

# Vascular Model Repository

## Specifications Document



### 0075\_H\_CORO\_CAD

Legacy Name: 0188\_0001

Model added: 27 Dec 2021

<b>Species</b>	Human
<b>Anatomy</b>	Coronary
<b>Disease</b>	Coronary Artery Disease
<b>Procedure</b>	Coronary Artery Bypass Graft

# Clinical Significance and Background

## Coronary

Just like every tissue in the body, the heart itself also requires oxygenated blood to function. The coronary arteries supply blood to the heart and stem from the root of the ascending aorta. The two main coronary arteries are the left main and right coronary arteries, and they wrap around the outside of the heart.

The left main coronary artery (LCMA) supplies blood to the left side of the heart muscle and divides into two branches: the left anterior descending (LAD) artery and the left circumflex (LCX) artery which supply blood to the front left and outer backside of the heart respectively.

The right coronary artery (RCA) supplies blood to the right ventricle, the right atrium, and the SA (sinoatrial) and AV (atrioventricular) nodes, which regulate the heart rhythm. Together with the left anterior descending artery, the right coronary artery also helps supply blood to the middle or septum of the heart.

## Coronary Artery Disease

Coronary artery disease (CAD) is a type of heart disease where the arteries of the heart cannot deliver enough oxygen-rich blood to the heart. It is often caused by cholesterol, a waxy substance that builds up inside the lining of the coronary arteries forming plaque. This buildup can partially or totally block blood flow in the large arteries of the heart. Coronary artery disease is a very common heart condition with the most common symptoms being shortness of breath and angina (chest pain). If left unchecked, a serious case of CAD could result in a complete blockage of the coronary arteries which causes a heart attack.

## Coronary Artery Bypass Graft

Coronary artery bypass graft surgery (CABG) is a procedure used to treat coronary artery disease. One way to treat the blocked or narrowed arteries is to bypass the blocked portion of the coronary artery with a piece of a healthy blood vessel from elsewhere in your body. Blood vessels, or grafts, used for the bypass procedure may be pieces of a vein from your leg or an artery in your chest. An artery from your wrist may also be used. Your doctor attaches one end of the graft above the blockage and the other end below the blockage. Blood bypasses the blockage by going through the

new graft to reach the heart muscle.

## Clinical Data

### General Patient Data

Age (yrs)	50
Sex	Female

### Specific Patient Data

Heart Rate (beats/min)	62
Stroke Volume (mL)	61

## Notes

See below for information on the image data.

**Image Modality:** CT

**Image Type:** VTI

**Image Source:** UCSD

**Image Manufacturer:** GE MEDICAL SYSTEMS

## Publications

There are no publications associated with the featured model.

# License

Copyright (c) Stanford University, the Regents of the University of California, Open Source Medical Software Corporation, and other parties.

All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this data to use the data for research and development purposes subject to the following conditions:

The above copyright notice and the README-COPYRIGHT file shall be included in all copies of any portion of this data. Whenever reasonable and possible in publications and presentations when this data is used in whole or part, please include an acknowledgement similar to the following:

"The data used herein was provided in whole or in part with Federal funds from the National Library of Medicine under Grant No. R01LM013120, and the National Heart, Lung, and Blood Institute, National Institutes of Health, Department of Health and Human Services, under Contract No. HHSN268201100035C"

AND/OR

N.M. Wilson, A.K. Ortiz, and A.B. Johnson, "The Vascular Model Repository: A Public Resource of Medical Imaging Data and Blood Flow Simulation Results," J. Med. Devices 7(4), 040923 (Dec 05, 2013) doi:10.1115/1.4025983.

AND/OR

Reference the official website for this data: [www.vascularmodel.com](http://www.vascularmodel.com)

THE DATA IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE DATA OR THE USE OR OTHER DEALINGS IN THE DATA.