# Article information:

Shape‐Memory Polymers for Biomedical Applications - Delaey - 2020 - Advanced Functional Materials - Wiley Online Library
<https://onlinelibrary.wiley.com/doi/full/10.1002/adfm.201909047>

# Article summary:

1. Shape-memory polymers (SMPs) are a type of polymer that can change between a permanent and temporary shape when exposed to certain conditions, such as heating or light.

2. SMPs have gained increasing attention in biomedical research due to their ability to memorize complex shapes and enable minimally invasive surgery.

3. The shape-memory effect is based on entropic elasticity and requires specific processing steps, such as crosslinking, to prevent slippage of the polymer chains.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Shape‐Memory Polymers for Biomedical Applications” by Delaey is an informative overview of the potential applications of shape-memory polymers in the biomedical field. The article provides a comprehensive overview of the chemistries employed to synthesize shape-memory polymers, along with notable examples illustrating their potential use in biomedical applications. Additionally, the article discusses the requirements for polymers serving a biomedical application and compares reversible shape-memory polymers with other reversibly actuating polymers such as hydrogel actuators and liquid crystalline elastomers.

The article is generally reliable and trustworthy; it provides detailed information on the topic at hand and cites relevant sources throughout its text. Furthermore, it presents both sides of the argument equally, noting possible risks associated with using shape-memory polymers in biomedical applications while also highlighting their potential benefits. There are no obvious biases or unsupported claims present in the text, nor does it contain any promotional content or partiality towards one side of the argument over another.

The only issue that could be noted is that some points are not explored in depth; for example, while discussing quantifying the shape-memory effect, only two parameters (strain recovery and strain fixity) are mentioned without further elaboration on how they can be used to characterize materials exhibiting this effect. However, this does not detract from the overall quality of the article or its trustworthiness; it simply means that readers may need to look elsewhere for more detailed information on this particular topic if desired.

# Topics for further research:

* Shape-memory polymer characterization
* Shape-memory polymer chemistries
* Biomedical applications of shape-memory polymers
* Hydrogel actuators
* Liquid crystalline elastomers
* Quantifying the shape-memory effect

# Report location:

<https://www.fullpicture.app/item/753c8a8485ae08080f6f3b6c0b234ae8>