



Biomechanical Factors associated with Low Back Pain in Construction Workers



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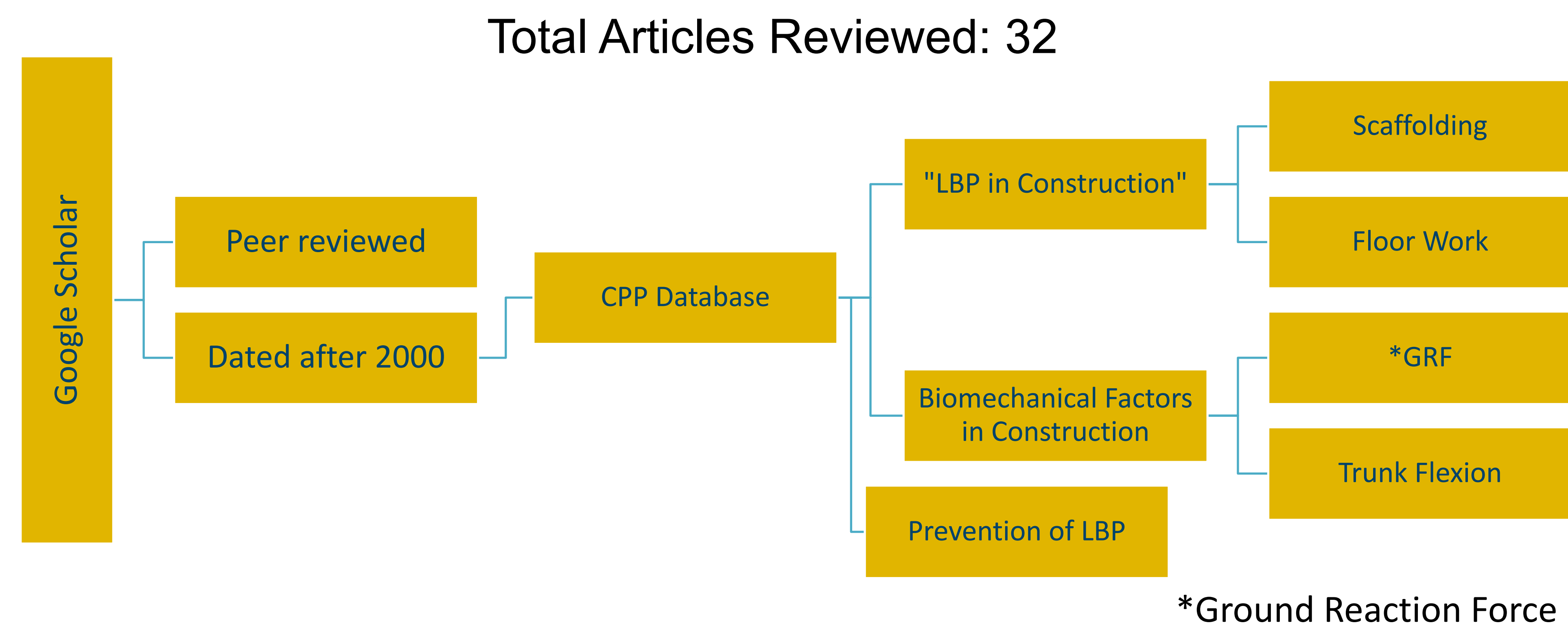
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Introduction

- In the construction industry, it is well documented that construction workers report low back pain (LBP) more than other injuries.¹
- However, studies of underlying biomechanical factors that contribute to LBP in construction workers are still limited.
- The purpose of this review is 1) to summarize the current knowledge of biomechanical factors that are responsible for LBP in construction workers and, 2) to find the knowledge gap in studying LBP in construction workers.

Methods



Results

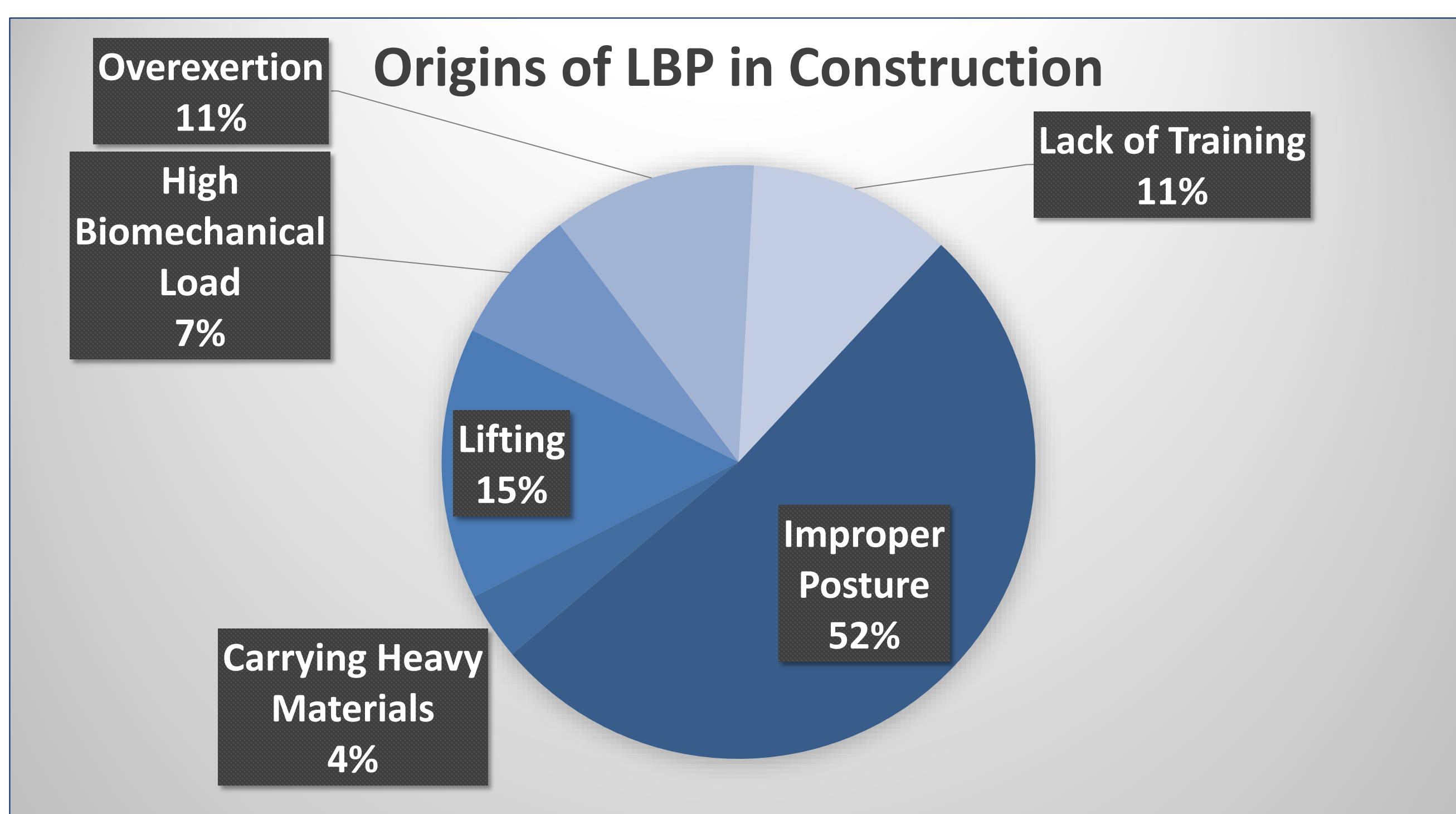


Figure 1: Improper posture was the most reoccurring origin of LBP in construction. This is due to the amount of time spent in flexion, static posture, elevated arms, and lifting from said position.

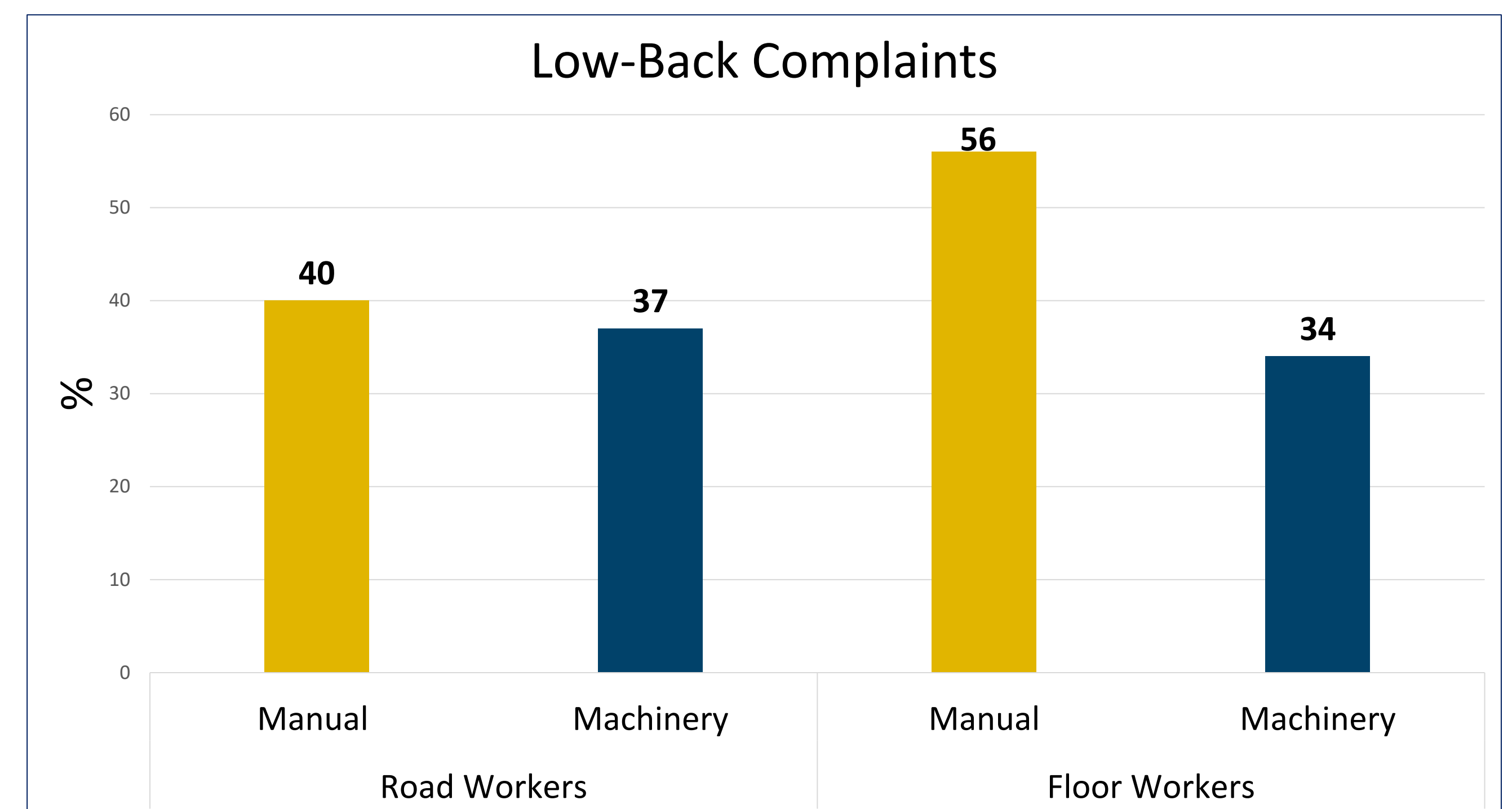


Figure 3: Comparing the percentage of LBP in road workers and floor workers, illustrating how the amount of time spent in trunk flexion increases the amount of LB complaints.²

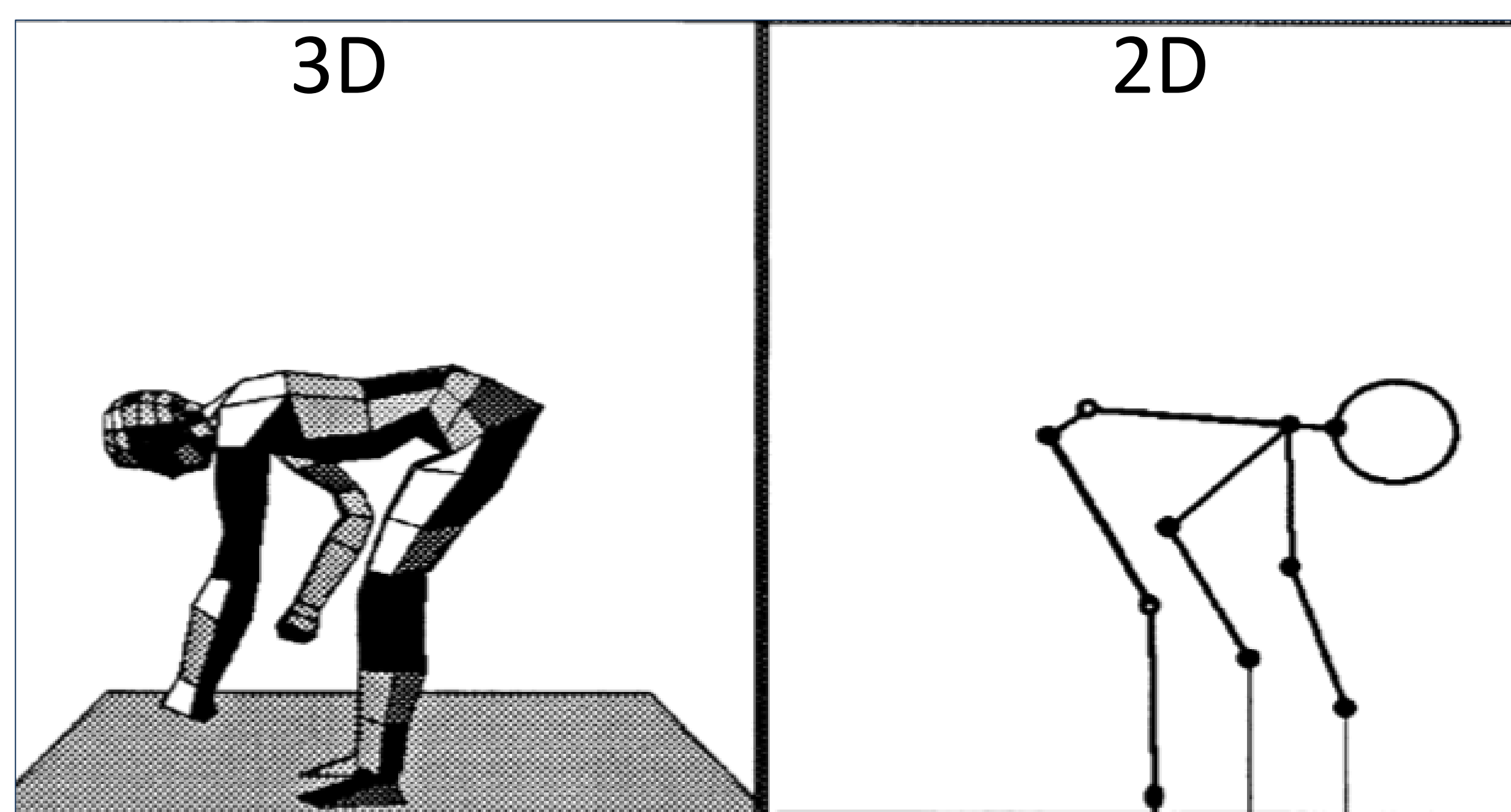


Figure 2: Demonstration of trunk flexion, using both a 3D and 2D model, that increases compressive forces on the lumbar region.³

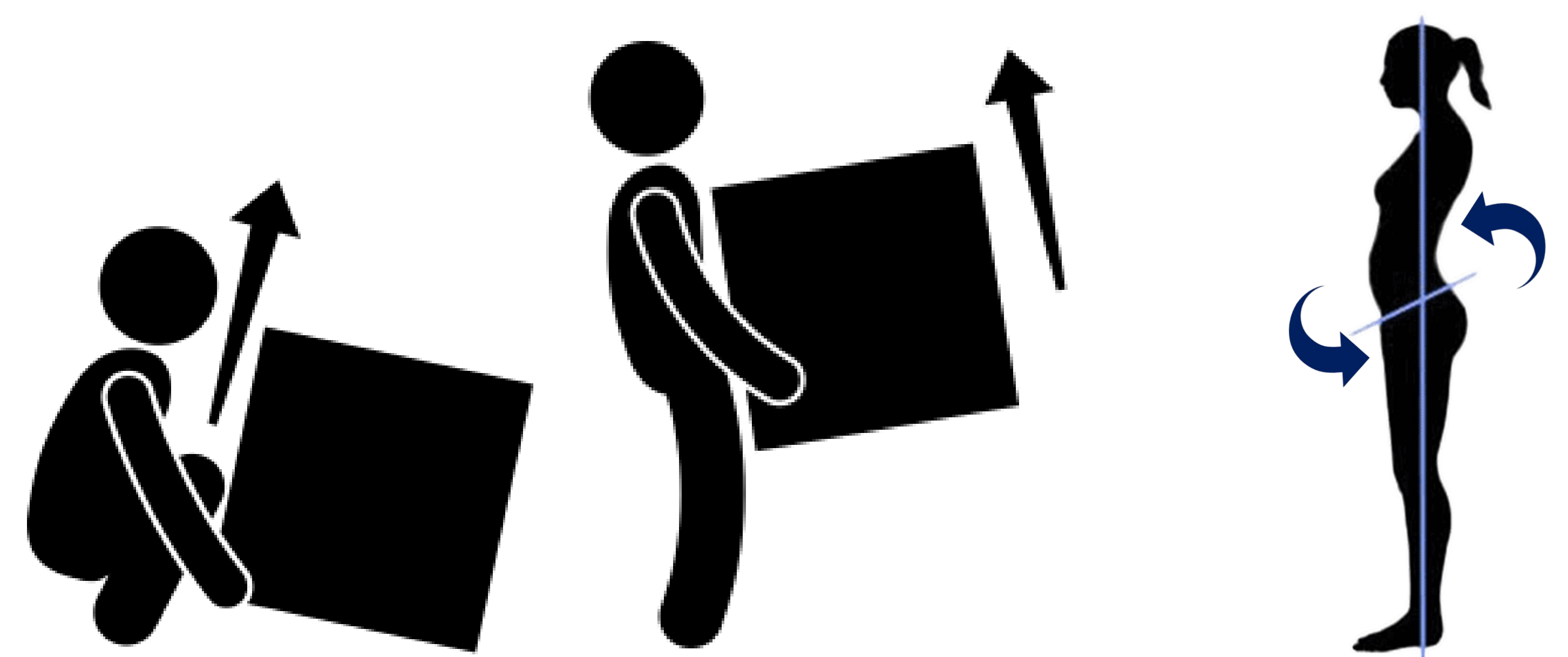


Figure 4: Lack of proper instruction is another origin of LBP due to an increase in compressive force in squat posture during lifting. Instructing workers to increase the pelvic forward tilt decreases LB compressive force during lift and will decrease overall LBP.

Conclusion

The nature of the construction industry itself is dangerous. Without examining how biomechanical factors contribute to LBP in construction workers, injuries will continue to be considered a norm in the industry. When workers get injured they reduce productivity rates by taking sick days to get help and recover. With the results presented, it provides support for what is currently known about biomechanical factors associated with construction workers. It also focuses on how a primary cause of LBP is due to bad posture that directly impacts the amount of compressive forces placed on the low back and the supporting muscles. A secondary cause for LBP is due to the lack of instruction for lifting and squat positioning. It is easy to dismiss the severity of these injuries claiming that it is part of the job; however, I suggest future studies dive deeper into this topic and help construction workers with their pain. If future studies identify involved muscle properties and biomechanical factors that generate LBP, it will provide robust biomechanical evidence that prevents LBP and related injuries in construction workers.

References

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