

## **ONLINE SUPPLEMENT**

### VARIABILITY OF FUNCTIONAL OUTCOME MEASURES USED IN ANIMAL MODELS OF STROKE AND VASCULAR COGNITIVE IMPAIRMENT – A REVIEW OF CONTEMPORARY STUDIES

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### Supplementary Results/Tables

**Supplementary Table I: Impact factor of chosen journal titles.** The impact factor (2016) of each journal title chosen for inclusion in literature search was obtained from each journal homepage.

Journal Title	Subject class	Impact Factor
Brain	Neurology	10.292
Circulation	Vascular	18.88
Experimental Neurology	Neurology	4.706
Hypertension	Vascular	6.857
International Journal of Stroke	Stroke (Clinical)	3.314
Journal of Cerebral Blood Flow & Metabolism	Stroke (Preclin)	5.081
Journal of Neuropathology & Experimental Neurology	Neurology	3.49
Journal of Neuroscience	Neuroscience	5.988
Journal of Stroke & Cerebrovascular Disease	Stroke (Clinical)	1.598
Nature Neuroscience	Neuroscience	19.912
Neurobiology of Disease	Neurorehabilitation	5.227
Neurorehabilitation & Neural Repair	Neurorehabilitation	4.107
Stroke	Stroke (Clinical)	6.032
Translational Stroke Research	Stroke (Preclinical)	8.266

**Supplementary Table II: Prevalence of stroke and VCI models.** Disease models used in stroke and VCI studies included in the final analysis. Percentage was calculated as proportion of total amount of papers included (n=636 and n=37, respectively). AD=Alzheimer's Disease, VD=Vascular Dementia, CADASIL=Cerebral Autosomal-Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy, MCAO=Middle Cerebral Artery Occlusion, TGF=Transforming Growth Factor.

Model	All papers, n (%)
<b>Ischemic stroke (n=559)</b>	
Transient MCAO	342 (54)
Permanent MCAO	109 (17)
Thrombotic stroke	51 (8)
Endothelin induced	22 (3)
Hypoxia-Ischemia	23 (4)
Global Ischemia	12 (2)
<b>Haemorrhagic stroke (n=84)</b>	
Intracerebral	55 (9)
Subarachnoid	28 (4)
Intraventricular	1 (0.2)

VCI (n=37)

Permanent global hypoperfusion	11 (30)
AD	9 (24)
Post-stroke dementia	5 (14)
Microinfarcts	3 (8)
Hypertension + AD mutation	2 (5)
Hypertension induced VD	2 (5)
CADASIL	1 (3)
Dyslipidaemia + AD	1 (3)
Dyslipidaemia induced VD	1 (3)
AD + MCAO	1 (3)
TGF-induced fibrosis	1 (3)

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**Supplementary Table III: All functional outcome assessments used in reviewed stroke trials.** Table showing all recorded outcomes measures found in the stroke articles analyzed from chosen journals between January 2005-December 2015 inclusive. Percentages calculated as portion of all articles used in final review (n=636). CRT= choice reaction time.

Functional assessment	All papers, n (%)
Neurological deficit score	471 (74)
Rotarod	94 (15)
Grid walk / Foot fault	68 (11)
Adhesive removal test	59 (9)
Cylinder test	56 (9)
String / Wire / Grip / Swing test	50 (8)
Corner turn test	45 (7)
Limb placing test	44 (7)
Beam test	42 (7)
T or Y or Radial arm maze	38 (6)
Locomotor activity	33 (5)
Side-walking / Circling / Rotation	29 (5)
Tail suspension / Body swing	16 (3)
Morris water maze	14 (2)
Elevated plus maze	11 (2)
Ladder test	11 (2)
Gait analysis	9 (1)
Novel object recognition	8 (1)

Postural reflex	7 (1)
Skilled-reaching / Staircase task	5 (1)
Barnes maze	4 (1)
Passive avoidance	3 (1)
Negative geotaxis	3 (1)
Whisker / Tactile	3 (1)
Standard intracortical microstimulation	3 (1)
Fear conditioning	2 (0.3)
Parallel bar crossing	2 (0.3)
Forced swim test	2 (0.3)
Inclined plane	2 (0.3)
Righting reflex	2 (0.3)
Social novel odour recognition task	2 (0.3)
Bradykinesia assessment task	1 (0.2)
CRT task	1 (0.2)
Drinking efficiency	1 (0.2)
Forepaw stimulation	1 (0.2)
Hindlimb retraction	1 (0.2)
Hind-paw footprints (walking behaviour)	1 (0.2)
Lateral pressure towards an edge	1 (0.2)
Motor mapping	1 (0.2)
Pasta-matrix reaching task	1 (0.2)
Postural instability test	1 (0.2)
Recording mouse ultrasonic vocalization	1 (0.2)

Right forelimb resting motor threshold	1 (0.2)
Robotic handle-pull task	1 (0.2)
Step test	1 (0.2)
Straight alley swim	1 (0.2)
Sucrose preference test	1 (0.2)
Amount of food consumed	1 (0.2)

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**Supplementary Table IV: All NDS used in preclinical stroke studies.** All recorded NDS cited in preclinical stroke articles. Methods were considered as ‘not found’ when no original battery scale was found after going 3 sources back. Percentage was calculated as portion of papers using NDS that were included in the final analysis (n=469).

NDS original	All papers using NDS, n (%)
Bederson <i>et al.</i> <sup>1</sup>	175 (37)
Garcia <i>et al.</i> <sup>2</sup>	63 (13)
Other Rodent NDS	57 (12)
Chen J. <i>et al.</i> <sup>3</sup>	39 (8)
NDS method not found	29 (6)
Non-rodent NDS	19 (4)
Clark <i>et al.</i> <sup>4</sup>	17 (4)
Belayev <i>et al.</i> <sup>5</sup>	14 (3)
Li <i>et al.</i> <sup>6</sup>	11 (2)
Hunter <i>et al.</i> <sup>7</sup>	10 (2)
Reglodi <i>et al.</i> <sup>8</sup>	8 (2)
DeRyck <i>et al.</i> <sup>9</sup>	7 (2)
Pérez-Asensio <i>et al.</i> <sup>10</sup>	5 (1)
Petullo <i>et al.</i> <sup>11</sup>	4 (1)
Lenzlinger <i>et al.</i> <sup>12</sup>	2 (0.4)



**Supplementary Table V: Variations of the Bederson<sup>1</sup> scale reported.** Percentage calculated as portion of all articles citing Bederson's as the original (n=175).

Type of Bederson's used	n(%)
Original Bederson's	24 (14)
Modified Bederson's 0-3	11 (6)
Modified Bederson's 0-4	86 (49)
Modified Bederson's 0-4.5	1 (0.6)
Modified Bederson's 0-5	34 (19)
Modified Bederson's 0-6	4 (2)
Modified Bederson's 0-7	4 (2)
Modified Bederson's 0-8	5 (3)
Modified Bederson's 0-9	1 (0.6)
Modified Bederson's 0-10	2 (1)
Modified Bederson's 0-15	2 (1)
Modified Bederson: 0-20	1 (0.6)

**Supplementary Table VI: All functional assessments used in VCI preclinical papers.** All recorded functional assessments found in the VCI papers analyzed. Percentage calculated as portion of all papers used in final review. (n=37).

Functional assessment	All papers, n (%)
Morris water maze (MWM)	23 (60)
Novel object recognition	8 (22)
T or Y or radial arm maze	8 (22)
Locomotor activity	6 (16)
Neurological deficit score	5 (14)
Rotarod	4 (11)
String / Wire / Grip / Swing test	4 (11)
Barnes maze	3 (8)
Beam test	3 (8)
Fear conditioning	2 (5)
Gait analysis	2 (5)
Elevated plus maze	1 (3)
Adhesive label removal test	1 (3)
Buried food retrieval (olfactory)	1 (3)
Inclined plane task	1 (3)
Nest construction test	1 (3)
Circular hole board (dry maze)	1 (3)
Porsolt swim test	1 (3)
Social interaction in novel environment	1 (3)



### **Supplementary References**

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