

Rockit Baby Rocker – Vibration Tests

A prototype Rockit was tested in September 2016.

The Rockit was fixed to a MacLaren buggy in the usual way. Acceleration measurements were undertaken at a number of locations on the buggy. Back-to-back comparisons were taken between the acceleration level caused from:

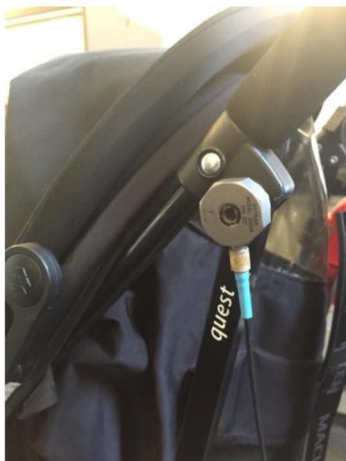
- 1) The Rockit
- 2) Rocking the buggy from side-to-side by hand
- 3) Moving the buggy fore and aft on carpet
- 4) Moving the buggy fore and aft on paving stones.

Measurement positions:

Measurements were undertaken using a Svan 958 4-channel analyser and a Dynatran 3223 accelerometer which was fixed to the buggy using a magnetic base. The system was set up to measure 1/3 octave band vibration and the data filtered using a high pass filter at 1 Hz. Vibration levels were measured in the three orthogonal axes of motion at the following locations on the buggy:

1. Top left rivet;
2. Bottom right rivet;
3. Bottom left rivet.

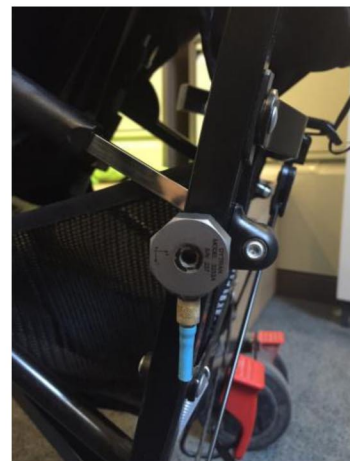
For reference the X and Y axes are the designated horizontal axes and the Z axis the vertical. The measurement locations are shown in the photographs below:



Top Left Rivet



Bottom Right Rivet



Bottom Left Rivet

Below is a photo of the paving stones used for the fourth test condition:



Results

The results shown below in figures 1-9 are the total acceleration levels measured with each accelerometer in each of the 3 axes. Total acceleration level is the RMS sum of each of the 1/3 octave bands. Figures 7-9 show the Y-axis vibration, which is the side-to-side motion of the Rockit.

Figure 1: X-Axis Vibration Results, Top Left

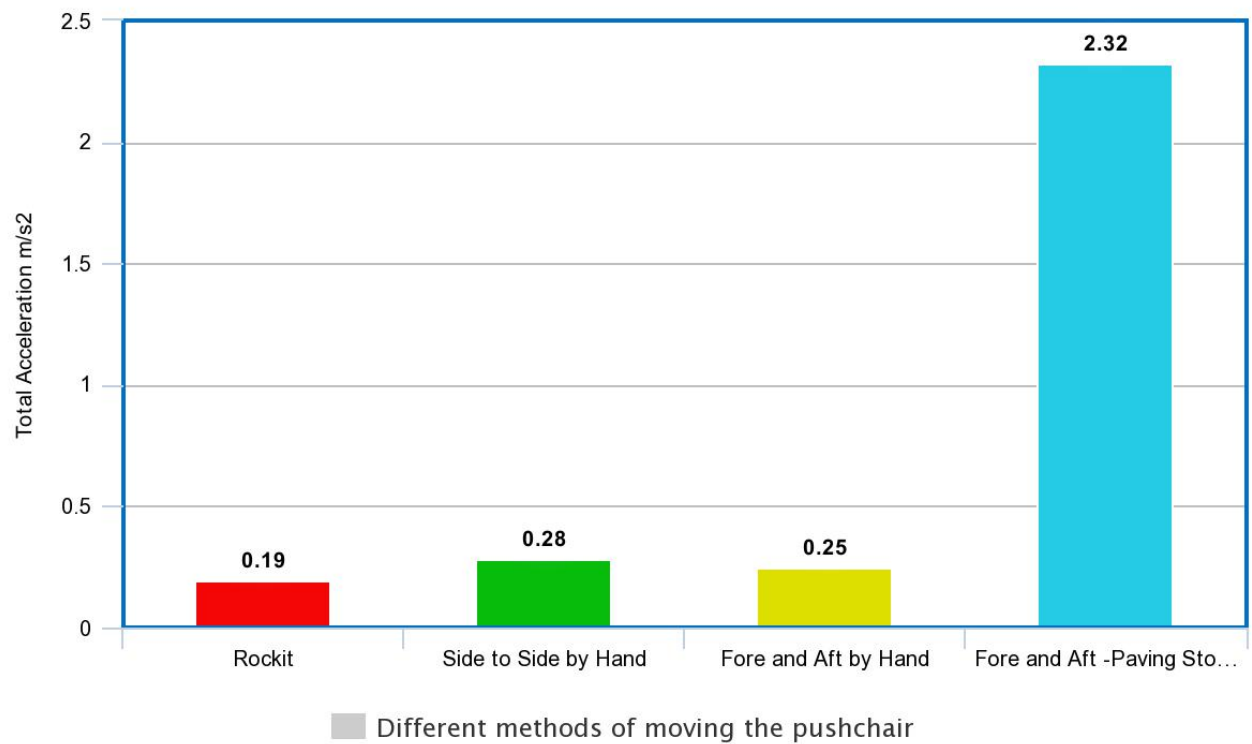
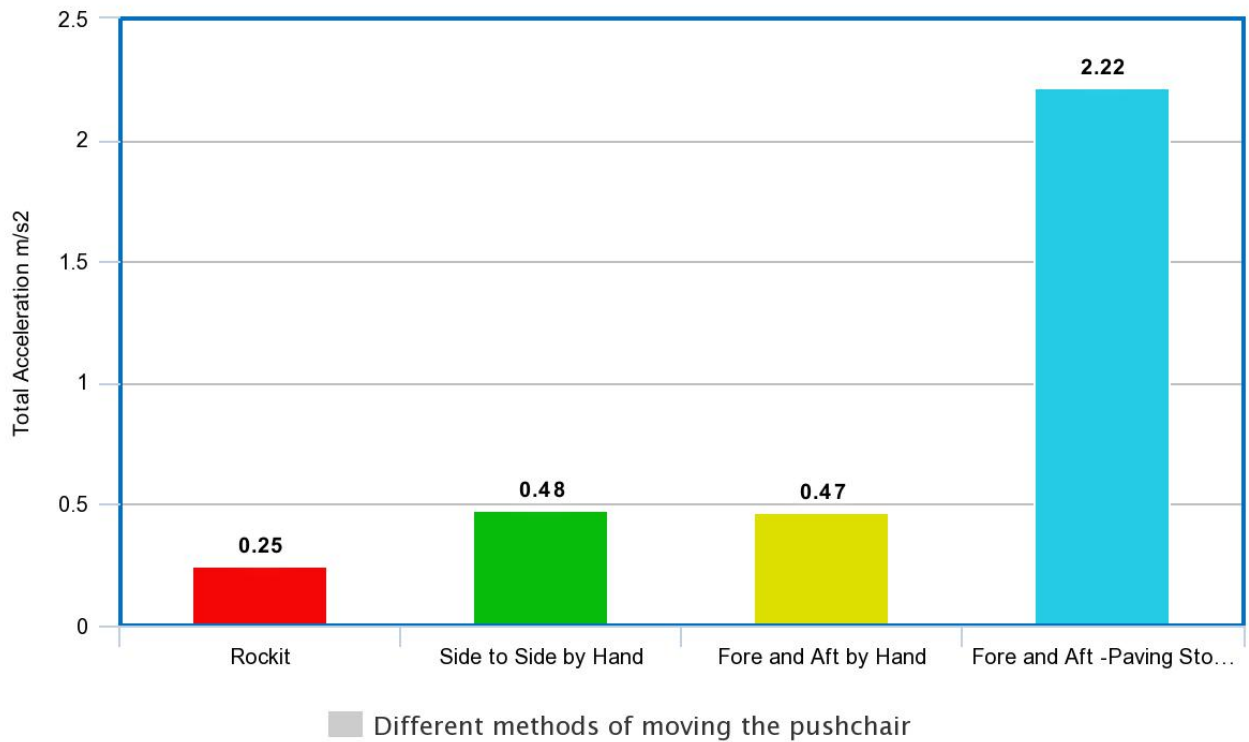
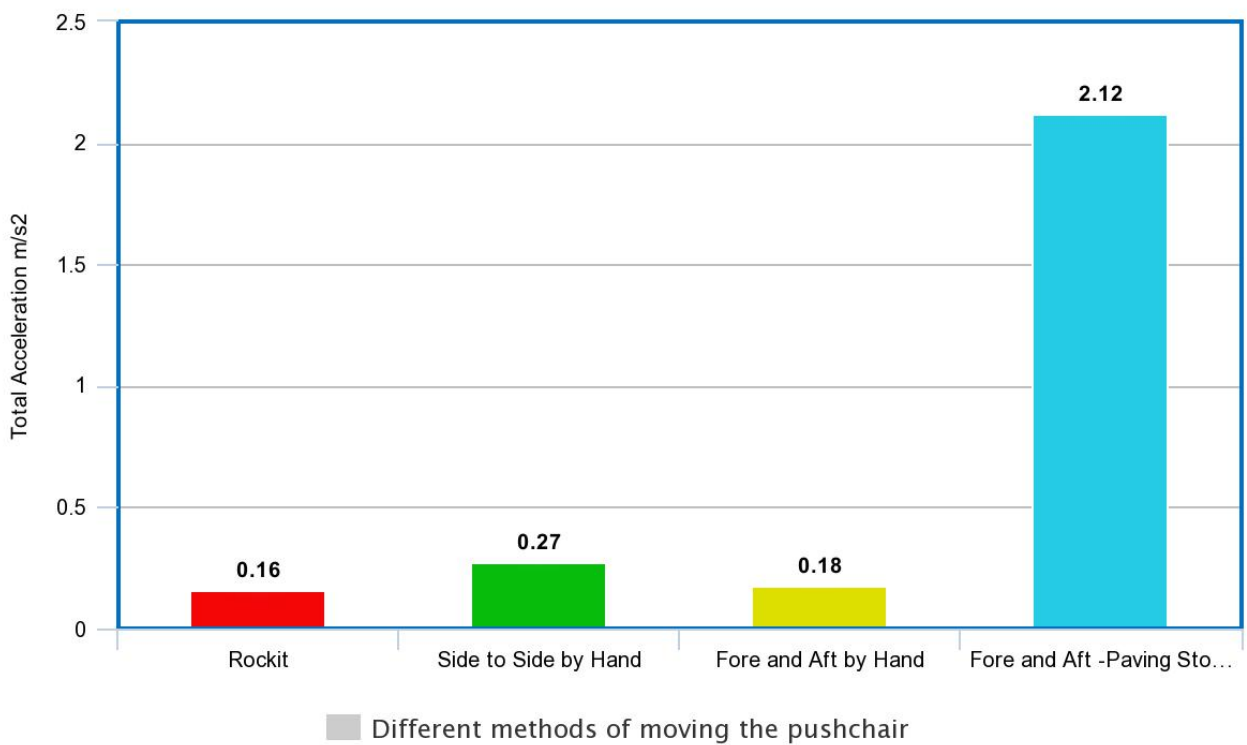


Figure 2: X-Axis Vibration Results, Bottom Right Rivet



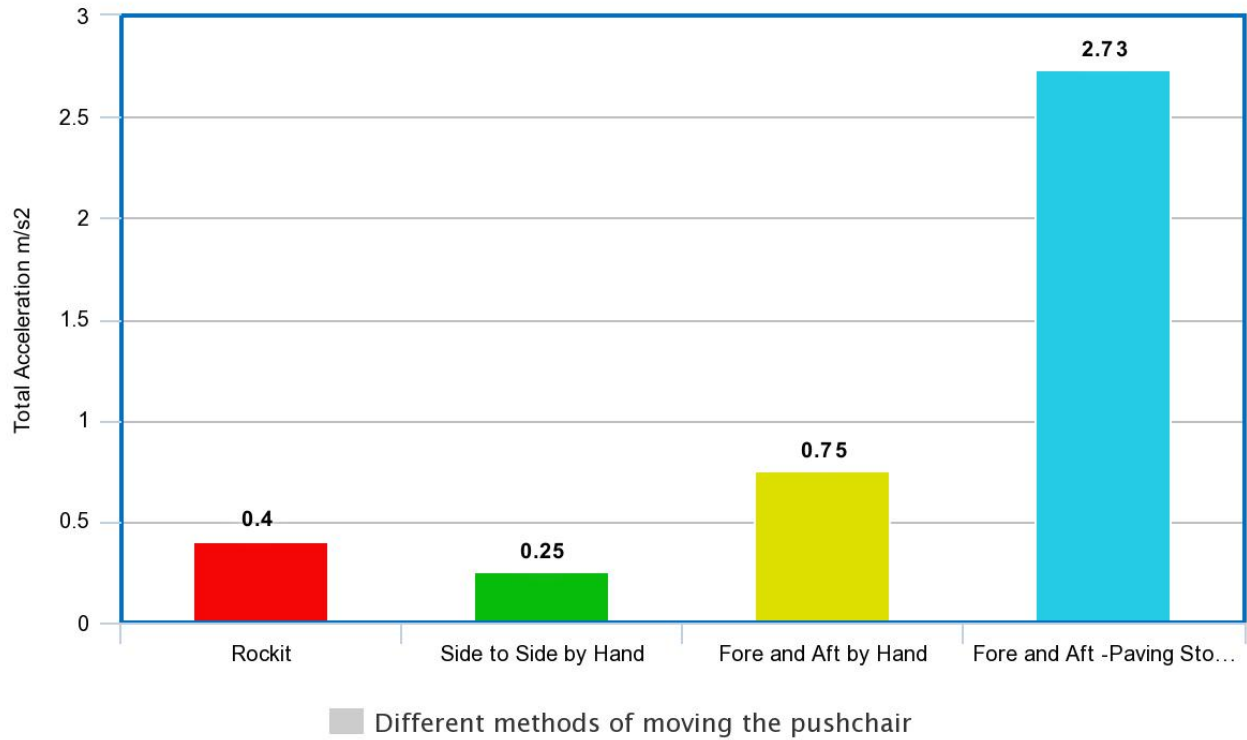
meta-chart.com

Figure 3: X-Axis Vibration Results, Bottom Left



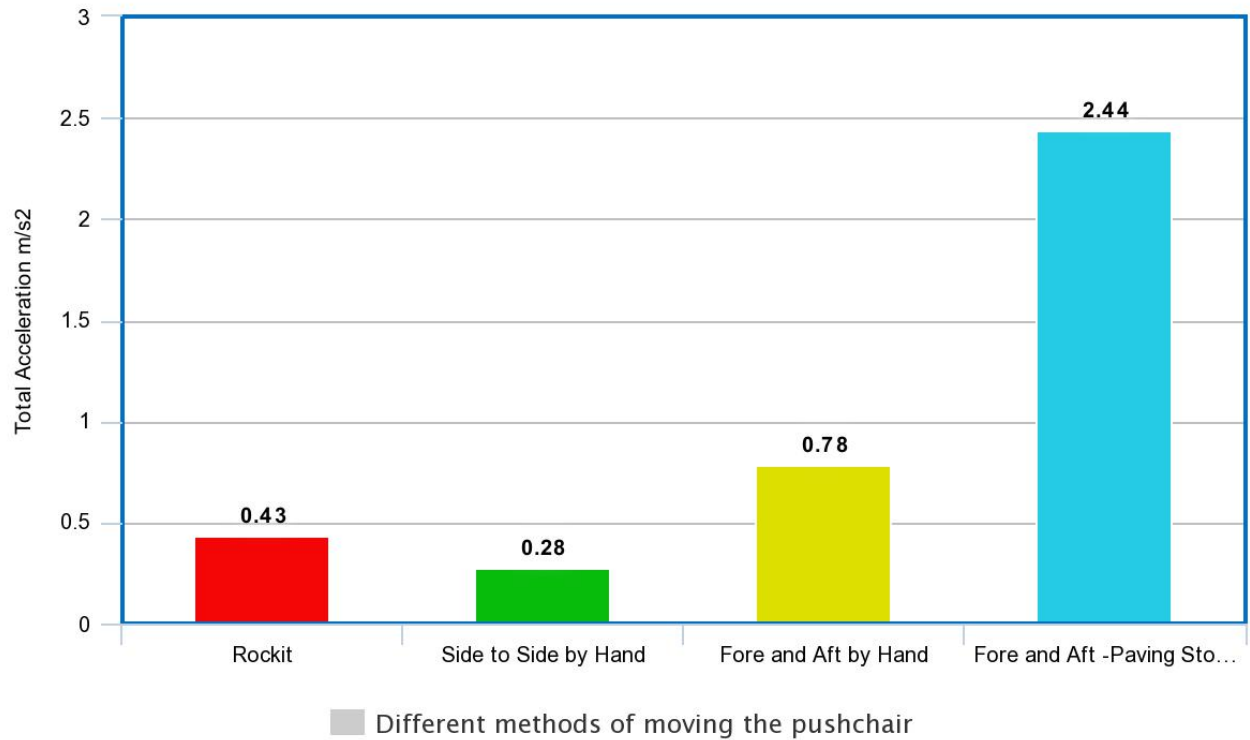
meta-chart.com

Figure 4: Z-Axis Vibration Results, Top Left



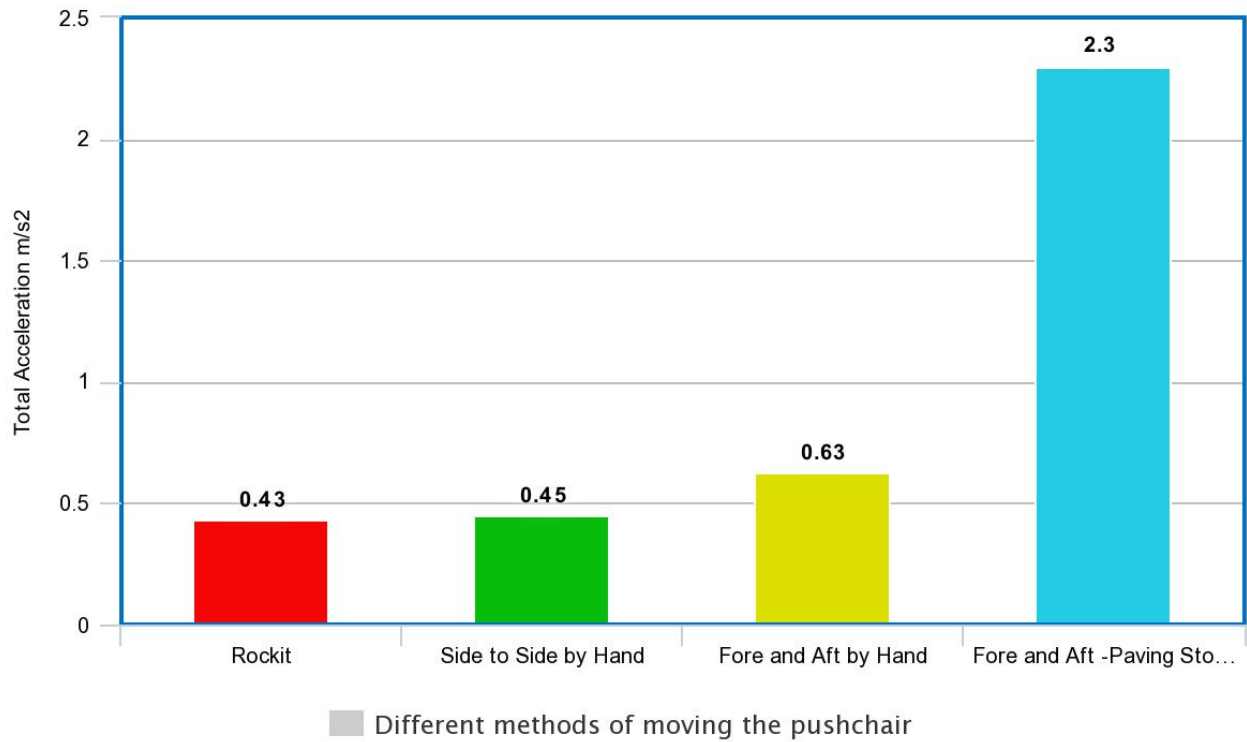
meta-chart.com

Figure 5: Z-Axis Vibration Results, Bottom Right



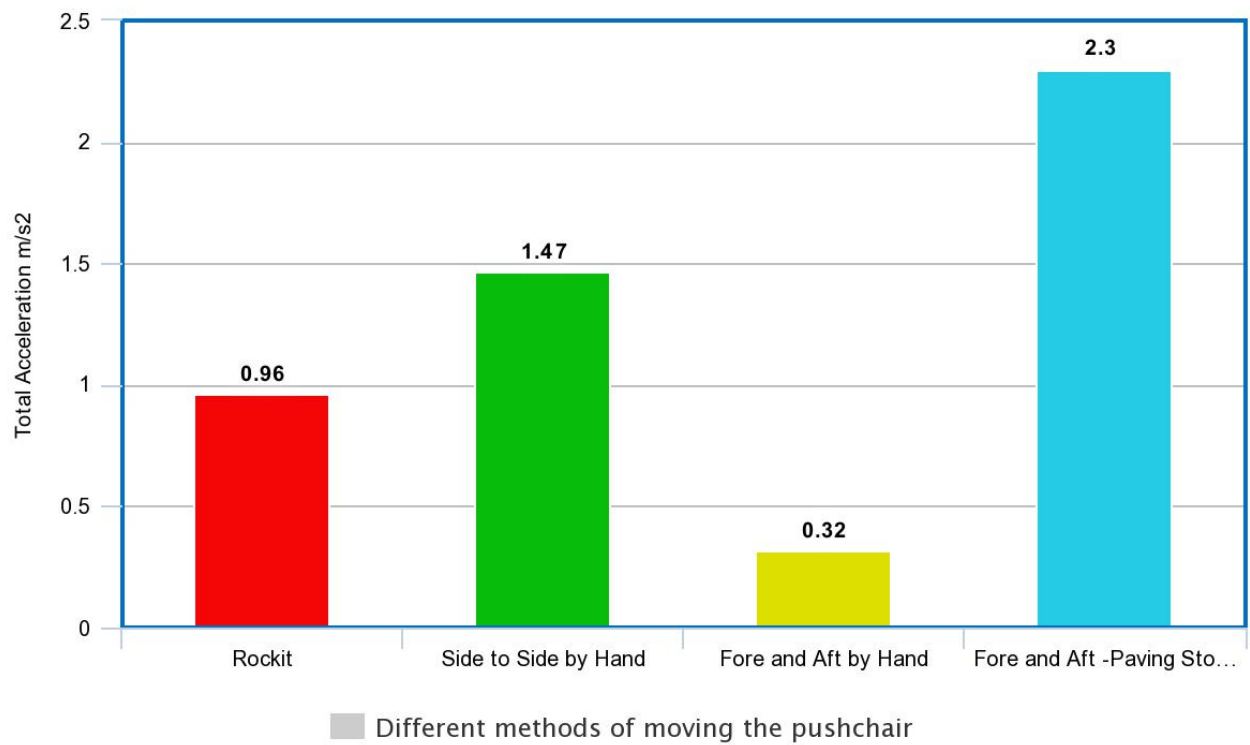
meta-chart.com

Figure 6: Z-Axis Vibration Results, Bottom Left



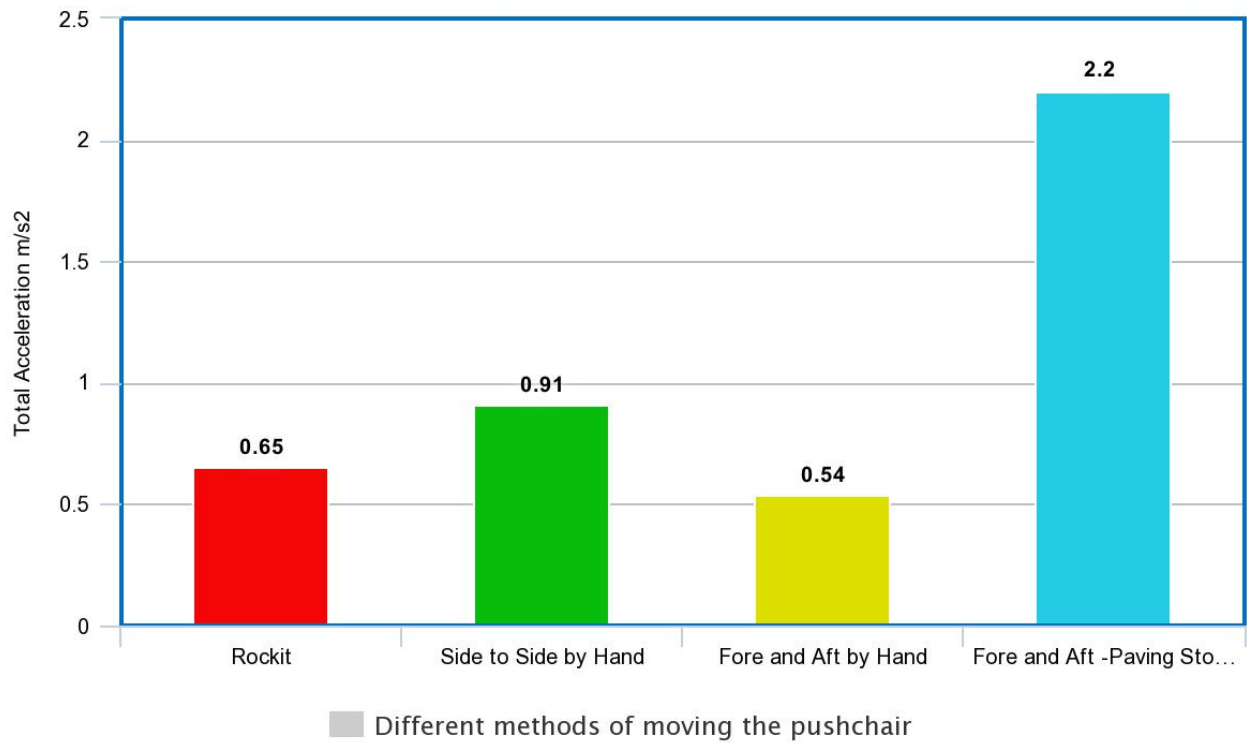
meta-chart.com

Figure 7: Y-Axis Vibration Results, Top Left



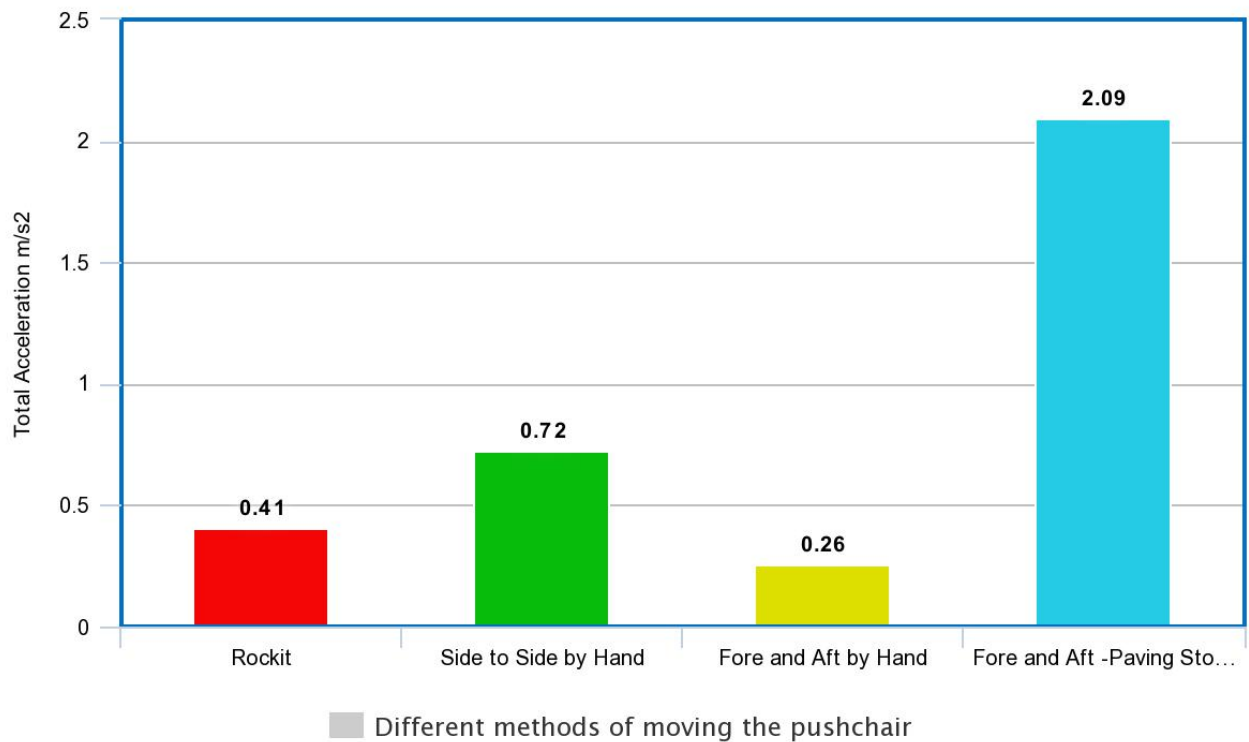
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Figure 8: Y-Axis Vibration Results, Bottom Right



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Figure 9: Y-Axis Vibration Results, Bottom Left



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Conclusion

The graphs show that the vibration levels from the Rockit and rocking the buggy by hand are approximately comparable in each of the measurements. Moving the pushchair over paving stones, a situation likely to be frequently encountered in everyday use of the buggy, resulted in significantly higher levels of acceleration.