

Supplementary Material

Supplementary Figure 1. Heart rate recovery at 1 (HRR1), 2 (HRR2), 3 (HRR3), 4 (HRR4) and 5 (HRR5) minutes during 2-year physical activity program in participants with RA.

ANOVA on ranks analysis was conducted to determine statistically significant changes during the 2-year study protocol. * $p < 0.05$ between Y1 and Baseline. * $p < 0.05$ between Y2 and Y1

Supplementary Figure 2. Blood pressure response to exercise during 2-year physical activity program in participants with RA: systolic blood pressure (SBP) exercise deltas (2 min-rest and max-rest) and recovery deltas (max-2 min and max-5 min) at Year 1 and Year 2 as compared to Baseline.

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Supplementary Figure 3. Correlogram of Spearman's rank correlation coefficients between HRR1/HRR2 and the different variables measured at baseline.

Color indicates whether the correlation is positive (blue) or negative (red). Size and darkness of the circles indicate the strength of the correlations, with stronger correlations being larger and darker than weaker ones. * $p < 0.05$

Supplementary Figure 4. Solution path trace plot applied to predict HRR2 increase and decrease post maximal exercise ECG using the year 1 and year 2 predictors as independent variables: Models B, D and E. Each line corresponds to a predictor variable. As regularization is applied to the model (from right to left in the trace plot), less important coefficients get smaller, and some are completely removed from the model (the ones that have a beta coefficient of 0 and where the line for the predictor intersects with the x-axis before the optimal solution is reached). A generalizable model was built with a 8-fold cross validation in order to determine the model which provides a global minimum (within the green rectangle) for the scaled -log likelihood value among the validation folds.

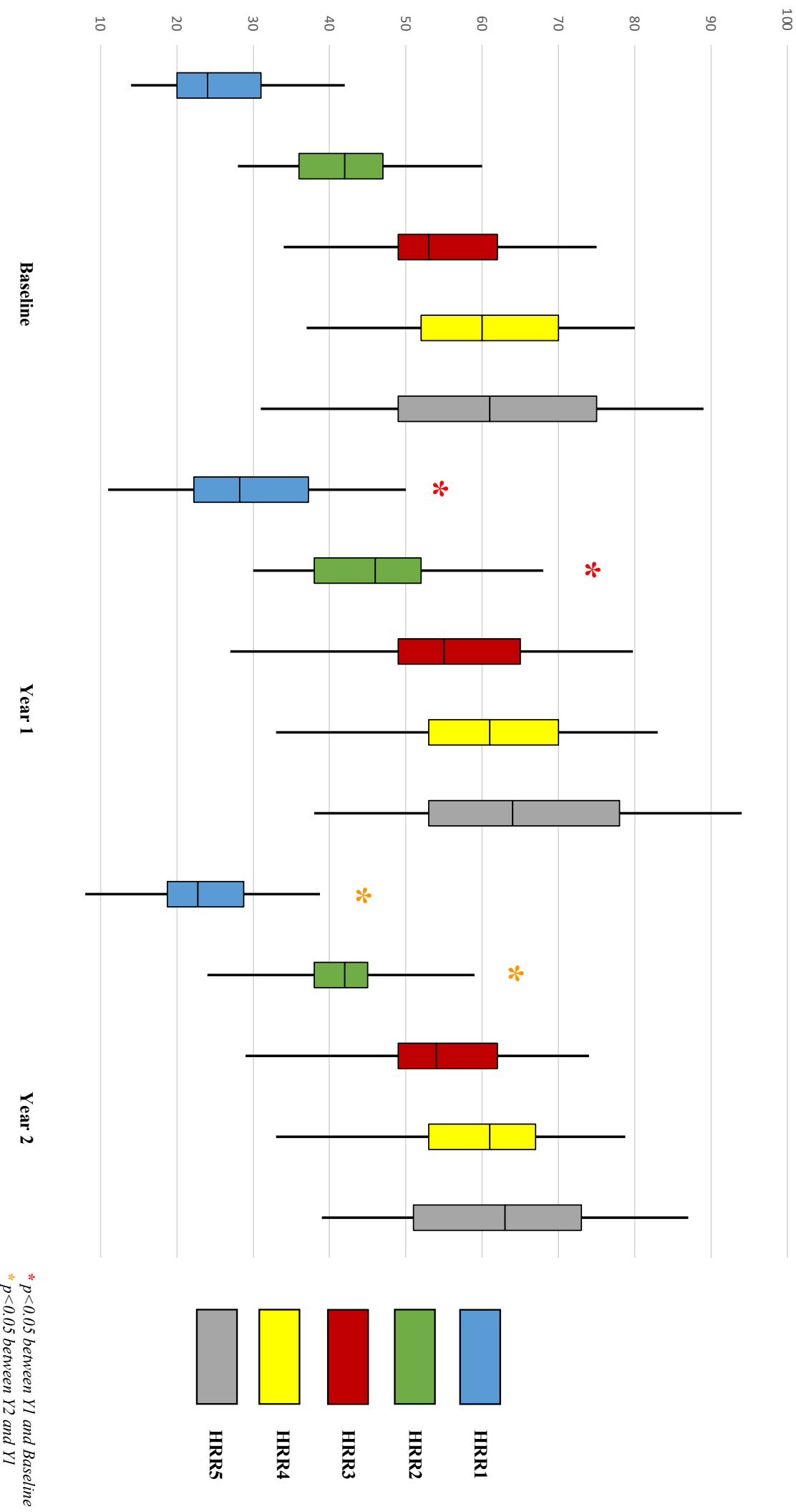
Supplementary Figure 5. Graphic illustration of the main results from the PARA 2010 substudy

WHO: World Health Organization; BP: Blood pressure; TST: Timed stands test; HRR: Heart rate recovery; RMSSD: Root mean square of the successive differences; SBP: Systolic blood pressure; % th max HR: % of theoretical maximal heart rate; BMI: body mass index; LV: Left ventricular; Hs-CRP: High-sensitivity C-reactive Protein



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Heart rate recovery (bpm)

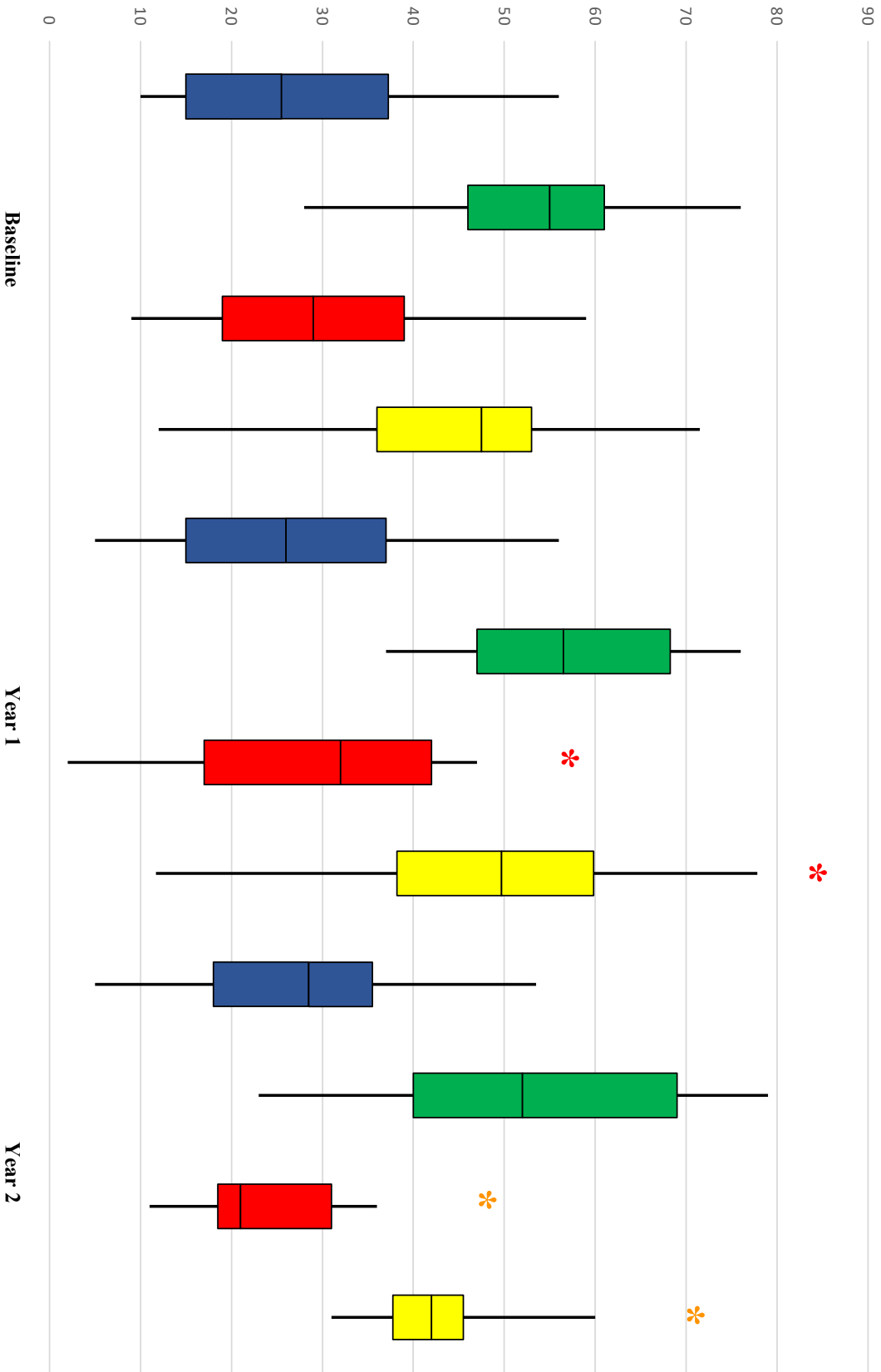


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Blood pressure response to exercise (mmHg)



* $p < 0.05$ between Y1 and Baseline
 * $p < 0.05$ between Y2 and Y1

- SBP exercise delta 2 min-test
- SBP exercise delta max-test
- SBP recovery delta max-2 min
- SBP recovery delta max-5 min



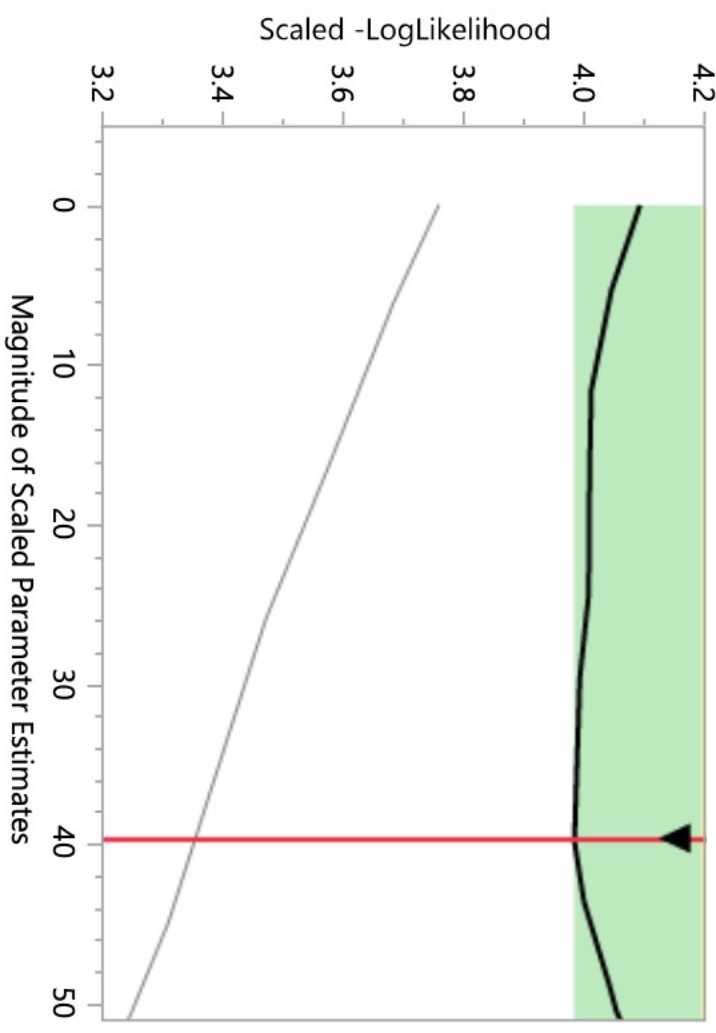
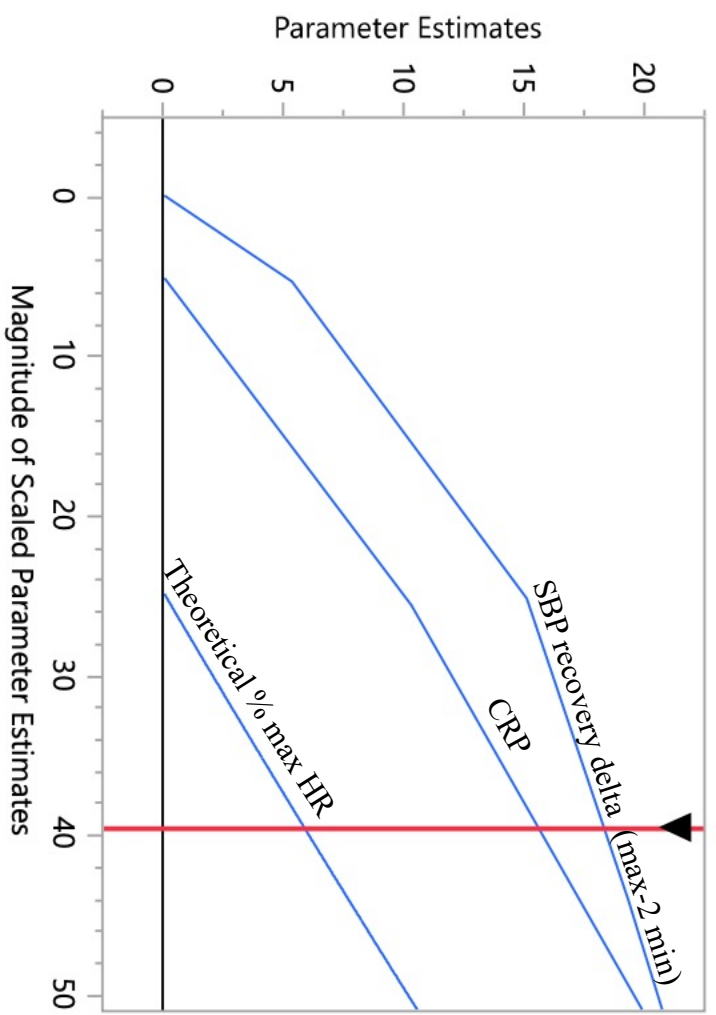
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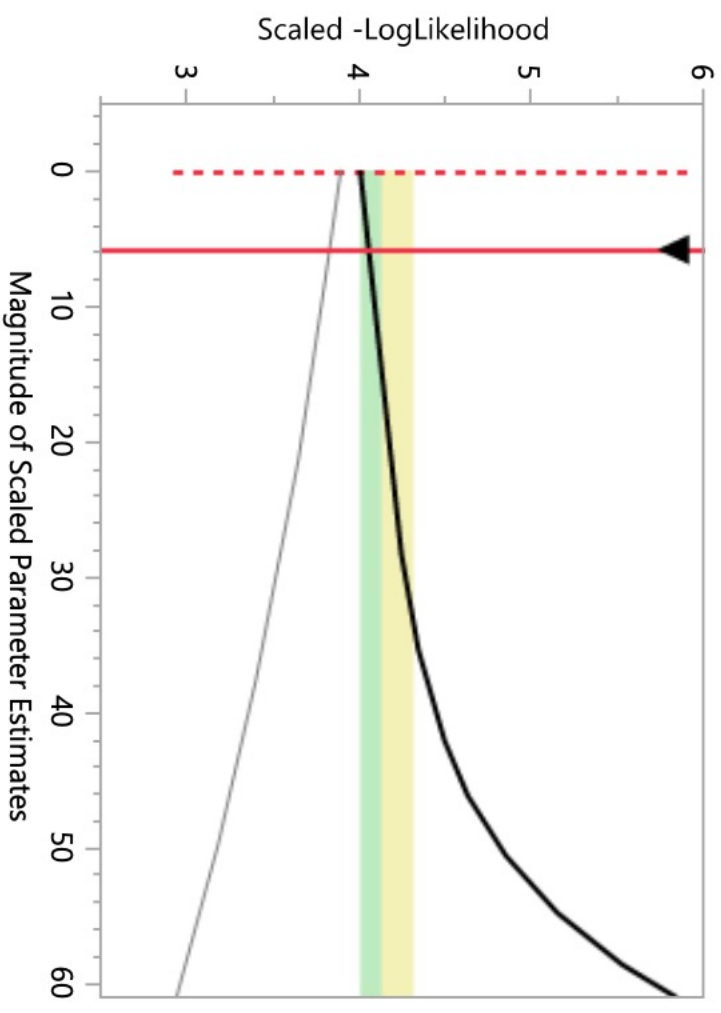
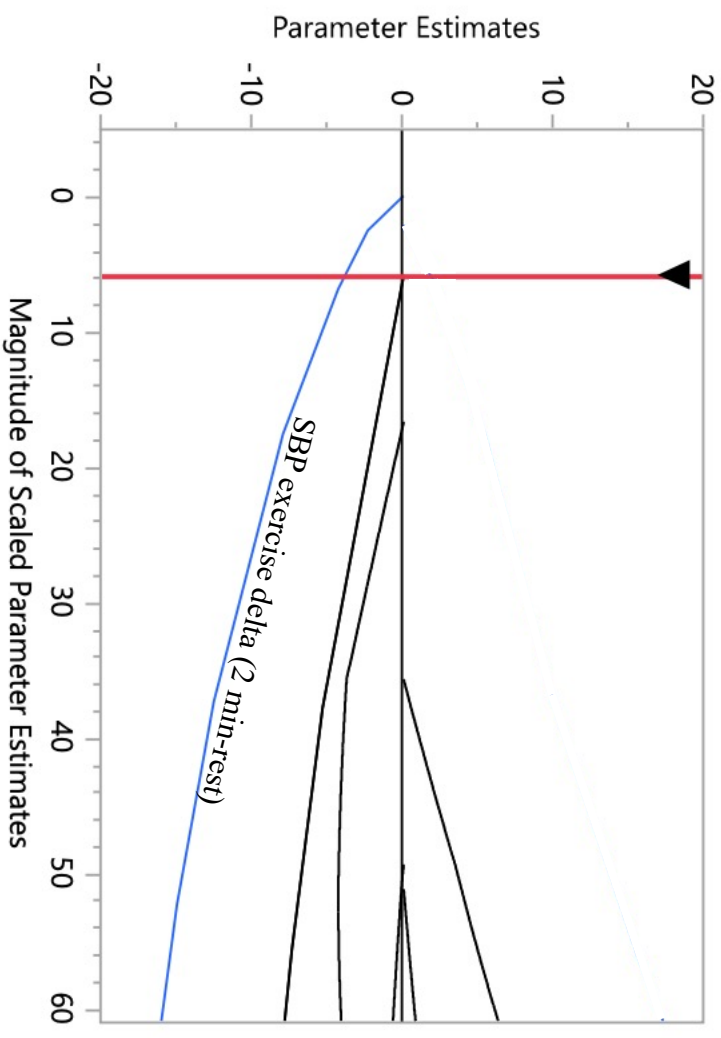


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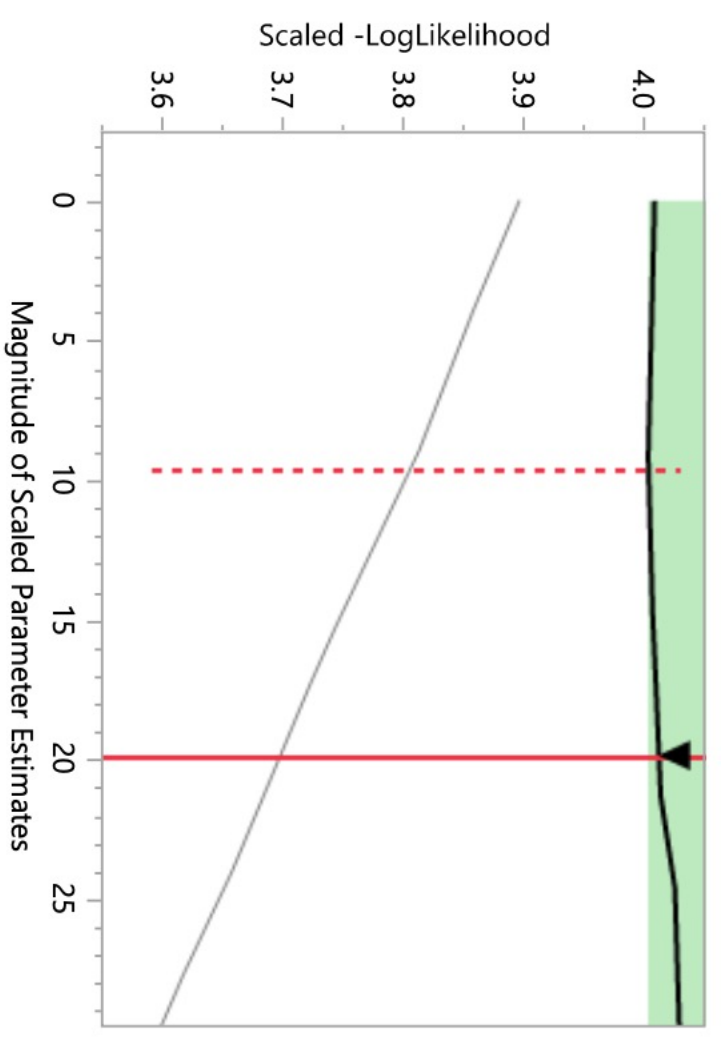
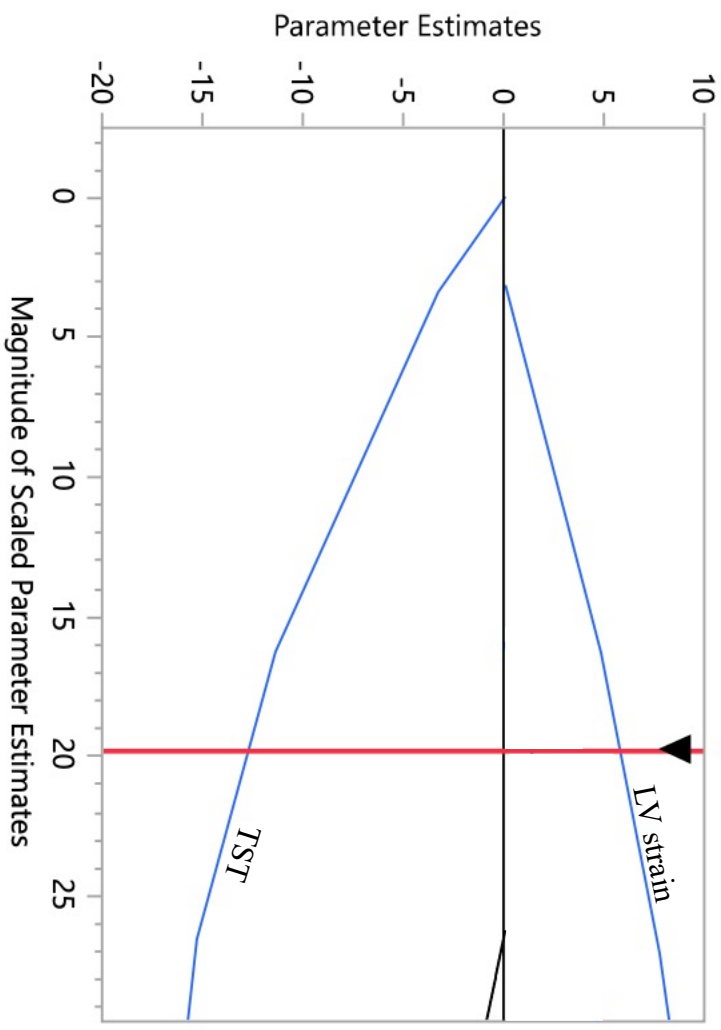
Model B



Model D



Model E





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Supervised exercise - 1 year



Autonomously exercise - 1 year



Baseline

Year 1

Year 2

>2x WHO guidelines

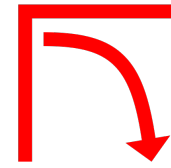


1,5x WHO guidelines

-30%

Mean BP
TST

Mean BP
TST



Predictive factors of ↑HRR

Predictive factors of attenuated ↓HRR



Parasympathetic activity

Predictive factors of ↓HRR

SBP recovery



SBP recovery
% th max HR

Response to exercise

SBP exercise
TST, hs-CRP

Response to exercise

BMI ✓

SBP during exercise

Response to exercise

Handgrip ✓

TST ✓

LV strain