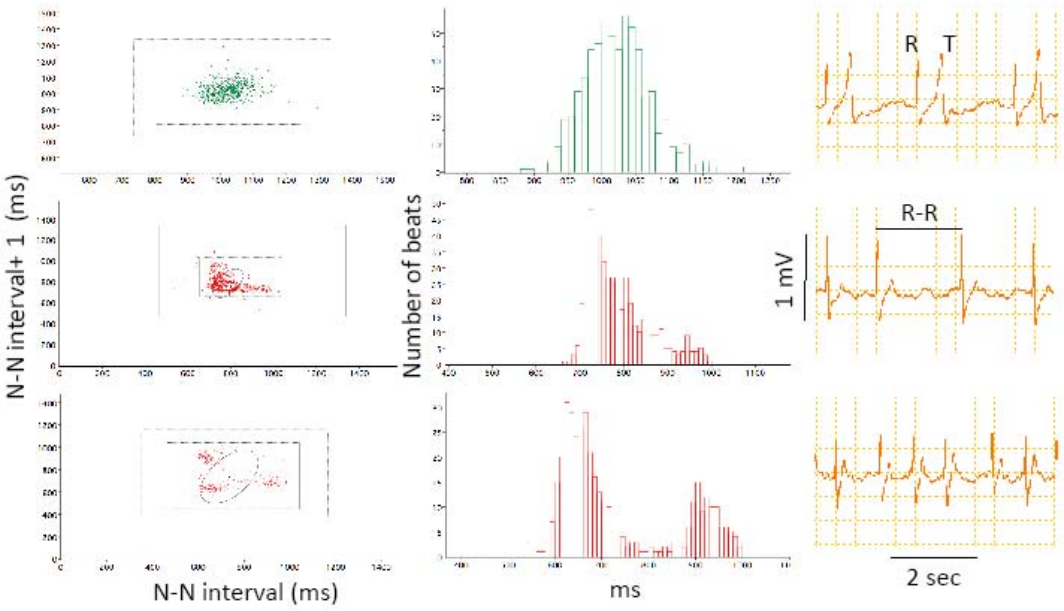
Supplementary material

Supplementary Figure 1. Graphical representation of HR variability, representative views at three different temperatures. First column, Poincare plots. The central point represents the mean NN interval, plotting each interbeat interval against the subsequent interbeat interval. The ellipse represents the standard deviation of interbeat intervals perpendicular (SD1, short term HR variability) and parallel (SD2, long term HR variability) to the line of identity. Boundaries are set to identify ectopic beats and data outliers (artefacts). As the BPT is approached, the dispersion widens and eventually separates into clusters representing repetitive rhythm sequences. Middle column, this can be seen in the period histogram, where a gradual rightward expansion leads to a bimodal distribution. Right column, representative ECG traces showing: top, regular rythmicity of rested trout at low temperature (in this case with a prominent T-wave); middle, appearance of a range of interbeat interval durations; bottom, establishment of a different form of rhythmicity, in this case a long beat followed by three shorter beats.



Supplementary Figure 2. Frequency domain analysis. Individual cardiac cycle elements (heart rate, bpm; R-R interval, ms) plotted against defined temperature records (n=4, non-linear and linear least squares regression, ±95% confidence intervals, respectively) from tachograms of 256 consecutive cycles.