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Pumping or drag reduction? JÉRÔME HOEPFFNER, Université Pierre et Marie Curie, KOJI FUKAGATA, Keio University — Two types of wall actuation in channel flow are considered: traveling waves of wall deformation (peristalsis) and traveling waves of blowing and suction. The flow response and its mechanisms are analyzed using nonlinear and weakly nonlinear computations. We show that both actuations induce a flux in the channel in absence of imposed pressure gradient and can thus be characterized as pumping. In the context of flow control, pumping and drag reduction are strongly connected, and we seek to define them properly based on these two actuation examples.

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