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Highlights

Concentrator of the Air Flow

¾ Law' Revisited in Allometry

Discovering Thoughts, Inventing Future

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Association of Some Demographic and Personality Factors with Eating Behaviour

By Susmita Neogi
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Introduction- We live in a society that is obsessed with food. Most people fall somewhere in between, and we all tend to have different tastes and affinities. However, there has been little research done on finding a link between someone's personality and his or her eating habits, and it looks like there may be certain traits that make us more likely to engage in specific eating behaviors.

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Association of Some Demographic and Personality Factors with Eating Behaviour

Susmita Neogi

I. Introduction

We live in a society that is obsessed with food. Most people fall somewhere in between, and we all tend to have different tastes and affinities. However, there has been little research done on finding a link between someone's personality and his or her eating habits, and it looks like there may be certain traits that make us more likely to engage in specific eating behaviors.

Eating behavior is a broad term that encompasses food choice and motives, feeding practices, dieting, and eating-related problems such as obesity, eating disorders, and feeding disorders. Within the context of behavioral medicine, eating behavior research focuses on the etiology, prevention, and treatment of obesity and eating disorders, as well as the promotion of healthy eating patterns that help manage and prevent medical conditions such as diabetes, hypertension, and certain cancers. Eating behavior is complex; humans make hundreds of food decisions each day that are influenced by a variety of personal, social, cultural, environmental, and economic factors. What people eat and how much they eat has a considerable influence on their health.

The psychology of Eating implies that by making better food choices, one might be able to control compulsive eating behaviors and weight gain. One might also experience feelings of calmness, high energy levels, or alertness from the foods one eats. The key driver for eating is of course hunger but what we choose to eat is not determined solely by physiological or nutritional needs. So the factors that influence food choice include the following:

- *Biological determinants*

Our physiological needs provide the basic determinants of food choice. Humans need energy and nutrients in order to survive and will respond to the feelings of hunger and satiety (satisfaction of appetite or state of no hunger between two eating occasions). The central nervous system is involved in controlling the balance between hunger, appetite stimulation, taste and food intake.

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- *Economic determinants*

Cost, income, availability are important economic factors. There is no doubt that the cost of food is a primary determinant of food choice. Whether cost is prohibitive depends fundamentally on a person's income and socio-economic status. Low-income groups have a greater tendency to consume unbalanced diets and in particular have low intakes of fruit and vegetables (De Irala-Estevez et al. 2000).However, access to more money does not automatically equate to a better quality diet but the range of foods from which one can choose tends to increase.

- *Physical determinants*

Access, education, skills (e.g. cooking) and time determine food choice as well as intake. Accessibility to shops is another important physical factor influencing food choice, which is dependent on resources such as transport and geographical location.

- *Social determinants include culture, family, peers and meal patterns*

What people eat is formed and constrained by circumstances that are essentially social and cultural. Population studies show there are clear differences in social classes with regard to food and nutrient intakes. Cultural influences lead to the difference in the habitual consumption of certain foods and in traditions of preparation, and in certain cases can lead to restrictions such as exclusion of meat and milk from the diet. Cultural influences are however amenable to change: when moving to a new country individuals often adopt particular food habits of the local culture.

Meal patterns vary according to individual as well as occasions. People have many different eating occasions daily, the motivations for which will differ from one occasion to the next. Most studies investigate the factors that influence habitual food choice but it may be useful to investigate what influences food choice at different eating occasions.

- *Psychological determinants such as mood, stress and guilt influence our food choice*

Attitudes, beliefs and knowledge about food are also important. Studies indicate that the level of education can influence dietary behaviour during adulthood (Kearney et al. 2000). In contrast, nutrition knowledge and good dietary habits are not strongly correlated. This is because knowledge about health

does not lead to direct action when individuals are unsure how to apply their knowledge. Psychological factors, such as stress is a common feature of modern life and canmodify behaviours that affect health, such as physical activity, smoking or food choice. The influence of stress on food choice is complex not least because of the various types of stress one can experience. The effect of stress on food intake depends on the individual, the stressor and the circumstances. In general, some people eat more and some eat less than normal when experiencing stress (Oliver & Wardle 1999). Moreover there is no doubt that food influences our mood and that mood also has a strong influence over our choice of food. Interestingly, it appears that the influence of food on mood is related in part to attitudes towards particular foods.

Thus the complexity of food choice is obvious from the list above, which is in itself not exhaustive. Food choice factors also vary according to life stage and the power of one factor will vary from one individual or group of people to the next.

Now the question arises that whether personality of an individual is also a factor in determining what we are eating. Some studies have demonstrated the importance of an individual's personality traits in shaping the cognitive, emotional, and conative components of an individual's eating behaviour (Grunert, 1989; Vainik, Dubé, Lu, Fellows, 2015).

"*Personality*" is a word that originates from the Latin persona, which means "mask". The term personality refers to the pattern of thoughts, feelings, social adjustments, and behaviors consistently exhibited over time that strongly influences one's expectations, self-perceptions, values, and attitudes. Personality also predicts human reactions to other people, problems, and stress.

The study of personality has a broad and varied history in psychology with an abundance of theoretical conceptions. The major theories include dispositional (trait) perspective, psychodynamic, humanistic, biological, behaviorist, evolutionary, and social learning perspective. However, many researchers and psychologists do not explicitly identify themselves with a certain perspective and instead take an eclectic approach. Research in this area is empirically driven, such as dimensional models, based on multivariate statistics, such as factor analysis, or emphasizes theory development, such as that of the psychodynamic theory. The Big Five personality factors are the following:

- Openness to experience (inventive/curious vs. consistent/cautious)
- Conscientiousness(efficient/organized vs. easy-going/careless)
- Extraversion(outgoing/energeticvs.solitary/eserved)
- Agreeableness(friendly/compassionate vs. challenging/detached)
- Neuroticism (sensitive/nervous vs. secure/ confident).

Research findings suggest a connection between food choices and certain personality types exists. Way back in the 70's, a researcher at the University of Pennsylvania argued that the reason why people enjoy the burning sensation of spicy food, is the same reason why some people enjoy potentially dangerous activities, i.e. they were thrill seekers. In 2005, a study was conducted using the International Personality Item Pool Big Five short-form questionnaire to determine personality types of the participants and a health assessment questionnaire that examined behaviors including eating habits. It was determined that conscientious people tended to eat more fruits and vegetables, and choose overall healthier meals. Extroverts were shown to be more prone to risky behavior and bad food choices. The interesting thing is that, with the vegan and raw food movements gaining popularity, and crazy crash diets giving way to meal delivery focused on plant-based food, it seems like a large chunk of the population falls into the conscientious category. (Ivan Dimitrijevic).

So the present study has been undertaken to find out the relationship of personality and also some demographic factors with eating behaviour.

Objectives:

- To find out the influence of Education on Eating behaviour.
- To find out the influence of Gender on Eating behaviour.
- To find out the influence of Monthly family income on Eating behaviour.
- To find out the association between Eating behaviour and Personality dimensions.

II. Method

a) Sample

In this present investigation purposive sampling technique was chosen to draw the sample. The following are the characteristics:

Area of Sampling: Colleges and universities situated in Kolkata and its adjacent areas

Age Range: 18 to 25 years.

Educational level: Under graduate and Post Graduate

Sex: Male and Female

Religion: Hinduism

b) Description of the Tools

Two standardized tests were used namely:

1. Dimensional Personality Inventory by Mahesh Bhargava (1997)

2. Adult Eating Behaviour Questionnaire by Hunot C, Fildes A, Croker H, Llewellyn CH, Wardle J, Beeken RJ. (2016)

The Personality Inventory consisted of 60 statements in English. It measured six important personality dimensions: a) Activity-Passivity, B)Enthusiastic-Non-Enthusiastic, C) Assertive-Submissive, D) Suspicious-Trusting, E)Depressive-Non-Depressive, F)Emotional Instability-Emotional Stability. Each personality dimension was measured by 10items through three response alternatives –'yes', 'undecided' and 'no' which were scored as '2', '1' and '0' respectively. The total time required for administration was 15minutes.

Adult Eating Behaviour Questionnaire consisted of 35 questions. This questionnaire had 8 components of Eating behaviour - Enjoyment of Food (EF),Emotional Over Eating (EOE),Emotional Under Eating (EUE),Food Fussiness (FF),Food Responsiveness (FR), Slowness In Eating (SE), Hunger (H) and Satiety and Responsiveness (SR). All the questions were close ended having five options 1.Strongly Disagree (SD) 2.Disagree (D) 3.Neither Agree nor Disagree (N) 4.Agree (A) and 5.Strongly Agree (SA).The respondents had to read the question and select any one option. Scoring was done by assigning 1 for SD, 2 for D, 3 for N, 4 for A and 5 for SA. Scores were reversed for items 12,14,19 and 24. The total score for 8 different components were calculated separately.

Along with the two standardized tests a general information schedule was also given to collect personal information of the respondents.

c) Procedure

The data were collected using the standardized tests and general information schedule. With prior appointments from college authorities data were taken from students in their college premises. Initially rapport was established with the subjects and then the purpose of the investigation was made clear to them. The subjects were requested to go through the instructions and respond accordingly. In case of any doubt on their part while filling up the questionnaires were addressed properly. They were assured that their answers will remain confidential. The data were finally analysed by means of SPSS-16 package. Descriptive statistics, Product moment correlation and One-way ANOVA were computed to verify the objectives of the study.

III. Results & Discussion

Table 1: Mean and Std. Deviation of different components of Eating behaviour according to Education

Education	EF	EOE	EUE	FF	FR	SE	H	SR
Mean (Graduate)	11.80	10.67	17.14	10.00	11.48	10.00	14.57	11.52
N	21	21	21	21	21	21	21	21
Std. Deviation	1.965	3.526	3.928	3.081	3.516	3.493	4.094	3.010
Mean (Postgraduate)	12.05	10.75	18.40	10.85	11.65	9.05	13.10	12.00
N	20	20	20	20	20	20	20	20
Std. Deviation	1.731	4.216	4.616	3.031	3.048	4.224	3.024	2.753

Table 2: Mean and Std. Deviation of different components of Eating behaviour according to Gender

Gender		EF	EOE	EUE	FF	FR	SE	H	SR
	Mean	11.84	10.86	17.26	11.36	12.08	8.46	13.60	12.44
Female	N	50	50	50	50	50	50	50	50
	Std. Deviation	1.845	3.974	4.548	3.306	2.934	3.598	3.258	3.018
	Mean	12.60	11.38	17.40	10.18	12.60	10.10	14.60	11.44
Male	N	50	50	50	50	50	50	50	50
	Std. Deviation	1.773	4.005	4.131	3.102	3.162	3.278	3.597	2.764
	Mean	12.22	11.12	17.33	10.77	12.34	9.78	14.10	11.94
Total	N	100	100	100	100	100	100	100	100
	Std. Deviation	1.840	3.978	4.323	3.244	3.046	3.439	3.451	2.923

Table 3: Mean and Std. Deviation of Eating behaviour according to Monthly Family Income

Monthly Income		EF	EOE	EUE	FF	FR	SE	H	SR
1.15-30k	Mean	12.45	11.45	16.91	11.23	11.98	8.70	14.18	11.95
	N	44	44	44	44	44	44	44	44
	Std. Deviation	1.454	3.782	4.564	3.416	2.913	3.024	3.280	2.853
2.31-50k	Mean	12.06	10.78	17.53	10.53	11.92	10.67	14.28	12.44
	N	36	36	36	36	36	36	36	36
	Std. Deviation	2.151	3.735	3.858	3.220	2.989	3.372	3.822	2.893
3.51k-2lacs	Mean	12.00	11.00	17.90	10.20	13.90	11.55	13.60	11.00
	N	20	20	20	20	20	20	20	20
	Std. Deviation	2.026	4.888	4.689	2.895	3.076	3.900	3.235	3.044
Total	Mean	12.22	11.12	17.33	10.77	12.34	9.78	14.10	11.94
	N	100	100	100	100	100	100	100	100
	Std. Deviation	1.840	3.978	4.323	3.244	3.046	3.439	3.451	2.923

Table 4: Representation of t-values of different components of Eating behaviour according to Education

Eating Behaviour Components	t-values	df	Sig. (2-tailed)
EF	.670	48	.508
EOE	1.313	48	.198
EUE	.457	48	.651
FF	1.103	48	.278
FR	.505	48	.617
SE	.128	48	.899
H	.272	48	.788
SR	.576	48	.568

Table 5: Summary table of One way –ANOVA including Gender as independent variable and different components of Eating behaviour as dependent variables

Eating behaviour components		Sum of Squares	df	Mean Square	F	Sig.
EF	Between Groups	14.440	1	14.440	**4.412**	.038
	Within Groups	320.720	98	3.273		
	Total	335.160	99			
EOE	Between Groups	6.760	1	6.760	.425	.516
	Within Groups	1559.800	98	15.916		
	Total	1566.560	99			
EUE	Between Groups	.490	1	.490	.026	.872
	Within Groups	1849.620	98	18.874		
	Total	1850.110	99			
FF	Between Groups	34.810	1	34.810	3.388	.069
	Within Groups	1006.900	98	10.274		
	Total	1041.710	99			
FR	Between Groups	6.760	1	6.760	.727	.396
	Within Groups	911.680	98	9.303		
	Total	918.440	99			
SE	Between Groups	10.240	1	10.240	.864	.355
	Within Groups	1160.920	98	11.846		
	Total	1171.160	99			
H	Between Groups	25.000	1	25.000	2.123	.148
	Within Groups	1154.000	98	11.776		
	Total	1179.000	99			
SR	Between Groups	25.000	1	25.000	2.985	.087
	Within Groups	820.640	98	8.374		
	Total	845.640	99			

Table 6: Summary table of One way –ANOVA including Family income as independent variable and different components of Eating behaviour as dependent variables

Eating behaviour components		Sum of Squares	df	Mean Square	F	Sig.
EF	Between Groups	4.362	2	2.181	.640	.530
	Within Groups	330.798	97	3.410		
	Total	335.160	99			
EOE	Between Groups	9.429	2	4.714	.294	.746
	Within Groups	1557.131	97	16.053		
	Total	1566.560	99			
EUE	Between Groups	15.701	2	7.851	.415	.661
	Within Groups	1834.409	97	18.911		
	Total	1850.110	99			
FF	Between Groups	17.811	2	8.905	.844	.433
	Within Groups	1023.899	97	10.556		
	Total	1041.710	99			
FR	Between Groups	60.913	2	30.456	3.445	.036
	Within Groups	857.527	97	8.840		
	Total	918.440	99			
SE	Between Groups	91.051	2	45.525	4.088	.020
	Within Groups	1080.109	97	11.135		
	Total	1171.160	99			
H	Between Groups	6.432	2	3.216	.266	.767
	Within Groups	1172.568	97	12.088		
	Total	1179.000	99			
SR	Between Groups	26.842	2	13.421	1.590	.209
	Within Groups	818.798	97	8.441		
	Total	845.640	99			

Table 7: Correlations between Eating behaviour components and different Personality dimensions

Personality Dimensions	EF	EOE	EUE	FF	FR	SE	H	SR
1	.033	.109	-.150	-.112	.058	.105	.052	-.154
2	.045	-.040	-.003	-.136	.196	-.150	.243*	.006
3	.149	.100	-.077	-.007	.156	-.010	.137	.089
4	.023	.187	-.139	.207*	.068	-.128	.108	.080
5	-.030	.169	-.160	.077	-.046	.055	-.176	.092
6	.013	-.029	.042	-.163	-.058	.051	-.133	-.037
N	100	100	100	100	100	100	100	100

**. Correlation is significant at the 0.05 level (2-tailed).*

The mean values of most of the components of eating behaviour are higher for post-graduates than the under-graduate students, except for Slowness in eating and Hunger. The t-values in table 4 indicate no significant differences exist in the different components of eating behaviour between the under-graduate and post-graduate students.

The mean values of eating behaviour of Food fussiness and Satiety and responsiveness are greater for females than males. On the other hand mean values of enjoyment of food, slowness in eating and hunger are greater for males. For the Emotional under eating and Food responsiveness the mean values are almost same. From table 5, the one-way ANOVA indicates that among the different components of eating behaviour, gender has significant influence only on Enjoyment of Food, males enjoy food more than females.

In case of monthly family income, the mean values of some components of eating behaviour show more variations than the other components. The one-way ANOVA table 6 shows that monthly family income has significant influence on Food Responsiveness and Slowness in Eating components of eating behaviour.

Table 7 represents the product-moment correlations between the personality dimensions and different components of eating behaviour. Most of the correlations are not statistically significant. Significant positive correlations have been found between Suspicious-Trusting personality and Food Fussiness, and between Enthusiastic—Non-enthusiastic personality and Hunger at .05 level of confidence.

The overall findings reflect some aspects of eating behaviour of our college and university students. Although the relationship of personality dimension tends

to be insignificant for most of the components of eating behaviour, the demographic variables of gender and family income seems to be important in determining some types of eating behaviour. Significant positive correlations have been found between food fussiness and suspicious personality, and hunger and enthusiastic personality. To some extent the findings are consistent with results of previous researches. For instance, *Goldberg and Strycker (2000)* have reported that although self-reported eating practices are not related to educational level, intelligence, they are related to demographic variables of gender and age. They have also found an association of dietary habits with personality attributes.

A recent study on Ghanaian University students reports that except for neuroticism, all the personality traits have a significant association with at least one of the dietary habits that have been explored. Extraversion is positively associated with neophagia ($p = 0.028$) and food interest ($p = 0.008$), conscientiousness is associated with variety ($p = 0.045$) and sugar moderation ($p = 0.006$), agreeableness is associated with neophagia ($p = 0.005$), skipping of meals ($p = 0.007$) and variety ($p = 0.005$) and openness is associated with food interest ($p = 0.009$) *(Freda DzifaIntiful, Emefa Gifty Oddam, Irene Kretchy & Joana Quampah, 2019). Darja Kobal Grum (2017)* has also found association between the factors of eating behaviour and psychological dimensions such as coping with stress and extraversion.

This present study is not free from some limitations. The assessment of personality and eating behaviour among the students are based on the individual's own assessment of his/her self and therefore responses can be biased. The sample size is also considerably small and not truly representative.

IV. Conclusion

With the increase in the prevalence of obesity and chronic diseases due to dietary habits, it is necessary to investigate the personality and demographic factors associated with eating behaviours. This study is therefore relevant in spite of some limitations. Further studies are required in this area to obtain more information for the development of appropriate eating behaviours with due consideration of personality dimensions.

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Use of Ejector Pumps for the Pumpage from the Water-Bearing Bore Holes

By F. F. Mende

Abstract- In private life frequently appears need the guarantee of individual water supply on the place of residence or on the dacha. For these purposes are used the water-bearing bore holes, which are carried out with the aid of the drilling rigs. This is the expensive operation, since it requires not only the presence of drilling rig, but also requires installation in the bore hole of the well casings of large diameter. The large diameter of pipes is caused by the need for the installation in them of immersion water pumps. In the article several versions of the use of water ejector pumps for the solution of this problem are proposed.

Keywords: *bernoulli law, injection pump, aquifer, pressure.*

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Use of Ejector Pumps for the Pumpage from the Water-Bearing Bore Holes

F. F. Mende

Abstract- In private life frequently appears need the guarantee of individual water supply on the place of residence or on the dacha. For these purposes are used the water-bearing bore holes, which are carried out with the aid of the drilling rigs. This is the expensive operation, since it requires not only the presence of drilling rig, but also requires installation in the bore hole of the well casings of large diameter. The large diameter of pipes is caused by the need for the installation in them of immersion water pumps. In the article several versions of the use of water ejector pumps for the solution of this problem are proposed.

Keywords: bernoulli law, injection pump, aquifer, pressure.

I. Device and the Parameters of the Ejecting Pumps

The operating principle of ejecting pump is based on the use of a law Of benulli for the moving fluid flows. The law of Bernoulli (also the Bernoulli equation, Bernoulli's theorem or Bernoulli's integral) establishes dependence between by the speed stationary fluid flow and it by the pressure. According to this law, if lengthwise flow line the pressure of liquid grows, then rate of flow diminishes, and vice versa. The quantitative expression of the law in the form of Bernoulli's integral is the result of the integration the equations the hydrodynamics the ideal fluid (i.e., without the viscosity and the thermal conductivity). The schematic of the simplest ejector pump is shown in Fig. 1.

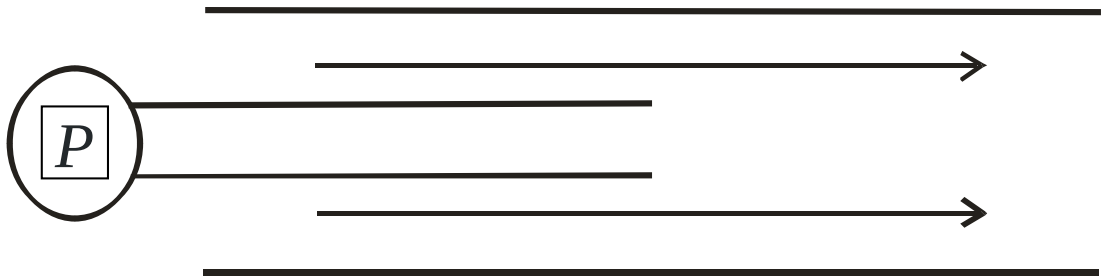

Fig. 1: Schematic of the ejector pump

If along the pipe, into which it is inserted the pipe of smaller diameter, moves liquid, then is the manometer, established at the beginning of the pipe of smaller diameter, negative pressure in comparison with the external pressure will show. The degree of the vacuum, which ensures this pump, depends on the speed of liquid in the pipe and the pressure of the saturated vapors of the utilized liquid. If water is used as the liquid, then in the limits of temperatures, pumped out from the bore hole water (10-20 s) this pressure varies in the limits of ten mm. the mercury column. Consequently, if this pump is used as the external pump, connected to the pipe of that oppressed into the soil, then this pump can ensure the rise of water from the depth not more than 10 m.

II. Schematics of the use of an Ejector Pump for the Pumpage from the Bore Hole

In Fig. 2 is shown one of the possible the schematics of the use of an ejector pump for the pumpage from the bore hole when pump it is established outside the pipe, oppressed into the soil.

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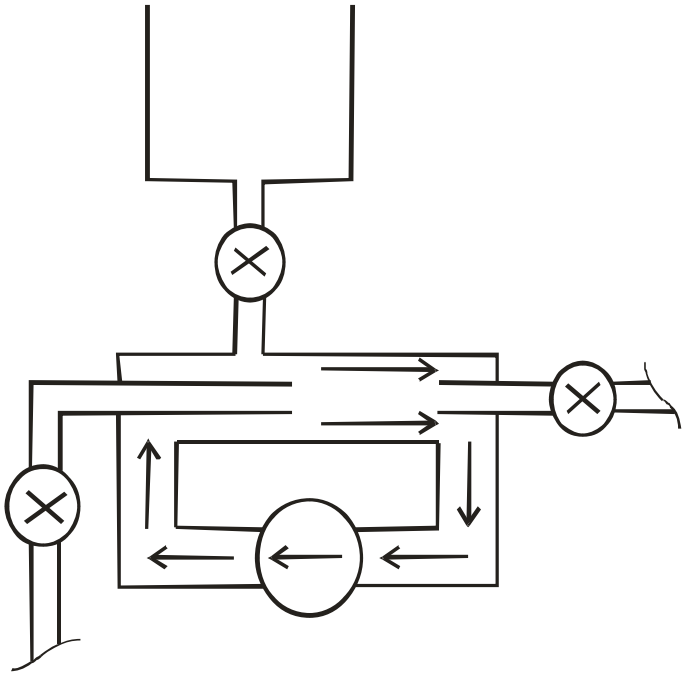

Fig. 2: Schematic of the ejector pump

The starting of pump is achieved as follows. Pours water into the flood tank (it is located in the upper part of the figure) and they fill the cavity of pump with water. In this case the crane, which connects flood tank with the pump should be left those opened. After this, they start the mechanical pump (it is designated krzhkom with the pointer) and is opened left crane. From the pipe of bore hole in this case begins to be pumped out air, which leaves through the flood tank. After the water, pumped out, will begin to enter into the pump, the water level in the flood tank will begin grow from the bore hole. After this, is shut the crane, which connects flood tank with the pump and they open the right crane, from which will begin to enter the water, pumped out from the bore hole. A drawback in this pump is, as we already indicated, the fact that with its aid it is not possible to pump out water from the bore hole, in which the water level is located at the depth more than 10 m.

In Fig. 3 the diagram is represented the pump of free from this deficiency. This is reached by the fact that the ejector pump is established in the lower part of the pipe.

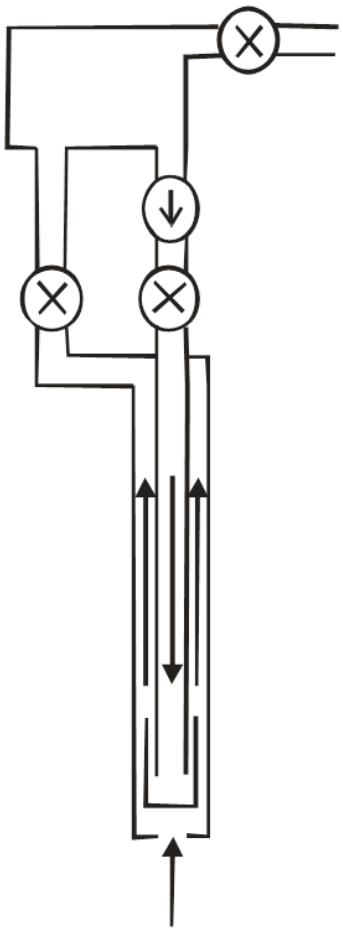

Fig. 3: The schematic of the pump, in which ejector pump is established in the lower part of the pipe. By pointers figure shows the direction of the motion of water.

Represented construction of pump gives the possibility to pump out water from any depths. Pump is started as follows. Through the upper edge flood tank and cavity of pump are flooded. Then they start the mechanical pump (it is shown by circle with the pointer) and after this simultaneously are opened lower cranes. After a certain time the water, pumped out from the bore hole, will begin to leave through the upper edge and the pump it is ready to operation.

III. Conclusion

In private life frequently appears need the guarantee of individual water supply on the place of residence or on the dacha. For these purposes are used the water-bearing bore holes, which are carried out with the aid of the drilling rigs. This is the expensive operation, since it requires not only the presence of drilling rig, but also requires installation in the bore hole of the well casings of large diameter. The large diameter of pipes is caused by the need for the installation in them of immersion water pumps. In the article several versions of the use of water ejector pumps for the solution of this problem are proposed.

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‘¾ Law’ Revisited in Allometry

By Chiranjib Patra
Calcutta Institute of Engineering and Management

Abstract- The success of ¾ law in allometry has been entirely due to the uncanny fitting to the datasets. But on the contrary, the proof of ¾ factor seemed to elude rather than more convincing 2/3 law seemed to be prevalent. In this communication based on recent findings due to Opto Droplet tool shows the reincarnation of the ¾ law. The analysis is based on the hypothesis of Dynamic Biological Mass and Real Biological Mass rather than simple biological mass. It can be seen that this hypothesis can lead to the distinction between malicious growth and good growth.

Keywords: *allometry, dynamic biological mass, real biological mass, metabolism, ontogenetic.*

GJSFR-I Classification: *FOR Code: 029999p*

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I. Introduction

Mathematical modeling is powerful tool to test new hypothesis and stimulate dynamic experiments .In addition to simulation it can reduce the dimensions of observation to actually useful set to generalize the data into a meaningful equation. Sometimes modeling is required to harmonize across many systems otherwise specifically to a system in understanding the fine spectra of the observations.

In connection to the mathematical modeling, ontogenetic modeling of growth is a well studied subject. Several models have been developed in order to describe growth of biological systems. Though ontogenetic growth is a non linear phenomena and complex process, yet the studies contributed by West et al in harmonizing across the living world remains exemplary. West et al [1] used fractal like branching of network for the transportation of resources to derive a differential equation showing growth of biological masses. In another approach by von Bertalanffy [11], stated that the energy consumed by an organism is considered to be proportional to the surface area of the body of an organism. Guiot et al [4] extended West's findings to explain the dynamics of solid tumor growth in vitro with considerable success. Thus we find the applicability of West's general model for the ontogenetic growth of living organisms fits the modeling of solid malignant tumors.

In spite of this success, the infamous ¾ exponent [5] is still a mystery in the deduction that applies in the matching of the datasets from single to multicellular organisms.

In the present communication the endeavor is on the understanding of the '¾ law 'conjecture, which is arguably the finest open problems in mathematical biology. The organization of the work starts with Introduction followed by Smoluchowski equation, The Model, then the conception Dynamic Biological Mass followed by Discussions and finally conclusions and future work.

a) Smoluchowski Equation

In reference [7] the authors Hall and Miyake stated that 'Condensations are the aggregations of cells from which cartilages and bones form during embryonic development and from which chondrogenesis and osteogenesis are initiated during repair and/or regeneration.' which means West 's assumption is coupled up with a process called condensation. In another reference [8,9] the same condensation like process is reported inside the cell and is discussed in detail in section 2. As stated earlier the growth process is a complex and non linear phenomena, the choice of Smoluchowski Equation to explain the condensation by aggregation is obvious. It is also reported that the condensation by aggregation can only be explained by stochastic theory for capturing the non linear phenomena [2,3].

Typically the non equilibrium process is represented by rate equation. Smoluchowski Equation for the irreversible aggregation is represented as

$$\frac{\partial c(x,t)}{\partial t} = -c(x,t)\int_0^\infty K(x,y)c(x,t)dy + \frac{1}{2}\int_0^x dyK(y,x-y)c(y,t)c(x-y,t) \quad (1)$$

here the kernel is K(x,y) is symmetric wrt to this argument and it determines the collision time which the particle of size x collides with other particle of size y and they merge into a particle of size x+y. For the class of kernels K(bx,by)=bλK(x,y). The exponent λ has some physical significance to this particular problem, if λ>1 the gelation process starts accompanied by the non equilibrium process. This gelation process mimics the formation of biological mass.

b) Model

Initially [2,3] we assume a considerably large number of spherical particles suspended in the fluid medium. These particles experience Brownian motion and are continuously growing in sizes in a heterogeneous medium. As the size increases the weight also increases, in other words, the mass growth

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is directly proportional to the size. To summarize the steps of the gelation process is

1. Two particles are picked at random which exhibits Brownian motion in three dimensions
2. The sizes of the particles are increased by the fraction α of their respective sizes.
3. The sizes of the formed particle are now the present particle.
4. These steps 1 to 4 are repeated up to Infinitum.

The tree structure represents the graphical view of the abovementioned process.

II. Dynamic Biological Mass

The basic law due to West et al [1] states that the metabolic energy produced is distributed partly for the maintenance of tissues and other for the generation of the cells. While using the metabolic energy for deducing the ultimate classical sigmoid equation, the process responsible for the generation of metabolic energy is not put to use. The entire motivation for the deduction of the ¾ exponent is based on the reports from Princeton University[8,9] and [7]. The opto Droplet reported how proteins inside a cell will assemble into the liquid and gellike states. And also this reversible mechanism to condense and dissolve the proteins by turning the lights on and off. This reversible process is all about the phase transitions (liquidgel). It also reported that if there is an upset in the parameters for the reversible cycle, the process can be irreversible as well as forming solid like aggregates.

As the prime focus is on the reversible process in which the state of the system is acted diabetically without actually undergoing phase transition that results in a state which is less stable than the state if the phase transition would have occurred. So in a generalized way, the cells taken into consideration will exhibit this process. Now we can consider this metastable state as m(R,t) as Dynamic Biological Mass (DBM). In this present communication, we introduce the concept of DBM to differentiate between the real biological mass to have a better understating and spectral of the mass under consideration in [1]West et al 's paper.

Its clear from the system described for a single cell is applicable for a system of cells which is an example of aggregation of the particles whose behaviors are the characteristic of non-equilibrium processes. Thus one can conclude that the process responsible for the growth mimics the condensation due to aggregation physically. In this type of system, any standard theoretical framework developed based on statistical mechanics is found insignificant. This system of non equilibria is generally understood by stochastic theory. In section 1.1 and 1.2 describes the used of Smoluchowski solution of the condensation driven aggregation (CDA) as given by Hassan et al [2,3] for one dimension is

$$c(x,t) \sim \exp\left(\frac{-x}{t^{1+2a}}\right) t^{-2-2a} \qquad (2)$$

Now by using [l0] extending to three dimension we can convert the above expression for three dimension and using the identities x^2 +y^2+z^2 =r^2 and the inequality x^2 +y^2+z^2 >= xy+yz+zx we have

$$c(r,t) \sim r^2 \exp\left(\frac{-r\sqrt{3}}{t^{1+2a}}\right)$$

this equation represents order of the concentration of masses due to CDA.
Hence the total number of particles should be.

$$dN(t) \sim r^2 \exp\left(\frac{-r\sqrt{3}}{t^{1+2a}}\right).r.dr \qquad (3)$$

While framing the dynamical biological mass formation, the number of particles is considered as the order of mass (considering the mass of each cell as constant). Hence one can write,

$$m(r,t) \sim N(t) \qquad \text{.....(4)}$$

where N(t) represents the number of particles.

So by integration of equation 3 and using equation 4 we have,

$$m(R,t) \sim \frac{2t^{4(2a+1)}}{3} - \frac{1}{3}t^{2a+1} e^{\frac{-R\sqrt{3}}{t^{2a}+1}} \left(2k^3+2\sqrt{3}k^2R+3t^{2a+1}R^2+\sqrt{3}R^3\right) \qquad \text{...(5)}$$

Note that the above expression can be seen as the dependent on time.

Now considering the second part of the equation 5 and expanding the exponential expression and considering the term independent of time $(t^{(2a+1)})$, we have,

$$m(R,t) \sim \frac{-1}{3}R^3 t^{(2a+1)}\left(1-\sqrt{3}\frac{R}{t^{(2a+1)}}+\text{.....}\right)$$

simplification the above terms generates a term independent of time $(t^{(2a+1)})$, (other terms are not considered as they contain the 't' component)which has the power of 4 as described below

$$m(R,t) \sim \frac{1}{\sqrt{3}}R^4 \qquad \text{.....(6)}$$

using the the radius relation to density and mass as $R=\sqrt[3]{\frac{3M}{4\pi\rho}}$ in equation 6 we have,

$$m(R,t)\sim M^{\left(\frac{4}{3}\right)} \tag{7}$$

Finally changing sides we have

$$M\sim m(R,t)^{\left(\frac{3}{4}\right)} \tag{8}$$

The interpretation for the equation 8 is the real biological mass (RBM) is ¾ power of the meta stable DBM, which explains the ¾ exponent for the west et al theoretical deduction [1,6].

III. Discussion

The above sections introduce a concept of dynamic biological mass (DBM) and real biological mass (RBM), this hypothesis throws some light upon another part of West et al fundamental consideration that the product of the number of cells produced and the mass of each cell is equal to the biological mass. Practically the number of cells produced must be greater, but due to the evolutionary process, the fittest cells survive and will grow.

Now considering the West et al fundamental equation replaced by DBM in the place of simple biological mass, the equation becomes more meaningful for understanding the evolution process. The report by Guoit et al [4] predicts that the growth of cancer follows the west et al [1] ¾ law which can be understood in better terms if DBM with higher-order terms is considered.

IV. Conclusions and Future Work

The hypothesis of using DBM is logically effective in understanding the evolutionary process and if used in cancer growth phenomena then the analysis of fine growth of malicious structures can be identified. This concept can be even extended to distinguish between good growth and bad growth. In the study reported by the Opto Droplet tool reveals that there is an irreversible reaction which leads to the accumulation of solid gels indicative of some unwanted growth.

The future work will be done in the direction of understanding the fractal nature in the process considering the hypothesis is tested.

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Concentrator of the Air Flow

By F. F. Mende

Abstract- One of the essential problems of the use of energy of wind is the fact that to wind generator the wind can blow from the different sides and its wind wheel must be turned in the direction opposite to wind direction. There is a whole series of constructions of wind generator, the operating principle of which is based on what the different parts of the wind wheel has different aerodynamic drag with respect to the wind direction. However, in practice it does not succeed to obtain a large difference aeroditamicheskikh in the resistances indicated, which decreases the effectiveness of such generators. Furthermore, such wind generator are fairly complicated from a design point of view. But since such generators have wide practical application, of urgent appears the problem of developing of highly effective simple of wind generator. The creation of this device, which dependently on the wind direction directs, is one of the ways of creating this generator the air flow in one assigned direction. To the creation of this device is dedicated the article.

Keywords: *wind generator, wind wheel, aerodynamic drag, airflow.*

GJSFR-I Classification: *FOR Code: 029999*

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I. Problems of the Creation of wind Generator

One of the essential problems of the use of energy of wind is the fact that to wind generator the wind can blow from the different sides and its wind wheel must be turned in the direction opposite to wind direction.

There is a whole series of constructions of wind generator the operating principle of which it is based on what the different parts of the wind wheel has different aerodynamic drag with respect to the wind direction. Such wind generators are shown in the following photographs:

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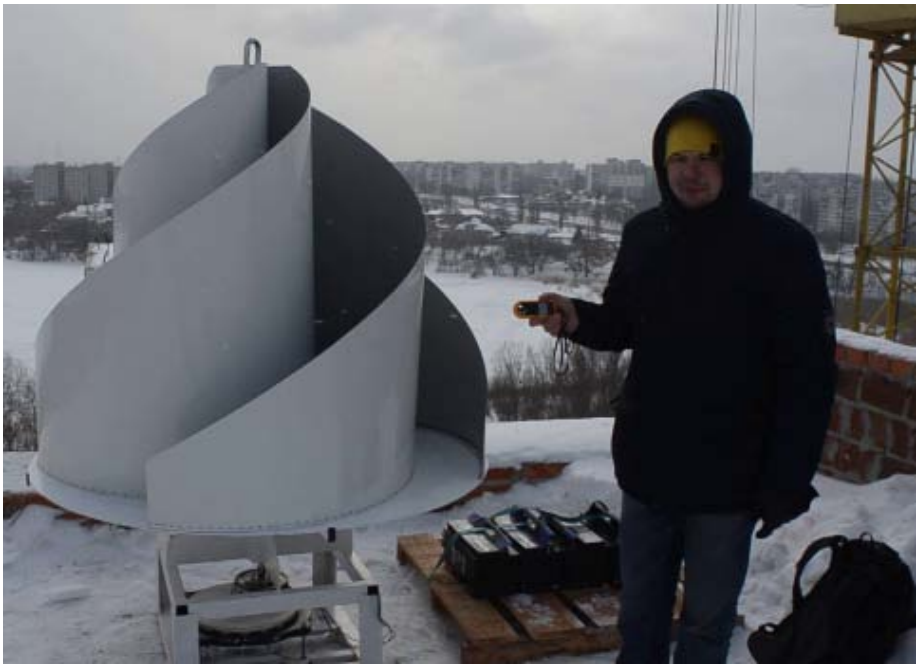

However, in practice it does not succeed to obtain a large difference aeroditamicheskikh in the resistances indicated, which decreases the effectiveness of such generators. Furthermore, such wind generator, as can be seen from photographs, are fairly complicated from a design point of view. But since wind generator have wide practical application, of urgent appears the problem of developing of highly effective simple wind generator.

The creation of device, which not dependences on the wind direction directs, is one of the ways of creating this generator the air flow in one assigned direction. After placing on the way of this flow wind wheel, it is possible to convert energy of flow into the mechanical or electrical energy. Since as yet there is no term, which determines this device, let us name its concentrator of the air flow.

II. Concentrator of the Air Flowand its Construction

Let us attempt to create the device, which is not dependent on the wind direction, it will direct the aircurrent in the vertical, or in other desired direction. The type of this device from above and from the side is shown in Fig. 1 and Fig. 2.

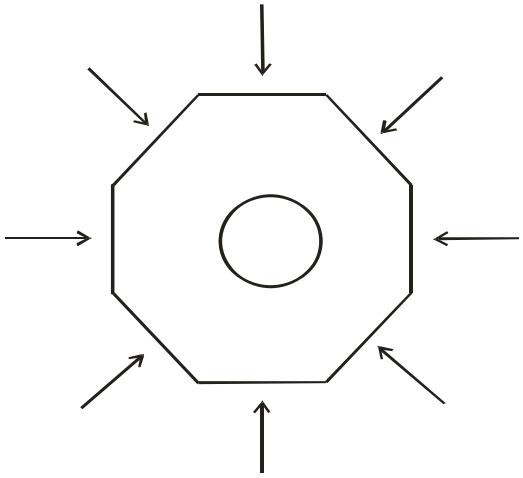

Fig. 1: Type of device on top. Pointers showed possible wind directions

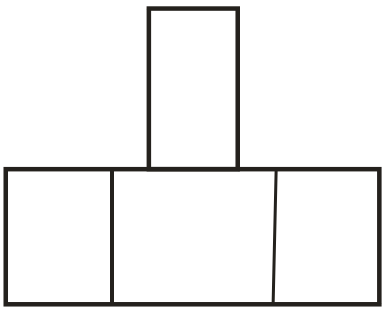

Fig. 2: Type of device on the side

Device works in such a way that it is not dependent on the wind direction, the air flow, by it created, it is sent for the stand pipe, which is located in the upper part of the device. If flow must be directed to other side, then this pipe can have a bend in the desired direction.

As is evident device presents the octahedron, whose development is shown in Fig. 3. The lower part of the octahedron has the flat bottom, not permeated for air, and flow, air, created is sent by wind for the stand pipe.

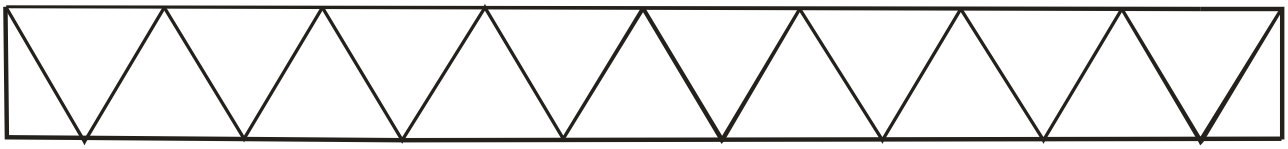

Fig. 3: Development of the side member of the device

The side member of the device consists of the triangles, the bases of half of which are located on the lower line, the basis of the remaining part of the triangles are located on the upper line. The triangles, whose basis being been located not of lower line, present those not penetrated for air by partitions. But the contour of the triangles, whose basis are found on the upper line, they are closed with the triangular shutters, which can be opened only inward under the wind pressure. Thus, from whatever side not of muzzles wind, the leeward part of the shutters will be opened, but the opposite part of the shutters will be closed and the flow, created by air, will be directed to the pipe, which is located in the upper part of the device.

Let us calculate the possible energy parameters of wind generator, with the use of a concentrator of the air flow.

Kinetic energy E_k, the air flow with the average speed $\overline{v}$, of passing through the cross section S, perpendicular $\overline{v}$, and it is calculated by the mass m, of air to the formula

$$E_k = \frac{m\overline{v}^2}{2}. \quad (1)$$

If in relation (1) as m to take the mass flow per second of air, kg/s, then we will obtain the value of the power, developed by airflow, i.e.

$$P = \frac{\rho \bar{v}^3 S}{2}, \qquad (2)$$

where ρ - the air density

If we place $S = 1m^2$, that we will obtain the specific power of the air flow
center

$$P_{spec} = \frac{\rho \bar{v}^3}{2}.$$

Usually in the calculations as ρ is taken its value, equal 1,226 to kG/m^3, which corresponds to the following normal climatic conditions: t = 15°S, r = 760 mm of mercury column (101,3 kPa).

We will consider that only 50% 0vetrovogo air flow are usefully used by a concentrator and only 50% ot of this power is converted into the mechanical or electrical energy. From (2) we obtain the useful nominal power, manufactured by the generator

$$P_{rated} = \frac{\rho \bar{v}^3 S}{8}.$$

Let us give concrete example, let us assume $\bar{v} = 10 \frac{m}{s}$ and $S = 10m^2$, then the generatable power is 1.5 kW. These are very good indices.

III. Conclusion

One of the essential problems of the use of energy of wind is the fact that to wind generator the wind can blow from the different sides and its wind wheel must be turned in the direction opposite to wind direction. There is a whole series of constructions of wind generator, the operating principle of which is based on what the different parts of the wind different aerodynamic drag with respect to the wind direction has wheels. However, in practice it does not succeed to obtain a large difference aeroditamicheskikh in the resistances indicated, which decreases the effectiveness of such wind generator. Furthermore, such generators, as can be seen from given photographs, are fairly complicated from a design point of view. But since wind generator have wide practical application, of urgent appears the problem of developing of highly effective simple wind generator.

The creation of this device, which dependently on the wind direction directs, is one of the ways of creating this generator the air flow in the assigned direction. The construction of this device is represented in the article.

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Enhancement of Blood Cholesterol Level Relating to Edible Reused Cooking Oil Uptake in White Experimental Albino Rats

By Mutaz Mohamed Ahmed Elshiekh

Abstract- Reusing cooking oil in food preparation, especially during deep-frying is a common practice to save costs. Repeated heating of the oil accelerates oxidative degradation of lipids leading to severe changes in lipid profile of the blood and forming hazardous reactive oxygen species which depletes the natural antioxidant contents of the cooking oil leading to pathologies such as hypertension, diabetes and vascular inflammation. The main objective of this work is to investigate the effect of the reused edible cooking oil uptake with the plasma cholesterol level in some experimental animals. Twenty adult male swiss albino (SWR)rats, weighing 120-200g body weight were housed within the premises of the medicinal and aromatic plant research institutes, national center for research Khartoum. They were randomized to one of the following experimental groups, with five animals per group: Group 1 the Normal group were administered normal diet (control group), Group 2 the experimental group were administered high-fat diet with low dose reused oil injection, Group3 the experimental group were administered high-fat diet with high dose reused oil injection , Group4 the experimental group were administered high –fat diet (disease group).

Keywords: *cholesterol level, reused oil, albino rats, normal group and disease group.*

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Randomly fasting blood cholesterol level was done in 20 rats to identify the level of cholesterol before the administration of special diet that contain high saturated fat and cholesterol powder to elevate the level of cholesterol in albino rats.

Rats of group two were injected with 1.5 ml/kg reused oil as a low dose and rats of group three will be injected with 3.0 ml/kg reused oil as a high dose .blood sampling and cholesterol level determination were done once a week for each rat separately for four weeks.

Concerning the average cholesterol level of group 1 rats, it showed a narrow range elevation for the consecutive four weeks respectively. Group 2 rats shows a considerable range of average cholesterol level elevation. For rats of group 3 we expect a significant average cholesterol level elevation starting from the fasting period up to the fourth week, as the rats of this group were injected with 3 ml/kg (considered as a high dose) reused oil in addition to the high cholesterol diet and this is exactly what we observed .The average cholesterol level of group 4 rats was moderately elevated.

Keywords: cholesterol level, reused oil, albino rats, normal group and disease group.

I. Introduction

Fats and lipids are common components of food and may perform essential roles. Their types may be more important with regard to health and disease than their amount. New research has linked functional lipids to the prevention and treatment of many diseases.

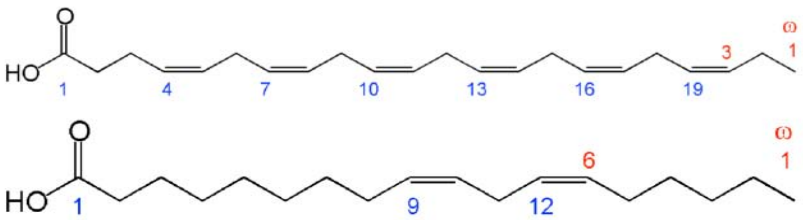
a) Lipids

Lipids are molecules that can be extracted from biological tissue with a nonpolar solvent. Lipids are essential components of all living organisms. Lipids are water insoluble organic compounds. They are hydrophobic (nonpolar) or amphipathic (containing both nonpolar and polar regions).[1]

b) Omega3 and Omega 6 fatty acids

Omega-6 fatty acids (also referred to as ω-6 fatty acids or *n*-6 fatty acids) are a family polyunsaturated fatty acids that have in common a final carbon-carbon double bond in the *n*-6 position, that is, the sixth bond, counting from the methyl end. [2]

Omega-3 fatty acids—also called ω-3 fatty acids or *n*-3 fatty acids are polyunsaturated fatty acids (PUFAs) with a double bond (C=C) at the third carbon atom from the end of the carbon chain. Fatty acids, especially essential fatty acids, are gaining importance in poultry feeding systems not only for improving the health and productivity of birds, but also because of our health-conscious society that prefers properly balanced diets to minimize adverse health issues [3].



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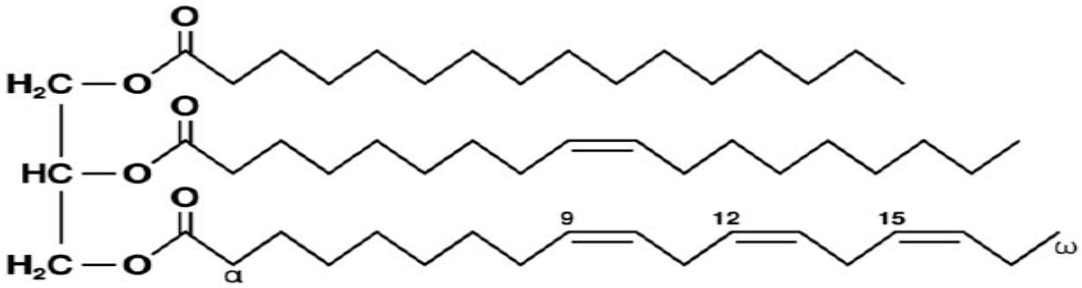
c) Structure of Triglyceride

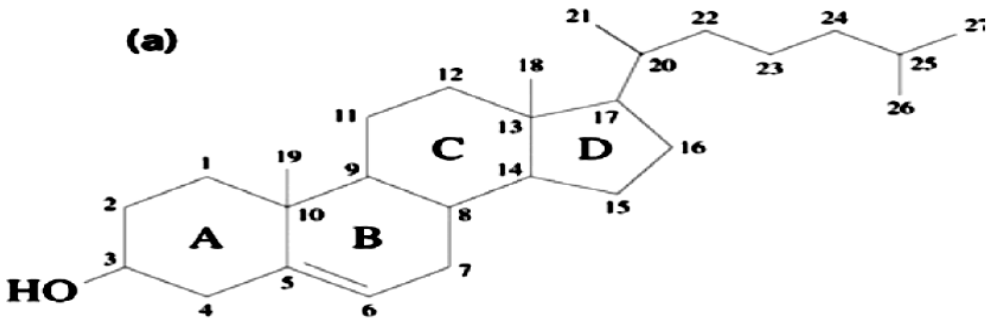
A triglyceride (TG, triacylglycerol, TAG, or triacylglyceride) is an ester derived from glycerol and three fatty acids (*tri-* + *glyceride*). Triglycerides are the main constituents of body fat in humans and other animals, as well as vegetable fat. They are also present in the blood to enable the bidirectional transference of adipose fat and blood glucose from the liver, and are a major component of human skin oils.



There are many different types of triglyceride, with the main division between saturated and unsaturated types. Saturated fats are "saturated" with hydrogen – all available places where hydrogen atoms could be bonded to carbon atoms are occupied. These have a higher melting point and are more likely to be solid at room temperature. Unsaturated fats have double bonds between some of the carbon atoms, reducing the number of places where hydrogen atoms can bond to carbon atoms. These have a lower melting point and are more likely to be liquid at room temperature [4].

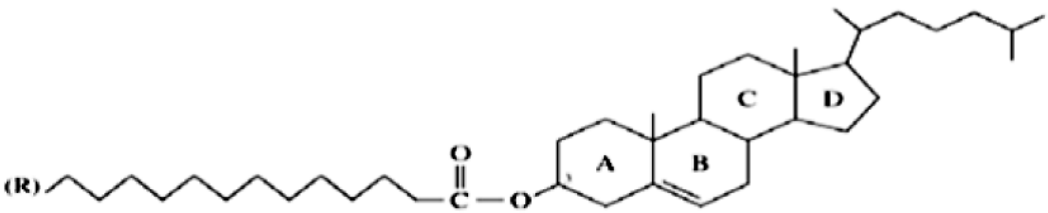
d) Cholesterol

Cholesterol modulates the fluidity of mammalian cell membranes. It is also a precursor of the steroid hormones and bile salts .It is a sterol (has hydroxyl group at C-3). The fused ring system makes cholesterol less flexible than most other lipids.



i. *Cholesterol esters*

Cholesterol is converted to cholesterol esters for cell storage or transport in blood. Fatty acid is esterified to C-3 OH of cholesterol. Cholesterol esters are very water insoluble and must becomplexed with phospholipids or amphipathicproteins for transport. [5].



ii. *Importance of cholesterol*

1. Helping to make the outer coating of cells.
2. Making up the bile acids that work to digest food in the intestine.
3. Allowing the body to make Vitamin D and hormones, like estrogen in women and testosterone in men [6].

e) Lipid profile test

Your health care team can do a simple blood test to check your cholesterol levels. The test is called a lipid profile. The test measures several kinds of total cholesterol and its individual parts including triglycerides. Some doctors do another blood test that just checks total and HDL cholesterol [7].

f) Complication of high cholesterol on the body

Cholesterol moves through your bloodstream via lipoproteins. Low-density lipoproteins (LDL) and Highdensity lipoproteins (HDL). Too much LDL and not enough HDL makes it more likely that the arteries will develop plaque that lead to coronary arteries narrow, it's harder for blood to make it through to the heart. If an area of plaque breaks open, it can result in a blood clot, which can block blood flow all together. This creates a great risk of having a heart attack. High cholesterol can create a bile imbalance, leading to gallstones Symptoms include abdominal pain, nausea, vomiting, and bloody stools.

g) Some diseases related to high blood Cholesterol level

i. *Coronary heart disease*

The main risk associated with high cholesterol is coronary heart disease (CHD) .If the cholesterol is too high, it builds up on the walls of the arteries. Over time, this buildup is known as atherosclerosis. This condition causes arteries to become narrowed, and the narrowed blood vessels reduce blood flow to the heart. This can result in angina (chest pain) from not enough blood flow getting to the heart, or a heart attack in cases when a blood vessel is blocked completely and the heart muscle begins to die.

ii. *Stroke*

A stroke occurs when a blood vessel that carries oxygen and nutrients to the brain becomes blocked or bursts. A stroke can result if the blood supply to the brain is reduced. When stroke occurs, part of the brain cannot get the blood and oxygen it needs, so it starts to die.

iii. *Peripheral arterial disease*

High cholesterol also has been linked to peripheral arterial disease (PAD), which refers to diseases of blood vessels that are outside the heart and brain. In PAD, fat deposits build up along artery walls and affect blood circulation, mainly in arteries leading to the legs and feet. The arteries of the kidney can also be affected.

iv. *Type 2 diabetes*

Type 2 diabetes is another disease linked to high cholesterol because diabetes can affect the different cholesterol levels. Even if blood sugar control is good, people with diabetes tend to have increased triglycerides, decreased high-density lipoprotein (HDL), and sometimes increased low-density lipoprotein (LDL). This increases the likehood of developing atherosclerosis.

v. *High blood pressure*

High blood pressure (hypertension) and high cholesterol also are linked. When the arteries become hardened and narrowed with cholesterol plaque and calcium (atherosclerosis), the heart has to strain much harder to pump blood through them. As a result, blood pressure becomes abnormally high. [8]

h) Sunflower oil

Sunflower oil is the non-volatile oil compressed from the seeds of sunflower (*Helianthus annuls*). Sunflower oil is commonly used in food as frying oil, and in cosmetic formulations as an emollient. The world's largest sunflower oil producers now are Ukraine, Russia and Argentina. [9]

II. Method

a) General methodology

Twenty adult male Swiss albino (SWR) rats, weighing 120-200g body weight were housed within the premises of the medicinal and aromatic plant research institutes, national center for research Khartoum. They were kept under good ventilation with 12 hours light and dark cycle. They were housed in the experiment animal laboratory of the institute. The animals were allowed acclimatize for five days having access to water and food. They were randomized to one of the following experimental groups, with five animals per group:

Group 1: Normal rats were administered normal diet (control group).

Group 2: Experimental group were administered high-fat diet and will be injected with low dose reused oil.

Group 3: Experimental group were administered high-fat diet and will injected with high dose reused oil

Group 4: Experimental group were administered high – fat diet (disease group).

Randomly fasting blood cholesterol level test was done in the 20 rats to identify the level of cholesterol before the administration of special diet that contain high saturated fat and cholesterol powder to elevate the level of cholesterol in albino rats.

Rats of group 2 will be injected individually with 1.5 ml/kg reused oil as low does and rats of group 3 will be injected with 3.0 ml/kg reused oil as high does .blood sampling and cholesterol level determination were done once a week for each rat separately. [10]

b) Feeding the Animal

The animals were fed by cholesterol –enriched high fat diet for four weeks. The mixture consists of 50 ml of natural Ghee and 9.6 gm of cholesterol powder (stabilizer 95%).Cholesterol powder was added gradually to the ghee with continuous mixing with glass rod until homogenous solution was obtained. This gave a fatty dietary formula with concentration of 2gm/ 10 ml ghee. The rats were received the mixture according to weight for four weeks. [11]

c) Blood collection

The blood was collected in heparin zed tube from rats in each group and centrifuged at 3000 rpm

and the plasma was collected. Plasma level of total cholesterol was determined.

d) Total cholesterol determination

This was determined according to modified enzymatic method of Trinder (1969); the method is based on the ability of all cholesterol ester present in plasma to quantitatively hydrolyze into free cholesterol and fatty acid by cholesterol esterse. In the presence of oxgen, free cholesterol is then oxidized by cholesterol oxidase to cholest-4-ene-3-one and hydrogen peroxide (H2O2).The H2O2 reacts with phenol and 4-aminophenazone in the presence of peroxidase to form an o-quinoeimine dye. The intensity of the color form is proportional to the cholesterol concentration in the sample with maximum absorption at 500 nm. [12]

III. Results

Table 1: Cholesterol level in mg/dl for the 20 rats during the fasting period at zero time

Number of Rats	Total. Cholesterol(mg/dl)
Group(1)	
1	75
2	78
3	70
4	73
5	70
Group(2)	
1	77
2	82
3	75
4	80
5	68
Group(3)	
1	69
2	74
3	80
4	78
5	76
Group(4)	
1	68
2	86
3	78
4	75
5	66

Table 2: Cholesterol level in mg/dl for the 20 rats after one week

Number of Rats	Dose	Total cholesterol (mg/dl)
Group(1) 1	basal diet (mixing of tomato	77
2	+cheese+bread)	80
3		70
4		76
5		72
Group(2) 1	High fat diet	85
2	+injection With 1.5 ml/kg reused oil	88
3	(butter+egg+powder Cholesterol)	80
4		85
5		79
Group(3) 1	High fat diet	
2	+injection With 3.0 ml/kg reusedoil	79
3	(butter+egg+powder Cholesterol)	88
4		89
5		90
Group(4) 1		95
2		86
3	High fat diet (butter+egg+powder	79
4	Cholesterol)	78
5		69

Table 3: Cholesterol level in mg/dl for the 20 rats after two weeks

Number of Rats	Dose	Total. cholesterol(mg/dl)
Group(1) 1	basal diet (mixing of tomato +cheese+bread)	77
2		81
3		72
4		76
5		74
Group(2) 1	High fat diet +injection With 1.5 ml/kg reused oil (butter+egg+powder Cholesterol)	95
2		92
3		89
4		92
5		86
Group(3) 1	High fat diet +injection With 3.0 ml/kg reused oil (butter+egg+powder Cholesterol)	69
2		102
3		110
4		114
5		105
Group(4) 1	High fat diet (butter+egg+powder Cholesterol)	87
2		92
3		86
4		84
5		80

Table 4: Cholesterol level in mg/dl for the 20 rats after three weeks

Number of Rats	Dose	Total. Cholesterol(mg/dl)
Group(1) 1	basal diet (mixing of tomato +cheese+bread)	75
2		80
3		72
4		77
5		73
Group(2) 1	High fat diet +injection With 1.5 ml/kg reusedoil (butter+egg+powder Cholesterol)	112
2		116
3		114
4		118
5		115
Group(3) 1	High fat diet +injection With 3.0 ml/kg reused oil (butter+egg+powder Cholesterol)	121
2		125
3		128
4		132
5		127
Group(4) 1	High fat diet (butter+egg+powder Cholesterol)	97
2		102
3		102
4		89
5		110

Table 5: Cholesterol level of the 20 rats after four weeks

Number of Rats	Dose	Total. Cholesterol (mg/dl)
Group(1) 1 2 3 4 5	basal diet (mixing of tomato +cheese+bread)	76 80 74 78 73
Group(2) 1 2 3 4 5	High fat diet +injection With 1.5 ml/kg reused oil (butter+egg+powder Cholesterol)	154 158 169 178 182
Group(3) 1 2 3 4 5	High fat diet +injection With 3.0 ml/kg reused oil (butter+egg+powder Cholesterol)	224 216 226 223 234
Group(4) 1 2 3 4 5	High fat diet (butter+egg+powder Cholesterol)	114 120 117 118 131

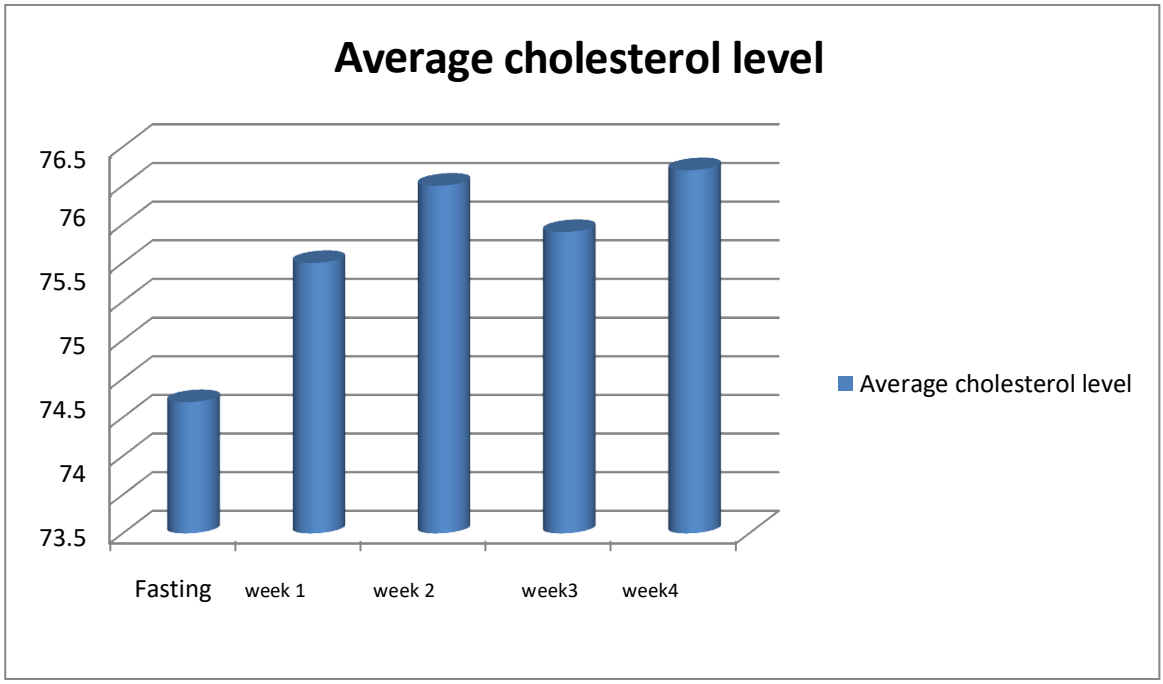


Figure 1: Variation of average cholesterol level with the consecutive period in weeks for group 1 rats

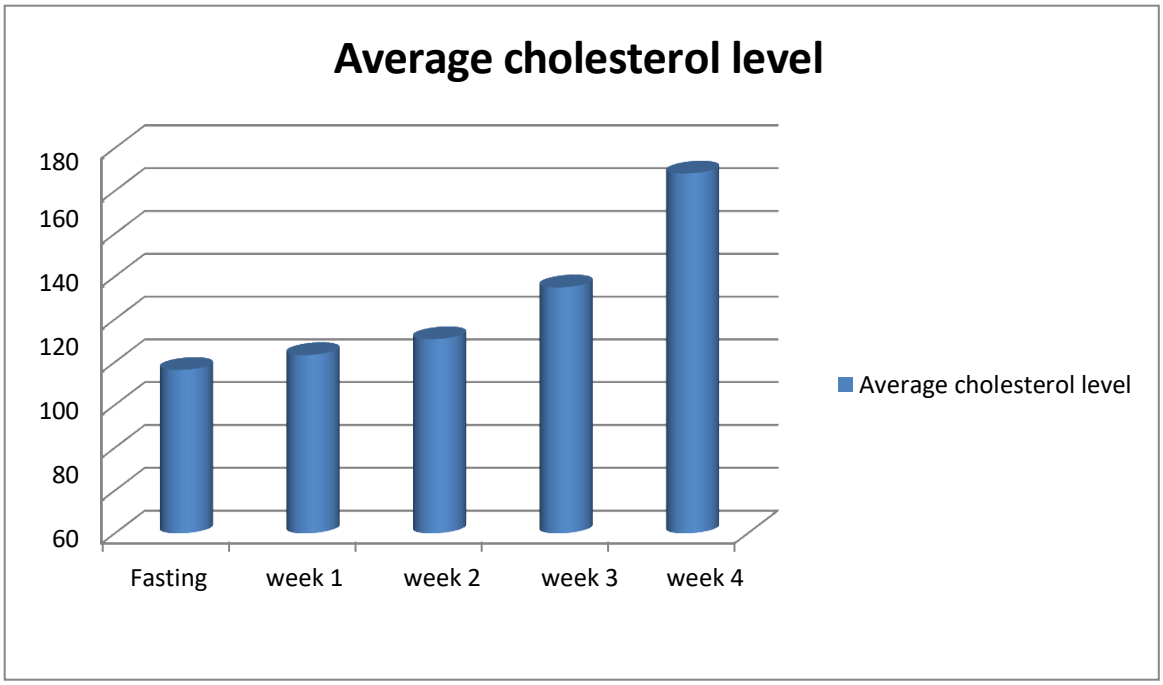


Figure 2: Variation of average cholesterol level with the consecutive period in weeks for group 2 rats

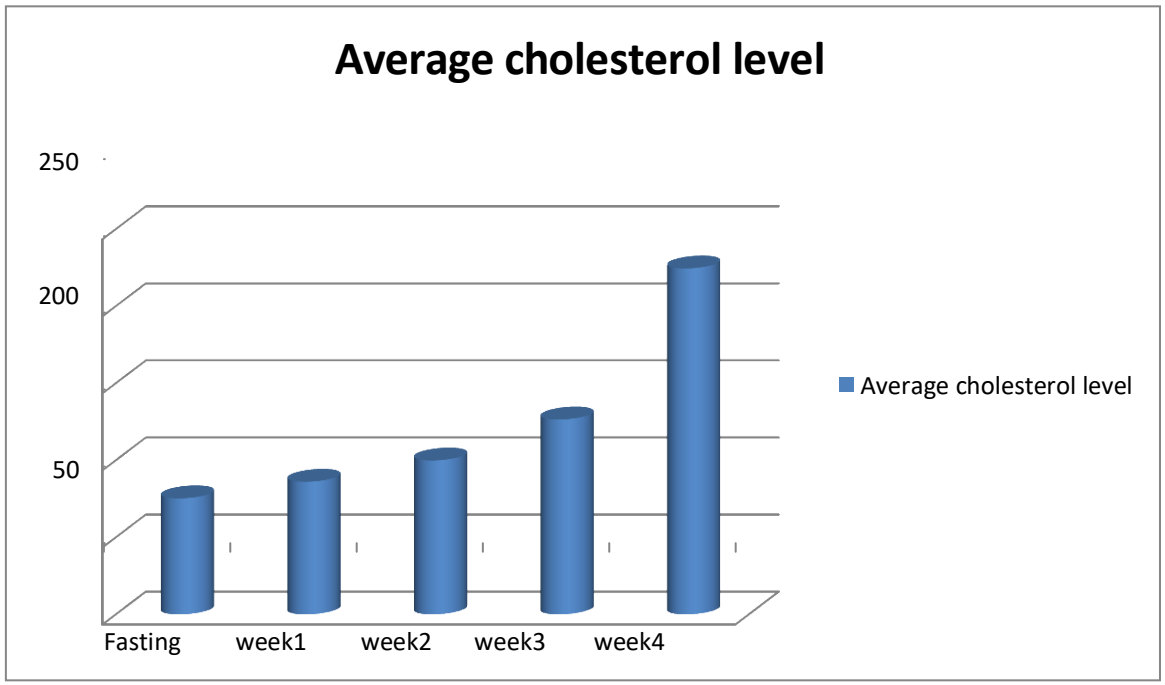


Figure 3: Variation of average cholesterol level with the consecutive period in weeks for group 3 rats

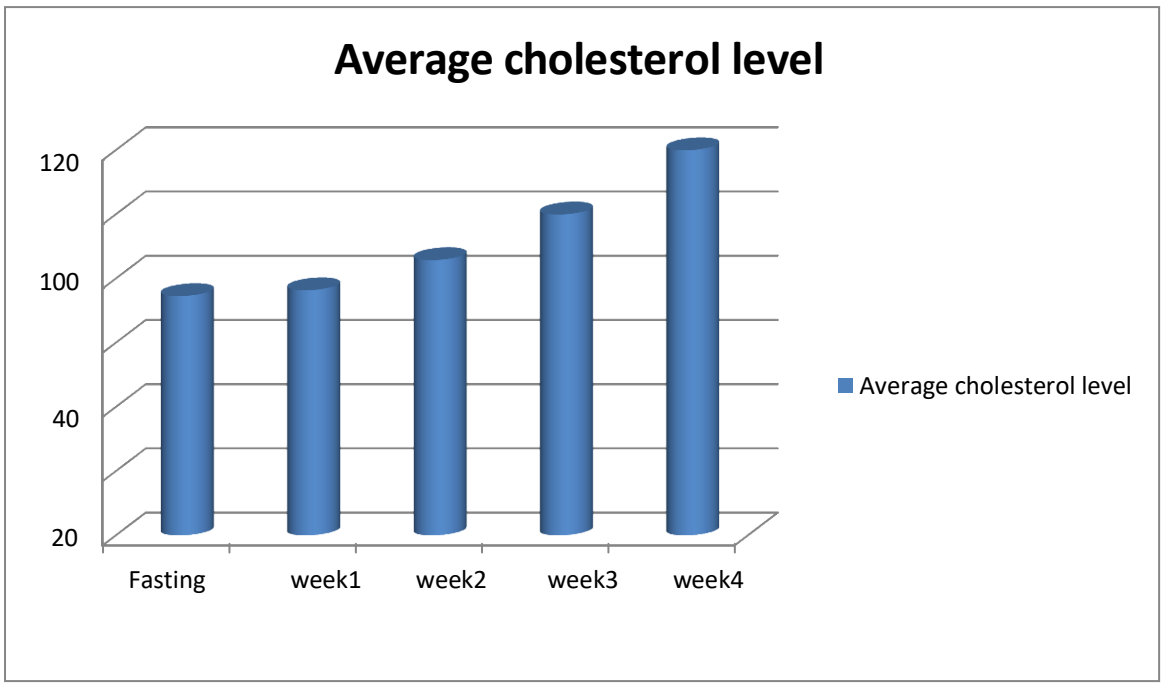


Figure 4: Variation of average cholesterol level with the consecutive period in weeks for group 4 rats

IV. Discussion

Adoption the blood cholesterol level in the normal range is one of the most important issues of the world health community. Elevation of the cholesterol level in the blood may lead to many vital health problems such as cardiovascular diseases, strokes, high blood pressure and diabetes.

Many reasons cause enhancement of the blood cholesterol level; one of these reasons is the usage of the reused cooking oil during frying.

This research project work covers the problem of using reused cooking oil relating to the blood cholesterol level change. Twenty rats were divided into four groups (each group consists of five rats), these groups were classified as group1 (normal diet rats), group 2 (high fat diet with 1.5 ml/kg reused oil injection), group3 (high fat diet with 3 ml/kg reused oil injection) and group 4(high fat diet).Cholesterol level was measured for each one of these rats separately on a fasting condition. The rats were then fed with a proper diet and injected with a dose of reused oil according to their groups; cholesterol level was measured for the twenty rats once a week for four weeks

Concerning the average cholesterol level of group 1 rats, it ranges from 73.2 during the fasting period to 75, 76, 65.4 and 76.2 mg/dl for the consecutive four weeks respectively (table1). Here we observed a narrow range of cholesterol level elevation (figure 1) and this is expected since the rats of this group were fed with a normal diet and have not being subjected to any external factors or injections to increase the cholesterol level.

Group 2 rats showed a considerable range of average cholesterol level elevation, the fasting period=76.4 , week1 =83.4 ,week 2= 90.8 week 3= 115 and week 4= 168 mg/dl. (table2). This wide range (figre2) is also expected since the rats of this group were feed with a high cholesterol diet and being injected with 1.5 ml/kg reused frying oil (considered as a low dose).

For rats of group 3 we expect a significant average cholesterol level elevation starting from the fasting period 75.4 up to the fourth week 224.6 mg/dl (table3), as the rats of this group were injected with 3 ml/kg (considered as a high dose) reused oil in addition to the high cholesterol diet and this is exactly what we observed(fig3).

The average cholesterol level of group 4 rats was moderately elevated starting from 74.6 on the fasting period up to 120 mg/dl on the fourth week. These rats have not being injected with a source of the reused oil and hence the elevation was not pronounced (figure4) .This result is considered as clear evidence to prove the effect of the reused oil on cholesterol level elevation.

V. Conclusions

Comparing the results of the average cholesterol level elevation in group2 and group3 we concluded that increasing the dose of the reused oil has a vital role on the blood cholesterol level enhancement.

Recommendations

- Using the edible oil only one time for frying if possible.

- If necessary a good compromise should be made between the financial conditions of the person and the number of times that the oil is reused specially in the developing poor countries.
- Doing a regular blood cholesterol level check.

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6. Proper permissions must be acquired for the use of any copyrighted material.
7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

Declaration of Conflicts of Interest

It is required for authors to declare all financial, institutional, and personal relationships with other individuals and organizations that could influence (bias) their research.

Policy on Plagiarism

Plagiarism is not acceptable in Global Journals submissions at all.

Plagiarized content will not be considered for publication. We reserve the right to inform authors' institutions about plagiarism detected either before or after publication. If plagiarism is identified, we will follow COPE guidelines:

Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures

- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

Authorship Policies

Global Journals follows the definition of authorship set up by the Open Association of Research Society, USA. According to its guidelines, authorship criteria must be based on:

1. Substantial contributions to the conception and acquisition of data, analysis, and interpretation of findings.
2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

Copyright

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Appealing Decisions

Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

Declaration of funding sources

Global Journals is in partnership with various universities, laboratories, and other institutions worldwide in the research domain. Authors are requested to disclose their source of funding during every stage of their research, such as making analysis, performing laboratory operations, computing data, and using institutional resources, from writing an article to its submission. This will also help authors to get reimbursements by requesting an open access publication letter from Global Journals and submitting to the respective funding source.

Preparing your Manuscript

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.

Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11'", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.

Format Structure

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.

Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

Preparation of Eletronic Figures for Publication

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

Tips for Writing a Good Quality Science Frontier Research Paper

Techniques for writing a good quality Science Frontier Research paper:

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of science frontier then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.

6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

21. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.

Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

The Administration Rules

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.

Segment draft and final research paper: You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

Written material: You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.

Criterion for Grading a Research Paper (Compilation) by Global Journals

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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