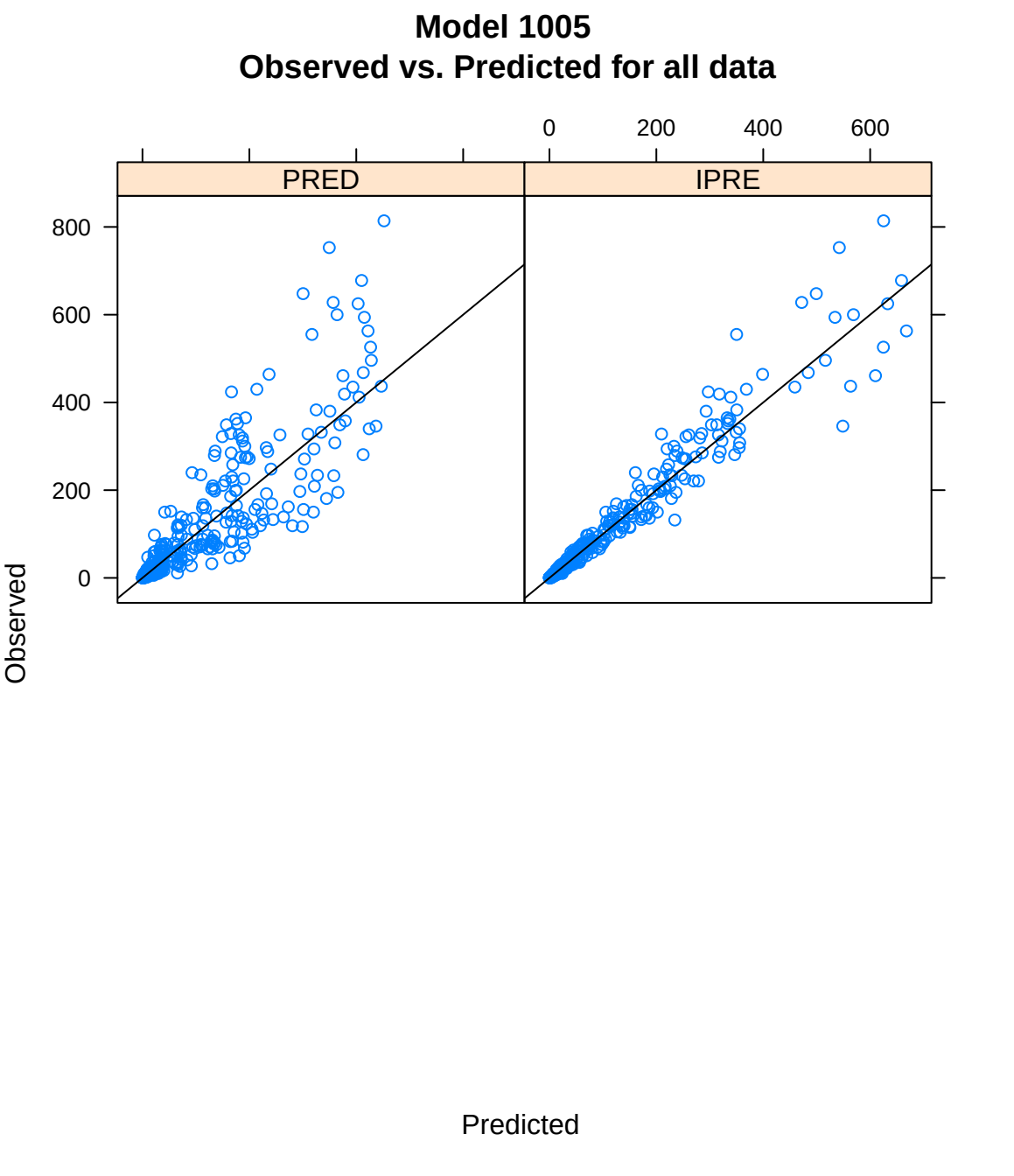
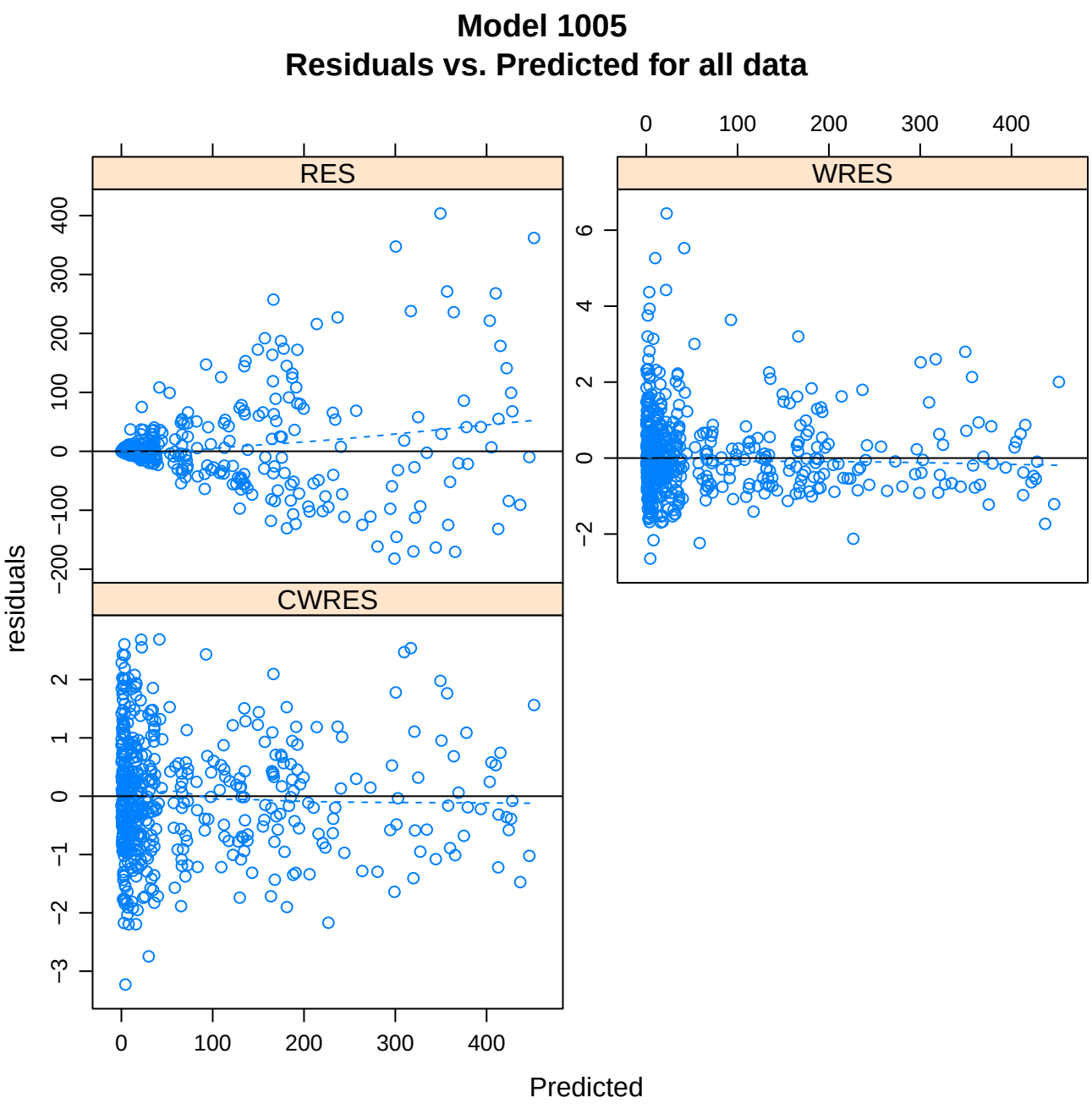
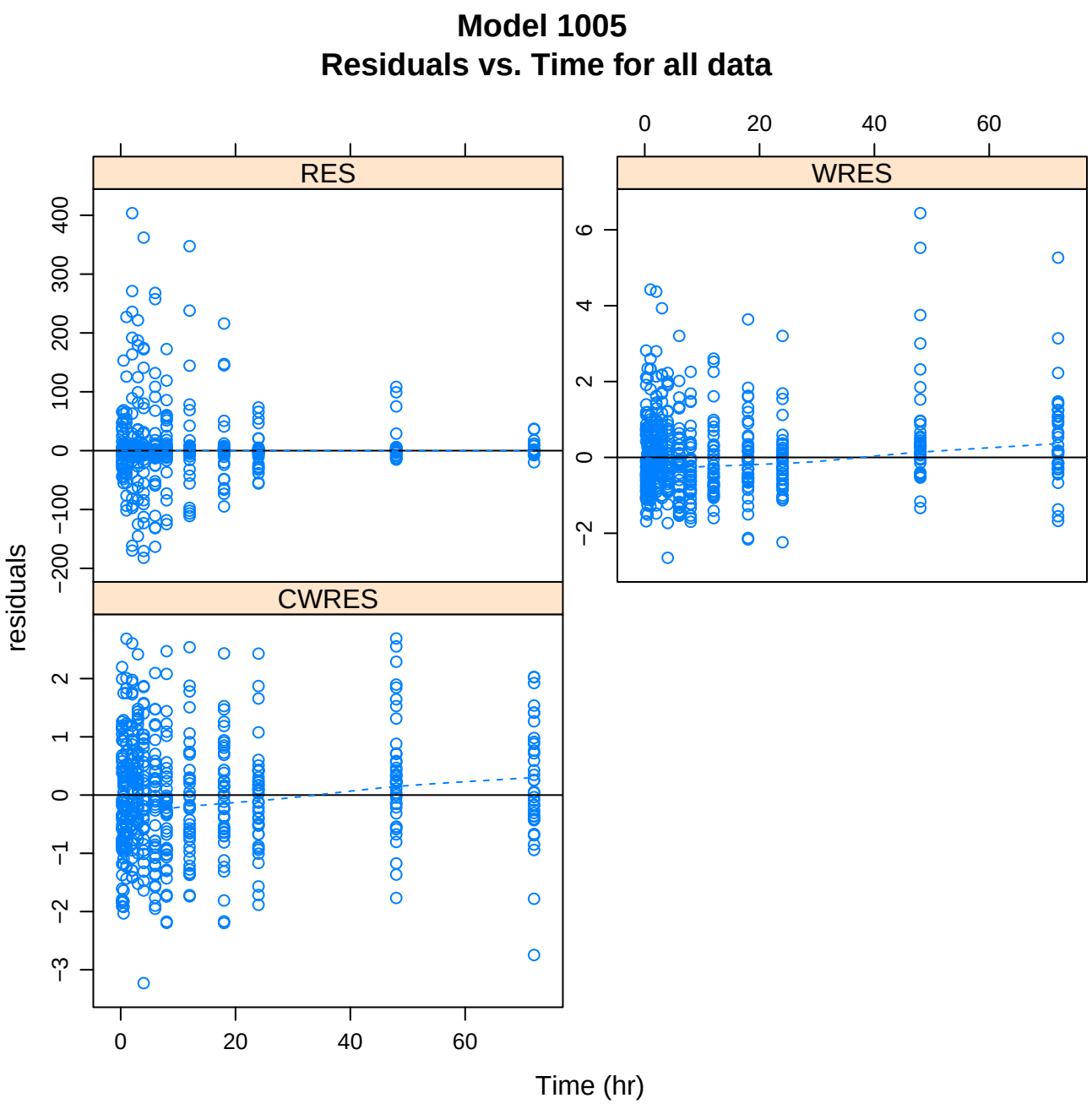
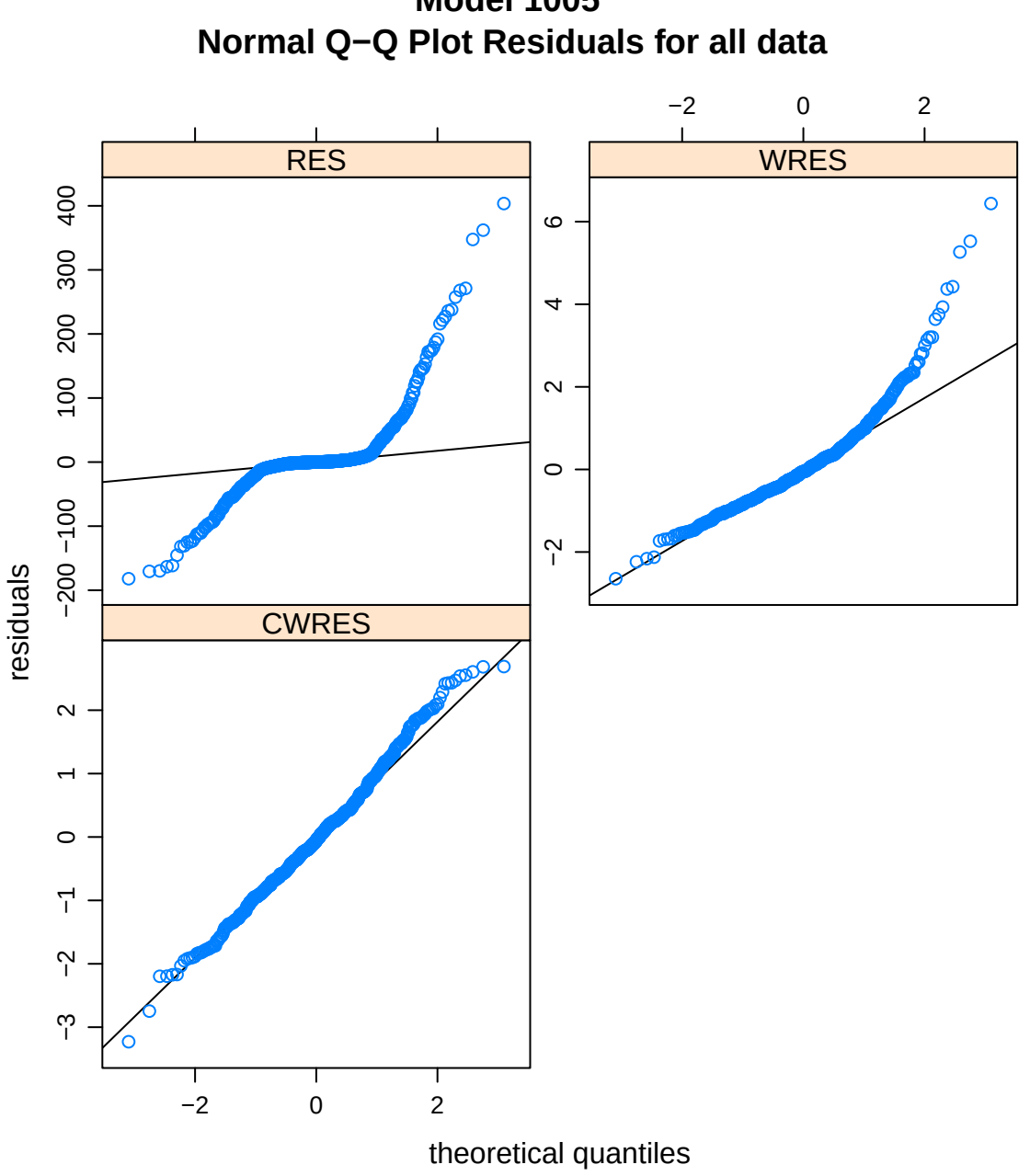
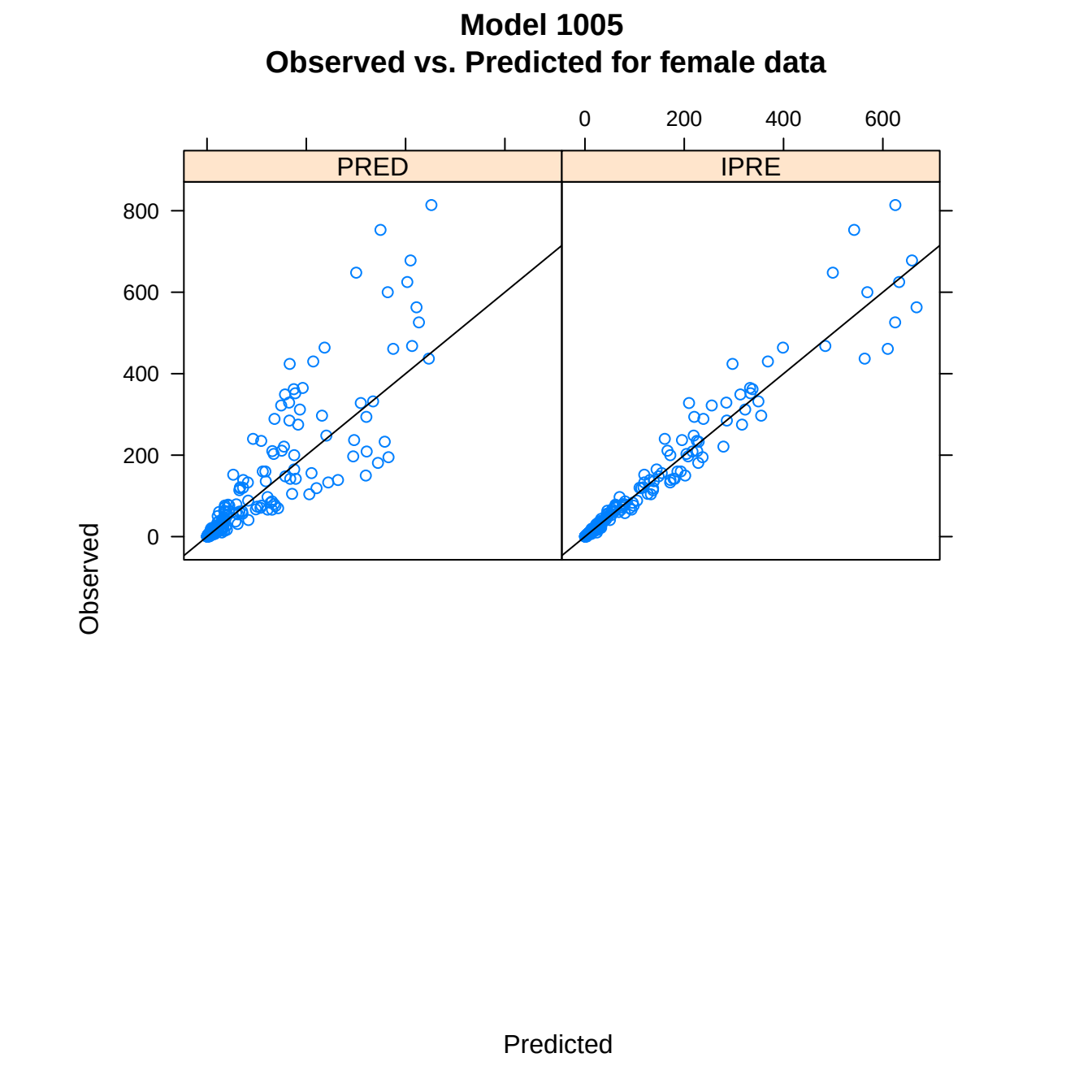
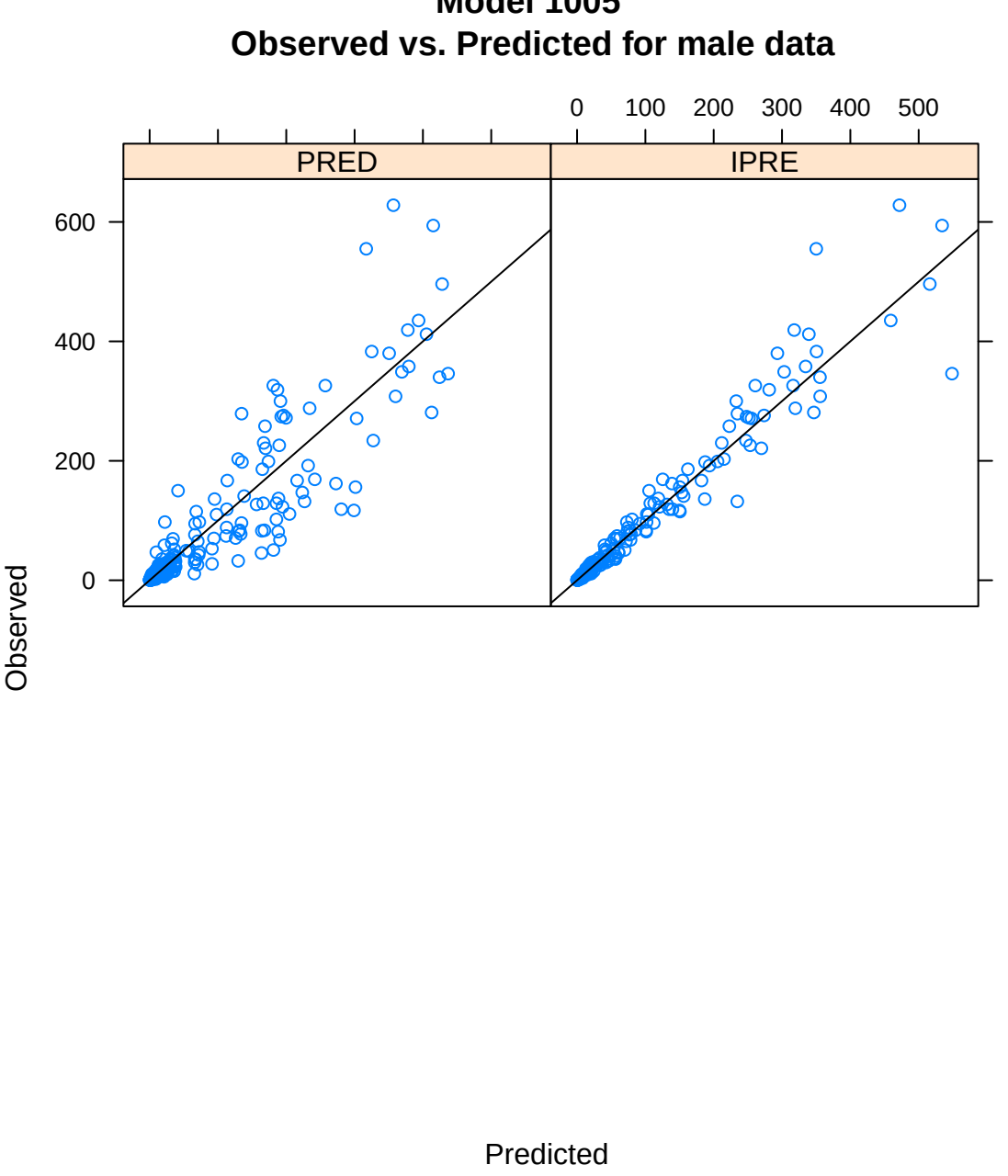

Model 1005
Observed vs. Predicted for all data
PRED
IPRE
0
200
400
600
800
Observed
Predicted

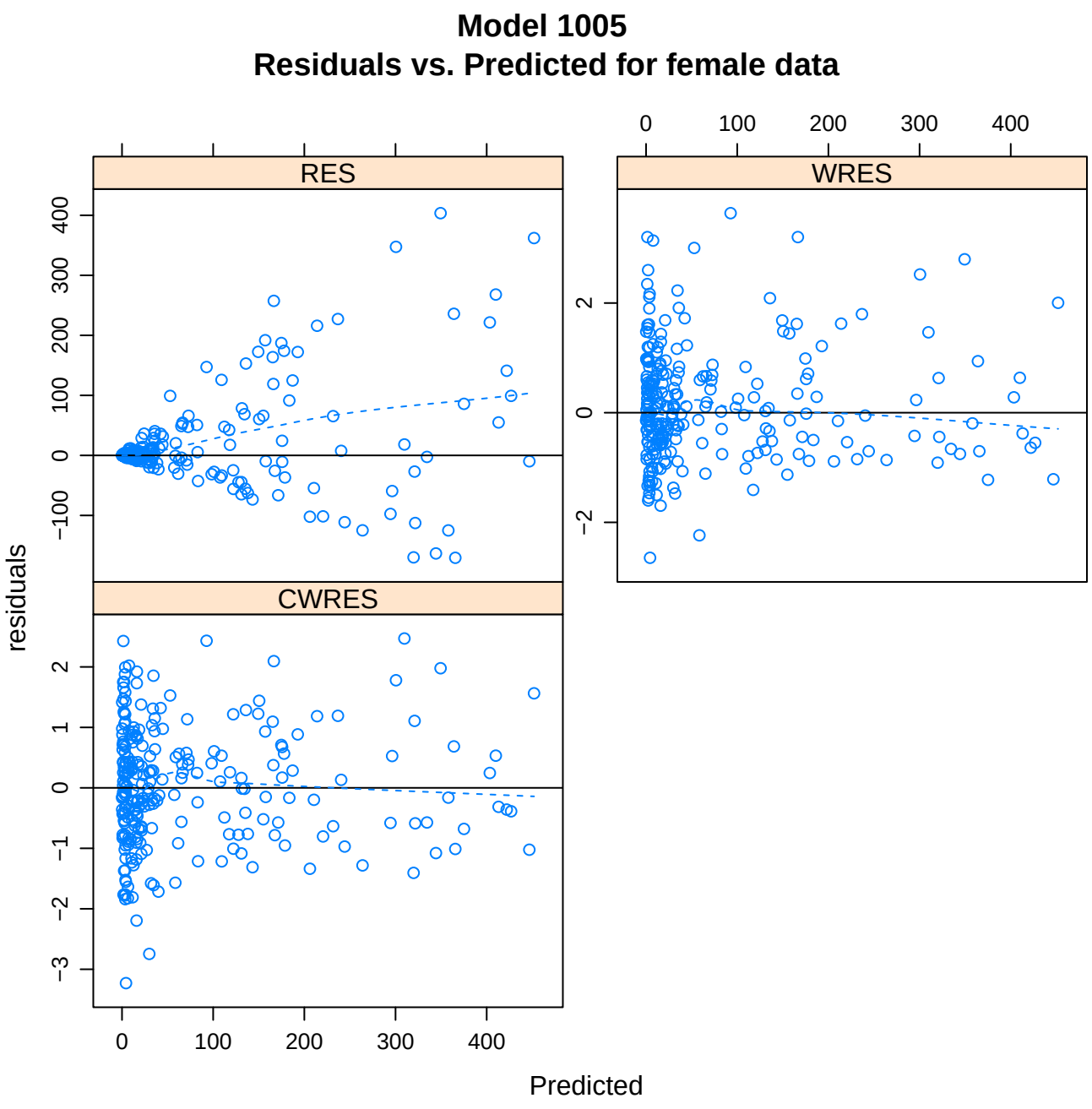

Model 1005
Residuals vs. Predicted for all data
RES
WRES
CWRES
residuals
Predicted
0
100
200
300
400
−200
−100
0
100
200
300
400
−2
0
2
4
6
−3
−2
−1
0
1
2

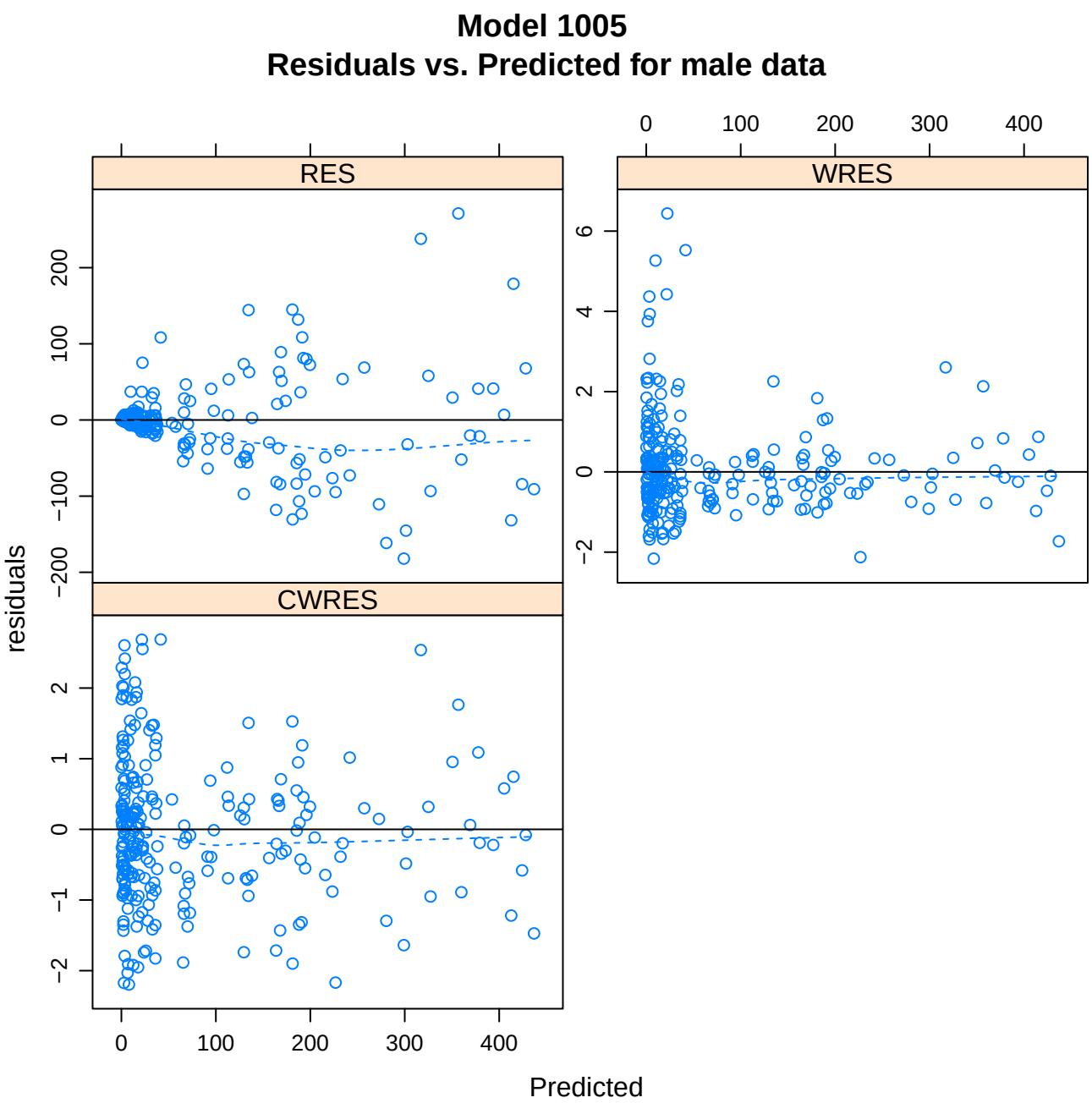

Model 1005
Residuals vs. Time for all data
RES
WRES
CWRES
residuals
Time (hr)
0
20
40
60
−200
−100
0
100
200
300
400
−2
0
2
4
6
−3
−2
−1
0
1
2

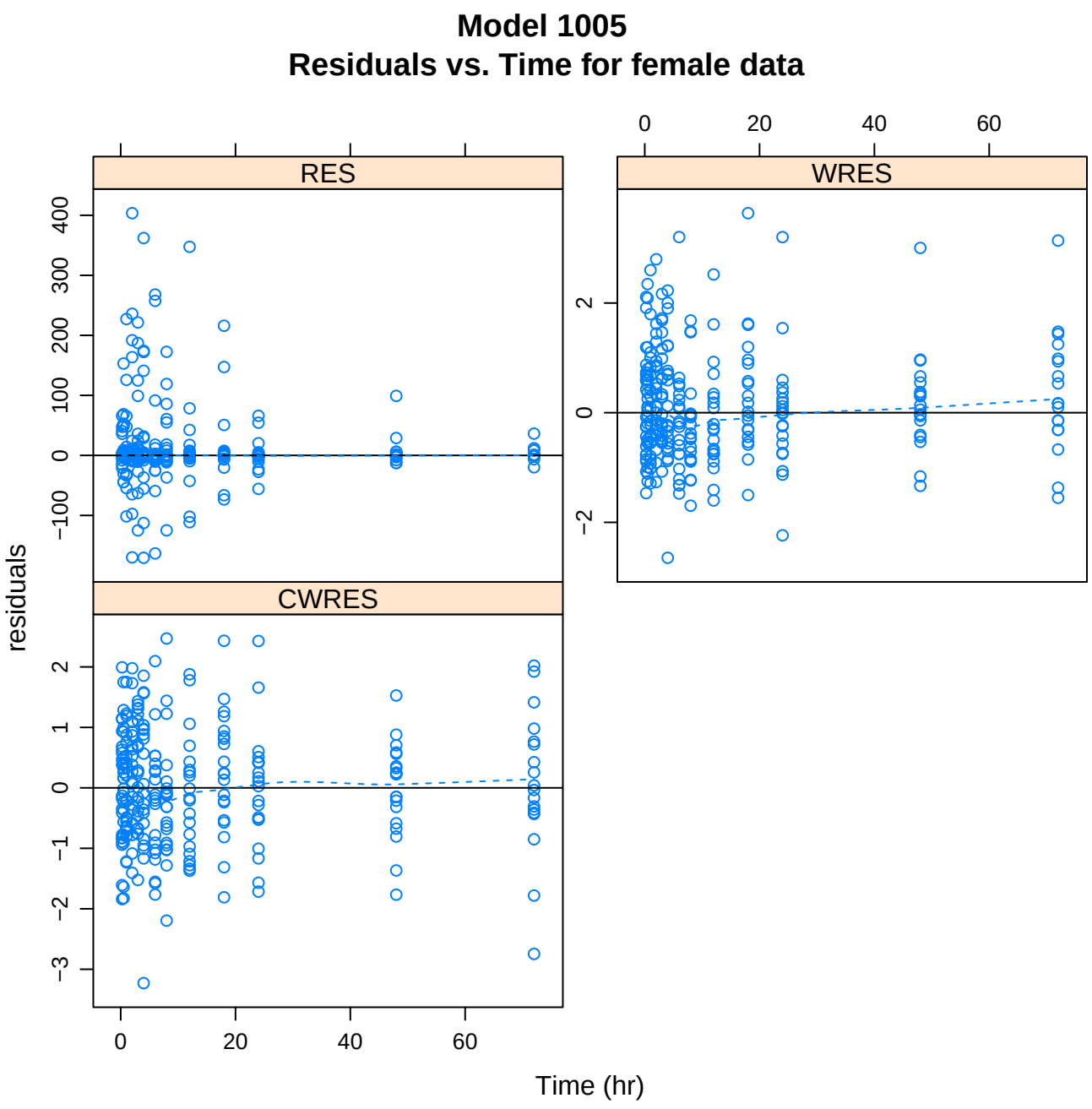

Model 1005
Normal Q−Q Plot Residuals for all data
RES
WRES
CWRES
residuals
theoretical quantiles
−2
0
2
−200
−100
0
100
200
300
400
−2
0
2
4
6
−3
−2
−1
0
1
2

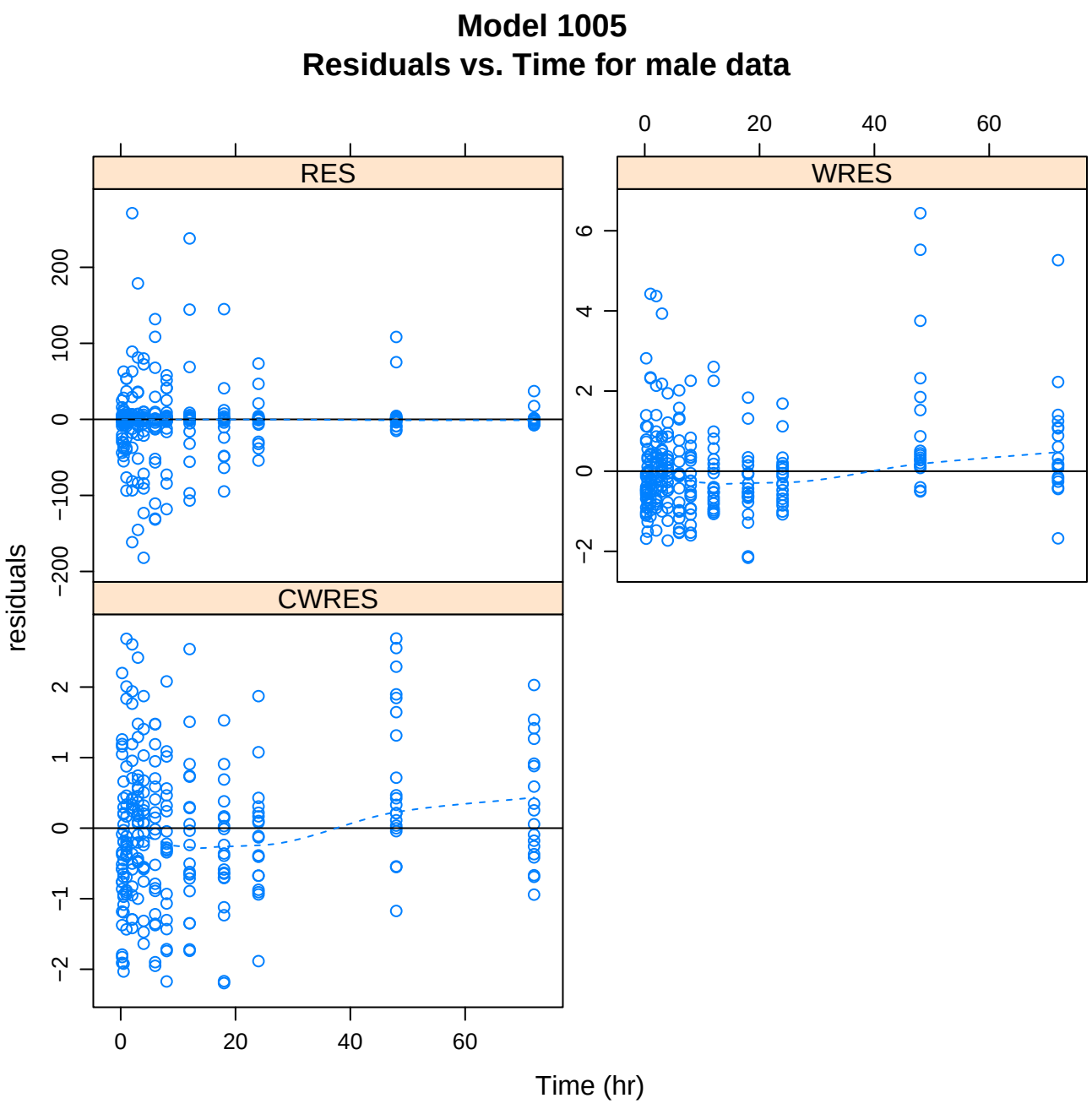

Model 1005
Observed vs. Predicted for female data
PRED
IPRE
0
200
400
600
800
Observed
Predicted


Model 1005
Observed vs. Predicted for male data
PRED
IPRE
0
100
200
300
400
500
600
400
200
0
Observed
Predicted

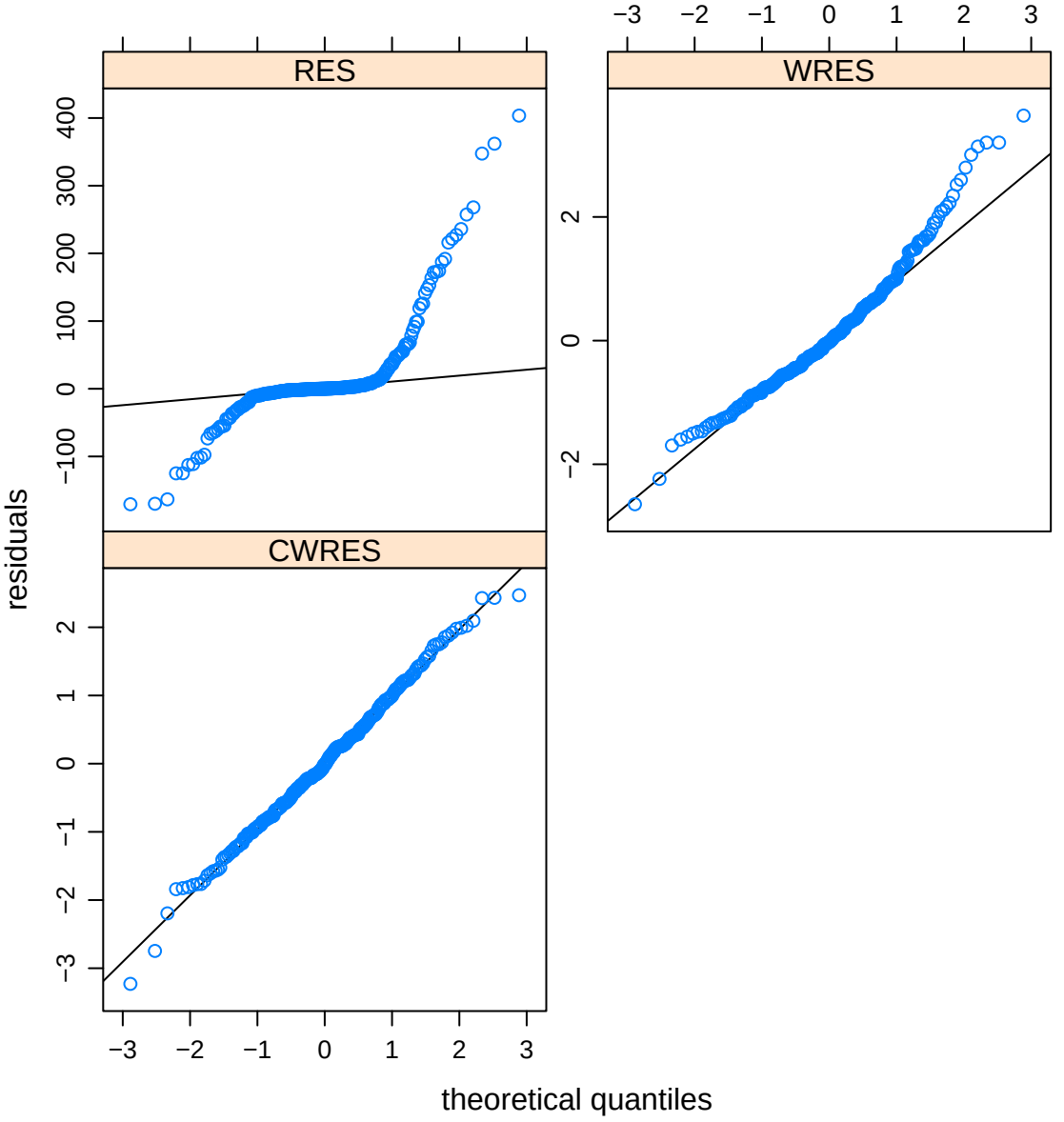

Model 1005
Residuals vs. Predicted for female data
RES
WRES
CWRES
residuals
Predicted
0
100
200
300
400
−100
−2
−3
−1
1
2

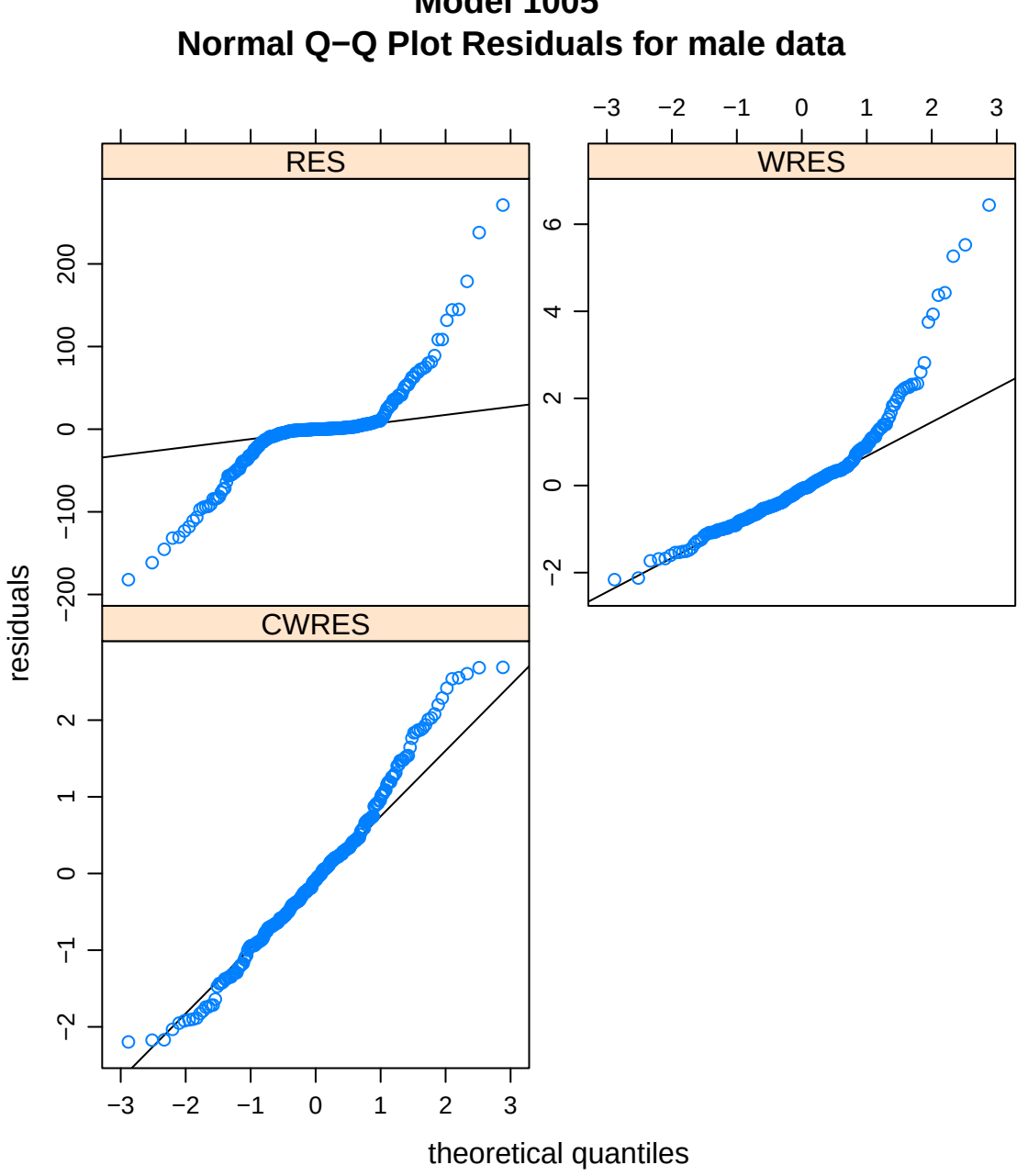

Model 1005
Residuals vs. Predicted for male data
RES
WRES
CWRES
residuals
Predicted
0
100
200
300
400
−200
−100
0
100
200
−2
0
2
4
6
−2
−1
0
1
2


Model 1005
Residuals vs. Time for female data
RES
WRES
CWRES
residuals
Time (hr)
0
20
40
60
−100
0
100
200
300
400
−2
0
2
−3
−2
−1
0
1
2

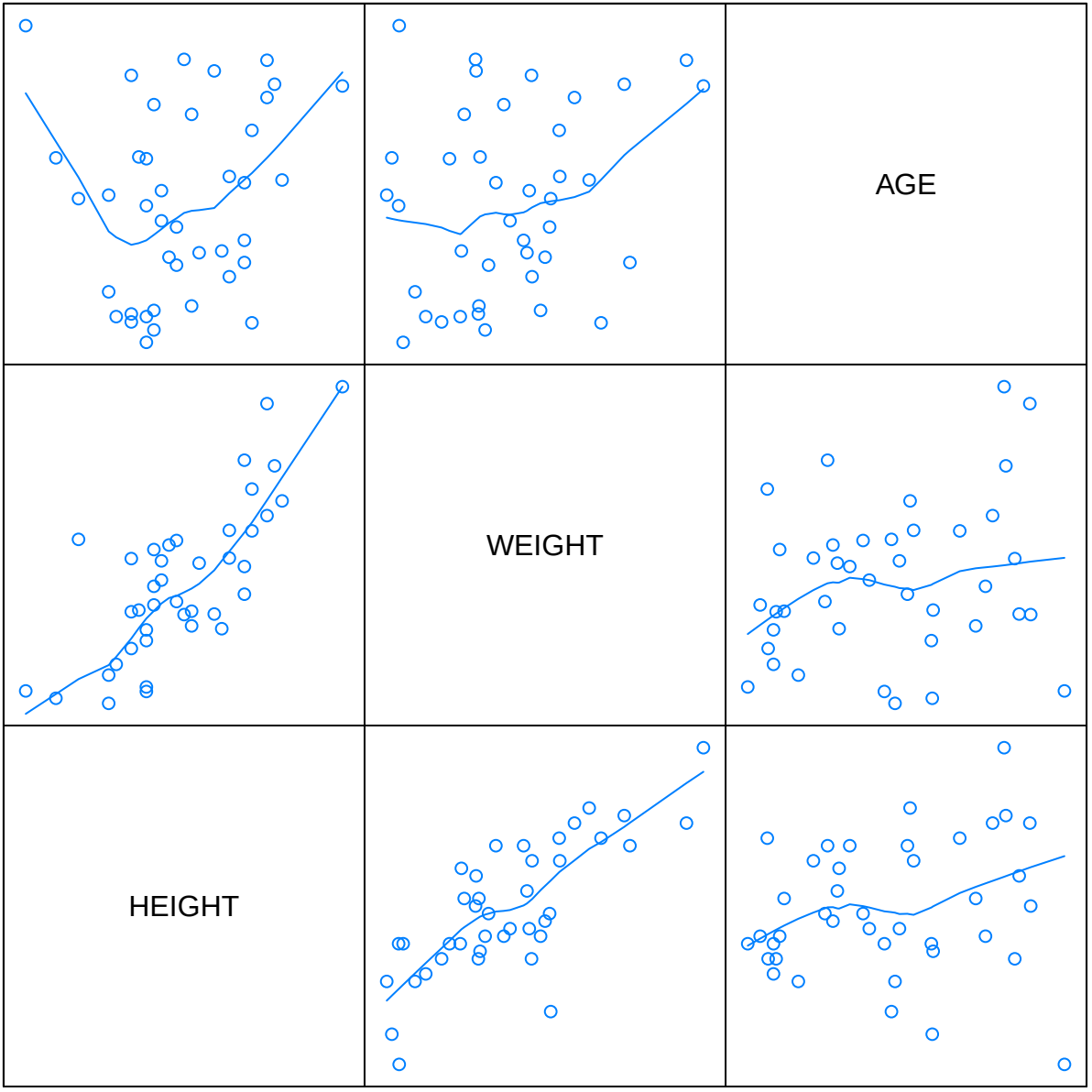

Model 1005
Residuals vs. Time for male data
RES
WRES
CWRES
residuals
Time (hr)
0
20
40
60
200
100
0
−100
−200
6
4
2
0
−2
1
−1

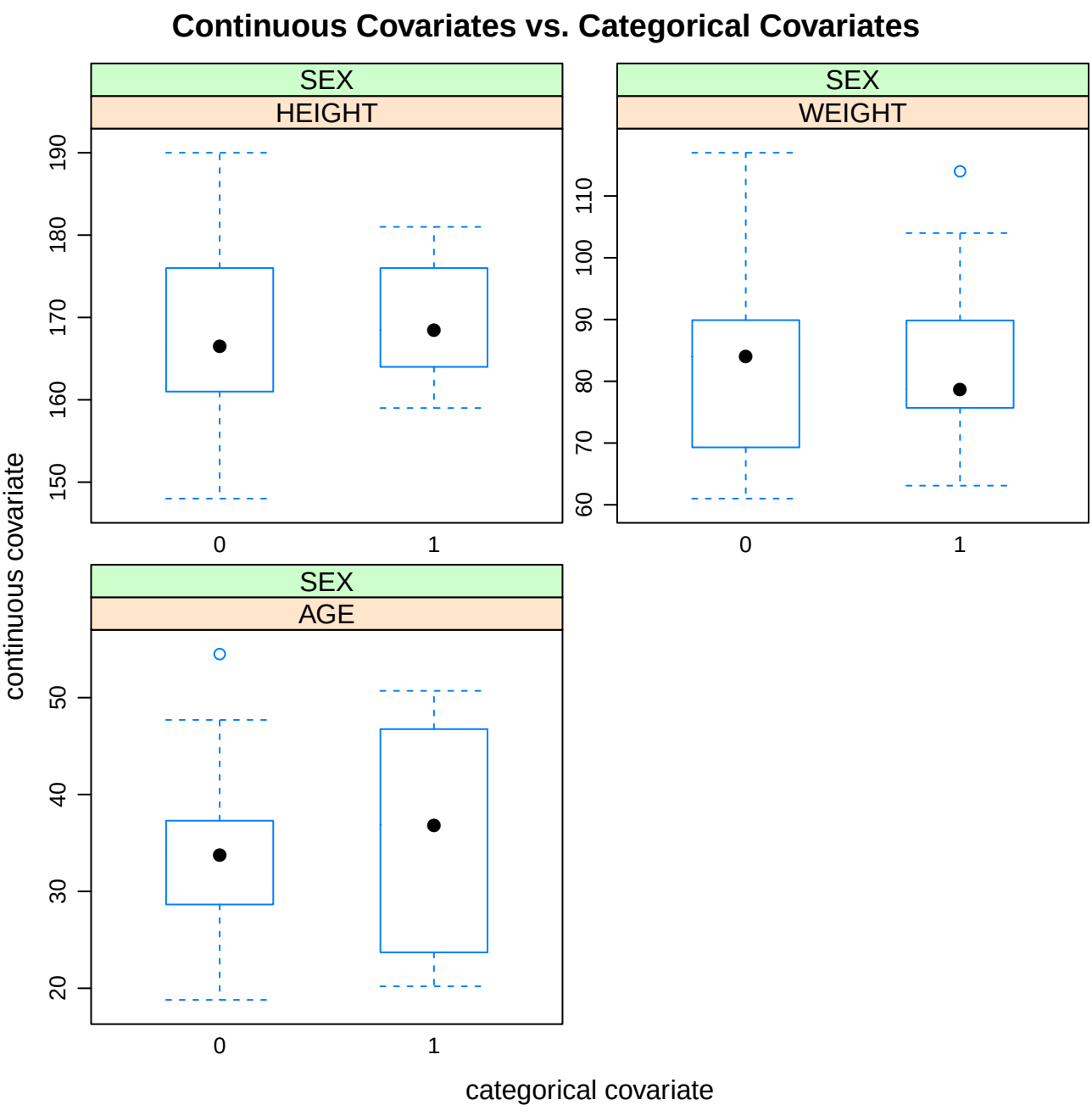
# Model 1005
## Normal Q−Q Plot Residuals for female data



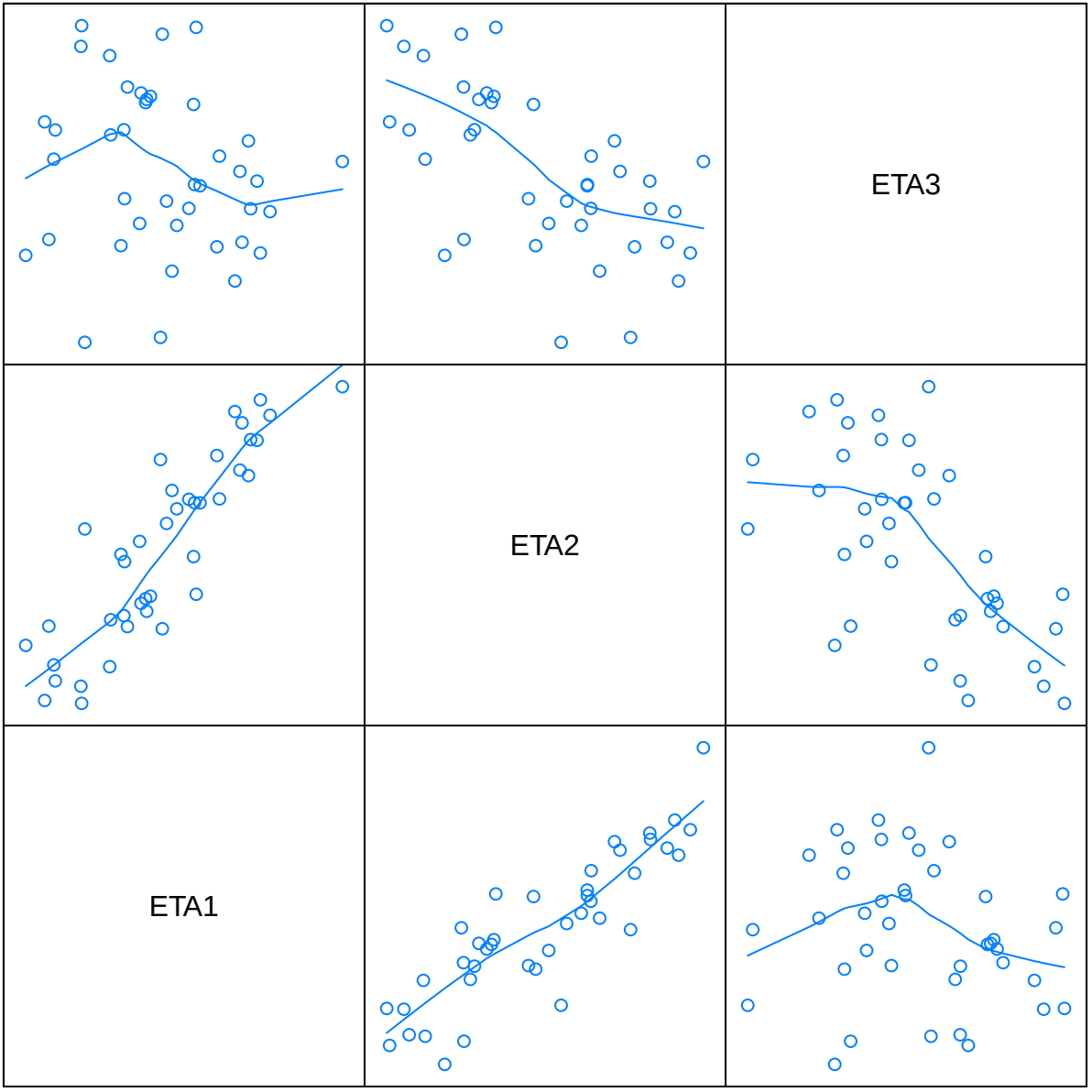

Model 1005
Normal Q−Q Plot Residuals for male data
RES
WRES
CWRES
residuals
theoretical quantiles
−3
−2
−1
0
1
2
3
−200
−100
0
100
200
−2
0
2
4
6

# Covariate Scatterplots

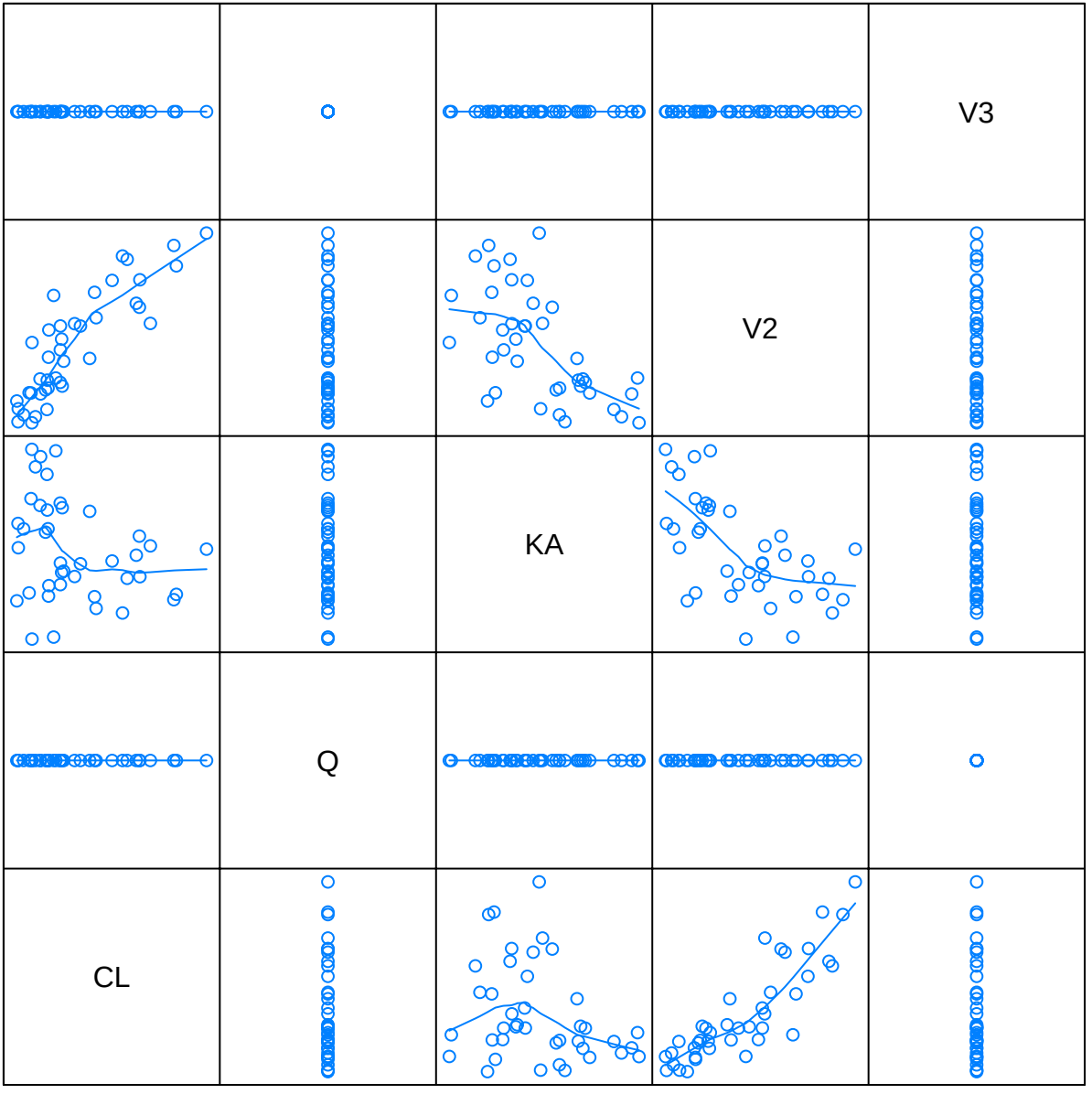


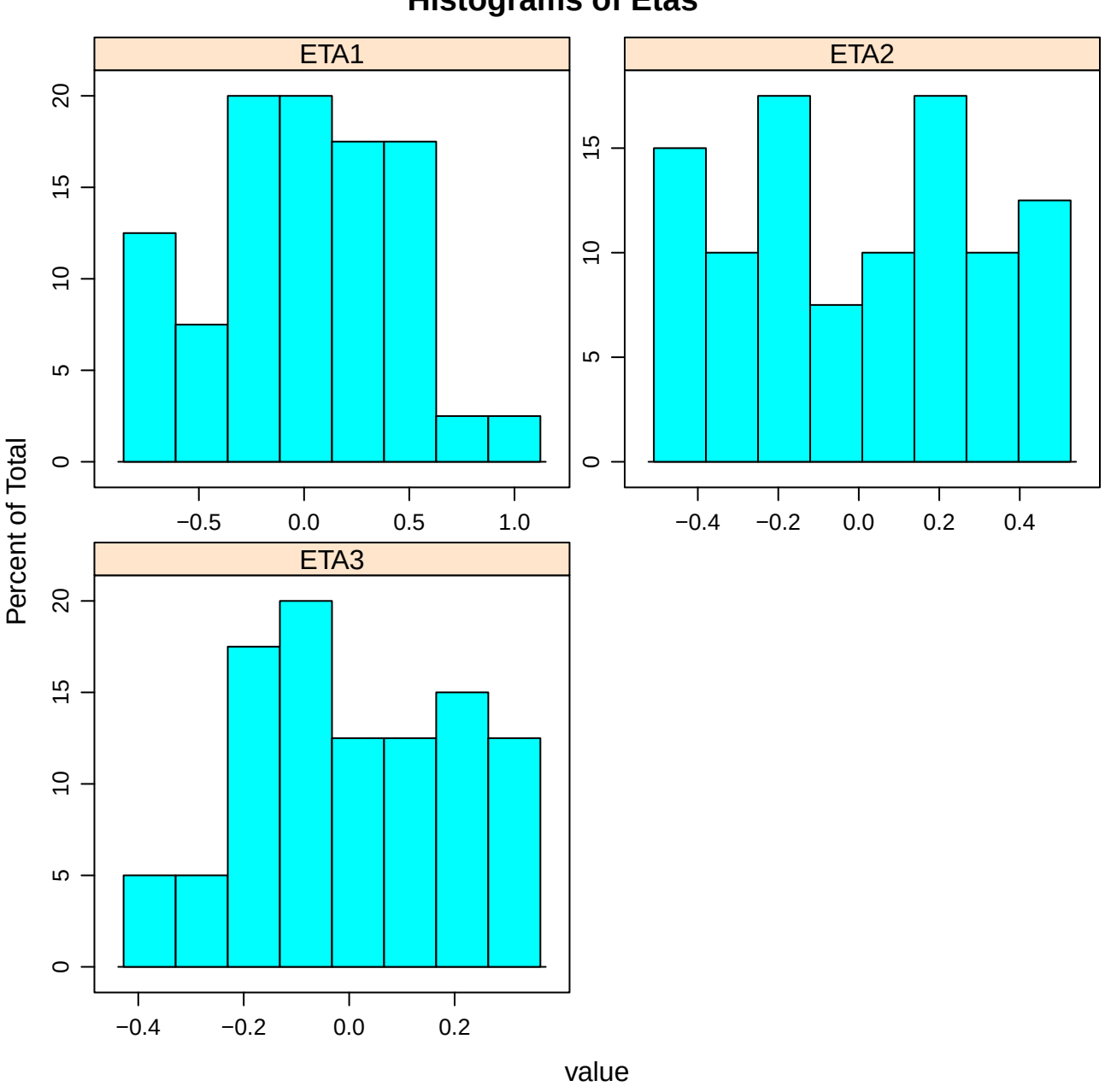

Continuous Covariates vs. Categorical Covariates
SEX
HEIGHT
150
160
170
180
190
0
1
SEX
WEIGHT
60
70
80
90
100
110
0
1
SEX
AGE
20
30
40
50
0
1
continuous covariate
categorical covariate

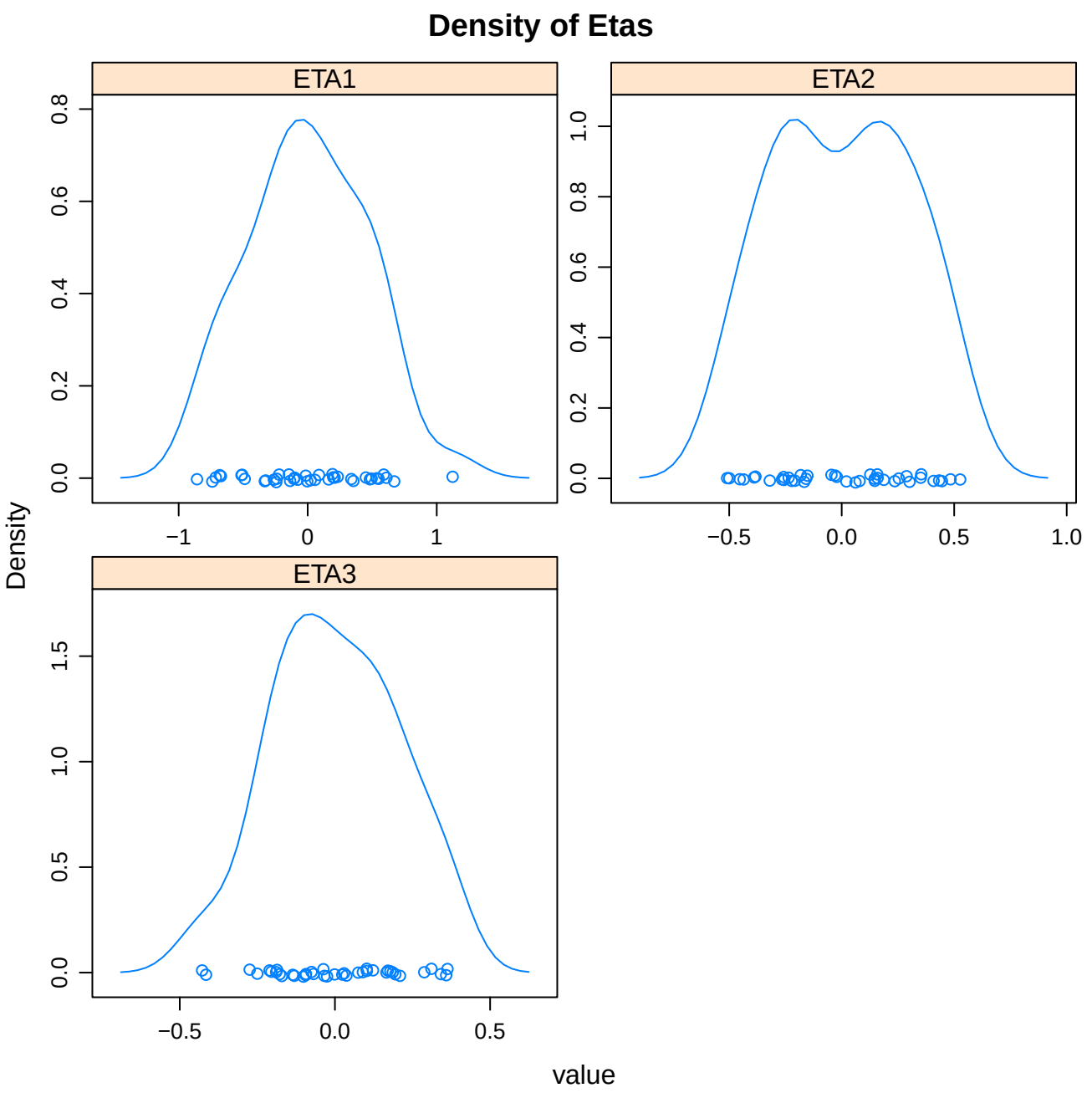
# ETA Scatterplots

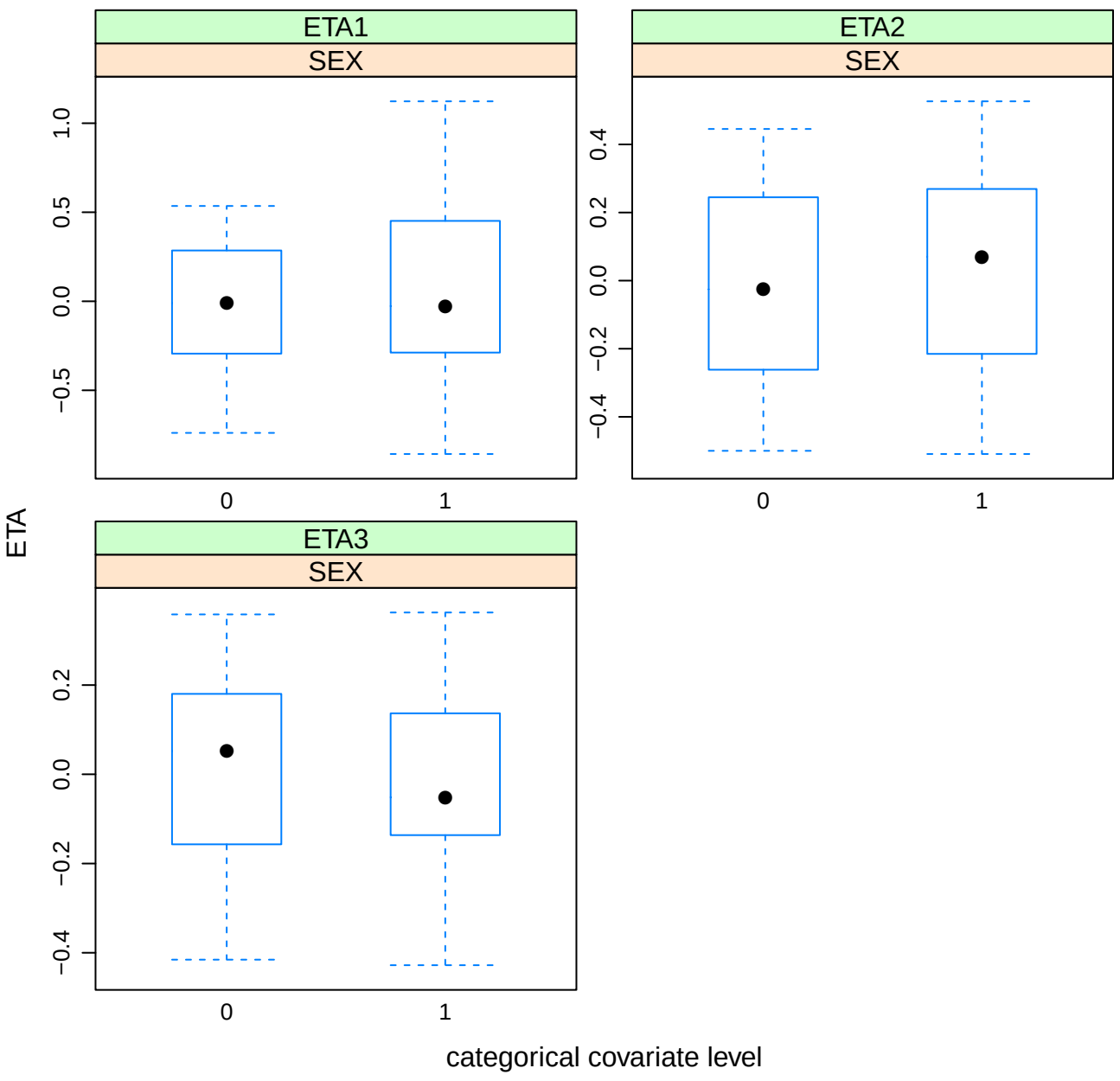


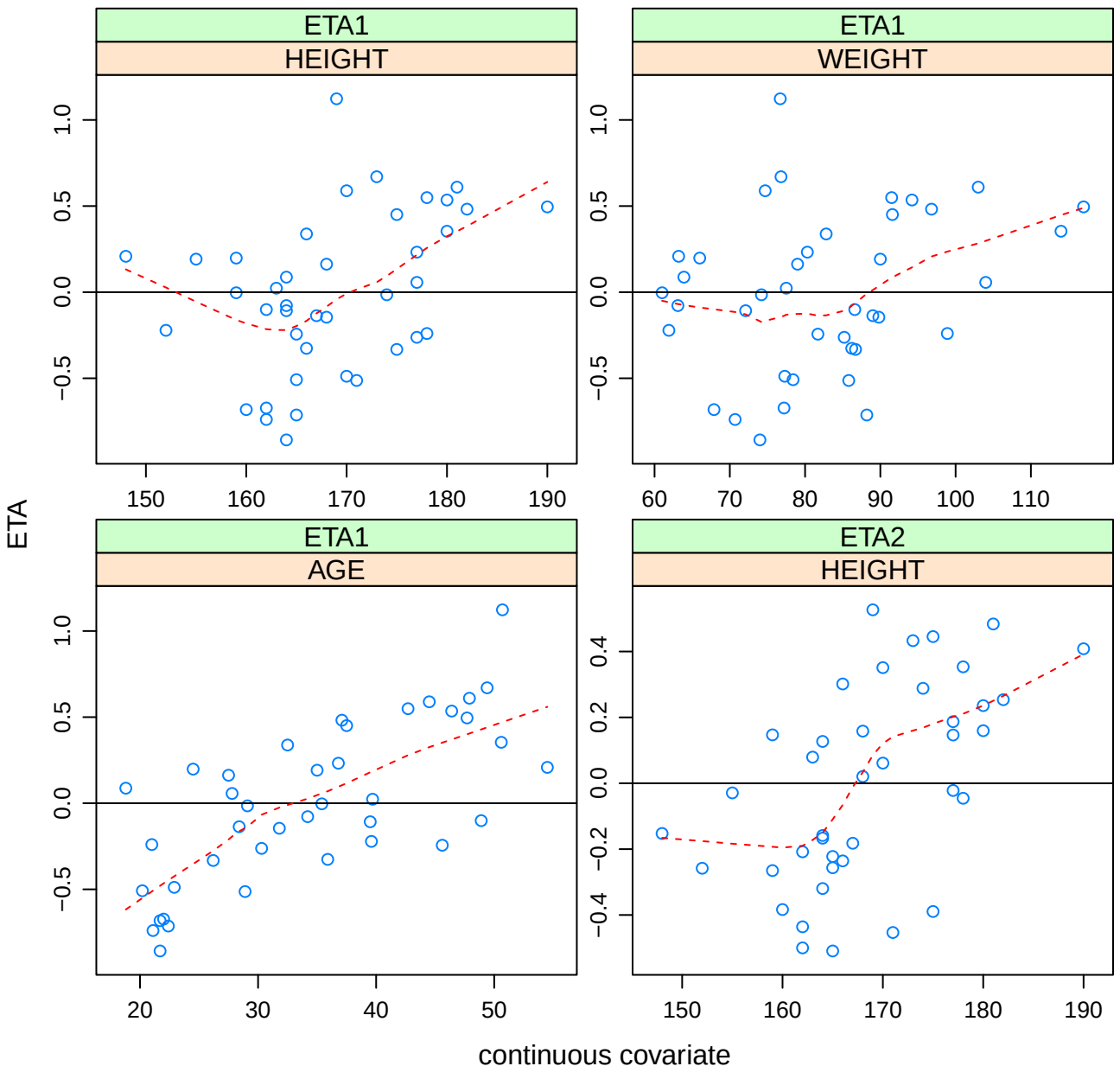
# Parameter Scatterplots

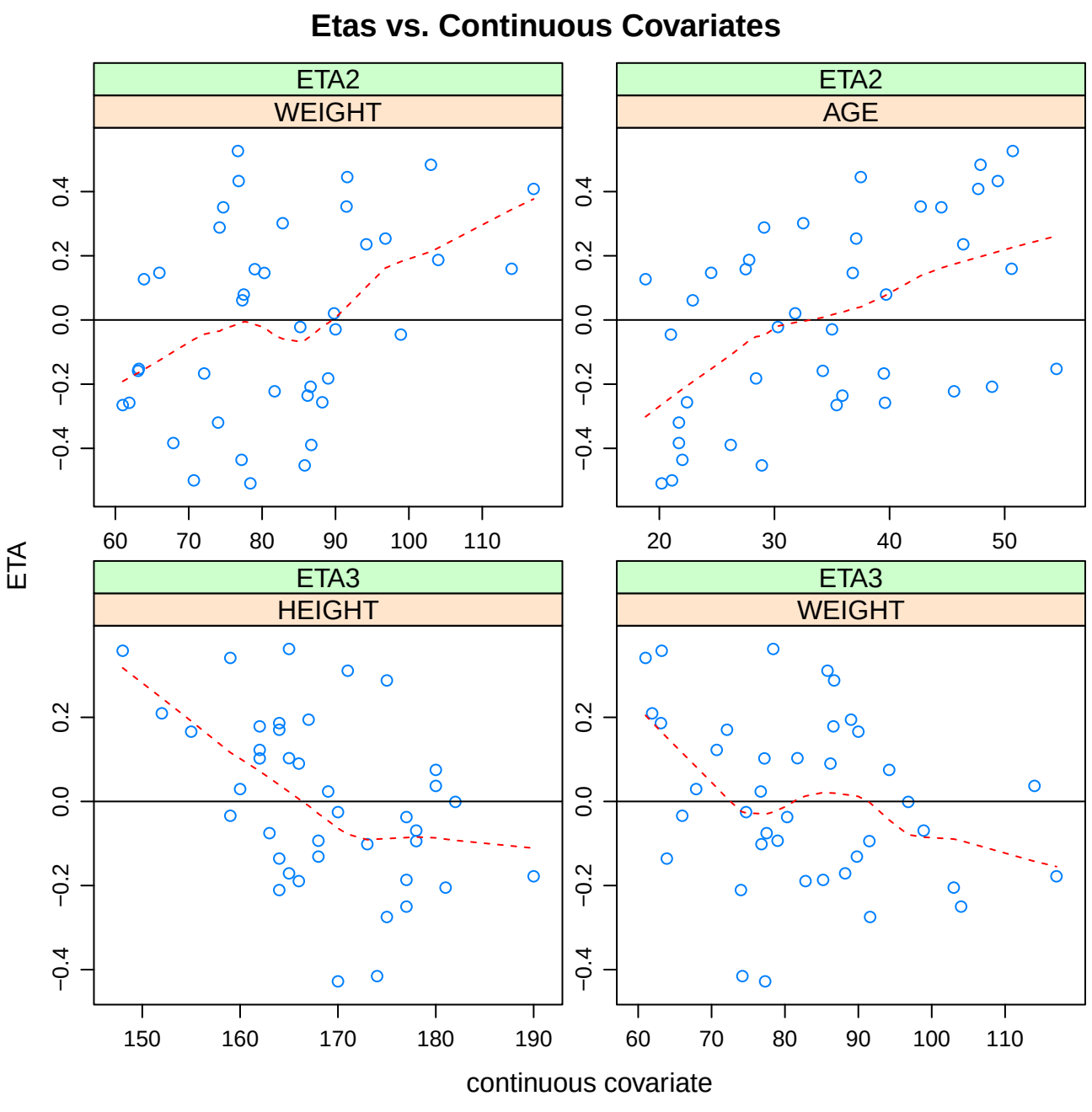



Histograms of Etas
ETA1
ETA2
ETA3
Percent of Total
value
0
5
10
15
20
−0.5
0.0
0.5
1.0
−0.4
−0.2
0.2
0.4

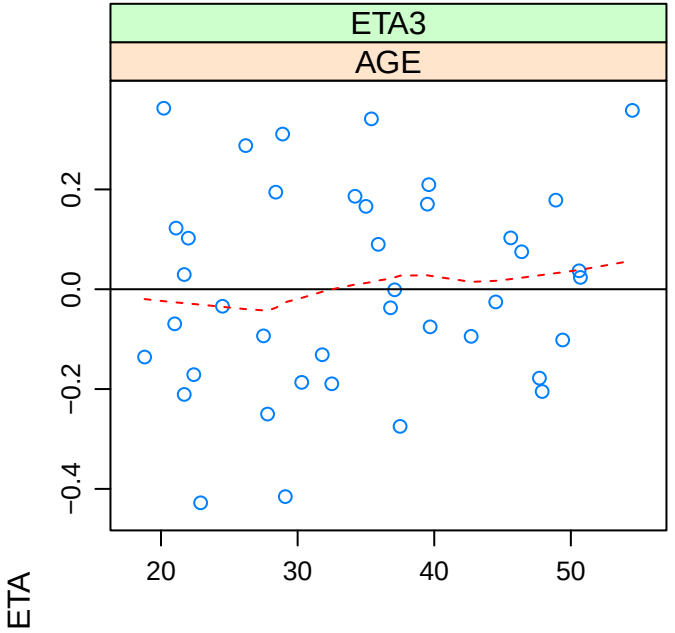

Density of Etas
ETA1
ETA2
ETA3
Density
value
0.0
0.2
0.4
0.6
0.8
1.0
0.5
1.5
−1
0
1
−0.5
0.5


Boxplots of Etas by Categorical Covariate
ETA1
SEX
ETA2
SEX
ETA3
SEX
ETA
categorical covariate level
0
1
−0.5
0.0
0.5
1.0
−0.4
−0.2
0.0
0.2
0.4

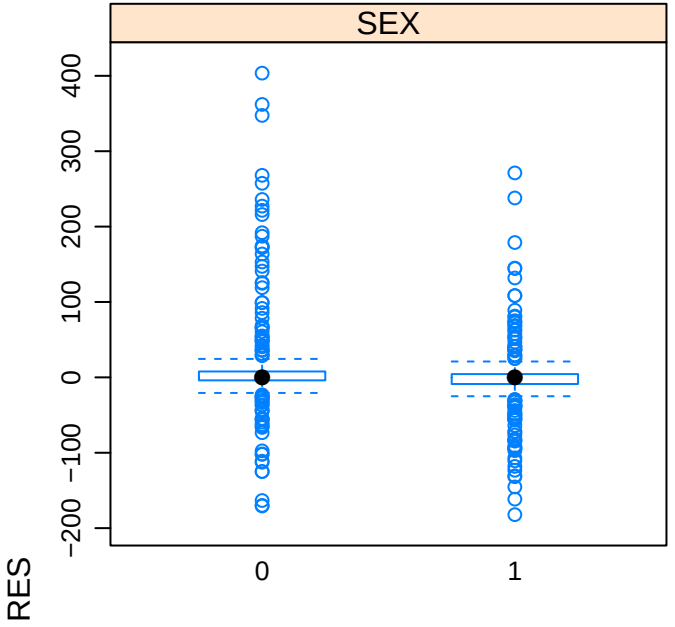

Etas vs. Continuous Covariates
ETA1
HEIGHT
ETA1
WEIGHT
ETA1
AGE
ETA2
HEIGHT
ETA
continuous covariate
1.0
0.5
0.0
−0.5
0.4
0.2
0.0
−0.2
−0.4
150
160
170
180
190
60
70
80
90
100
110
20
30
40
50


Etas vs. Continuous Covariates
ETA2
WEIGHT
ETA2
AGE
ETA3
HEIGHT
ETA3
WEIGHT
ETA
continuous covariate
−0.4
−0.2
0.0
0.2
0.4
60
70
80
90
100
110
20
30
40
50
150
160
170
180
190

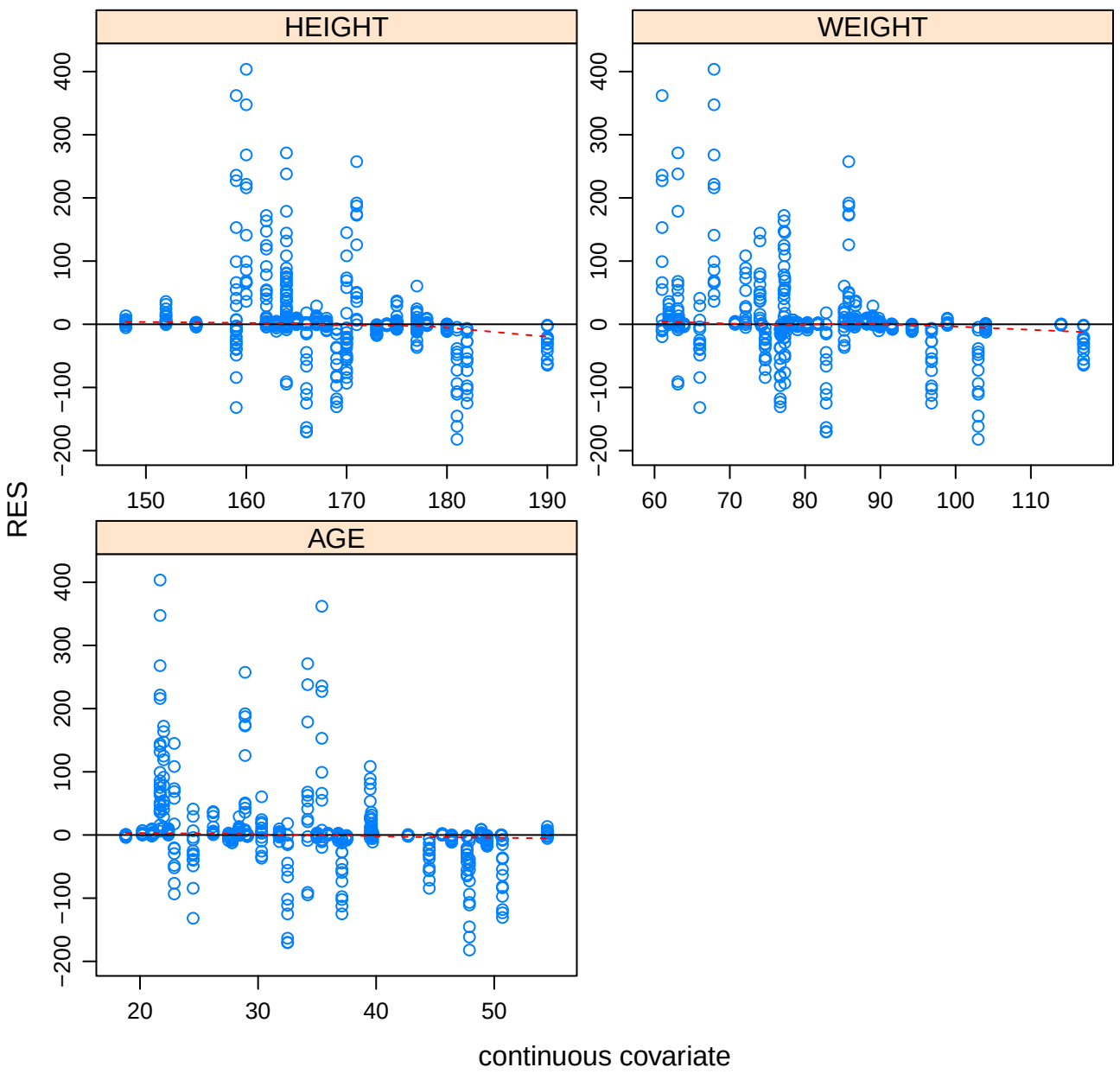
# Etas vs. Continuous Covariates



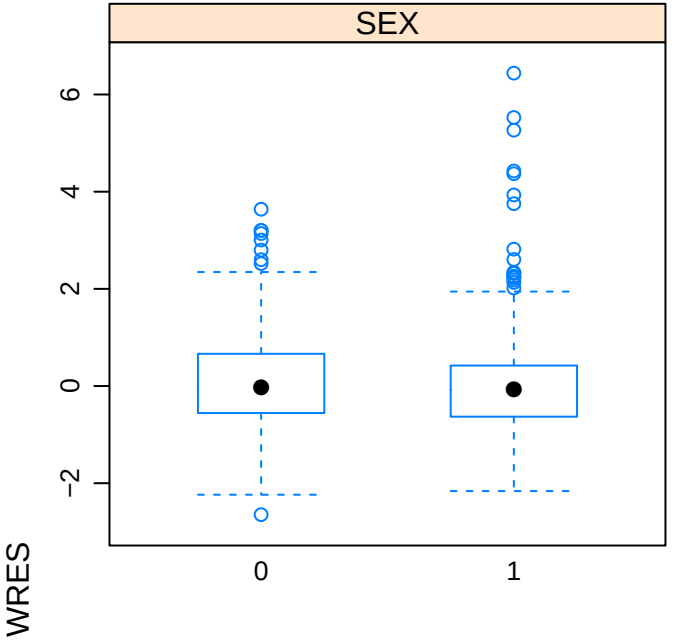
# RES vs. Categorical Covariates



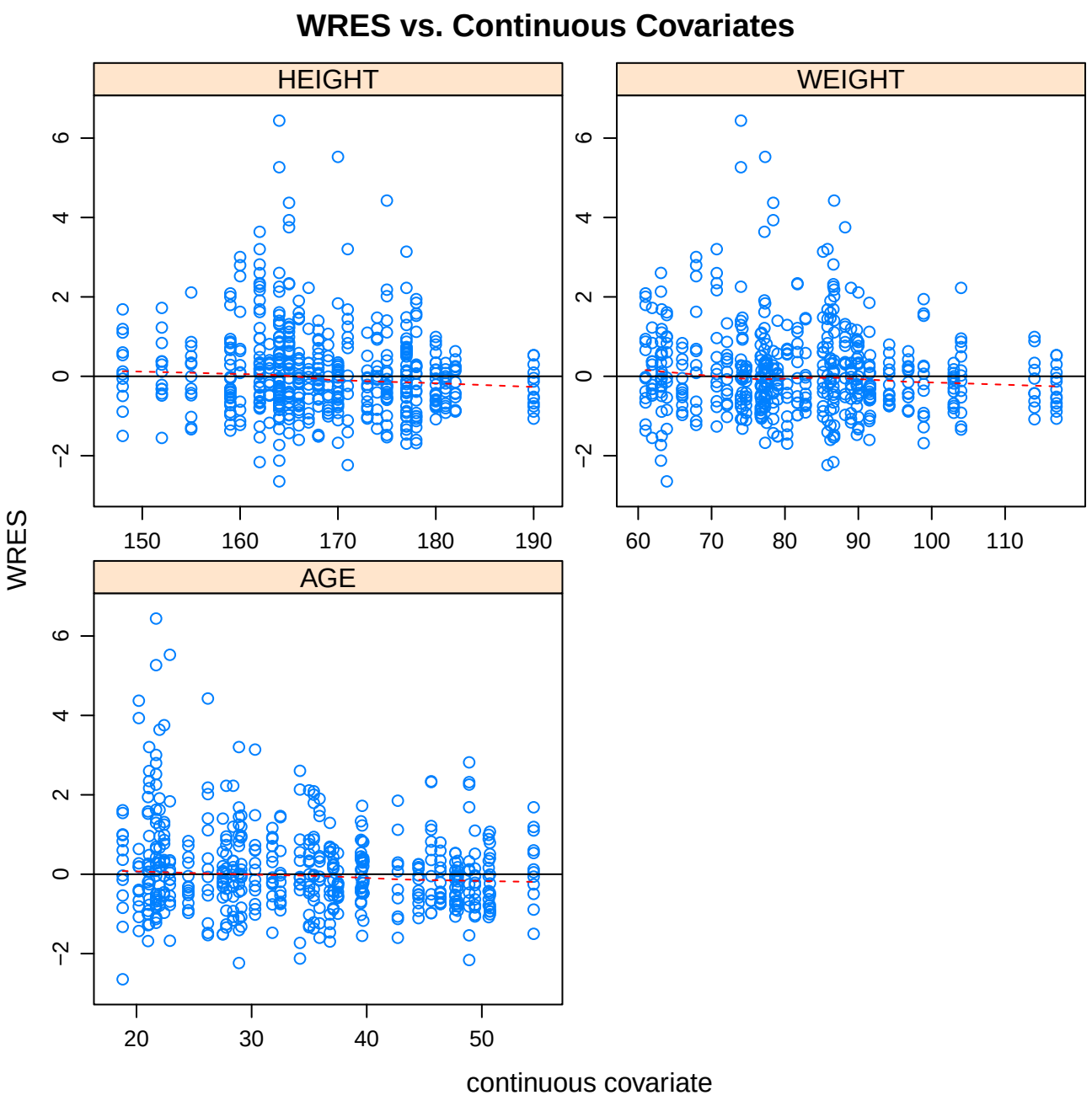

categorical Covariate


RES vs. Continuous Covariates
HEIGHT
WEIGHT
AGE
RES
continuous covariate
400
300
200
100
0
−100
−200
150
160
170
180
190
60
70
80
90
100
110
20
30
40
50

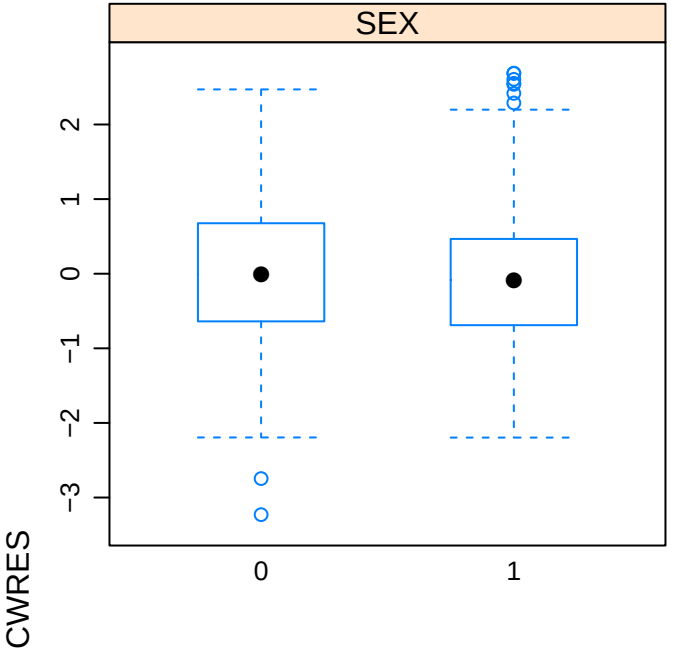
# WRES vs. Categorical Covariates



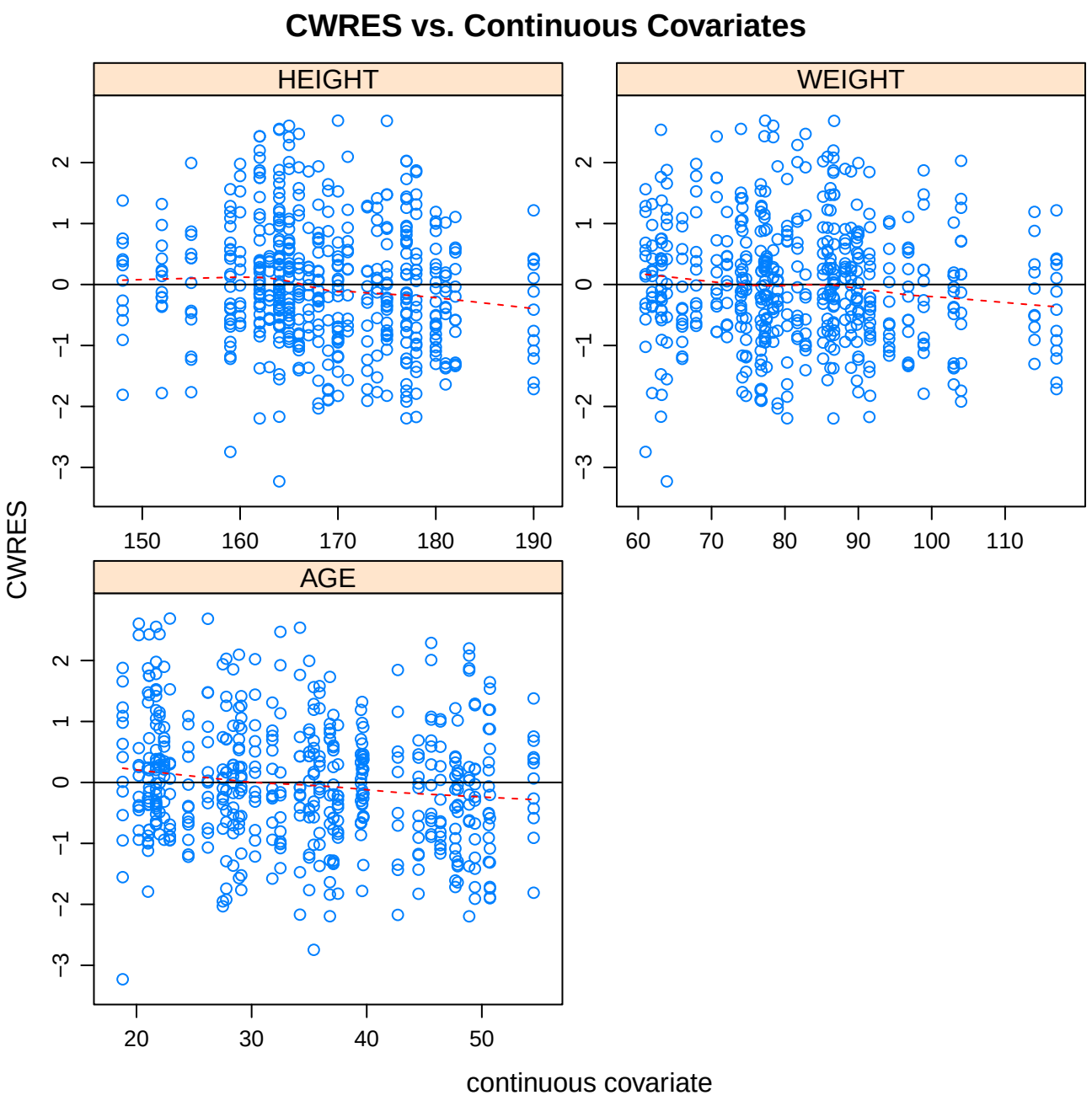

categorical Covariate

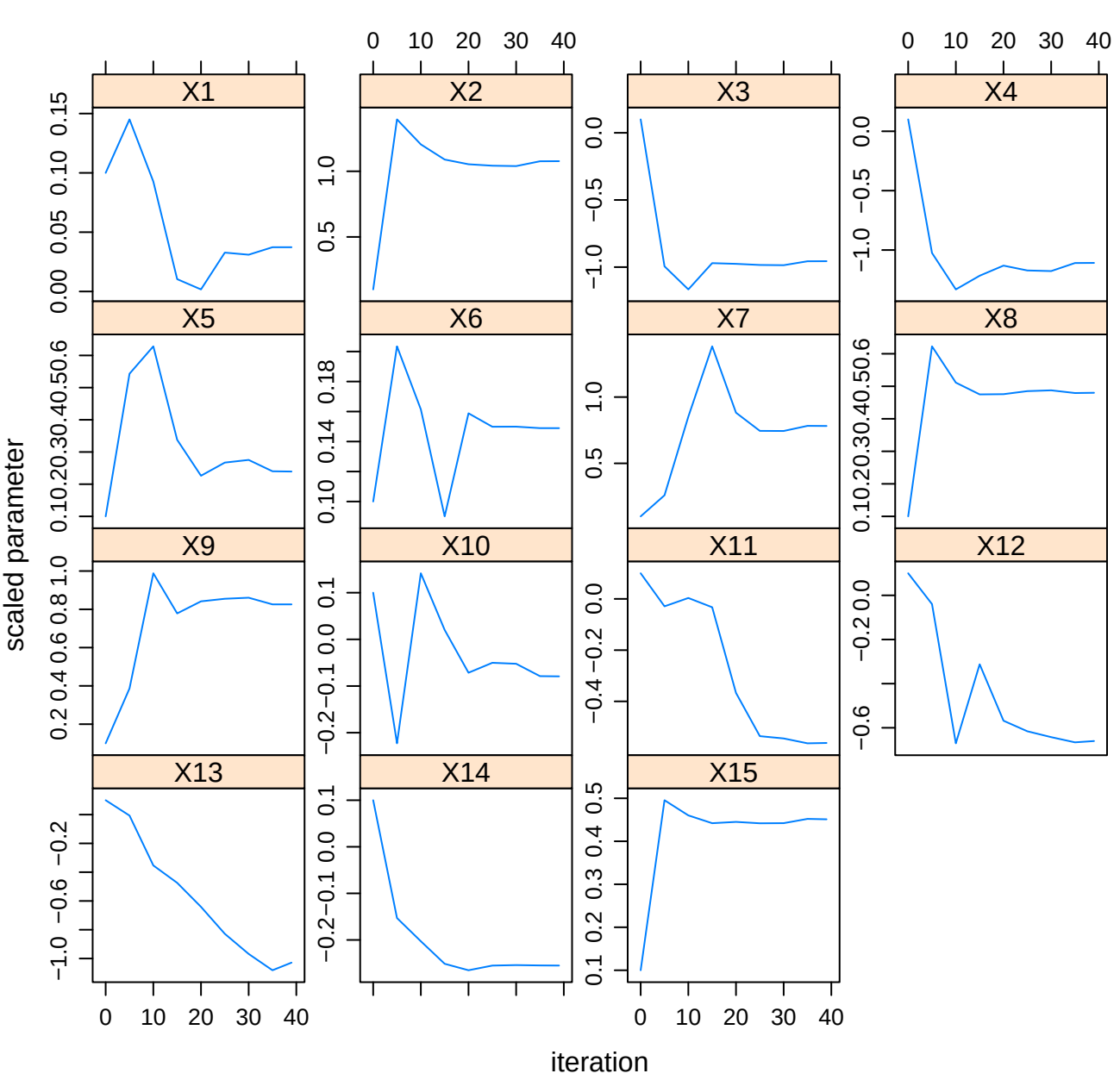

WRES vs. Continuous Covariates
HEIGHT
WEIGHT
AGE
WRES
continuous covariate
6
4
2
0
−2
150
160
170
180
190
60
70
80
90
100
110
20
30
40
50

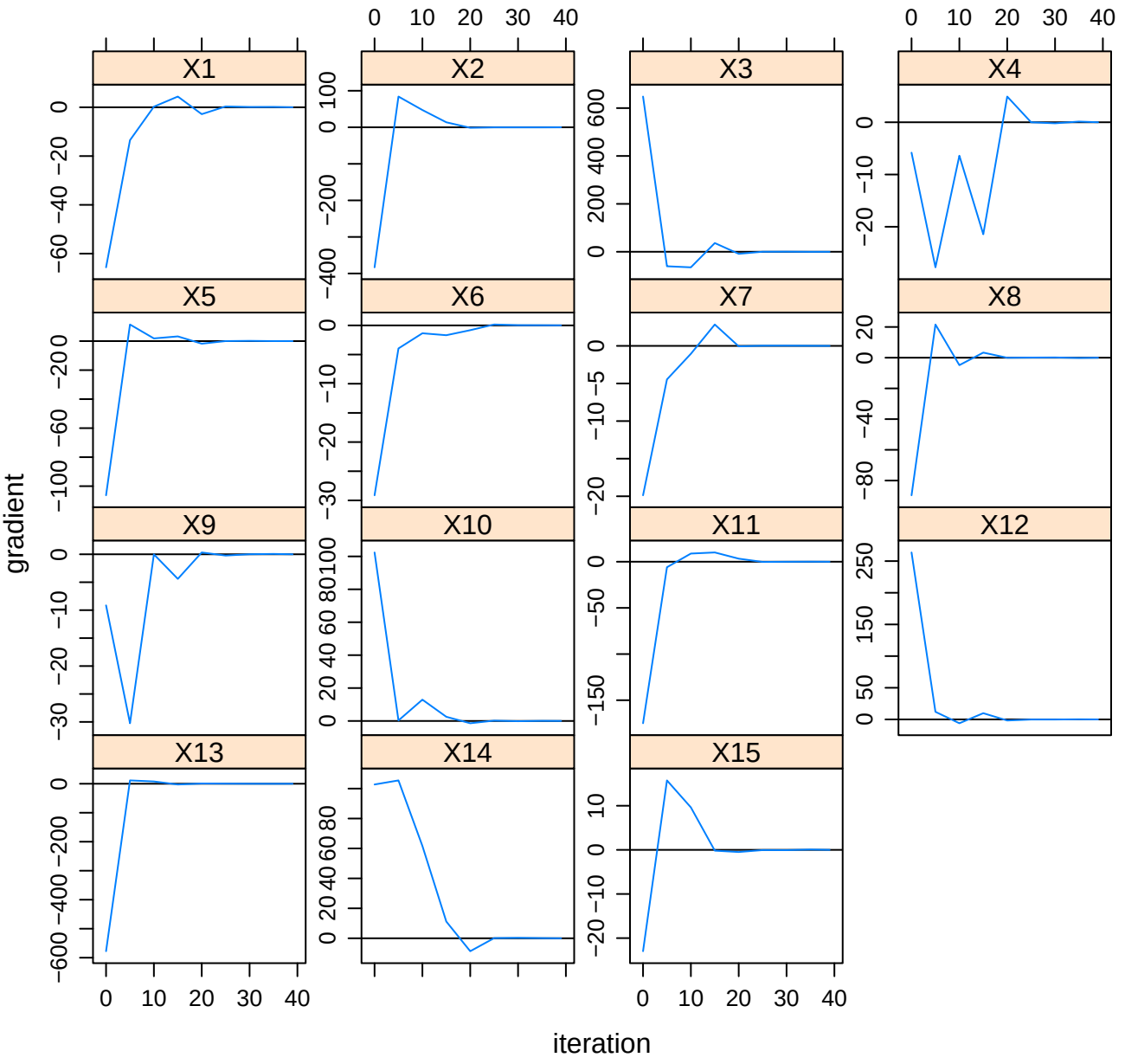
# CWRES vs. Categorical Covariates




categorical Covariate


CWRES vs. Continuous Covariates
HEIGHT
WEIGHT
AGE
CWRES
continuous covariate
150
160
170
180
190
60
70
80
90
100
110
20
30
40
50
2
1
0
−1
−2
−3


Model 1005 parameter search
X1
X2
X3
X4
X5
X6
X7
X8
X9
X10
X11
X12
X13
X14
X15
scaled parameter
iteration


Model 1005 gradient search
X1
X2
X3
X4
X5
X6
X7
X8
X9
X10
X11
X12
X13
X14
X15
gradient
iteration