

## 32. SWACSM Abstract

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### Effect of Exercise in Sync with Circadian Preference on Classification of Response and Non-response in Migraineurs

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#### ABSTRACT

It is estimated that 36 million individuals in the U.S. suffer from migraines. While pharmacological treatments are most often prescribed, adverse side effects cause nearly 70% to delay or avoid taking medication. Treatments such as exercise, that have fewer side effects than medications, are needed. While exercise is effective, not all migraineurs benefit (40% were classified as non-responders in one study), indicating certain aspects should be evaluated. The **PURPOSE** was to determine if exercise prescribed at a time-of-day in synchrony versus out of synchrony with circadian preference (chronotype) affected responder versus non-responder status when considering monthly migraine load. **METHODS:** Participants were 7 sedentary individuals who experienced migraines 8+ times per month (age =  $34 \pm 11$  yrs,  $167 \pm 8$  cm,  $99 \pm 26$  kg). The Morningness/Eveningness Questionnaire was completed to determine chronotype. Participants completed one month of exercise (3 x week, 30-min, 60-70% estimated HRmax) in the morning (before 9:00am) or evening (after 7:00pm) in a randomized counterbalanced order, with a two-week washout period. 'In Sync' exercise was considered when a morning type exercised in the morning, and an evening type exercised in the evening. 'Out of Sync' exercise was considered when a morning type exercised in the evening, and an evening type exercised in the morning. migraine load was determined using the Headache Impact Test (HIT-6) and Migraine Disability Assessment (MIDAS) at the beginning and end of each month. Responders were considered as any individual with 10% or greater improvement in scores. Chi squared ( $\chi^2$ ) analysis was performed and significance accepted at  $p < 0.05$ . **RESULTS:** On the HIT-6 evaluation, 43% of participants were considered 'responders' after completing in sync versus out of sync exercise (14% 'responders') ( $\chi^2 = 1.4$ ,  $p = 0.24$ ). Similarly, on the MIDAS evaluation, 57% of participants were considered 'responders' after completing in sync exercise, while only 29% of participants completing out of sync exercise were classified as 'responders' ( $\chi^2 = 1.16$ ,  $p = 0.28$ ). **CONCLUSION:** While no statistical differences were observed, exercise prescriptions that incorporate a participant's circadian rhythm may be a promising option toward helping chronic migraine sufferers reduce the monthly migraine load.