

**PENGARUH SUPLEMENTASI ZAT BESI DAN ZINC TERHADAP
KADAR Hb DAN KESEGERAN JASMANI REMAJA PUTRI
YANG ANEMIA DEFISIENSI BESI (STUDI KASUS SISWI SMK NEGERI
8 MATARAM – NTB)**

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ANAEMIA; SUPPLEMENTATION HAEMOGLOBIN

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SUMMARY

**Effect of Iron and Zinc Supplementation on Haemoglobin and Physical Fitness of
Anemic Girl Adolescent (Case Study in SMK Negeri 8 Mataram)**

Anaemia on girl adolescent still be a nutrition problem in the world, especially in development countries. Health office of Mataram city government, province Nusa Tenggara Barat, Indonesia, have not decrease prevalence of anemic adolescent successly, because on 2003 the prevalence is 22% and from the lastest data, (2008) it is 25,36%. They have been doing suplementation of iron to the sufferer. Anaemia came to a man if he has low haemoglobin (Hb) rate in blood. The causes are bleeding, low nutrition especially iron, and chronic desease. Adolescent girl is high risk of it, because they have menarche and high requirement of iron as element to growth. Mostly, they have low consume iron because of bad food consumption. For increase rate of Hb, we need consume more iron because iron is a former of it. But not all iron can be absorbsed by body. There are factors to make it succes, one of them is zinc as trace element essensial for body. Zinc helps iron form the Hb by makes transferrin for transport iron to the place that needs. Anaemia have bad effect for physical fitness, because to doing something we need enough haemoglobin to bind O₂. That is why, iron and zinc are important things for haemoglobin and physical fitness of human. This study aims to analyze the effect of iron suplementation and iron plus zinc suplementation on haemoglobin and physical fitness of girl adolescent. And it also studied to find the difference of two kind of that suplementation's effect. The other side of aims are we know characteristic of anemic girl adolescent include their food habbit and fitness physical conditons. This study is randomized true experimental study using pre test post test control group design with a double blind of treatment. The research population is all girl students of class X and XI SMKN 8 Mataram with inclusive criteria are aged 15 until 18 years, not obesity, Hb < 12 mg/dl, and not surefer of chronic disease. Subjects chosen by randomized simple sampling (n = 28) in two groups, control group received 15 mg iron plus placebo and treatment group received 15 mg iron plus 15 mg zinc for 12 weeks intermittent day suplementation. The data retrieved are weight and height. It also conducted check blood for knowing haemoglobin rate or to know anemic status. To know about physical fitness condition, we use harvard step up test. To know the consumption pattern and level consumption, we use food frequency and 2 x 24 hours recall method. The results showed that suplementation with iron or iron plus zinc significantly improved haemoglobin rate and IKB or physical fitness. For haemoglobin, the effect of suplementation is no diferrence significantly between control and treatment group, but there is significantly difference on physical fitness of both groups. Although no difference by statistic test, the

increased of haemoglobin rate is difference of both groups in fact. Treatment group's increased rate is higher than control group in haemoglobin and physical fitness. In this research, we concluded that by added zinc to iron supplementation can be increase the Hb rate and physical fitness more higher than iron supplementation without zinc. But, for anaemia its need enough just iron supplementation because the difference of increasing Hb rate is no signifikan between added zinc or not.

ABSTRACT

Anaemia iron deficiency on girl adolescent still be a nutrition problem in the world, especially in development countries. There is supplementation iron program in Mataram to decrease prevalence anaemia on girl adolescent but it is have not success yet. Adolescent girl is high risk of anaemia, because they have menarche, high requirement of iron as element to growth, and mostly low consume micronutrient because of bad food consumption. Zinc helps iron to form haemoglobin by makes transferrin for transport iron to the place that needs. Anaemia have bad effect for physical fitness, because to doing something we need enough haemoglobin to bind O₂. Iron and zinc are important things for haemoglobin and physical fitness of human. The purpose of this study was to analyze the effect of iron supplementation and iron plus zinc supplementation on haemoglobin and physical fitness of girl adolescent. This study is randomized true experimental study using pre test post test control group design with a double blind of treatment. The research population is all girl students of class X and XI SMKN 8 Mataram with criteria inclusive are aged 15 until 18 years, not obesity, Hb < 12 mg/dl, and not sick. Subjects chosen by randomized simple sampling (n = 28) in two groups, control group received 15 mg iron plus placebo and treatment group received 15 mg iron plus 15 mg zinc for 12 weeks intermittent day supplementation. The results showed that supplementation with iron or iron plus zinc significantly improved haemoglobin rate (p = 0,000 for each group) and IKB or physical fitness (p = 0,002 for control group and p = 0,001 for treatment group). For haemoglobin, the effect of supplementation is no difference significantly between control and treatment group (p = 0,275) and for physical fitness there is difference of both groups (p = 0,001). Although no difference by statistic test, the change of haemoglobin rate is difference of both groups in fact. Treatment group's increasing rate is higher than control group in haemoglobin and physical fitness. It was concluded that by added zinc to iron supplementation can be increase the Hb rate and physical fitness more higher than iron supplementation without zinc. For anemic adolescent, they need enough iron supplementation because the difference of increasing Hb rate is no signifikan between added zinc or not. With such efforts, it suggests to need nutrition education program to follow iron supplementation.

Keywords: anaemia iron deficiency, physical fitness, girl adolescent, iron, zinc.