Diagnosing Frailty with Innovative Sensor

A noninvasive, cost-effective and portable sensor could be used to diagnose frailty syndrome in elderly people - the result of PhD research by engineer Nora Millor at the NUP/UPNA-Public University of Navarre in Spain.

Millor (pictured) notes that current diagnostic methods, such as the Fried criteria rely on determining the presence of components such as slowness in walking, weakness, weight loss, fatigue and low physical activity, which may result in more qualitative than quantitative assessment.

Millor focused on the 30-second chair test - the number of times a person is capable of getting up from a chair and sitting down during the thirty seconds the test lasts. "Getting up from a chair is one of the activities in daily life that poses the greatest level of mechanical and muscular demand. A proportion of the elderly population has serious difficulties in being able to do this, so they spend more time sitting and their capacity to live independently is reduced," she said.

See Also: A Critical Age: The Influence of Frailty Measurements

Sensors

Millor used inert sensors that provide data both on acceleration (the speed at which the movement varies) and angular speed (how fast a turn is made). She has specified new parameters from the analysis of the signals provided by the inertial sensors; this means that clinical staff can now avail themselves of "a series of objective, quantifiable measurements to make their diagnoses. In the future, the results could be built into a user-friendly tool such as a mobile app," predicted Millor.

Research groups at the university have created a techology company Movalsys, which aims to translate the movements of a patient to objective data to aid medical diagnosis.

Source: University of Navarre
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