

# A Mathematical Analysis Effect of Nutrition in Human Life

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**Abstract-** *In this paper we develop mathematical model for effect of nutrition on health .The study was an attempt to investigate about nutritional are complication and its effect on people health .We observed that improper intake in Nutrition have adverse effect on health .Again we observed that proper intake Nutrition have development physically and mentally In this paper we develop mathematical model for effect of Nutrition on health . The study was an attempt to investigate about Nutrition health of people. We also observed that over intake proper Nutrition have adverse effect on people health.*

**Indexed Terms-** *Nutrition, Environment, food, Proteins, Vitamins, Minerals.*

## I. INTRODUCTION

Nutrition is the quality of food that receives body. The body breaks down the food to get the molecules that is actually need proteins, fats, carbohydrate, vitamins, and mineral etc. If the body does not have this thing then body will unable to work properly. The bad nutrition can be terrible of body. Nutrition has been one of the basic needs of every living body. Nutrition provides energy of the body to perform daily routine of the life. Weakness disabilities and disease due to insufficient amount of nutrition.

Nutrition and rural health are one of the important issues of the research. India is basically an agrarian country and it is more related with the status of agricultural. Rural health is directly influenced by living environment and *agricultural*<sup>4</sup> .

In our country more than three, froths population directly depends on agriculture for *food*<sup>3</sup> . Therefore, the study of a agriculture nutrition supply and rural health has much *important*<sup>4,8</sup>. The heath of the people depends on body resistance which can only be acquired by good *food*<sup>11</sup> .

A food is a substance which taken, into the body is digested and gives heat and *energy*<sup>10</sup> . Energy and material for growth and repairs the body .Food must contain certain basic ingredient . These are proteins ,vitamins, minerals , fats and carbohydrates .Nutrition is the most important factor for maintenance of health and resistance of diseases .The relation between nutrition and working capacity is directly depend on each other .It is well know an that the diet of rural people of a particular area is greatly influenced by local condition of soil and climate of rural population. The agriculture production of an area are main factor of nutrition .

The rural areas of our country facing very serious problem of nutritional deficiency which hampers both physical and mental *development*<sup>6,7</sup>. Majority population of various communities lives in rural *areas*<sup>1,5</sup> .Every community form homogenous group with reference to the dietary habits .

Due to rapid growth of population land, man relationship has reached to a critical situation .The relationship between agriculture and nutrition ,which forces the geographers to undertake nutritional studies and suggest measure for improve the nutrition level .

In the present study agriculture production is directly related with nutritional *level*<sup>2</sup> .In this way various food stuff which are taken in consideration . This type

of stuff may be very useful for improving health condition and nutrition status . The present problem is a combination of health system and agricultural nutrition .

From the earliest stages fetus development at the time of birth .Physical growth, mental development performance and productivity are essential nutrition of human body .It is very essential foundation of human health. For child proper growth health food is necessary .Nutrition directly impacts .Academics performance of children.

In this paper we study the effect of nutrition on human health .All possible efforts were made to reach the conclusion of study .

II. OBJECTIVE

The main objective of the study is as follows.

- i. To determine nutrition status of the people.
- ii. To assess the main factor for poor diet of the people.
- iii. To assess the role of customs and conditions responsible for determining the diet.
- iv. To assess the various deficient nutrients in the diet.
- v. To assess the relationship of nutrition complication and its effect on human health.

• Mathematical Formulation of The Problem

Nutrition is fundamental pillar of human health and physically development.

The detail some of the model out puts will be performed. This model are reliance studies in research approach.

In this model nutrition for human health is dynamic in our country.

The basic equation.

$$\frac{dH}{dt} = H ( F + V + M + C + P ) \tag{1}$$

and

$$\frac{dW}{dt} = W ( F - V - M - C - P ) \tag{2}$$

where

H =Healthy person .

F =Food.

V = Vitamin.

C = carbohydrate

P = Protein

W = Deficiency weak person

With boundary conditions

$$\begin{aligned} H &= H_0 , \text{ at } t = 0 \\ F &= F_0 , \text{ at } t = 0 \\ V &= V_0 , \text{ at } t = 0 \\ C &= C_0 , \text{ at } t = 0 \\ W &= W_0 , \text{ at } t = 0 \\ P &= P_0 , \text{ at } t = 0 \end{aligned} \tag{3}$$

• Solution of the problem:

Separate the variable from equation (1) and (2), we get

$$\frac{dH}{H} = ( F + V + M + C + P ) dt \tag{4}$$

and

$$\frac{dW}{W} = ( F - V - M - C - P ) dt \tag{5}$$

Integrating equation (4), we get

$$\log H = ( F + V + M + C + P ) t + \log C_1 \tag{6}$$

Applying boundary condition (3) in equation (6), we get

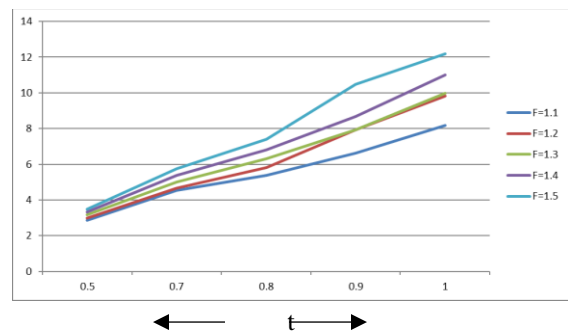
$$H = H_0 e^{(F+V+M+C+P)t} \tag{7}$$

Integrating equation (5), we get

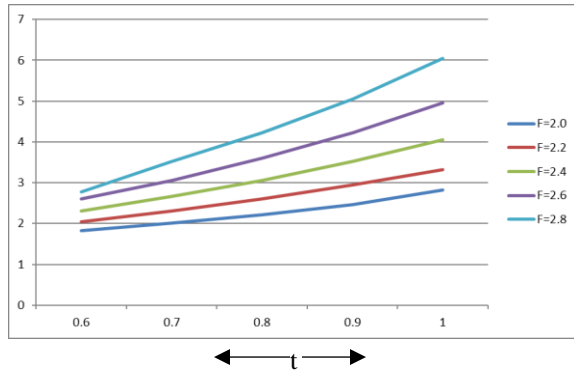
$$\log W = ( F - V - M - C - P ) t + \log C_2 \tag{8}$$

Applying boundary condition (3) in equation (8)

$$W = W_0 e^{(F-V-M-C-P)t} \tag{9}$$



The variation of H for different value of  $H_0, F, M, V, C, P$  and  $t$ . Fig. 1



The variation of W for different value of  $W_0$ , F, M, V, C, P and t. Fig. 2

### III. RESULT

The proper quality food plays a vital role in complete health. The more nutrition contents provide to body food. The variety of different food provide the right amounts of nutrition for good health. By the present research study, we are found that lacking of sufficient intake of food may cause of weakness. We conclude that insufficient intake of nutrition may cause weakness and improper growth of body. The high intake of food may increase obesity of the child and adults. Lacking of sufficient intake of food may cause of weakness. The health combination depends upon the parameter F, V, M, C, P and t. We observed that the value of ,H is increase with the increase of value F , V ,M, C ,P and t .It is clear that for proper development of body system mineral food, vitamin and carbohydrate are essential .Again we observe that for weakness person the value of w decrease with the increase of M ,V ,C , P and t .It is also observed that in the absence of mineral ,vitamin ,carbohydrate and protein the body function decreased rapidly.

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