

SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES



Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai

Approved by Pharmacy Council of India, New Delhi.

Coimbatore -641035

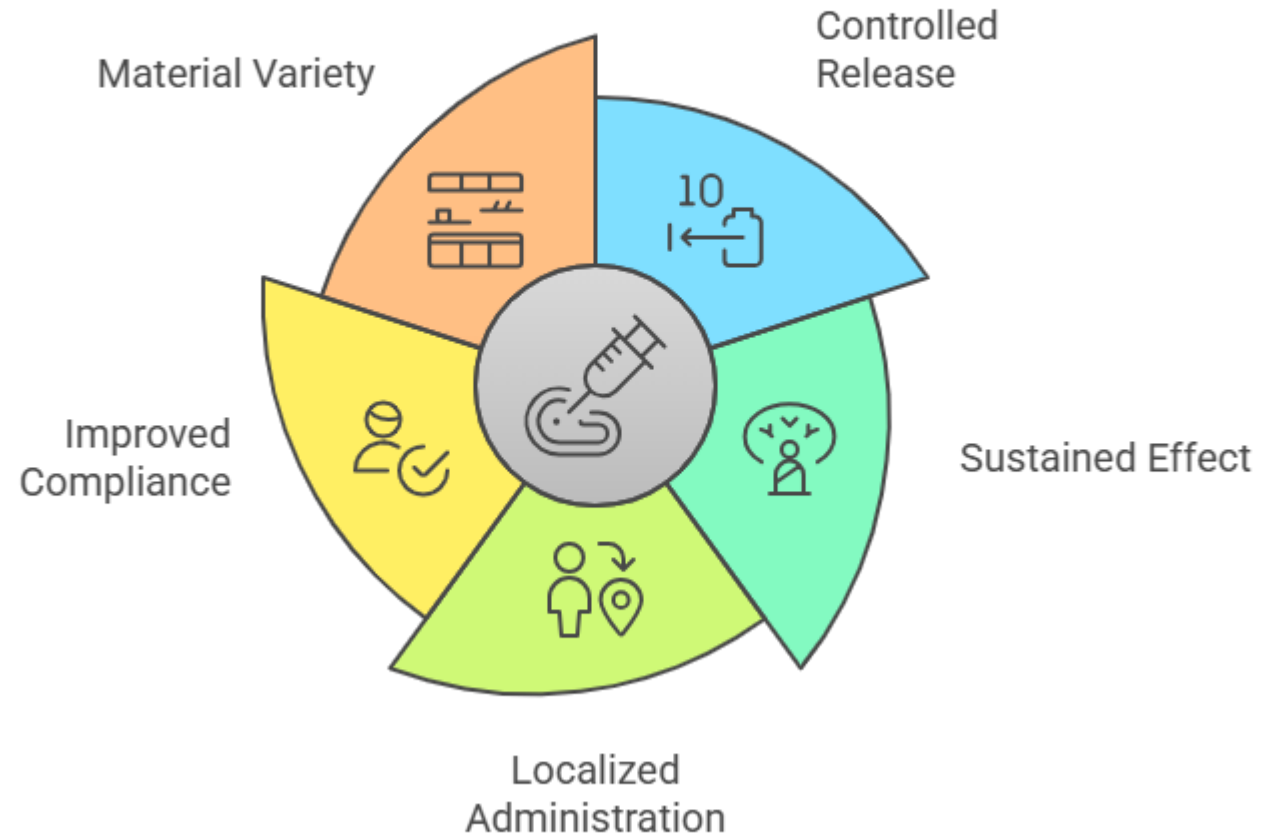
COURSE NAME : NOVEL DRUG DELIVERY SYSTEM (BP 706 T)

VII SEM / IV YEAR

UNIT -2





TOPIC 4 :IMPLANTABLE DRUG DELIVERY SYSTEM

Implantable Drug Delivery Systems



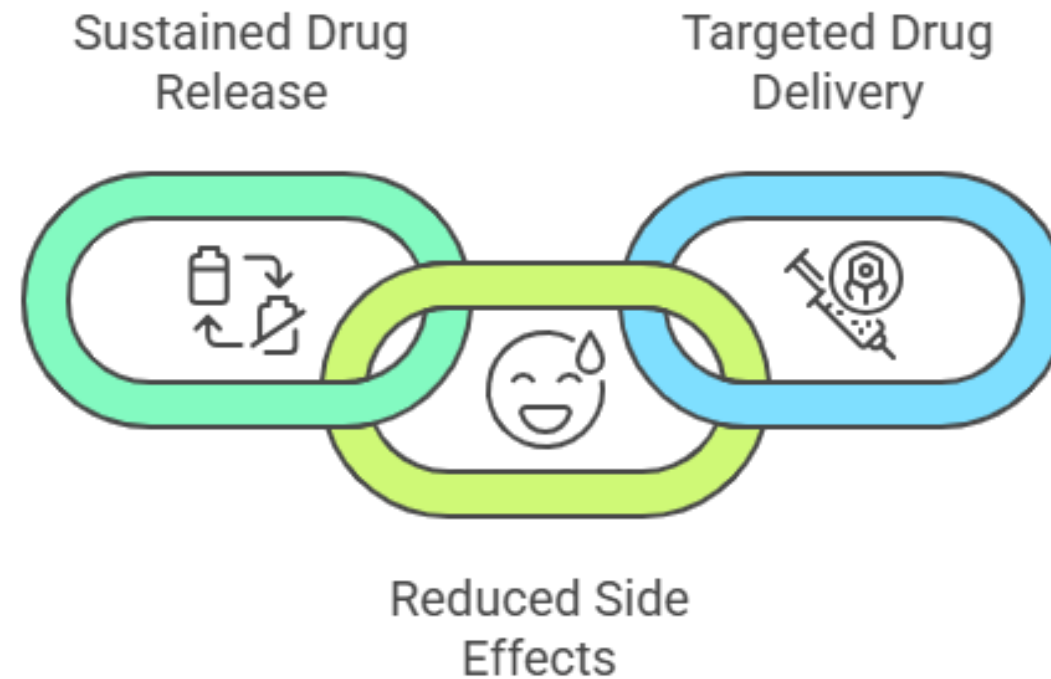
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Drug Release Mechanisms

| Characteristic | Diffusion-Controlled | Erosion-Controlled | Responsive |
|--|--|----------------------------------|------------------------------------|
|  Release Trigger | Diffusion through polymer | Polymer matrix degradation | Specific stimuli |
|  Influencing Factors | Polymer permeability, drug solubility, device geometry | Polymer composition, environment | Stimulus type and intensity |
|  Release Profile | Gradual, sustained release | Release proportional to erosion | On-demand, triggered release |
|  Drug Location | Encapsulated within polymer | Embedded in polymer matrix | Integrated with responsive element |

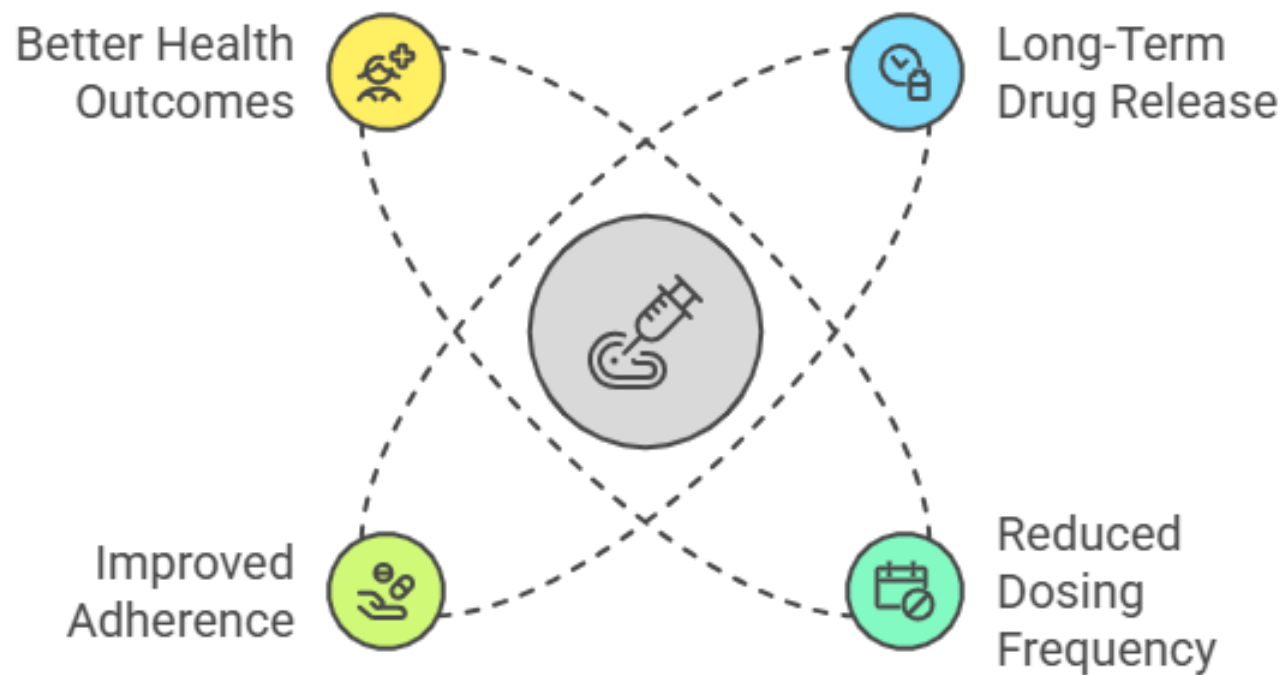
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Advantages of Implantable Drug Delivery



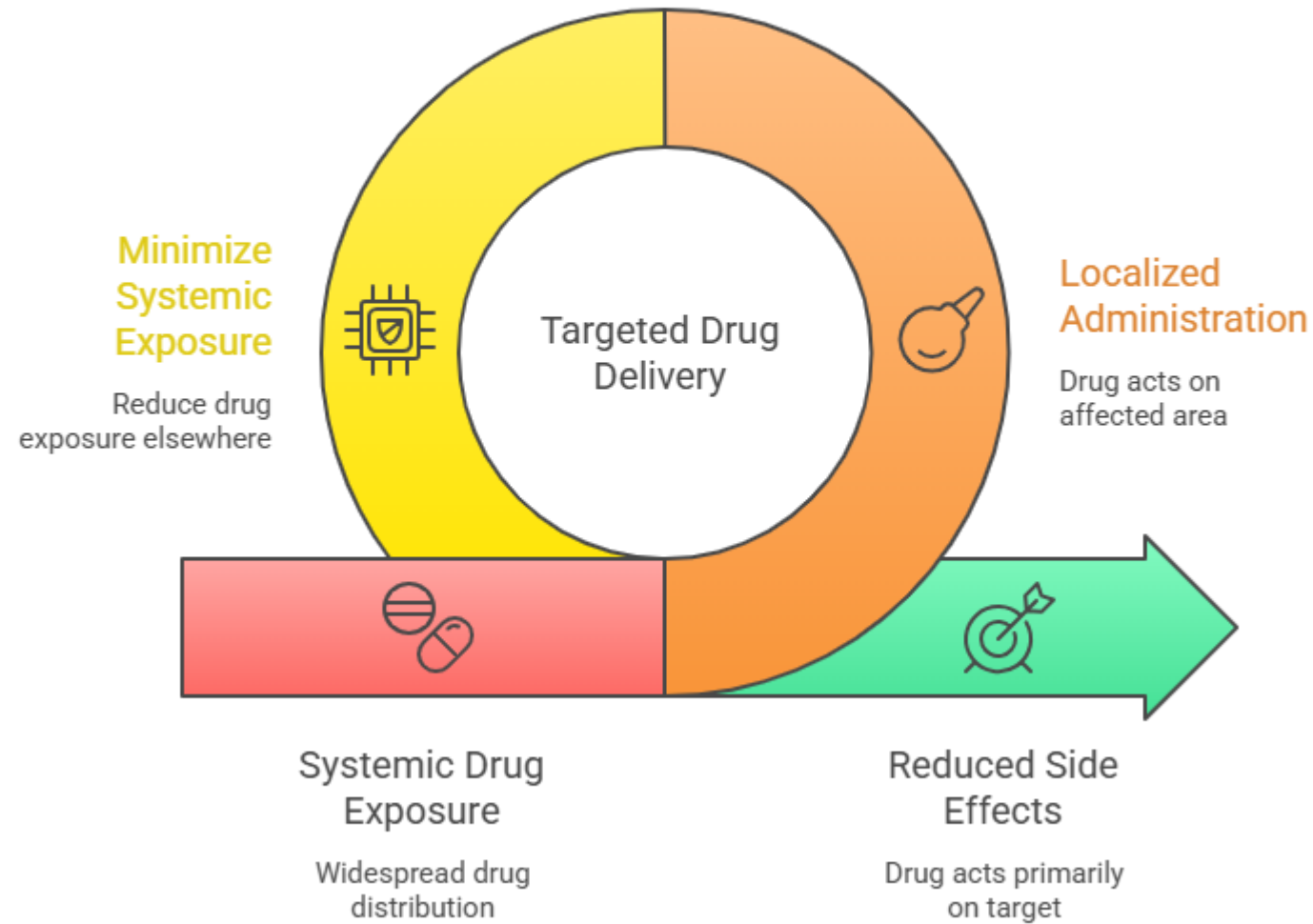
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Enhancing Patient Compliance with Implantable Systems



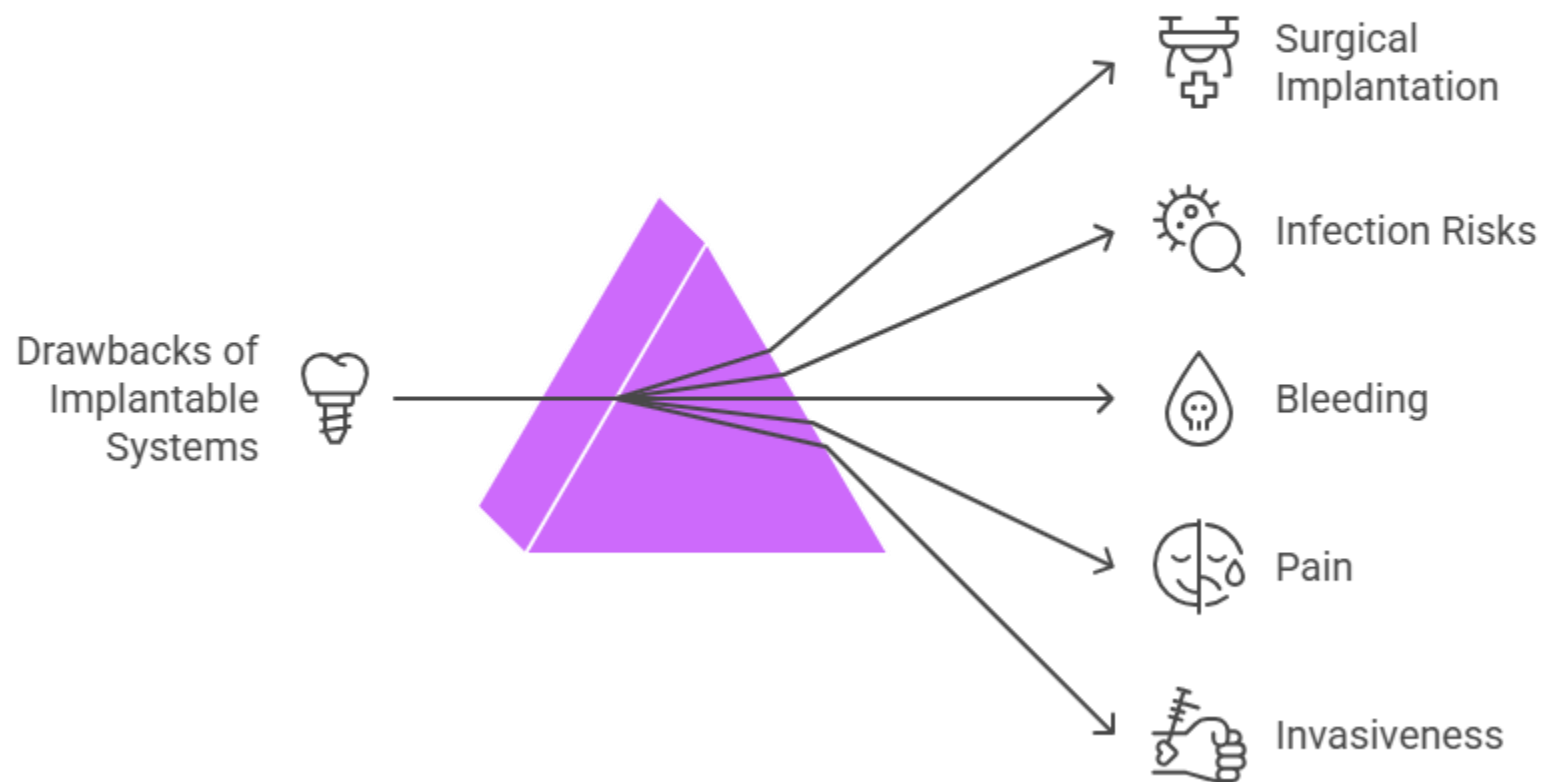
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Minimize Side Effects with Implants



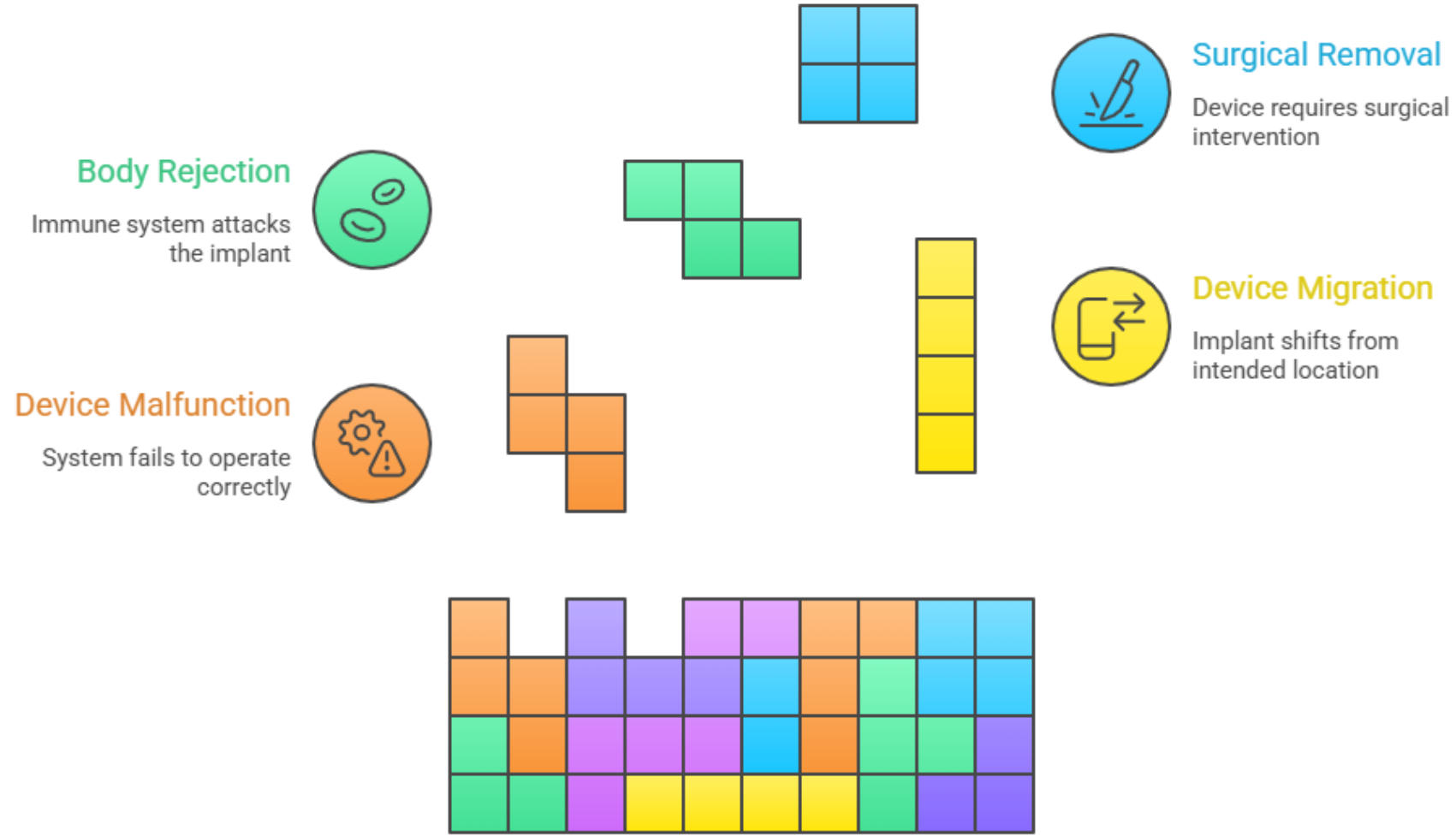
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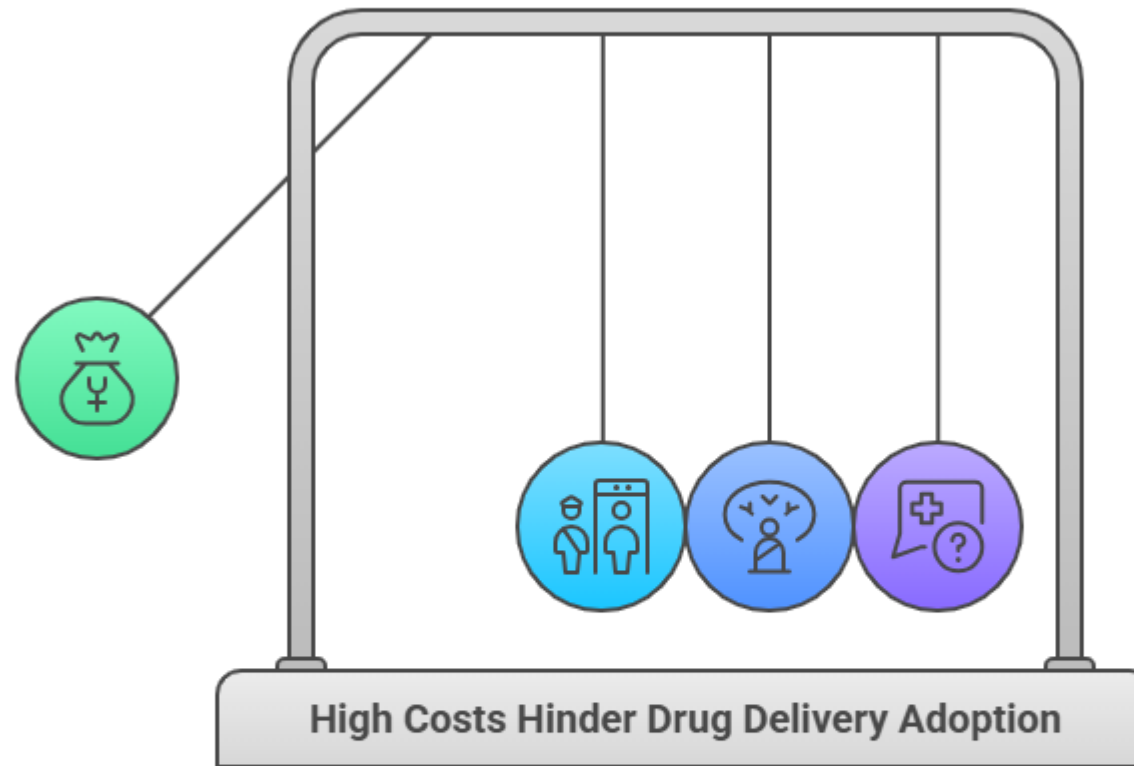
Unveiling the Drawbacks of Implantable Systems



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Implantable System Complications





High Costs

Upfront investment
is substantial

Limited Adoption

Barrier to
widespread use

Patient Deterrent

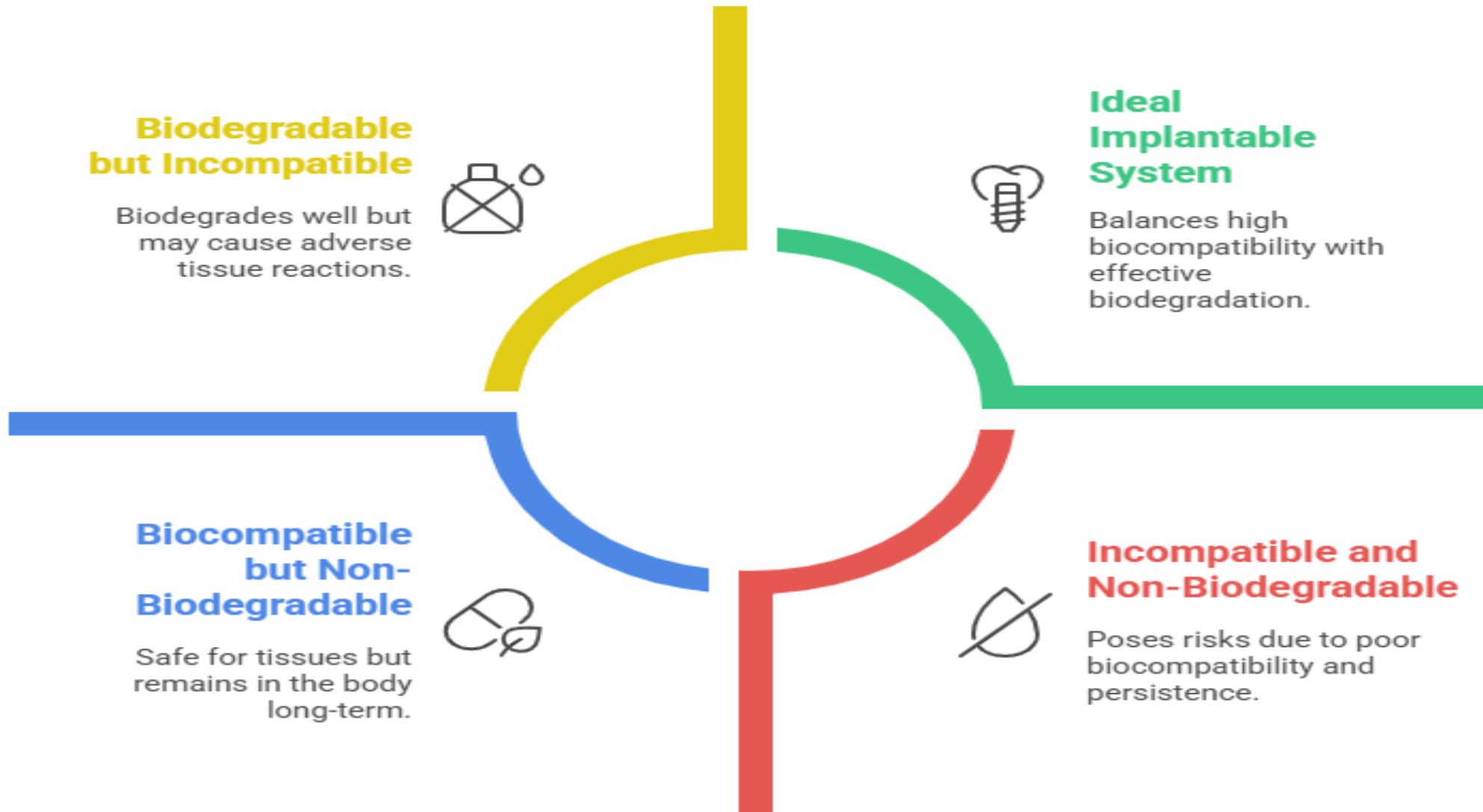
Discourages some
patients

Provider Hesitation

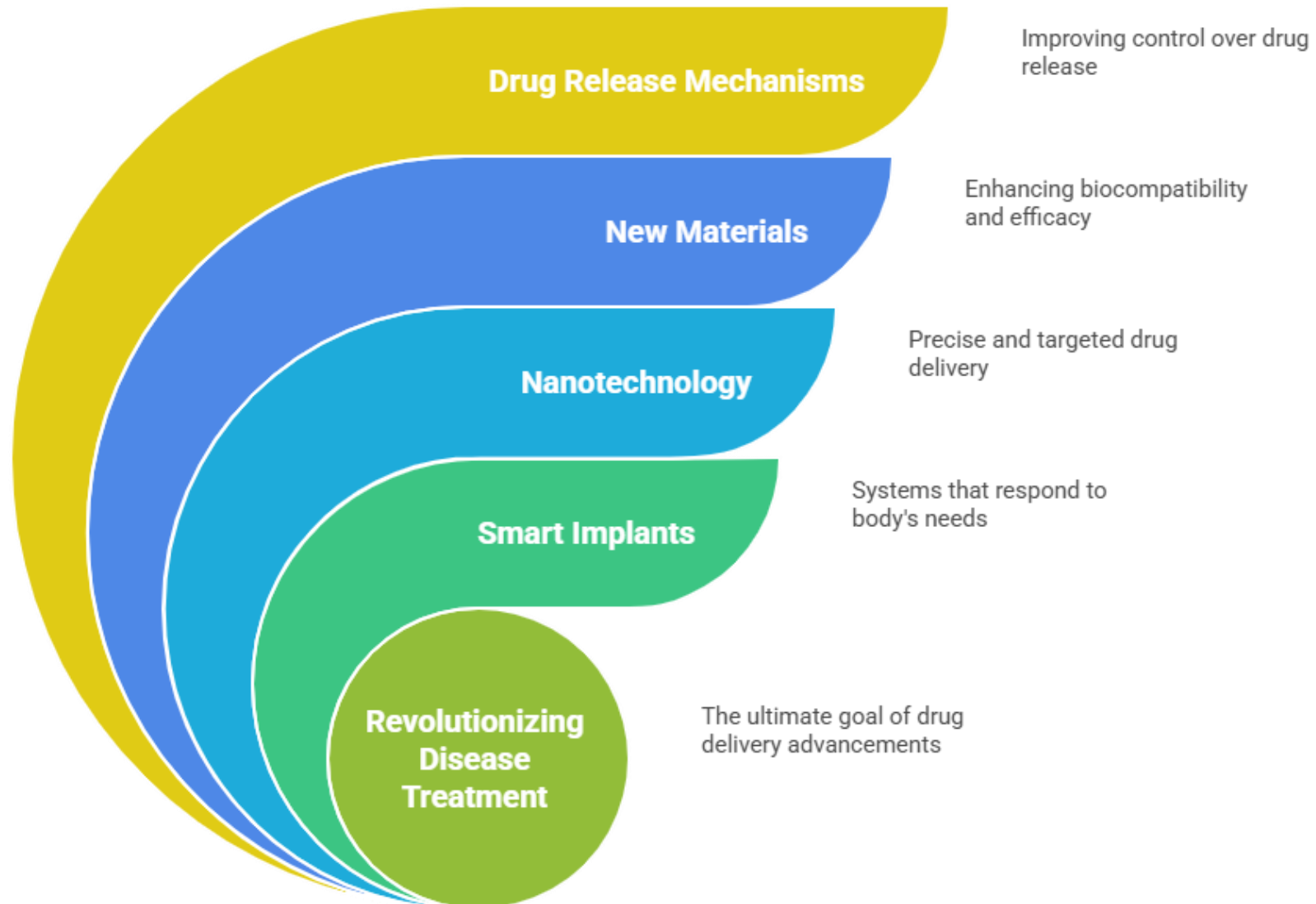
Deters healthcare
providers

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Biocompatibility and Biodegradation in Implantable Systems

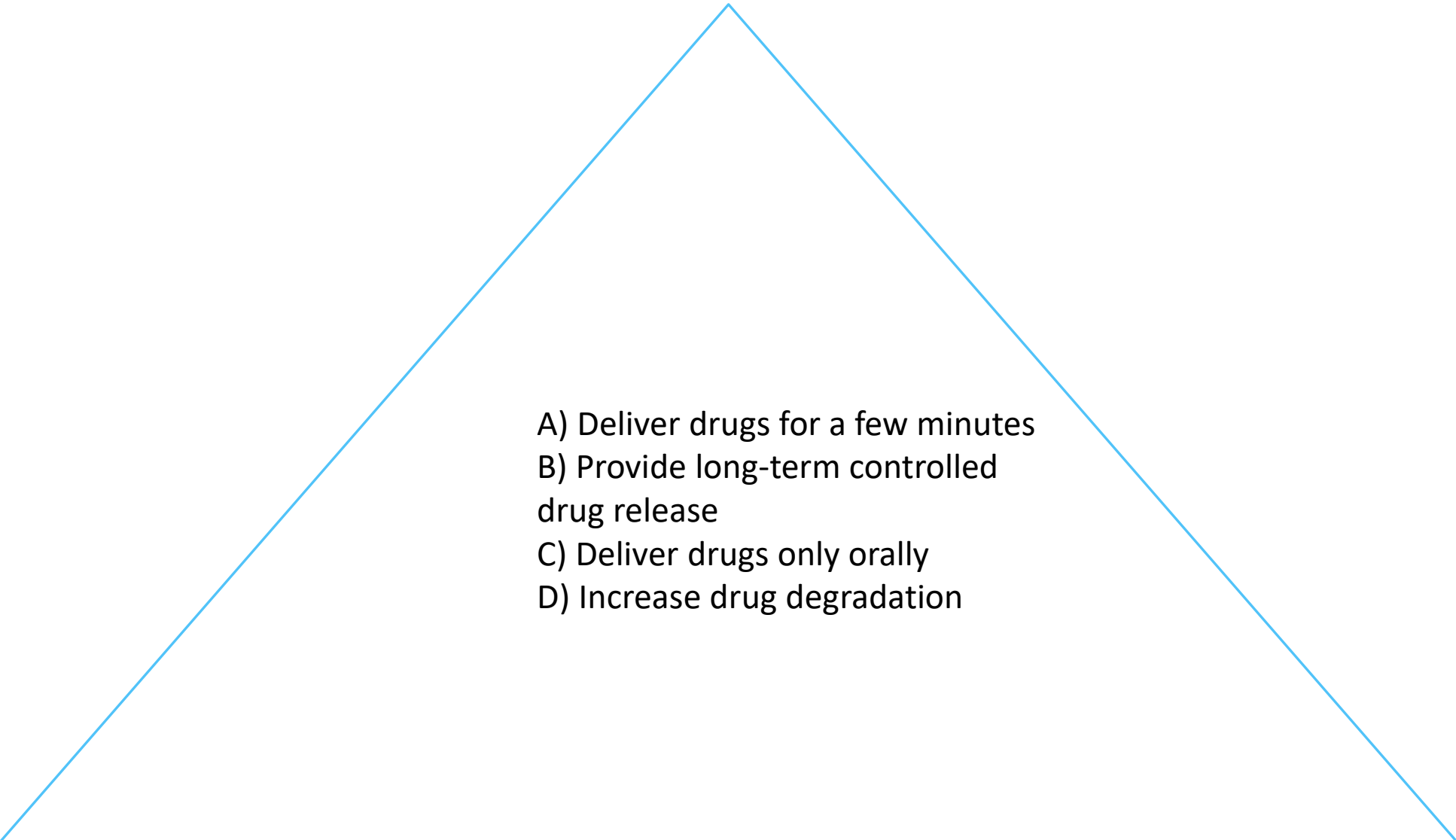


Future Trends in Implantable Drug Delivery Systems



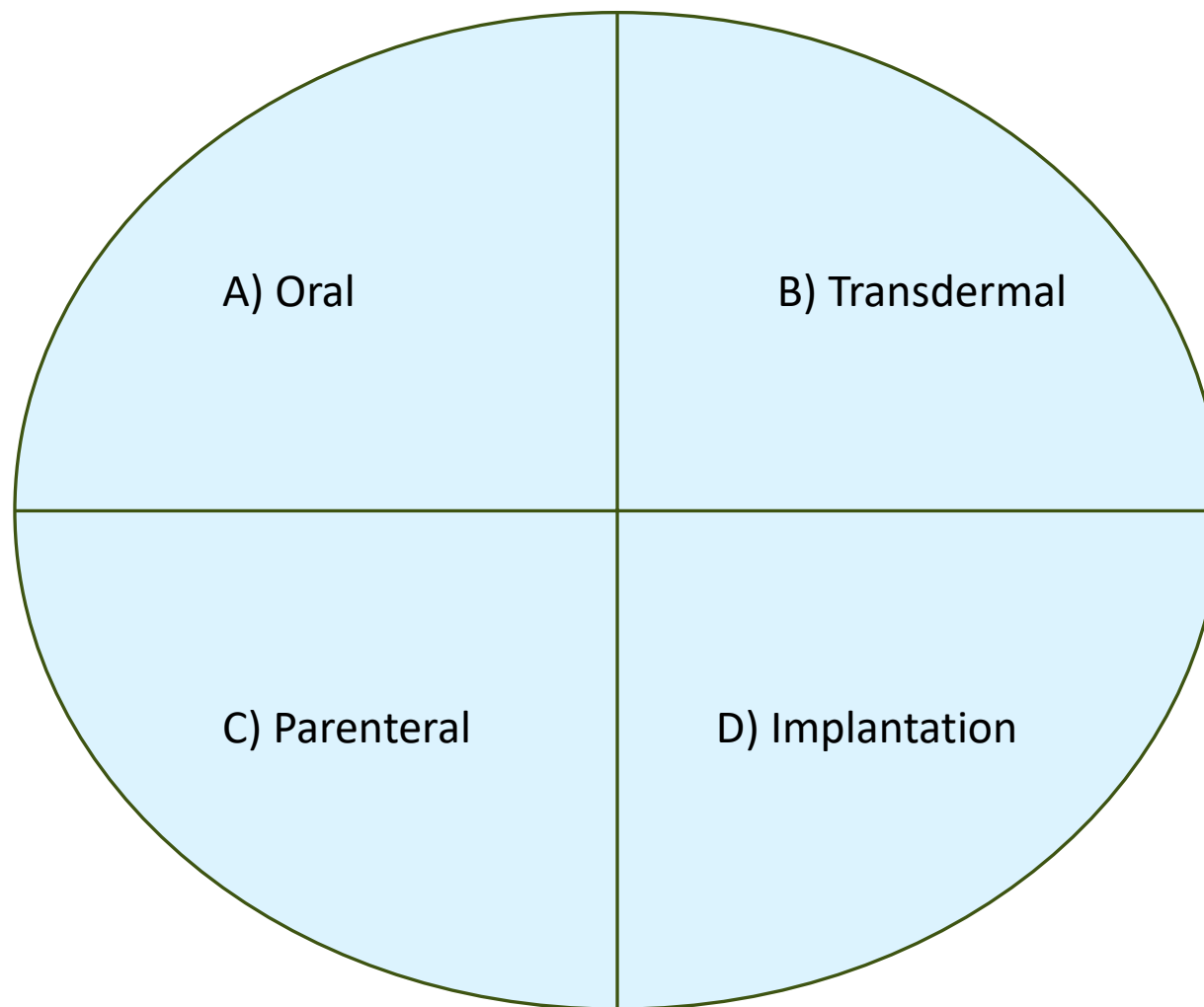
1. Implantable drug delivery systems are designed to:



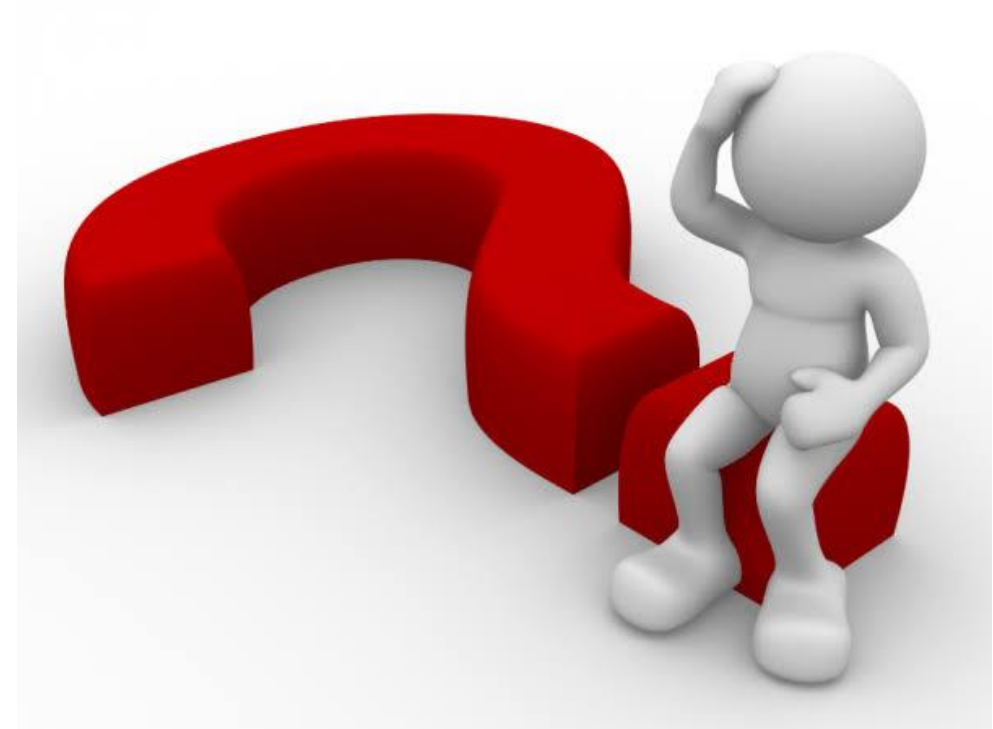
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- A) Deliver drugs for a few minutes
 - B) Provide long-term controlled drug release
 - C) Deliver drugs only orally
 - D) Increase drug degradation

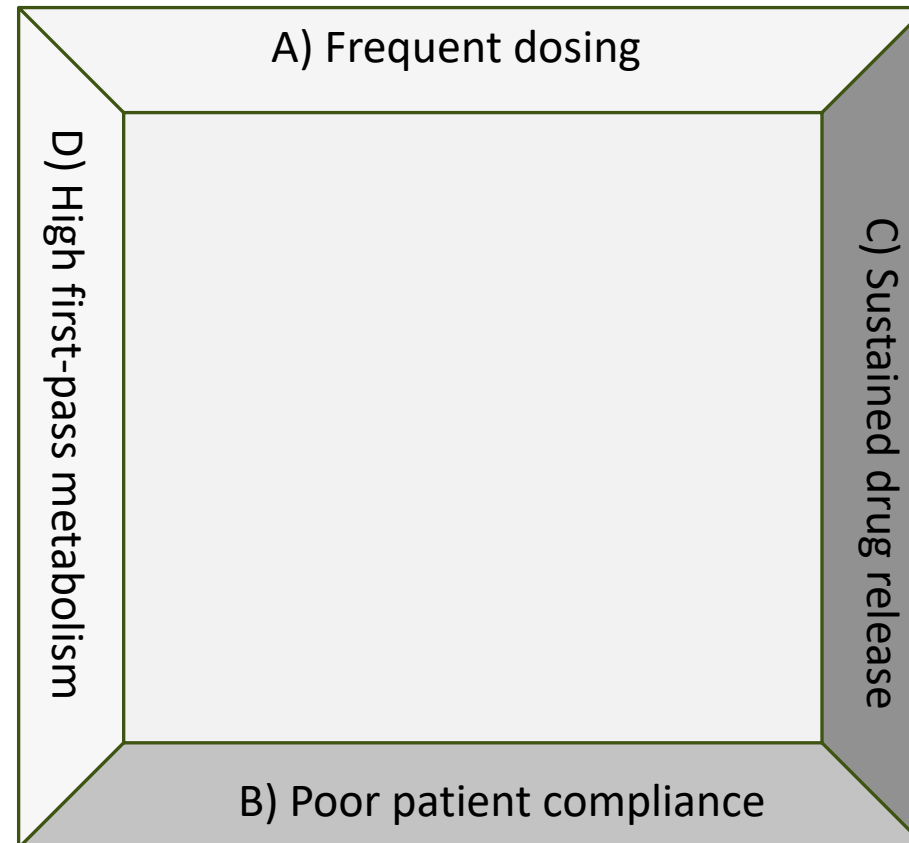
Which route is used for implantable drug delivery systems?





The major advantage of implantable drug delivery systems is:





REFERENCES

1. Yie W. Chien: Novel Drug Delivery Systems, Second Edition, Marcel Dekker, Inc, 1992 Pg no.816.
2. Joseph R. Robinson: Sustained and Controlled Release Drug Delivery Systems, First edition, Volume 6, Marcel Dekker, Inc, 1986, pg.618.
3. <https://www.sciencedirect.com/journal/journal-of-controlled-release>
4. <https://www.tandfonline.com/doi/full/10.1080/10837450.2018.1534376>
5. <https://www.scribd.com/document/668313752/Controlled-and-Novel-Drug-Delivery-by-N-K-Jain-1st-Editn-Reprint>



THANK YOU