



ANESTHESIOLOGY



Stand up from prone! An easier and more efficient patient mobility after a back procedure.

Yoshio Tatsuoka MD¹, Sokpoleak So, MD^{1,2}

¹Yale School of Medicine, Department of Anesthesiology, New Haven, CT

²VA Connecticut Healthcare, Department of Anesthesiology, West Haven, CT



INTRODUCTION

Work-related musculoskeletal disorders are common among healthcare providers, and patient lifting significantly increases these risks^{1,2}. In 2016, the American Nurse Association estimated that a nurse moves 3,600 pounds per shift. Assistive devices for patient mobility have been demonstrated to decrease these risks, but time constraints have limited their use³. Elective pain procedures in the office or ambulatory setting are increasing every year⁴, and patient lifting in these settings are also common. Often lift devices are not readily available or difficult to access due to logistics and time constraints. Most procedures performed on patients are in the prone position with just local anesthetics^{5,6}. In most institutions, patients are turned supine first, sit up on the bed, and then stand up ("Flip then Lift"). Patients with full mobility can often complete this maneuver themselves with minimal staff assistance. However, this sequence of maneuvers is challenging in patients with limited mobility. They depend more on the staff to lift them. For these patients, we suggest having them stand up from a prone position without flipping ("Lift without Flip"), aiming for more comfort for patients and less musculoskeletal burden to health care providers.

METHOD

- Study design: Retrospective observational study based on a survey.
- Subjects: RN and resident physicians (N=17) in the pain procedure room at VA Connecticut Healthcare, West Haven, CT.
- Methods: The subjects voluntarily participated in the survey. They reported their numerical level of exertion and pain score from 0 to 10 in their back and arms/shoulders with "Flip then Lift" vs. "Lift without Flip." The definitions of those lifting are described below.
- Flip then Lift: After a procedure in a prone position on the procedure table, we turn a patient from prone to supine first, sit them up on the bed, and then stand them up.
- Lift without Flip: After a procedure in a prone position on the procedure table, we change the table to the reverse Trendelenburg position and slightly tilt the table to the side where the patient comes to their feet (fig.1). The patient holds the table while slowly sliding their lower body and putting their feet on the ground, with the staff's assistance (fig.2). After observing the patient for 10 seconds in this position to ensure they don't have orthostatic hypotensive symptoms, the patient stands up or sits in a wheelchair, depending on their baseline mobility.
- Statistical analysis: Obtained variables are not normally distributed (confirmed by Shapiro–Wilk test). We performed Wilcoxon signed rank test to compare the variables of those two different ways of lifting. All statistical analyses were conducted by IBM SPSS v29.



Fig. 1: A patient is in a prone position on the procedure table. We change the table to the reverse Trendelenburg position and slightly tilt it to the side where the patient comes to their feet.

Reverse T-berg & Tilt
Stand up from prone

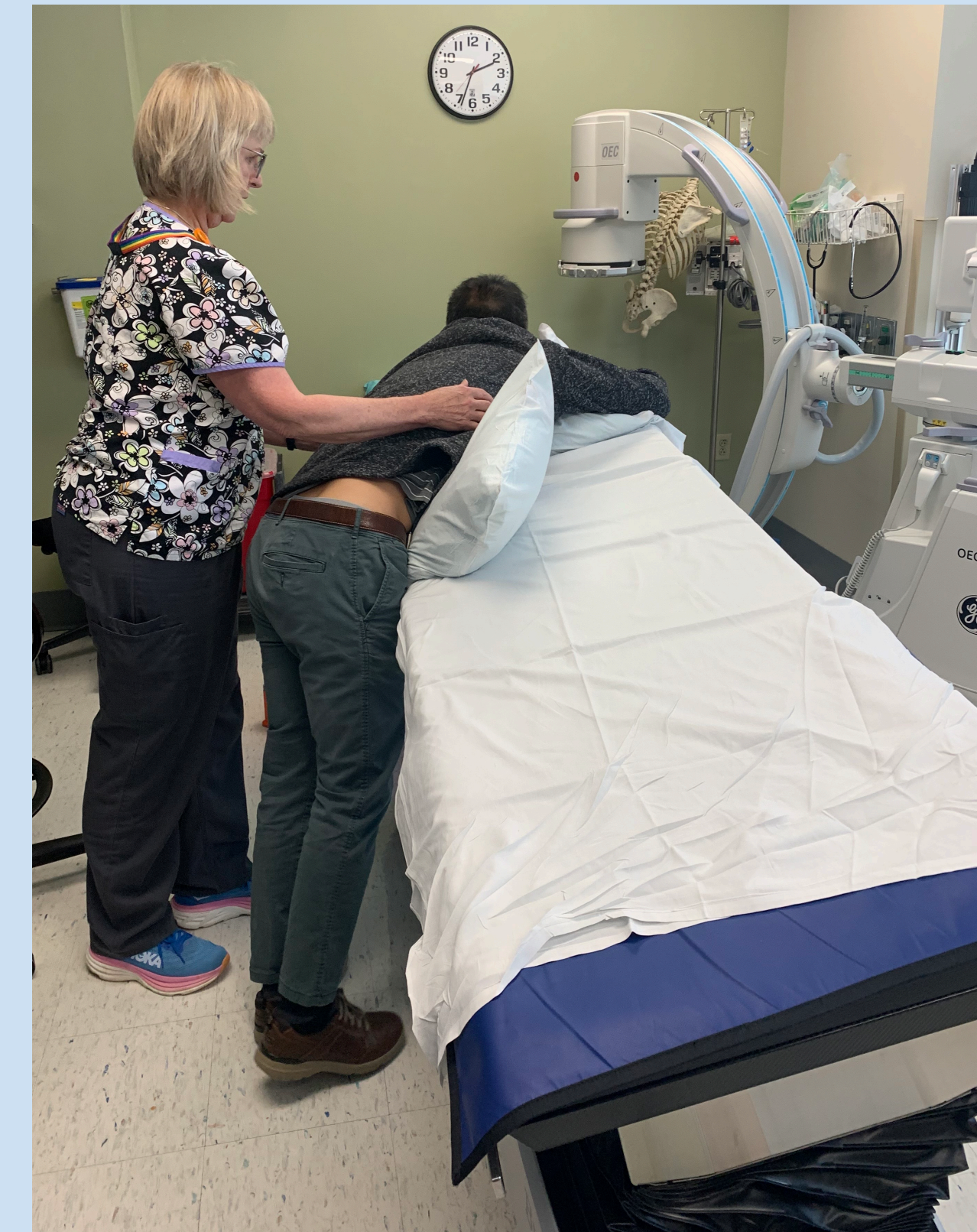


Fig. 2: A patient holds the table while slowly sliding their lower body and putting their feet on the ground, with the staff's assistance.

RESULT

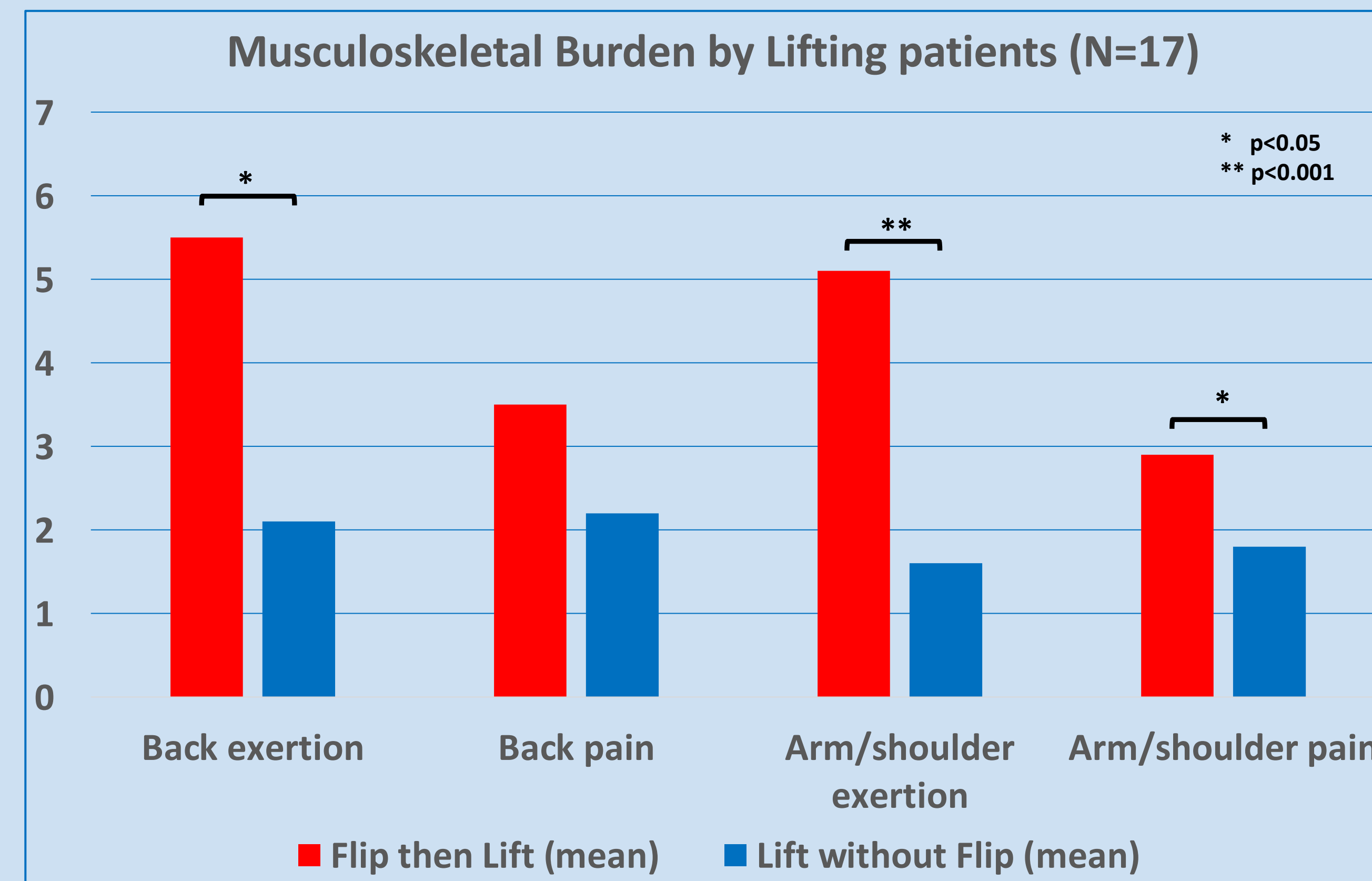


Fig. 3: Musculoskeletal Burden by Lifting patients (N=17). Back exertion, Arm/shoulder exertion and pain are significantly lower with lifting without flip.

Table 1: Statistical analysis of two ways of lifting.

	Lift with flip (mean)	Lift without flip (mean)	Δ% (mean)	p-value
Back exertion	5.5	2.1	-62%	0.001
Back pain	3.5	2.2	-37%	0.13
Arm/shoulder exertion	5.1	1.6	-69%	<0.001
Arm/shoulder pain	2.9	1.8	-38%	0.035

- No single orthostatic hypotensive episode or fall associated with this lifting has been reported.

CONCLUSIONS

"Lift without Flip" significantly decreased healthcare providers' musculoskeletal burden. No significant patient safety issue related to this method has been reported in this observational study. This could be a new standard transfer method for patients with limited mobility after a prone interventional pain procedure.

DISCUSSION

- This is a retrospective observational study. A specific pain clinician prefers this "Lift without Flip," while others use the conventional "Flip then Lift." This means which way of lifting a patient gets depends on a proceduralist, which is not randomized.
- Subjects (RNs and residents) were explained the study concept when they participated in this survey, which could have influenced their answers.
- While no single fall has been reported in this "Lift without Flip," those with fall risk were provided extra hands of help for mobility as precautions.
- "Lift without Flip" has been performed for about 8 months, which may not be enough to analyze the incidence of rare patient transfer-related complications.
- If an orthostatic hypotensive episode occurs while "Lift without Flip," it could potentially be more challenging to have patients lie in bed again.

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