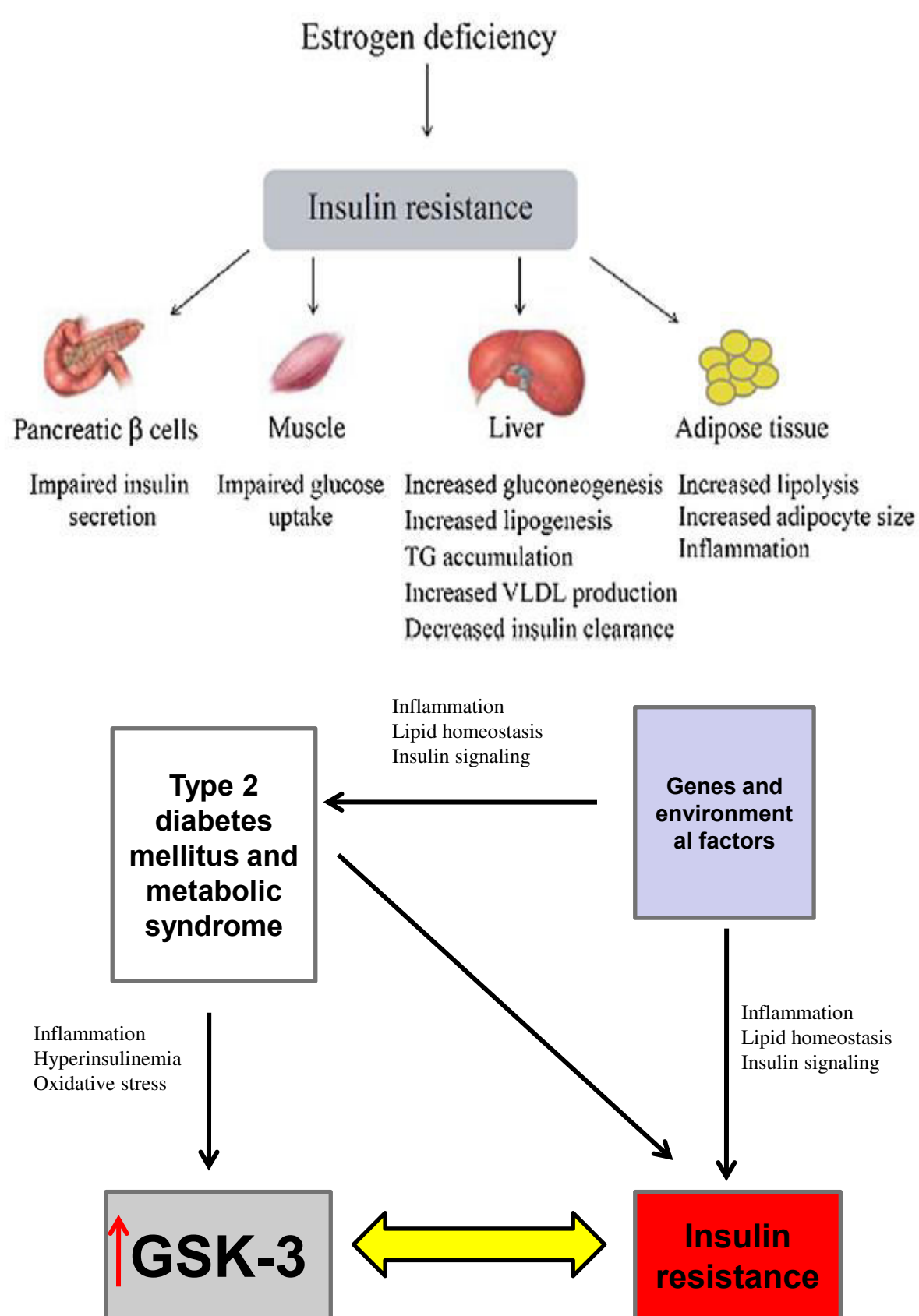


Oluwaseun A. Adeyanju^{1,2}, Lawrence A. Olatunji¹, Ayodele O. Soladoye¹

¹Cardiovascular Physiology unit, Department of Physiology, University of Ilorin, Ilorin, Nigeria &

²Cardiometabolic Research unit, Department of Physiology, Afe Babalola University, Ado-Ekiti, Ekiti State, Nigeria

Background



Adapted from Yarchoan and Arnold; Diabetes 2014;63:2253-2261

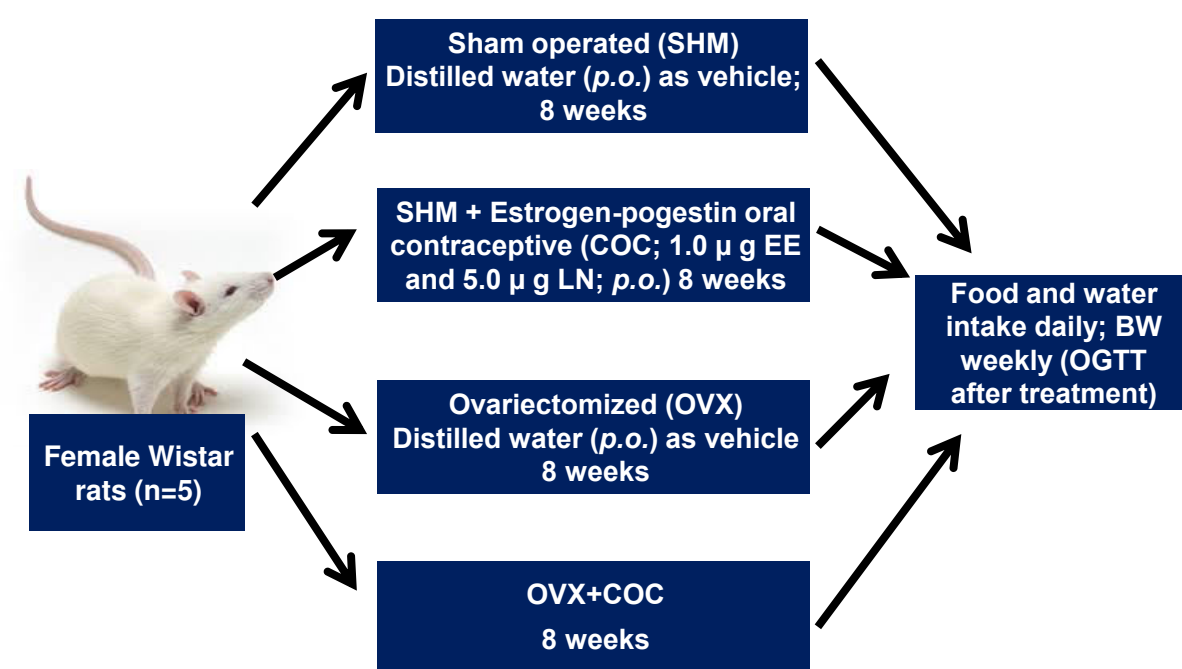
❖ Combined oral contraceptives (COCs) are used by over 100 million women around the world and remain one of the most effective reversible contraceptive methods, although its negative impact remains unresolved (Tanis *et al.*, 2001)

Aim

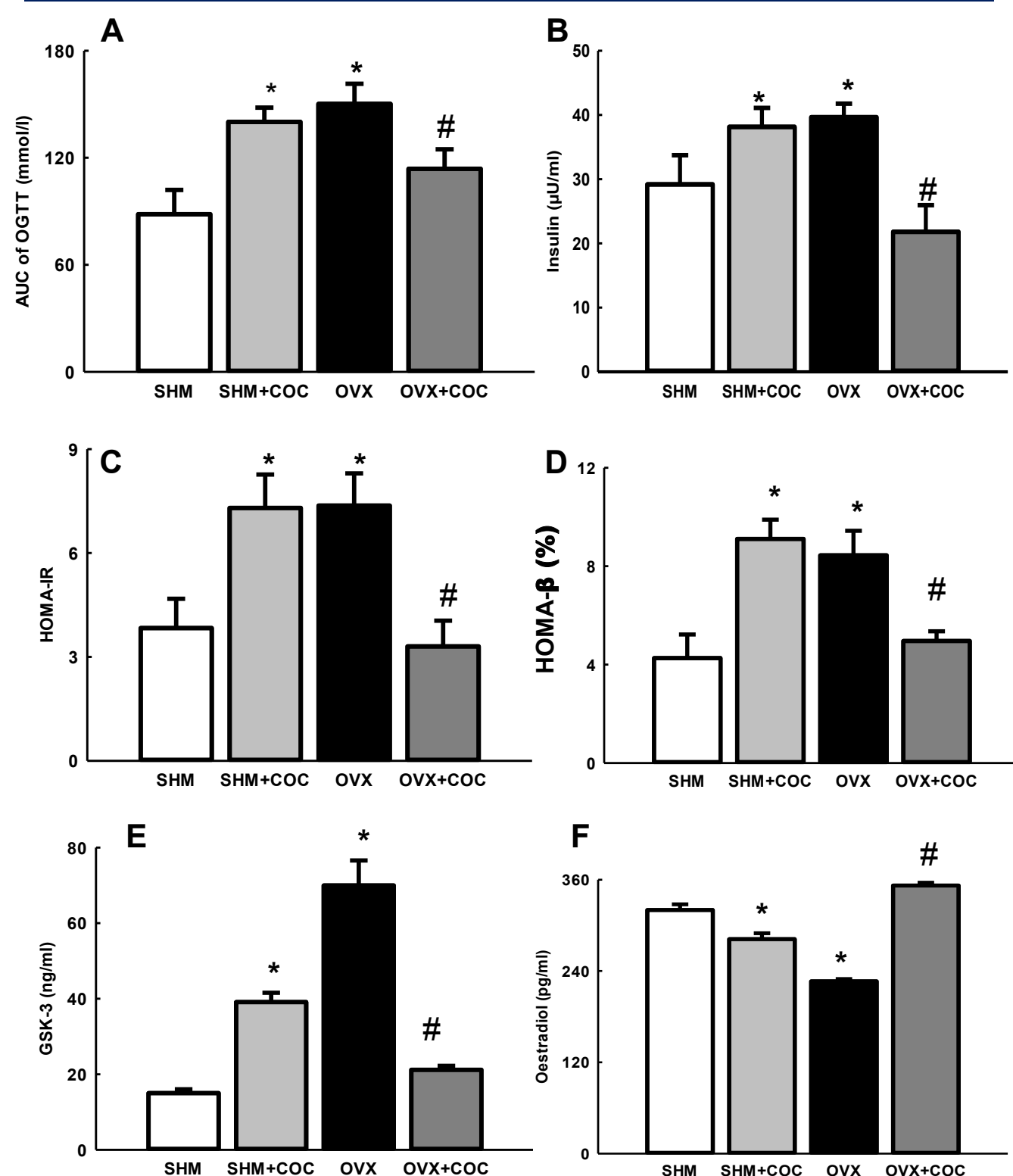
We hypothesized that COC will ameliorate IR, pancreatic- β cell dysfunction and elevated glycogen synthase kinase-3 (GSK-3) through repletion of estrogen in ovariectomized rats.

Materials and Methods

IR was estimated using homeostatic model assessment (HOMA) whereas homeostatic model of assessment of β -cell (HOMA- β) and 1hr post-load glucose level were estimated as pancreatic β -cell dysfunction.



Results



Effect of COC on glucose tolerance (A); insulin level (B); IR (C); pancreatic β -cell function (D); GSK-3 (E) and estradiol (F)

Conclusion

These results showed that ovariectomized (OVX) rats developed IR that is accompanied by pancreatic β -cell dysfunction, impaired glucose tolerance, hyperinsulinemia, elevated GSK-3 and depleted estrogen level. Surprisingly however, treatment with COC repleted the estrogen level in OVX rats, thereby ameliorating GSK-3, impaired glucose tolerance, IR and pancreatic β -cell dysfunction. In conclusion, this study suggests a positive effect of COC in estrogen deficient state.