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### Bridging the Gap: Examining the Rhythmic Relationship Between Sleep and Skeletal Muscle Maintenance

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# **Bridging the Gap: Examining the Rhythmic Relationship Between Sleep and Skeletal Muscle Maintenance**

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The human body is constantly adapting and remodelling itself to deal with the stress of living. These stressors, whether they act externally or internally, determine how tissues such as skeletal muscle are maintained. While the most obvious influence on skeletal muscle maintenance lies in factors such as exercise and dietary habits, our sleep health is typically overlooked. Sleep (or lack thereof) can disrupt the flow of central circadian rhythm and its influence on the body. Circadian rhythm is a daily pattern of hormonal and genetic expression mediated by brain structures to maintain overall body function. Such genetic expressors include myogenic regulatory factors, which are rhythmically-expressed proteins that moderate skeletal muscle maintenance. In what manner does sporadic sleep impact skeletal muscle ability to undergo proper maintenance, mediated by circadian rhythms? Further research into this topic yields a gap in the literature. While sleep and skeletal muscle maintenance have been studied extensively in their own regard to circadian rhythms, there exists little connecting each factor together. The primary objective of this literature review will be reached by evaluating literature on the aforementioned subject in the form of systematic reviews and meta-analyses. In addition, clinical and experimental data such as cohort studies and mice models will also be considered to enable translation of physiological mechanisms into clinical significance. While populations such as athletes and shift workers are of prime focus, the relevance of sleep and skeletal muscle to the general population signals the importance of further research regarding circadian rhythm influence.