

EJECTION FRACTION

The measurement called Ejection Fraction is usually expressed as a percentage. The percentage is computed to advise the Doctor and Patient on the efficiency of the heart. It provides a rough figure of how much of the available blood inside the heart is actually pushed out into the body with the contraction of the heart muscles. Ejection Fraction is usually computed from comparing doppler sound imaging of both the expanded and contracted ventricular chamber dimensions. Originally with the new measurement of heart force (Pending Patent 62928212), it was thought that if one was to compare the systolic surge interval force with the Diastolic Ventricle Filling force interval a similar figure could be provided; without the need for human interpretation of chamber size estimations. This may still be true and worthy of some additional theoretical / algorithmic work; however, the duality of the heart function is the issue. The blood that is considered “in” the heart and about to be forced out have two different sources and two different general destinations; and they happen at exactly the same time. Whereas the doppler chamber size computation is only performed on the left ventricle side.

The second issue is that the intervals of heart force that can be measured by heart-force methods are broken down further into their particular forcing functions. These separate forcing functions have to be conjoined and considered one interval of output force, and one interval of filling. Not the separate individual interval forces identified with the new method.



Shown above is one heart beat with the highlighted “Ejection” portion on the left, and the highlighted “Filling” portion on the right. Additionally, and lower the heart-force marker and interval method and process of the systole surge is shown here with the junction of two heart force intervals, both positive going and negative going, with the latter interval also broken into two parts at the zero-crossing point. Similarly, the Ventricle Filling / Filled intervals provided from the two heart-force intervals, that are actually two intervals (positive going) “Filling” and the next interval “Ventricles Filled” (negative going) are shown joined together. These separate heart-force intervals are conjoined for the purpose of establishing the ejection relationship needing to be expressed, with special attention to the amplitudes, timing and shapes of both.

It is hoped that the fact that actual Force is used to make the computation, and its close relationship to the true meaning of “Ejection” can provide that this method of heart efficiency of chamber filling and ejection can be accepted, as the reasonable estimation that it is.