**Appendix S2. Search strategy**

**1. Search Strategy for PubMed:**

#1 "parallel"[Text Word] OR "observational"[Text Word] OR "cross-sectional"[Text Word] OR "cohort"[Text Word] OR "pre–post"[Text Word] OR "before-after"[Text Word] OR "controlled trial\*"[Text Word] OR "random\*"[Text Word] OR "randomi\*"[Text Word] OR "intervention\*"[Text Word]

#2 "clinical trial" [PT]

#3 #1 OR #2

#4 animals NOT humans

#5 #3 NOT #4

#6  "stroke"[All Fields] OR "stroke"[Title/Abstract] OR "cerebralvascular accident"[Title/Abstract] OR "cerebral infarction"[Title/Abstract] OR "intracerebral hemorrhage"[Title/Abstract] OR "subarachnoid hemorrhage"[Title/Abstract] OR "cerebral thrombosis"[Title/Abstract] OR "cerebral embolism"[Title/Abstract] OR "lacunar stroke"[Title/Abstract]

#7 "virtual reality"[All Fields]

#8 #5 AND #6 AND #7

2. Search Strategy for EMBASE:

#1  'parallel'/exp OR 'observational'/exp OR 'cross-sectional'/exp OR 'pre–post'/exp OR 'before-after'/exp OR 'controlled trial\*'/exp OR 'random\*'/exp OR ' randomi\*'/exp OR 'intervention\*'/exp

#2 random\*:ab,ti OR observational:ab,ti OR cohor:ab,ti OR cross-sectional:ab,ti OR parallel:ab,ti OR pre-post:ab,ti OR before-after:ab,ti

#3 #1 OR #2

#4 'stroke'/exp OR 'cerebralvascular accident'/exp OR 'cerebral infarction'/exp OR 'intracerebral hemorrhage'/exp OR 'subarachnoid hemorrhage'/exp OR 'cerebral thrombosis'/exp OR 'cerebral embolism'/exp OR 'lacunar stroke'/exp

#5 'virtual reality'

#6 #3 AND #4 AND #5

3. Search Strategy for Cochrane Library

#1 parallel OR observational OR cross-sectional OR pre–post OR before-after OR 'controlled trial\*' OR 'random\*' OR 'randomi\*' OR 'intervention\*'

#2 [publication type] "trial"

#3 #1 AND #2

#4 'stroke' OR 'cerebralvascular accident' OR 'cerebral infarction' OR 'intracerebral hemorrhage' OR 'subarachnoid hemorrhage' OR 'cerebral thrombosis' OR 'cerebral embolism' OR 'lacunar stroke'

#5 'virtual reality'

#6 #3 And #4 And #5

4. Search Strategy for Web of Science

#1 TS=(parallel OR observational OR cross-sectional OR pre–post OR before-after OR controlled trial\* OR random\* OR randomi\* OR intervention\*)

#2 TS=('stroke' OR 'cerebralvascular accident' OR 'cerebral infarction' OR 'intracerebral hemorrhage' OR 'subarachnoid hemorrhage' OR 'cerebral thrombosis' OR 'cerebral embolism' OR 'lacunar stroke')

#3 TS=('virtual reality')

#4  #1 AND #2 AND #3

Timespan=All years. SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH.

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI

Timespan =1990-2019

5. Search Strategy for CINAHL (Ebsco)

S1 MH("random assignment" OR "placebos" OR "placebo effect" OR "single-blind studies" OR "double-blind studies" OR "triple-blind studies" OR "randomized controlled trials" OR "comparative studies" OR "evaluation research" OR "prospective studies" OR "crossover design" OR "prospective studies" OR "clinical trials" OR "clinical trial registry")

S2 TX (random$ OR allocation OR "random allocation" OR placebo$ OR single blind OR double blind OR "randomi?ed controlled trial\*" OR "controlled clinical trial\*" OR "comparative study" OR "evaluation stud\*" OR "follow-up stud\*" OR "prospective stud\*" OR "cross-over stud\*" OR control$ OR prospectiv$ OR volunteer$ OR "RCT" OR "clinical trial\*")

S3 PT (randomized controlled trial OR "clinical trial\*")

S4 S1 OR S2 OR S3

S5 TX("stroke" OR "cerebralvascular accident" OR "cerebral infarction" OR "intracerebral hemorrhage" OR "subarachnoid hemorrhage" OR "cerebral thrombosis" OR "cerebral embolism" OR "lacunar stroke")

S6 AB("virtual reality")

S7 S4 AND S5 AND S6

Timespan =1989-2019