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Research Article

**CHILDREN QUITTING SOIL EATING HABIT AFTER HAVING
A DIET CONSISTING OF MEAT AND CALCIUM****Hafsa Faizi¹, Muhammad Qaisar¹, Bint e Haider¹, Saeed Ur Rashid Nazir*¹, Misbah Sultana², Ghulam Mustafa¹ and Naeem Qaisar¹**¹Faculty of Pharmacy, University of Sargodha, Sargodha, Pakistan, 40100.²University College of Pharmacy, University of the Punjab, Lahore, Pakistan.**Abstract:**

The objective of this study was to make children quit the habit of soil eating by administering meat, as a source of nutrients like proteins, vitamins and minerals along with oral calcium which can be given in the form of a chewable tablet.

Data of 85 children of both genders was taken having a soil eating habit. On the basis of age children were divided into 3 groups, i.e. children of 2 to 6 years of age, children of 6 to 12 years of age and children above 12 years of age. Children were given one tablespoon of minced meat and a tablet of calcium daily for as long as the child takes to quit the soil eating

This course of treatment was proven to be fairly effective. The reason for this success was the fact that the cause behind soil eating is the body's requirement for certain nutrients (e.g. Anemic people have been reported to have such a habit, cause being iron deficiency) and soil or clay has all these nutrients, i.e. iron, calcium, zinc, proteins, vitamins etc. and so this need can also be fulfilled through a diet of meat and additional administration of calcium.

Results showed that children of ages 2 to 6 years quit the soil eating habit the fastest in which males quit in 10 days while females in 12 days.

Keywords: *Soil eating habit, Oral Calcium, Vitamin and Protein.*

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INTRODUCTION:

Pica is characterized by an appetite for substances largely non-nutritive and substances not culturally defined as food such as ice, clay, chalk, dirt, or sand [1]. The exact cause of pica is not clear, but it has been associated with mineral deficiencies like iron, zinc [2, 3]. Pica is of public health interest because of its potential positive and negative health consequences [4-6]. In terms of benefits, it may protect against harmful pathogens and toxins; quell nausea, vomiting and diarrhea or contribute beneficial nutrients. Pica may also be harmful, by reducing the bioavailability of beneficial nutrients, introducing toxic substances, or by acting as a vector for geohelminth infection. Further, it is of public health interest because it is highly prevalent among the most biologically vulnerable populations: pregnant women and children [7]. One reason that pica remains poorly understood is that neither its prevalence nor social and biological correlates have been well characterized. Pica is frequently either overlooked by researchers, concealed by consumers, or both [6]. While the bulk of the reports of pica has been anecdotal, the prevalence of pica in population-based studies have begun to be reported in the last few decades, mostly among pregnant women [8-14] and children [15-19]. These more recent data are a welcome complement to the many ethnographic studies that provided general information indicating that pica was common around the world [20-23]. Clay is known to be useful as a de-toxicant and digestive aid. It had been used in the treatment of infections like cholera and other bacterial ones [24]. Clay is composed of calcium and sodium type of bentonite but appear to be more effective [25]. It has been reported to be taken by pregnant women as it contains a high content of calcium and iron, which account for the nutritional requirements during

pregnancy [24]. The reason of historical application of clay in medicine was said to be due to its ability to bind to toxins or its alkaline pH, but no proper scientific basis is established till now [25].

Meat is a great source of nutrition for human beings as it contains vitamins, minerals, proteins, lipids and high content of amino acids like alanine, aspartic acid, lysine, arginine, tyrosine etc. Meat is also a great source of phosphorous which is crucial for bone development [26]. Meat has highly bioavailable minerals such as Copper and Zinc as plants have certain components which hinder in their absorption. Calcium is majorly required by our body, but unfortunately meat does not have high contents of it [27]. So to attain adequate levels of calcium in a nutritionally deprived individual we must give calcium in another form.

The objective of this study was to make children quit the habit of soil eating by administering meat, as a source of nutrients like proteins, vitamins and minerals along with oral calcium which can be given in the form of a chewable tablet.

MATERIAL AND METHOD:**The study area and subjects:**

Data of 85 children of both genders was taken having a soil eating habit. On the basis of age children were divided into 3 groups, i.e. children of 2 to 6 years of age, children of 6 to 12 years of age and children above 12 years of age. Children were given one tablespoon of minced meat and a tablet of calcium daily for as long as the child takes to quit the soil eating.

RESULTS AND DISCUSSION:

Data of 85 children, including males and females having a soil eating habit is summarized in Table 1.

Table 1: Data of 85 children having a soil eating habit

S.No	Age range of children (years)	No. of children in soil eating habit	
		Male	Female
1	2 to 6	21	16
2	6 to 12	12	11
3	Above 12	14	11

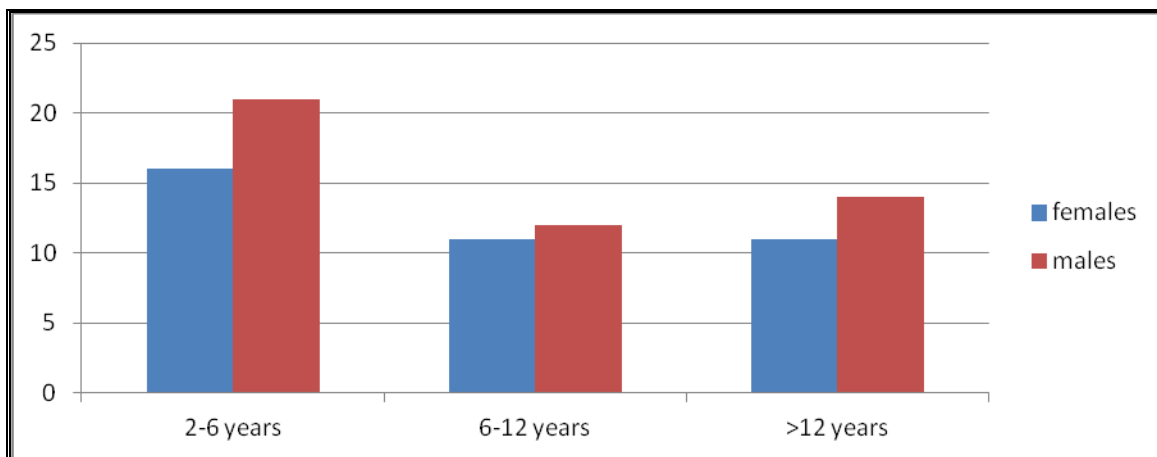


Fig 1: Graphical presentation of Data of 85 children having a soil eating habit

Following data was obtained after study.

Table 2: Time taken by children to quit the soiling eating habit.

S.No	Age range (years)	Average time taken to quit the soiling eating habit	
		Male	Female
1	2 to 6	10 days	12 days
2	6 to 12	16 days	18 days
3	Above 12	21 days	22 days

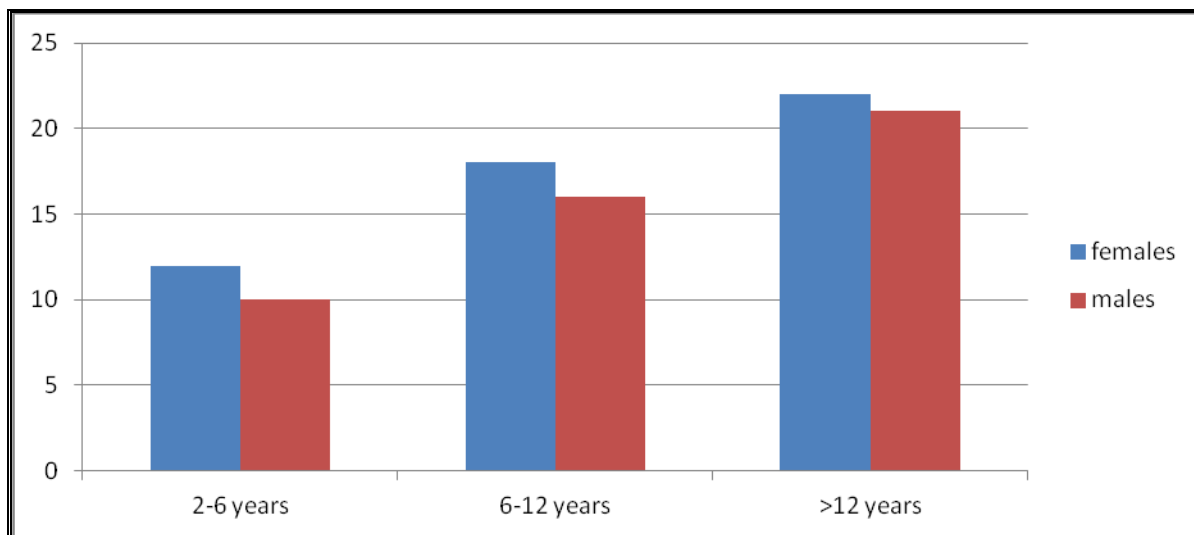


Fig 2: Graphical presentation of Time taken by children to quit the soiling eating habit.

The results elevate the fact that the meat being a major source of all vital nutrients can serve as a means of replenishment of nutritional deficiencies, accompanied by oral calcium from another source. As the soil eating habit has been reported to be because of nutritional deficiencies and is adopted by individuals, especially children as a sub-conscious effort for fulfilling their nutritional needs, so minced

meat and calcium when given makes such individuals leave their habit.

According to table-1 data of 85 children were taken and divided according to three age groups, i.e. 2 to 6 years, 6 to 12 years and children with age above 12 years. Data was further classified with respect to gender. The graph 1 shows the prevalence of soil eating habits in different age groups within the data

collected, the highest being in the age range of 2 to 6 years. With respect to gender there were more male children of age between 2 to 6 years who had soiled eating habit.

In table 2, the time taken by children of the three age groups mentioned above is shown in which children of age 2 to 6 of male and female gender took 10 and 12 days to quit soiling eating habit respectively. Similarly, children of age between 6 to 12 years, male and female took 16 and 18 days to quit soil eating habit and lastly children with ages above 12, male and female, took 21 and 22 days to quit soiling eating habit respectively.

The data thus show that children of ages between 2 to 6 years quit much faster than the children of the rest of the age groups when given minced meat along with oral calcium. Also, males quit faster in case of each age group as compared to females.

Some of the previous researches only indicate the soil eating habit as a health hazard, others emphasize upon the nutritional benefits of it, but none suggest a possible solution to the problem like, Neol E. Bosshardt, in his book 'we eat clay' has only explained the historical use of medicinal clay [25]. Donald Brightsmith has researched about the effect of soil eating on animals. [28]. This study specifically targets the treatment and prevention of the underlying problem of soil or clay eating.

CONCLUSION:

The results of the study clearly show that children can quit soiling eating habit if a treatment plan of one tablespoon of minced meat and a chewable calcium tablet is taken on a daily basis. Moreover, children who are 2 to 6 years of age quit much faster when given minced meat and calcium as compared to children of other age groups. This can prove to be a very appropriate course of treatment for reducing the urge for children eat soil.

REFERENCES:

1. López, LB; Ortega Soler, CR, de Portela, ML (2004 Mar). "Pica during pregnancy: a frequently underestimated problem". *Archivos latinoamericanos de nutrición* 54 (1): 17–24.
2. Kushner RF, Gleason B, Shanta-Retelny V. Reemergence of pica following gastric bypass surgery for obesity: A new presentation of an old problem. *J Am Diet Assoc* 2004;104:1393-7.
3. Rose EA, Porcerelli JH, Neale AV. Pica: Common but commonly missed. *J Am Board Fam Pract* 2000;13:353-8.
4. Young S, Sherman P, Pelto G, Lucks J (2011) Why on earth do people eat dirt? A test of alternative hypotheses. *Quarterly Review of Biology* 86: 97–120.

5. Young SL, Khalfan SS, Farag TH, Kavle JA, Ali SM, et al. (2010) Association of pica with anemia and gastrointestinal distress among pregnant women in Zanzibar, Tanzania. *Am J Trop Med Hyg* 83: 144–151.
6. Young SL, Wilson MJ, Miller D, Hillier S (2008) Toward a comprehensive approach to the collection and analysis of pica substances, with emphasis on geophagic materials. *Plos One* 3.
7. Young SL (2010) Pica in pregnancy: new ideas about an old condition. *Annu Rev Nutr* 30: 403–422.
8. Kawai K, Saathoff E, Antelman G, Msamanga G, Fawzi WW (2009) Geophagy (Soil-eating) in relation to Anemia and Helminth infection among HIV-infected pregnant women in Tanzania. *Am J Trop Med Hyg* 80: 36–43.
9. Lopez L, Langini S, Pita de Portela M (2007) Maternal iron status and neonatal outcomes in women with pica during pregnancy. *Int J Gynaecol Obstet* 98: 151–152.
10. Luoba AI, Wenzel Geissler P, Estambale B, Ouma JH, Alusala D, et al. (2005) Earth-eating and reinfection with intestinal helminths among pregnant and lactating women in western Kenya. *Trop Med Int Health* 10: 220–227.
11. Sule S, Madugu H (2001) Pica in pregnant women in Zaria, Nigeria. *Niger J Med* 10: 25–27.
12. Corbett R, Ryan C, Weinrich S (2003) Pica in pregnancy: does it affect pregnancy outcomes? *MCN Am J Matern Child Nurs* 28 (3): 183–189; quiz 190–181.
13. Simpson E, Mull J, Longley E, East J (2000) Pica during pregnancy in low-income women born in Mexico. *West J Med* 173: 20–24.
14. Rainville A (1998) Pica practices of pregnant women are associated with lower maternal hemoglobin level at delivery. *J Am Diet Assoc* 98: 293–296.
15. Nchito M, Geissler PW, Mubila L, Friis H, Olsen A (2004) Effects of iron and multimicronutrient supplementation on geophagy: a two-by-two factorial study among Zambian schoolchildren in Lusaka. *Trans R Soc Trop Med Hyg* 98: 218–227.
16. Saathoff E, Olsen A, Kvalsvig JD, Geissler PW (2002) Geophagy and its association with geohelminth infection in rural schoolchildren from northern KwaZulu-Natal, South Africa. *Trans R Soc Trop Med Hyg* 96: 485–490.
17. Diouf S, Camara B, Sall M, Diagne I, Ndiaye O, et al. (2000) [Protein-energy malnutrition in children less than five years old in a rural zone in Senegal (Khombole)]. *Dakar Med* 45: 48–50.
18. Marchi M, Cohen P (1990) Early childhood eating behaviors and adolescent eating disorders. *J Am Acad Child Adolesc Psychiatry* 29: 112–117.

19. Geissler P, Mwaniki D, Thiong F, Friis H (1998) Geophagy as a risk factor for geohelminth infections: a longitudinal study of Kenyan primary schoolchildren. *Trans R Soc Trop Med Hyg* 92: 7–11.
20. Laufer B (1930) Geophagy. *Field Museum of Natural History, Anthropology Series*. Chicago. pp. 99–198.
21. Hooper D, Mann H (1906) Earth-eating and the earth-eating habit in India. *Memoirs of the Asiatic Society of Bengal* 1: 249–273.
22. Anell B, Lagercrantz S (1958) Geophagical customs. *Studia Ethnographica Upsaliensia* 17: 1–84.
23. Heusinger K (2006 (1852)) Die sogenannte Geophagie oder tropische (besser: Malaria-) Chlorose als Krankheit aller Länder und Klimate. Cassel: H. Hotop.
24. Eating of clay lessons on medicines from worldwide cultures, magnetic clay bath, 1995, 1-7.
25. Neol E. Bosshardt, We eat clay and Wear it, too! Personal stories of the healing results of Redmond Clay, 4-6.
26. N.H. Casey, (march 1992), goat meat in human nutrition, international conference of goats, department of livestock science, faculty of agriculture, university of pretonia, south Africa.
27. Connie M Weaver, William R Proulx, and Robert Heaney, Choices for achieving adequate dietary calcium with a vegetarian diet, 1,2,3 *The American Journal of Clinical Nutrition*, 2-4.
28. Donald Brightsmith (August 2004), Effects of Diet, Migration, and Breeding on Clay Lick Use by Parrots in Southeastern Peru. Prepared for the American Federation of Aviculture 2004 Symposium Proceedings, 1-4.