

Research for understanding as opposed to evaluating Ayurveda

Much of the discussion centered around research in Ayurveda is defensive and seemingly Ayurveda's back is against a wall. The questions asked are always as to whether Ayurveda will survive the acid test of scientific evaluation and prove itself to be rational, efficacious and safe. The focus of such research is to verify whether Ayurveda and its methods conform to the yardsticks that are employed in modern medical research. This, in the language of logic, is called confirmation bias, that is, looking for what we want to see and closing our eyes to what we are unaware of.

It does not therefore come as a surprise when such misdirected research ends up without finding anything worthwhile in what Ayurveda has to offer. An example is the search for active molecules from the medicinal plants used in Ayurveda. New chemical entities from Ayurvedic herbs that can revolutionize modern pharmaceuticals have eluded us all these years. However, we have never asked the question as to whether that is all that Ayurveda has to offer. The canonical texts of Ayurveda proclaim that the logic of therapeutics is based on *yukti*,^[1] which are complex algorithms for combining herbs. Using *yukti* one can derive new insights on molecular combinatorics and the development of molecular cocktails as opposed to single molecules as drugs. When we approach Ayurveda with preconceived ideas, we fail to understand its sound and solid principles.

We need to approach Ayurveda with an open mind in order to discover alternative approaches to healthcare that we may have lost or failed to develop in the march of modern scientific development. In order to achieve this, we need to shift the focus of research from one of evaluating Ayurveda to one which tries to understand Ayurveda.

Current research in Ayurveda uses modern scientific parameters as the exclusive yardstick. The corpus of Ayurvedic knowledge is considered as a "lead" to new scientific discoveries. Therefore, Ayurvedic treatment methodology is force fitted into modern research designs and the knowledge so obtained is meant to be used within the framework of biomedicine.

To add insult to injury, Ayurvedic concepts and terminologies are translated conveniently into equivalents in biomedicine.

Thus, rheumatoid arthritis becomes *Āmavāta*,^[2] *vāta* is equated with acetylcholine, *pitta* with enzymes and *kapha* with immunoglobulins. No thought is given to the context and the depth of meaning contained in the Ayurvedic terminology.

Based on the uses of medicinal plants described in Ayurveda, research is conducted to discover drugs that can be understood within the framework of modern pharmacology. Thus, curcumin is extracted from turmeric for its anti-inflammatory activity^[3] and the alkaloids of *Aśvagandhā*, are used for their anti-cancer properties.^[4]

Complex Ayurvedic treatments are broken down to their simpler components and tested on animal models that do not consider parameters like *prakṛti* (constitution) nor does this approach do justice to the personalized approach of Ayurveda. Even human studies are conducted by isolating components of complex interventions and attempting to study single formulations or even molecular fractions and their efficacy in specific diseases.

Research for understanding Ayurveda, on the other hand, should be designed to understand and describe Ayurveda on the basis of Ayurvedic parameters. This should be with a focus on the source texts and proper interpretations of the concepts like *āma* (incompletely transformed digestive and metabolic by-products), *prakṛti* (constitution) and *agni* (digestive fire). Interpretations of the Ayurvedic concepts should be done with reference to the primary canonical texts with full transparency, specifying the references that can be cross checked for veracity. An interpretative approach should be employed rather than resorting to gross translations. The study of an Ayurvedic text should be done in collaboration with a Sanskritist and an Ayurveda expert.

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The focus has to shift from just the drugs and practices to the concepts behind them. Pañcakarma (the five therapeutic procedures), Ayurvedic pharmacological concepts such as *rasa* (taste), *guṇa* (property), *vīrya* (potency), *vipāka* (biotransformation), *rasāyana* (immunomodulation and rejuvenation) and *prakṛti* (constitution) are all concepts in Ayurveda that need to be studied well to better understand the interventions used in the clinical practice of Ayurveda.

Research designs need to be adapted for the needs of Ayurveda and if necessary, reinvented. Preclinical studies should be restricted to toxicity studies on animal models where there are genuine safety issues. Pharmacoepidemiological studies need to be considered to generate safety data where medicines and formulations are already used in human populations. Clinical studies should focus on the evaluation of outcomes of complex Ayurveda interventions, and the research designs have to be suitably modified to accommodate unique features of Ayurvedic treatments. Most importantly, any Ayurvedic treatment should be evaluated just as it is applied in actual clinical practice at the point of care. For this purpose, comparative case studies would prove helpful in understanding the variations in treatment from the person to person. As has been demonstrated, randomized controlled trials designs can be tweaked to study classical Ayurvedic treatment. Observational studies can also be conducted in a rigorous manner to study complex Ayurvedic treatments without reducing their complexity.

The ancient text *Rasavaiśeṣikasūtra* says that the entire subject matter of health and disease can be summarized in four statements.^[5] Similarly, we can summarize the message of Ayurveda in four statements that provide us with the insight and understanding about what Ayurveda can offer to help combat disease and establish health.

First of all, the knowledge of Ayurveda serves like a mirror on which the individual can perceive his or her reflection, providing an understanding of one's physical and mental constitution, personality, the subtler dimensions of the body, mind and self. Ayurveda beckons the human being to know herself/himself.^[6] This is the foundation for the pursuit of health. It is as if the old adage "physician, heal thyself" is rephrased in Ayurveda as "physician, know thyself" and is expanded in Ayurveda to include not only the patient and the but also the healthy human being itself.

Secondly, one can conclude that if there was a user's manual that came along with life, then, it is Ayurveda.^[7] The knowledge of Ayurveda is like a user's manual that enables us to take care of our body and minds in such a

way that we live the full span of life. "May we witness a 100 autumns" as the ancient hymn goes. The first chapters of the canonical texts of Ayurveda address this fundamental question-how can one take care of one's body and mind so that one lives not only one's life span, but also healthily. A long life has no meaning if one is troubled by diseases. Ayurveda's prescription for a healthy long life is the one lived with proper understanding of oneself with adequate measures for maintenance and promotion of health.^[8]

Thirdly, Ayurveda lays great emphasis on the self-healing powers of the body and mind. The deity of medicine is actually the inner doctor and the texts point out that the knowledge of Ayurveda has been discovered in states of consciousness that enable one to become aware of the inner healing powers of the body. The human body has a great ability for self-repair and healing. There is an ancient saying that proclaims "as long as one can invoke the inner healer, what is the need to look for physicians outside?"^[9] Ayurveda helps one understand oneself, and to maintain the body-mind complex such that both the body and the mind are happy and healthy. Ayurveda helps us to discover the innate healing powers, in other words, it helps one discover the self-service kit that is inbuilt with life.

Finally, when the first three measures fail, there arises the need for external intervention and expert help. The body-mind equipment now needs to be taken to the service station. Ayurveda elaborates the methods to diagnose and treat diseases that covers internal medications, external therapies and surgery.^[10]

When it comes to Ayurvedic treatment, we cannot test the drugs but rather the algorithms on the basis of which the drugs or treatments are administered. Such algorithms are known as *yukti* in Ayurveda.

Ayurvedic treatments aim at restoring the balance of the physiological functions in the body. This means bringing in fine adjustments to the feedback mechanisms that keep the internal environment of the body in a stable condition. The Ayurvedic treatments are therefore administered in accordance with the constitution of the individual as well as the dynamic response to the treatments.

The focus of research in Ayurveda has to be first on the understanding of Ayurveda and then its evaluation. The corpus of Ayurvedic knowledge constitutes a comprehensive approach to health care. An insight into the essence of its teachings will keep us well-grounded to conduct research that will prove to be meaningful and productive.

P. Ram Manohar

Director and Chief Scientific Officer, AVP Research Foundation,
Ramanathapuram P.O., Coimbatore, Tamil Nadu, India
E-mail: rammanoharp@gmail.com

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