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Potential IDEEA Applications

Obesity

Obesity contributes to five of the top 10 diseases that have the highest mortality rate: cardiovascular disease, stroke, diabetes, hypertension and cancer. More than 26% of the United States population is obese. At the present rate, that percentage will grow based on the disturbing trend in adolescent weight management. More than \$40 billion a year is spent on obesity prevention and treatment. However, the results have been minimal.

Obesity occurs from reduced energy expenditure and increased energy intake. The energy output is directly related to the amount of daily physical activity. Data from studies funded by National Institute of Health indicates that increase in energy expenditure through daily physical activity is the key to long-term success in weight control.

Until now there has not been an accurate and objective device that can calculate the amount of physical activity. The innovative technologies and clinical experience of Dr. Sun made IDEEA a highly accurate and intelligent device for physical activity monitoring.

In addition, IDEEA provides information regarding the type, duration, frequency, and intensity of major daily physical activity. IDEEA assists medical professionals in the diagnosis and treatment of weight problems and obesity.

Osteoporosis (OS)

Osteoporosis is a major public health threat for Americans. In the U.S. today, 10 million individuals already have osteoporosis and 18 million more have low bone mass, placing them at increased risk for this disease. OS is responsible for more than 1.5 million fractures annually. Estimated direct expenditures (hospitals and nursing homes) for OS and related fractures is \$14 billion each year for the nation. It has been established that regular weight-bearing activities such as walking or running plays a significant role in the prevention and treatment of osteoporosis. IDEEA will help in monitoring the training or treatment process and provide valuable data both for the doctors and for the patients.

Multiple Sclerosis (MS)

Multiple sclerosis is also a relatively common disease in the U.S. Over 330,000 have MS. Most of patients have been found to have difficulties with daily physical activity, such as problems with gait and difficulty in walking, loss of balance, etc. Most of these problems can be helped by evaluating the gait disorders and providing individualized training and exercise. However, neither too much nor too little physical activity would help for the control of the disease. But how much, in terms of the type, frequency, duration, and intensity, of daily physical activity is optimal for these patients remains an unsolved

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problem, and this can only be resolved by obtaining individualized data from a portable device such as the IDEEA.

Rehabilitation

Between 35 and 43 million people in the United States have a condition that results in a limitation of physical activities. More than \$170 billion gets spent in rehabilitation every year. More than 13 million patients require some or significant assistance with physical activity and daily living. The rehabilitation industry continues to grow, partly because of increased lifespan and partly because of advanced surgical procedures.

It's critical to know the progress and be able to predict the end-results of a patient's physical capabilities after treatments are prescribed. IDEEA is the perfect tool for this application. IDEEA provides invaluable information regarding the entire process of treatment, its progress and the outcome of the treatment.

For example, the number of gaits made, the distance traveled, the speed of the walking and running and the duration and intensity of step climbing can be recorded before, during and after a treatment program. IDEEA enables the effectiveness of tracking the therapy's progress. With IDEEA the prognosis and functional level of a patient compared to other patients with similar problems can all be known objectively and accurately.

Attention Deficit Hyperactivity Disorders (ADHD)

Statistics indicate 3-5% of school children in the United States have ADHD. This disorder has the symptoms of significantly reduced attention span and increased spontaneous physical activity. Public schools spend more than a \$1 billion annually for students with ADHD. Diagnosis of this disorder often results in putting the child on lifetime medication.

There has not been a method of clinically diagnosing hyperactivity. IDEEA will provide a tremendous help for the diagnosis and treatment of the children with ADHD.

Gait Analysis

IDEEA is a perfect device for recording motion analysis related to gait and posture. It can be used to unveil and help in treatment of factors that influence stance and body balance. Such factors caused by medication, neurological disorders, surgical procedures or age.

Performance Monitoring and Evaluation

Functional performance is a key criterion in determining whether a patient needs surgery, the appropriate type of surgery and extent of it. In many cases the patient's physical performance is determined only by the patient's personal feelings.

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Medical professionals can use IDEEA two ways for evaluation of functional performance. First, a patient can wear IDEEA during exercise tolerance test to accurately record the performance. Second, IDEEA can be worn during daily work and leisure time routines, which gives a more realistic evaluation of the patient's physical capabilities.

Information derived from these evaluations assists in decision making for many operations including: cardiovascular surgery, orthopedic surgery, organ transplant and other surgeries that rely on cardiovascular performance. IDEEA also helps determine if cardiovascular intervention is needed before an operation.

Other Applications

IDEEA will be used as a training tool for professional and amateur athletes trying to achieve their personal level of peak physical performance. IDEEA allows users to conduct fitness evaluations as easy as endurance athletes monitor their heart rates. IDEEA's capability, however, far exceeds any monitoring device that's ever been used.

IDEEA evaluates physical work environment to determine how to monitor the intensity of workload and how to distribute the workload evenly over time. This leads to reduced work-related injury and other occupational health problems.

MiniSun believes IDEEA will be the core technology in the development of other devices that will have positive impact on the lives of all people.