

## HEMODYNAMIC ANALYSIS AND DESIGN OF A PARACORPOREAL ARTIFICIAL LUNG DEVICE

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### Objective

To create a mathematical model of the pulmonary circulation with an artificial lung attached and to analyze the hemodynamic consequences.

### Study Design

Mathematical model.

### Methods

Review of literature data development of a mathematical model. The parameters of the modelled artificial lung circuit were fit to natural data.

### Results

A realistic model was obtained. Inlet graft length was identified as the most important factor influencing the impedance.

### Commentary

This modelling effort is important for the development of an artificial lung because it can characterize the hemodynamic load on the right ventricle and it identifies the parameters influencing this load.

