

## AM I WORKING SAFELY INSIDE MY LAMINAR FLOW CABINET?



### Contamination by the Human Body

Aside from the ambient environment and dirty equipment, the human body is one of the greatest sources of contamination inside the laboratory. Although the operator is using the latest laminar flow cabinet, the product protection that it can provide is only as effective as the operator's proper working procedure.

The human body can generate from hundred thousand to millions of particles every minute, depending on the motion or activity performed. Table 1 shows that the act of motionless sitting can produce up to 100,000 particles per minute and even more if you are walking or performing many bodily motions.

**Table 1:** Particles generated by a person per minute at a different type of activity (adapted from Austin, 1966)

Particles (over 0.3 $\mu$ )	
Kind of Movement	Particle generation rate ( $\geq 0.3 \mu\text{m}/\text{min}$ )
Motionless/Sitting/Standing	100,000
Head, arm, neck	500,000
Standing to sitting position and vice-versa	2,500,000
Walking at 2.0 mph	5,000,000
Walking at 5.0 mph	10,000,000

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**Figure 1:** Correct position when working in the Laminar Flow Cabinet



**Figure 2:** Incorrect position when working in the Laminar Flow Cabinet

### Other Working Tips:

- A dished work surface in laminar flow cabinets is safer, so that in case of liquid spills, it won't drip to the floor and create a hazard.
- When working with horizontal laminar flow cabinets, don't spray the back wall, because it can damage the HEPA / ULPA filter there, causing leakage.
- When working with Horizontal Laminar Flow Cabinets, do not spray anything to the back wall. This can damage the HEPA/ULPA filter and cause leakage.
- If working with vertical LFC, be careful not to have your body parts to be placed above sensitive samples, because the particles will be blown down directly to them.
- Connect the cabinet to stable power source for stable airflow, unless your cabinet is equipped with self-compensating ECM blower.
- Only sterile materials should be placed inside the clean work area. Make sure that all your items are disinfected properly to avoid possible contamination of the work bench.

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Proper working procedures are just as important as the laminar flow cabinet. By following the tips mentioned above, the risk of product contamination can be greatly reduced. For the best product protection, choose the latest **Esco Airstream® Gen 3 laminar flow cabinet**.



*Figure 3: Esco Airstream® Gen 3 laminar flow cabinet*

**Reference:**

Austin, P. R., and Timmerman, S. W. (1965). Design and Operation of Clean Rooms. Business News Publishing, Detroit, 1965.

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