

# Health Improvement after Childbirth with Traditional Snack Consumption

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## ABSTRACT

**Background:** After giving birth, most mothers complain of pain, so they are not fit. Traditional ingredients is usually consumed by postpartum mothers to restore health, but no research has been carried out to find the effectiveness. The study aimed to determine the effect of consuming traditional food called *kekerit* on fitness by using rats before applied further to human beings.

**Method:** The study was conducted using *randomized pre-post test control group design* on female, white rats that were made pregnant and waited until delivery. The sample was 18 rats consisting of 9 treatment groups and nine control groups. The study was conducted at the Laboratory of the Faculty of Veterinary Medicine, Bogor Agricultural University of Indonesia by assessing fitness through swimming three times on days 1, 5 and 11, and then the data were analyzed by employing *t-test*.

**Results:** The mean swimming pool of intervention rats  $101.00 \pm 6.65$  seconds compared to controls  $68.65 \pm 6.58$  seconds on the first day and there was a significant difference in the fitness of rats with  $p= 0.039$ .

**Conclusion:** Upon successful completion test on rats, the health of postpartum mothers may be accelerated to recover after consuming *kekerit*, but further research is needed to examine the feasibility.

**Keywords:** *Fitness, Strength, Post-Partum, traditional snack*

## INTRODUCTION

After giving birth as many as 76% of women experience at least one health problem within eight weeks after giving birth. Feeling discomfort in the form of pain after childbirth, excessive sweating, breast swelling, constipation, hemorrhoids and perineal pain<sup>(1)</sup>. Overcoming this problem some people believe in doing taboos<sup>(2)</sup>. Perform rituals or drink concoctions so that they can improve health and strengthen the body<sup>(3)</sup>.

The culture of drinking potions, usually herbs, especially Javanese people in Indonesia, is believed

to be efficacious as a traditional treatment that is safer and cheaper compared to modern medicine. Mothers do this during pregnancy, childbirth, and breastfeeding by 80.5% every day to drink it as an effort to maintain health<sup>(4)</sup>. This habit occurs in postpartum mothers, especially the Sundanese in the Permu Immigration Village, Kepahiang District, Bengkulu Province, in the form of consuming *kekerit* as a snack that is believed to be able to restore health during the postpartum.

*Kekerits snack* is a traditional powdered food consumed during childbirth consisting of grains, discoveries, cooking spices and leaves, roots or stems. Ingredients consist of the keratin grain the form of: *Oryza sativa*, *Arachis hypogaea* L, *Phaseolus radiatus* L, *Glycine max*, and a little *Zea mays* ssp. Mays. The herbs and spices: *Zingher officinale* rocs, *Kaempferia galangal* L, *Curcuma domestica* Val, as well as Various

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spices: *Myristica fragrans* Hout, *Ammonium cardamom* and other leaves such as medicinal plants <sup>(5)</sup>.

*Kekerit* Snacks have been prepared and made by parents or family since the age of pregnancy over seven months. The way to make it is still simple using all the dried ingredients (the results of drying) are roasted and after being cold pounded until smooth and stored in a jar to be ready to be served. This habit has been passed down from generation to generation, originally from the Sundanese but because of its efficacy, other tribes such as Java, and the Serawai or Rejang tribes from the Bengkulu province also followed, thus becoming the local wisdom of this village <sup>(6)</sup>.

The paradigm that develops in today's society, consuming *kekerit* as a traditional herb is felt to be beneficial which is harmless and has no side effects. This assumption is not entirely correct, for that there needs to be scientific proof through clinical trials using experimental animals such as a rat. The existence of these tests is expected to be able to find out the benefits of creaking in improving health, especially fitness. The purpose of this study was to determine the effect of consumption of snacks *kekerit* by a rat on physical fitness after childbirth.

## METHOD

This research was conducted by *randomized pre-post test control group design*, which is to perform fitness tests in the treatment group by giving extra food *kekerit* while the control consumed only food standard ration from the Food and Drug Supervisory Board of the Republic of Indonesia (BPOM RI). The research was carried out at the Laboratory of the Faculty of Veterinary Medicine, Bogor Agricultural University, from April to September 2016. Samples were used by rat *Striped Sprague Dawley* female who had given birth to 18 children, aged 2.5-3 months, weighing 150-300grams.

Each experimental group was divided into 3 for observation of fitness on days 1, 5 and 11 in the control group or treatment through swimming test. The fitness test is carried out using rat swimming in a rectangular tub filled with water. Each mouse swims three times and counts in seconds from starting to swim to being unable to swim.

Before the treatment, rats were acclimatized for two weeks, and then rats were synchronized lust by using

prostaglandin preparations with the double injection method. After that, the rats have been mated together using a 1: 3 comparison stud. Then the pregnant rat has waited until they give birth within 22-25 days.

Each rat was given a food ration based on the Indonesian Supervisory Food and Drink Board standard and placed in groups with the same environment and treatment, and the room temperature was set with a range of 20-28°C, 50 + 10% humidity and a 12-hour dark-light cycle (RSPCA, 2011). Shortly after giving birth, the rats were weighed and then the treated rats were fed snacks *kekerit* with through the stomach every day with a dose of 0.370 gr/kg body weight as much as one administration at 9-10 is.

## RESULTS

The content of substances Nutritional *Kekerit* Snacks

*Kekerit* snacks laboratory tests have been conducted at Bogor Agricultural Biochemistry at the content of nutrients contained in these foods are as follows:

**Table 1. Substance Nutrient Content**

No.	Component	%
1.	Macro Nutrient	
	a. Substances.Water	4.3% gr
	b. Ash	0.5% gr
	c. Protein	18.7% gr
	d. Fat	38.4% gr
	e. Rough Fiber	0.5% gr
	f. Carbohydrate	5.6% gr
	g. Energy	443 Kcal
2	Vitamins	
	Vitamin A	2.5 mcg / g
3	Analysis of minerals	
	a. Ferum	3.94 mg / g
	b.Zinc	0.22 mg / g
	c. Magnesium	0.02mg / g

Source: Biochemical Laboratory, 2016

Examination of bioactive components is analyzed to see whether there is nothing (qualitative) does not assess how much. Qualitative analysis results detected were flavonoids, triterpenoids, phenol and tannin (Table 2).

**Table 2. Qualitative Analysis of Bioactive Components**

	Qualitative Analysis	Indicators
	a. Alkaloid	Negative
	b. Flavonoids	Positive
	c. Triterpenoid	Positive
	d. Phenol	Positive
	e. Hydroquinone	Negative
	f. Saponin	Negative
	g. Tannins	Positive

### *Kekerit* Snacks Effect Against Rat Physical Activity

Physical healthiness assessment of rats can be seen from the ability to swim and judged by the length of time that can be carried by rats to swim.

**Table 3. Effect of Giving *Kekerit* Snacks Based on Swimming Time**

Day	Parameters	Control	Treatment	<i>p</i> -value
1	Second	68.65 ± 6.58	101.00 ± 6.65	0.039 *
5	Seconds	87.15 ± 18.17	129.50 ± 52.04	0.391
11	Seconds	67.30 ± 9.90	173.15 ± 36.98	0.06

Note: test paired sample *t*-test \* <0.05 = significant

## DISCUSSION

Health for every human being is something important for activities. Fitness, especially from the first day after giving birth can support health, primarily due to pain and fatigue after childbirth<sup>(7)</sup>. Previous research has shown that postpartum mothers are physically active characterized by higher health awareness and can reduce the risk of postpartum depression<sup>(8)</sup>.

The results showed that, the swimming ability of rat given snacks *kekerit* was longer. On the first day of, the control rats were only able to survive swimming for 68.65 seconds while the rats that received *kekerit* snacks were able to survive for 101 seconds. This situation shows that these rats are more fit than control rat, because swimming means being able to do activities and of course in a fit condition<sup>(9)</sup>.

The ability to engage in energy needs, *kekerit* snacks contain 443 calories of energy derived from food in the form of 70% grain. The food is from black sticky rice, peanuts, soybeans, corn which is an energy source. High energy content in this substance can meet the additional food requirements during childbirth and breastfeeding. In the first six months it takes 330 calories of energy, 20

g of protein, 11 g of fat, 45 g of carbohydrate<sup>(10)</sup>. Based on Table.1 *Kekerit* snacks can meet these needs in 100 grams containing 18.7 grams of protein, 38.4 grams of fat, 5.6 grams of carbohydrates and 443 calories. The content of this nutrient can be an additional source of daily nutrients for nursing mothers. Nursing mothers generally feel hungry faster because at the same time the mother must fulfill her nutritional needs and produce milk. *Postpartum* mothers often consume *kekerit* snacks until 40 days postpartum. This high enough energy is good for supporting breastfeeding for babies and preventing supplementary feeding which is usually the reason for mothers not to breastfeed exclusively<sup>(11)</sup>.

The presence of protein in *kekerit* snacks is beneficial in the postpartum period which functions as improving aerobic performance (endurance), increasing anaerobic capacity to increase strength and energy<sup>(12)</sup>. Also, protein is an essential substance for the structure and function of the body and the recovery of reproductive organs during postpartum<sup>(13)</sup>.

The results of previous studies reported that, herbal medicine *Galohgor* contained Fe 0.221 mg, and Zinc 0.34 mg. While this study obtained a higher Fe content,

ie 3.94 mg and Zinc lower than 0.22 mg (Table.1). The need for Fe is 26 mg for breastfeeding mothers with an addition of 6 mg. Iron in food is in the form of iron-hem as in hemoglobin and myoglobin animal foods, and iron-them in plant foods. Iron can be absorbed by the body up to 25%, while ironnonhem can be absorbed by the body only 5%. 100% *kekerit* snack in plant foods, then 0.197 mg is absorbed and if the mother consumes 50 gram *kekerit* snacks per day, about 31% can be fulfilled from *kekerit* and can prevent the occurrence of anemia due to Fe deficiency and such cases often occur in postpartum mothers as much as 50-60%<sup>(14)</sup>.

Flavonoids are beneficial for health as an anti-inflammatory, anti-oxidant and antiproliferative and anticancer activity<sup>(15)</sup>. Flavonoid food sources in *kekerit* snacks come from nuts which are as anti-oxidant<sup>(14)</sup>. In *kekerit* snacks contain spices such as kencur, ginger, turmeric. Ginger and turmeric contain flavonoids and *triterpenoids* (Table 2) can be used as a source of antioxidants and treatment of chronic diseases and mineral deficiencies<sup>(10)</sup>. *Triterpenoid* is a component found in plants that have an odor and can be isolated from plant material which functions to capture free radicals in the human body. One of the ingredients of *kekerit* is *Centella Asiatica* which contains *triterpenoids* which can improve the body's immune system, which contributes to the fitness of post-partum mothers<sup>(16)</sup>.

## CONCLUSION

*Kekerit* snacks tested at the rat can be beneficial to the health of postpartum mothers, supported from existing content in the form of macro-nutrients, vitamins and minerals, and antioxidants. Further testing needs to be done to humans or postpartum mothers so that the immediate effects and benefits are known that *kekerit* is a healthy traditional snack.

**Ethical Clearance:** This research has been carried out and obtained ethical approval from the Health Ministry Polytechnic Research Ethics Commission in Bengkulu (Approval Number: DM.01.04 / 007/3 / V / 2016). The authors would like to thank the laboratory of the Faculty of Veterinary Medicine and the laboratory IPB Biochemistry that has helped in the research process. The assistance provided is meaningful for the completion of this study.

**Conflict of Interest:** The author states that in this study there were no conflicts of interest.

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**Conflict of Interest:** Nil.

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