

Abstract citation ID: zsaf090.0232

0232**EFFECTS OF CAFFEINATED COFFEE ON MOOD AND SLEEPINESS UNDER SLEEP RESTRICTION CONDITIONS**

Eva-Maria Elmenhorst¹, Eva Hennecke¹, Denise Lange¹, Diego Baur², Anna Linea Foerges³, Andreas Bauer³, Hans-Peter Landolt², David Elmenhorst⁴, Daniel Aeschbach¹

¹ German Aerospace Center, Institute of Aerospace Medicine, ² University of Zurich, Institute of Pharmacology & Toxicology, ³ Forschungszentrum Jülich, Institute of Neuroscience and Medicine (INM-2), ⁴ Forschungszentrum Jülich GmbH

Introduction: It has been shown that mood is disturbed by sleep restriction (SR). We examined how mood and sleepiness after SR are impacted by the use of caffeinated coffee.

Methods: Data from 72 volunteers were assessed during 3 baseline and 5 experimental (E1 to E5) days. The control group (n=15, 66.7% male, mean age $\pm$ SD 28.0 $\pm$ 5.7) had 8 h time in bed (TIB) throughout the study. The sleep restriction group (n=21, 57.1% male, 26.4 $\pm$ 3.7), the decaffeinated coffee group (DECAFF, n=17, 58.8% male, 27.9 $\pm$ 5.3) and the caffeinated coffee group (CAFF, n=19, 57.9% male, 29.9 $\pm$ 5.0) had 8 h TIB at baseline and 5 h TIB during the experimental nights. Both coffee groups consumed standardized 600 ml (E1 to E4) or 400 ml (E5) coffee. Only in the CAFF group, the coffee contained caffeine (200 ml coffee: 100 mg caffeine). Positive (PA) and negative (NA) affect (PANAS) and KSS sleepiness were rated 4 times during scheduled wakefulness. We report here results of mixed ANOVAs and Dunnett-adjusted comparisons of daytime averages during SR.

Results: At baseline, PA, NA, and sleepiness were not different between groups. Compared to baseline, PA deteriorated in the sleep restriction group on E1 through E5 (all $p < 0.001$), in the DECAFF group on E2 through E5 (all $p < 0.001$), and in the CAFF group on E3 through E5 (all $p < 0.001$). Compared to the control group, PA was worse in the sleep restriction group (E2 and E3, both $p < 0.035$), and in the DECAFF group (E1 through E5, all $p < 0.03$), but not in the CAFF group (all $p > 0.2$). NA remained unchanged (group $\times$ condition: $p > 0.2$). Compared to baseline, sleepiness increased in the sleep restriction, DECAFF, and CAFF groups on E2 through E5 (all $p < 0.045$). The DECAFF and CAFF groups (but not the sleep restriction group) were sleepier than the control group on E2 through E5 (all $p < 0.035$).

Conclusion: PA and sleepiness, but not NA, were negatively affected by SR. The use of caffeinated coffee under chronic sleep loss may be more effective in improving mood than in counteracting sleepiness.

Support (if any):