



## Measuring the effect of sit-stand reminders

A case study on the motivational effect of reminders for office workers at electric height-adjustable desks



# Description of the case study

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LINAK® is a world renown manufacturer of electric lifting columns and systems for height-adjustable desks. The company makes several tools for electric height-adjustable desks that are designed to motivate users to stand up several times a day. The goal is to improve the users' working behaviour in an ergonomically sustainable way.

This case study investigates if (and to what extent) the three motivating elements, Desk Panel DPG, Desk Control™ App, and Desk Control™ software (henceforth called 'sit-stand reminder kit') will motivate office workers to use their sit-stand desks more.

The study investigates the effectiveness of the following functions:

- The integrated LED light strip reminder function of the Desk Panel DPG
- The reminding notifications on the computer screen of the Desk Control software
- The reminder function in the Desk Control App

The users in this study are comparable\* administrative staff at the company Diamant Software GmbH & Co. KG based in Bielefeld, Germany. The study is conducted by the IGR Institute for Health and Ergonomics in Nuremberg, Germany.

*\*) same working hours, identical job content, and working environments*

# Involved parties

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With more than 2,300 employees worldwide, LINAK is a global developer and manufacturer of electric linear actuator systems for multiple applications. LINAK has been highly involved in the development and distribution of the height-adjustable desk concept.



Diamant Software is a medium-sized owner-managed company headquartered in Bielefeld, Germany. The company has developed software for accounting and controlling for more than 35 years. Some 150 employees work together to push and continue development of products and customer service.



The German organisation 'Institut für Gesundheit und Ergonomie' (IGR) emerged from the 'Interessengemeinschaft der Rückenschullehrer/Innen e.V.' whose members are physiotherapists, sports teachers, doctors and other professionals and organisations concerned with back health.



# The 'sit-stand reminder kit'

**The Desk Panel DPG** for office desks includes features such as intuitive use without the use of buttons, reminder functions through an integrated LED light strip, memory positions for the user's favourite desk heights and app connectivity via integrated Bluetooth® wireless technology.



**The Desk Control™ App** for Android and iOS mobile devices includes functions such as reminding notifications for the user to stand up, height adjustment of the desk, memory function for individual sit/stand positions.

**The Desk Control™ software** for PC and Mac, amongst others, offers a reminder function that reminds users to stand up with predefined or individual intervals by pop-ups on the user's screen.



# Sit-stand dynamics and human evolution



Constant physical activity filled the everyday life of our ancestors until industrialisation. The human spine and muscles are designed to meet this highly mobile lifestyle and need this movement to stay strong and healthy.

Today, however, most of our daily work requires very little physical activity and many of us sit for most of the day. We have developed into a “homo sedens” – the sedentary human. This results in back pain and muscle tensions, or even slipped discs.

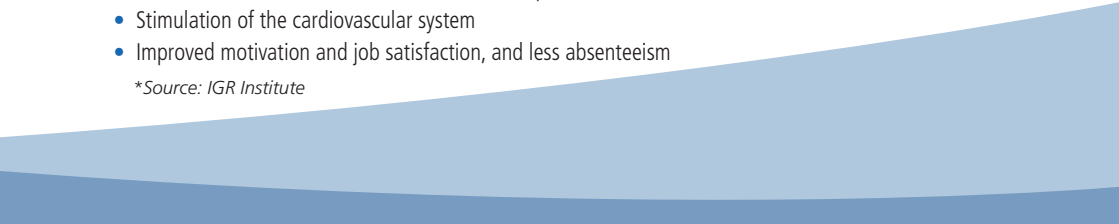
The only tenable and effective way to prevent these disabling pains is: Movement!

A person who sits for long periods of time often takes a constrained posture. To avoid this, regular change between sitting and standing is highly recommended.

## **Advantages of standing**

- Less fatigue at work
- Better concentration and responsiveness
- Time savings and higher productivity
- Improved brain performance
- Training of back and leg muscles – decompression of the spine
- Noticeable decrease in neck tensions and back problems
- Stimulation of the cardiovascular system
- Improved motivation and job satisfaction, and less absenteeism

*\*Source: IGR Institute*



# Test arrangement at Diamant Software



40 office workers – each with a height-adjustable desk powered by a LINAK system – were examined. All participating persons are used to work with regular sit-stand desks without any reminders.

20 persons received a 'sit stand reminder kit'\*, exposing them to frequent reminders asking them to change posture and continue work standing. The remaining 20 persons continued to work with their regular height-adjustable desk system without any reminder options.

Each workplace was (largely) consistently assigned to one person.



## Course of the study

The participants were given a uniform explanation of the contents and purpose of the study, including users working with a regular adjustment system without a 'sit stand reminder kit'.

The case study supervisors explicitly avoided to leave the participants the impression that insufficient or negligible use of the height-adjustment would lead to possible sanctions. Participants were also guaranteed anonymity in regard to personal data.

*\*) Desk Panel DPG, Desk Control™ App, or Desk Control™ software..*



### **Tracking the movements**

To measure the effect of the 'sit-stand reminder kit', data of the control boxes were collected. As control boxes administer the adjustment of sit-stand desks by linking the lifting columns with the desk panels, it is possible to acquire the exact stroke frequency of each individual desk.

Data from every desk was read out prior to, throughout (once a month), and after the study (three months). After the study period, the use or frequency of each of the height adjustments were compared. Both were documented and evaluated accordingly.

### **Survey of the participants**

Prior to the study, a questionnaire helped clarify the profile of each user in regard to normal usage habits, such as sitting behaviour, type of activity performed, use of ergonomic aids, etc.

### **Completion of the study**

Subsequently, data containing the number of desk movements/adjustments over a three-month period from 22 March 2018 to 20 June 2018 were read out and compared. This was followed by the evaluation of the questionnaires.



Learn more about the  
case study in a video:  
[LINAK.COM/reminders-work](https://linak.com/reminders-work)

#### About the survey

**Number of workplaces  
studied:**

40

Number of desks with the  
'sit-stand reminder kit':

20

cycles of 20 desks read out

Number of desks without  
'sit-stand reminder kit':

20

cycles of 20 desks read out

# Questionnaire conclusions

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**85%**  
of the  
respondents

used the Desk Control™ software as a reminder to drive the desk up to work standing.

**35%**  
of the  
respondents

used the Desk Panel DPG as a reminder to drive the desk up to work standing.

**15%**  
of the  
respondents

used the Desk Control™ App as a reminder to drive the desk up to work standing.

\*Multiple answers were possible

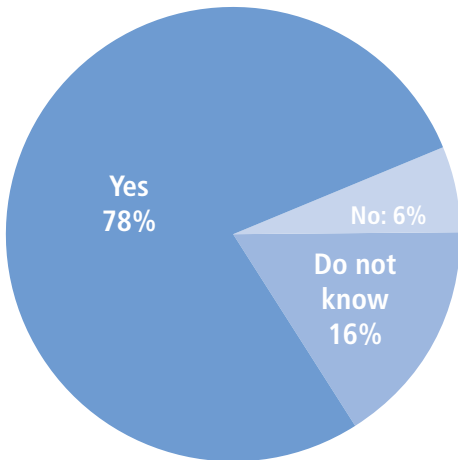
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**78%**  
of the  
respondents

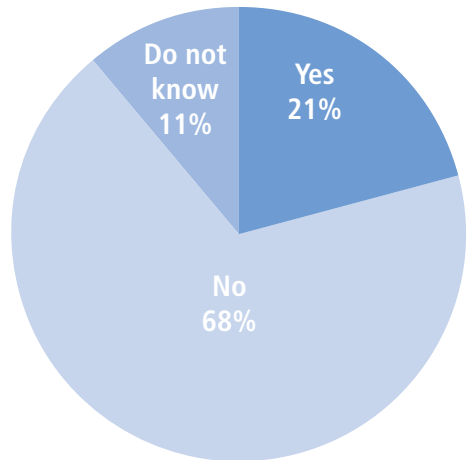
rated the usability of their height-adjustable desk as 'good'.

*"Do you think that you change more between standing and sitting now compared to the beginning of the testing period, and work more while standing up respectively?"*

Employees **with a 'sit-stand reminder kit'**:



Employees with standard control **without a 'sit-stand reminder kit'**:



# Evaluating the results

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74%

more sit-stand  
actions

More activation (adjustment of the desk) at desks with “sit-stand reminder kit” compared to desks without sit-stand reminders.  
(Adjustment **exceeding** 25 centimetres – corresponding to a sit-stand action)

68%

changes of sitting  
positions

More activation (adjustment of the desk) at desks with “sit-stand reminder kit” compared to desks without sit-stand reminders.  
(Adjustment **up to** 25 centimetres – corresponding to a change of a sitting position)

“It was definitely fun. My colleague did not have the software installed [“sit-stand reminder kit”]. Now and then, I swapped with her to compare how it is to work with the other desk control. And I definitely do not want to swap.”

- Christina Milenkovic, Diamant Software GmbH, Reception

# Case study conclusion

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„The evaluation showed a clear increase in the use of the height-adjustment function in the group of participants who had a ‘sit-stand reminder kit’. Particularly, when it comes to sit-stand activations exceeding 25 cm (users changing from sit to stand posture vice versa) an increase of 74 % were recorded.

At least we can expect the general sit-stand awareness among the participants to be positively influenced by the increase of repeated changes in postures, and maybe make them integrate this into their behavioural repertoire.

A clear majority of users with a ‘sit-stand reminder kit’ claimed to have changed more between sitting and standing, or changed to standing more since the study started. At the end of the period, the users with the ‘sit-stand reminder kit’ reported that they work standing up 62 % longer each day.”

*Ralf Eisele, IGR Institute*

“Previously an inner voice spoke against: ‘I do not want to stand up. I’d rather sit and hang in my chair’. That has changed significantly”.

*- Klaus Artmeyer, Diamant Software GmbH, Sales Department*

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