



CASE STUDY

EXOSKELETON EVALUATION

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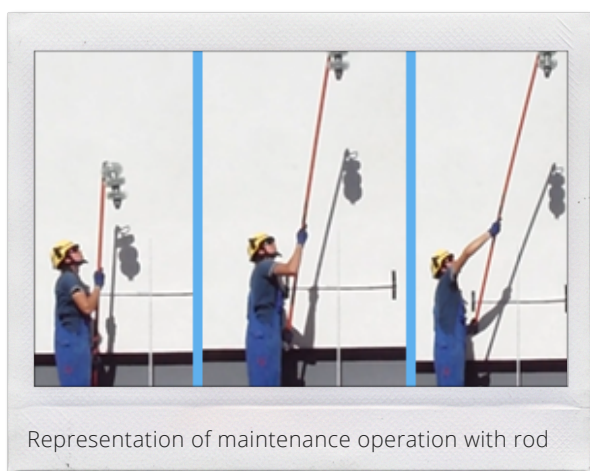
www.wearhealth.com

 WearHealth®

About the Company

The **Enel Group** is a leading manufacturer and distributor of electricity and gas present in more than 30 countries, bringing energy to people through the adoption of new sustainability-oriented technologies.

The Challenge



Exoskeletons had been identified as a potential solution to certain physically challenging operations. They had been tested in terms of usability, comfort and support using subjective questionnaires and objective lab data from EMGs. However, it was not clear how exoskeletons could impact workers' overall workload in a real work environment over longer periods.

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Luca Di Stefano
Head of Network Devices, IoT
and Robotics

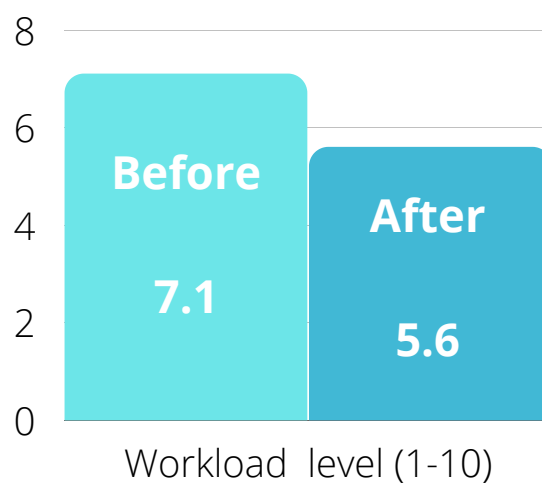
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An in-depth evaluation with wearables helped us to understand the impact of exoskeletons on our workers during real operations and plan a step-by-step rollout.

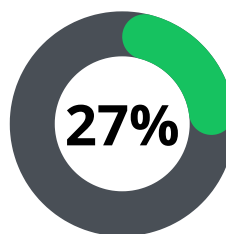
The Solution



The Results



The maintenance operation was performed without exoskeleton (Before) and with exoskeleton (After). In both cases a wearable device was used to gather heart rate, heart rate variability and movement data. The resulting data was converted to a 1-10 workload scale (physical & mental) using WearHealth's proprietary artificial intelligence algorithms based on ISO standards.



Workload
reduction

The findings during maintenance operations and breaks suggest that **besides providing support during physically challenging periods, the exoskeleton enabled a faster recovery between demanding tasks.**