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Editorial

ANAEMIA : A BIG CHALLENGE IN INDIA

Anaemia is a condition in which the number of red blood cells or the haemoglobin concentration within them is lower than normal. Haemoglobin is needed to carry oxygen and if you have too few or abnormal red blood cells, or not enough haemoglobin, there will be a decreased capacity of the blood to carry oxygen to the body's tissues. This results in symptoms such as fatigue, weakness, dizziness and shortness of breath, among others. The optimal haemoglobin concentration needed to meet physiologic needs varies by age, sex, elevation of residence, smoking habits and pregnancy status. The most common causes of anaemia include nutritional deficiencies, particularly iron deficiency, though deficiencies in folate, vitamins B12 and A are also important causes; haemoglobinopathies; and infectious diseases, such as malaria, tuberculosis, HIV and parasitic infections.

Anaemia is a serious global public health problem that particularly affects young children and pregnant women. WHO estimates that 42% of children less than 5 years of age and 40% of pregnant women worldwide are anaemic.

Anaemia is a condition in which a person has an insufficient number of red blood cells or quantity of haemoglobin, which reduces the capacity of their blood to carry oxygen. Normal haemoglobin for women is 12 gram per decilitre (g/dL) and men 13 g/dL.

Anaemia is widespread in India—58.6% of children, 53.2% of non-pregnant women and 50.4% of pregnant women were found to be anaemic in 2016, as per the NFHS. India carries the highest burden of the disease despite having an anaemia control programme for 50 years.

Anaemia doubles the risk of death during pregnancy and leads to poor motor and mental growth in children. It can lower productivity in adults and cause a loss of upto 4% of gross domestic product, according to this study. This means a loss of \$113 billion or Rs 7.8 lakh crore, which is five times India's budget for health, education and social protection in 2018-19.

Iron-deficiency anaemia was also the top cause of disability of India for 10 years to 2015.

Higher haemoglobin rates but anaemia persists

While the mean haemoglobin rates increased for all groups in a decade, it did not rise enough to make a significant difference

contd. from Pg 20...

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HOLISTIC HEALTH RESEARCH

R.L. Bijlani*

ABSTRACT

Research is a determined and disciplined activity aimed at answering questions. Research generally originates as a vague idea. To start with, the idea is narrowed down to a research problem. Once the problem has been identified, the next step is to formulate one or more clear questions amenable to a systematic attack by the existing tools of science. The questions are then elaborated into a project. Since research may need money, the project is then written up in the form of a research grant application. There are six basic points addressed in a research grant application. First, *why* is the proposed research necessary? This question is answered by reviewing existing knowledge, and bringing out the lacunae that still remain. Further justification may be provided by highlighting the academic or applied significance of filling up the lacunae. Second, *what* is it exactly that the investigator wants to do? This is usually given in the form of objectives of the project which should be concise, enumerated and prioritized. Third, *how* does the investigator propose to fulfill the objectives? This section outlines the experimental design, the inclusion and exclusion criteria of the subjects to be used, the minimum number of subjects to be studied, the end points selected, and the techniques to be used for measuring the end points. It is also desirable to name the statistical tools that will be used for evaluating the results. Fourth, *is the project important? It is not enough that the investigator wishes to study something that has not been studied earlier; what he wishes to study should also be important.* Fifth, the investigator has to answer *whether he can* carry out the project. This question has two aspects. First, the qualifications, training, experience, and preferably previous work, of the investigator should be appropriate to the proposed work. Secondly, the investigator should be working

in an institution where the basic facilities and infrastructure required for the project are available. Sixth and last, the investigator has to tell *what he wants* from the funding agency to carry out the project. The budget should mention not only how much money the investigator wants, but also reasonable detail of how it will be used in terms of personnel, equipment and consumables, and the justification for each item asked for.

Holistic health research has some special features which need attention while planning the project. One important category of such research is that which examines whether an intervention such as yoga or naturopathy really works. The ideal experimental design for testing the efficacy of an intervention is the randomized controlled trial (RCT). However, for an intervention like yoga, neither a suitable placebo can be designed, nor can the patient be 'blinded'. Therefore, generally the best control group is that on conventional treatment only, whereas the experimental group receives the conventional treatment as well as the test intervention. For ethical reasons, the test intervention should not be denied to the control group. Therefore, it is common to have a wait-listed control group. The end points should be carefully selected because in many cases, the conventional treatment may be quite effective. Therefore, it is also valuable if it can be demonstrated that the holistic test intervention can achieve similar efficacy with less side effects, less medication and at a lower cost.

Assuming that the project is carried out, and the holistic intervention is effective, two questions are often raised. First, which component of the intervention is responsible for its efficacy, and second, the mechanism by which the intervention works. Planning projects which answer these questions needs greater skill, and general guidelines are difficult to formulate.

Planning holistic health research using the

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methods of modern scientific medicine is riddled with unique problems and pitfalls. But for these very reasons, good quality research in holistic health systems is more challenging, and in view of the satisfaction it brings to the investigator and the benefit it brings to mankind, it is worth taking up the challenge.

Research is a determined and disciplined activity aimed at answering questions. All questions do not lead to research; in fact the fate of most questions is to get consigned to oblivion. It is only when the question occurs to the right person at the right time under the right circumstances, and the person puts in the necessary time and effort, that we get a piece of research. Much of research today is systematic research in the sense that it involves a uniform sequence of steps. Here we shall first briefly outline the steps involved in planning research, and then discuss a few issues specially relevant to holistic research.

IDEA

Every piece of research is born as an idea. The idea may occur as an intuitive flash, or may emanate logically from a previous study. The intuitive flash may occur in bed or in the bathroom, or while reading a book. The idea on which a research study is based is of capital importance because the impact of the study depends on the quality of the idea behind it. Since research is time-consuming, and the time required for working on a poor idea is just as much as that required for working on a good idea, it is extremely important to select the idea with great care. The tragedy of life is that the best of ideas do not occur when needed the most. The way to solve this problem is to store ideas for opportune moments. All good research workers collect ideas the way children collect stamps or coins. Whether you are actually engaged in research, or intend getting into it later in life, it is a good idea to keep a paper and pen handy all the time, and jot down the idea as soon as it occurs. It is futile to depend on memory: in spite of best intentions most ideas are lost unless recorded immediately. Just as important as recording ideas is

to build up a system for storing them. Otherwise, instead of the ideas getting lost, the scraps of paper on which they have been noted will get lost! The old fashioned way of storing ideas is to use either index cards or a file; now there are electronic options available. But seeing the frequency with which accidents wipe out stuff stored electronically, there is still something to be said; for the old fashioned storage systems. At the first available opportunity, transfer the idea from the scrap of paper to an index card or an A4 sheet (only one idea per card or sheet). Elaborate upon the idea a bit as you copy it, and add the card or sheet to your collection. You may also add the date to the idea: it may give you some nostalgic pleasure when you flip through several virgin ideas a quarter century later.

Let us assume that the great day has finally arrived when you have an opportunity for research, and you have taken out your collection of ideas to select one gem. As you go through your collection, you may find that many of your own ideas do not appeal to you any more for one reason or the other. Among the ideas which deserve a second look, some may be fascinating but impractical; some others may be feasible but you may not have the facilities to pursue them. Finally, you may be left with very few ideas worth considering in your present circumstances. To narrow down your choice further, search the literature for work already available on the idea. This search has been made very easy by the internet. You should consider yourself lucky if nobody has done anything *similar to* what you have in mind. At the same time, it is quite likely that nobody has done *exactly* what you have in mind. After considering how significant your study would be in view of the work already available, select one or two most promising ideas. Now discuss these ideas with a few friendly colleagues. This process would further help you make a good choice, and will also sharpen the focus of your ideas. Now that you have selected your idea, it will have to be followed up with a lot of work. Without that work, the idea will just remain an idea; it will never get translated into a

real study. Do not wait endlessly for that dream idea which is sure to change the world. While selecting a good idea is important, waiting indefinitely for the best idea to arrive is unwise: one can spend the whole life rejecting one idea after another in the hope of getting the perfect idea one fine day.

THE PROBLEM

Once the idea has been selected, the next step is to identify the problem. Searching the literature has already revealed areas of ignorance, commonly called the lacunae. Based on the lacunae, the problem may belong to one out of three broad categories. *First*, it may be an area of total ignorance. Nobody did anything on the subject ever before. Here is an opportunity to be a pioneer, and fortunately such problems still exist in the area of holistic health. *Second*, it may be an area of controversy. Although there are several studies available on the subject, their results are conflicting. Now you can dream of designing that decisive study which will resolve the issue once and for all. However, do not be disappointed if your study succeeds in only adding to the controversy. *Third*, the literature search might open up an ocean of knowledge. However, you will find that for each question that has been answered by the studies available, several new questions have been raised. In short, in spite of all what is known, there is scope for more studies which would extend the limits of knowledge. Most of the problems tackled by research today fall in this category.

THE QUESTIONS

Once the problem has been identified, the next step is to formulate one or more clear questions which the research will seek to answer. Let us assume the problem belongs to the third category, i.e. there is scope for extending existing studies. Although a variety of extensions in different directions may be desirable, we have to choose the direction which is relevant, exciting, and feasible in terms of available expertise and facilities. Depending on the direction selected, a few clear questions should now be formulated. The questions are then elaborated into a project. Since research may need money, the

project is then written up in the form of a research grant application.

THE RESEARCH GRANT APPLICATION

Every funding agency has a prescribed format in which the application has to be made. Irrespective of the format, every research grant application asks six basic questions. The first three questions are the why, what and how of the project. These are questions which one should answer while planning any research even if no grant is required. The next three questions ask whether the project is important, whether the investigator will be able to do the research, and what the investigator wants for doing the research. Now we shall discuss these six questions one by one.

Why?

In order to spell out why an investigator wants to do something, he should give the present state of knowledge as well as ignorance regarding the topic. This section is important, but the commonest pitfall here is that most applicants make the *review of literature* very long. The aim of the literature survey in a research grant application is not to educate the referee: the aim is only to bring out the rationale for the proposed research. Therefore, the review should begin very close to the point where the known meets the unknown so that the write-up can quickly reach the limits of what is known, and hence the need for further exploration. If the proposed research is an extension of previous work done by the applicant, the previous studies could be the starting point. However, enough of related work by other investigators should also be cited in order to place the work in a broader context. Then the review should quickly move to the work being proposed, and point out that such work has not been attempted by other investigators in the field, and that the work is important. In some research projects, the work may not be directed at finding out something unknown but rather at resolving a controversy. In that case both sides of the controversy should be briefly stated with adequate references, and a clear need for resolving the controversy.

Bringing out the lacuna which has prompted the research proposal is so important that it may be summarized under the subheading 'rationale of the study' at the end of the review of literature, even if the format of the funding agency does not include such a subheading. In addition, the lacuna(e) also invariably get woven into the 'objectives of the project', and must also form the first one or two sentences of the 'summary of the project'.

What?

This section tells the reader exactly what the investigator proposes to do. Although brief, this section is of vital importance. It should be clear, concise and realistic. The backbone of this section are the *aims and objectives* of the project, which should be enumerated and prioritized.

How?

This is the *methods* section of the project and describes how the project will be carried out. This section has, broadly speaking, four parts. The first part gives details of the subjects to be used and the sample size. The second part gives the experimental design, including the outcome measures. This is a crucial part, which should receive the maximum possible thought and attention. The design should be that which is most appropriate for the project under consideration. A statistician should be consulted, and the issue discussed with colleagues to arrive at the best design. These two parts of the 'methods' are always read carefully by the reviewers, and are strong determinants of the decision regarding funding of the project. The next two parts should also be written in detail, although they may be only glanced through rather than read. The paradox is that if they have been given in detail, they are not read; but if they are sketchy, the defect is pointed out and may become one of the reasons for rejection! This paradox is particularly true of the third part which deals with the techniques that will be used for making the measurements. These may run into several pages, and the reviewer does not gain much by reading them, but it is only by their presence in the project that the reviewer knows that the investigator knows the

techniques (hopefully!). The fourth part deals with the statistical methods and software that will be used for analysis of data. A statistician must be consulted for writing this part too. Advances in statistics have made this part beyond the competence of most scientists to handle entirely on their own.

Is it important?

It is not enough that the investigator wishes to study something that has not been studied earlier; what he wishes to study should also be important. This question has several aspects. First is the likely outcome of the project scientifically important, i.e. does it have academic merit? In other words, will the new information gained from the project add something significant to the existing scientific knowledge on the subject? Secondly, in medical research, it is desirable to know whether the project is clinically important? Is the outcome of the project likely to influence clinical practice? Will it help prevent a disease? Will it provide a new diagnostic tool? Will it provide or validate a new modality of treatment? In short, is the outcome of the project likely to find application in scientific medicine? Thirdly, is the project relevant to national problems? In developing countries, it is considered especially important that the limited resources available should be spent preferably on solving local problems. Finally, does the subject fit into the priority areas earmarked by the funding agency for support? The funding agencies frequently identify a few areas for preferential support: the selection consists of problems perceived by a group of top scientists to be pressing for urgent solution.

While writing the section on importance of the project, calculated optimism and a little exaggeration are quite an accepted norm. Having said that, it is important to realize that hardly any project would be important from every angle. Therefore, even the section on importance of the project should be basically honest. There is no need to bend over backwards to justify the project as scientifically significant, clinically important as well as nationally relevant.

Can he do it?

The project may be good, but the funding agency also wants to judge, as far as possible, whether the investigator will be able to deliver the goods. This question has two aspects. *First*, does the investigator have the necessary expertise and training for carrying out the project? This can be assessed from the biodata of the investigator, which is generally one of the items asked as a part of the application. It is not essential that the principal investigator should be an expert in all the techniques to be used for the research. Nobody knows everything. That is one reason why there are co-investigators. If all the investigators put together can do everything required, that is quite enough. *Second*, does the institution where the work will be done have the necessary facilities? The investigator may have the expertise, but if he does not have the equipment available, he will still be unable to do the research. The funding agencies generally do not give money for all the equipment required for the project. If most of the equipment is already available with the investigators, one or two missing pieces may be sanctioned for the project under consideration. The research grant application generally includes an item on 'facilities available'. Under this heading one should describe the space, equipment, patients, healthy subjects etc. to which the investigators have easy access.

What does he want?

This question is answered in the section customarily called the 'Budget'. The budget generally has four or five parts. The first item usually asks for the personnel to be employed in the project, and the expenditure likely to be incurred on them. In order to arrive at a good estimate, it is important to find out the latest scales of emolument for different categories of research staff. The next item of the budget consists of the equipment required from the research grant. The next item lists the glassware and chemicals ('consumables') required for the project and their cost. Some agencies might ask for the foreign exchange component (FEC) in the

expenditure on equipment or consumables. Next, one may list miscellaneous items not covered under the previous heads, such as the expenditure on books, journals, stationery, software, photocopying, postage, transport and travel. Travel generally refers to the journeys that might be made to present the results of the research at professional meetings. Finally, the budget also includes justification for the personnel and equipment, and also for other major items included in the budget.

Money is not the only resource a research worker needs: he also needs time. That is why funding agencies also ask for the duration of the project and sometimes also for a 'timeline' or Programme Evaluation and Review Technique (PERT) chart. This should be realistic: work generally takes longer than expected. Getting staff, equipment and chemicals may take a lot of time even if money is available. One should commit to only what can be actually done in the duration of the project (usually 3 years or less): there is no penalty for doing more than what one is committed to do. Sometimes projects received by funding agencies promise in 3 years work that might take a lifetime to complete. On the other hand, some projects promise very little work (e.g. a simple study on 20 patients having a common disease) and ask 3 years for it. Then the funding agency might increase the sample size and reduce the duration.

SPECIAL CONSIDERATIONS FOR HOLISTIC HEALTH RESEARCH

Holistic health research has some special features which need attention while planning the project. One important category of such research is that which examines whether an intervention such as Yoga or Naturopathy really works. The ideal experimental design for testing the efficacy of an intervention is the randomized controlled trial (RCT). However, conducting an RCT on the efficacy of Yoga poses some unique problems which have been discussed here.

Problems and limitations in conducting an RCT on Yoga

The first problem is to decide on the treatment

that should be given to the control group. It is unethical to give no treatment at all to the control group because some conventional treatment is generally available for the disease for which the efficacy of yoga is being tested. For the same reason, the control group can not be given only a placebo. Moreover, it is virtually impossible to design a placebo for yoga practices. Therefore, the control is generally given the conventional treatment.

The second issue to be considered is what treatment should be given to the experimental group. For ethical reasons, even the experimental group can not be denied conventional treatment. Therefore, the experimental group receives not only yoga but also the conventional treatment.

A good RCT is usually double-blind. In an RCT on yoga, the investigators may be 'blinded' but it is impossible to 'blind' the patients. If a patient participates in a trial on the efficacy of yoga, he generally expects lessons on yoga. Therefore, even the control group can not be denied yoga; moreover, it would be unethical to do so. Therefore, the control group is only a wait-listed control. After the study is over, all willing participants in the control group are also taught yoga.

Finally, there should ideally be also a third group (an additional control group) which receives the conventional treatment plus a substitute for yogic practices as given in Table 1. But this group is generally omitted because it is extremely difficult to retain control patients for the entire study period in a study on yoga.

Table 1. Controls for yogic techniques

Yogic techniques Control	
Asanas	Aerobic exercise
	Meditation Sitting quietly with the eyes closed, or simply 'relaxing'
Pranayama	Slow and deep breathing

Designing an RCT on the efficacy of yoga

In view of the above discussion, a feasible and satisfactory design for an RCT on the efficacy of yoga is as follows.

After a lead-in period of one or two weeks, the volunteers who satisfy the inclusion criteria are divided randomly into two groups. The baseline parameters are recorded for both groups. The control group is put on conventional treatment. The experimental group is also put on conventional treatment but receives, in addition, training in yoga. The duration of treatment is variable, but generally varies from 2-12 weeks. When it is longer than 2 weeks, it may consist of supervised yoga training for 2 weeks followed by continuation of yoga at home for the remaining duration of the treatment. At the end of the period of treatment, the parameters are recorded again. Then, the control group is given training in yoga, except for those members of the group who do not want it.

Training in Yoga

Ideally, yoga is a 24 hour activity. It consists of a few hours of yogic practices which keep a person physically fit, mentally alert, emotionally stable and spiritually oriented. The remaining part of the day is spent in giving a new colour and motive to everyday activities. At the other extreme, training in yoga may consist of a few yogic practices which the subjects practice mechanically. A compromise between the two is to teach the patients not only a wide variety of techniques such as asanas, pranayamas, kriyas and meditation, but also to give them a few talks on the philosophy of yoga, the place of yoga in daily life, the application of yoga in stress management, and to involve them in a few sessions of devotional music and socially useful work. Apart from giving the participants a truer picture of yoga, this type of comprehensive approach to yoga also gives better results because it takes into account the totality of man. Man consists of not just the body which breathes, but also the mind, intellect, and his divine essence (often called the soul). All these components or layers of man (the *panchakoshas*, in yogic terminology) are interrelated. Acting on anyone layer influences the other layers. An integrated and comprehensive training in yoga has various components which affect predominantly one or the

other layer. For example, asanas and kriyas affect predominantly the body, pranayamas act as a bridge between the body and the mind, meditation and devotional music affect the mind, and lectures act at the level of the intellect. The whole package put together along with the socially useful work creates an opening towards the divine essence. Administering such an integrated package is not unpractical: it is being done at Swami Vivekananda Kendra (Prashanti Kuteeram), near Bangalore, as well as at the All India Institute of Medical Sciences, New Delhi, in the form of structured 2-week courses (Nagarathna & Nagendra 2004, Bijlani 2004).

End-points

The end-points should be carefully selected because the conventional treatment may be quite effective: nothing can bring down the blood glucose of a diabetic as predictably and dramatically as insulin. Therefore, in addition to efficacy *per se*, the end-points may also include the side-effects of treatment, subjective well-being, change in anxiety or stress levels, the variety and dose of medication required, effect on sequelae of the disease (e.g. complications of diabetes), effect on the basic pathology (e.g. degree of stenosis of coronary arteries), the cost of treatment, and the acceptability of treatment. Thus a holistic treatment like yoga may be considered better than the conventional treatment if it can achieve similar efficacy with less side effects, less medication, and at a lower cost.

Questions raised by an RCT on Yoga

Assuming that an RCT demonstrates clearly the efficacy of yoga, two questions are often raised: first, which component of the intervention is primarily responsible for its efficacy; and second, the mechanism by which the intervention works. The first question is somewhat inappropriate because different components of a holistic treatment act synergistically. Each component may contribute to the effect of the treatment, but the effect of all the components may be greater than the arithmetic sum of their individual contributions. Part of the effect may come from the pleasant surroundings or smiling faces of

the therapists, and may be considered a placebo effect. But from the practical standpoint, that does not matter. There is no harm if some therapeutic benefit can be obtained from such simple, harmless interventions, the side effects of which are also all desirable (e.g. reduction in anxiety, or growth of love and compassion).

The second question is of great academic interest. The general mechanisms are in terms of restoration of a healthy autonomic balance, and immunoenhancement through the psychoneuroimmune axis. But there may be other general mechanisms yet to be discovered. Further, there may also be some mechanisms specific to the disease in question (e.g. upregulation of insulin receptors in diabetes). These questions are very interesting and exciting, but general guidelines for experimental protocols designed to answer them are difficult to formulate. These questions invariably take us towards basic studies on physiological effects of yoga.

CLOSING THOUGHTS

Planning holistic health research using the methods of modern scientific medicine is riddled with unique problems and pitfalls. But for these very reasons, good quality research in holistic health systems is more challenging, and in view of the satisfaction it brings to the investigator and the benefit it brings to mankind, it is worth taking up the challenge.

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HEALTH SCENARIO AND STRESS MANAGEMENT

Prof. (Dr) Ram Gopal*

ABSTRACT

Genuine health is the perfect functioning of the tripod of Body, Mind & Soul. Holistic healthcare recognizes the effect of sociological, psychological, economical, ecological and even political influences on health.

Before 1960, only allopathic medicine was considered 'scientific' and other indigenous systems, though based on empirical knowledge, were labeled as 'quackery'. Due to scramble for 'appropriate technologies', ideas have changed. Interest in Alternative Medicine is on the rise in America and other Western countries.

There are more than 180 systems of Alternative Medicine. **Ayurveda** is being studied deeply. **Naturopathy** and **Homeopathy** are already being practised even by Allopathic doctors. Psychotherapy, hypnotism, **Yoga Therapy**, Yogic Pranayama, Zero Therapy and Nutrition (Organic Food) are vying for their own place. Everything seems to be tending towards Holistic medicine in accordance with the concept of **holistic health**.

Physical, mental, vital, intellectual and spiritual - these are the **Five Levels of Being**. For medicine to be holistic, it should be universally applicable, cover all aspects of health, on all the five levels. Early Indian doctors conceived of Holistic medicine on the basis of the Vedantic Five Sheaths - physical body, vital movements, mental thoughts, intellectual convictions and emotional feelings which cover, as it were, each individual soul.

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Holistic Health Concept in the Vedas

There are many mantras in the Vedas where the goal of medicine is described as the removal of the cause of death, conferring of a lengthy span of life, purification of thoughts and actions, removal of the cause of diseases and ensuring the well-being of body, mind and soul. Indian Holistic Medicine, Ayurveda, which is called a part of the Vedas, is attributed to the sage Bharadwaja (5000 BC) and originated from Atharva Veda (' Atharva Vedasu Upanishadsu Pragulpannah ').

It is said that the Greeks acquired a knowledge of Medicine only after the secrets of Atharva Veda were known to them! Dr Robert Keith Wallace **averred** "It is appropriate to recognize India as the home of the most profound knowledge and the procedures for the development of Physiology"! (The Neurophysiology of Enlightenment).

This popular & holistic concept of Medicare & healthcare was taught even to foreign students in the Universities of Taxila, Nalanda and Varanasi during AD 500-600.

Holistic Personality

The highest and the ultimate goal of all research and development activities is to attain perfection. Traditionally people of our country are religious and their ultimate goal or *Purushartha* is *Mukti* or *Moksha*.. Personality development constitutes purification of body, mind and soul. **Swami Vivekananda** used to say that the soul of our country is in religion and religion for Hindus is the religion of Vedas. The Vedas are the heart of the wisdom of ancient India. The Upanishads carried the same consciousness to deeper depths. Vedas, Upanishads, Puranas, Gita, Ramayan and many other religious texts are in Sanskrit language. Sanskrit is said to be mother of many languages of the world.

Swami Vivekananda, the greatest exponent of Vedanta philosophy in this age, predicted with his prophetic vision that the conclusions of modern

science are the very conclusions of **the holistic philosophy of Vedanta known as Advaita** (A = not, Dvaita = two). The distinction between the living and non-living ceases to exist for a human being, who has attained to holistic personality with ultimate vision. The pivotal teachings of *Upanishads* like **Ishavasyam, Idam Sarvam...** speak of truth.

Development of human personality as explained in Vedic text and discussed by modern scientists is easily understood. According to *Taittiriya Upanishad* the human personality consists of **5 layers or sheaths (Koshas)**, enclosing the inner most Self or Atman. According to Ken Wilber in his book **Quantum Questions** each layer

Health Scenario – Modern Medicine

The **World Health Organization (WHO)** reports 65 to 80% of the world population depend on alternative medicines, which are basically non-allopathic and traditional systems of medicine including 180 systems of therapies or techniques.

Alternative Medicine (AM) or Traditional Medicine (TM) is becoming increasingly popular all over the world as complementary, alternative and unconventional medicine (**CAM**) attracting researchers engaged in modern medicine and vedic studies.

Government of India under AYUSH

1.	Annamaya Kosha	Physical Body (Matter)	Physics
2.	Pranamaya Kosha	Vital Body (Life or Breath)	Biology
3.	Manomaya Kosha	Mental Body (Mind)	Psychology
4.	Vijnanamaya Kosha	Intellectual Body (Soul)	Theology
5.	Anandamaya Kosha	Blissful or Spiritual (Spirit)	Mysticism

(*Kosha*) corresponds to one level of our knowledge i.e. branch of science or subject. The corresponding relation of these 5 *Koshas* is explained below:-

Swamiji explains for modern man the **Indian ideas of Akasha (Primal Matter) and Prana (Primal Energy)** out of which, according to this theory, all the world of living and non-living came into existence. The whole world is full of divinity. Every smallest particle of living and non-living reflects existence of Almighty God and entire cosmos – *YAT PINDE, TAT BRAHMANDE*. Gita says, ‘O Arjuna, I am the essence of all entities and reside in every entity at their beginning, middle and end’. Vivekananda showed how the various discoveries of science and pointed more and more to holistic development of universe, where matter, energy and consciousness are connected together in one inseparable common background which Vedanta termed as **Absolute Existence (SAT), Absolute Consciousness (CHIT) and Absolute Bliss (ANANDA)**. So the teacher and taught as well as healer and to be healed reflect the same identity.

(Ayurveda, Yoga-naturopathy, Unani, Siddha and Homeopathy) has recognised Indian System of Medicine and Homeopathy and Government of West Bengal has recognized ‘Acupuncture’.

Challenges in health scenario are multidimensional. Holistic health in Indian System of Medicine as propounded in Vedic texts deals with well-being of body, mind, intellect and soul. **Ayurveda** describes holistic health as balance of **Dhatus, Doshas, Agnis** and Nature Calls and happiness and health of **Atma, Indriyas and Manah**. **WHO** also in agreement with Ayurveda defines human health, as “Health is a state of complete Physical, Mental, Spiritual and Social well-being and not merely the absence of disease or infirmity”.

According to **Zero Therapy** (www.zerotherapy.com) the whole universe is nothing but ‘Hot and Cold’ effect i.e. Sun and Moon, Paap and Punya and Male and Female (Expansion and Contraction). Any local disturbance in the human body against the nature in hot and cold creates

pressure in the body, which is known as disease. The remedy lies in your body which has built in mechanism for cure by balancing with respect to neutral food (organic food still better) **Zero Therapy Foundation, Chennai** claims that their theory will be accepted by medical science after 100 years. The theory is beyond stem cells theory, which is currently popular. In stem cells they take out body cells, bank it and use it later when required for curing, but in **Zero Therapy** therapist energizes the same cells without removing it from body and use it when ever required by the body.

In pursuit of development of holistic health over the past one hundred years, our species have been engaged in a vast and complicated chemistry experiment using each one of us a guinea pig. The experiment has used our bodies, our health, our wealth and our goodwill to test the proposition that modern science can improve upon the foods and medicines of nature. **Randall Fitzgerald** in his book. **‘The Hundred Year Lie’**, Pleume Group 2007 (USA) has exposed how chemicals in everyday products are polluting our physical bodies. How to protect yourself from the Chemicals that are destroying our health has been illustrated by factual chronology of the changes seen in the last one hundred years. Our diets and our health from the womb to the grave are now shaped by three sectors of the economy – the processed foods corporations, the medical/pharmaceutical giants and the chemical industry. By willingly participating in the risky synthetics some of us are falling sick or dying during this experiment. None of us have an excuse to play the innocent victim any more. **IRIIM under ‘Nayi Azadi Abhiyan and Organic Food’** programme has very actively contributed by organizing a series of health camps and propagating cultivation, growth and distribution of organic food to protect against synthetic products destroying our health and lead natural way of living.

Let us look at our rapid decline. Pharmaceutical drugs are prescribed to mask our symptoms in the hope that with time our immune systems will do the

actual healing. But our immune systems are being compromised by inadequate nutrition, over use of antibiotics and the chemical toxins our bodies absorb and store. We pass this immune system – weakening traits on to our offspring while they are still in womb.

While we pretend that everything is normal, our toxic chemical legacy is producing ever – greater numbers of genetic defects in our species and in the animal life that surround us.

World Health Organization declared, ‘Health for all by 2000’ during 1978, which has brought miraculous development of allopathy from invention of various drugs for diseases, surgical procedures, instruments, vaccines, organ transplantation and now stem cell research and therapy. Patients, doctors and hospitals are increasing in number, thereby consuming large revenue in health care. Even in developed countries there are very high incidence of cardiac and carcinogenic disorders, hypertension, AIDS and psychological neurosis. To quote a few examples – modern medicine has wonderful remedies for diabetes from oral hypoglycemic agents to insulin pens and insulin pumps, but every minute 4-5 diabetics are detected in India and by 2025 there will be around 58 million diabetic patients with a growth rate of 195%, hypertension also is as high as 20%. Similarly there is alarming increase in incidences of psychological disorders like depression, anxiety, suicides, drug dependence etc. There is a lot of scientific data to support that continued stress leads to precipitation and perpetuation of physiological and psychological maladies.

Modern medicine divides man into mind and body and body into multiple organs. Each specialist cares each organ through appropriate investigations and procedures. Each system has functional significance for the entire human being (body) and not just for the malfunctioning of a part. Malfunctioning or diseased part affects whole body like fever affects all parts, organs, tissues and cells. The cause lies from centre to circumference. Hence treatment focused on circumscribed problems or

organs is totally inadequate. It is a false impression that allopathy is a panacea for all maladies that affect human health. Further in the present scenario, an average man is confused. The experts in each system fight each other and there is no coordination and cooperation. No single system of medicine can solve the health needs of our people. Complementary, alternative and unconventional medicine (**CAM**) is becoming increasingly popular all over the world.

One such experiment was started by IRIIM in 1981 looking at all traditional and alternative healing therapies. **In the last 30 years of dedicated service, IRIIM** treated about 3.0 lac patients and provided training to more than 500 doctors and 1000 health workers. Alternative medicine being an integral part of pro-nature therapies like Yoga-Naturopathy, Ayurveda, Unani and Homeopathy were combined with life style management including diet (Organic Food) at IRIIM Bhawan and remarkable results in holistic health care management in **Ranajit Memorial Acupuncture College & Hospital (RMACH)** have been demonstrated to our society.

Stress Management and Positive Health

Albert Einstein says, ‘Science without religion is lame and religion without science is blind’. I, as an amateurish scientist had been busy with most modern equipments searching truth, observing the signals, graphs and evaluating data, without **SAMMA-DITTHI** (right view). As a lame scientist with prejudiced mind, I was always trying to set equations with other lames for a three-legged race in the present scientific world, without realizing that no man is authority, but principle and law are authority.

Even law would deceive if man is of prejudiced mind, because then he misreads the law and doctrine. To him things look white they are called black. Every image is inverted in his prejudiced mind, because he realizes only with his senses and sees with his eyes and feels with his fingers only the appearance of things. Just as we say that the sun rises, judging from our eyes, although we know from our intelligence that sun does not rise. We have to have this intelligence and learn how to see. That is what is

learnt by cultivated mind, how to see with Wisdom (Panna). The unprejudiced observer is the only true scientist. But in the scientific world we have jealousies and feelings of hatred towards those who know more than we do.

We all wish to live happy, healthy and stress free life without any distress. But when we are in distress and stressed we do not live happily nor we know how to get happiness and stress free life, we run like a mad man after worldly pleasures and become day by day more stressed and more unhappy. We defile the environment and make our associates too unhappy. Stressed workers affect output, production and quality. Not only better quality of life but quality products with awareness to have sustained top class production is endeavor of managers and S & T community. Let us be aware about its management by traditional methods of healing and meditation. By following any one technique of meditation at the personal as well as institutional level one can minimize stress level and lead healthy, imaginative and productive life.

Now a days distress confrontation or stress management is taught by cultivating mind and cultivating virtues through a number of ATSM techniques like Brain Stilling, Patanjali Yoga, Transcendental Meditation (TM), Static & Dynamic Meditation, Preksha Dhyana, Murli (Raj Yoga), SMET, JAPA, Ashta Dhyana, Vipassana, Sahaj Yoga, Astang Yoga, Kundalini Jagaran, Art of Living etc. In all the meditation techniques initially emphasis is put on breathing by different ways known as *Pranayams*. Body, mind and intellect are purified and sharpened. With inner journey, self-analysis and divine bliss, one reaches to perfection. Such a self-transformed person can positively contribute to global transformation mission.

In Physics the term “Stress” denotes any force that tends to deform any body or structure. In physiological concept the stress is defined as a force or a situation created within the body and mind, which tends to destabilize. As a managerial phenomenon, it can be defined as a fairly predictable arousal of

psycho-biological (body-mind) system, which if prolonged, can fatigue or damage the system to the point of a malfunction or disease the equilibrium state. To this single problem of stress we give different names originating from – political, social, economic, psychological and even religious problems. In our religious texts all these problems have been described to emanate from one single problem – *DUKHA* (Stress).

The cause of stress is beautifully described in four “*NOBLE TRUTHS*” (Arya Satya). The stress is a conflict between our desires and facts of life. No living being is free from the bonds of agony, aversion, tension, misery, agitations etc., which we generate and do not keep them to ourselves. We distribute to others hence defile the environment. In every day-to-day work, we keep generating negativity within our system and the entire mental and physical system becomes tense. The defilement enters the mind through emotions and governs productivity and quality of products.

It is stated that all human reactions are in response to stress of one type or other. These reactions, which relate to his ability to cope, even with stretching, are desired. They constitute fire of life and help human personality to develop and progress.

But the lack of those reactions on the one hand, and too many of these on the other hand, cause stress and need to be controlled. When they are too many and fall beyond the coping ability of the individual, they eat into his vitals and incapacitate him.

Stress when experienced at **Optimum Level (OSL)** has the following effect on human behavior:

- (a) Creates a feeling of alertness and confidence in man
- (b) Augments his quick and effective thinking
- (c) Arouses a feeling of well being and enthusiasm in him which in turn facilitates his performance more quality production
- (d) Widens his area of interests making him socially more acceptable and

- (e) Helps him to bring out his best potential and contribute that to his task related and other activities.

Against above, if the stress experienced by a worker is higher or lower than **OSL**, then he may start suffering from one or more physiological and psychological maladies listed below:

Stress has a positive and negative dimension depending on the intensity and the perception. The positive dimension of stress is a situation where the outcome is improvement in performance, creativity and productivity through an optimal arousal in the body and mind. A tradesman or a scientist trying to create best of his lifetime is also under some degree of stress. Skillness is always associated with some positive stress.

The end result is creativity or an outstanding discovery. Hence some degree of stress is essential and desirable for the optimal performance in any organization.

However, higher order of stress as perceived by the individual manifests the negative dimension, which results in decrease in performance and spectrum of stress induced disorders/diseases. For a living man there is no escape from difficulties, problems and stresses. However, they must remain within controllable limits to make life positive and productive. A number of methods recommended to exercise this control relate both to improving OSL as well as recovering from the adverse effects of stresses faced by the person. Some of the remedial methods are reducing overload, avoiding frustration, improving adaptation and develop positive personality.

Suiting to temperament, faith and availability one must choose a mind cultivating technique beneficial to himself. By practicing **ATSM techniques** and learning art of living we can achieve stress free life, peace and harmony. Such a balanced person with **holistic health** is bound to be imaginative, productive and asset to any organization.

□

STATUS OF RESEARCH IN INDIA ON NATUROPATHY

Dr.S.N.Murthy*

While treating a patient, every physician will plan to:

1. Understand the symptoms, identify the cause and diagnose the case.
2. Give relief from the suffering as immediately as possible.
3. To establish normal function of the vital organs.
4. To re-strengthen the immune system.

Since Naturopathy recognizes the basic cause of all the diseases is accumulated morbid matter in the system, the practitioner tries to detoxify the system and establishes "health" on adopting various Natural therapies.

Background:

The 19th century is the period of global revolution in all the aspects, viz. engineering, science and technology and medicine. The orthodox medicine which was in practice in Europe at that period of time, was more superstitious and unscientific and not acceptable to some of the intellectuals. They came out of their practice and inducted a new wave of different medical sciences which are presently recognized as alternative therapeutics.

Emergence of alternative therapies:

Homoeopathy	- Hanehman
Osteopathy	- Andrew taylor
Naturopathy	- Louis kuhne
	- Kneipp
	- J.H. Kellogg
	- Lindlahar
	- Tilden
	- Adolf
Just Zonal Therapy	- William fitzerald
Reflexology	- Unice ingham

These stalwarts advocated the above branches of medical sciences basing upon their experience, study and Research.

Indian Medical Sciences:

The scenario of medicine in India is quiet different from European methodology at that time. Ayurveda, Unani, Siddha, Marma Chikitsa etc., were all patronized and established sciences in all respects. When Louis kuhne's theory of the "**origin of the disease**" was explained to Dronamraju Venkata chalapati sarma and others, they readily accepted as this basic principle is similar to the basics of Indian Medical Sciences. A naturally beautiful amalgamation of this science took place with them and the science was perfectly got indianised and developed by other stalwarts like Krishnam Raju, Acharya Pucha Venkata Ramaiah, Vital Das Modi, Dr B. Venkat Rao and others, giving a different shape from the European presentation of the science as on to-day. We can see the visible difference in practice of these sciences.

The accepted basic principles of Modern Naturopathy:

The modern naturopathy system accepts the following points as its basic principals:

1. The cause of all diseases is one, i.e. accumulation of toxins in the body, (both endogenous & exogenous)
2. The cure is also one i.e. elimination of toxins.
3. The human body is a living machine and contains elaborate healing system, if given a chance; it has the power to bounce back to normal status of health.
4. There is no place for any kind of medication in the form of pills, potions etc., While treating a case even food supplements in the form of medicine are not acceptable. The therapeutics involves the "pancha bhootas" only to achieve the goal.

Some of the modern Naturopaths are also using manipulative therapies such as therapeutic massage, aroma therapy, acupuncture, acupressure, reflexology, osteopathy & chiropractic for crisis

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unlike our European and U.S. counter parts.

Some of the research Institutes in Canada, U.S. & U.K.:

1. Canadian College of Naturopathic Medicine, Toronto
2. Bastyr University Research Institute, Kenmore, Washington, U.S.A.
3. Bastyr University Cancer Research Center
4. National Institute of Health Services, (NIH) Bethesda, U.S.A.
5. National Center for Bio-technology Information & National Library of Medicine, U.K.

There are more than 25 centers involved in research in U.S. Australia is also not lagging behind and the growth of Naturopathy during the last two decades is quiet exemplary.

Nature Cure Research Centers in India:

The inception of CCRYN in 1960's ignited the enthusiasm to conduct research in naturopathy in our country. Naturopaths started learning modern medical subjects, viz. Anatomy, Physiology, Pathology etc., and nature cure colleges started teaching these subjects. The GNC & NCH, Hyderabad and Bharatiya Prakriti Chikitsa Vidya Peeth, Calcutta were in forefront to adopt these subjects initially.

At present very few centers are being given grant in aid for conducting Research in our country by CCRYN. The Research Department of INYS, Bangalore established in the year 80-81, is presently engaged in Research on Nature cure management of diseases such as Bronchial Asthma, Coronary risk factors such as Obesity, Diabetes mellitus, Hypertension, Hypercholesterolaemia, Osteoarthritis and showing significant results. There may be other institutes, as well conducting Research with the patronize of CCRYN.

The present question:

Can rigorous research in Nature cure developed? Can it be held to the same standards of evidence as modern medicine? Should it be held to those standards? Are there additional standards and better integration strategies for Naturopathy that are of value to all medicine, complementary or conventional?

These challenges include, quality standards of research - the evolving nature of science, accommodating pluralism, addressing underlying assumptions and managing controversial topics in

Naturopathy Research. These challenges are formidable and will require attaining a sufficient level of science to move it out of the margins of health care and more careful approach to Research integration that can keep its focus on public benefit and the public's health.

The scope: There is a wide scope to develop the science further by Promoting Research on therapeutics, management of complicated diseases including Cancer and Aids. Also to high light the side effects of various therapies such as plasters, poulties, hot & cold baths, diets & their combinations.

Research Methodology:

To conduct Research a standard protocol may be developed on the following points and implemented in all the Research Institutions.

1. **Selection of the subject, Needs and opportunities etc.:** at this stage the Research team identifies the subject and justifies the subject from various angles.
2. **Determine Research objectives:** The Research team determines the Research objectives, parameters etc., that must be implemented to address the subject identified.
3. **Create optimal Research team:** Each Research projects success is based on a well developed, experts team.
4. **Data collection:** The experts of Research team design and implement the data collection process.
5. **Test survey design:** The Research team tests and reviews the data, time to time, extensively for clarity and accuracy before finalization & tabulation.
6. **Results:** The Research team with the help of statistician finalizes and tabulates the data and prepare the periodical reports and at the end of the project prepares the a final reports.
7. **Presentations:** Basing up on the data collected, the Research team presents scientific papers for publication and presentation in the scientific conferences.

In this context it is quiet natural to expect the CCRYN to play the role of National Guardian for the promotion of the science by implementing Research projects on acceptable standards at various competent centers, collect the data, process and publish. Necessary planning is required on these lines. □

RESEARCH IN YOGA - SOME RANDOM THOUGHTS

Dr. M.V. Bhole, M.D., Ph.D*

Introduction:

The term “research” has of two components, ‘research’ i.e. to seek again. As per standard dictionaries, ‘research’ denotes “careful, patient, systematic, diligent enquiry or examination or investigation in some field of knowledge undertaken to establish facts or principles. Laborious or continued search after truth¹.” This meaning of the term also gives us the broad guidelines for its methodology.

Research could be done for oneself, our family, organization, business, society and/ or a nation in any field such as science, technology, fine arts, biology, medicine, philosophy, literature etc. There is some difference between discovery, invention and research.

Various steps involved in carrying out research greatly depend on the objectives of the ‘research’. However, certain norms have been established and protocols have been developed for preparing research proposals, selection of it[^]ms, collection and analysis of data, report writing and its presentation.

We are more concerned with research in the fields of Naturopathy and Yoga. In our country, CCRYN, NIN and MDNIY are apex bodies entrusted with Yoga and Naturopathy. They are connected with the Department of AYUSH, Ministry of Health. Guidelines for applying for grants-in-aid for research projects are available from this Department. Other funding agencies have their own guidelines and formats for submitting research projects.

Research in Yoga:

Swami Kavalayananda was the pioneer in the field of laboratory research in yoga. He started his experiments around 1922. Later on, he established

Kaivalyadhama Samiti at Lonavla near Pune to carry out full time research, training and therapy in yoga. Since then and till to-day, many individuals and institutions, in and outside India, have developed interest in yoga research, training and therapy.

Today sVYASA, Bangalore is most active in these areas related with yoga and it is having collaboration with institutions outside India. Bihar School of Yoga, Mungher is another institution totally devoted to yoga. DIPAS, AIIMS and JIPMER are basically working in psycho-physiology and medical fields and they are also carrying out research in yoga. We can get lot of important guidance from these institutions.

Areas of Research in Yoga:

At Kaivalyadhama Institute, Swami Kavalayananda instituted yoga research and related training activities in the following areas:

1. Scientific research in Yoga
 - Effects of individual yoga practices such as Uddiyana, Kapalbhathi, Basti etc. using modern laboratory equipments.
 - Special subjects of scientific and general interest such as pit burial, heart stoppage etc.
2. Philosophical and Literary research in Yoga-comprising of the following:
 - Procurement, compilation, editing, translation and publication of critical editions of old works on yoga from manuscripts and published sources such as Goraksha Shataka, Bruhad-yogi-yajnavalkya, Hathapradipika etc.
 - Evolution of yogic concepts and practices such as pranayama.
 - Interpretation of yoga sutras.
3. Developing courses in yogic physical culture for people with average health.

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4. Education of yoga teachers, and
5. Yoga therapy
6. Spiritual guidance to aspirants

The list given above looks very comprehensive. However, we can extend and expand this list in the light of our requirements e.g. developing yoga programs for specialized professions such as executives, computer workers, house-wives, school children, people working in high altitudes, space travelers; patients suffering from different ailments; spiritual aspirants with different ambitions and motivations etc. Present trends in Yoga Research: We can recognize the following trends in yoga research in India and outside.

In respect of laboratory experimental work:

- Study of the short term effects of short and long term yoga training programs on various psycho-physiological parameters.
- Study of selected yoga practices such as well established Buddhist meditation on brain activity with special reference to consciousness. Some of the topmost neuron-scientists are working in collaboration with His Holiness Dalai Lama in this area.
- Study of yoga techniques in relation to therapy, especially in relation to heart.

In respect of literary studies:

- Preparation and publication of critical editions of old yoga texts with translations.
- Study of the living traditions in yoga.
- Preparation of catalogues of yoga related manuscripts.
- Research in relation to specific yogic concepts such as 'prana'.

There are highly specialized books and literature on this subject and we should consult them according to our personal interest and requirement from time to time. However, here are some broad generalized guidelines in the interest of producing good research in yoga:

If you want to carry out Experimental Work in Yoga:

1. Interest in doing research:

- Ascertain that you are having a genuine

interest in yoga research i.e. you have a searching attitude.

- Just do not think of undertaking a research project because some funds are going to be available or there is pressure from somewhere to take up such a work.

2. Proper technical persons, equipment and place to carry out work:

- Ascertain that you will have a full time technical person to work on the instruments and people knowing the upkeep and maintenance of the equipment.
- Ascertain that you will have a separate room with proper atmosphere to carry out experimental work.
- In case, you do not have the background of science and biology, then ascertain that you have properly qualified people in science, biology, medicine and statistics to help you from time to time right from the project planning phase till the publication of your work.
- If you are from science side, then try to have the services of Sanskrit knowing people available to you. You may be required to refer to the classical texts from time to time.
- It is highly advisable to have medical person taking interest in your work and who is ready to guide you in respect of the modern medical sciences from time to time.

I. Subjects and their training:

- Ascertain that subjects will be easily available for your experiments and there will be proper facilities for their training in yoga.

Objectives of training in Yoga and its assessment:

- Spell out the objectives of yoga training as per the living tradition and the yogic scriptures i.e. what do you want to achieve through yoga training.
- Usually they are going to be "first person subjective experiences". These may be related with the yoga training as a whole and/or with the individual yoga practice.

- Spell out as to how you will proceed to assess and evaluate the achievements in respect of these “first person subjective experiential objectives” in the participants.
- This point is usually missing in most of the research protocols. Parameters studied by us (third person) become the side-effects of the main first person achievements.

Experimental observations:

- Observations made with the help of any kind of instrument become “third person objective measurements” which is different from the “first person subjective experiences”.
- We will have to find ways and means to develop proper integration and synthesis of these two approaches.
- This point is missing from our experimental studies and it requires to be emphasized.

If you want to carry out Literary Research in Yoga:

1. Present trend in Literary Research:

- To edit critical editions of yoga texts based on manuscripts and published works.
- To prepare Catalogues of MSS, Concordances and Encyclopedias.
- This is the classical approach. It is important and should be continued.

2. Some suggestions:

Background for making these suggestions:

- Yogashastra is “first person subjective experiential science” while the modern science is essentially “third person objective observational” in nature.
- Yogic terms are usually related with human consciousness while terms in modern science are related with material substances.
- Authoritative yoga texts are in Sanskrit language which is not the language of education, even in India. Some yoga texts are written in other Indian languages.
- Most people getting interested in yoga to-day do not have the right type of exposure to Sanskrit and these other languages of yoga texts.
- The modern language of education, being mostly

objective in nature, incapacitates a person to grasp and understand the highly subjective language of yoga.

- Usually people attend yoga courses from two weeks to six weeks and start their own yoga classes. Under the name of yoga, they are seen to learn and practice some body positions, breathing manipulation techniques, recitation of bhajans and mantras. Their subjective experiences are not assessed nor evaluated.
- Some of them go into more details and get introduced to yoga philosophy in a proper manner. Others continue adding more body positions to their armory. In due course of time they write books in their own languages. This becomes the yoga literature for other people in that country.

The suggestions:

- We will have to differentiate between games, sports, physical exercises, dance movements from asanas. This requires properly planned research work.
- We find various concepts such as vayus, pranas, lotuses, chakras, nadis, and mahabhutas. These concepts require to be properly highlighted in modern

languages to convey their meanings, understandings and subjective experiential aspects.

- We have practical approaches like vayu-sadhana, pranayama, purifications of various kinds. All these require proper presentation for which suitable research work is a must.
- As yoga is an experiential science, some of us will have to undertake research projects to develop protocols to assess and evaluate the subjective nature of yoga practices and yoga sadhana.

Conclusion:

At present, we are following the guidelines for objective research. We will have to think of developing ways and means of integrating “first person subjective experiential aspect of yoga” with the existing “third person objective observational scientific methods”. □

विटामिन आवश्यकता किसको है

नितीश रेले

यह सच है कि हमारे शरीर को विटामिन की आवश्यकता होती है, और ये अधिकांशतः हमारे द्वारा किए गये भोजनों से हमें प्राप्त भी हो जाते हैं, परंतु लोगों में यह धारणा बनी हुई है कि अतिरिक्त विटामिन लेकर वे स्वस्थ और ताकतवर बने रह सकते हैं। इसलिए वे अक्सर इनका उपयोग करने से नहीं चूकते लेकिन इस तरह अतिरिक्त विटामिन लेना कहां तक उचित है? क्या आपको मालूम है, इस तरह से लिये गये विटामिन लाभ की बजाय हानि भी पहुंचा सकते हैं। बिना डॉक्टर की सलाह लिए इन्हें लेना कहां तक उचित या अनुचित है, आइये देखें।

अन्य औषधियों की तुलना में तथा कथित विटामिन की प्रभाविक क्षमता के बारे में अधिक गलत धारणाएं व गलतफहमियां हैं। यह कहना गलत न होगा कि विटामिन के सदुपयोग के स्थान पर उनका दुरुपयोग अधिक होता है। विटामिन वास्तव में है क्या? शरीर को सुचारु रूप से काम करने के लिए जिन रासायनिक मिश्रणों की आवश्यकता होती है, उन्हें विटामिन कहते हैं और वे अत्यल्प मात्रा में भोजन से प्राप्त होते हैं, वे शरीर में होनेवाली विभिन्न रासायनिक क्रियाओं में भाग लिये बिना उन्हें तेज करते हैं।

बिना सोचे समझे विटामिन निगलते जाना लोगों में सनक जैसा हो गया है परिणामस्वरूप करोड़ों रुपयों के विटामिन और ताकत की दवाएं बनाने का व्यवसाय फल फूल रहा है। युगों से यह धारणा चली जा रही है कि विटामिन का सेवन चमत्कार कर सकता है और यदि कुछ विटामिन नहीं लिये गये तो वे मर जायेंगे। करोड़ों लोगों में यह गलतफहमी है कि विटामिन भोजन का विकल्प है। विटामिन के अभाव का हौवा इस कदर खड़ा किया गया है कि पोषण से भरपूर आहार लेनेवाले भी विटामिनों के सेवन के बिना स्वयं को आधूरा अनुभव करते हैं। जैसा कि दवाएं बनानेवाले कंपनियां दावा करती हैं। विटामिन से सभी रोगों का उपचार नहीं किया जा सकता। इस उद्योग को तो केवल अपने बिक्री का लक्ष्य प्राप्त करने से मतलब होता है। कोई यह नहीं सोचता कि उनके प्रचार के फलस्वरूप बिना सोचे समझे विटामिन का सेवन खतरनाक भी हो सकता है। हाल ही तक विटामिन का अविवेकपूर्ण उपयोग होता रहा है। मुफ्त में विटामिन के सैंपल मिलने से भारत जैसे कम पढ़े लिखे देश में विटामिन बहुत लोकप्रिय हो गये हैं और यही मुफ्त के सैंपल इस भयानक खतरे का मुख्य कारण है। विटामिन की अधिक मात्रा भयानक रूप से हानि पहुंचा सकती है। आपको यह जानकर आश्चर्य होगा कि विटामिन विषाक्त भी हो सकते हैं। अकेले संयुक्त राज्य अमेरिका में विटामिन द्वारा

विषाक्तता के 4,000 से भी अधिक मामले प्रतिवर्ष पाये जाते हैं। इनमें से 3,000 से अधिक बच्चे होते हैं।

क्या विटामिन की वास्तव में आवश्यकता होती है? डॉ. विनोद क्रिश्चियन कहते हैं। मैं विटामिन में विश्वास नहीं करता। ये केवल दवा कंपनियों को धनी बनाने का कार्य करते हैं। शेरों और हाथियों को विटामिन की आवश्यकता नहीं होती है। डॉ. वास्टर गॉडेल कहते हैं, किसी रोग के लिए विशेष चिकित्सा एजेंट के रूप में विटामिन के उपयोग की सलाह तभी दी जाती है, जब रोगी में उस विटामिन की कमी के लक्षण चिकित्सीय दृष्टि से विद्यमान हों। यह कमी मध्यवर्ती रोगों, भोजन संबंधी सनक या भया या अपनी इच्छा से अपर्याप्त आहार चुनने के कारण हो सकती है, किंतु इस समस्या का सबसे बड़ा दायित्व हमारी सामाजिक-आर्थिक पृष्ठभूमि है, जिसमें गरीबी, अज्ञानता बेहिसाब, आबादी, युद्ध अथवा अकाल जैसी विभिषिकाओं के कारण आपूर्ति की अपेक्षा मांग बहुत अधिक हो गयी है। एक प्रमुख भारतीय फार्मसी विशेषज्ञ दावे के साथ कहते हैं, विटामिन श्रेणी की शक्तिवर्धक दवाएं विज्ञापन तकनीक के कारण लोकप्रिय हुई हैं। विज्ञापनों के द्वारा लोगों को विटामिनों की प्रभावोत्पादकता में विश्वास कराया जाता है। जहां इन विटामिनों की साधारण रूप से कोई आवश्यकता नहीं होती विज्ञापन यह आवश्यकता पैदा कर देता है।

विटामिनों का उपयोग कितना लाभप्रद है

विटामिन दो समूह में विभक्त किये जा सकते हैं। पहला वसा में घुलनशील और दूसरा पानी में घुलनशील, विटामिन 'ए', 'डी', 'ई' और 'सी' पानी में घुल जाते हैं। भारत जैसे विकासशील देशों में निम्न सामाजिक और आर्थिक वर्ग के बच्चों में विटामिन 'ए' की भयंकर कमी से अंधेपन का रोग हो जाता है। बच्चों को यदि वर्ष में दो बार इस विटामिन की बड़ी दो खुराक दे दी जाये तो इस समस्या का समाधान हो जाता है। यह उपचार इस तथ्य पर आधारित है कि यह विटामिन शरीर में लंबे समय तक संग्रहित रहता है, और निश्चित रूप से यही कारण है कि यह विटामिन अत्यधिक मात्रा में नियमित रूप से लेने से कैंसर हो सकता है। इस विटामिन को आवश्यकता से अधिक लेने पर भूख मिट जाती है, उल्टी होने लगती है, सिर में दर्द होने लगता है और त्वचा खुश्क हो जाती है और विकास में बाधा पड़ सकती है। जब त्वचा पर सूर्य का प्रकाश पड़ता है तो विटामिन डी का निर्माण होता है। यह दूध, मक्खन, अंडे की जर्दी तथा पशुओं से मिलनेवाली चिकनाई युक्त खाद्य पदार्थ में पाया जाता है, क्योंकि इस विटामिन में चिकनाई होती है

अतः इसे बिना सोचे समझे हर किसी को नहीं लेना चाहिए। बढ़ते हुए बच्चों के लिए यह हानिकारक है। बच्चों को अतिरिक्त रूप से पौष्टिक बनाए गए खाद्य पदार्थों से कैल्सियम और विटामिन 'डी' मिलते हैं। यदि इनका सेवन अत्यधिक मात्रा में किया जाये तो यह शरीर के लिए विष बन जाते हैं। इससे मितली, कब्ज, उच्च रक्तचाप हो सकते हैं।

विटामिन 'डी' विषाक्तता की एक ऐसी किस्म भी है, जो व्यापक रूप से अक्सर शिशुओं को होती है। शिशुओं को यह विटामिन शिशु आहारों, दूध के चूर्ण तथा मार्गरीन जैसे पदार्थों से मिलता है। इन सभी के निर्माता इनमें विटामिन की अधिक मात्रा प्रचुरता से मिलाते हैं। कुछ वर्षों पहले यह अनुमान लगाया गया था कि कुछ बच्चों को तो यह विटामिन उनकी वास्तविक आवश्यकता से पांच गुनी मात्रा में मिलता है। भारतीय जलवायु में प्रचुर मात्रा में सूर्य का प्रकाश पूरे वर्ष भर मिलता रहता है। इससे शिशुओं तथा ऐसे व्यक्तियों के अतिरिक्त जिन्हें सूर्य का प्रकाश का लाभ नहीं मिल पाता, लोगों में अतिरिक्त विटामिन डी की आवश्यकता कम हो जाती है। डॉ. वाल्टर मॉडेल कहते हैं, हम यह बात निश्चित रूप से जानते हैं कि वसा में घुल जानेवाले विटामिन 'ए' और 'डी' यदि लंबे समय तक बड़ी मात्रा में लिये जाते रहें तो गंभीर और कभी कभी तो घातक उन्माद या नशा पैदा करते हैं या दीर्घकालिक रोग पैदा करते हैं। यह इस धारणा के प्रति चेतावनी देते हैं कि कुछ अच्छा है, अधिक बेहतर है, वे इसे खतरनाक रूप से आंशिक सत्य मानते हैं।

विटामिन 'ई' के विषय में बहुत से अतिशयोक्ति पूर्ण दावे किये जाते हैं। इसे बहुत ऊंचा दर्जा दिया गया है, क्योंकि

इसे हमारे यौन जीवन को पुनर्जीवित करनेवाला माना जाता है। हालांकि इस दावे के समर्थन में अभी तक कोई विश्वसनीय या ठोस प्रमाण नहीं मिलता है। सच्चाई तो यह है कि इसके बाजीकारक प्रभाव के दावे के कारण पिछले पांच वर्षों में इसकी बिक्री दोगुनी हो गई है।

विटामिन बी जो हानियां पहुंचा सकता है उन्हें उनके द्वारा पहुंचाये जानेवालीयह सिद्ध हो चुका है कि विटामिन बी बिना किसी परिवर्तन के ज्यों का त्यों मूत्र के साथ बह जाता है। कुछ विशिष्ट परिस्थितियां होती हैं, जहां इनका उपयोग तर्कसंगत होता है। वे स्थितियां हैं – अल्पपोषण या कुपोषण के शिकार व्यक्ति, अमीबिजासिस अथवा पीलिया जैसे पाचन संबंधी विकार, गर्भावस्था तथा स्तनपान की अवधि।

हावर्ड स्कूल ऑफ पब्लिक हेल्थ की डॉ. फ्रैंडरिक स्टेजर अमेरिका वासियों द्वारा अत्यधिक मात्रा में विटामिन के उपयोग पर व्यापक रपट पर अपनी राय देते हैं, वे विटामिन जिनका अत्यधिक मात्रा में सेवन सर्वाधिक खतरनाक होता है, विटामिन 'ए' और 'डी' हैं। कुछ लोग सोचते हैं यदि एक गोली आपके लिए अच्छी है तो उसकी दो तीन पांच या दस गोलियों कई गुना बेहतर होंगी, वास्तव में होता इसके ठीक विपरीत है। यदि भारी मात्रा में विटामिन 60 से 10 दिन दिन तक लगातार लिये जाते रहे तो भयानक सिरदर्द और गुर्दे की समस्या पैदा हो सकती है। अत्यधिक मात्रा में विटामिन डी का सेवन भयंकर उन्माद संबंधी जटिलताएं विशेष कर गुर्दे की, पैदा कर सकता है। इस प्रकार के उन्माद या विषाक्तता से कई रोगियों के मरने के समाचार भी मिले हैं।

contd. from Pg 1

to anaemia prevalence. The highest decrease in anaemia was in children and pregnant women.

The models used by IFPRI researchers could explain 49% of change in anaemia levels in children and 66% of difference in pregnant women.

In children, decline in anaemia was explained by nutrition and health interventions (18%); women's schooling (10%) and socioeconomic status (7%). Changes in meat and fish consumption, improved sanitation facilities, maternal anaemia and low body mass index contributed 2-3% each to the shift.

Among pregnant women, fall in anaemia was explained by improvements in maternal schooling (24%), socioeconomic status (17%), and nutrition and health interventions (7%). Other factors included improved sanitation (9%), number of children under five years of age (6%), maternal age (2%), and meat

and fish consumption (1%).

Not just iron-deficiency anaemia

In low income countries, only 15-25% of anaemia with high inflammation is caused by iron deficiency, showed a highly cited 2016 paper published in global journal *Nutrients*.

When 75-85% of anaemia is unrelated to iron deficiency, iron supplements will not address the problem, said Scott. Other causes of anaemia include worm infestation, malaria, and infectious diseases that cause intestinal inflammation causing reduced nutrient absorption, genetic causes that affect red blood cells, blood loss, and deficiencies in nutrients other than iron such as folate, vitamin A and B12.

Other than folic acid deficiency, those causes are not addressed by IFA supplementation. "This may be why 50 years of IFA supplementation in India has failed to address the problem," Scott said.



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हम बेहतर कल की संभावना सृजित करते हैं

The Global Forum for Health Research estimates that less than 10% of research funds are spent on the diseases that account for 90% of the global burden of disease. Worldwide about \$56bn (£37.3bn) per year is spent on health research by both the public and private sectors.³ The funding of research studies by the industry, with explicit or implicit conflict of interest has been a growing trend. In USA, pharmaceutical companies spent approximately \$23 billion on clinical research in 2001 as compared with \$18 billion from the National Institute of Health. A study, which analyzed research papers published in two prestigious journals, namely New England Journal of Medicine (NEJM) and Journal of American Medical Association (JAMA), found that private corporations funded approximately 1 out of every 10 original manuscripts published in these journals. This creates a conflict of interest. The study also found that 32.6% (NEJM) and 25.9% (JAMA) articles had one or more authors with a conflict of interest (COI). Interestingly, authors with COI were 10 to 20 times less likely to present negative findings than those without COI. The observation that negative findings are less commonly reported among studies funded by private corporations raises troublesome ethical questions. Researchers appear to be failing to promote both the benefits and negative side effects of commercial products they review or simply failing to submit negative studies for publication because they are viewed as uninteresting. On the other hand, editors are not proactively examining the possibility of bias from author relationships with private corporations.⁴ Since such research is conducted in collaboration with prestigious researchers, institutes and even government agencies, very few questions are raised.