

# NASAL POWDER DRUG DELIVERY

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## 1 INTRODUCTION

Intranasal drug administration has been practiced since ancient times. In Tibet extracts of sandalwood and aloewood were inhaled to treat emesis. Egyptians treated epistaxis and rhinitis using intranasal medication. North American Indians relieved headaches inhaling crushed leaves of *Ranunculus acris* [1]. Due to the rich vasculature and high permeability of nasal mucosa, the absorption rate and pharmacokinetics of nasally administered drug are comparable to that obtained by intravenous drug delivery, while noninvasive nasal drug administration is more convenient to patients. As nasally administered drugs avoid first-pass hepatic metabolism, improved bioavailability can be expected. However, rapid mucociliary