

# Effectiveness Of Exercise For Improving The Physical Functioning And Psychological Well Being Of People Undergoing Treatment of Cancer

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## ABSTRACT :

“ There is no medicine like hope, no incentive so great and no tonic so powerful as expectation of something tomorrow” - Orison Swett Marden

Abnormal proliferation of cells are called cancer. Every year, cancer is responsible for millions of deaths worldwide and, even though much progress has been achieved in medicine, there are still many issues that must be addressed in order to improve cancer therapy. Ever year approximately 7 lakhs new cases are detected .The physical and mental health of cancer patients needs to be addressed not only during active treatment but also throughout the continuum of survivorship care.

**Key words:** cancer, mental health ,well-being, radiation, chemotherapy .

## INTRODUCTION :

Cancer is a disease caused when cells divide uncontrollably and spread into surrounding tissues. Cancer is caused by changes to DNA. Most cancer-causing DNA changes occur in sections of DNA called genes. These changes are also called genetic changes

## REVIEW OF LITERATURE

“ Reform your life and  
Turn over a new leaf ”

- Lord Percival

According to Polit and Hungler ( 2011 p-58) a thorough literature reviews provides a foundation on which to base new evidence and usually is conducted before data are collected .

The review of literature was done from published articles, textbooks ,reports of Medline search .Literature review is presented under the following headings :

- 1) Incidence and prevalence of cancer
- 2) Reviews related to Physical effects of cancer
- 3) Reviews related to Psychological effects of cancer
- 4) Reviews related to effectiveness of exercises on physical and psychological well beings

### 1) INCIDENCE AND PREVALENCE OF CANCER :

Each year, over 200,000 people are diagnosed with cancer. Due to improvements in early detection and treatment, 60% are expected to survive their disease for five or more years, and this percentage is expected to rise ( Jabson.,2015)

More than 10 million people are diagnosed with cancer worldwide; with improvement in early detection and treatment, increasing numbers of patients can be expected to be alive five years after they are diagnosed with cancer (Parkin 2002).

Aizawl district (269.4) and Papumpare district (219.8) had the highest age-adjusted incidence rates among males and females, respectively. The projected number of patients with cancer in India is 1,392,179 for the year 2020, and the common 5 leading sites are breast, lung, mouth, cervix uteri, and tongue. Trends in cancer incidence rate showed an increase in all sites of cancer in both sexes and were high in Kamrup urban (annual percent change, 3.8%;  $P < .05$ ). The majority of the patients with cancer were diagnosed at the locally advanced stage for breast (57.0%), cervix uteri (60.0%), head and neck (66.6%), and stomach (50.8%) cancer, whereas in lung cancer, distant metastasis was predominant among males (44.0%) and females (47.6%) ( National Cancer Registry Programme, India.

### 2) REVIEWS RELATED TO PHYSICAL EFFECTS OF CANCER :

Physical Effects of Cancer

- Chronic pain
- Cardio vascular complications
- Fatigue
- Neuropathy
- Second cancers
- Skin issues
- Osteoporosis
- Neurological issues
- Lung function
- Urinary incontinence
- Vaginal changes

Following cancer treatment, health care providers monitor their patients for cancer recurrence and the late and long-term effects of cancer, which is now considered a chronic illness. Recently that the long term health of cancer survivors has been given consideration. The National Cancer Institute considers an individual a cancer survivor from the time of diagnosis, through the balance of his or her life (Howell D.,2011)

### 3) REVIEWS RELATED TO PSYCHOLOGICAL EFFECTS OF CANCER

All aspects of a cancer patient's life become affected by the condition. That includes work, school, and home life. There are three main common psychological effects of cancer.

- **Depression** – feelings of hopelessness or despair at the thought of having no control
- **Distress** – unpleasant condition, emotion, thought or feeling
- **Anxiety** – an uncomfortable, scared, or worried feeling that real danger is coming

The anxiety and uncertainty of a cancer diagnosis can create extreme disruption in the life of almost any individual. A cancer diagnosis can create a threat to one's general sense of security and orderliness in life. Although the vast majority of cancers are treatable, many people retain deep-seated fears that any cancer represents pain, suffering, and death. Holland (2002) noted that no disease has sustained as strong of a negative stigma as cancer. These fears can contribute to a person's reaction to a new cancer diagnosis.

A cancer diagnosis leads to a complex set of issues, including dealing with physical symptoms from the disease and treatment, facing the existential dimension of the illness, and seeking a comforting philosophical, spiritual, or religious belief structure or values that give meaning to life and death (Holland, 2002).

#### **4) REVIEWS RELATED TO EFFECTIVENESS OF EXERCISES ON PHYSICAL AND PSYCHOLOGICAL WELL BEINGS :**

Cancer and its treatments produce a myriad of burdensome side effects and significantly impair quality of life (QOL). Exercise reduces side effects and improves QOL for cancer patients during treatment and recovery. Exercise prior to, during, and after completion of cancer treatments provides numerous beneficial outcomes. Exercise represents an effective therapeutic intervention for preparing patients to successfully complete treatments, for reducing acute, chronic and late side effects, and for improving QOL during and after treatment (McDonough.,2008)

Many cancer survivors experience persistent, physical, mental, and emotional changes that affect their quality of life (QoL)( Ferrell1.,997)

Quality of life refers to one's sense of wellbeing and encompasses a multidimensional perspective that includes physical, emotional, and spiritual domains (Segal R.,2017)

Physical activity (PA is an intervention that might help manage the side effects of a cancer diagnosis and treatment, as well as improve the QoL for cancer survivors .Engaging in regular PA improves muscular strength and cardiovascular endurance, increases overall energy levels and the physical capability to complete daily tasks, and reduces risk for chronic diseases Segal et al reported positive influences for physical and mental health in cancer survivors who engaged in an exercise intervention during treatment or post-treatment

Physical activity is being progressively studied as a nonpharmacologic intervention to maximise health benefits and outcomes in a healthy general population and in populations with chronic illnesses and cancers (Penedo FJ.,,2015).

Along with improving physical and psychological well-being, engaging in regular physical activity or increasing levels of physical activity were associated with decreased mortality risk and longer healthy living among healthy adults and elderly populations (Speck RM.,,2010).

A review of prospective cohort studies in cancer patients at all stages suggested that higher levels of physical activity decreased the risk of cancer-related mortality, specifically in breast, and colorectal cancer populations

Furthermore, findings from a recent large-scale meta-analysis that included both randomised trials and cohort studies reported that physical activity added to survival benefits in prostate, lung, liver, stomach, oesophageal, and female reproductive cancers of various stages (Barbaric M.,2010)

A study conducted by (Diego Iugo et al.,2019) on effects of physical activity on cancer prevention, treatment and prognosis and concluded that Routine physical activity was found to be associated with a reduced incidence of several of the most common malignancies, including colon, breast, lung, and endometrial cancer as well as many others. Physical activity also appears to reduce all-cause mortality and cancer-related mortality among patients with breast and colon cancer, and may improve the functional status and quality of life for these patients during cancer therapy.

A literature review on physical exercise and quality of life following cancer diagnosis reported that Physical exercise is an intervention that may address the broad range of QOL issues following cancer diagnosis including physical, functional, psychological, emotional, and social well-being (Morrow.,1985)

Ibrahim et al., 2010 concluded that Effects of physical activity on common side effects of breast cancer treatment that regular participation in physical activity after breast cancer diagnosis may mitigate common side effects of breast cancer adjuvant therapy, including fatigue, depression, impaired quality of life, decreased muscular strength, decreased aerobic capacity, and weight gain.

## **EFFECTS OF DIFFERENT FORMS OF EXERCISE :**

The main forms of exercise are aerobic and anaerobic. Aerobic exercise occurs when oxygen is metabolised to produce energy. This is generally attained through sustained periods of hard work and vigorous activity lasting longer than 3 minutes at a time. Anaerobic exercise refers to physical exertion where the energy required to produce this activity is provided independently of oxygen. This type of exercise uses short bursts of vigorous activity and typically lasts less than a minute. There are also alternative forms of activity that do not readily fall into the definitions of aerobic or anaerobic, but which also have the potential to affect mood and emotional well-being (e.g. yoga and meditation) ( Segal.,2019)

Research suggests that aerobic exercise has the greatest mood- elevating effects when performed continuously over an extended period of time, where the release of endorphins is responsible for the feel-good effect or ‘runner’s high’ that athletes experience after bouts of vigorous activity. In addition to this endorphin-related positive effect, cortisol levels are altered by exercise: 30 minutes of moderate aerobic activity can reduce cortisol levels, higher levels of which are associated with negative affective states. This reduction may partly explain the mood- elevating effects of physical activity. A factor influencing the degree to which aerobic exercise is beneficial appears to be the intensity: low- to moderate-intensity exercise has been shown to be effective in reducing both anxiety and depression where as high-intensity exercise has been found in some instances to induce the opposite effect and increase levels of anxiety Furthermore, moderate-intensity exercise may produce more sustained psychological benefits, probably because it is easier to maintain over longer periods of time ( Bahl et al 2014)

**CONCLUSION :**

There are a wealth of well- conducted studies have demonstrated an association between regular exercise and lower risk of side effects after cancer as well as responsible prospective data for a lower relapse rates and better overall survival. However, as there are several overlapping lifestyle factors ,which are difficult to investigate on their own ,there remain some concerns that exercisers may do better in these studies because they are less likely to be over-weight, more likely to have better diets and to be non-smokers .

Engaging in regular **physical activity** may produce improvements in an individual's physical health, cognitive performance, and psychological well-being. Physical benefits include, but are not limited to, reduced risk for diseases, and improvements in physical functioning, fitness, and overall quality of life.

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