Pneumotachometers or Lung Flow Meters?

To the Editor: "Pneumotachometer" is a term derived from pneumon (lung), tachy (speed), and metron (measurement). As we will see, there is a conflict of meaning because the name should signify a device that "measures the speed of lung airflow", where "lung airflow" refers to the movement of a body of air through the respiratory apparatus.

Furthermore, while not strictly correct from the point of view of physics, popular usage has led the terms "speed" and "velocity" to be accepted as synonyms. "Speed"[1] is a derived magnitude and is the ratio of distance travelled (length) to time. Speed can be linear or angular, depending on whether movement is in a straight line or circular.

"Flow" is the volume that passes per unit of time. A device that measures this is a flow meter. In medicine, the concept of "flow" corresponds to that of "volumetric flow rate"[2,3] in physics and the apparatus that measures this is called a volumetric flow meter.

Because in dynamic spirometry results are expressed in L/s (flow units or volumetric flow rate) and not in m/s (units of speed), should the Fleisch and Lilly devices not be called lung airflow meters rather than pneumotachometers? The turbine spirometer, however, does essentially detect the angular speed generated on the turbine by the lung airflow and is therefore really a pneumotachometer or volumetric flow meter as well as a lung airflow meter, since the speed is used to calculate respiratory flow.

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1. Soler P, Negro A. Física práctica básica. Madrid: Alhambra; 1973. p. 37-41.
2. Frumento AS. Biofísica. 3rd ed. Madrid: Doyma; 1995. p. 165-7.
3. Martínez de la Cuesta PJ, Rus Martínez E. Operaciones de separación en ingeniería química. Métodos de cálculo. Madrid: Pearson, Prentice Hall; 2004. p. 45-110.