

# Brody Standing Desk Initiative



Impact of Standing Desk Use on Medical Student's Health and Performance

4<sup>th</sup> Annual Brody  
Medical Education Day  
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# Collaborative Team Members

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# Rationale

- Elevated risk of mental health issues among medical students and professionals
  - “14%-25% of medical students suffer from dysphoria and depressive disorders” with 50% having poor mental health (AMA 2010)
  - High depression rates and burnout amongst resident physicians and practicing physicians (AMA 2010)
- Regular exercise positively impacts mental and physical health
- Standing desks allow pursuit of exercise while studying
  - Approximately 30% increase in standing time (Minges et al. 2015)
  - Increased caloric energy expenditure (Torbeyns 2014)
  - Increased muscle activity (Gao et al. 2015)
  - Beneficial cardio-metabolic effects including increased fat oxidation and decreased cholesterol (Gao et al. 2015)
- Studied the medical student perceptions of productivity
  - i.e. energy, focus, stress, and overall health

# Methods: Study Design

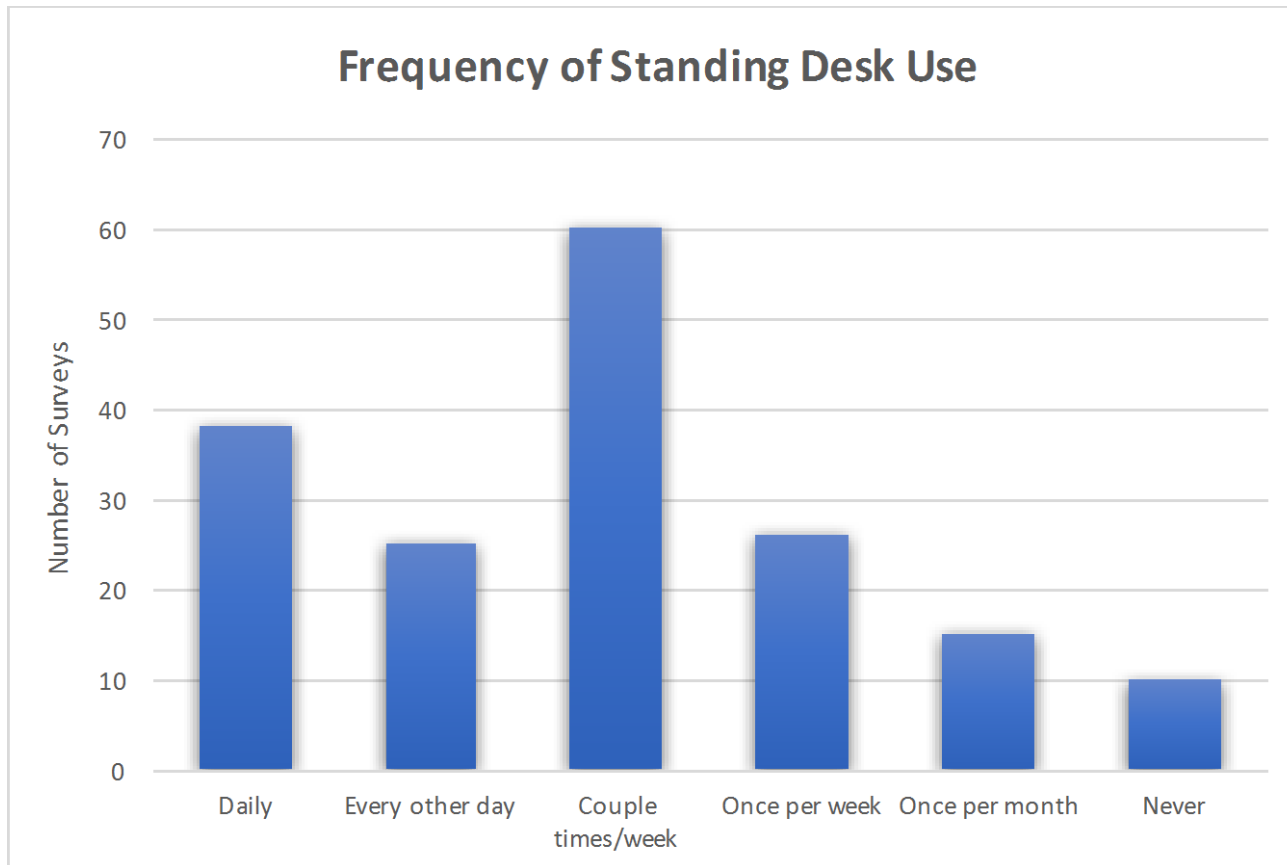
- A proposal was submitted through administration, in support of healthier study habits, to procure 35 standing desks with associated anti-fatigue mats
- 174 surveys ( $n=174$ ) over a 13-month period
- Survey:
  - Productivity and energy
    - My productivity has increased since beginning to use the stand up desk.
    - My overall energy throughout the day has increased.
  - Ability to focus
    - I am able to focus better while using the stand up desk.
  - Stress level
    - My overall stress has decreased while using the stand up desk.
  - Changes to joint and back pain
    - I have had an INCREASE in joint pain while using the stand up desk.
    - I have had an INCREASE in back pain while using the stand up desk
  - Overall perception of health
    - I perceive that I am healthier by using the stand up desk in comparison to a sit down desk

# Methods: Study Design

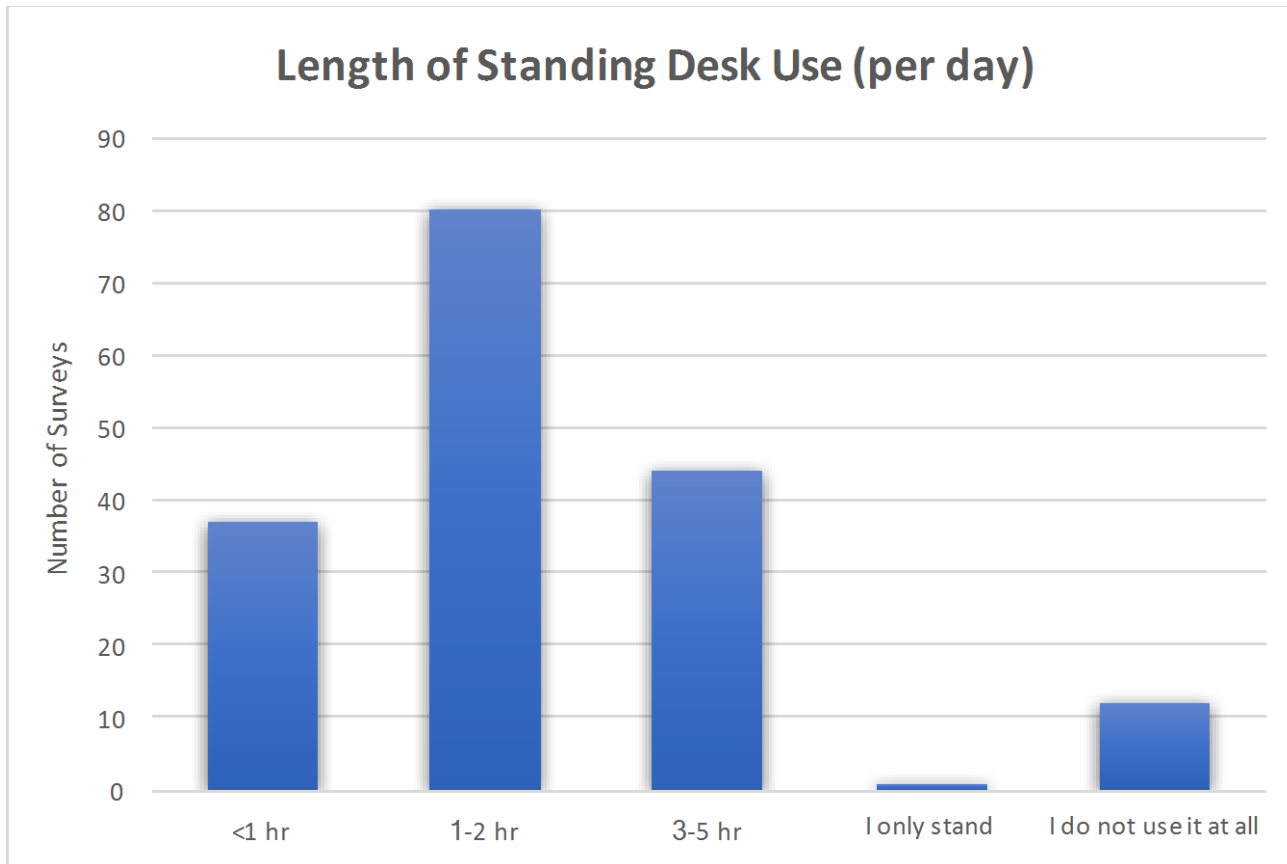
- Five point Likert Scale used to collect responses
  - 1: strongly disagree, 2: disagree, 3: neutral, 4: agree, 5: strongly agree.
- Data Analysis:
  - Quantified number of surveys per “usage category”
    - Every day, every other day, a couple times per week, once a week, once a month, never
  - Overall agreement or disagreement over the 13 month period (percentage of total surveys)
  - Mean agreement score for each frequency of use category

# Results

- Survey results showed that the majority of users agreed:
  - Productivity increased (60.9%)
  - Energy increased (61.5%)
  - Focus increased (73.5%)
  - Stress level decreased (37.8%)
  - No increases in joint and back pain (84.8%)
  - Healthier self-perception (83.3%)
- Those who used the standing desks every day had the most agreement that:
  - Their productivity increased ( $M=4.08$ )
  - Their energy increased ( $M=4.08$ )
- Those who used the desks every other day had the most agreement with:
  - Increasing focus ( $M=4.16$ )
  - A healthier self-perception ( $M=4.48$ ).



- Greatest frequency of use occurred at "a couple of times per week"



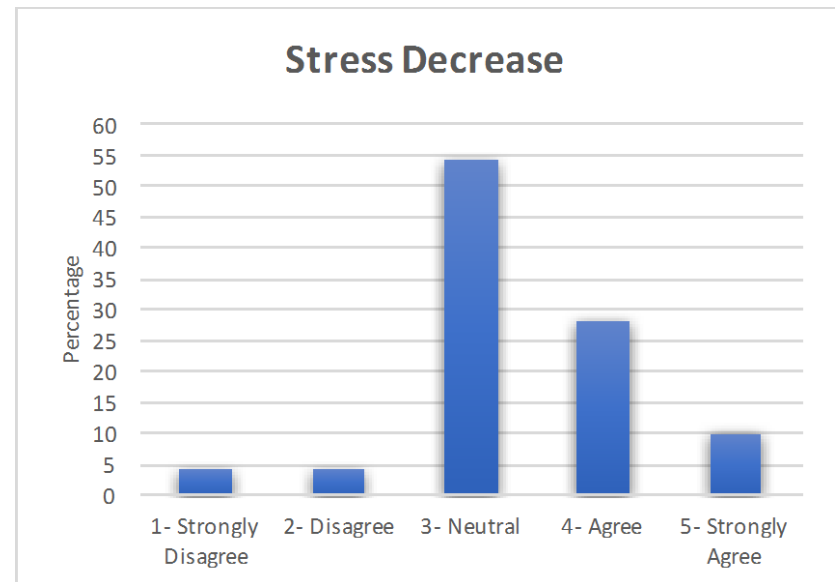
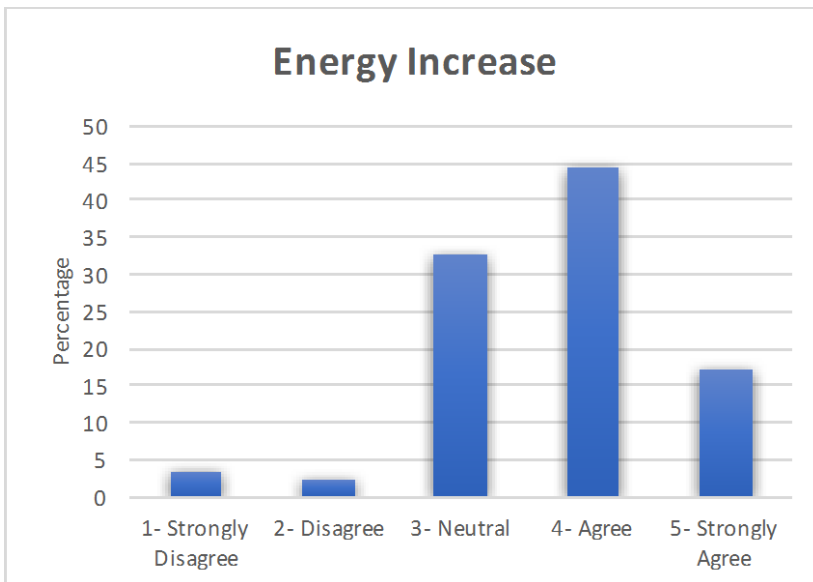
- Greatest length of use was between 1-2 hours daily



# Energy and Stress

"My overall energy throughout the day has increased."

"My overall stress has decreased while using the stand up desk."

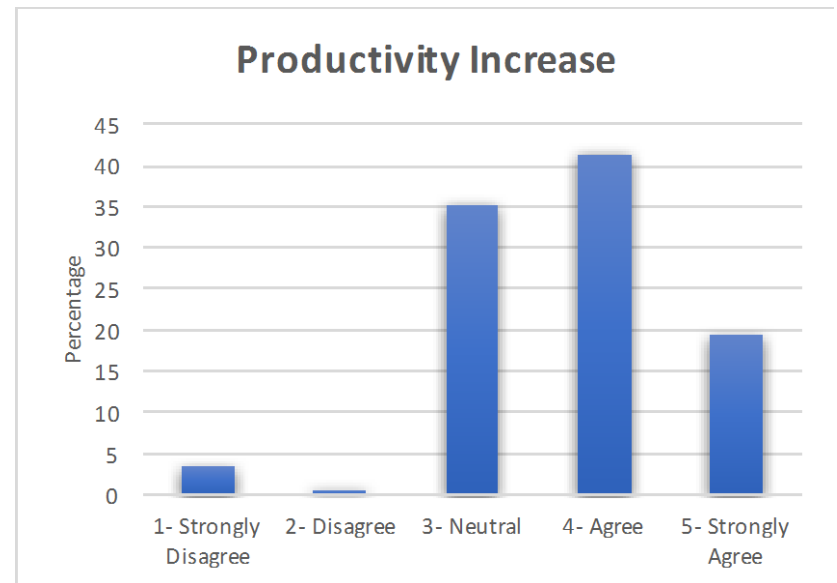
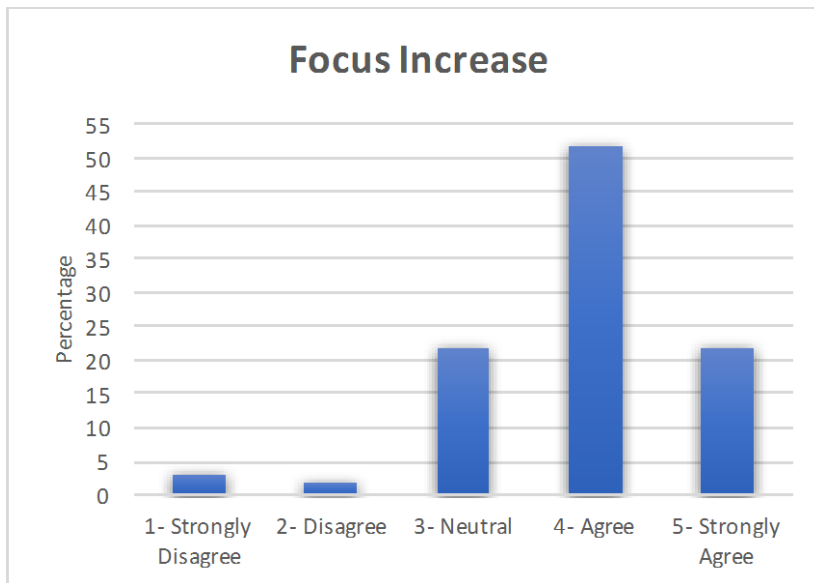


- Standing desk users perceive an increase in energy (61.5% agree) and decrease in stress (37.8% agree).

# Focus and Productivity

"I am able to focus better while using the stand up desk."

"My productivity has increased since beginning to use the stand up desk."

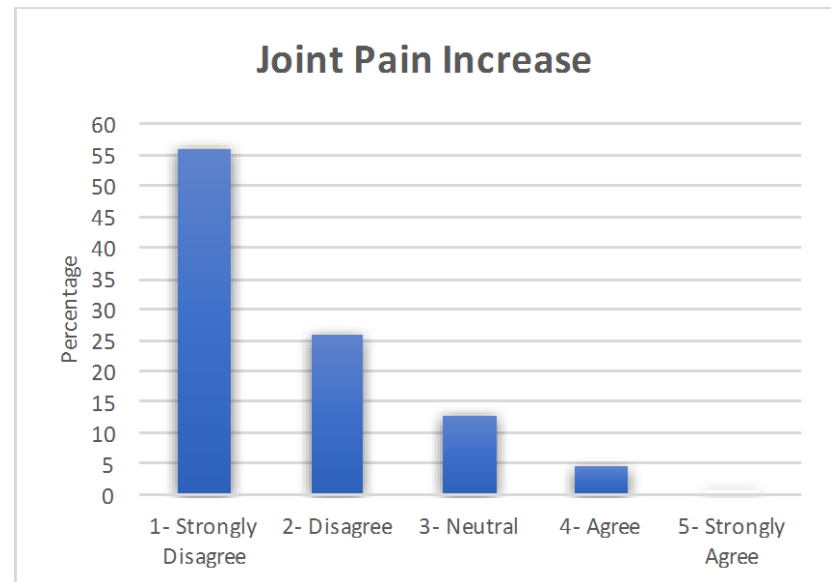
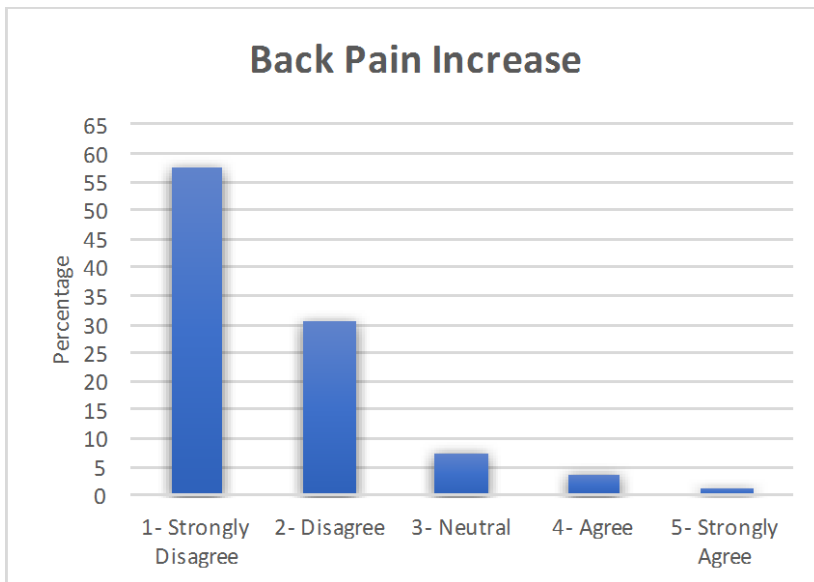


- Most standing desk users found increases in productivity (60.9%) and focus (73.5%).

# Back and Joint Pain

"I have had an INCREASE in back pain while using the stand up desk."

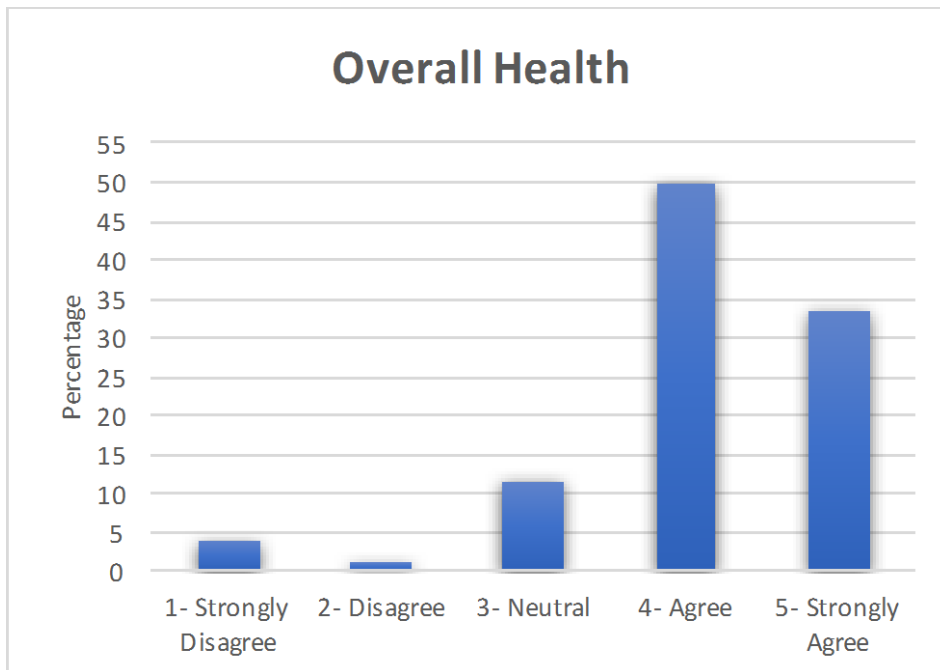
"I have had an INCREASE in joint pain while using the stand up desk."



- 84.8% of standing desk users perceived no increases in joint and back pain.

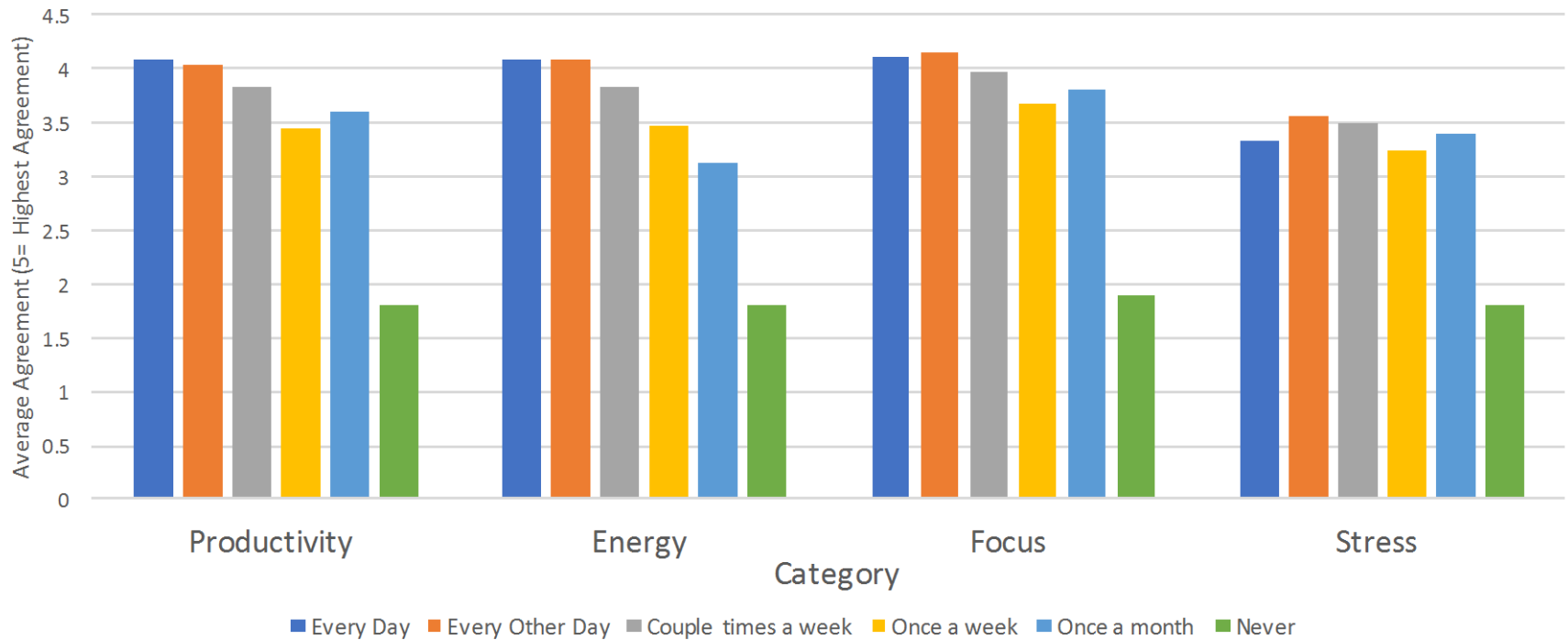
# Overall Health

"I perceive that I am healthier by using the stand up desk in comparison to a sit down desk"



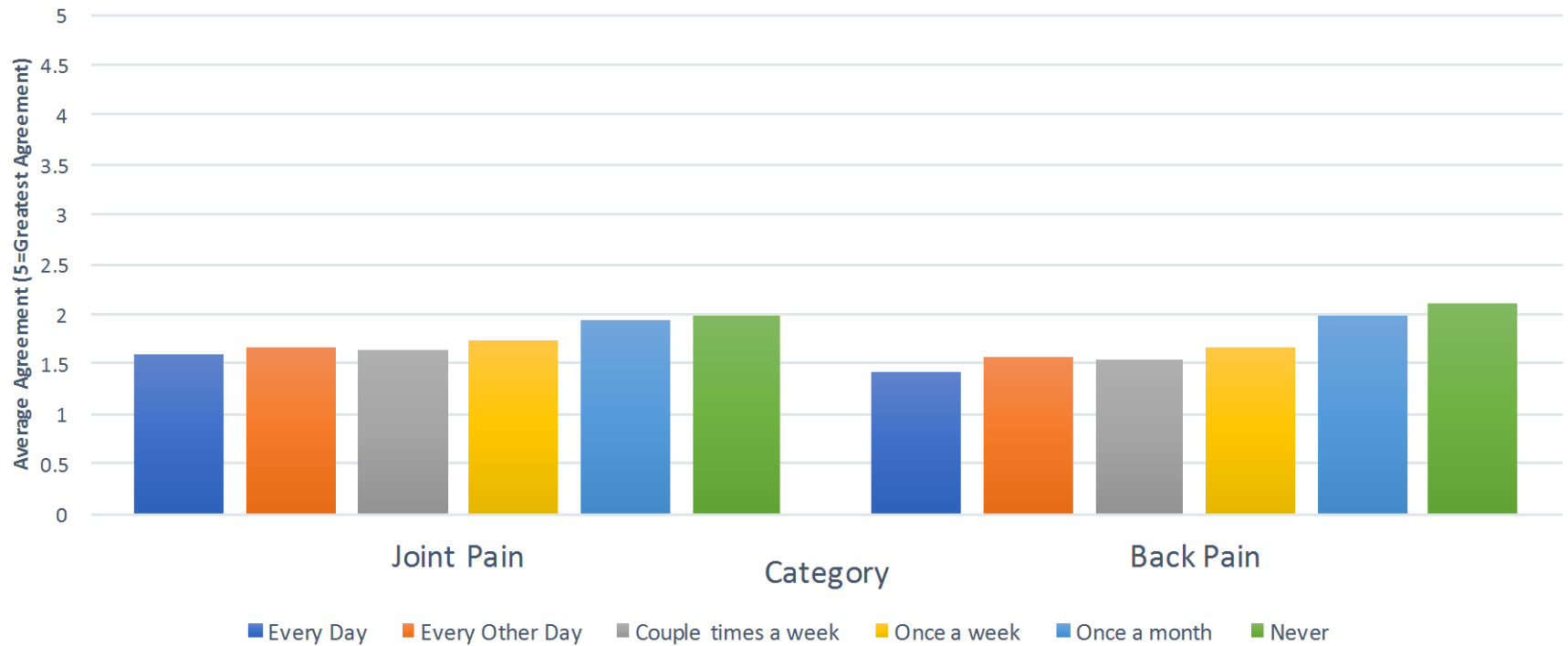
- The majority of standing desk users report a healthier self-perception (83.3%)

Average Agreement with Statement Categorized by Frequency of Use

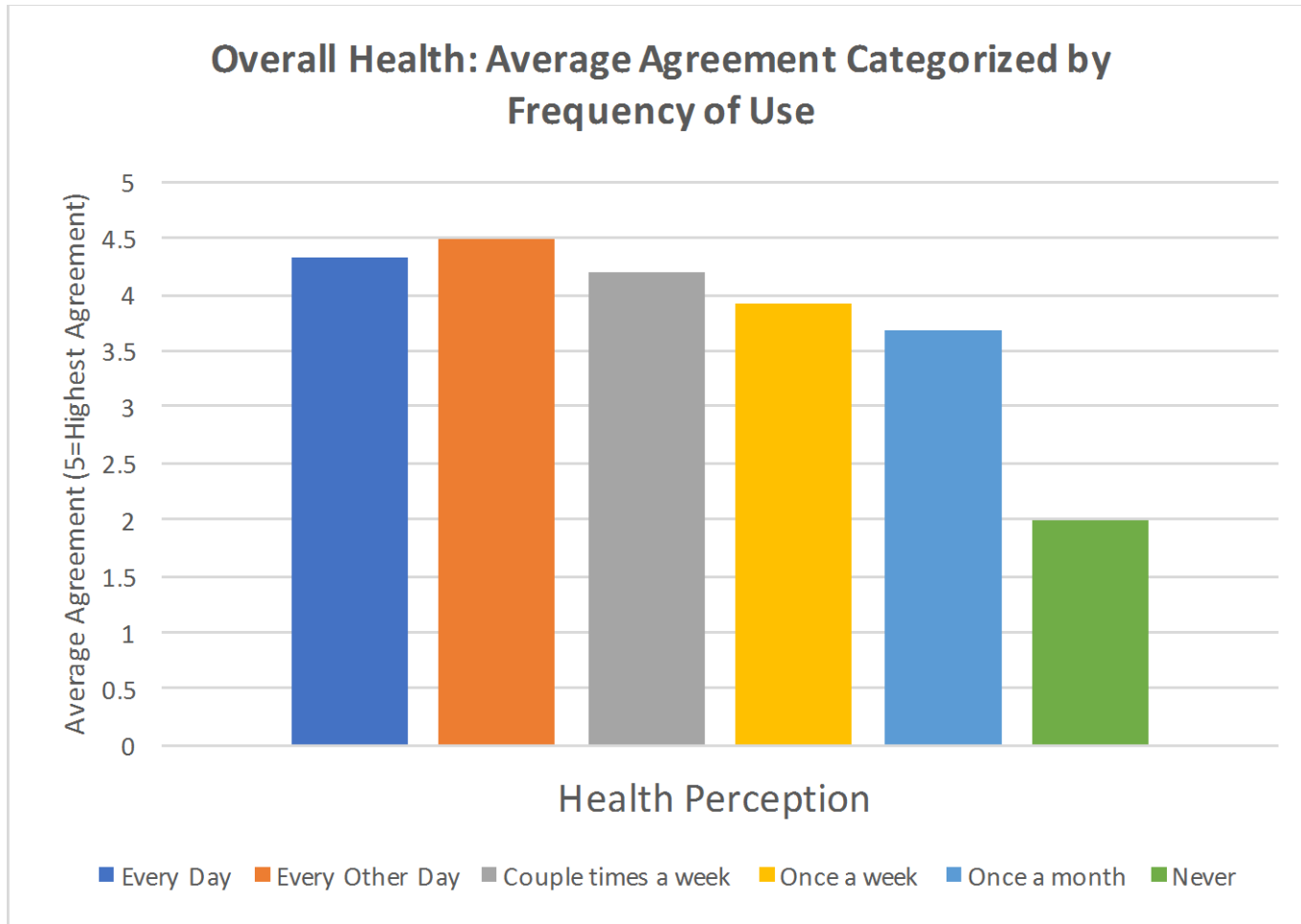


- Higher frequency standing desk users were more likely to report increases in productivity, energy, focus, and stress.

## Joint and Back Pain: Average Agreement Categorized by Frequency of Use



- More frequent use of standing desks is correlated to lower perceptions of back and joint pain



- More frequent standing desk use is associated with better perceived overall health.

# Conclusions

- The use of standing desks positively impacts medical student perception of:
  - Productivity
  - Energy levels
  - Focus
  - Stress levels
  - Overall health
- No perceived increase in back and joint pain
- Takeaway: The use of standing desks benefited perceived study habits while supporting the physical and mental health of students without causing negative health impacts.



# Challenges Encountered

- Ensuring appropriate use of equipment to prevent pain/injury
  - Inappropriate use of standing desks is associated with back and joint pain
    - Standing desk without mats
    - Inappropriate desk height
    - Inappropriate length of time per session
  - Poor attendance at OSDAC ergonomics sessions
  - Solution: Education on proper standing desk use via alternate method. (ex: pamphlet)
- Ensuring that the students using the desks consistently complete the surveys
  - Solution: Reminder e-mails and periodic notes on desks used.

# Next Steps

- Ensure appropriate desk use through proper ergonomic set-up of standing desks
- Attempt to integrate standing desks into lecture locations
- Upgrading standing desks to desks that can be adjusted to serve as a sitting desk and a standing desk in one platform
  - Reduce space required for standing desks
  - Increase transition speed and frequency between standing and sitting

# Acknowledgements

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