

Cyborgs

Exoskeletons in the Workplace

By IDa Design

When we think of workplaces, we usually think of our office, computer, emails, and desks. As an industry, we have been laser-focused of late on designing ways to encourage more standing and movement throughout the day. However, there's a flip side to this that is often overlooked; we tend to forget about the construction, factory, and automotive workers who are on their feet all day. Construction workers have some of the highest rates of musculoskeletal disorders per capita, according to the Bureau of Labor Statistics. Reducing workplace injuries is of obvious importance to employees. But the impact to employers—who are responsible for medical costs and training replacements—is high as well.

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Bureau of Labor Statistics

A big part of the issue is that these workers have nowhere to sit and often times have to hold uncomfortable squatting positions while working. Combined with long hours, this creates a strenuous work environment that is repeated day after day. A place to sit would seem to be low-hanging fruit for reducing fatigue and preventing lost time injuries for such workers.



Chairless Chair, Noonee



Exoskeleton for Construction, Ekso Bionics

Swiss studio [Noonee](#) designs Wearable Ergonomic Mechatronic Devices, or WEMD's for short. Their exoskeleton product, creatively named the Chairless Chair, allows wearers to sit wherever and whenever they have need. It is designed for manufacturing environments where workers stand for long periods of time. Noonee teamed up with auto workers from Audi, BMW, Daimler, Renault, Skoda, among others, to bring this chair to production.

The Chairless Chair can be adjusted to the user's height. Once on, workers wear it while standing, walking, and doing most other activities. Four settings give the user flexibility for how low they sit depending on the tasks. In addition, there's an optional vest to add

comfort during long-term use.

The idea of an exoskeleton is not new. A significant percentage of organisms on this planet wear them every day. Ants, who are known as one of the busiest and workaholic species, comes to mind. Their exoskeletons make them stronger, increase stamina, and protect them from outside forces. Who wouldn't find it occasionally useful to carry 10X, 100X, or more of their own weight? It comes as no surprise that humans might find inspiration in the humble ant (or grasshopper, or lobster, if not cockroach) in our efforts to make better, stronger, faster versions of ourselves.

There are many exoskeleton devices on the market that assist the paralyzed in walking. [Ekso Bionics](#) began by designing exoskeletons

for the military and then spread into medical applications. Along with keeping soldiers safe and increasing patient mobility, Ekso has taken their technology a step further into an untapped market: construction. In this application, the user wears a full body frame that makes large tools feel almost weightless. At this early stage, it may be hard to imagine manufacturing environments where cyborg contraptions are as common as safety glasses and ear plugs. But it is fitting that ergonomics, whose roots are in the physically demanding work of early industrialization, is coming full circle to workplaces that have been eclipsed by the sedentary office. Whether it's chairs you wear or suits that give you Ironman strength, this is an area with huge potential.

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