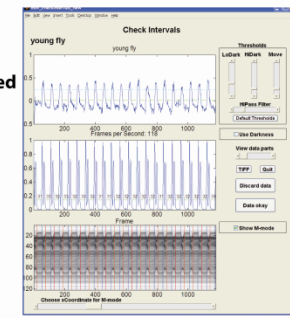


Semi-automated Optical Heartbeat Analysis (SOHA)

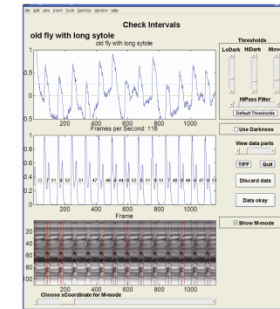
3 Check Intervals

All intervals correctly identified

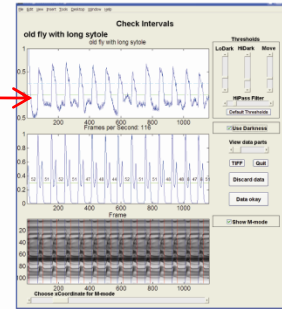


(SOHA 4)

Some intervals incorrectly identified

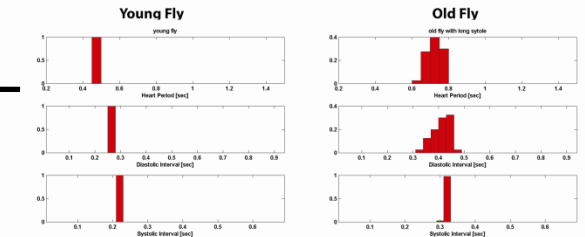


All intervals correctly identified



4 Output Statistics

Distribution of Heart Period, Diastolic Intervals, and Systolic Intervals



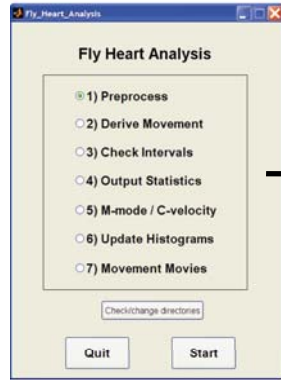
Total Statistical Output for each movie

Info from filename				Mean and median and standard deviation:											
File Name	Geno	Geno	Age	Heart Rate	Heart Period	Diastolic Interval	Systolic Interval	norm HP SD							
young fly	wt	1	1	2.098	2.107	0.03	0.477	0.475	0.007	0.263	0.263	0.007	0.214	0.004	0.014
old fly with long systole	wt	1	5	1.389	1.381	0.065	0.721	0.724	0.033	0.41	0.414	0.033	0.311	0.31	0.003

Estimate of Arrhythmicity:											
1st	2nd	2nd	Fractional	Number	Quanta	Number	Quanta	Number	Quanta	Number	Quanta
Diastole	Systole	Diastole	Systole	Distance	Shortening	large	DR	DR	DR	DR	DR
99.968	56.232	95.282	44.86	66.7755	0.4718	1	0	0	15	0	0
92.158	59.356	89.034	54.67	40.612	0.3709	0	0	0	6	0	0

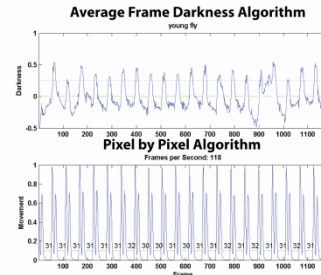
Contraction Velocity (μm/s):											
To Left:	Number	median	of	Number	median	of	Number	median	of	Number	median
diastoles	41	-20384.5	0	0	0	0	0	0	0	0	0
velocity	0	0	0	0	0	0	0	0	0	0	0
dilatations	0	0	0	0	0	0	0	0	0	0	0

1 Preprocess



(SOHA 1)

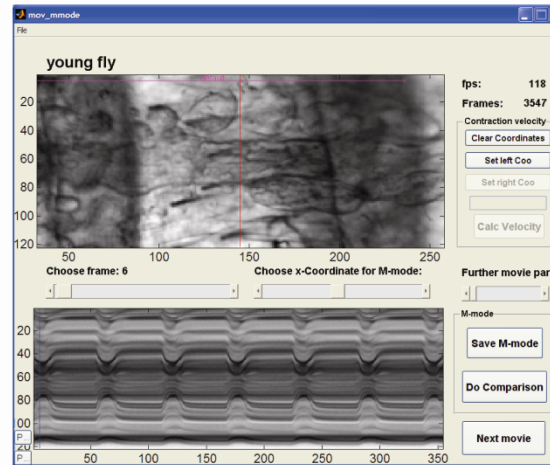
2 Derive Movement



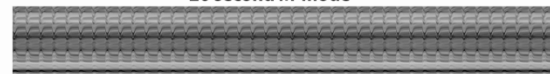
(SOHA 3)

5 M-mode

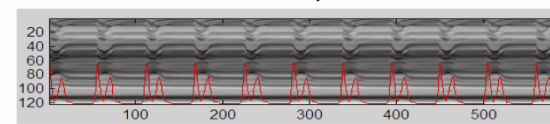
Heart Edge Movement vs. Time (SOHA 6)



20 second M-mode



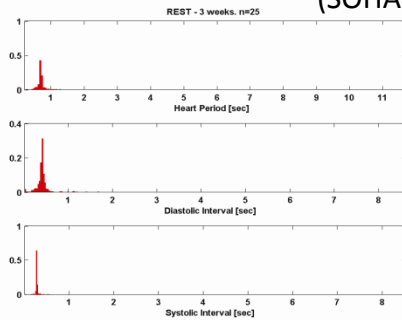
5 second M-mode with Pixel by Pixel Movement Trace



6 Update Histograms

Wildtype Flies - combined data

(SOHA 7)



Potassium Channel Mutants - combined data

