

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

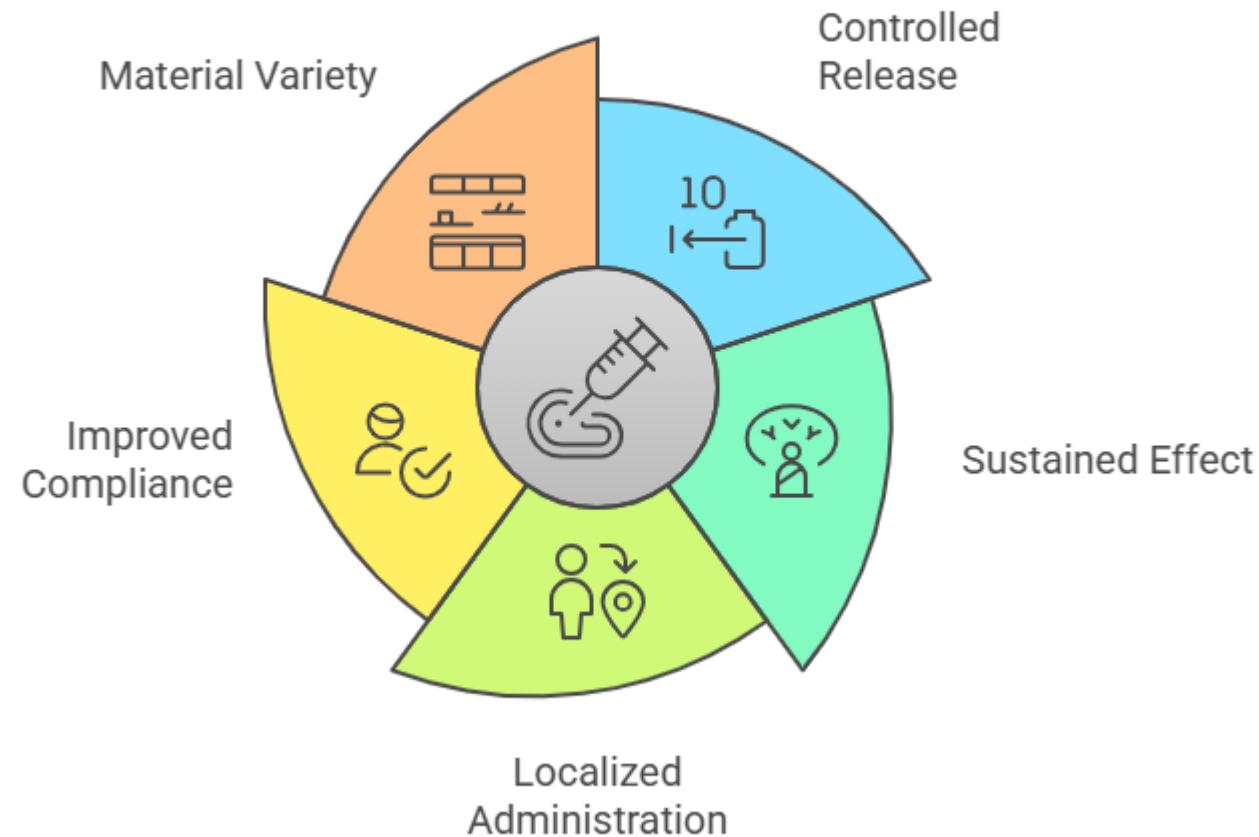
COURSE NAME : NOVEL DRUG DELIVERY SYSTEM (BP 706 T)

VII SEM / IV YEAR

UNIT -2

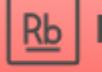
TOPIC 4 :IMPLANTABLE DRUG DELIVERY SYSTEM

Implantable Drug Delivery Systems



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Drug Release Mechanisms

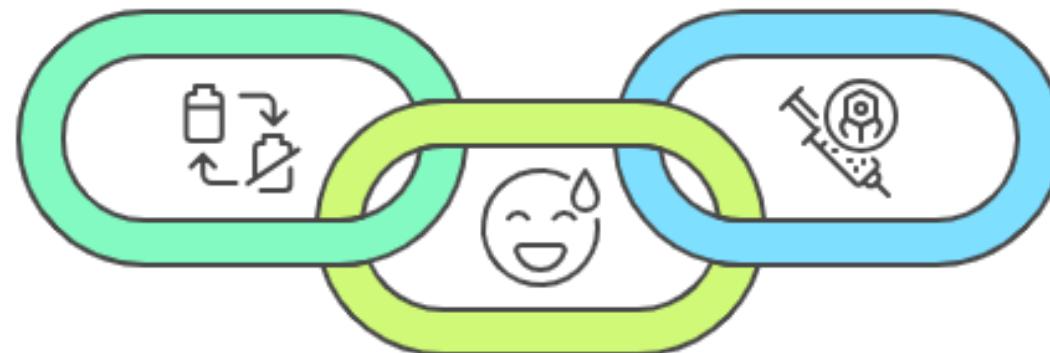
Characteristic	Diffusion-Controlled	Erosion-Controlled	Responsive
 Release Trigger	Diffusion through polymer	Polymer matrix degradation	Specific stimuli
 Influencing Factors	Polymer permeability, drug solubility, device geometry	Polymer composition, environment	Stimulus type and intensity
 Release Profile	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

Sustained Drug Release

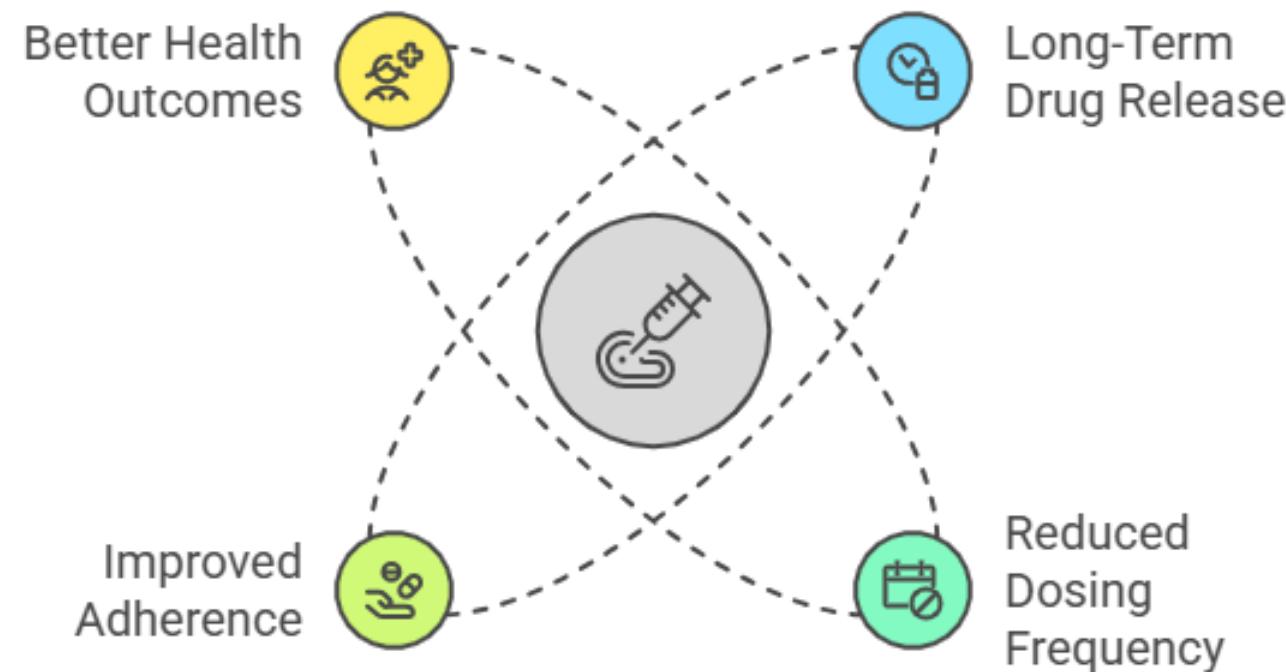
Targeted Drug Delivery



Reduced Side Effects

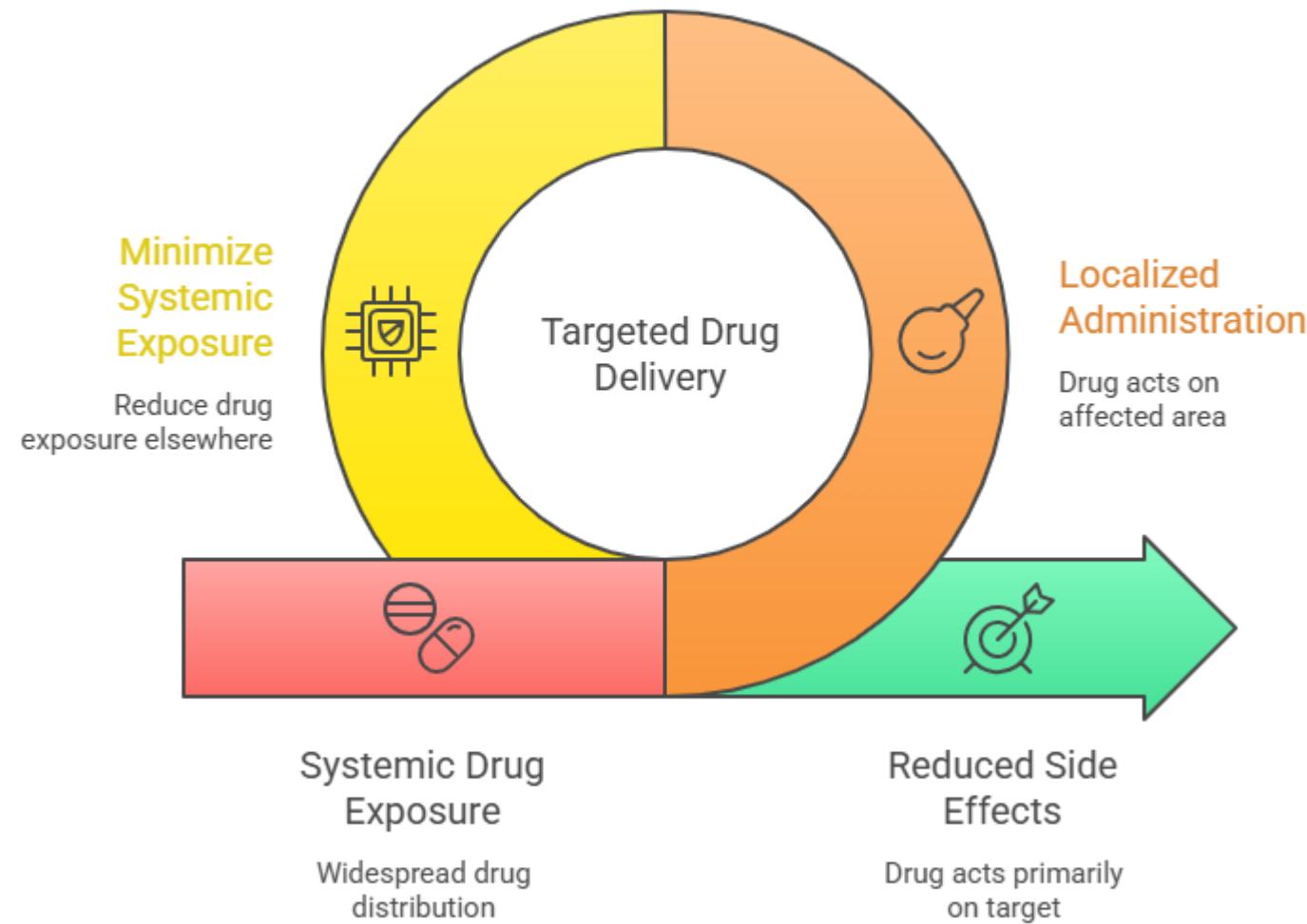
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Enhancing Patient Compliance with Implantable Systems



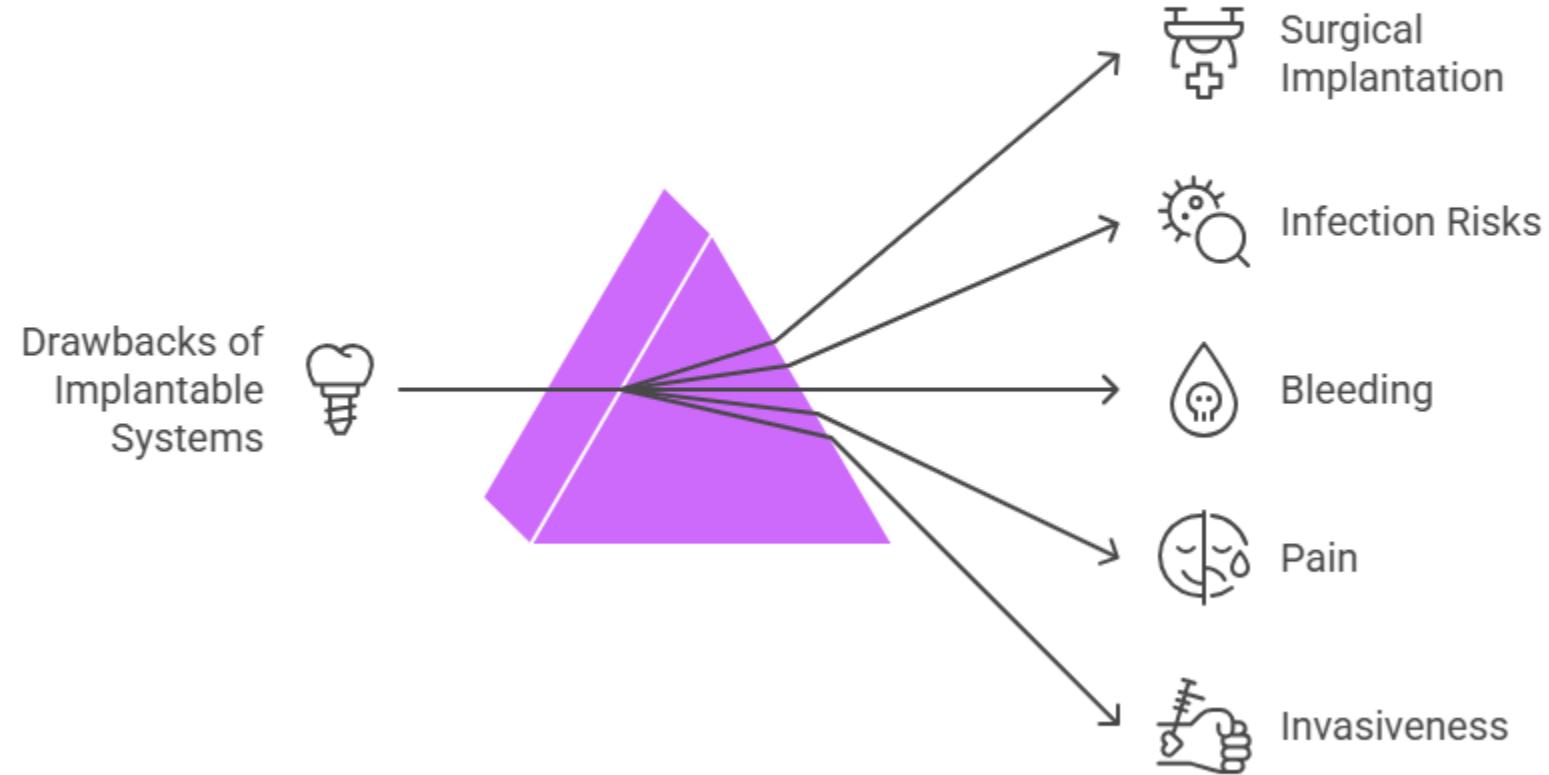
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Minimize Side Effects with Implants



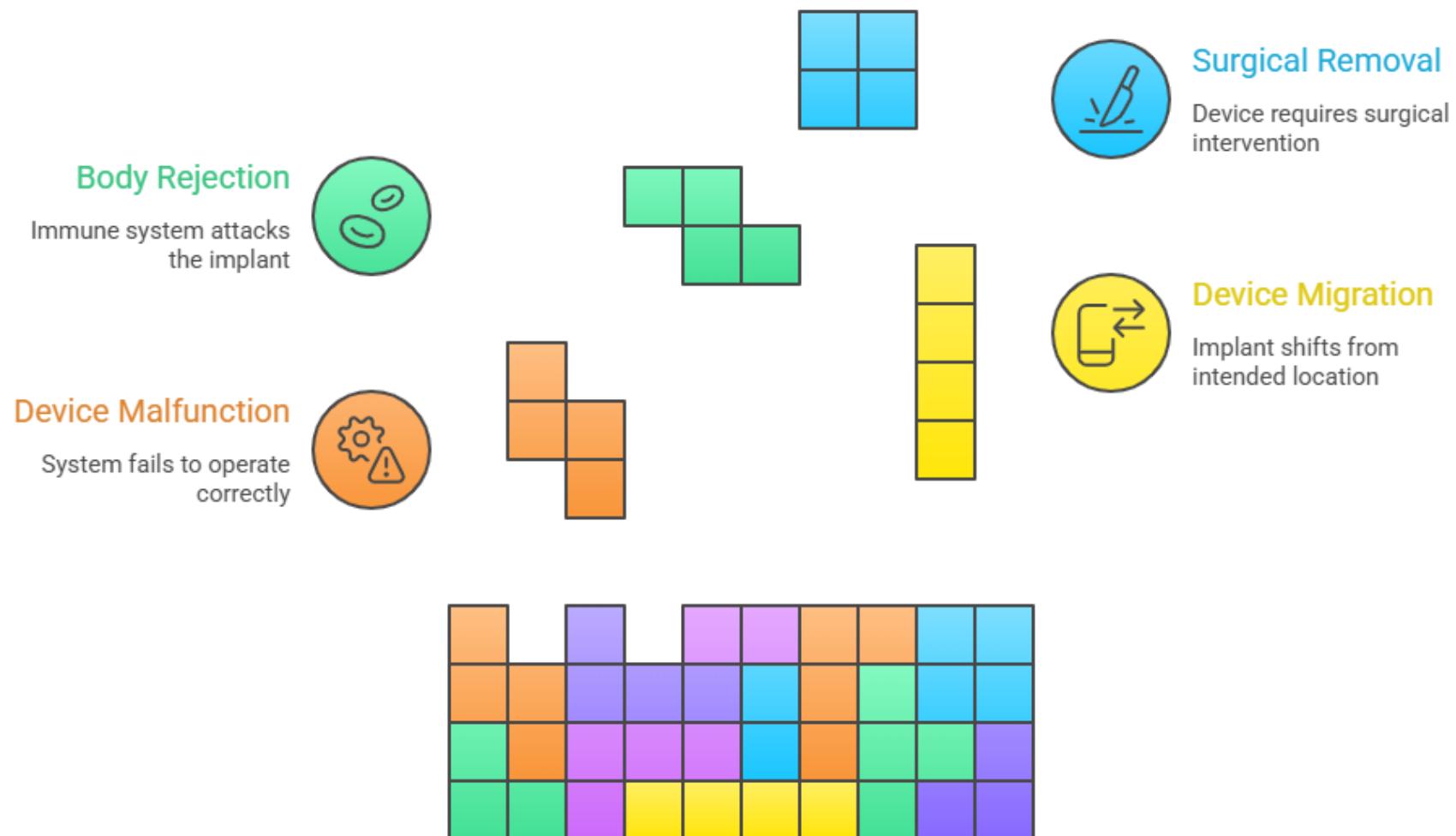
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Unveiling the Drawbacks of Implantable Systems

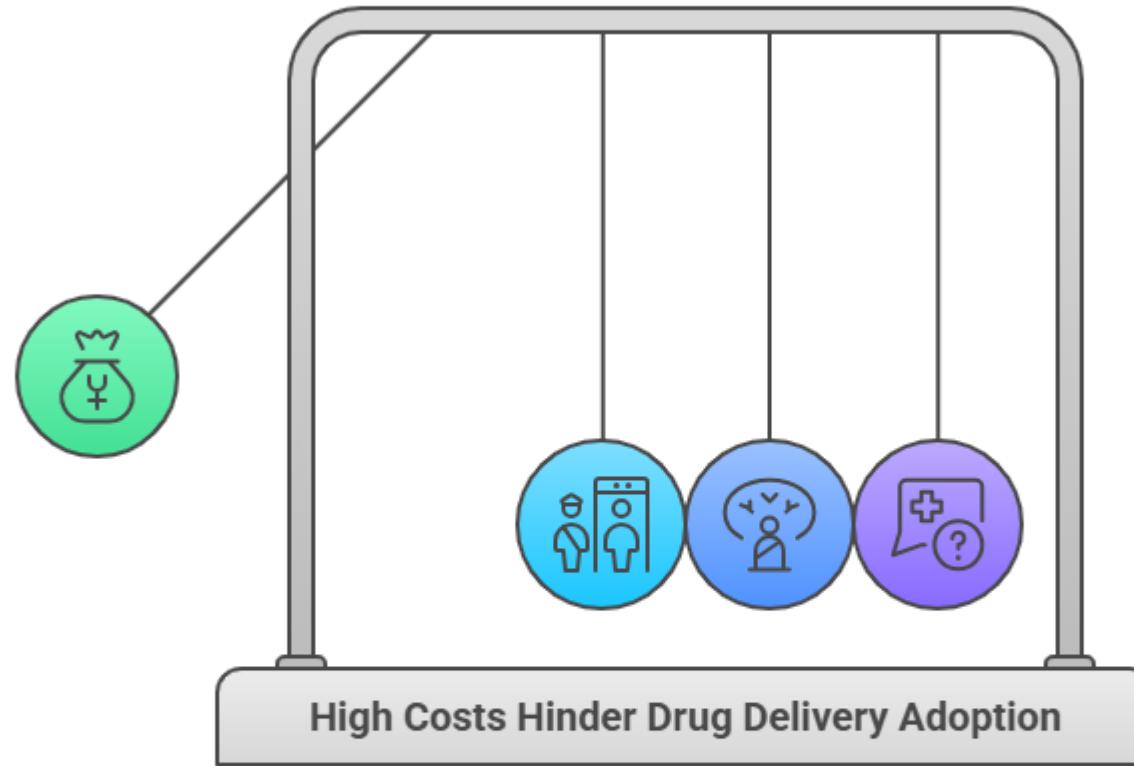


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Implantable System Complications



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High Costs

Upfront investment
is substantial

Limited Adoption

Barrier to
widespread use

Patient Deterrent

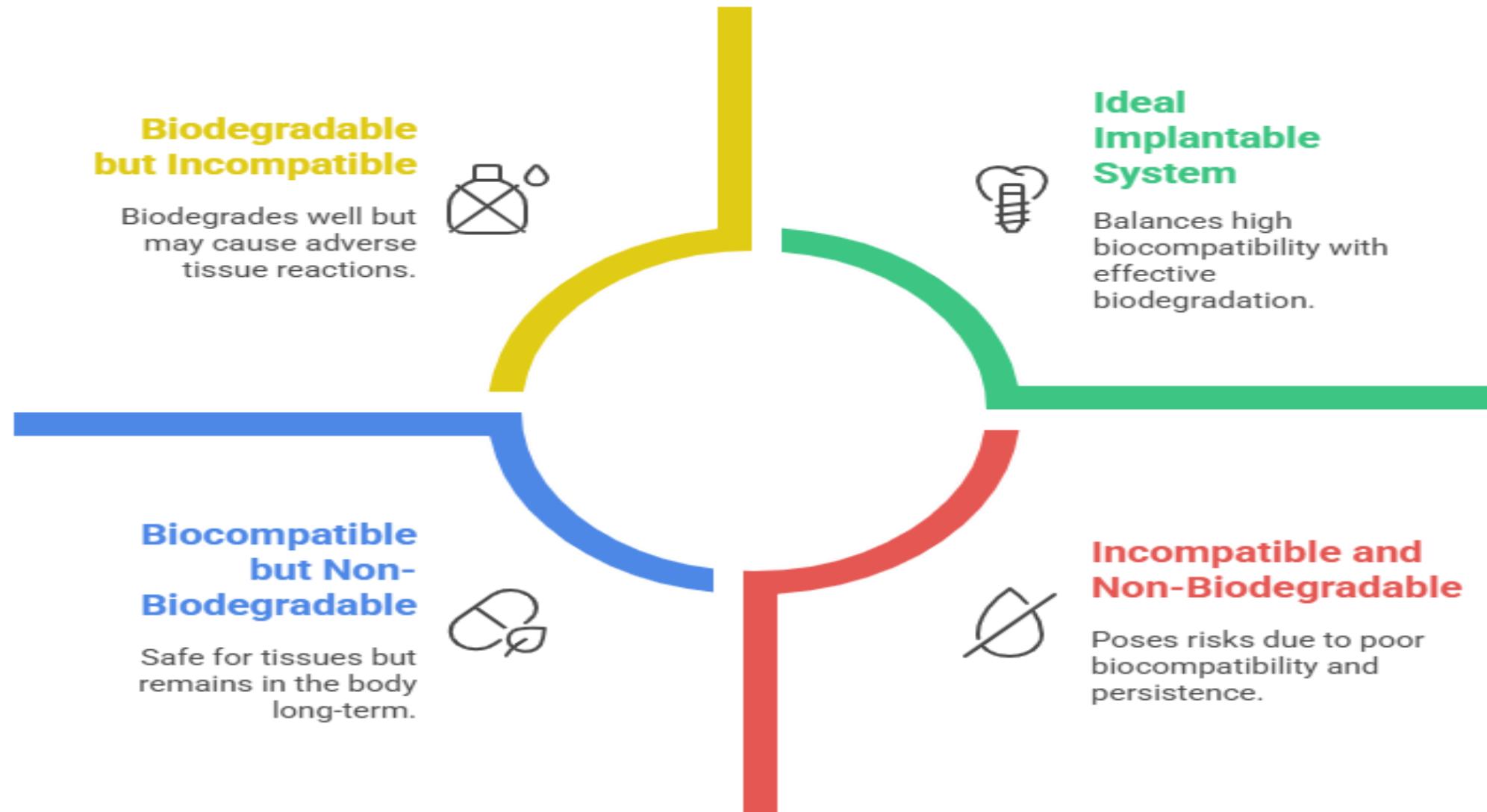
Discourages some
patients

Provider Hesitation

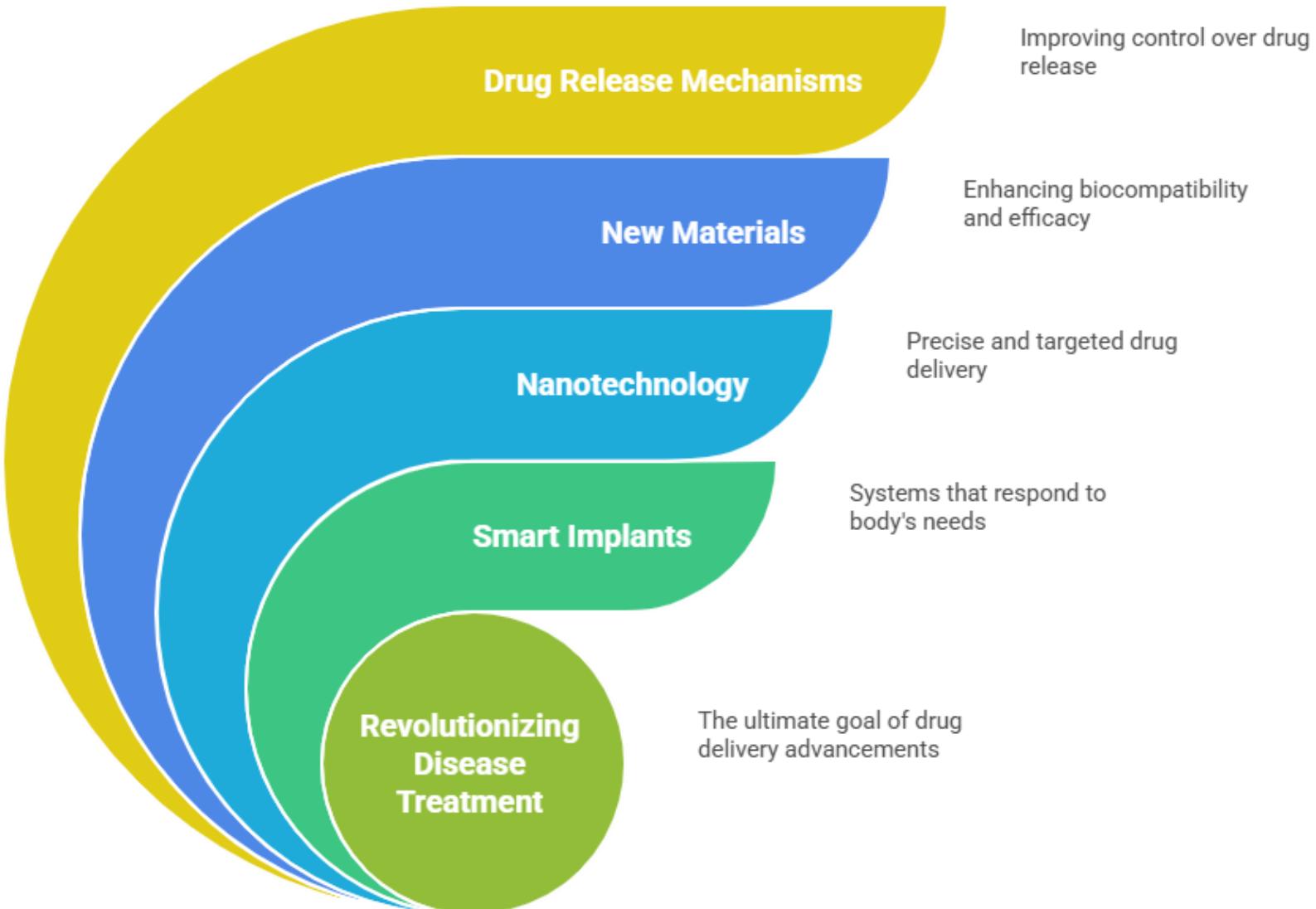
Deters healthcare
providers

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Biocompatibility and Biodegradation in Implantable Systems

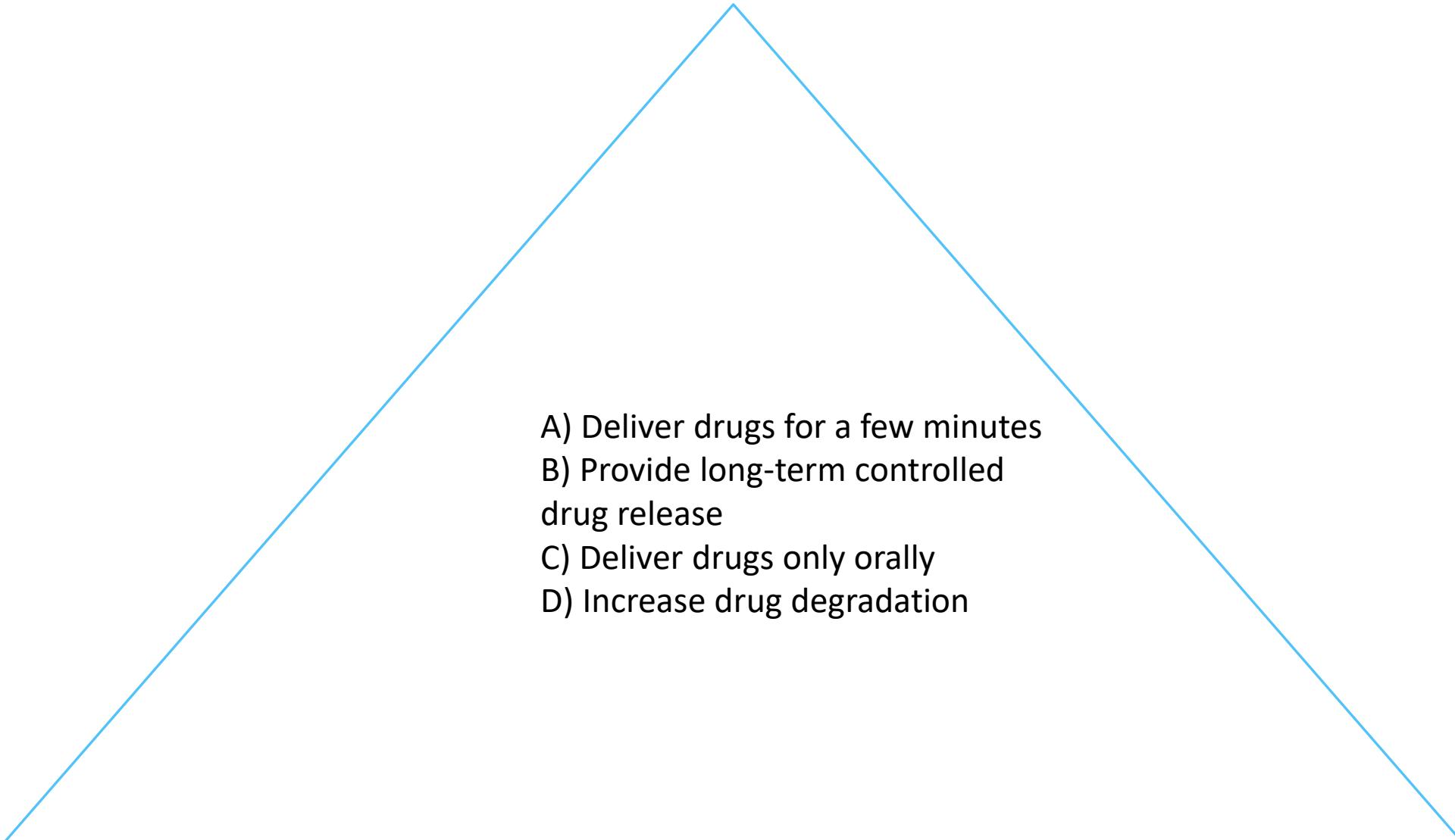


Future Trends in Implantable Drug Delivery Systems



1. Implantable drug delivery systems are designed to:

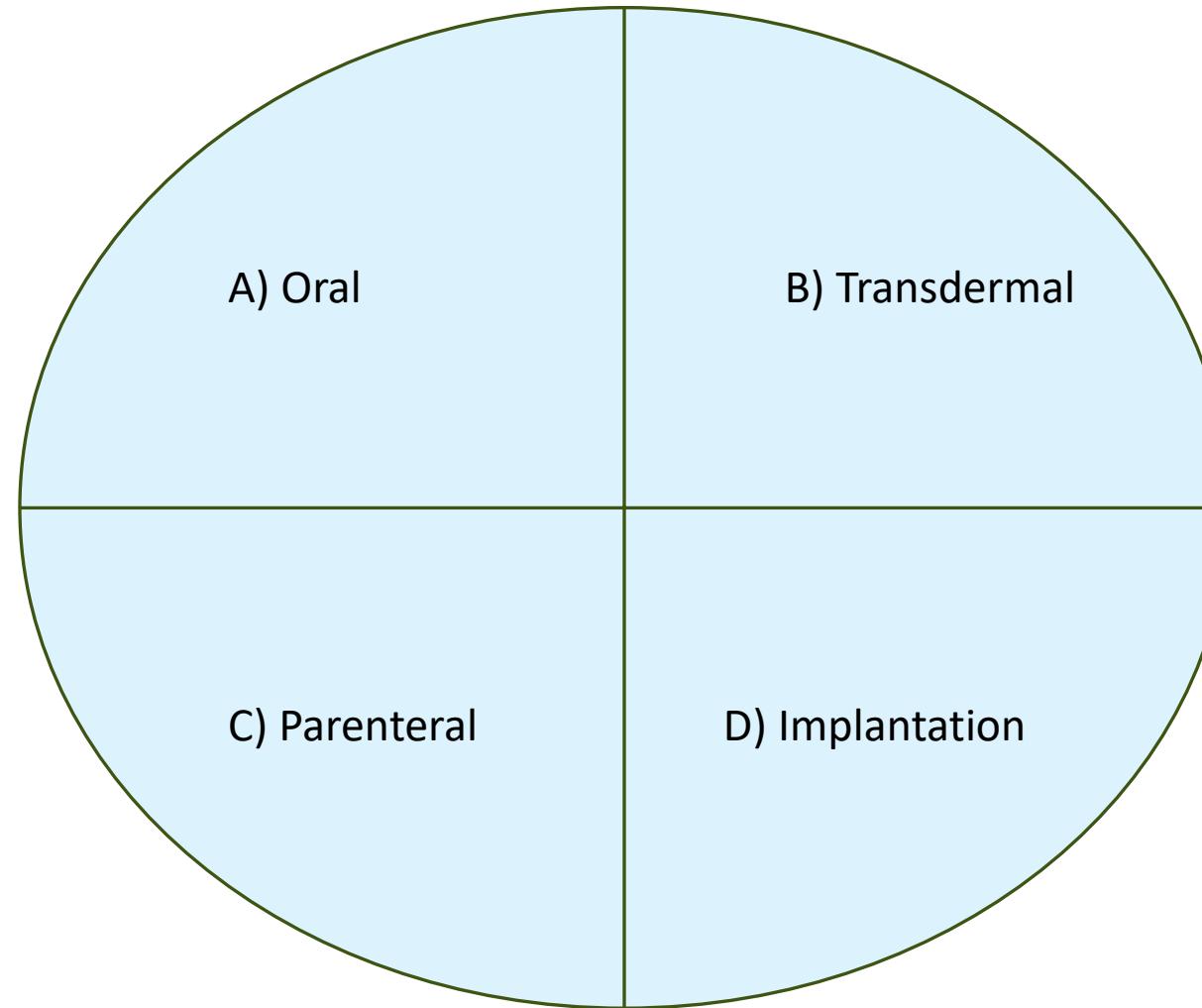




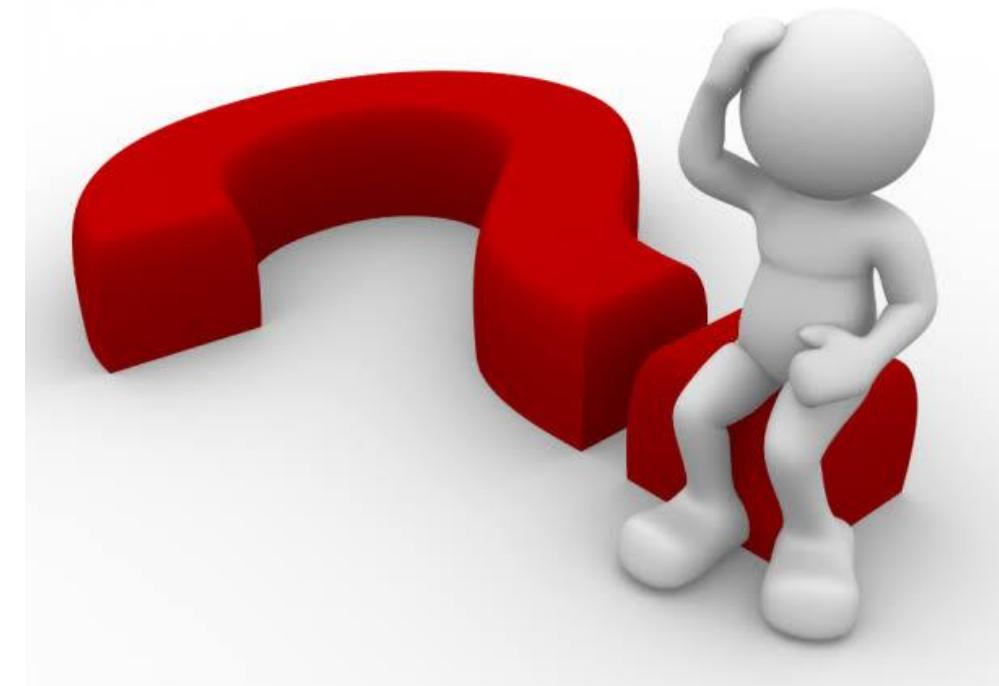
- A) Deliver drugs for a few minutes
- B) Provide long-term controlled drug release
- C) Deliver drugs only orally
- D) Increase drug degradation

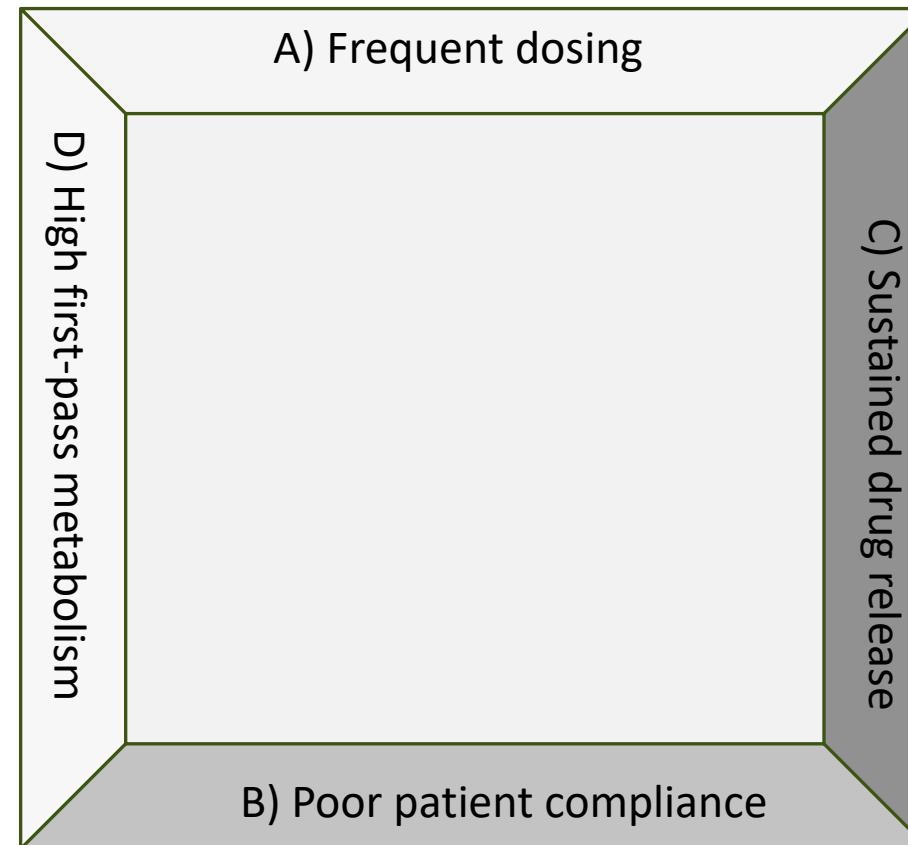
Which route is used for implantable drug delivery systems?





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>
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THANK YOU