



Universiteit  
Leiden  
The Netherlands

## **Experimental studies on hemodialysis access innovations**

Geelhoed, W.J.

### **Citation**

Geelhoed, W. J. (2020, October 6). *Experimental studies on hemodialysis access innovations*. Retrieved from <https://hdl.handle.net/1887/137442>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/137442>

**Note:** To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/137442> holds various files of this Leiden University dissertation.

**Author:** Geelhoed, W.J.

**Title:** Experimental studies on hemodialysis access innovations

**Issue Date:** 2020-10-06

**Stellingen behorend bij het proefschrift getiteld 'Experimental studies on hemodialysis access innovations'.**

1. Due to its numerous downsides the AVF can also be viewed as a surgically induced pathological condition (**this thesis**).
2. Vascular access for hemodialysis provides a stringent test case for any tissue-engineered blood vessel technology due to the high failure rate of both arteriovenous fistula and arteriovenous grafts (**this thesis**).
3. Indirect methods of burst pressure assessment should thus not be used for the evaluation of tissue-engineered blood vessels unless perfect homogeneity of the sample is assumed, and a high correlation is validated (**this thesis**).
4. Arguably the most vital characteristic of a any tissue-engineered blood vessel is its ability to be safely grafted into the vasculature of a patient without mechanical failure (rupture due to pressure, suture rupture, aneurysm formation) (**S. Pashneh-Tala, Tissue Eng Part B Rev, 2015 & this thesis**).
5. The development of novel biomaterials, biomedical devices, or tissue-engineered constructs necessitates a thorough understanding of the biological responses to implanted materials (**J. Anderson, Semin Immunol, 2008**).
6. Prolongation of life in terminal renal failure depends upon access to blood vessels for repeated hemodialysis (**M.J. Brescia, J.E. Cimino, K Appel, B.J. Hurwich, N Engl J Med, 1966**).

*On how chronic vascular access for hemodialysis has existed since the 1960's, yet no ideal solution has yet been found or implemented.*

7. Only in rare instances is he able to pay for it [dialysis] himself (**W.J. Kolff, 1965**).

*On the staggering cost of a dialysis procedure.*

8. Besides the focus on the downstream complications of chronic kidney disease such as hemodialysis vascular access, a societal emphasis should be placed on promoting an active lifestyle in combination with dietary considerations.
9. A picture is worth a thousand words.
10. There is as yet insufficient data for a meaningful answer (**The last Question, Isaac Asimov, 1956**).

*On how more data is always good, yet every answer generates more questions.*

11. Let the seasons begin, it rolls right on (**Elephant gun, Beirut, 2007**).

*Research takes a long time, and time always flies by faster than you think.*