

LECKEY



# SATCo

Segmental Assessment of Trunk Control

Supporting Children

# What is the SATCo?

The SATCo <sup>iii</sup> is a validated outcome measure that identifies at which head/trunk segment Targeted Training should commence. The SATCo determines the topmost (most cephalo) segment at which control of the upright posture is poor or not demonstrated i.e. is currently being learned for each of static, active and reactive control.

SATCo testing starts with head control and works systematically downwards testing each segment in turn until the child clearly cannot maintain any control/upright posture. The SATCo may reveal that static, active and reactive control are being learnt simultaneously at the same segmental level or at different segmental levels.



## How to do the SATCo

A minimum of two testers will be needed: one to support the trunk and the other to monitor the child's posture and hand/arm position and to give the nudges for the reactive component of the SATCo.

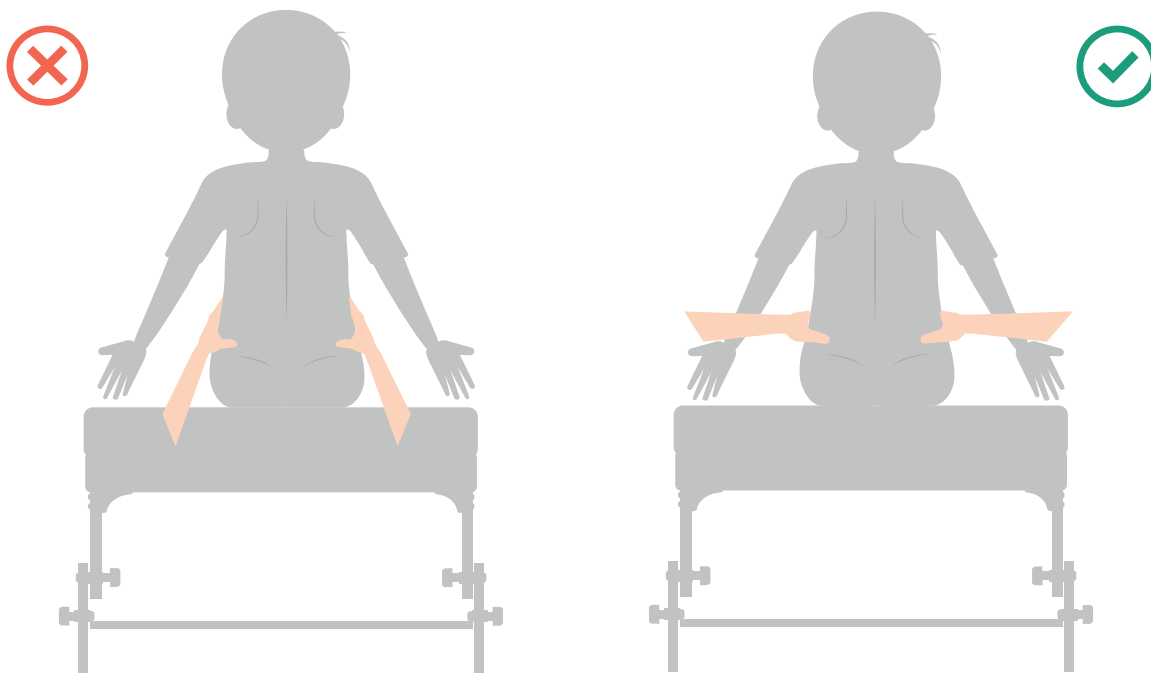
1. The child is placed in sitting on the Leckey Therapy bench, knees at 90 and feet supported.
2. If the child is under 18 months of age or has a strong extensor thrust, the feet are left free of support.
3. The child should wear only underwear or shorts. Shoes and AFOs can be worn.
4. The pelvic cradle with straps is positioned as shown to hold the pelvis in neutral.
5. The child's head/trunk is supported manually in an upright posture by the therapist.
6. It is recommended that the SATCo is videoed.

i Butler PB, Saavedra S, Sofranac M, Jarvis SE, Woollacott MH. Refinement, Reliability, and Validity of the Segmental Assessment of Trunk Control. *Pediatric Physical Therapy*. 2010; 22(3):246-257. Winner of the Toby Long Award for the best manuscript published in *Paediatric Physical Therapy*, 2010.

ii Pin TW, Butler PB, Cheung H-M, Shum SL-F. Segmental Assessment of Trunk Control in infants from 4 to 9 months of age- a psychometric study. *BMC Pediatrics*. 2018; 18:182.

# How is manual support given?

The therapist's hands should encircle the trunk directly beneath the segment under test. This support should be horizontal with the aim of eliminating trunk movement below the tested segment. Do not move 'with the child' the aim is to hold the segment steady in space.



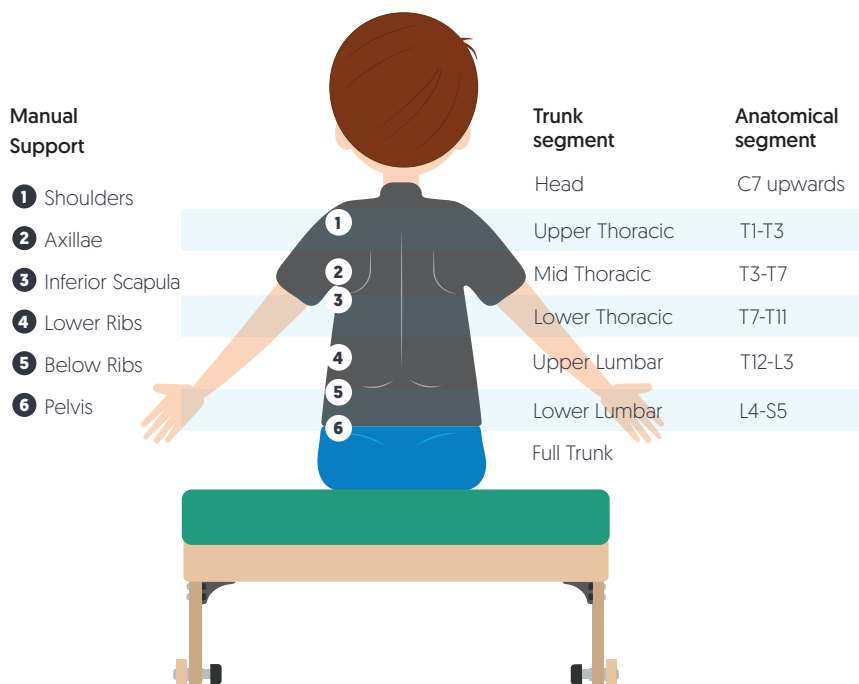
Firm manual support is given directly beneath the segment under test. When testing **head control**, the child's arms should be supported at shoulder height either manually or on a table. For all other segments and full trunk testing, the arms/hands should be completely free and not contacting the bench, any part of the body or the assessors.



This ensures that it is the segments above the manual support alone that are controlling the child's posture <sup>iii</sup>. Testing full trunk control is carried out with the child sitting on the SATCo bench but with SATCo straps removed and no manual support.

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# What segments are defined?



## Scoring the SATCo

**Control is graded as present or absent:** there is no 'in-between'. It is assessed under three conditions at each segment:

**Static control** - maintain a neutral vertical head/trunk posture for 5 seconds.

**Active (anticipatory) control** - hold neutral vertical posture while turning head to 45° and/or reaching to both left and to right

**Reactive control** - maintain or quickly return to neutral vertical posture when perturbed. A brisk nudge, sufficient to displace the child, is given at the top of the sternum, C7/T1 and laterally, both left and right (acromion). These locations are consistent whichever segment is under test.

**Note:** reactive control is not tested at the head segment.

Client Name:	Level of Manual Support	Functional Level	Static	Active	Reactive	Comments
			Minimum of 5 seconds	While turning head with arms lifted	Maintain / quickly regain following brisk nudge	
Ref# :	Pelvic / thigh strap used except as indicated	Arms and hands in air except as indicated	Maintain vertical neutral position of head and trunk above manual support level			
Tester Name:						
Date:						
	Shoulder girdle testers hand position may vary from horizontal	<b>Head control</b> Arms may be supported throughout			<b>NOT tested for head control</b>	
	Axillae	<b>Upper Thoracic Control</b>				
	Inferior scapula	<b>Mid Thoracic Control</b>				
	Over lower ribs	<b>Lower Thoracic Control</b>				
	Below ribs	<b>Upper Lumbar Control</b>				
	Pelvis	<b>Lower Lumbar Control</b>				
	No support given and pelvic/thigh straps removed	<b>Full Trunk Control</b>				
Fixed spinal deformity?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Comments:				
Limitation of cervical rotation	Left <input type="checkbox"/> Right <input type="checkbox"/>	Comments:				



# Application for SATCo

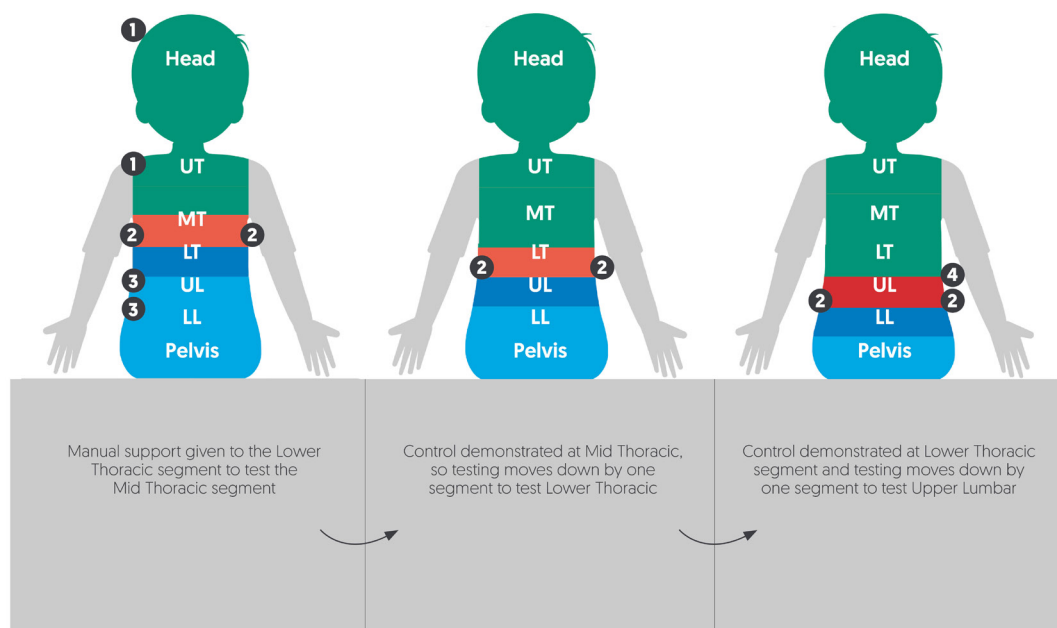
## SATCo testing process and identification of the targeted segment for Targeted Training

### An example of the testing process on one child : Testing Static Control

[Process repeated at each segment for Active and Reactive control]

- 1 Head and Upper Thoracic control already tested and control demonstrated
- 2 Manually supported segment
- 3 UL and LL segments still to be tested and free sitting if child's control abilities allow
- 4 Static control not demonstrated at Upper Lumbar segment. This is the targeted segment i.e. the segment targeted for control learning.

Once you have your targeted segment identified, you can place the child in the Targeted Trainer at the level and training of trunk control can commence.



## Bibliography

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4. Pountney TE, Cheek L, Green E, Mulcahy C, Nelham R. Content and Criterion Validation of the Chailey Levels of Ability. *Physiotherapy*. 1999; 85(8): 410-416.
5. Rodby-Bousquet E, Persson-Bunke M, Czuba T. Psychometric evaluation of the Posture and Postural Ability Scale for children with cerebral palsy. *Clinical Rehabil*. 2016; 30(7): 1-8.  
Rodby-Bousquet E, Agustsson A, Jonsdottir G, Czuba T, Johansson AC and Hagglund G. Interrater reliability and construct validity of the Posture and Postural Ability Scale in adults with cerebral palsy in supine, prone, sitting and standing positions. *Clin Rehabil* 2014; 28: 82–90. [Note: This paper gives the PPAS in full.]



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