

# Understanding dry powder inhalers

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## Video Abstract

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# Abstract

Inhalable medications for patients with asthma and COPD can be confusing for patients and prescribers alike. The sheer variety of devices alone makes choosing the right one difficult. But among the different types currently available, one that's proven highly valuable for nearly all patients with asthma or COPD is the dry powder inhaler. In an article recently published in the journal *Advances in Therapy*, researchers discuss how dry powder inhalers work, what makes them stand out, and what patients and prescribers should look for in a device. The active drug in dry powder inhalers is composed of microparticles loaded onto larger carrier particles. The inhalers' unique internal design converts patient's inhalation into shear forces that deagglomerate the drug particles from carriers. The drug particles are transported deep into the lung, while the larger carrier particles cling to the back of the throat and are eventually swallowed. This reliance on a powdered formula is a desirable feature. Dry powder inhalers don't require propellants that are harmful to the atmosphere, such as chloro- and hydrofluorocarbons. Instead, the patient's breath is all that's required for activation. High resistance would seem to suggest the possibility of overexertion on the part of the patient. But quite the opposite is true. High-resistance devices generate more turbulent flow per breath than low-resistance devices, making them highly efficient. Of course, some technique is required to make effective use of dry powder inhalers. For that reason, patient education on correct device use is crucial, both at diagnosis and at regular intervals thereafter. That also goes for device handling and storage. So what should clinicians consider when prescribing dry powder inhalers? One useful guideline is to remember the six E's. Effective: Does the inhaler deliver drug particles to the lungs within the respirable range of the patient? Efficient: Is the inhaler easy and consistent to use? Engaging: Is the inhaler's design appreciated by the patient? Error-tolerant: Is the inhaler robust enough for everyday use? Easy-to-teach: Is the proper use of the inhaler easy to demonstrate and learn? And easy-to-switch to: Can patients easily adapt to the inhaler if necessary? Choosing the right device for patients is never easy. Understanding patient preferences is key, because that will ultimately determine patient adherence and treatment success with inhaler therapy.