



A critical study on the efficacy of Yoga on the HIV infected Children- A Holistic approach

KEYWORDS

Yoga, HIV infected children

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ABSTRACT

The study entitled "A critical study on the efficacy of Yoga on the HIV infected Children- A Holistic approach" has been conducted at Snehasadan HIV home care and Jeevadhan Rehabilitation centre, Mangalore, which takes care of HIV infected children under Government scheme. 45 HIV infected children with the age group of 6 to 17 years were selected with, 30 in the experimental and 15 in the control group for the study from Sneha Sadan. The experimental group was taught selected yogic practices for two hours a day with the duration of 2 months. After the study, experimental group had showed a significant improvement in CD4 counts, Hemoglobin, weight and ESR. Thus the present study emphasizes the holistic approach of yoga to improve the health of HIV infected children.

Introduction:

Good health is man's priceless treasures. If one does not possess good health, one cannot enjoy success, prosperity, peace and others comforts of life. Health, happiness and peace of mind are those assets and treasures that cannot be purchased. Health is a fundamental right of an individual and is considered as a state of physical, mental, social and spiritual well being. This can be easily attained by the practice of yoga which lays great emphasis on purification of internal and external organs, moderate diet, practice of asanas, pranayamas for the prevention of diseases and promoting good health. The ultimate goal of yoga is the restoration of absolute peace. yoga is control of mind and senses equanimity and serenity. It is not a religion but a spiritual methodology for a happy and healthier life. The practice of Yoga helps the persons to reduce the thought, and gives silence and solitude, which is very necessary to enter in to spirituality.

There were some studies which had been carried out by different researchers to find out how yoga works in the HIV/AIDS infected patients to improve their general health thus to prevent them from the opportunistic infection. The children for whom the practice was given during the present study are those always with ill health, and being most of the days in the sick bed. They were not much interested in life, nor in their study. They were aggressive, arrogant, not disciplined, and compulsive. So the study was carried out to develop their General health, behaviors and Holistic development.

Objectives of the study:

- To find out the impact of selected yogic practices in improving the CD4 counts, to increase normal body weight and Hemoglobin level thus to reduce the opportunistic infection by bringing reduction in the ESR in the HIV children.
- To find out the Holistic improvement between the age group of 6 to 17 through the practice of Pranava Dhyana and relaxing postures thus to analyze different questionnaires along with the yogic practice to transform the children's life. Intake of Fruit such as Orange and Gooseberry for the proper assimilation and maintenance of good health by improving the hemoglobin and general health.

Hypothesis:

In order to study scientifically, the following Null hypothesis was made.

- There is no change in the CD4 counts, Hemoglobin, ESR and Weight of the HIV infected children in the pre and post of the study.
- There is no change in the mental, intellectual, psychological and spiritual level of the HIV infected children in the pre and post of the study.

Materials and methods:

The study on the "Effect of Yoga on HIV infected Children - A Holistic approach" has been conducted at Snehasadan, which takes care of HIV infected children under Government scheme. Forty five subjects with thirty in experimental and fifteen in control group of HIV infected children were selected with the age group of 9 to 17 from the above mentioned HIV home care was chosen for the study. The experimental group was taught selected yogic practices for two hours a day with the duration of 2 months. The session included a series of asanas, pranayamas, meditation and relaxation techniques. Along with yogic practices Orange and Indian Gooseberry also was given for the experimental group.

Following Parameters were undertaken for the study

- Cluster of differentiation 4 (CD4)
- Hemoglobin
- Erythrocyte sedimentation rate (ESR)
- Weight
- Questionnaire on emotional intelligence
- Questionnaire on intelligence tests
- Questionnaire on self-esteem
- Questionnaire on spiritual intelligence

Cluster of differentiation 4 (CD4)

CD4 cells are a type of white blood cell that fights infection. Another name for them is T-helper cells. CD4 cells are made in the spleen, lymph nodes, and thymus gland, which are part of the lymph or infection-fighting system. CD4 cells move throughout the body, helping to identify and destroy germs

such as bacteria and viruses. CD4 counts are reported as the number of cells in a cubic millimeter of blood. A normal CD4 count is from 500 to 1,500 cells per cubic millimeter of blood. It is more important to pay attention to the pattern of results than to any one test result. In general, HIV disease is progressing if the CD4 count is going down. This means the immune system is getting weaker and the individual is more likely to get sick. In some people, CD4 counts can drop dramatically, even going down to zero.

Hemoglobin:

Hemoglobin is present in red blood cells and is an essential chemical which carries oxygen from lungs to other parts of the body. This contains iron and performs the important function of transporting oxygen via RBC

Types of blood tests:

- There are four different blood tests that fall under the category of routine blood tests. They are TC, DC, ESR and HB.
- TC stands for Total Count and determines the amount of white blood cells that are in the blood. White blood cells increase when an infection is present. If high white blood cells (over 10,000/cubic mm of blood) are tested, it signifies an infection.

The erythrocyte sedimentation rate (ESR):

The erythrocyte sedimentation rate (ESR), or sedimentation rate (sed rate), is a measure of the settling of red blood cells in a tube of blood during one hour. The rate is an indication of inflammation and increases in many diseases. A normal value does not rule out disease. Normal values for the Westergren method are: Men 0 mm/hour-15 mm/hour; women 0 mm/hour-20 mm/hour; and children 0 mm/hour-10 mm/hour.

Weight:

A weight that is believed to be maximally healthful for a person, based chiefly on height but modified by factors such as gender, age, build, and degree of muscular development and bone density with ones physical activity. Weight that falls within a normal range is a significant aspect of wellness.

Emotional Intelligence test:

Emotional intelligence (EI) is the ability to identify, assess, and control the emotions of oneself, of others, and of groups. It can be divided into Ability EI and trait EI.

Intelligence test:

The capacity to acquire and apply knowledge. Faculty of thought and reason. Superior powers of mind. It is capacity for learning, reasoning and understanding. Aptitude in grasping truths, relationships, facts, meanings, mental alertness or quickness of understanding is also known as intelligence of the individual. The abbreviation "IQ" comes from the German term Intelligent-test IQ scores are used as predictors of educational achievement and special needs.

Spiritual Quotient:

The term **spirituality** lacks a definitive definition, although social scientists have defined spirituality as the search for "the sacred," where "the sacred" is broadly defined as that which is set apart from the ordinary and worthy of veneration.

Paired t-test- Experimental Group

| Is. no. | Parameters | Mean | | S. D | | t-value | p-value | sig |
|---------|-------------|--------|--------|--------|---------|---------|-----------|-----|
| | | Pre | Post | Pre | Post | | | |
| 1 | CD4 | 664.9 | 800.5 | 241.92 | 287.008 | -3.552 | 0.00619 | HS |
| 2 | Hemoglobin | 10.132 | 11.439 | 1.086 | 1.3013 | -5.5353 | 7.257e-06 | HS |
| 3 | ESR | 72.828 | 47.357 | 38.199 | 35.892 | 4.8229 | 4.903e-05 | HS |
| 4 | Weight | 27.04 | 28.07 | 8.538 | 8.432 | -7.825 | 2.056e-08 | HS |
| 5 | E. Quotient | 21.785 | 30.828 | 6.2144 | 4.7135 | -9.4249 | 4.981e-10 | HS |
| 6 | I. Quotient | 4.25 | 5.893 | 1.838 | 1.3149 | -6.631 | 8.22e-07 | HS |
| 7 | Self-esteem | 11.893 | 13.743 | 1.7499 | 2.3704 | -7.5408 | 4.12e-08 | HS |
| 8 | Sp quotient | 26.75 | 30.429 | 4.551 | 4.3070 | -7.4543 | 5.103e-08 | HS |

Self-Esteem:

Self-esteem is a term used in psychology to reflect a person's overall emotional evaluation of his or her own worth. It is a judgment of oneself as well as an attitude toward the self. Self-esteem encompasses beliefs (for example, "I am competent", "I am worthy") and emotions such as triumph, despair, pride and shame.

Yogic intervention:

A detailed case history was taken three days prior to the commencement of the study. The following yogic practices were given to experimental group over a period of two months. The session started on 1st of February 2013 to 31st of March 2013. Gradually yogic practices were taught for the experimental group. With all the practices mentioned below fruits such as Gooseberry in the morning and Orange in the evening was given. **List of yogic practices for children below 9 years**

| Asanas | Pranayama | Meditation | Relaxation |
|-----------------|----------------|------------|------------|
| Svastikasana | Ujjayee | Pranava | yoganidra |
| Vajrasana | Anuloma viloma | | |
| Sputa vajrasana | | | |
| Simhasana | | | |
| Bhujangasana | | | |

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| Vajrasana | Anuloma Viloma | | |
| Sputa Vajrasana | Suryabhedana | | |
| Simhasana | Bhastrika | | |
| Trikonasana | Bhaya kumbhaka | | |
| Parsvakonasana | | | |
| Pascimotasana | | | |
| Purvotanasana | | | |
| Pavanmktasana | | | |
| Bhujangasana | | | |
| Baradvajasana | | | |
| Viparitarani | | | |
| Uttanapadasana | | | |
| Shavasana | | | |

Results:

All the parameters were tested before and after the study and has been tabulated below. Data collected were analyzed using student paired t-test. The following table shows statistical values after the analysis of the data.

Data for the control Group

| SN | Parameters | Mean | | S.D | | t-value | p-value | Sig |
|----|------------|--------|--------|--------|---------|---------|---------|-----|
| | | Pre | Post | Pre | Post | | | |
| 1 | CD4 | 837.82 | 768.27 | 372.02 | 321.76 | 1.1043 | 0.2953 | NS |
| 2 | Hemoglobin | 10.52 | 10.25 | 1.422 | 1.453 | 2.8084 | 0.01395 | HS |
| 3 | ESR | 33.133 | 42.462 | 19.279 | 26.5703 | -2.1048 | 0.05385 | S |
| 4 | Weight | 33.767 | 33.653 | 11.259 | 11.202 | 1.4885 | 0.1588 | NS |

Discussion:

The present study reveals that the concerned parameters for the Holistic approach in the HIV infected children of the experimental group has shown significant improvements for their overall development after the yoga practice. The results depict that there has been a drastic growth of the CD4 level in the experimental group with the mean from 664.9 to 800.5, with its t-value 3.552, and $p < 0.01$.

Since we are not allowed to check the CD4 counts as per the time the readings are taken by their previous tests. Groups were divided as before the yoga practice and after the yoga practice. The previous months readings of the children were considered as control group and the children who did their CD4 after the month practice was considered as experimental group.

It is also good to notice the improvement in the hemoglobin of the HIV infected children with the mean value 10.132 to 11.439 with its t-value -5.5353 and $p < 0.01$. Since the intake of ART in some, reduces the hemoglobin and brings the HIV patient to an anemic condition normally. After the yoga practice they can improve their hemoglobin which proved by the present study.

As per the results of the subjects, there is a notable reduction in ESR. ESR counts reduced the mean value of 72.828 to 47.359 and t-value 4.8229 and the $p > 0.05$. Asanas help to purify us from our spiritual sluggishness and corporeal poisons that are accumulated and that are hindrances to our spiritual development. Daily practice renders the body immune and thus the system is strengthened. Resistance to illness becomes much greater. Specially asana such as simhasana expels all the impurities in the breath as well as in the blood and thus fights against the germs and other microbes which affects the general health with the opportunistic infections and there by the opportunistic diseases were also reduced.

Amidst the reduction of weight due to ART, children started to increase their weight with the p value ($p < 0.01$) The relaxation technique such as shavasana and 20 minutes of Yoga Nidra helped them to relax each part of the body and release of mental agony. Children who were restless are trained with the proper practices. As the above mentioned yoga practice removes body fatigue, and gives peace and calm state one can rest well and through that one is able to gain weight and improve their Hb, due to rejuvenation of cells at sleep.

The various Questionnaires which were used to measure the Holistic development also brought significant result in two months practice. As the mind and breath are interrelated one can control the mind by controlling the breath. The right knowledge of correct breathing is the most important one. Our physical health, growth, and purification of blood, and consequently, the activities of the internal organ depend entirely upon the respiratory process. Our emotions have a lot to do with our breathing. Our breathing measures our age. The Bhastrika pranayama may be helped a lot in removing the phlegm and protected the children from the opportunistic infections. The p value for Spiritual, Intellectual, Emotional and self esteem shows its overall improvement with the highly significance $p < 0.01$.

Nothing can be achieved without the help of concentration. There is no power in the universe higher than the power which comes through concentration. This concentration leads to meditation. The OM (Pranava Dhyana) practice helped a lot in maintaining the silence and leads them to the inner being. It was understood by the behavior. As pranava removes the karma bandhs, and even sin, the individual purifies the self and the Atma with this wonderful practice. It is clear that the experimental group has been benefited more in terms of various parameters are concerned. Yoga practices such as Asanas, Pranayamas, meditation and Relaxation techniques helped to improve immunity and brought a transformation in the personality as a whole. It prevents the diseases and purifies the internal and external body parts.

Conclusion: The result obtained from the present study can be concluded as below

- The yogic practices bring a significant improvement in the HIV infected children's CD4 counts.
- There is a significant increase of Hemoglobin.
- There is a significant improvement in ESR and Weight.
- On the whole the holistic approach of Yoga on HIV infected children brought a drastic change in physical, mental, intellectual and spiritual and over all behavior.

Limitation:

- It would have been better if the CD4 counts could have taken just before and after for the accurate result.
- Longer study can bring better result.

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