



# **The Prominence of Actigraph: An Evaluation of Actigraph's Popularity Amongst Researchers**

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## **Introduction and Abstract**

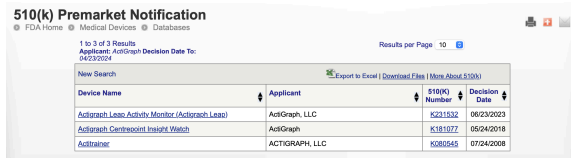
The creation of actigraphy, a non-invasive method of monitoring human sleep cycles, can be traced back to the 1950s when researchers began using motion sensors to study sleep and circadian rhythms. The novelty of actigraphy was its ability to monitor patients for extended periods without causing discomfort while also collecting accurate readings for doctors and researchers to utilize. Over the past couple of decades, this technology has evolved to allow patients to go about their daily lives while also using it in the form of wearable technology. Wearable technology was first established in the 1960s by mathematics professor Edward Thorpe and has become a very prominent part of everyday life in the 21st century. Companies like Fitbit and Garmin have become extremely popular this past decade through their ability to provide multiple readings across different areas, such as calories burnt, sleep tracking, and schedules. One wearable technology that sticks out is from the company Actigraph due to one factor that differentiates them from the rest. Actigraph's seamless ability to be utilized in clinical trials and research separates its technology from other competitors. Over time, Actigraph has made advancements through innovations in the field, like miniaturization, and working with other companies to provide more accurate readings and lead to more accurate research.

## **The Uniqueness of Actigraph**

The issue that Actigraph aims to address is that there is a challenge in optimizing the accuracy and reliability of devices for effectively monitoring human movement and activity patterns, particularly in contexts such as clinical research and sleep studies. State-of-the-art practices at the time of Actigraph's creation included shortcomings, such as subjective self-reporting, limited monitoring, lack of standardization of measurements, invasive techniques, high costs, and difficult integration. One such method at the time, called polysomnography, disrupted the natural behavior of the human body and was not suited for long-term monitoring of patients. Actigraph addresses these issues when monitoring sleep and circadian rhythm through various methods. For one, advanced algorithms for sleep stage detection based on movement patterns allow for increasingly accurate data. The integration of additional physiological measures like heart rate variability or skin temperature works with previously established algorithms. Out of all of Actigraph's unique innovations, its extensive validation studies to ensure reliability and validity across diverse populations and sleep conditions is what sticks out to researchers and clinicians as what makes its technology necessary for the progression of the field of actigraphy.

## Advancements for the Future

Actigraph has actively sought out ways to advance its technology and expand its availability through various methods. Actigraph was acquired by ArchiMed in May 2020. ArchiMed's acquisition will provide ActiGraph with increased funds and strategic expertise to accelerate product innovation and scale business operations to drive growth and expand the company's



510(k) Premarket Notification

1 to 3 of 3 Results  
Applicant: Actigraph Decision Date To: 06/23/2024

Device Name	Applicant	510(k) Number	Decision Date
<a href="#">Actigraph Leap Activity Monitor (Actigraph Leap)</a>	ActiGraph, LLC	K221532	06/23/2023
<a href="#">Actigraph Centropoint Insight Watch</a>	ActiGraph	K181077	05/24/2018
<a href="#">Outrainer</a>	ACTIGRAPH, LLC	N080545	07/24/2008

global footprint.

In 2018, before ArchiMed's acquisition of Actigraph, Actigraph had finally received FDA clearance for its devices to help distinguish itself from competitors. Along with this, its partnership with VivoSense in 2019 allowed for an enhancement of secure access to regulated sensor data from patients in pharmaceutical clinical trials. Actigraph's drive for expansion in markets through receiving FDA clearance and desire to improve its software and technology through rigorous research and partnerships is what paved the path for its acquisition by ArchiMed. After the acquisition, ActiGraph has made significant advancements in its technologies and created a multitude of devices that help to establish it as one of the top providers of medical-grade sleep trackers.

## Conclusion

Actigraph sets itself apart from its competitors mainly due to its rigorous validation studies that ensure accuracy and reliability of its sleep tracking technology. This allows for researchers and clinicians to be more confident about the data collected from these devices and makes them seem more desirable for their clinical trials and sleep studies. Additionally, ActiGraph has made significant advancements in its software capabilities. Their recent software updates include enhanced algorithms for more precise sleep detection, comprehensive data analysis tools, and improved user interfaces that allow for simpler data interpretation and integration into research. These innovations not only improve the functionality of ActiGraph devices but also provide researchers with tools to comprehensively analyze sleep patterns and outcomes. ActiGraph's continuous advancements in wearable technology and partnerships have cemented its reputation as a leading provider of accurate sleep tracking solutions. Researchers have acclaimed the company's approach and advancements due to the reliability of its devices. Its popularity is furthered by ActiGraph's acquisition by ArchiMed, a healthcare-focused firm known for its strategic investments in growth-oriented medical companies. This acquisition has provided ActiGraph with larger financial backing and expertise, enabling them to expand their research and development capabilities. Consequently, researchers are increasingly choosing ActiGraph for their clinical trials, confident in the company's commitment to providing state-of-the-art technology and robust support for their studies.

## Citations of References Used

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