

## **COMBINED EFFECTS OF OBESITY, ALCOHOL AND SMOKING HABIT ON SEMEN QUALITY**

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Several factors have been identified as detrimental for sperm physiology (i.e. tobacco, alcohol, obesity, endocrine disruptors, etc); however, none of them can justify seminal decline by itself. Therefore, the objective of this study was to retrospectively evaluate the combined effects of obesity and tobacco/alcohol consumption on semen quality of men who attended an andrology laboratory in Argentina. Patients (n=2483) were not azoospermic and had no history of toxin exposure (pesticides, radiations, etc) genitourinary diseases or surgeries. Data were analyzed by MANCOVA test, age and abstinence were used as co-variables, and body mass index (normal, overweight or obese), tobacco ( no smoker or smoker) and/or alcohol consumption (non-drinker, moderate drinker -1 glass/day- and heavy drinker -2 to 5 glasses/day-) were used as factors.

The combined effects of obesity and heavy-drinking habit significantly ( $p= 0.0024$ ) diminished semen volume ( $2.1\pm 0.3$ ml,  $n=22$ ) in contrast to the other groups (obese non-drinkers:  $3.0\pm 0.1$ ,  $n=395$ ; normal non-drinkers  $3.2\pm 0.2$ ,  $n=77$ ) with significantly higher values for the normal/moderate drinkers group ( $3.8\pm 0.2$ ,  $n=55$ ). Similar results were observed for total sperm count ( $p=0.0088$ ), yielding the lowest values in obese drinker patients (obese heavy drinkers:  $92.2\pm 29.5$  sperm/ejaculate,  $n=22$ ) and the highest values in normal/moderate non-drinkers ( $223.4\pm 18.6$ ,  $n=55$  and  $161.3\pm 8.76$ ,  $n=647$  respectively). Smoking habit did not seriously affect semen quality; nevertheless obese

smokers showed longer ( $p=0.0262$ ) histories of sterility than other groups (obese smokers:  $3.2\pm 0.3$  years,  $n=98$ ; obese non-smokers:  $2.1\pm 0.3$ ,  $n=352$ ; normal non-smokers:  $2.5\pm 0.2$ ,  $n=619$ ).