Centre For Research On
Nutrition Support Systems

Nutrition In Disease Management

UPDATE SERIES 45
JANUARY 2010

- **Food Allergy in Children- Practical Approach to Diagnosis and Management**
- **Effect of Frequency and Dosage of Iron Folic Acid Supplementation on Blood Haemoglobin of Anaemic Adolescent Girls**

Nutrition Foundation of India Building, C-13 Qutab Institutional Area, New-Delhi-110016
Tel: 91-11-26857814,26962615 Fax: 91-11-26857814
E-mail: nfi@nutritionfoundationofindia.res.in; crnssindia@gmail.com Website: www.crnssindia.res.in

To Our Readers

Dear Readers,

Wish you all a very Happy 2010! The current issue of the Update Series (45) " Nutrition in Disease Management" is the first issue of this year and consists of two main articles, some interesting information about foods likely to play a role in alleviating mental stress and the official Announcement regarding the upcoming conference of the Indian Society of Parenteral and Enteral Nutrition(ISPEN) on January 22-23, 2010.

The two main articles deal with important issues related to food and nutrition. The first of these(the lead article) is a review which draws the reader's attention to the practical issues involved and approach to food allergy. The second article addresses a very important public health problem-anemia, the focus is on two specific nutrients(iron and folate) and a very vulnerable and important segment of society from the interventional standpoint-the adolescent girl.

Dr. Sarath Gopalan
Executive Director, CRNSS
and Editor

Edited by: Sarath Gopalan, Executive Director, CRNSS
"Nutrition in Disease Management" Published jointly by CRNSS and Nutrition Foundation of India,
Designed and produced by Natural Impression

Food Allergy In Children- Practical Approach to Diagnosis and Management

Dr. Sarath Gopalan

Senior Consultant in Pediatric Gastroenterology and Clinical Nutrition, PSRI Hospital, New Delhi.
Visiting Consultant in Pediatric Gastroenterology, Indraprastha Apollo Hospital, New Delhi.
and
Executive Director, Centre for Research on Nutrition Support Systems, New Delhi.
Secretary, Indian Academy of Pediatricians (Gastroenterology Chapter)

INTRODUCTION

In recent years, food allergy has been a subject which has generated considerable interest. This can be attributed to awareness generated as a result of increased reporting of allergic reactions all over the World. The incidence of food allergy has been reported to be 2-12% in the West.

The task of identifying the offending agent or agents responsible for symptoms of food allergy is a challenging one. The problem is compounded further by the fact that the symptoms of food allergy are not restricted to the gastrointestinal tract and, in fact, may be observed in parts of the body other than the gastrointestinal tract. The inability to detect food allergy in a timely manner or attributing symptoms mimicking those of food allergy to an underlying immune mechanism may lead to both over-reporting and under-reporting the problem. The importance of a properly taken history as a useful tool in diagnosing food allergy cannot be overemphasized.

It is important to understand the mechanisms involved in food allergy which is an entity distinct from food intolerance. Food allergy or hypersensitivity is an adverse reaction to food in which there is evidence that the reaction is caused by immunological response to the food item[1, 2]. Food intolerance, on the other hand, is a reproducible adverse reaction to a specific food item which is not psychologically based and occurs even when the subject cannot identify the type of food which has been administered[3].

MECHANISMS UNDERLYING ALLERGIC REACTIONS

All types of food allergy involve two processes production of IgE and mast-cell-mediated response. An individual has an inherited Predisposition to form IgE against a specific food item. It has also been observed

that in such individuals, a family history of allergy is common and the probability of developing symptoms related to food allergy is increased considerably when more family members are affected. The following

immune mechanisms have all been implicated in food allergy: -

1. Immediate hypersensitivity (anaphylactic) reaction (IgE mediated)
2. Antibody - dependent cytotoxic hypersensitivity (IgM or IgG mediated)
3. Immune complex mediated hypersensitivity
4. Cell mediated hypersensitivity.

The sequence of events involved in producing the symptoms of food allergy are shown in Figure 1.

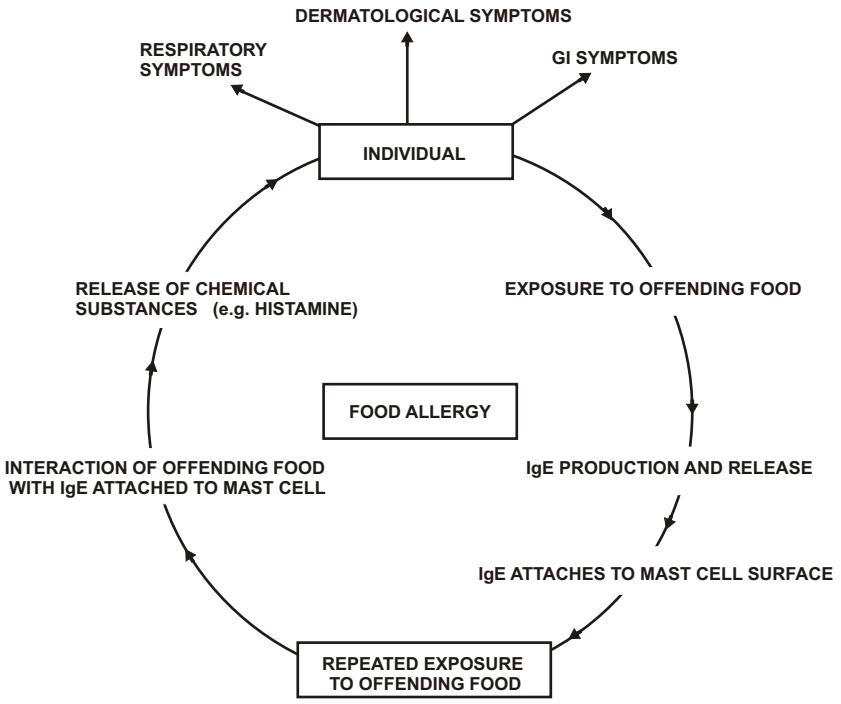


Fig. 1

Food allergens are proteins which are resistant to the effects of heat (cooking), gastric hydrochloric acid and digestive enzymes. As a result, they survive to cross the gut mucosal lining, enter the bloodstream and cause an allergic reaction. The symptoms produced may be experienced in any part of the body.

Food allergy in children has some features which are different from those encountered in adults. Children, unlike most adults, can outgrow their allergy. The most common food allergens encountered in children are eggs, milk and peanuts[4]. Fish and wheat have also been recognized as sources of food allergens, but to a much lesser extent. Milk and soy allergy are easy to outgrow as compared to symptoms produced by allergens in peanuts and seafood.

A child with allergy to a specific food item may be allergic to other similar foods as well. This phenomenon is termed cross-reactivity and must be kept in mind during managing an individual with symptoms of food allergy[5]. In certain situations, when the allergic reaction to a specific food item is very severe and potentially life threatening, the individual must be counselled to avoid all other foods of a similar nature.

CLINICAL MANIFESTATIONS

The manifestations of food allergy may be restricted to the gastrointestinal tract, involve organ systems in addition to the gut or may even occur in other parts of the body without involvement of the gastrointestinal system. The clinical presentation may be one with manifestations predominantly affecting the gastrointestinal system like vomiting, abdominal pain, watery or bloody diarrhea, poor weight gain and malabsorption or may be characterized by symptoms and signs involving areas of the body other than the gut cough, wheezing, rhinitis, atopic eczema, urticaria and angioedema[6].

DIFFERENTIAL DIAGNOSIS

When a child is brought to the pediatrician by the parents saying, “Doctor, I think my child is suffering from a food allergy!” - many other clinical situations which mimic symptoms of food allergy must be considered.

Contamination of food with microorganisms such as Salmonella or toxins such as the botulinum toxin can result in food poisoning characterized by symptoms indistinguishable from food allergy. The difference is that such food poisoning is not immunogically mediated. Natural substances found in some foods (eg. histamine in some types of cheese) are known to produce symptoms similar to those of food allergy. There may be intolerance to additives present in certain foods or specific food intolerance due to deficiency of a particular enzyme (eg. lactose intolerance), all of which are not immune mediated.

DIAGNOSIS

Several methods have been employed to diagnose food allergy such as exclusion of the offending agent, double-blind placebo-controlled food challenge, serological techniques and intestinal biopsy. Increased levels of duodenal fluid IgE have been observed in patients with food allergy who predominantly have gastrointestinal manifestations.

However, the investigative laboratory methods used to diagnose food allergy have their limitations. The scratch test is very sensitive but a positive result is not to be interpreted as food allergy. A poor correlation has been observed between the scratch test and gastrointestinal symptoms whereas a good correlation exists between the scratch test and both respiratory and dermatological manifestations[7].

The Radio-allergosorbent test (RAST) measures radio-labelled anti-IgE and is semi-quantitative. It is not influenced by drugs, involves limited selection of allergens, relatively expensive and the results have considerable interlaboratory variability. There is an increased likelihood of overinterpretation of results.

The Double Blind Placebo-Controlled Food Challenge has been described as the gold standard for the diagnosis of food allergy but even this investigative modality has limitations. It is useful in confirming diagnosis when an individual reacts to one or a few suspected foods. However, utility is limited when there is a history of severe allergic reactions or the need to test for allergy to multiple food sources arises. It is not only expensive but also time-consuming and used most commonly in clinical practice when the treating pediatrician has reason to believe that the reaction is not due to a specific food and wants to obtain evidence to support this viewpoint.

Currently, diagnosis of food allergy is based on: -

1. Exclusion of the offending agent or agents from the diet.

2. Disappearance of symptoms of food allergy on exclusion of the offending food and
3. Reappearance of symptoms of food allergy on challenge with the offending food.

The only effective treatment of food allergy is dietary avoidance of the offending food.

COW'S MILK PROTEIN ALLERGY

Unlike other forms of food allergy, allergy to cow's milk protein presents early in infancy and is usually completely reversible after 2 years of age. All the four mechanisms of immune-mediation have been documented in cow's milk protein allergy. The symptoms of cow's milk protein allergy may be acute[4], wherein other atopic features are marked (dermatological and respiratory manifestations) in addition to gastrointestinal symptoms or insidious with no atopic features and a gradual onset of gastrointestinal manifestations. The histologic changes in the small intestinal mucosa are non-specific, but crypt hyperplasia is not a feature.

The diagnosis of cow's milk protein allergy is based on: -

1. Disappearance of symptoms after elimination of cow's milk and milk products from the diet.

2. Recurrence of identical symptoms after challenge with cow's milk after 1 year of age.

A graded desensitization technique is preferred [8] during re-introduction of cow's milk after 2 years of age in infants with cow's milk protein allergy who had presented in early infancy with severe atopic features but such desensitization is not required if the onset of symptoms was insidious and restricted to the gastrointestinal system. A small proportion of children allergic to cow's milk protein may also to be allergic to soy[9, 10].

CONCLUDING COMMENTS

The management of a child with food allergy is a complex and challenging problem. Till date, there is no single laboratory test available which can conclusively confirm the diagnosis of food allergy. The limitations of the investigative modalities available are more clearly evident when the disorder presents with manifestations restricted to the gastrointestinal system. Exclusion of the offending food from the diet is the only effective treatment, disappearance of symptoms on withdrawal of the offending agent and reappearance of identical symptoms on reintroduction of the offending food is the most reliable method for diagnosing food allergy.

REFERENCES

1. Formanek, R. (Jr.): Food Allergies When Food Becomes the Enemy. In: U.S. Food and Drug Administration, FDA Consumer magazine, July August, 2001, P.I.
2. Understanding food allergy
   International Food Information Council Foundation
   1100, Connecticut Avenue, N. W., Suite 430,Washington D.C. 20036
   Web version (PDF): http://ific.org/relatives/17500.pdf
3. Brostoff, J and Gamlin, L. Food Allergies and Intolerance: A Complete Guide to their Identification and Treatment. Rochester, Vermont: Healing Arts Press; 2000: P 470.
4. Milk, Eggs and Peanuts: Food Allergies in Children.
   American Family Physician Website: http://www.aafp.org/971001ap/anderson.html
5. Food Allergy and Intolerance: National Institute of Allergy and Infectious Disease (NIAID) Website: http://www.niaid.nih.gov/factsheets/food.htm.
6. Tips to Remember Food Allergies. Academy of Allergy, Asthma and Immunology.
   Website: http://www.aaaai.org/patients/publicedmat/tips/foodallergy.stm
7. Braly, James, M.D. Dr. Braly's Food Allergy and Nutrition Revolution, Keats Publishing, Inc., New Canaan, CT, 1992, P.39.
8. Diary Allergies, Scripps Clinic.
   Website: http://www.scrippsclinic.com/library/onelibrary.cfm.
9. Tips for Managing Soy Allergies, Food Allergy and Anaphylaxis Network.
   Website: http://www.foodallergy.org/allergens.html#soy.
10. What is soy lecithin? Is it safe for a soy allergic individual?
    Food Allergy News, Vol. 2, No. 1

Effect of Frequency and Dosage of Iron Folic Acid Supplementation on Blood Haemoglobinof Anaemic Adolescent Girls

Deepika Aggarwal
Dietician and Diabetic Educator
(Apollo Hospital , Delhi)

INTRODUCTION

Iron deficiency anaemia is a highly prevalent and seemingly stubborn problem, particularly among preschool children, adolescent girls and pregnant women in developing countries among whom the prevalence may exceed 70 per cent. During adolescence, the iron stores in girls are depleted due to increased need of iron for rapid growth and loss of iron with the onset of menarche. Estimates suggest that about 25 to 50 percent girls become anaemic by the time they reach menarche and both rural as well as urban girls are affected equally [1] .

Supplementation is the technical strategy required for acute situations in which the amount of iron absorbed from the diet whether fortified or not, is insufficient to restore deficient iron levels to normal within an acceptable time frame to meet requirements. The goals of providing oral iron supplements are to supply sufficient iron to restore normal storage levels of iron and to replenish haemoglobin deficits[2].

METHODOLOGY

The study was carried at an NDMC school for girls in Delhi.

- All the 140 students of 8th and 9th class (aged 13 to 15 years) were screened for prevalence of anaemia. Blood haemoglobin levels were estimated by the cyanmethamoglobin method. The principal underlying this method is the conversion of haemoglobin iron from ferrous to ferric form. This then combines with the potassium cyanide present in the reagent to provide the stable pigment cyanmethaemoglobin, which represent the sum of oxy haemoglobin, carboxy haemoglobin and methhaemoglobin. Using disposable needles, the index finger of the subjects was pricked and

0.02 ml of capillary blood was collected with the help of a micropipette. This was then mixed with 5 ml cyanmethaemoglobin reagent (Aculute-C) in tightly stopped bottles and optical density of the solution was measured at a wavelength of 540 nm using photoelectric calorimeter.

- Of the 140 girls screened, those with haemoglobin (Hb) levels below 12g/dl were included for further study (89 girls). They were divided randomly into two groups, one group given iron folic acid supplement (IFS) thrice a week (Group I) and the other given the supplement once a week (Group II) for a period of 12 weeks. Blood haemoglobin of the subjects was tested again after the supplementation period.

RESULTS

Prevalence of anemia

Assessment of the degree of anaemia in the 89 anaemic subjects (on the basis of WHO classification) showed that mild (Hb 10-11.9 g/ dl), moderate (Hb 9.9-8 g/dl) and severe (Hb<8 g/dl) grades of anaemia were present in 52.8%, 8.57% and 2.1% respectively (Fig 1).

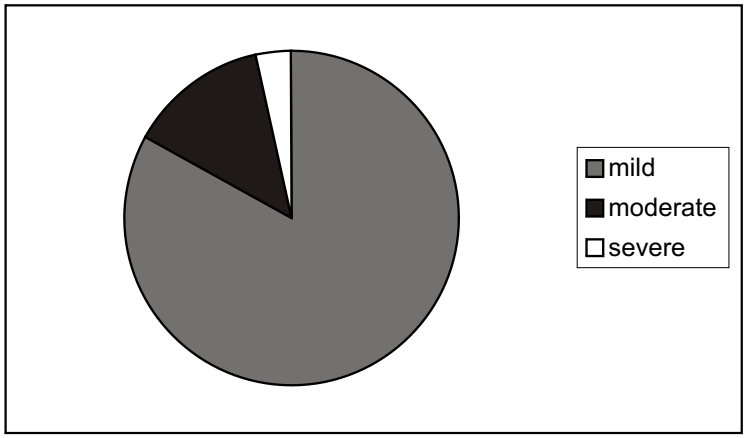
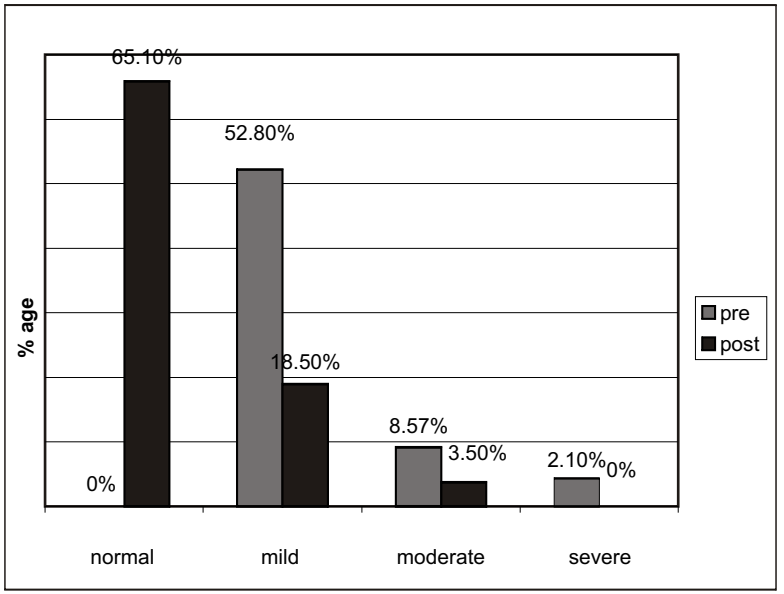


Figure 1: Distribution of subjects for degree of anaemia before supplementation

Supplementation with iron and folic acid tablets for twelve weeks showed that the overall prevalence declined considerably as 65.1 percent of the subjects had blood Hb levels above 12g/dl in the post supplement phase



(Figure 2).

Figure 2: Prevalence of anaemia in the pre and post phase of supplementation

Moreover, none of the subjects fell in the severe category of anaemia while 18.5% and 3.5% were in the mild and moderate categories respectively as compared to 52.8% and 8.57% in the pre-supplementation phase. According to[3], when anaemia is due to iron deficiency, increasing the person's intake of absorbable iron will raise the haemoglobin concentration.

Comparison of Group I and II

Data relating to blood Hb levels (Table 1 and Figure 3) showed that the mean haemoglobin level of the subjects in group I was 10.09 g/dl before supplementation with IFS. It increased to 11.51 g/dl after twelve weeks of supplementation. The increase in the mean blood haemoglobin level of the subjects in group II was from 10.34 g/dl in the pre supplementation phase to 11.67 g/dl after supplementation.

The mean increase in the Hb level was 1.42 g/dl in group I and 1.33g/dl in group II. For each group individually, a comparison of the mean Hb levels before and after supplementation showed that the difference was

significant ($p<0.05$). However, a comparison of the two groups showed that although the mean Hb levels of the two groups were significantly different before supplementation, the difference after supplementation was not

Significant. At the same time, the mean increase in group I and group II were also not significantly different. Thus, a higher frequency and dosage of iron folic acid supplement did not show a significant difference in improving the blood haemoglobin status of the subjects.

Table 1: Mean blood haemoglobin levels of the subjects before and after supplementation

	Haemoglobin (g/dl)		Mean Increase (g/dl)	t value
	Pre	Post		
GROUP I	10.09 a	11.51 b	1.42*	8.05
GROUP II	10.34 c	11.67 b	1.33*	6.09
t value	1.98	2.13	0.75	

Different superscripts indicate significant difference i.e:

i) a,b indicate significant difference
ii) c,b indicate significant difference
iii) a,c indicate significant difference
iv) b,b indicate non-significant difference
v) *,* indicate non-significant difference

DISCUSSION

Effect of frequency :

Daily doses rapidly reduce the intestinal absorption of both dietary iron and subsequent supplementary doses because of the tiredness of the gastric mucosa [4] . Iron deficient persons may absorb 30 to 40 percent of the dose

Given on the first day, which rapidly decreases on the following days to only 3 to 6 percent. A weekly dosage schedule is quite similar to the time taken for the turnover of intestinal mucosal cells in humans. By administering iron

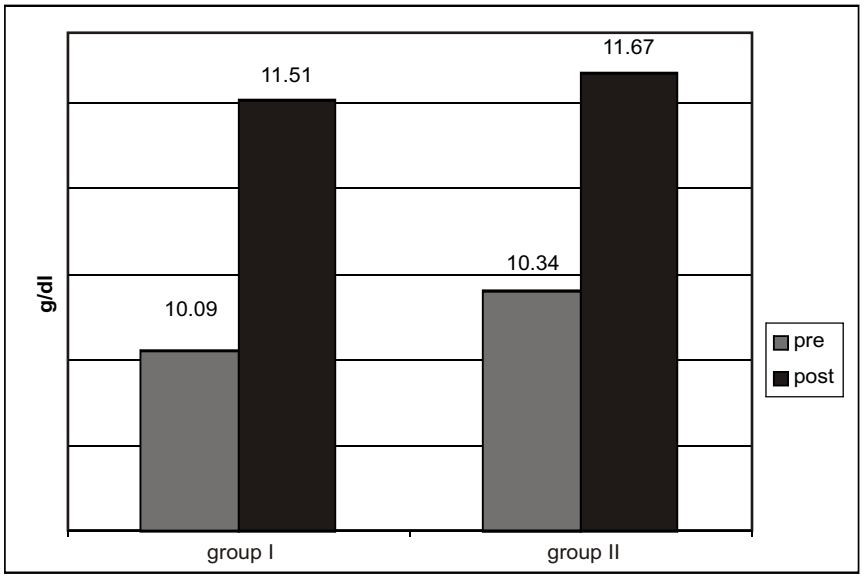


Figure 3: Mean blood haemoglobin levels of the subjects before and after supplementation

Dose once in every seven days, the cells that were loaded with iron from the previous dose would have been shed off and replaced by new cells. Thus, on one hand, iron absorption increases and on the other, the constant luminal and mucosal overload that is likely to provoke gastric symptoms leading to non-compliance is avoided [5,6] .

Effect of dosage:

The difference in mean increase in blood Hb of groups I and group II was insignificant as tested by t test. This suggests that reducing the number of doses of iron supplement has almost the same beneficial effect as that at higher doses. This is due to the fact that iron deficient intestines also have a higher concentration of the transferrin receptor. Functionally, this is expected to increase iron absorption through the following mechanism. During the intestinal transit of iron, luminal transferrin gets saturated with iron. Subsequently, binding of this transferrin to mucosal cell surface transferrin receptor occurs. The receptor mediated uptake occurs in the iron deficient states but not in the iron excess state thus explaining the theory of mucosal block as the mechanism of regulation of iron uptake by the intestine.

Cost benefits:

Once a week supplement decreases the cost of the supplementation programme by at least 3.5 to 7 folds and thus the number of people who can be benefited from these supplements can be increased. Weekly approach has thus a clear advantage of lower cost, easier monitoring and better compliance.

CONCLUSION

Iron supplementation given through the school system could be an intervention to improve iron status and prevent anaemia in adolescent girls. This would reduce the risk of iron deficiency and anaemia before pregnancy, particularly among girls who marry and begin childbearing shortly after they finish school.

Although a greater frequency and hence dosage of iron supplementation is more effective in reducing overall prevalence of anaemia, a lower frequency must be considered for benefits of lesser cost and side effects as well as easier monitoring.

REFERENCES

1. Vasanthi G, Pawashe AB, Susie H, Sujatha T and Raman L. Iron nutritional status of Adolescent girls from rural areas and urban slums. Indian Paediatrics 1994;31:127-132
2. Schultink W, Gross R, Gliwitzki M, Karyadi D, Matulessi P. Effect of daily vs twice weekly iron supplementation in Indonesian preschool child with low iron status. Am J Clin Nutr 1995; 50:675-686.
3. Baker SJ, De Maeyer EM. Nutritional anaemia: its understanding and control with special reference to work done by WHO. Am J Clin Nutr 1979; 32(2):368-408.
4. Gopalan C. Iron/ Folate deficiency anaemia. In: Nutrition Research in South East Asia: The emergency agenda of the future.1994. Regional publication series No. 23, WHO (SEARO).1994: 44-47.
5. Viteri F. Weekly compared with daily iron supplementation. Am J Clin Nutr 1996; 63: 610.
6. Stephenson NC. Disorders of iron metabolism. N Engl J Med. 1995; 341:1986-1995.

SOME INTERESTING FACTS!
Foods likely to be useful in mental stress
Have you gone bananas?!

New update feb 2006 on "bananas": as per "super nutrients handbook" by lyndel costain bsc, srd, pg 104 "bananas and plantains are sources of two biogenic amines, serotonin and dopamine" (see chapter above this about serotonin and l-dopamine in "life extension" by pearson and shaw. And also on page 105 of "super nutrients handbook "....bananas are a good source of vitamin b6" (cures depression in most people hospitalized for depression as per "idiots guide to vitamins & minerals" by dr. Pressman (see b vitamins below for link to quote), also note, most anti depressant drugs contain an extra additive, b6 "pyrodoxine", which is over the counter, but psychiatrists make a living by monitoring people on perscriptions of anti depressants, when its really the over the counter b6 which is really doing the good work). Thus, a banana a day, keeps the psychiatrist away. Correction 2006.04.27..01:28am i takes around 6 bananas to get the minimum daily requirement for b6, but even that is not enough to keep you happy; so get some b vitamin suplements (more below). Bananas are also high in potassium, a desireable nutrient which prevents and cures leg cramps instantly (a handfull of raisins or a glass of carrot juice also contians enough potassium to cure cramps). "they call it mellow yellow.... ....electrical banana, is gonna be a sudden craze...." ("mellow yellow", a song by donovan, from the 1960's, goes to show how long sceince has known about it, but who will admit it? Archure). Back in the late 60's some people were smoking banana peels (not me). But i am now back to eating a banana a day (for my neuro transmitters). The difference between a psychiatrist and a psychologist: if you need help, do see a psychologist (a psychologist will help get to the root of your problems, while a psychiatrist will automatically put you on a perscription and montitor you without getting to the root of your problem, its the nature of the business, the psychiatrist does not make money by telling you to go out and buy some b vitamins, he makes money by turning you into a zombie, with some heavy medication, which also includes a trace of b6 aka pyridoxine), then monitors you on a regular basis (expensive, b vitamins are cheaper, and www.archure.net is
free reading).

B vitamins

B vitamins are the vitamins of the mind. They keep you of a good disposition (happy, eliminating melancholy), they keep you coherent, they keep you rational. Many books will verify this (idiots guide to vitamins & minerals has quite a few chapters on the b vitamins alone). Shari libermans “real vitamin & mineral book” suggests the optimum daily intake for the b vitamins is 25mg to 300mg per day (she says the rda or rdi set by the federal government, is enough to keep you alive, but she specifies the optimum daily intake as what your really need for proper body functioning). The experts say there is no known overdose level for b1, b2, and b12 (b12 is always in mcg instead of mg, so 25mg to 100mcg is what shari liberman recommends). However, there is an overdose level for b6 (pyridoxine) of 2,000 mg per day (which can cause nerve damage, shari liberman says this is temporary; and although she does not say it, i think that b6 may be cumulative, so if you have some nerve issues, you might want to eliminate b6 for a week or so, and take b1, b2, and b12 separately (more expensive that a b complex or b stress formula, or b-1000, or a b-100 found in most grocery stores. Wal-mart has a b-150 which is 150 mg of each b vitamin (b12 in mcg), and target has a b-100 (100 mg), always get a brand with at

least 100 mg of each b vitamin. Shari liebermans "real vitamin & mineral book" says get 25 mg to 300 mg per day, but i advise up to 1000 mg per day (perfectly safe). I typically get 600 to 900 mg /day, with a separate 5000 mcg of b12, and take at least 4 of those per day, usually all at the same time, target and wal-mart both carry 2,500 mcg sizes of b12(cobalamin)). More about b vitamins http://www.archure.net/salus/bhappy.html (includes quotes by dr pressman regarding b6 pyrodoxine curing depression in patients hosptialized for depression).

Melatonin:
Melatonin (comes in sizes 5mg, 3mg, or less). Melatonin is already produced by the brain, it increases the sensitivity to light or no light affecting sleep. I personally find i can get by on less sleep if i take some melatonin (but i try to get lots of sleep in general, great for ones mental health and physical health). But i also noticed something more with melatonin. When i play music in the morning, after taking melatonin the night before, i get much deeper unconscious inspirations, which can be summed up with a quote by albert einstein ""there comes a point where the mind takes a higher plane of knowledge, but can never prove how it got there. All great discoveries have involved such a leap". In other words, with melatonin, inspirations just come to you. Some of my songs, written after using around 10mg of melatonin (the night before, sleeping, the playing music) are "beyond" for evie #2 listen (music background for this page) or re-synthesized and a very deep, very powerful: "in the windii"listen If i seem like a sleepy head to people, its not as much the melatonin as the 5htp l-tryptophan ("seratonin" the minds neuro transmitters), which makes me real sleepy, but coherent and helps deal with a stressful world (and it is stressful with people non-verbally questioning "what are you doing in my lane, on my road, on my sidewalk, in my store, in my way....".

Http://en.wikipedia.org/wiki/melatonin
“powerfull antioxidant"

Immune system
The body of research is overwhelmingly supportive of the claim that melatonin interacts with the immune system.[20] melatonin may help fight disease,[21] but its true role in disease treatment is unknown.
Http://en.wikipedia.org/wiki/melatonin#fertility

Fertility
Recent research has concluded that melatonin supplementation in perimenopausal women produces a highly significant improvement in thyroid function and gonadotropin levels, as well as restoring fertility and menstruation and preventing the depression associated with the menopause.[33]
Http://en.wikipedia.org/wiki/melatonin#in_dreaming

In dreaming
Many melatonin users have reported an increase in the vividness or frequency of dreams. High doses of melatonin (50mg) dramatically increased rem sleep time and dream activity in both narcoleptics and normal people.[22]

It is interesting to note that many psychotropic drugs, such as lsd and cocaine, increase melatonin synthesis.[22] it has been suggested that nonpolar (lipid-soluble) indolic hallucinogenic drugs emulate melatonin activity in the awakened state and that both act on the same areas of the brain.[22]

In a 2005 editorial of the british journal of psychiatry, ben sessa suggested that psychotropic drugs be readmitted in the field of scientific enquiry and therapy.[23] melatonin, being two endogenous hallucinogenic indoles like n,n-dimethyltryptamine

(dmt), is likely to be research priorities in this reemerging field of psychiatry.
Use as a dietary supplement
The primary motivation for the use of melatonin as a supplement is as a natural aid to better sleep, with other incidental benefits to health and well-being due to its role as an antioxidant and its stimulation of the immune system and several components of the endocrine system.

Victor herbert, m.d., j.d., of the mt. Sinai school of medicine, cites studies from massachusetts institute of technology that say melatonin pills sold as supplements contain three to 10 times the amount needed to produce the desirable physiologic nocturnal blood melatonin level for enhancement of nighttime rest. Dosages are designed to raise melatonin levels for several hours to enhance quality of sleep, but some studies suggest that smaller doses are just as effective at improving sleep quality.[37] high dose melatonin can even be counterproductive: lewy & al[38] provide support to the "idea that too much melatonin may spill over onto the wrong zone of the melatonin phase-response curve." in their study, 0.5 mg of melatonin was effective while 20 mg wasn't. A practical implication of these results is that effective melatonin supplementation (for sleep problems) thus becomes very accessible: it costs a fraction of what most researchers thought it might cost.

A number of studies indicate melatonin supplementation helps to reduce the age-related decline in hormone production from the thyroid and pituitary glands, among others, with animal models suggesting these effects are associated with an overall enhancement of health[citation needed]

Melatonin is involved in the regulation of body weight, and may be helpful in treating obesity (especially when combined with calcium).

Safety
Melatonin is practically nontoxic and exhibits almost no toxic side effects. However, melatonin taken in combination with monoamine oxidase inhibitors (maois) can lead to overdose because maois inhibit the breakdown of melatonin by the body. Exogenous melatonin normally does not affect the endogenous melatonin profile in the short or medium-term, merely advancing the phase of endogenous melatonin production in time. In individuals with auto-immune disorders, there is concern that melatonin supplementation may exacerbate symptoms due to stimulation of the immune system.

Melatonin causes somnolence, and therefore should not be taken within five hours before driving, operating machinery, etc. As melatonin is almost always taken at the end of the waking day, this is generally not an issue.

Individuals who experience orthostatic intolerance, a cardiovascular condition that results in reduced blood pressure and blood flow to the brain when a person stands, may experience a worsening of symptoms when taking melatonin supplements, a study at penn state college of medicine's milton s. Hershey medical center suggests. Melatonin can exacerbate the symptoms by reducing nerve activity in those who experience the condition, the study found.

As a natural substance with a virtual absence of problematic side effects, with health benefits to users without illnesses, melatonin has been classified as a dietary supplement and made freely available in the usa, but in the eu, over-the-counter sale without prescription is not yet officially permitted.

Indian Society of Parenteral & Enteral Nutrition Hyderabad Chapter

XV Annual Conference, Hyderabad,
January 22nd & 23rd, 2010

Welcome to the annual congress!

Nutritional support is an indispensable part of standard patient care.
In our clinical practice, irrespective of our specialty, we do come across a remarkable degree of diversity which prevents a standard nutritional approach which can be applicable for majority of our patient population. This intense nutritional update will enhance the clinical practices of doctors and clinical nutritionists and also disseminate the various nutritional interventions to students.

The annual conferences of ISPEN are conventionally known to further one's knowledge in the field of artificial nutritional support. It is a long standing tradition that the annual conference of ISPEN is generally held in the month of October / November every year. The conference was initially programmed to be combined with the annual congress of critical care society. However, in view of various issues, it has now been rescheduled to be held on 22nd and 23rd of January 2010, with an intense emphasis on safety aspects in nutritional interventions in acute illnesses.

The objective will be to encourage the rapid diffusion of evidenced-based clinical nutritional support and knowledge, in order to provide artificial nutritional support in the safest possible way. To achieve this objective, the congress has been organised for two full days. It constitutes a comprehensive educational programme highlighting the 2009 guidelines, special-interest groups, practical issues and safe clinical practices of artificial nutrition support. The educational content is based on the curriculum developed by international experts in the field of artificial nutritional support. The event emphasizes the safety aspects through various lectures, symposia, case-discussions and interactive sessions with nutrition-support professionals and a nutrition quiz. The entire congress will provide you with a unique opportunity to review and become familiar with safe nutritional practices and provides a comprehensive ***I***nteractive ***S****ession in* ***P***arenteral and ***E***nteral ***N***utrition (ISPEN).

Dr B Ravinder Reddy
For: Organising committee - ISPEN Annual Congress, Hyderabad,
January 2010

Governing Body of CRNSS

CRNSS is a Registered Society under the Societies Registration Act of 1860. This Update Series is published jointly by **CRNSS** and **NFI** four times a year. The latest information and advances in the area of nutrition, special systems in the management of diseases are presented for the benefit of medical practitioners and dieticians.