change dr

rm(list=ls())

library(MASS)

library(nlme)

library(segmented)

library(splines)

library(cli)

library(rlang)

library(lifecycle)

library(ellipsis)

library(ggplot2)

library(Hmisc)

library(htmltools)

library(bslib)

library(rms)

**# Group 1：1500S-2030S**

data=read.csv('RCS15-23.csv')

data$Diatery<-factor(data$Diatery,levels=c(1,2),labels=c("1500S","2030S"))

View(data)

head(data)

dd<-datadist(data)

options(datadist='dd')

**# 1 Phase\_angle**

fit5<-lrm(Diatery~rcs(Phase\_angle,3),x=TRUE,y=TRUE,data=data)

summary(fit5)

confint.default(fit5)

anova(fit5)

AIC(fit5)

OR<-Predict(fit5,Phase\_angle,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit52<-ggplot()+geom\_line(data=OR,aes(Phase\_angle,yhat),linetype="solid",size=1,alpha=0.7,colour="darkblue")+geom\_ribbon(data=OR,aes(Phase\_angle,ymin=lower,ymax=upper),alpha=0.1,fill="darkblue")

fit52

fit52<-fit52+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=5.7,linetype=2,size=1)+labs(title="1500S-2030S",x="Phase\_angle",y="odds ratio(95%CI)")

fit52

**# 2 Glucose**

fit9<-lrm(Diatery~rcs(Glucose,3),x=TRUE,y=TRUE,data=data)

summary(fit9)

confint.default(fit9)

anova(fit9)

AIC(fit9)

OR<-Predict(fit9,Glucose,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit92<-ggplot()+geom\_line(data=OR,aes(Glucose,yhat),linetype="solid",size=1,alpha=0.7,colour="darkblue")+geom\_ribbon(data=OR,aes(Glucose,ymin=lower,ymax=upper),alpha=0.1,fill="darkblue")

fit92

fit92<-fit92+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=4.95,linetype=2,size=1)+labs(title="1500S-2030S",x="Glucose",y="odds ratio(95%CI)")

fit92

**# 3 LDLC**

fit11<-lrm(Diatery~rcs(LDLC,3),x=TRUE,y=TRUE,data=data)

summary(fit11)

confint.default(fit11)

anova(fit11)

AIC(fit11)

dd$limits$LDLC[2] <- 2.31

fit11=update(fit11)

OR<-Predict(fit11,LDLC,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit112<-ggplot()+geom\_line(data=OR,aes(LDLC,yhat),linetype="solid",size=1,alpha=0.7,colour="darkblue")+geom\_ribbon(data=OR,aes(LDLC,ymin=lower,ymax=upper),alpha=0.1,fill="darkblue")

fit112

fit112<-fit112+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=2.31,linetype=2,size=1)+labs(title="1500S-2030S",x="LDLC",y="odds ratio(95%CI)")

fit112

**Group 2：1500S-2700S**

data=read.csv('RCS15-27.csv')

data$Diatery<-factor(data$Diatery,levels=c(1,3),labels=c("1500S","2700S"))

View(data)

head(data)

dd<-datadist(data)

options(datadist='dd')

**# 1 Phase\_angle**

fit5<-lrm(Diatery~rcs(Phase\_angle,3),x=TRUE,y=TRUE,data=data)

summary(fit5)

confint.default(fit5)

anova(fit5)

AIC(fit5)

dd$limits$Phase\_angle[2] <- 6

fit5=update(fit5)

OR<-Predict(fit5,Phase\_angle,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit52<-ggplot()+geom\_line(data=OR,aes(Phase\_angle,yhat),linetype="solid",size=1,alpha=0.7,colour="red")+geom\_ribbon(data=OR,aes(Phase\_angle,ymin=lower,ymax=upper),alpha=0.1,fill="red")

fit52

fit52<-fit52+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=6.0,linetype=2,size=1)+labs(title="1500S-2700S",x="Phase\_angle",y="odds ratio(95%CI)")

fit52

**# 2 Glucose**

fit9<-lrm(Diatery~rcs(Glucose,3),x=TRUE,y=TRUE,data=data)

summary(fit9)

confint.default(fit9)

anova(fit9)

AIC(fit9)

OR<-Predict(fit9,Glucose,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit92<-ggplot()+geom\_line(data=OR,aes(Glucose,yhat),linetype="solid",size=1,alpha=0.7,colour="red")+geom\_ribbon(data=OR,aes(Glucose,ymin=lower,ymax=upper),alpha=0.1,fill="red")

fit92

fit92<-fit92+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=4.98,linetype=2,size=1)+labs(title="1500S-2700S",x="Glucose",y="odds ratio(95%CI)")

fit92

**# 3 LDLC**

fit11<-lrm(Diatery~rcs(LDLC,3),x=TRUE,y=TRUE,data=data)

summary(fit11)

confint.default(fit11)

anova(fit11)

AIC(fit11)

OR<-Predict(fit11,LDLC,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit112<-ggplot()+geom\_line(data=OR,aes(LDLC,yhat),linetype="solid",size=1,alpha=0.7,colour="red")+geom\_ribbon(data=OR,aes(LDLC,ymin=lower,ymax=upper),alpha=0.1,fill="red")

fit112

fit112<-fit112+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=2.1,linetype=2,size=1)+labs(title="1500S-2700S",x="LDLC",y="odds ratio(95%CI)")

fit112

**Group 3：2030S-2700S**

data=read.csv('RCS23-27.csv')

data$Diatery<-factor(data$Diatery,levels=c(2,3),labels=c("2030S","2700S"))

View(data)

head(data)

dd<-datadist(data)

options(datadist='dd')

**# 1 Phase\_angle**

fit5<-lrm(Diatery~rcs(Phase\_angle,3),x=TRUE,y=TRUE,data=data)

summary(fit5)

confint.default(fit5)

anova(fit5)

AIC(fit5)

OR<-Predict(fit5,Phase\_angle,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit52<-ggplot()+geom\_line(data=OR,aes(Phase\_angle,yhat),linetype="solid",size=1,alpha=0.7,colour="orange")+geom\_ribbon(data=OR,aes(Phase\_angle,ymin=lower,ymax=upper),alpha=0.1,fill="orange")

fit52

fit52<-fit52+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=5.8,linetype=2,size=1)+labs(title="2030S-2700S",x="Phase\_angle",y="odds ratio(95%CI)")

fit52

**# 2 Glucose**

fit9<-lrm(Diatery~rcs(Glucose,3),x=TRUE,y=TRUE,data=data)

summary(fit9)

confint.default(fit9)

anova(fit9)

AIC(fit9)

OR<-Predict(fit9,Glucose,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit92<-ggplot()+geom\_line(data=OR,aes(Glucose,yhat),linetype="solid",size=1,alpha=0.7,colour="orange")+geom\_ribbon(data=OR,aes(Glucose,ymin=lower,ymax=upper),alpha=0.1,fill="orange")

fit92

fit92<-fit92+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=4.9,linetype=2,size=1)+labs(title="2030S-2700S",x="Glucose",y="odds ratio(95%CI)")

fit92

**# 3 LDLC**

fit11<-lrm(Diatery~rcs(LDLC,3),x=TRUE,y=TRUE,data=data)

summary(fit11)

confint.default(fit11)

anova(fit11)

AIC(fit11)

OR<-Predict(fit11,LDLC,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit112<-ggplot()+geom\_line(data=OR,aes(LDLC,yhat),linetype="solid",size=1,alpha=0.7,colour="orange")+geom\_ribbon(data=OR,aes(LDLC,ymin=lower,ymax=upper),alpha=0.1,fill="orange")

fit112

fit112<-fit112+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=2.1,linetype=2,size=1)+labs(title="2030S-2700S",x="LDLC",y="odds ratio(95%CI)")

fit112

**# Group 4：2700L-2700S**

data=read.csv('RCSLS.csv')

data$Diatery<-factor(data$Diatery,levels=c(1,2),labels=c("2700L","2700S"))

View(data)

head(data)

dd<-datadist(data)

options(datadist='dd')

**# 1 Phase\_angle**

fit5<-lrm(Diatery~rcs(Phase\_angle,3),x=TRUE,y=TRUE,data=data)

summary(fit5)

confint.default(fit5)

anova(fit5)

AIC(fit5)

dd$limits$Phase\_angle[2] <- 6.02

fit5=update(fit5)

OR<-Predict(fit5,Phase\_angle,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit52<-ggplot()+geom\_line(data=OR,aes(Phase\_angle,yhat),linetype="solid",size=1,alpha=0.7,colour="darkblue")+geom\_ribbon(data=OR,aes(Phase\_angle,ymin=lower,ymax=upper),alpha=0.1,fill="darkblue")

fit52

fit52<-fit52+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=6.02,linetype=2,size=1)+labs(title="2700L-2700S",x="Phase\_angle",y="odds ratio(95%CI)")

fit52

**# 2 Glucose**

fit9<-lrm(Diatery~rcs(Glucose,3),x=TRUE,y=TRUE,data=data)

summary(fit9)

confint.default(fit9)

anova(fit9)

AIC(fit9)

dd$limits$Glucose[2] <- 5.0

fit9=update(fit9)

OR<-Predict(fit9,Glucose,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit92<-ggplot()+geom\_line(data=OR,aes(Glucose,yhat),linetype="solid",size=1,alpha=0.7,colour="darkblue")+geom\_ribbon(data=OR,aes(Glucose,ymin=lower,ymax=upper),alpha=0.1,fill="darkblue")

fit92

fit92<-fit92+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=5.0,linetype=2,size=1)+labs(title="2700L-2700S",x="Glucose",y="odds ratio(95%CI)")

fit92

**# 3 LDLC**

fit11<-lrm(Diatery~rcs(LDLC,3),x=TRUE,y=TRUE,data=data)

summary(fit11)

confint.default(fit11)

anova(fit11)

AIC(fit11)

OR<-Predict(fit11,LDLC,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit112<-ggplot()+geom\_line(data=OR,aes(LDLC,yhat),linetype="solid",size=1,alpha=0.7,colour="darkblue")+geom\_ribbon(data=OR,aes(LDLC,ymin=lower,ymax=upper),alpha=0.1,fill="darkblue")

fit112

fit112<-fit112+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=2.05,linetype=2,size=1)+labs(title="2700L-2700S",x="LDLC",y="odds ratio(95%CI)")

fit112

**# Group 5：2700L-2700H**

data=read.csv('RCSLH.csv')

data$Diatery<-factor(data$Diatery,levels=c(1,3),labels=c("2700L","2700H"))

View(data)

head(data)

dd<-datadist(data)

options(datadist='dd')

**# 1 Phase\_angle**

fit5<-lrm(Diatery~rcs(Phase\_angle,3),x=TRUE,y=TRUE,data=data)

summary(fit5)

confint.default(fit5)

anova(fit5)

AIC(fit5)

OR<-Predict(fit5,Phase\_angle,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit52<-ggplot()+geom\_line(data=OR,aes(Phase\_angle,yhat),linetype="solid",size=1,alpha=0.7,colour="red")+geom\_ribbon(data=OR,aes(Phase\_angle,ymin=lower,ymax=upper),alpha=0.1,fill="red")

fit52

fit52<-fit52+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=5.75,linetype=2,size=1)+labs(title="2700L-2700H",x="Phase\_angle",y="odds ratio(95%CI)")

fit52

**# 2 Glucose**

fit9<-lrm(Diatery~rcs(Glucose,3),x=TRUE,y=TRUE,data=data)

summary(fit9)

confint.default(fit9)

anova(fit9)

AIC(fit9)

OR<-Predict(fit9,Glucose,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit92<-ggplot()+geom\_line(data=OR,aes(Glucose,yhat),linetype="solid",size=1,alpha=0.7,colour="red")+geom\_ribbon(data=OR,aes(Glucose,ymin=lower,ymax=upper),alpha=0.1,fill="red")

fit92

fit92<-fit92+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=4.72,linetype=2,size=1)+labs(title="2700L-2700H",x="Glucose",y="odds ratio(95%CI)")

fit92

**# 3 LDLC**

fit11<-lrm(Diatery~rcs(LDLC,3),x=TRUE,y=TRUE,data=data)

summary(fit11)

confint.default(fit11)

anova(fit11)

AIC(fit11)

OR<-Predict(fit11,LDLC,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit112<-ggplot()+geom\_line(data=OR,aes(LDLC,yhat),linetype="solid",size=1,alpha=0.7,colour="red")+geom\_ribbon(data=OR,aes(LDLC,ymin=lower,ymax=upper),alpha=0.1,fill="red")

fit112

fit112<-fit112+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=2.0,linetype=2,size=1)+labs(title="2700L-2700H",x="LDLC",y="odds ratio(95%CI)")

fit112

**Group 6：2700S-2700H**

data=read.csv('RCSSH.csv')

data$Diatery<-factor(data$Diatery,levels=c(2,3),labels=c("2700S","2700H"))

View(data)

head(data)

dd<-datadist(data)

options(datadist='dd')

**# 1 Phase\_angle**

fit5<-lrm(Diatery~rcs(Phase\_angle,3),x=TRUE,y=TRUE,data=data)

summary(fit5)

confint.default(fit5)

anova(fit5)

AIC(fit5)

OR<-Predict(fit5,Phase\_angle,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit52<-ggplot()+geom\_line(data=OR,aes(Phase\_angle,yhat),linetype="solid",size=1,alpha=0.7,colour="orange")+geom\_ribbon(data=OR,aes(Phase\_angle,ymin=lower,ymax=upper),alpha=0.1,fill="orange")

fit52

fit52<-fit52+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=5.8,linetype=2,size=1)+labs(title="2700S-2700H",x="Phase\_angle",y="odds ratio(95%CI)")

fit52

**# 2 Glucose**

fit9<-lrm(Diatery~rcs(Glucose,3),x=TRUE,y=TRUE,data=data)

summary(fit9)

confint.default(fit9)

anova(fit9)

AIC(fit9)

OR<-Predict(fit9,Glucose,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit92<-ggplot()+geom\_line(data=OR,aes(Glucose,yhat),linetype="solid",size=1,alpha=0.7,colour="orange")+geom\_ribbon(data=OR,aes(Glucose,ymin=lower,ymax=upper),alpha=0.1,fill="orange")

fit92

fit92<-fit92+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=4.77,linetype=2,size=1)+labs(title="2700S-2700H",x="Glucose",y="odds ratio(95%CI)")

fit92

**# 3 LDLC**

fit11<-lrm(Diatery~rcs(LDLC,3),x=TRUE,y=TRUE,data=data)

summary(fit11)

confint.default(fit11)

anova(fit11)

AIC(fit11)

OR<-Predict(fit11,LDLC,fun=exp,ref.zero=TRUE)

OR

ggplot(OR)

fit112<-ggplot()+geom\_line(data=OR,aes(LDLC,yhat),linetype="solid",size=1,alpha=0.7,colour="orange")+geom\_ribbon(data=OR,aes(LDLC,ymin=lower,ymax=upper),alpha=0.1,fill="orange")

fit112

fit112<-fit112+theme\_classic()+geom\_hline(yintercept=1,linetype=2,size=1)+geom\_vline(xintercept=1.87,linetype=2,size=1)+labs(title="2700S-2700H",x="LDLC",y="odds ratio(95%CI)")

fit112