Supplementary Material 2

Effects of internal cooling on physical performance, physiological and perceptional parameters when exercising in the heat: a systematic review with meta-analyses

Juliane Heydenreich[*], Karsten Koehler, Hans Braun, Mareike Grosshauser, Helmut Heseker, Daniel Koenig, Alfonso Lampen, Stephanie Mosler, Andreas Niess, Alexandra Schek, Anja Carlsohn

* Correspondence:
Dr. Juliane Heydenreich
juliane.heydenreich@uni-mainz.de

2   **Supplementary Data:** Inclusion and exclusion criteria for literature search.

Inclusion criteria	Exclusion criteria
First step (abstract screening)	

- **Study type**: original studies, review articles (including systematic reviews and meta-analyses), position stands
- **Subjects**:
  - healthy and active
  - age: 18 – 50 years
- **Intervention**: application of internal cooling before and/or during exercise
- **Date of publication**: published after 2000
	- **Subjects**: paralympic athletes, sedentary subjects
	- **Intervention**:
	  - application of internal cooling after exercise ("post-cooling")
	  - combination of internal and external cooling

Second step (screening of full texts)	

- **Study type**: intervention studies
- **Intervention/control trial**:
  - isocaloric and isovolumetric intake of drinks between trials
  - drink temperature: ice/cold-water ≤10°C, control condition 18 - ≤50°C
  - exercise performed in warm (20 – 30 °C) to hot (>30°C) environment
- **Outcomes:** at least one of the following outcomes reported (for meta-analysis: mean, SD, number of subjects):
  - performance (time trial, time to exhaustion, mean power output)
  - physiological (sweat rate, heart rate, blood lactate, core temperature[1], skin temperature)
	- **Intervention**: natural substances containing menthol (e.g., peppermint oil, mint extract)
	- **Publication**: duplicate data publication

- perceptional (rate of perceived exertion, thermal sensation, thermal comfort)	

Note. [1]Gastrointestinal, core, and rectal temperatures were defined as core temperature