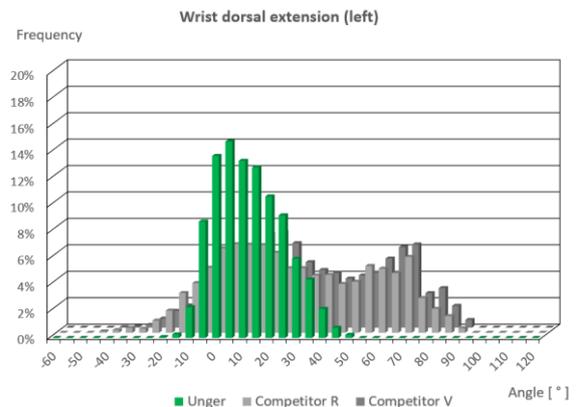
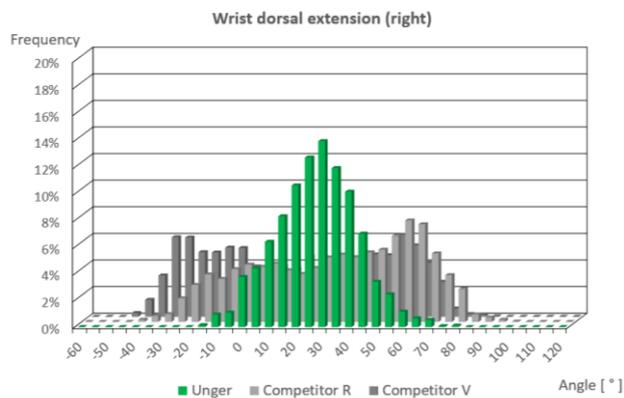


Ergonomics of Floor Cleaning Systems

Methodology

The University of Siegen (Germany) conducted an independent comparative study* in July 2017 of different floor cleaning systems from the perspective of ergonomics, focussing on the analysis of human movements during the cleaning process and the muscular strain on the hand-arm-shoulder system. The research report presents the objective data from the movement analysis and the recording of muscular stress using surface electromyography (SEMG), supplemented with the results of a representative questionnaire. The study concluded that the UNGER erGO! clean with its S-curved pole together with its dual swivel handle provide an objectively measurable relief for the user's wrist and that the system design is successful overall.

Assessment of muscular strain supported by motion analysis



UNGER erGO! clean requires considerably less deflection in the wrist than other cleaning systems. The rotatable right-handed grip prevents unfavourable joint positions up to the limits of the wrist's range of movement. The more natural, straighter wrist position can help prevent diseases in the wrist.

The significantly lower dorsal deflection of the hand for UNGER erGO! clean is clearly evident. This makes the use of force for this floor cleaning system much more efficient.

Questionnaire results

- 93% of the interviewed test subjects valued the benefits of the S-curved design
- 88% favoured the height adjustment
- Pulse jet system: 93% were convinced by this method of applying cleaning fluid by means of an actuator
- Cleaning process: UNGER erGO! clean showed by far the lowest resistance when cleaning and therefore received the best marks
- After use, 78% prefer UNGER erGO! clean to competition

Conclusions

- The UNGER erGO! clean is a sensible, ergonomic evolution in cleaning system design
- Its ergonomics are superior to other floor cleaning systems due to:
 - Its unique shape and dual rotating handles which reduce strain and wrist deflections
 - The combination of height adjustment and pulse jet system with actuator – the only one on the market
- The flexible cleaning liquid on board allows greater independence from a water bucket and faster cleaning performance