

# A Review on Floating Drug Delivery System

Mr. Adesh N. Khilari, Ms. Kalyani A. Sagar, Ms. Rutuja G. Doke, Ms. Vaishnavi R. Bhor,  
Ms. Prajakta R. Pabale, Ms. Manisha K. Kasbe  
Samarth Collage of Pharmacy, Belhe Junnar, Pune, India

**Abstract:** *This review on floating drug delivery systems (FDDS) was written with the intention of gathering the most recent research with a particular focus on the main mechanism of flotation to induce stomach retention. Stomach retention duration and drug delivery behaviour are known to be significantly impacted by variations in stomach physiology (such as, gastric pH, motility), which display both intra- and inter-subject variability. Floating drug delivery systems (FDDS), also known as hydrodynamically balanced systems (HBS), swelling and expanding systems, high-density systems, and other delayed gastric emptying devices are now being employed to extend the GRT. This overview discusses the most recent and present FDDS innovations, including commercial products and patented distribution systems. The most current advancements in FDDS are reviewed in depth, including the physiological and formulation factors influencing stomach retention, design methods for single-unit and multiple-unit floating systems, and their categorization and formulation characteristics. This study also provides an overview of research that assessed the effectiveness and uses of floating systems.*

**Keywords:** Floating, Stomach, Gastric PH, Motility.

## REFERENCES

- [1]. Arunachalam, A., Karthikeyan, M., Konam, K., Prasad, H. P., Sethuraman, S., Ashutoshkumar, S., & Manidipa, S. (2011). Floating drug delivery systems: A review. *Int. J. Res. Pharm. Sci.*, 2(1), 76-83.
- [2]. L. H. Reddy, R. S. Murthy. Floating dosage systems in drug delivery. *Crit. Rev. Ther. Drug Carr. Syst.*, 2002, 19: 553-585.
- [3]. Shaha, S. H., Patel, J. K., Pundarikakshudu, K., & Patel, N. V. (2009). An overview of a gastro-retentive floating drug delivery system. *Asian journal of pharmaceutical sciences*, 4(1), 65-80.
- [4]. Preeti T, Vaibhav S, Anand KA, Chatterjee DP. Floating drug delivery system: an updated review. *Journal of Medical Pharmaceutical and Allied Sciences*. 2013;4:31-42
- [5]. Parmar PD, Pande S, Shah SH, Sonara N, Patel GH. Floating drug delivery system: A novel approach to prolong gastric retention. *World J Pharmacy Pharm Sci*. 2014 Feb 25;3(4):418-44.
- [6]. Karudumpala S, Chetty M, Gnanaprakash K, Venkatesh B, Sankar P. A review on bilayer floating tablets. *Int J Res pharm Sci*. 2013;4(2).
- [7]. Roshani K, Panda P, Vishwakarma DK, Verma NK. A brief review on bilayer floating A brief review on bilayer floating tablet. *International Journal of Advances in Pharmaceutics* 2017;6(3):70-78.
- [8]. Sharma N, Kakkar S. Floating Tablet: a Review. *Int J Recent Adv Sci Technol*. 2015;2(4):1-8. <https://doi.org/10.30750/ijrast.241>.
- [9]. S. Garg, S. Sharma. Gastroretentive drug delivery system. *Business Briefing: Pharmatech.*, 2003, 160-166.
- [10]. S. Gopalakrishnan et al, Floating Drug Delivery Systems: A Review, *Journal of Pharmaceutical Science and Technology*, 2011; 3(2):548-554.
- [11]. Sopyan I et al, A Novel of Floating Tablet Delivery System as A Tool to Enhance Absorbtion of Drug: A Review, *Indo J. Pharm*, 2020; 2(1):27-33.
- [12]. Pawar VK, Shaswat K, Garg G, Awasthi R, Singodia D, Kulkarni GT, Gastroretentive Dosage Forms: A review with special emphasis on floating drug delivery systems, *Drug Delivery*, 2011; 18(2):97-110.
- [13]. Nettekallu Y et al, A Review on Floating Drug Delivery Systems, *Indo Am. J. P. Sci*, 2016; 3(6):682-687.
- [14]. Sharma AR, Khan A, Gastroretentive drug delivery system: An apporch to enhance gastric retention for prolonged drug release, *IJPSR*, 2014; 5(4):1095-1106.

- [15]. Padhan et al, Floating Oral In-situ Gel, A Comprehensive Approach of Gastroretentive Drug Delivery System: A Review, IJPSR, 2019; 10(9):4026-4039.
- [16]. Kumari B, Recent Development in Floating Drug Delivery System: A Review, Asian Journal of Pharmacy and Pharmacology, 2018, 4(2); 131-139.
- [17]. Sutar FY et al, A Scientific Review On: Floating Drug Delivery System (FDDS), IJPRS, 2014; 3(3):297-314.
- [18]. Dua JS et al, A Review: Floating Drug Delivery System (FDDS), World Journal of Pharmaceutical Research, 2016; 5(6):614-633.
- [19]. Setia M, Kumar K, Teotia D, Gastro-retentive floating beads a new trend of drug delivery system, Journal of Drug Delivery and Therapeutics. 2018; 8(3):169-180. DOI <https://doi.org/10.22270/jddt.v8i3.1717>
- [20]. Sharma AR, Khan A, Gastroretentive drug delivery system: An approach to enhance gastric retention for prolonged drug release, IJPSR, 2014; 5(4):1095-1106.
- [21]. Kumar M, Kaushik D, An Overview on Various Approaches and Recent Patents on Gastroretentive Drug Delivery System, Recent Patents on Drug Delivery & Formulation, 2018, 12; 84-92
- [22]. Lopes CM et al, Overview on gastroretentive drug delivery systems for improving drug bioavailability, International Journal of Pharmaceutics, 2016; 510:144-158.
- [23]. Jain AK, Hatila U, A review on floating drug delivery system, International Journal of Pharmaceutical Studies and Research, 2011, 2(3), 1-6
- [24]. Vidyadhara S, Rao PR, Prasad JA, Development and In-Vitro Kinetic of propranolol hydrochloride controlled release matrix tablets, The Indian Pharmacist, 2006, 6-70.
- [25]. Nandigoti J, Shayeda, Floating drug delivery system, International Journal of Pharmaceutical Sciences and Nanotechnology, 2009, 2(3), 595-604.
- [26]. Shoufeng L, Senshang L, Chein YW, Daggy BP, Mirchandani HL, Statistical optimization of gastric floating system for oral controlled delivery of calcium, AAPS Pharm Sci Tech, 2001, 2, 1-12.
- [27]. Sharma N, Agarwal D, Gupta MK, Khinchi MP, A comprehensive review on floating drug delivery system, International Journal of Research in Pharmaceutical and Biomedical Sciences, 2011, 2(2), 428-441.
- [28]. Dixit, N. (2011). Floating drug delivery system. *Journal of current pharmaceutical research*, 7(1), 6-20.
- [29]. Bhosale, A. R., Shinde, J. V., & Chavan, R. S. (2020). A comprehensive review on floating drug delivery system (FDDS). *Journal of Drug Delivery and Therapeutics*, 10(6), 174-182.