Sticking of a Person with the Wall of Rotor.

A person with a mass m stands in contact against the wall of a cylindrical drum (rotor). The coefficient of friction between the wall and the clothing is μ.

If Rotor starts rotating about its axis, then person thrown away from the center due to centrifugal force at a particular speed w, the person stuck to the wall even the floor is removed, because friction force balances its weight in this condition.

From the figure.

Friction force (F) = weight of person (mg)

$\Rightarrow \mu R = mg$

$\Rightarrow \mu F_c = mg$ 　　　　　[Here, F_c= centrifugal force]

$\Rightarrow \mu m \omega_{min}^2 r = mg$

$\therefore \qquad \omega_{min} = \sqrt{\dfrac{g}{\mu r}}$