

Online supplementary file 1: Search strategy

Electronic databases used: PubMed, MEDLINE, CINAHL, Google Scholar, and SPORTDiscus

Period: From inception up to March 2019, update of the search conducted in July 2019.

Search Strategy:

- **Standard collective terms and combinations:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND “specific term”
- **Specific non-pharmacological exposure terms:** light, sleep, nutrition, hydration and training. Individual author groups added specific exposure terms for the search depending on their topic: e.g. (“exercise” OR “training” OR “physical training” OR “performance”)
- **Specific pharmacological exposure terms:** melatonin, melatonin analogues, supplements, stimulants, sedatives, glucocorticoids. Individual author groups added specific exposure terms for the search depending on their topic: e.g. (“melatonin analogues” OR “melatonin agonists” OR “melatonin antagonists”)

Specific non-pharmacological terms

1. **Exercise:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND (“exercise” OR “training” OR “physical training” OR “performance”)
2. **Sleep:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND (“sleep”)
3. **Light:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND (“light”)
4. **Nutrition:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND (nutrition” OR “nutrients” OR “diet” OR “food” OR “carbohydrate”* OR “protein”* OR “fat”* OR “supplements”* (*with / without dietary”) OR “creatine” OR “hydration” OR “alcohol” OR “meal timing” OR “meal composition”)

Specific pharmacological terms

1. **Melatonin:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND (“melatonin”)
2. **Sedatives:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND (“sedative” OR “hypnotic” OR “barbiturates” OR “benzodiazepine” OR “non-benzodiazepine” OR “orexin” OR “antihistamines” OR “methaqualone” OR “opioids” OR “antidepressant” OR “antipsychotic”)
3. **Stimulants:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND (“caffeine” OR “stimulants”)
4. **Melatonin Analogues:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND (“melatonin analogues” OR “melatonin agonists” OR “melatonin antagonists”)
5. **Glucocorticoids:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND (“glucocorticoids”)
6. **Antihistamines:** (“jet lag” OR “re-entrainment” OR “desynchronisation” OR “travel” OR “circadian” OR “circadian rhythm”) AND (“healthy” OR “recreational athlete” OR “athlete” OR “trained”) AND (“antihistamines”)