Appendix A

MEDLINE SEARCH STRATEGY

1. Electroencephalography/ or Electroencephalography phase synchronization/
2. (eeg or eegs or electroencephalogra*).mp.
3. 1 or 2
4. Oxygen/ or Hyperbaric Oxygenation/ or Hyperoxia/
5. (hyperoxi* or hyperox?em*).mp.
6. (oxygen adj2 hyperbar*).mp.
7. (oxygen adj2 pressu*).mp.
8. 4 or 5 or 6 or 7
9. Diving/
10. (Diving or diver or divers or hyperbaric or normobaric).mp.
11. 9 or 10
12. 3 and 8 and 11
13. limit 12 to humans

EMBASE SEARCH STRATEGY

1. Electroencephalography/ Electroencephalography phase synchronization/ or Electroencephalogram/
2. (eeg or eegs or electroencephalogra*).mp.
3. 1 or 2
4. Oxygen/ or Hyperbaric Oxygenation/ or Hyperoxia/
5. (hyperoxi* or hyperox?em*).mp.
6. (oxygen adj2 hyperbar*).mp.
7. (oxygen adj2 pressu*).mp.
8. 4 or 5 or 6 or 7
9. Diving/
10. (Diving or diver or divers or hyperbaric or normobaric).mp.
11. 9 or 10
12. 3 and 8 and 11
13. limit 12 to humans

SCOPUS SEARCH STRATEGY

1. INDEXTERMS(Electroencephalography)
2. TITLE-ABS-KEY(eeg) OR TITLE-ABS-KEY(eegs) OR TITLE-ABS-KEY(electroencephalogra*)
3. #1 OR #2
4. INDEXTERMS(Oxygen)
5. INDEXTERMS(Hyperbaric Oxygenation)
6. INDEXTERMS(Hyperoxia)
7. TITLE-ABS-KEY(hyperoxi*) OR TITLE-ABS-KEY(hyperox?em*)
8. TITLE-ABS-KEY(oxygen) W/2 TITLE-ABS-KEY(hyperbar*)
9. TITLE-ABS-KEY(oxygen) W/2 TITLE-ABS-KEY(pressu*)
10. #4 OR #5 OR #6 OR #7 OR #8 OR #9
11. INDEXTERMS(Diving)
12. TITLE-ABS-KEY(Diving) OR TITLE-ABS-KEY(diver) OR TITLE-ABS-KEY(divers) OR TITLE-ABS-KEY(hyperbaric) OR TITLE-ABS-KEY(normobaric)
13. #11 OR #12
14. #3 AND #10 AND #13
15. INDEXTERMS (animals) NOT INDEXTERMS (humans)
16. #14 AND NOT #15

WEB OF SCIENCE SEARCH STRATEGY

1. KP=(electroencephalography)
2. TS =(eeg OR eegs OR electroencephalogra*)
3. #1 OR #2
4. KP=(Oxygen)
5. KP=(Hyperbaric Oxygenation)
6. KP=(Hyperoxia)
7. TS=(hyperoxi* OR hyperox*em*)
8. TS=(oxygen NEAR/2 hyperbar*)
9. TS=(oxygen NEAR/2 pressu*)
10. #4 OR #5 OR #6 OR #7 OR #8 OR #9
11. KP=(Diving)

12. TS=(Diving or diver or divers or hyperbaric or normobaric)
13. #11 OR #12
14. #3 AND #10 AND #13
15. #14 NOT TS=(animals NOT humans)

Appendix B

DATA EXTRACTION TEMPLATE

Study	
First author	
Year published	
Outcomes Available (pre- and post-exposure)	☐ Frequency analysis ☐ Source localisation ☐ Connectivity analysis ☐ Visual expert analysis ☐ Evoked potentials
Study level of evidence	☐ Systematic review ☐ Randomised control trial ☐ Non-randomised or non-controller trial ☐ Case series ☐ Mechanism based reasoning
Participant Demographics	
Number of participants	
Percentage of participants male	
Participant average age	
Participant age variance	
Type of participants	☐ Healthy adult volunteers ☐ Healthy adult volunteers with some diving experience (< 1 year) ☐ Healthy adult volunteers with moderate diving experience (< 3 years) ☐ Healthy adult volunteers with significant diving experience (3+ years)
Percentage of participants which had completed an oxygen tolerance test	
Study Design	

<table>
<tr><td>Simulation of hyperoxia</td><td>☐ Hyperbaric chamber
☐ Diving exposure
☐ Normobaric hyperoxia</td></tr>
<tr><td>Oxygen delivery mechanism</td><td></td></tr>
<tr><td>Exposure time (minutes)</td><td></td></tr>
<tr><td>Exposure pressure (ata)</td><td></td></tr>
<tr><td>FiO_2 (%)</td><td></td></tr>
<tr><td>EEG montage used</td><td></td></tr>
<tr><td>Number of EEG channels</td><td></td></tr>
<tr><td>Other parameters measure</td><td></td></tr>
<tr><td colspan="2">EEG Outcomes</td></tr>
<tr><td>EEG Frequency Changes (intervention vs control)</td><td>
<table>
<tr><td></td><td>Alpha</td><td>Beta</td><td>Delta</td><td>Theta</td></tr>
<tr><td>Categorized change (1=increase, 0=no change, -1=decrease)</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Change amount</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Change variance</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Change significance</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Other information</td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Other EEG Outcomes Recorded</td><td></td></tr>
<tr><td colspan="2">Conclusions and Limitations</td></tr>
<tr><td>Conclusions made</td><td></td></tr>
<tr><td>Study limitations</td><td></td></tr>
<tr><td>Other details</td><td></td></tr>
</table>

QUALITY ASSESSMENT TEMPLATE

Selection	
Representativeness of the exposed cohort	☐ Truly representative of the cohort (one star) ☐ Somewhat representative of the cohort (one star) ☐ Selected group of users eg nurses, volunteers ☐ No description of the derivation of the cohort
Selection of the non-exposed cohort	☐ Drawn from the same community as the exposed cohort (one star) ☐ Drawn from a different source ☐ No description of the derivation of the non-exposed cohort
Ascertainment of exposure	☐ Secure record (e.g., surgical record) (one star) ☐ Structured interview (one star) ☐ Written self report ☐ No description ☐ Other
Demonstration that outcome of interest was not present at start of study	☐ Yes (one star) ☐ No
Comparability	
Comparability of cohorts on the basis of the design or analysis controlled for confounders	☐ The study controls for age, sex and marital status (one star) ☐ Study controls for other factors (one star) ☐ Cohorts are not comparable on the basis of the design or analysis controlled for confounders

Outcome	
Assessment of outcome	☐ Independent blind assessment (one star) ☐ Record linkage (one star) ☐ Self report ☐ No description ☐ Other
Was follow-up long enough for outcomes to occur	☐ Yes (one star) ☐ No
Adequacy of follow-up of cohorts	☐ Complete follow up. All subject accounted for (one star) ☐ Subjects lost to follow up unlikely to introduce bias. The number lost less than or equal to 20% or description of those lost suggested no different from those followed. (one star) ☐ Follow up rate less than 80% and no description of those lost ☐ No statement
Overall	
Overall Quality (AHRQ standard)	☐ Good ☐ Fair ☐ Poor