

Supplementary Materials for

New Genetically Determined Markers of the Functional State of the Cardiovascular System

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Apo B

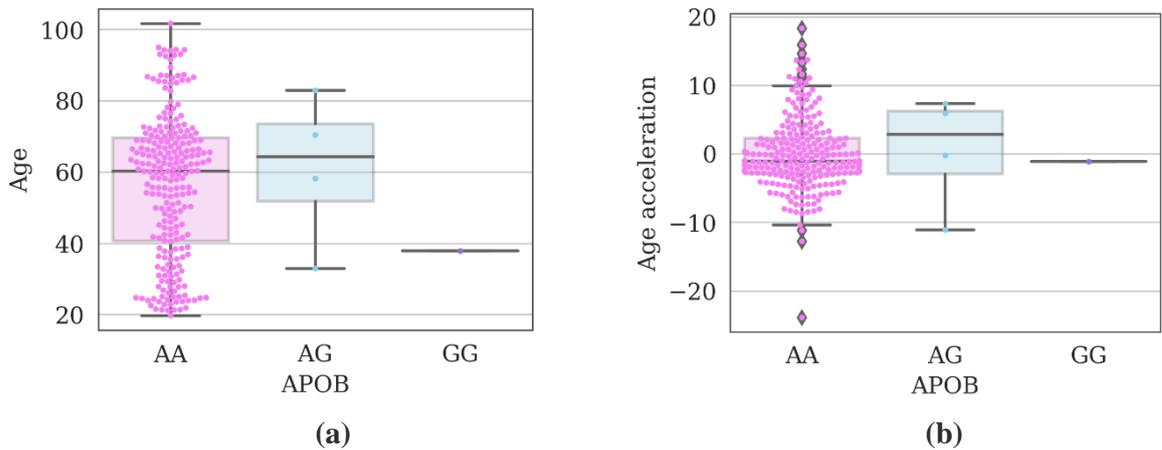


Figure S1.1 — Age (a) and acceleration value of biological age calculated by the PhenoAge model (b) in the study group of individuals depending on the genotypes of the polymorphism *rs5742904* of the *ApoB* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

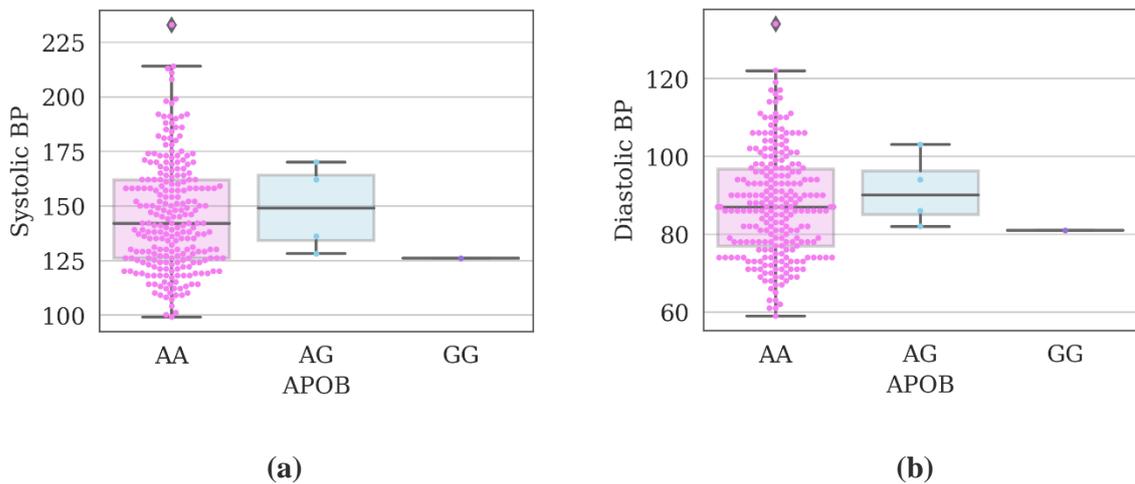


Figure S1.2 — Indicators of systolic (a) and diastolic (b) blood pressure (BP) in the study group of individuals, depending on the genotypes of polymorphism *rs5742904* of the *ApoB* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

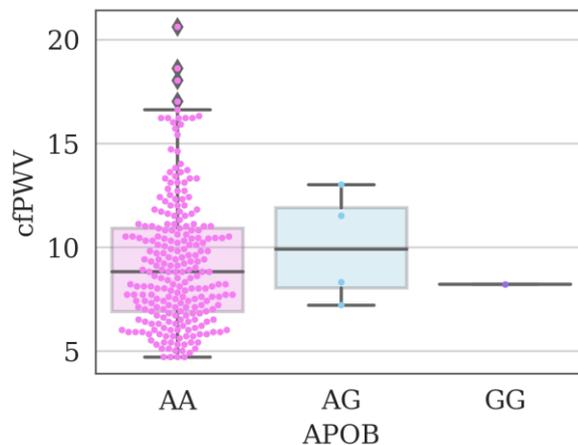


Figure S1.3 — Value of carotid-femoral pulse wave velocity (cfPWV) in the study group of individuals, depending on the genotypes of polymorphism *rs5742904* of the *ApoB* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

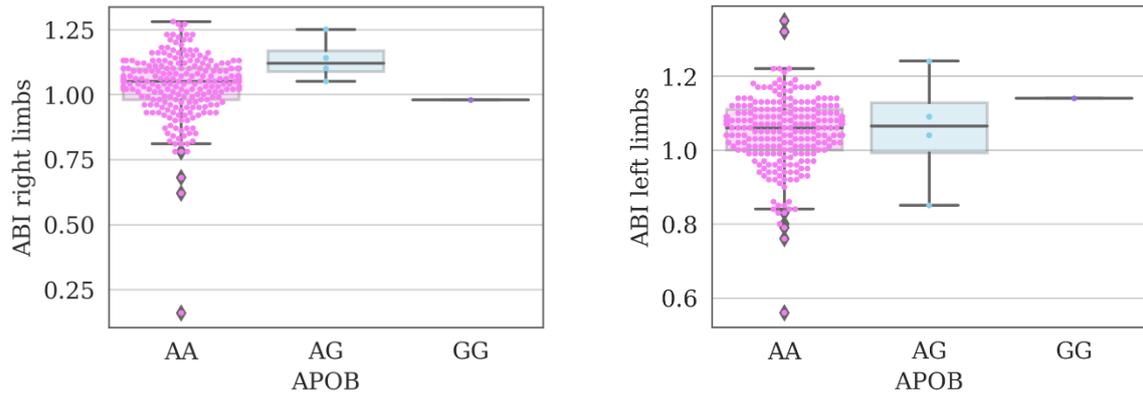


Figure S1.4 — Boxplot of ABI right and left limbs for *APOB* groups. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

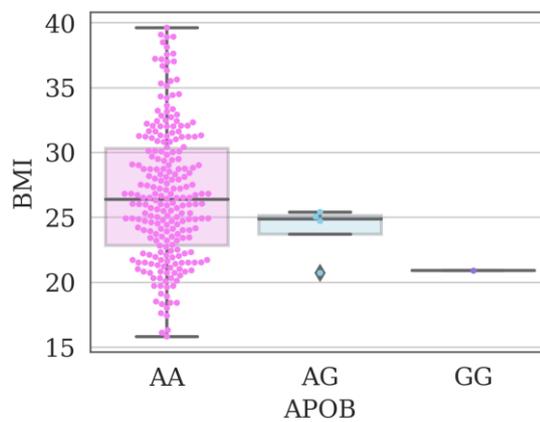


Figure S1.5 — Body mass index (BMI) values in the study group of individuals depending on the genotypes of polymorphism *rs5742904* of the *ApoB* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

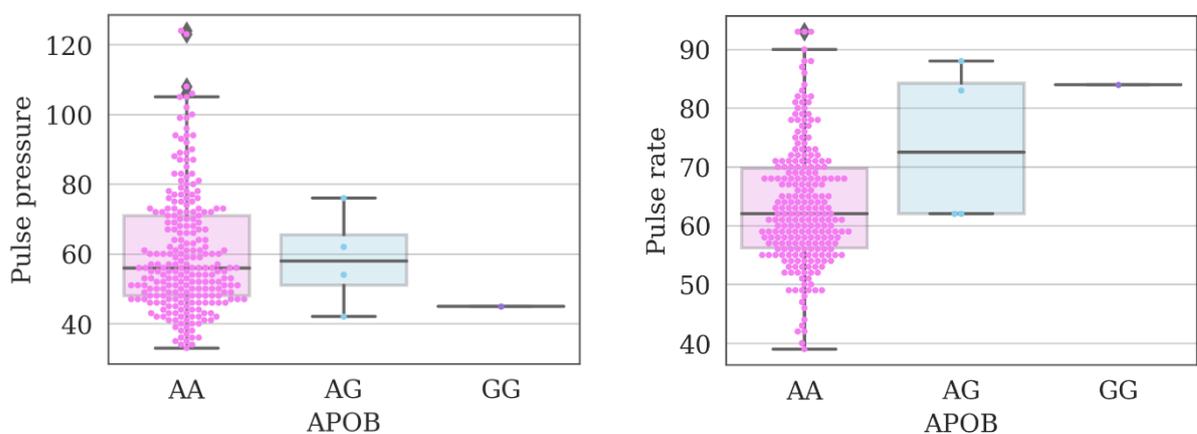


Figure S1.6 — Boxplot of Pulse pressure and Pulse rate for *APOB* groups. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

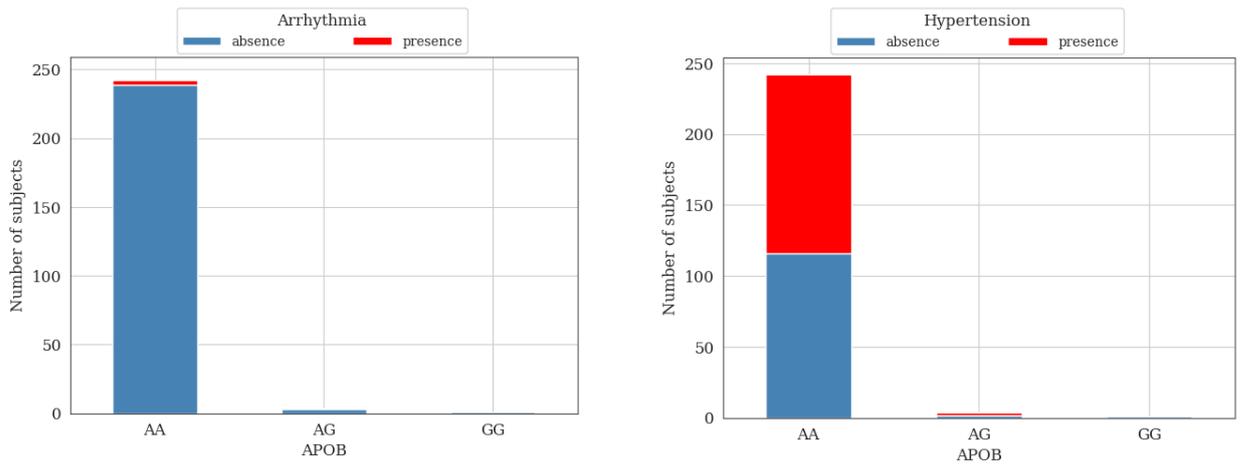


Figure S1.7— Number of subjects (count of participants) depends on *APOB* for Arrhythmia and for Hypertension absence/presence. No significant differences at a corrected p-value ($p < 0.05$ (χ^2 test)).

COL1A1

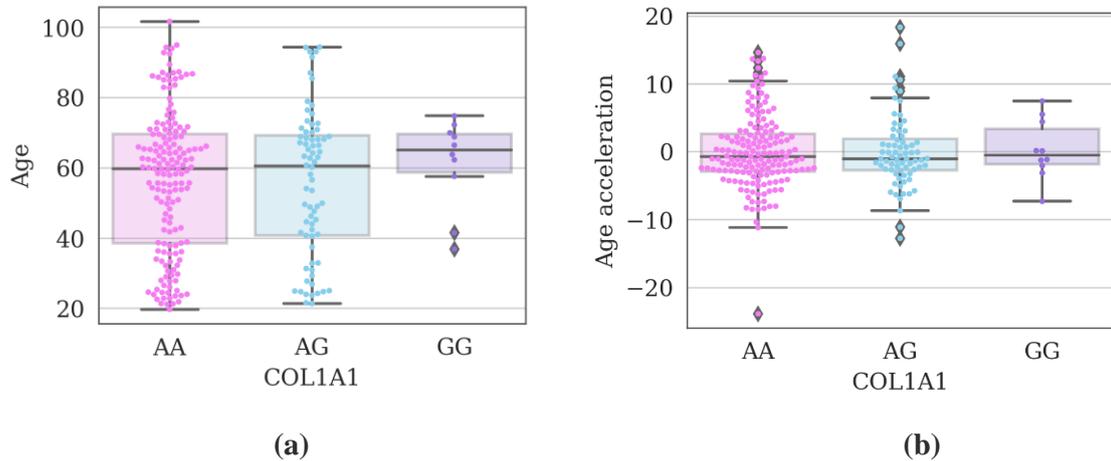


Figure S2.1 — Age (a) and acceleration value of biological age calculated by the PhenoAge model (b) in the study group of individuals depending on the genotypes of the polymorphism *rs1107946* of the *COL1A1* gene. No significant differences at a corrected p-value ($p < 0.05$ (Kruskal–Wallis test)).

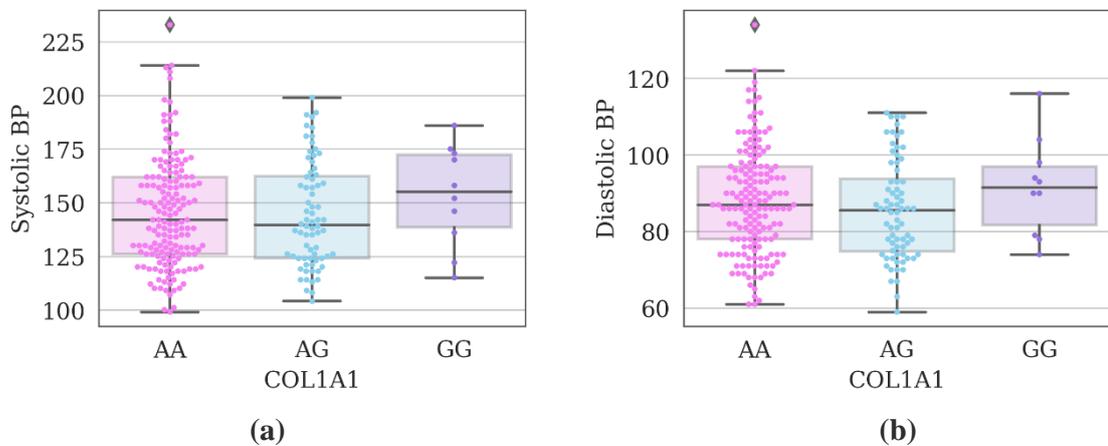


Figure S2.2 — Indicators of systolic (a) and diastolic (b) blood pressure (BP) in the study group of individuals, depending on the genotypes of polymorphism *rs1107946* of the *COL1A1* gene. No significant differences at a corrected p-value ($p < 0.05$ (Kruskal–Wallis test)).

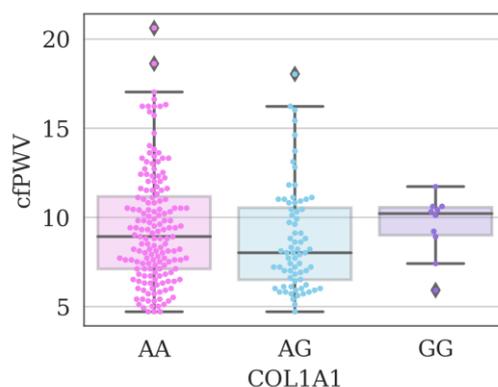


Figure S2.3 — Value of carotid-femoral pulse wave velocity (cfPWV) in the study group of individuals, depending on the genotypes of polymorphism *rs1107946* of the *COL1A1* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

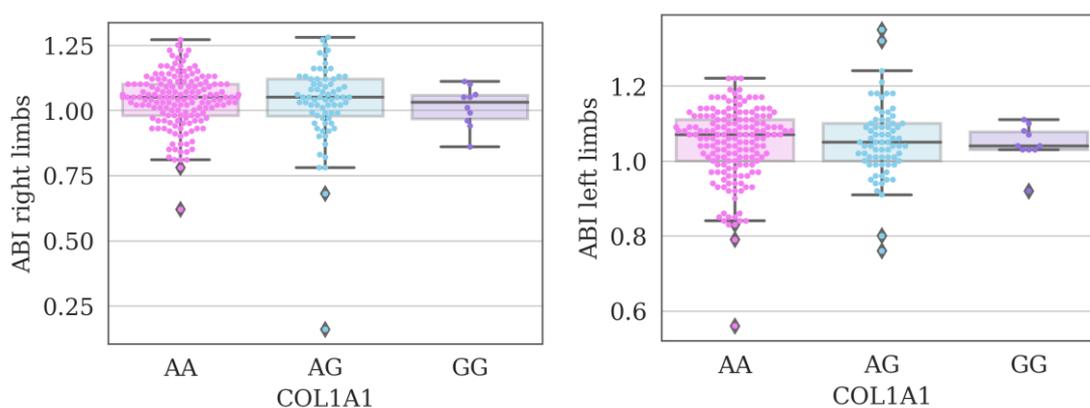


Figure S2.4 — Boxplot of ABI right and left limbs for *COL1A1* groups. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

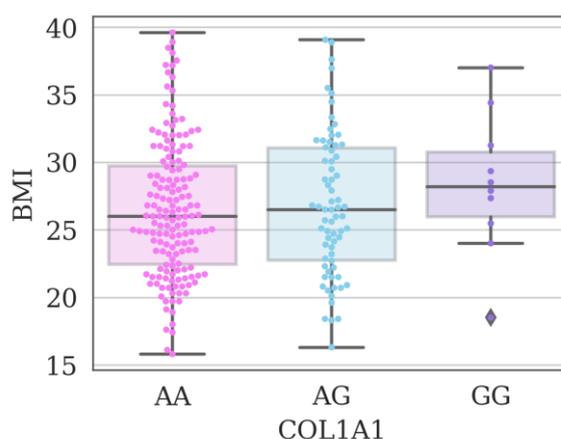


Figure S2.5 — Body mass index (BMI) values in the study group of individuals depending on the genotypes of polymorphism *rs1107946* of the *COL1A1* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

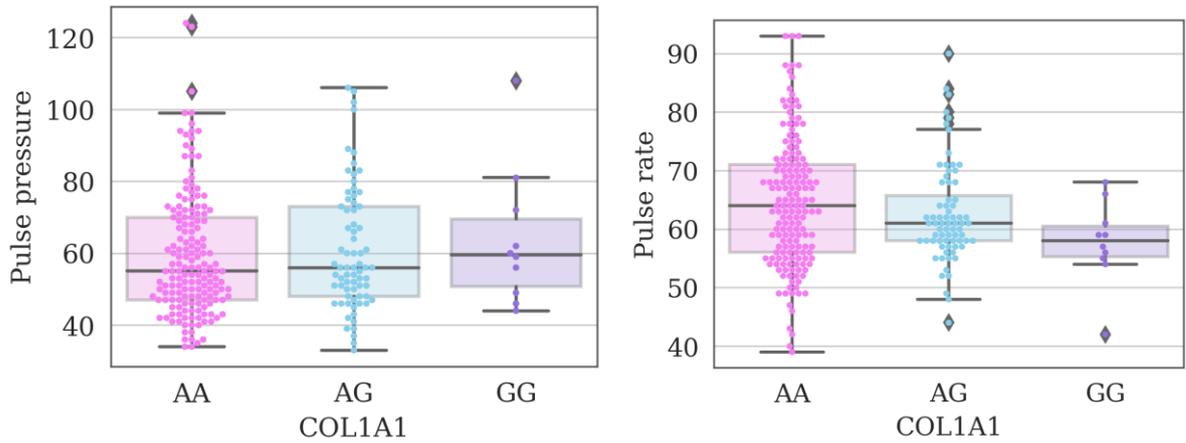


Figure S2.6 — Boxplot of Pulse pressure and Pulse rate for *COL1A1* groups. No significant differences at a corrected p-value (p) < 0.05 (Kruskal–Wallis test).

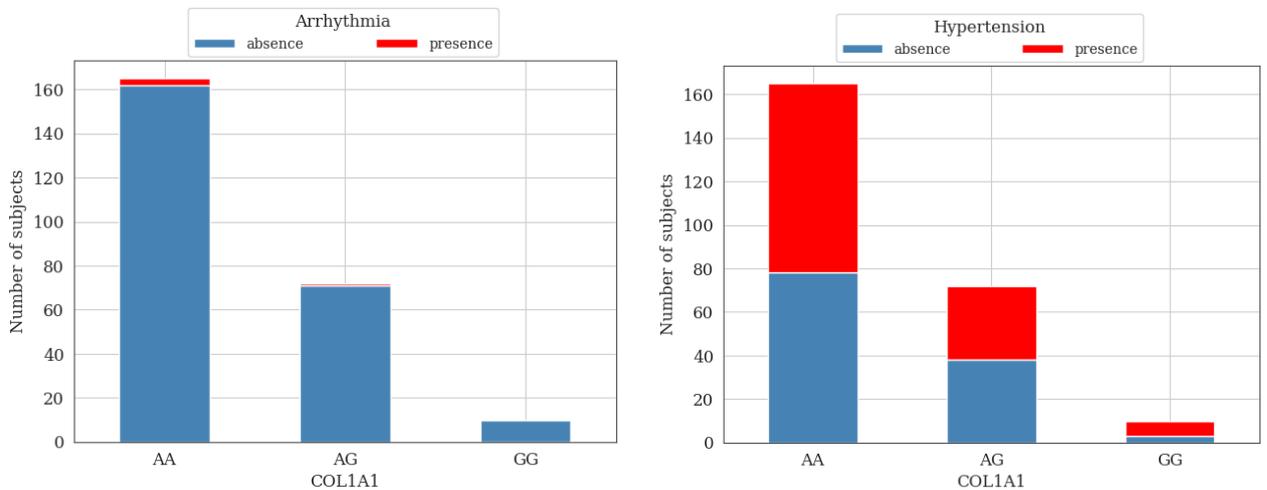


Figure S2.7— Number of subjects (count of participants) depends on *COL1A1* for Arrhythmia and for Hypertension absence/presence. No significant differences at a corrected p-value (p) < 0.05 (χ^2 test).

MMP12

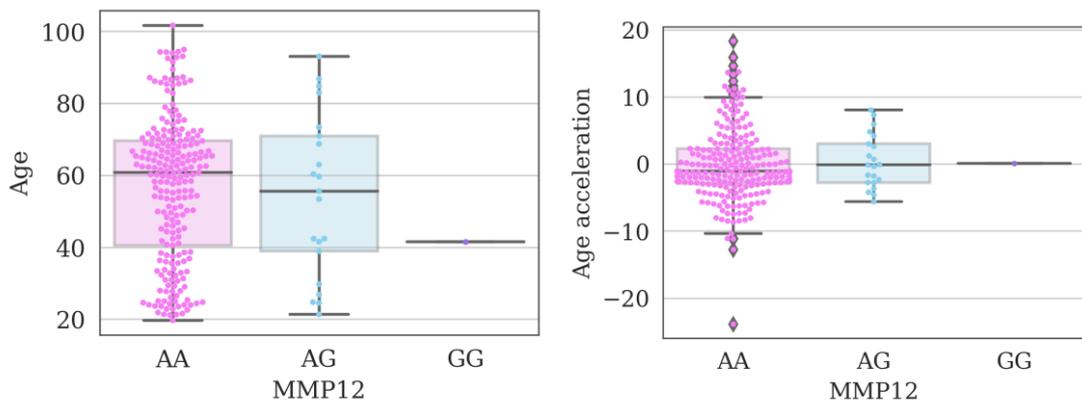


Figure S3.1 — Age and acceleration value of biological age calculated by the PhenoAge model in the study group of individuals depending on the genotypes of the polymorphism *rs652438* of the *MMP12* gene. No significant differences at a corrected p-value (p) < 0.05 (Kruskal–Wallis test).

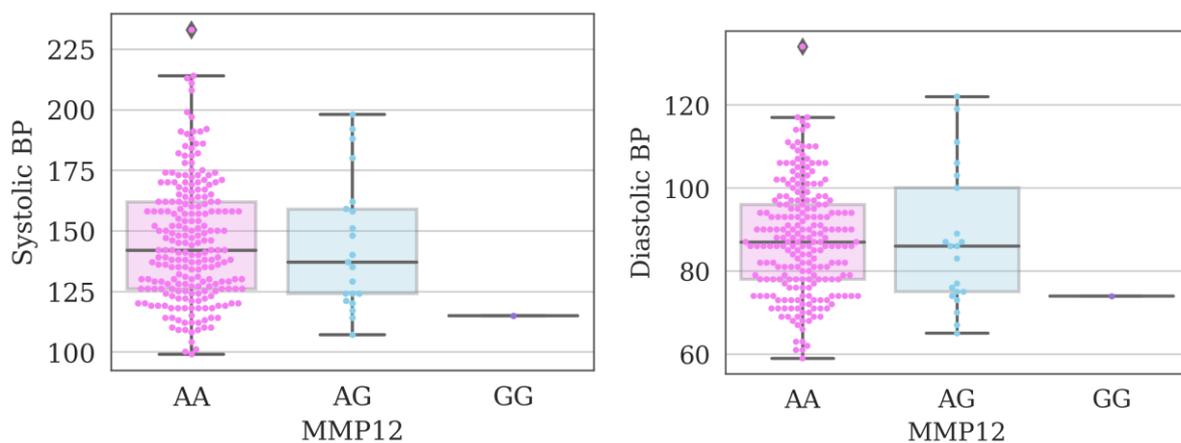


Figure S3.2 — Indicators of systolic (a) and diastolic (b) blood pressure (BP) in the study group of individuals, depending on the genotypes of polymorphism *rs652438* of the *MMP12* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

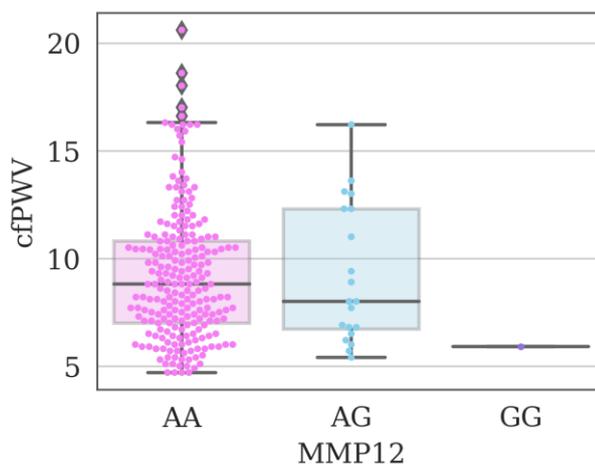


Figure S3.3 — Value of carotid-femoral pulse wave velocity (cfPWV) in the study group of individuals, depending on the genotypes of polymorphism *rs652438* of the *MMP12* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

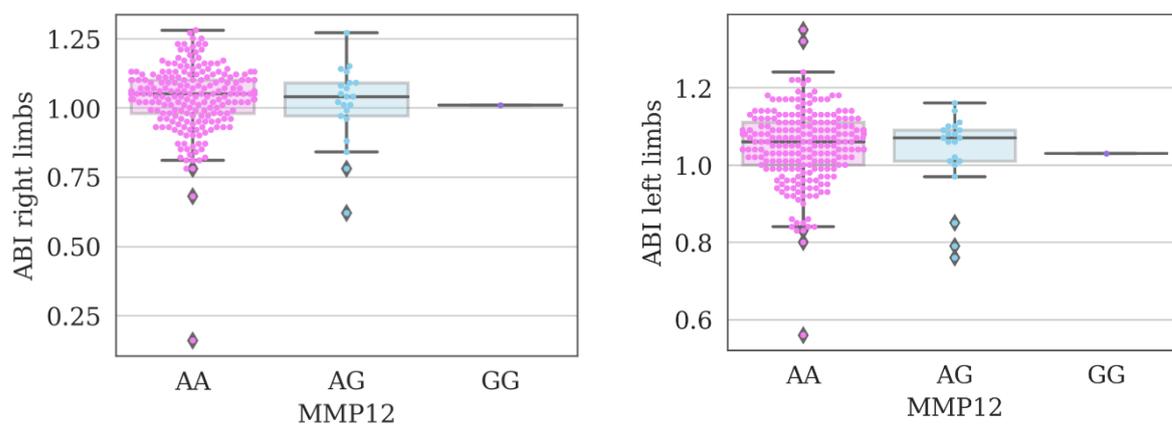


Figure S3.4 — Boxplot of ABI right and left limbs for *MMP12* groups. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

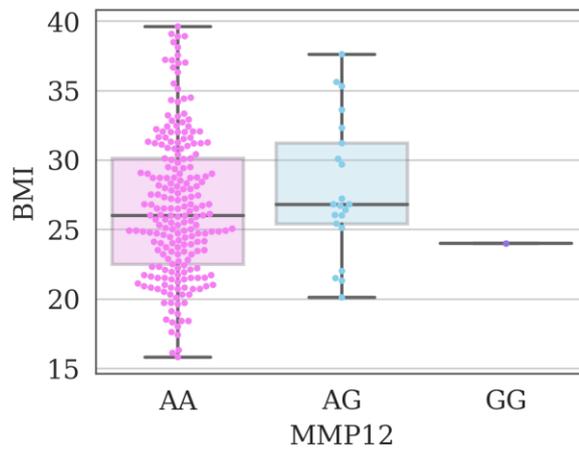


Figure S3.5 — Body mass index (BMI) values in the study group of individuals depending on the genotypes of polymorphism *rs652438* of the *MMP12* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

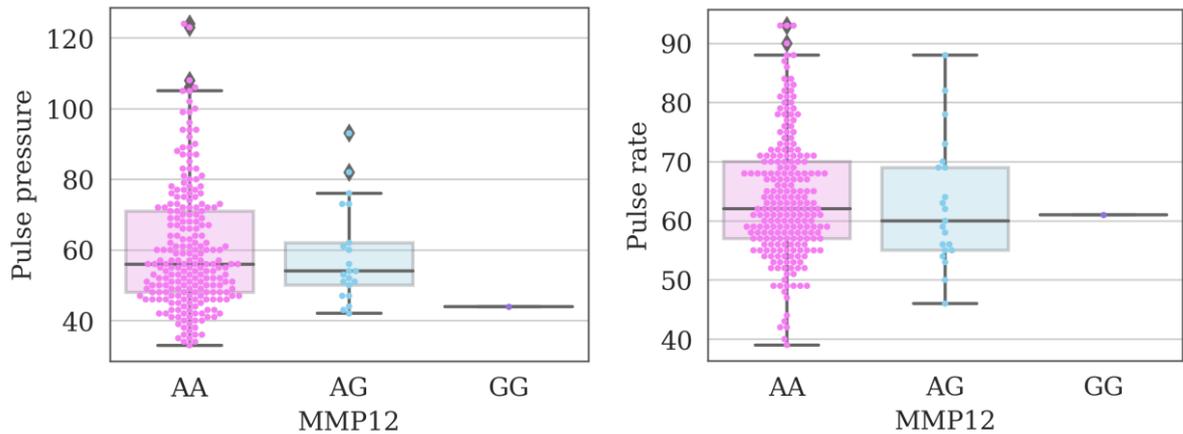


Figure S3.6 — Boxplot of Pulse pressure and Pulse rate for *MMP12* groups. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

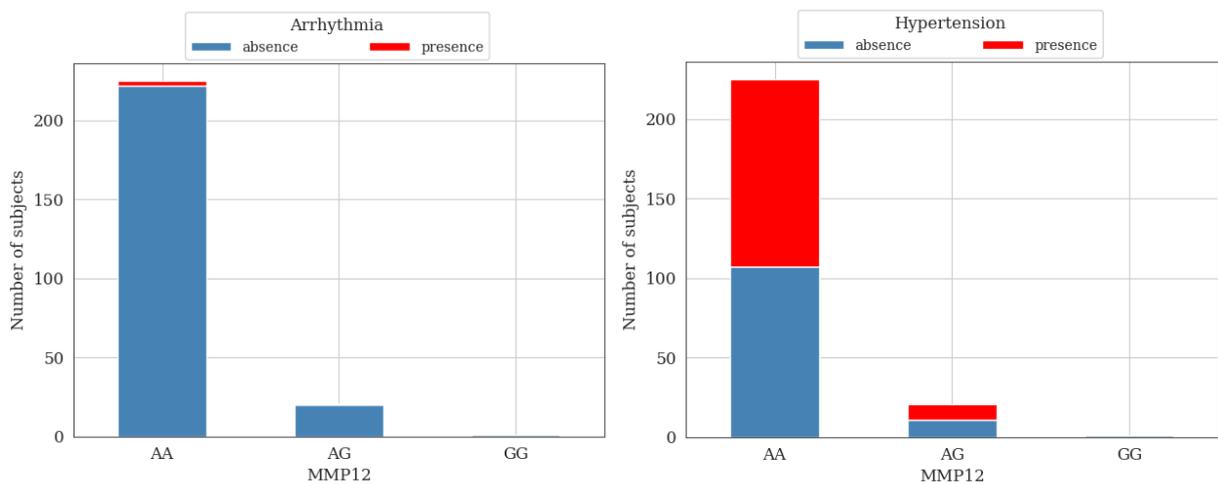


Figure S3.7— Number of subjects (count of participants) depends on *MMP12* for Arrhythmia and for Hypertension absence/presence. No significant differences at a corrected p-value ($p < 0.05$) (χ^2 test).

MTHFR

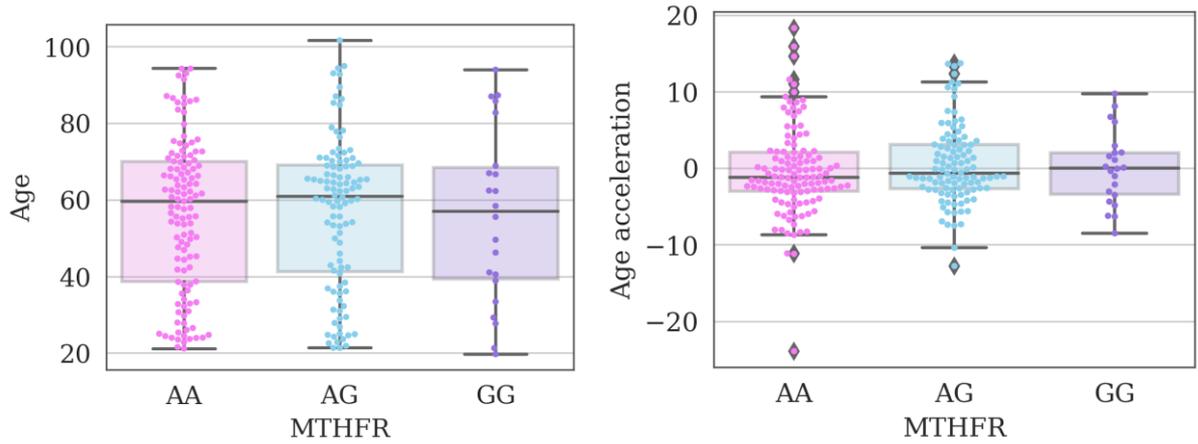


Figure S4.1 — Age and acceleration value of biological age calculated by the PhenoAge model in the study group of individuals depending on the genotypes of the polymorphism *rs1801131* of the *MTHFR* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

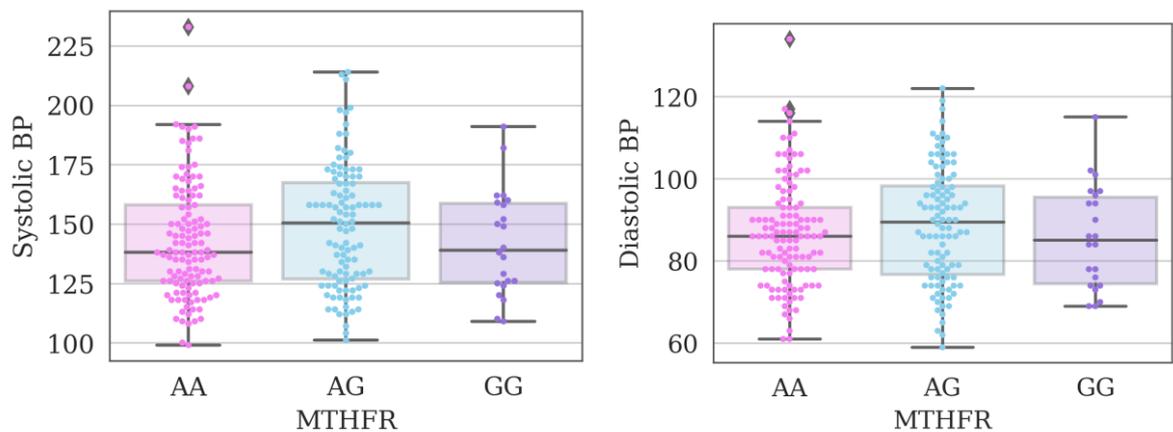


Figure S4.2 — Indicators of systolic (a) and diastolic (b) blood pressure (BP) in the study group of individuals, depending on the genotypes of polymorphism *rs1801131* of the *MTHFR* gene. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

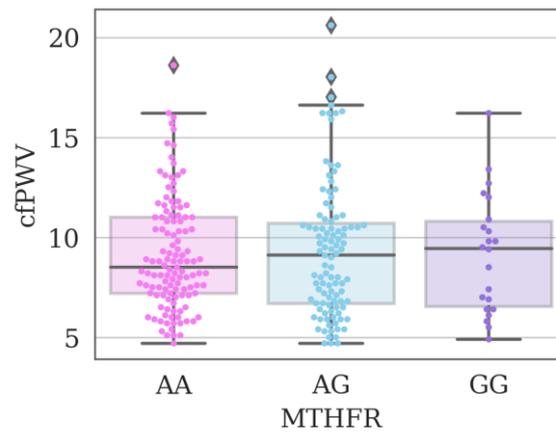


Figure S4.3 — Value of carotid-femoral pulse wave velocity (cfPWV) in the study group of individuals, depending on the genotypes of polymorphism *rs1801131* of the *MTHFR* gene. No significant differences at a corrected p-value (p) < 0.05 (Kruskal–Wallis test).

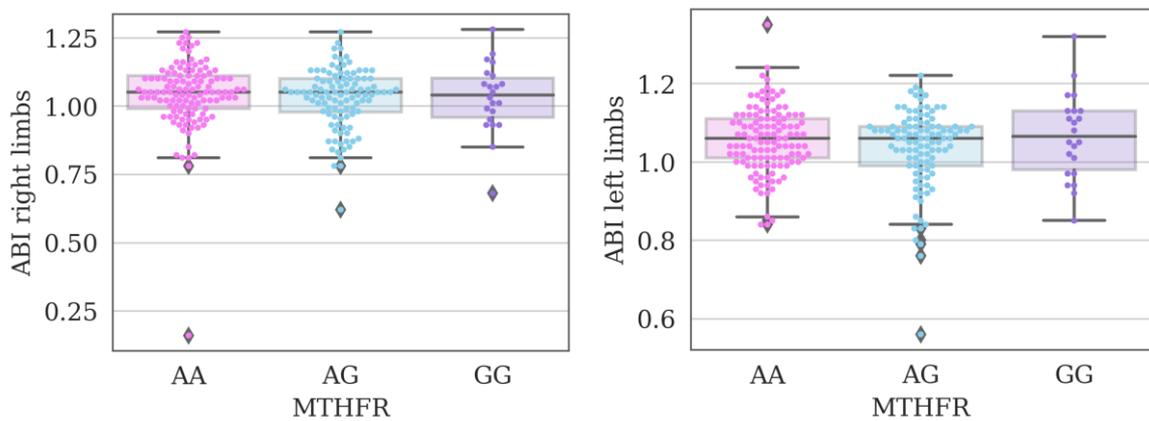


Figure S4.4 — Boxplot of ABI right and left limbs for *MTHFR* groups. No significant differences at a corrected p-value (p) < 0.05 (Kruskal–Wallis test).

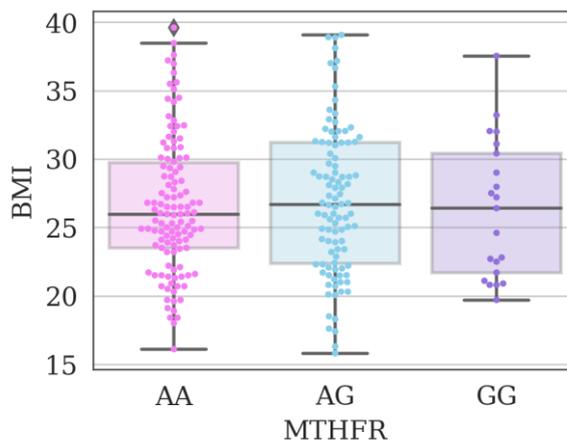


Figure S4.5 — Body mass index (BMI) values in the study group of individuals depending on the genotypes of polymorphism *rs1801131* of the *MTHFR* gene. No significant differences at a corrected p-value (p) < 0.05 (Kruskal–Wallis test).

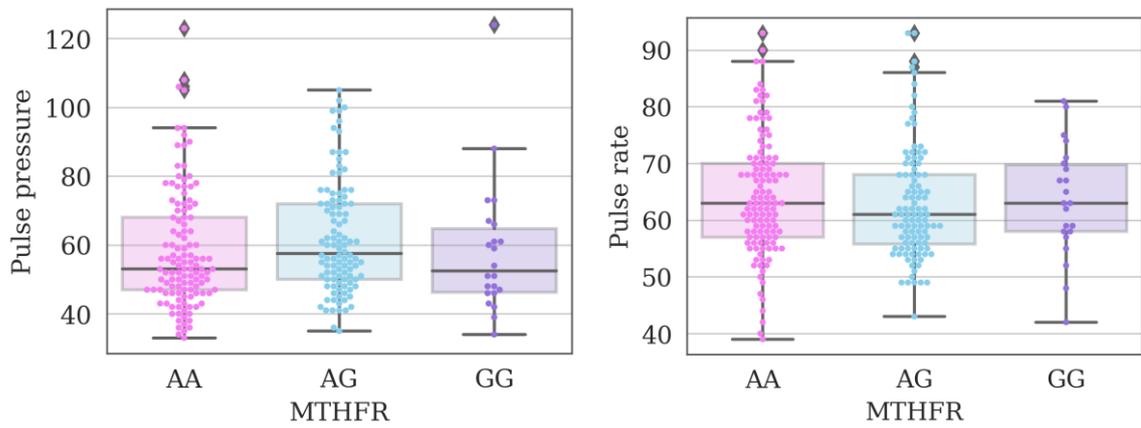


Figure S4.6 — Boxplot of Pulse pressure and Pulse rate for *MTHFR* groups. No significant differences at a corrected p-value (p) < 0.05 (Kruskal–Wallis test).

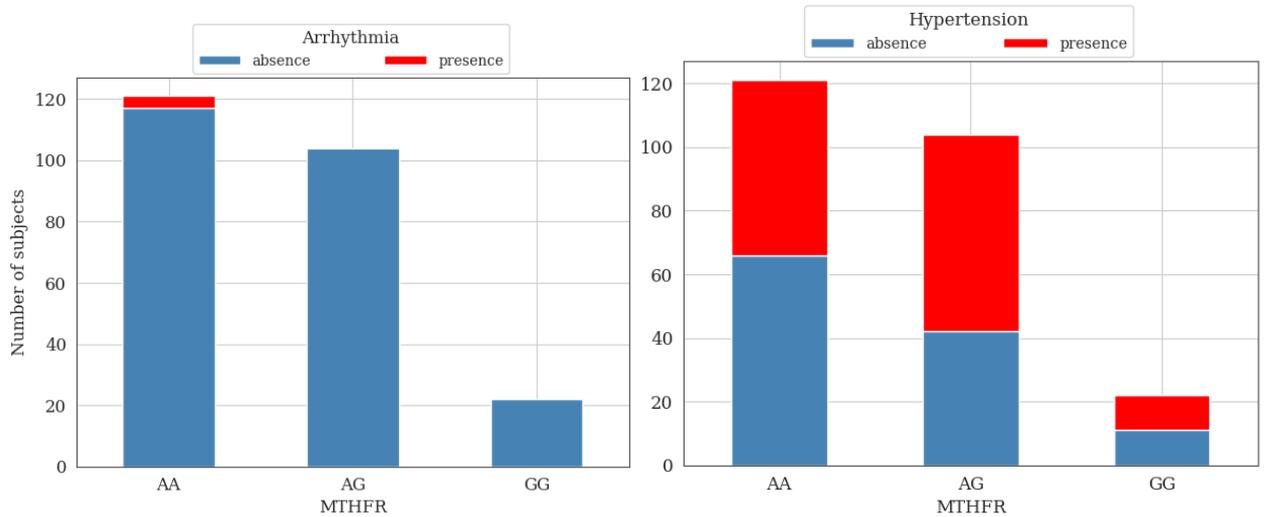


Figure S4.7— Number of subjects (count of participants) depends on *MTHFR* for Arrhythmia and for Hypertension absence/presence. No significant differences at a corrected p-value (p) < 0.05 (χ^2 test).

MMP9

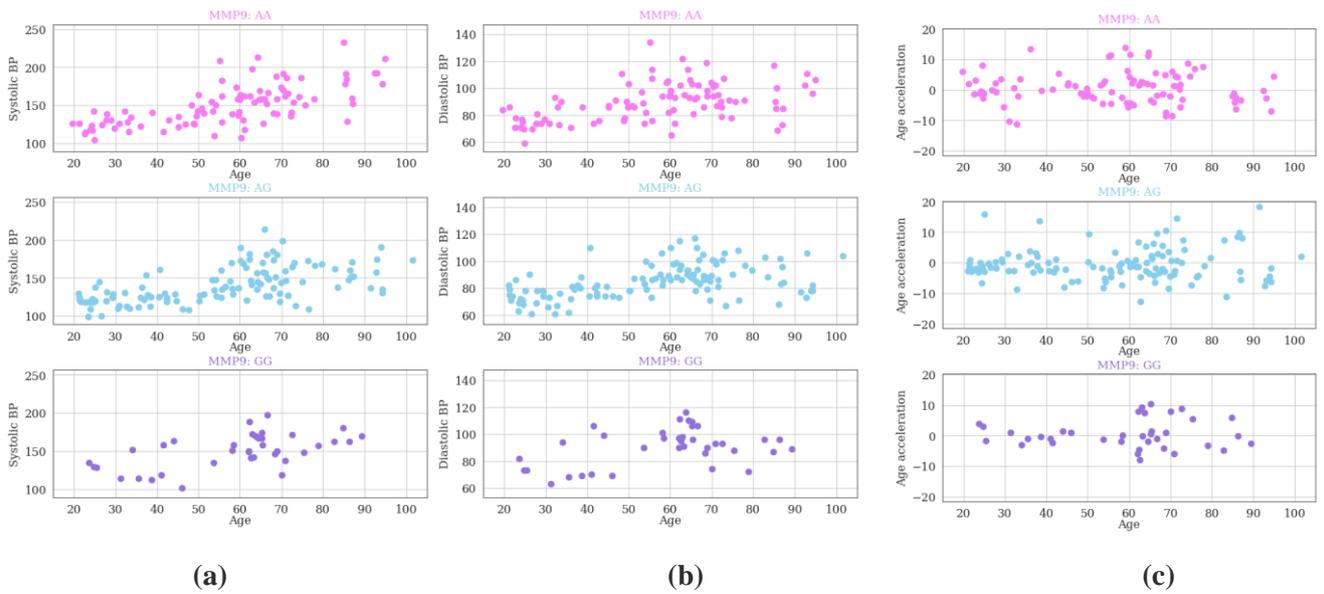


Figure S5.1 — Scatterplot of (a) systolic blood pressure (b) diastolic blood pressure and (c) age acceleration depends on age in different groups of polymorphic variant of the *MMP9* gene. Each point on the graph corresponds to a study participant.

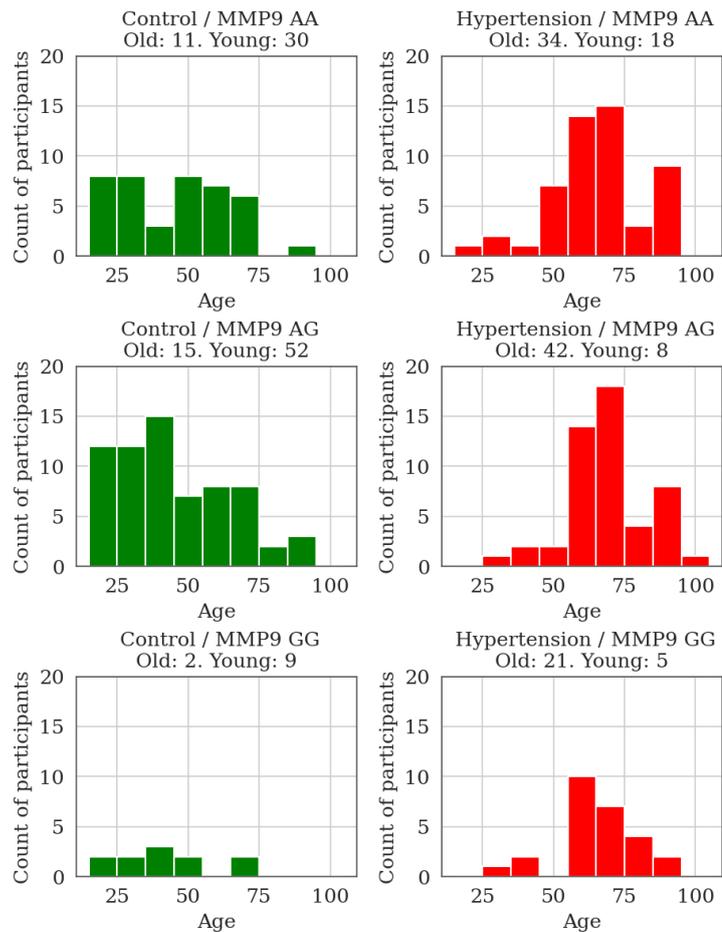


Figure S5.2 — Histograms of age distribution depending on the presence/absence of hypertension and polymorphic variant of the *MMP9* gene. Green indicates the control - the absence of hypertension. Red - the presence of hypertension. The conditional boundary of division into groups of young and old is 60 years.

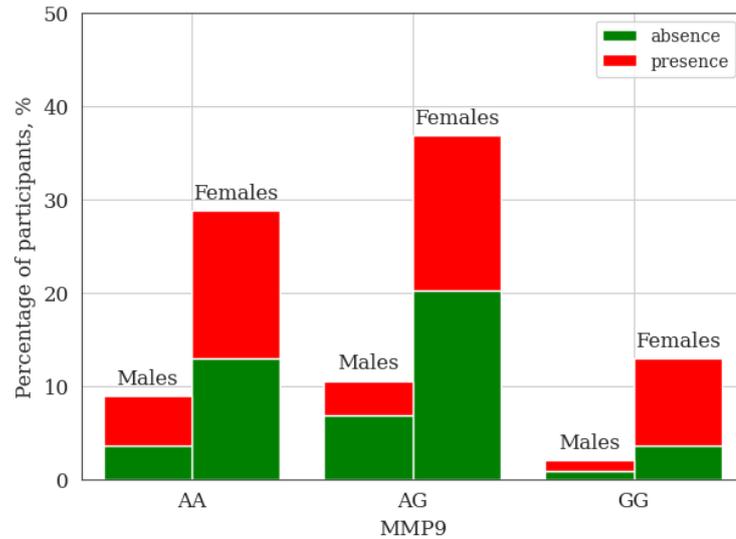


Figure S5.3 — The presence of hypertension in the study group of individuals depending on the sex and genotypes of the polymorphism *rs17576* of the *MMP9* gene; differences were assessed using a corrected p-value (p) < 0.05 (χ^2 test, post-hoc pairwise χ^2 test Benjamini–Hochberg FDR correction).

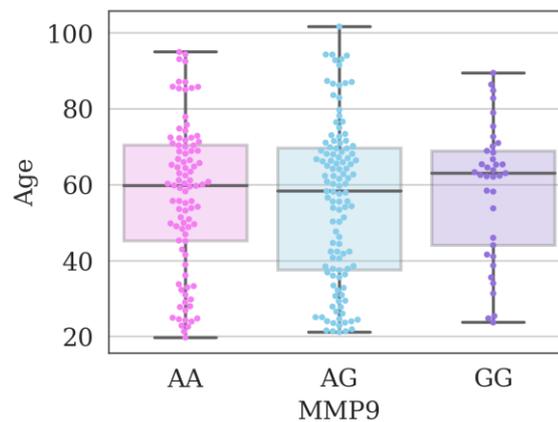


Figure S6.1 — Value of age in the study group of individuals depending on the genotypes of the polymorphism *rs17576* of the *MMP9* gene. No significant differences at a corrected p-value (p) < 0.05 (Kruskal–Wallis test).

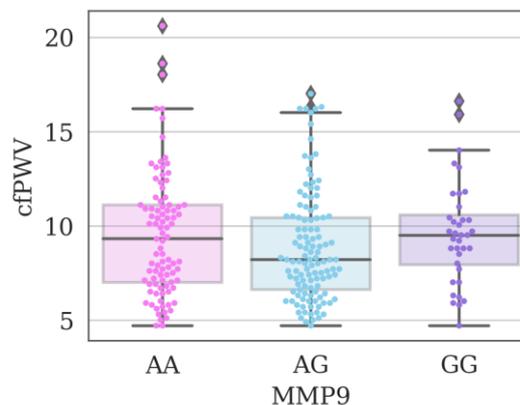


Figure S6.2 — Value of carotid-femoral pulse wave velocity (cfPWV) in the study group of individuals, depending on the genotypes of polymorphism *rs17576* of the *MMP9* gene. No significant differences at a corrected p-value (p) < 0.05 (Kruskal–Wallis test).

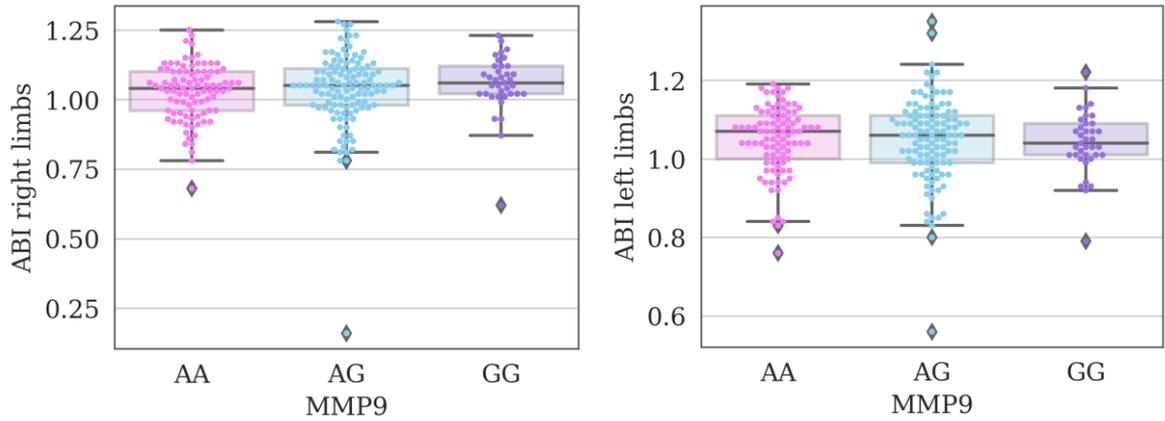


Figure S6.3 — Boxplot of ABI right and left limbs for *MMP9* groups. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

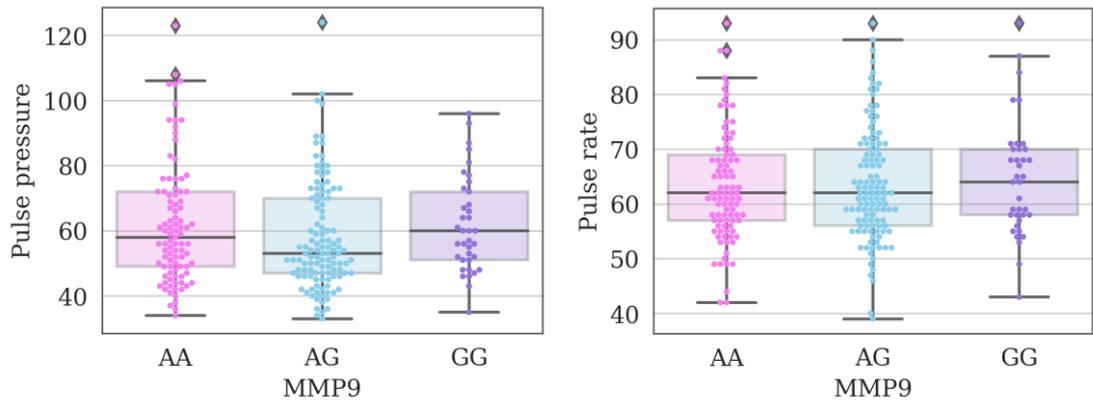


Figure S6.4 — Boxplot of Pulse pressure and Pulse rate for *MMP9* groups. No significant differences at a corrected p-value ($p < 0.05$) (Kruskal–Wallis test).

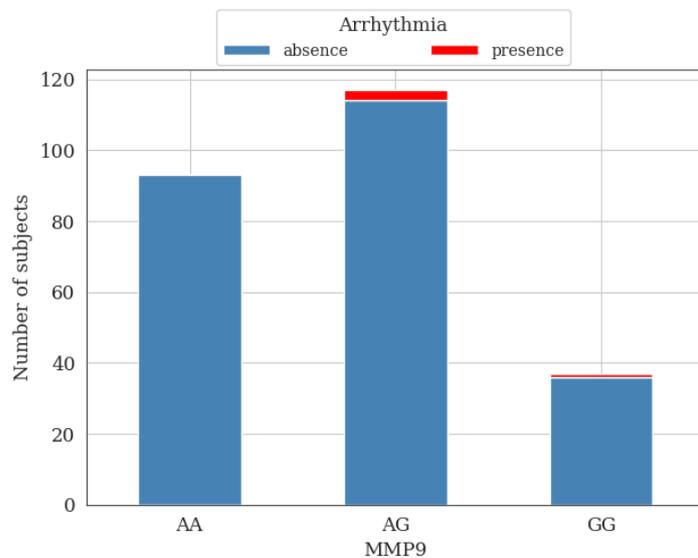


Figure S6.5— Number of subjects (count of participants) depends on *MMP9* for Arrhythmia absence/presence. No significant differences at a corrected p-value ($p < 0.05$) (χ^2 test).