

Applying biophilic design in healthcare centers to help patients during their hea...

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Physical therapy center is an area or space where therapeutic exercise or treatment is conducted by a professional physical therapist depending on their individual specialties. Physical therapist performs certain types of treatment that usually involved or required passive movements towards the patient's body such as massage the patient's muscle to promote proper movement and functions. The physical therapist will also work on individual patients according to their injuries by helping them to regain their mobility or disability. The physical therapist may use techniques, treatments or machines such as hydrotherapy, physiotherapy, speech therapy, chiro therapy and many more to develop a fitness or orientated programs to provide the patients with a healthier and more active lifestyle. These services are usually available to help patients to recover back to their original state normally happens after an injury, illness, surgery and lifestyle. A patient's health and well-being plays an important role in every individual's life. The meaning of wellbeing doesn't only mean having an absence of disease or illness. It is a complicated medical term affecting a person's physical, mental, emotional and social health factors. As hospital experts and specialized doctors continue to seek ways to improve the quality and recovery process of a patient, it is also important that the experts should keep a look out on their surroundings and environments to ensure a comfortable living are provided to the patients throughout their treatment or healing environment that might affect the patients. Designers are encouraged to have a change in attitude towards designing a typical healthcare center. For example, today's most successful healthcare projects teams not only consist of hospital leaders, architects and interior designers,

but also patients, administrators, facility staff, physicians, nurses, administrators, facility staff, patients and their family representatives, as well as infection control, and maintenance staff. Understanding human needs and the impact of design, designers should consider observing the delighting, noise, acoustic, air quality, privacy, social support and positive distraction available in designing a healing environment.

Applying biophilic design towards healthcare centers is proven to help patients during their healing process. A combination of stone, wood, daylighting, interior filled with plants and decorations that mimic natural materials and forms. Biophilic design is also a combination of applying natural materials obtained from nature, then used as buildings material for walls, floors and furnishings or stone. The use of natural materials can make buildings look more functional and beautiful by creating a sense of feelings and connection to the natural world. Furthermore, biophilic design can also be accomplished by bringing different forms and patterns of nature into a building. Biophilic design can also convey by provided a special feeling of connection to a particular place through designs that link people to certain landscapes or cultural traditions. Therefore how can nature design have an effect on the patient's health and well-being? Patient's emotions and mood are very important during their healing stage as most patients will feel depressed and less active from their physical disabilities. Therefore using the outdoor environment as an advantage to heal patients and avoiding them to get sick building syndrome for those patients required to return on a daily or weekly basis, designing a natural green space for the patients especially for young children who still need access to outdoor therapy spaces as they are

still playful. Outdoor spaces may help them by providing a healing, calming and rejuvenating space. Outdoor healing environments such as healing gardens and activity spaces create opportunities for indoor/outdoor connections that minimize stress for patients and families. Designers should seek to provide a welcoming and supportive environment as it is essential that patients feel positive about returning to the healthcare centre on a regular basis.

Biophilic design history and development

Biophilia is defined as the connection between human with nature. Biophilic design is an extension of the word biophilia, which incorporates with natural materials, natural light, vegetation, natural views and other experiences available in the natural world build or adapt to a modern environment.

Biophilic design and architecture aim in creating a strong connection between nature and man-made environments and it has proven its benefits, including helping office workers to be more productive, encouraging children to learn and assisting patients with their recovery. Biophilic designer Oliver Heath said: ' Biophilic design is more than just bringing the outside in, it's about making and strengthening a connection with many aspects of nature. It's about natural light, natural materials, textures, views of nature, plants, and patterns. The relationship between humankind and nature has severed. This is because humans have taken the benefits of having greenery around for granted. With the current modern era which is constantly changing and enhancing at every moment, nature is a step behind to catch up. The outcome of this can be devastating in a long run, but if only we as

inhabitants are willing to take a chance on having nature as a socialist, and as a part of modern development. We can design or create new environments that are aesthetically satisfying, economically rewarding and ecologically sound. This process occurs through minor changes in the peoples' mindset and their environment, but a more conscious process of designing can also take place.

The idea of biophilic design has arisen from increasing recognition that the human mind and body evolved in a developing world, one that continues to be critical to people's health, productivity, emotional, intellectual and even spiritual well-being. The emergence during the modern age of large scale agriculture, industry, artificial, fabrication, engineering, electronics, and the city represents but a tiny fraction of our cultures' evolutionary history.

Humanity evolved in adaptive response to natural conditions and stimuli such as sunlight, weather, water, plants, animals, landscapes, and habitats, which continue to be an essential context for human recovery and also functional development. The mindset of biophilic design adapt from the concept of biophilia, the idea of humans possess a biological inclination to affiliate with natural system and process instrumental in their haleness and efficiency. Originally proposed by the eminent biologist Edward O. Wilson, Biophilia has been eloquently described by Wilson in this way " To explore and affiliate with life is a deep and complicated process in mental development. The emergence during the past roughly 5, 000 years available from a large scale of agriculture, fabrication, technology, industrial production, engineering, and the effects of modern era constitutes to a piece

of human history, a period that has not substituted for the benefits of adaptively responding to a largely natural environment. Most of our emotional problem solving, critical thinking and constructive abilities continue to reflect skills and attitudes learned in close association with natural systems and processes that remain critical to human health, maturation and productivity. People living in proximity to open spaces report fewer health and social problems, and this has been identified independent of rural and urban residence, level of education, and income. Even the presence of limited amounts of vegetation such as grass and a few trees has been correlated with enhanced coping and adaptive behavior. “ The relationship between humankind and nature can be one of respect and love rather than domination...The outcome...can be rich, satisfying, and lastingly successful, but only if both partners are modified by their association so as to become better adapted to each other...With our knowledge and sense of responsibility... we can create new environments that are ecologically sound, Aesthetically satisfying, economically rewarding” René Dubos, *The Wooing of the Earth*.

The biophilic design further seeks to sustain the productivity, functioning and resilience of natural systems over time. Modifications of natural systems seen to be an inevitably occur as a result of major building construction and development. Moreover, the majority of biological organisms transform the natural environment into a process of inhabiting it. The question is not whether ecological change occurs, but rather will the net result over time be a more productive and resilient towards the natural environment as

measured by such indicators as levels of biological diversity, biomass, nutrient cycling, hydrologic regulation, decomposition, pollination, and other essential ecosystem services. The application of biophilic design can alter the environmental conditions of a building or landscape in a short-term, but over the long run, it should support an ecologically robust and sustainable natural community.

The successful application of biophilic design should also result in a wide spectrum of physical, mental and behavioral benefits. Physical outcomes include enhanced physical fitness, lower blood pressure, increased comfort and satisfaction, fewer illness symptoms, and improved health. Mental benefits range from Satisfaction and motivation, less stress and anxiety, to improved problem solving and creativity. The positive behavioral change includes better coping and mastery skills enhanced attention and concentration, improved social interaction, and less hostility and aggression. Biophilic design elements can be applied in different ways and manner. Some by direct applications and some by indirect applications. The table below shows many kinds of ways where biophilic design application is available. For example daylighting, it's a form of the natural source given to earth naturally to the environment. Sunlight and skylight contribute lightings through windows and outdoor area providing a sustainable energy saving by reducing the cost of artificial lightings and also by providing a sense of nature connections towards humans.