

Two connected balloons, inflated to different sizes, are connected by a short clear plastic tube. A connecting valve (which controls the possible flow of air between the two balloons) is initially closed. The initial state of the balloons is shown in the figure on the right.



If the connecting valve is now opened allowing air to flow between the two balloons, which of the following occurs:

- (a) Nothing happens, and both balloons remain in their initial state.
- (b) The smaller balloon contracts, forcing air inside the larger one.
- (c) The larger balloon contracts, forcing air inside the smaller one. When the final state is reached, both balloons are equally inflated (i.e. the same size).
- (d) The larger balloon contracts, forcing air inside the smaller one. When the size of the larger balloon is equal to the original size of the smaller balloon, the process reverses and the system returns to its initial state. The cycle then starts again.