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## Risk factors of pregnancy incidence before 20 years old in Indonesia in 2016 (Article)

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### Abstract

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Young age pregnancy is an important public health problem, due to its high association with mortality and morbidity for both mother and the child and also reflect the country's welfare. Teenage mother often have problems related to labor or postpartum period. Lack of knowledge can be caused by low education, which create barrier upon receiving message. Highly educated people tend to have more information, from other people as well as press, and they're also more open to new value compared to less educated people. Marriage below 20 years increase the odd of pregnancy before 20 years. Knowledge about contraceptives is crucial and related to Maturing Age of Marriage programe. Problems in Maturing Age of Marriageprograme will increase pregnancy below 20 years rate. Descriptive analysis related to pregnancy risk factors below 20 years old is needed throughout Indonesia. © 2019, Indian Journal of Public Health Research and Development. All rights reserved.

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# Effects of Serum Ferritin and White Blood Cell on Overweight and Obesity in South Korean Adults

Hea Shoon Lee

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## Abstract

The purpose of this study was to determine the difference between WBC and ferritin in according to obesity level in Korean adults. This study was performed the 5,281 subjects older than 19 years. Data were analyzed using descriptive statistics, ANOVA,  $\chi^2$ -test, Scheffe's test, Pearson correlation coefficient and logistic regression analysis. The ferritin in showed higher in the obesity, overweight than the normal weight. The WBC was highest in obesity, followed by overweight, and the lowest in the normal weight. Second, BMI was positively correlated with ferritin in and WBC. Third, The ferritin was greater than normal weight in overweight 1.01 times and obesity 1.03 times. WBC was greater than normal weight in overweight 1.07 times and obesity 1.19 times. Obesity and overweight were associated with ferritin and WBC. Thus, intervention for ferritin and WBC should be included in the obesity management and prevention program for Korean adult.

**Keywords:** Adult, Body mass index, Ferritins, White Blood Cells.

## Introduction

Obesity is a global health problem, 600 million adults are obese in 2014.<sup>1</sup> Raised BMI is a major risk factor for non-communicable diseases, which were the leading cause of death.<sup>2</sup> The obesity was classified as a “disease” in 2013 by the American Medical Association.<sup>3</sup> Obesity is risk factors for ischemic heart disease, diabetes, metabolic syndrome et al.<sup>4</sup> In addition, the increase in the occurrence of iron deficiency (ID) and iron deficiency anemia (IDA), obesity also increases the social and economic burden.<sup>5</sup> Obesity people persisted in subclinical inflammation, leading to ID, malignancy, and so forth.<sup>6-8</sup>

Serum ferritin is used as a marker of iron deficiency.<sup>9</sup> Serum ferritin levels are present in abnormal conditions because they are acute phase reactants, serum ferritin levels are high in obesity, which are generalized inflammatory conditions.<sup>10</sup> For this reason, the use of serum ferritin as a marker of ID or IDA in obese is controversial.<sup>11</sup> The inflammation caused by the increase of the adiposity will be suggested as a link between iron status and obesity.<sup>12</sup> Among the many metabolic activities of obesity, high BMI is associated with incompatibility of iron parameters.<sup>13,14</sup> Obesity of

chronic inflammation showed low iron status.<sup>15</sup> Physical activity may be another factor associated with body iron reduction in obesity.<sup>16</sup>

The WBC is needed to protect against invading organisms and the immune system.<sup>17,18</sup> There is strong evidence for a link between obesity and increased WBC count.<sup>19,20</sup> Obesity is also associated with increased leptin levels.<sup>21</sup> WBC has a positive correlation with percentage body fat and leptin concentrations.<sup>22</sup>

The relationship between serum ferritin and WBC has been extensively studied as a subject of foreign obesity,<sup>15,16,19-22</sup> but there are few studies of obesity in Korea. In particular, studies investigating the difference in serum ferritin and WBC in overweight and obese are rare.

In this study, we suggested a fundamental data of adult obesity prevention and management program by identifying the relationship between BMI, serum ferritin and WBC.

## Materials and Method

**Research Design:** This study is a descriptive survey study which attends a secondary analysis of the

# Effect of Zirconium Oxide and Yttrium oxide Nanoparticles on Plant Germination of *Cucumis Sativus*

Alyaa Muhsin Yousif<sup>1</sup>, Sundus Hameed Ahmed<sup>1</sup>, Rasha Saad Nuaman<sup>1</sup>, Isam Hussain T. Al-Karkhi<sup>2</sup>

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## Abstract

Nanoparticles of earth metal oxides were widely used and applied in agriculture, precisely in germination. In this study Yttrium oxide and Zirconium oxide were used in the germination of *Cucumis* seeds. The seeds were immersed in sterile water or metal oxide nanoparticles (NPs) suspensions for 2 hrs, fourteen treatments were done, then every ten seeds were transferred into a Petri dish with a filter paper on the each Petri dish. The germination was conducted in dark at 25 °C for 5 days. After that, the germination rate, the root length and shoot length were measured and it was found that Zirconium + Gibberiline gave the best parameters in comparison with the other treatment. The mechanism of metal oxide NP phytotoxicity is related to the NP species, test plants, concentration, chemical composition, surface modification and particle size of the nanoparticles itself.

**Keywords:** *Cucumis sativus*, germination, Yttrium oxide, Zirconium oxide.

## Introduction

The effect of Manufactured Nanomaterials MNMs on diverse plants types can differ significantly, and there are reports of both positive and negative effects. Among positive effects, it can speed up the germination and growth was promoted by a mixture of nano-sized materials oxides due to its ability silicon to absorb water and fertilizer, and stimulated the antioxidant system<sup>(1-3)</sup>.

Yttrium oxide (Y<sub>2</sub>O<sub>3</sub>), and Zirconium oxide (ZrO<sub>2</sub>) are important oxides along with rare earth compounds, it has been actively studied in the recent years, and were considered as the most promising elements for commercial products, cosmetics, medicine, as well as agriculture. In addition to that, it is widely used as a host material for various rare earth dopant and is of interest for potential applications in biological imaging as well as photodynamic therapy<sup>(4,5)</sup>. Nanoparticles

of ZrO<sub>2</sub> uses in the manufacture of dentures and cosmetic fillings. Therefore, it is necessary to produce new antibiotics without side effects such as particles of ZrO<sub>2</sub> nanoparticles that can inhibit a wide range of microorganisms<sup>(6,7)</sup>.

Cucumber fruit is composed generally of water; more than 96% as well as other constituents such as vitamins, minerals, amino acids, phytosterols, phenolic acids, fatty acids, traces of essential oil, pectins, vitamin C, and other useful compounds which enable it for a wide pharmaceutical applications<sup>(8)</sup>.

In this study the researchers used manufactured Nanomaterials (MMNs) to enhance the germination of cucumber seeds and minimize the toxic effect of soil on the seeds to ensure a smooth and healthy growth.

## Material and Method

**Chemicals:** Nanoparticle (Zirconium and Yttrium) bought from the local market, Naphthol Acetic Acid (NAA), Indol acetic acid (IAA) and Gibberellin.

**Seed Germination:** For germination, the seeds *Cucumis* were surface sterilized by soaking in 70% ethanol for 2 min. Then the seeds were rinsed with sterile water several times to remove any remaining ethanol.

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