

## Gross and fine manipulation

The Occupational Requirements Survey (ORS) publishes job-related information on physical demands; environmental conditions; education, training, and experience; as well as cognitive and mental requirements. The job requirements reflect those necessary for workers to perform critical tasks in support of the critical job functions, and not the capabilities of individual workers. Gross and fine manipulation estimates are physical demand requirements. Where possible, the ORS program provides whether one or both hands are necessary to perform gross and fine manipulation as well as the duration associated with each job requirement by occupation.

Gross manipulation is defined as seizing, holding, grasping, turning, or otherwise working with hand(s). This includes instances when fingers are used as an extension of the hand to hold or operate a tool.

Examples of gross manipulation include:

- teachers using board erasers;
- goalies turning hockey sticks;
- welders using tin snips;
- truck drivers operating steering wheels and gear shifts.

Fine manipulation is defined as picking, pinching, touching or otherwise working primarily with fingers rather than the whole hand or arm. The ORS program considers the job requirement of entering data on traditional keyboards or 10-key pads as a keyboarding requirement, as this is excluded from fine manipulation.

Examples of fine manipulation include:

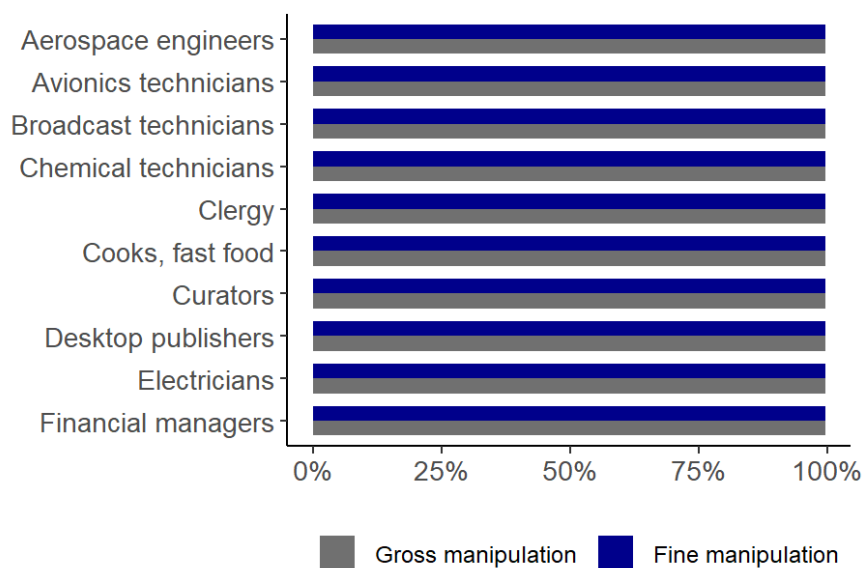
- musicians playing pianos or keyboards;
- bartenders entering drink orders into touch screen point-of-service systems;
- cashiers using a register with hybrid keyboards;
- dental hygienists using tools to scrape tartar off of patients' teeth;
- scientists using pipette to dispense solutions;
- electricians using small tools to rewire lamps.

There are many situations where multiple physical demands are performed concurrently, including both gross and fine manipulation. The ORS program captures these requirements separately. Some examples of both requirements being present include:

- receptionists making phone calls may include gross manipulation (holding the receiver with one hand) and fine manipulation (dialing the phone with the other hand);
- cashiers ringing up customers may include gross manipulation (moving product off conveyor belt) and fine manipulation (returning change and receipt);
- warehouse clerks may have to lift boxes off conveyor belts (gross manipulation), and then enter the serial numbers from boxes using touchscreen scanners (fine manipulation);
- writing is included in both gross and fine manipulation.

In 2021, gross manipulation was required for greater than 99.5 percent of all civilian workers and fine manipulation was required for 98.8 percent of civilian workers. (See Chart A.)

**Chart A. Percentage of workers with gross and fine manipulation requirements, 2023**



Source: U.S. Bureau of Labor Statistics, Occupational Requirement

Included in the gross and fine manipulation requirements is whether jobs require workers to perform these physical demands using one hand or both hands. Generally, the sum of performing gross and fine manipulation with one hand and both hands will equal the overall requirement. For example, greater than 99.5 percent of cleaners of vehicles and equipment required gross manipulation and all these workers required both hands to perform gross manipulation. Fine manipulation was required for 91.0 percent of cleaners of vehicles and equipment with one hand required for 24.8 percent and both hands required for 66.2 percent. Sometimes the total does not equal the overall requirement due to rounding, one or both estimates being unavailable, or for estimates published as ranges. These situations occur when estimates do not meet publication criteria or there are no workers with the requirement.

**Table 1. Percent of workers by physical demand by occupation, 2023**

Occupation	Gross manipulation			Fine manipulation		
	Required	One hand	Both hands	Required	One hand	Both hands
<b>Accountants and auditors</b>	>99.5	<35	69.8	99.5	53.3	46.1
<b>Archivists</b>	>99.5	19.8	80.2	>99.5	48.7	51.3
<b>Biological science teachers, postsecondary</b>	>99.5	24.0	76.0	>99.5	56.2	43.8
<b>Cashiers</b>	>99.5	1.2	98.8	>99.5	<25	80.7
<b>Cleaners of vehicles and equipment</b>	>99.5	<0.5	>99.5	91.0	24.8	66.2
<b>Computer user support specialists</b>	>99.5	<25	82.7	97.7	35.3	62.4
<b>Curators</b>	>99.5	17.9	82.1	>99.5	29.7	70.3
<b>Education administrators, all other</b>	>99.5	6.5	93.5	>99.5	27.3	72.7

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey

## Duration estimates

Gross and fine manipulation duration estimates are categorized by portion of the workday spent performing these physical demands. For example, if over the course of an 8 hour workday (480 minutes) workers lift boxes for less than 5 minutes, gross manipulation would be classified as “seldom,” assuming no other gross manipulation is performed. However, if they lifted boxes for 1 hour each workday, then gross manipulation occurs “occasionally.”

Generally, the sum of the duration estimates sums to the overall requirement (gross and fine manipulation). Additionally, the sum of the duration estimates and the not present estimate generally sum to 100 percent.

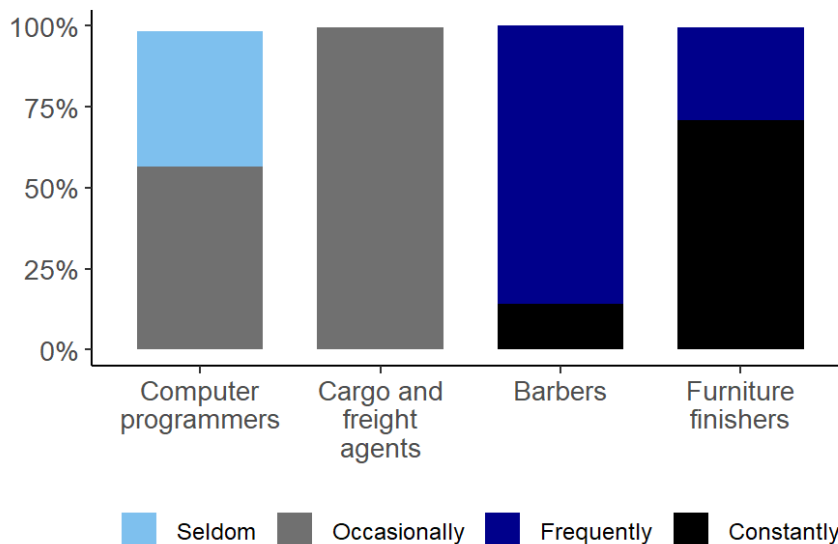
**Table 2. Duration estimates: Amount of the workday spent performing physical demands**

Duration	Amount of workday
Seldom	Up to 2 percent of the workday
Occasionally	2 percent up to 1/3 of the workday
Frequently	1/3 up to 2/3 of the workday
Constantly	2/3 or more of the workday

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey

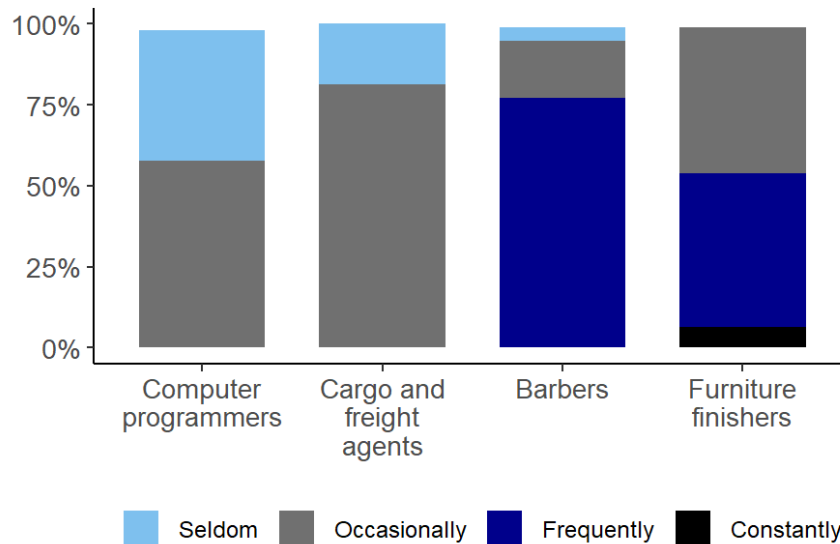
The duration of gross and fine manipulation varies among occupations. For example, 41.7 percent of computer programmers seldom performed gross manipulation, greater than 99.5 percent of cargo and freight agents did occasionally, 85.9 percent of barbers did frequently, and 71.0 percent of furniture finishers did constantly. Fine manipulation was performed seldom by 40.4 percent of computer programmers, occasionally by 81.3 percent of cargo and freight agents and frequently by 77.0 percent of barbers.

**Chart B. Percentage of workers by occupation and duration of gross manipulation, 2023**



Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey

**Chart C. Percentage of workers by occupation and duration of fine manipulation, 2023**



Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey

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