

Jordan University of Science and Technology

Effect of fresh pomegranate juice on the level of melatonin, insulin, and fasting serum glucose in healthy individuals and people with impaired fasting glucose

Authors: Saleem A Banihani, Reham A Fashtaky, Seham M Makahleh, Zeyad J El-Akawi, Omar F Khahour, Nesreen A Saadeh

Abstract: Pomegranate juice (PGJ) is rich in unique bioactive compounds that can be used in the management of various diseases/disorders such as cancer, heart disease, Alzheimer disease, hypertension, and diabetes. Here, we aimed to investigate the effects of fresh PGJ on levels of melatonin, insulin, and fasting blood glucose in people with impaired fasting glucose (IFG). The study was a randomized clinical trial in which 28 participants (10 males, 18 females) with IFG were recruited from Irbid Central Laboratory and the Diabetes Clinic of the University Hospital at Jordan University of Science and Technology. Blood specimens from each participant were collected before (15 min), and 1 and 3 hr after PGJ administration at 1.5 ml/kg of the body weight, and melatonin, insulin, and glucose were measured. People with IFG, but not healthy individuals, had significant antihyperglycemic response ($p < .0001$) to PGJ 3 hr after ingesting the juice. This response was not correlated with the age of participants ($p = .4287$). In addition, homeostatic model assessment of insulin resistance was significantly decreased ($p < .0001$) among people with IFG 3 hr after ingesting the juice. Moreover, 1 hr after PGJ administration, decreases in melatonin and increases in insulin were significantly observed among healthy ($p = .0284$, $p = .0017$) and IFG ($p = .0056$, $p = .0007$) individuals, respectively. In conclusion, fresh PGJ lowers melatonin, increases the level of insulin, and ameliorates insulin resistance in people with IFG.