

# STEREOLOGY OF THE HEART – WHAT'S THE POINT IN COUNTING?

GUEST LECTURE by



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**17:00**

**HS E1, Lecture Hall Center**  
**Auenbruggerplatz 15, MUG**

## Abstract

The aim of stereological methods in biomedical research is to obtain quantitative information about three-dimensional (3D) features of tissues, cells, or organelles from two-dimensional physical or optical sections. Nowadays, a large number of design-based stereological methods offer an efficient quantitative approach to intriguing questions in cardiac research, such as “Is there a significant loss of cardiomyocytes during progression from ventricular hypertrophy to heart failure?” or “Does a specific treatment reduce the degree of fibrosis in the heart?” Nevertheless, the use of stereological methods in cardiac research is rare. The present review article demonstrates how some of the potential pitfalls in quantitative microscopy may be avoided. To this end, I will outline the concepts of design-based stereology and illustrate their practical applications to a wide range of biological questions in cardiac research. The talk is addressed to everyone interested in quantifying structural characteristics of the heart and other organs.

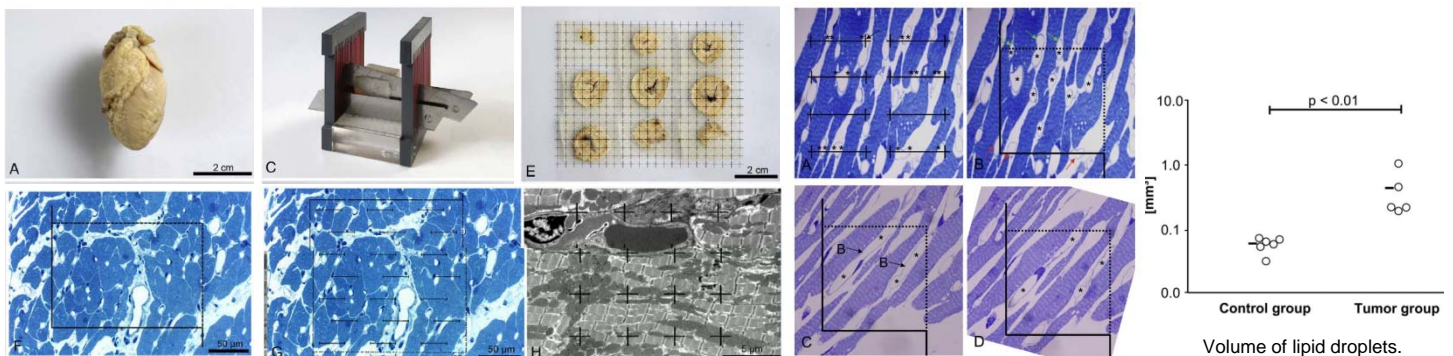


Illustration of stereological work flow.  
From: Mühlfeld et al. (2010) *Cardiovasc Pathol* 19:65 -82

Estimation of volume, surface area, length and number of cardiac capillaries on mouse hearts. From: Mühlfeld (2012) *Ann Anatomy*

Volume of lipid droplets.  
From: Mühlfeld et al. (2011) *PlosOne* 6(5):e20424