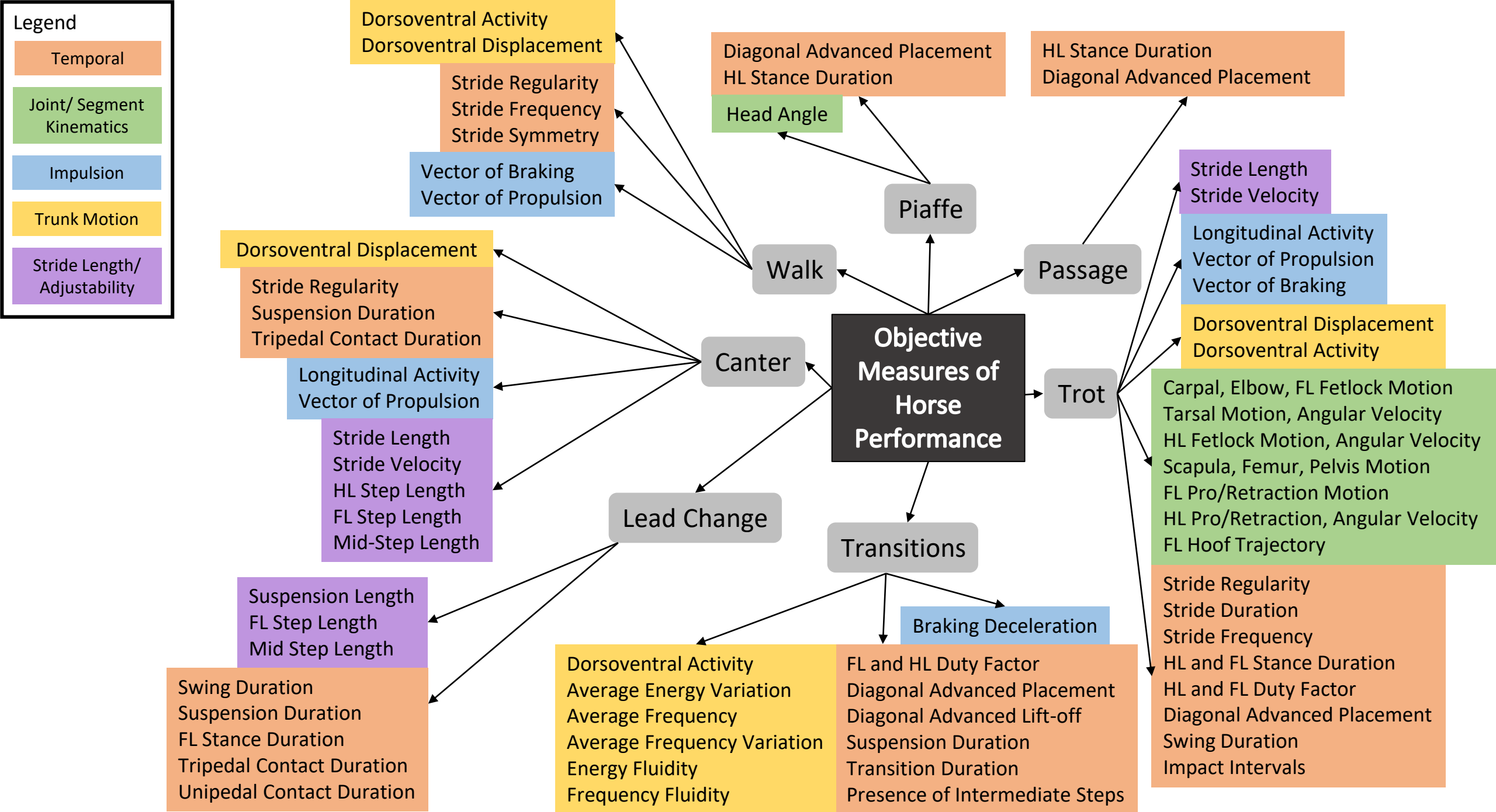


Gait/
Movement



Outcome Measure	Gait/ Movement	Literature	Advanced/ Elite Rider Values	Non-rider/ beginner rider values	Performance Effect
Trunk Segment Flexion/ Extension (A/P, Pitch)	Walk	Bystrom et al. (2010)	5.95 ± 0.07		
		Lovett et al. (2005)			
	Sitting Trot	Alexander et al. (2015)	10.12 ± 4.65	9.5 ± 2.3	No sig diffs in ROM between beginner and pro, but beginner riders max and mean values showed sig more forward trunk angle than pros (Eckardt and Witte, 2016)
		Bystrom et al. (2009)			
		Eckardt et al. (2014)			
		Eckardt and Witte (2016)			
		Terada et al. (2006)			
	Posting Trot	Lovett et al. (2005)	4.1		
	Canter	Eckardt and Witte (2016)	12.55 ± 11.10	20.5 ± 5.6	No sig diffs in rom between beg and pro (Eckardt and Witte, 2016)
		Lovett et al. (2005)			

Theme	Outcome Measure	Gait/ Movement	Literature	Performance Effect Better Performers Exhibit...
Temporal	Stride frequency	Trot	Biau and Barrey (2004)	Greater
	Stride Regularity		Biau and Barrey (2004)	Greater
	Stride Duration		Biau and Barrey (2004)	Greater
	FL Stance Duration		Deuel and Park (1990a, b)	Shorter FL stance duration
	HL Stance Duration		Holmstrom et al. (1994), Clayton et al. (1997)	Longer HL stance duration
	Swing Duration		Deuel and Park (1990a, b)	Shorter HL and longer FL swing duration
	Diagonal Advanced Placement		Clayton et al. (1997), Holmstrom et al. (1994), Tans et al. (2009)	Positive (HL impacts first)



LINKING ATHLETE PERFORMANCE TO HORSE PERFORMANCE

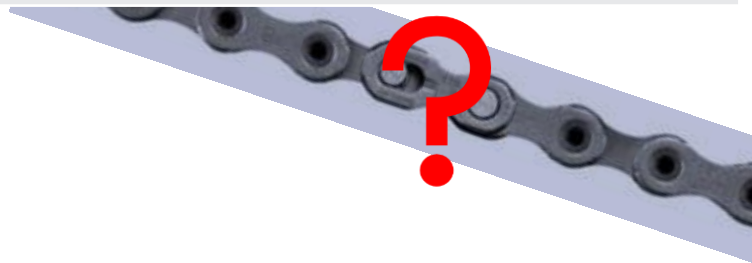
RIDER PERFORMANCE

Pelvic Segment A/P Tilt, Pitch	ROM not sig different between pro and beginner riders, but the pro riders had sig greater min values (pelvis tilted more forward) (Munz et al, 2014)
Pelvic Segment Lateral Flexion (M/ L, Roll)	no significant differences between pro and beginner riders (Munz et al., 2014)



HORSE PERFORMANCE

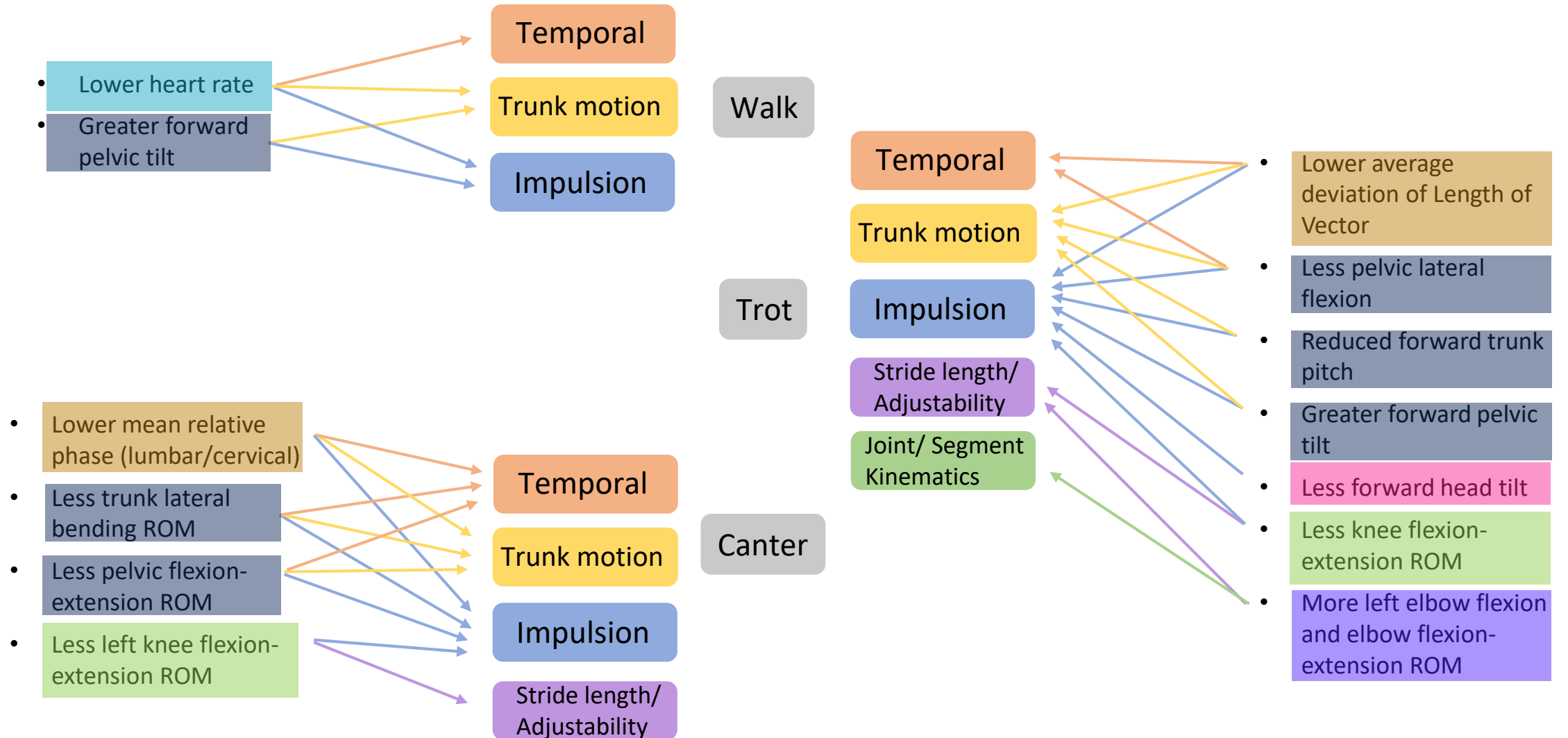
Stride frequency	Greater in better performers
Stride Regularity	Greater in better performers
Stride Symmetry	Greater in better performers



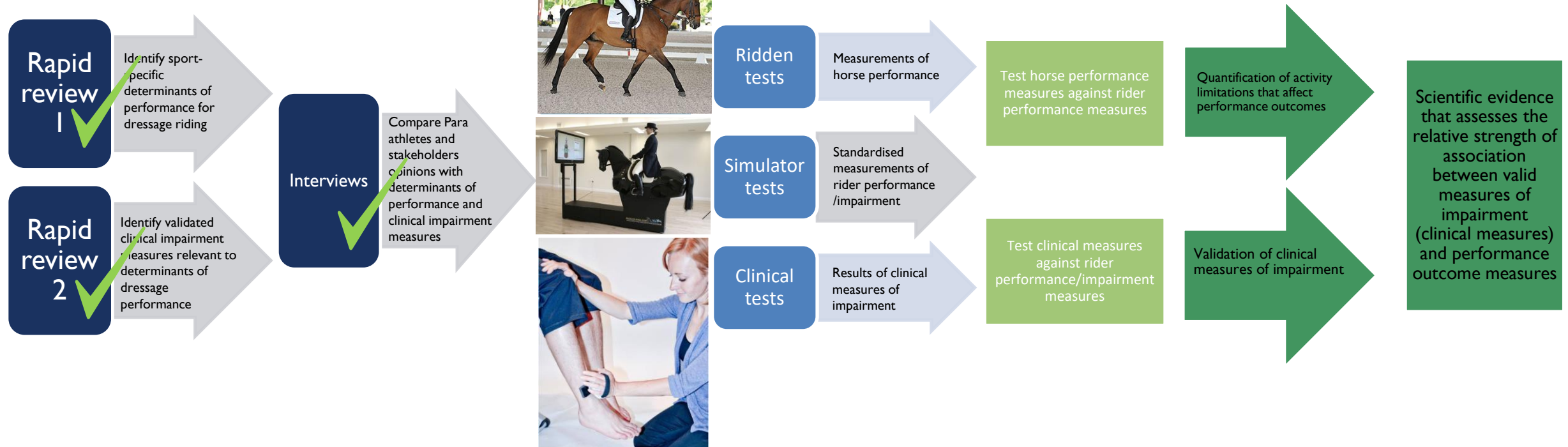
Skilled rider characteristics

Possible links to dressage performance

Skilled rider characteristics



NEXT STEPS



THANK YOU

QUESTIONS?

