

A PROPOSED SCORING SYSTEM FOR QUANTIFICATION OF METABOLIC SYNDROME SEVERITY

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ABSTRACT

Metabolic syndrome (MetS) is a significant risk factor for cardiovascular disease, type 2 diabetes, and mortality. Currently, there is no established tool to quantify severity of MetS. Furthermore, it is unclear which trait(s) contribute the most to MetS presence. **PURPOSE:** The aims of the current study were to establish a scoring system for assessing presence and severity (number of traits) of MetS and to determine the most influential contributor to the incidence of MetS. **METHODS:** Overweight and sedentary adults (N=208) were obtained from previous exercise intervention studies. Measurements were obtained for the following traits: waist circumference (WC), fasting glucose (FG), high density lipoprotein cholesterol (HDL-C), systolic blood pressure (SBP), triglycerides (TG), body mass index (BMI), C-reactive protein (CRP), tumor necrosis factor α (TNF α), percent body fat (% fat) and aerobic capacity (VO₂max). Two MetS scoring systems were formulated: one including all five current NCEP ATP III MetS criteria (5score) and one including all 10 variables (10score). **RESULTS:** Both 5score ($r^2=0.74$) and 10score ($r^2=0.23$) were significant predictors of MetS severity (both $p<0.0001$). Traits contributed to MetS in the following order: for women, HDL-C>FG>TG>SBP>WC, for men, TG>FG>WC>SBP>HDL-C, and combined TG>FG>HDL-C>SBP>WC. **CONCLUSIONS:** 5score and 10score are significant predictors of MetS presence and severity. MetS traits behave differently between genders. HDL-C is the most influential contributor to incident MetS in women, whereas TG is the most influential factor in men and combined genders.