INTRODUCTION

It's now widely accepted that the adipose tissue is more than just a passive reservoir for excess energy. It's a highly active endocrine organ secreting a range of bioactive peptides, called collectively adipokines, they include for examble: leptin, resistin, tumor necrosis factorα and vesfatin. Some of these are implicated in carbohydrate and fat metabolism, vascular homeostasis and immune response ***(Steppan et al., 2001).***

Adiponectin is an adipokine that specifically and abundantly expressed in the adipose tissue. It functions *in vivo* as insulin sensitizer in addition to fatty acid oxidation in skeletal muscle and glucose homeostasis, ***(Berg et al., 2001 and Combs et al., 2002)***.

Adiponectin has now been added on the list as a new and a very exciting player in the field of obesity related insulin resistance as its production and concentration actually decrease in obesity ***(Tsao et al., 2002).***

The association between obesity and adiponectin deficiency represents a very important step in the understanding of obesity related insulin resistance ***(Haluzik et al., 2004)***.

Recently 2 types of adiponectin receptors have been cloned, adiponectin receptor 1(Adipo R1) which is mainly expressed in skeletal muscle and adiponectin receptor 2 (Adipo R2) which is mainly expressed in the liver. Finding that inhibition of adiponectin receptor expression results in suppression of glucose uptake suggesting that the proposed effect on the glucose homeostasis and insulin sensitivity might be

regulated by the expression level of adiponectin receptors ***(Yamauchi et al., 2003).***

Interestingly the insulin sensitizing effects of exercise have similar metabolic effects as adiponectin in that exercise also promotes glucose uptake into the muscle and increase fatty acid oxidation ***(Vivian et al., 2007).***

AIM OF THE WORK

This work aimed at:

1-Determining the effect of increased physical activities on insulin resistance.

2-Determining if this effect is modulated through adiponectin receptors expression.