MET Levels

MET Levels are units, or metabolic equivalents, that describe how much oxygen the average person's body needs in order to function or complete certain activities. Cardiac Rehabilitation uses MET levels to understand the patient's needs and limitations during treatment. MET levels range from 1 to 10, with consideration taken during activities that increase heart rate or breathing. One MET is equal to 3.5 ml of oxygen per kilogram of body weight per minute. Patients that are completing cardiac rehabilitation often engage in progressive activities that increase MET levels, are trained in fatigue management, and are educated on proper levels of exertion to complete daily activities.



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Metabolic Equivalent
Metal-ball Equal
A MET (Metabolic Equivalent) is a unit that describes how much oxygen the average person’s body requires to maintain function at rest. The MET system ranges from 1 MET to 10 METs and is useful in determining the amount of energy expenditure required to maintain/perform different activities. One MET is equal to 3.5 ml of oxygen per kilogram of body weight per minute. MET levels increase as oxygen consumption for the activity increases, which includes activities that increase HR or breathing. Therapy for cardiac patients and others that have low endurance/fatigue may require a progressive increase in MET levels.

MET Levels

MET Levels 1.0-1.4
Metal-ball METs Level (1) Wand - (1.4) Wand Fork
MET Levels 1.0-1.4 include patients that require minimal activity. These individuals are usually in a coronary care unit (hospital) and may be on bed rest, dependent on self-care, using a bedpan or urinal in bed, and may have heart rates that are 5-15 bpm over normal resting heart rates. Patients may be able to sit edge of the bed (EOB), ride in a car, listen to the radio, or watch the television, but must only complete tasks that require minimal energy. Other examples include ADLs such as self-feeding, washing hands and face, limited mobility, bed mobility, and transfers. Leisure & IADLs may include table games, reading/Kindle, radio/podcasts, light handwork, and exercise with all extremities in supine and neck & lower extremities seated.

Bedrest
Bedrest
Bedrest is an example of MET levels 1.0-1.4, which indicates activities with low energy demands. During bedrest, a person is lying down in a stationary position with minimal physical activity, resulting in very low levels of energy expenditure. MET levels are a way to measure the energy cost of various physical activities and are based on the amount of oxygen consumed during the activity. MET levels range from 1.0 for activities that require minimal energy, such as sleeping or sitting, to over 10 for highly strenuous activities, such as running or playing sports. Bedrest is therefore considered an activity with a very low MET level, as it requires little to no energy expenditure. This level of activity is typically recommended for individuals who are recovering from an illness or injury and need to conserve their energy while their body heals. However, prolonged bedrest can have negative consequences, such as muscle atrophy, bone loss, and decreased cardiovascular function. Those on prolonged bedrest should be monitored by healthcare professionals to ensure appropriate levels of activity and prevent further health complications.

MET Levels 1.4-2.0
Metal-ball METs Level (1.4) Wand Fork - (2) Tutu
MET levels 1.4 to 2.0 requires light activity. Individuals at this level are usually in a coronary care unit (hospital- acute care) and may be able to start sitting up on a toilet, grooming seated at the sink, completing hair care, dressing, and sitting up in a chair. Other ADLs examples include seated sponge baths, mobility and unlimited sitting, brushing teeth, and getting in and out of bed. Leisure & IADLs may include seated crafts, painting, and sewing.

Sitting Up in Chair
Sitting Up in a Chair
Sitting up in a chair is an example of MET levels 1.4-2.0. This activity requires slightly more energy than resting in bed and is, therefore, classified as a low-level activity. It involves minimal movement and can be performed by most individuals, including those with limited mobility. Sitting up in a chair can help

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improve posture, circulation, and respiratory function, and it is often used as a precursor to more strenuous activities during rehabilitation.

MET Levels 2.0-3.0

Metal-ball METs Level (2) Tutu - (3) Tree

MET levels 2.0 to 3.0 require light activity with the patient still in the hospital but on the general floor, maybe walking at a slow pace, engaging for the first time in a warm shower, drying off, or even making the bed. There is an increase in sitting to standing exercises, wheelchair mobility, brief standing, walking a limited distance of ~2mph on a 0% grade/incline, and the beginning of very light chores such as folding the laundry.

Seated Warm Shower

Seated Warm Shower

A seated warm shower is an activity that falls under MET levels 2.0-3.0. This is because it involves light to moderate physical activity that requires the body to expend 2 to 3 times more energy than when at rest. During a warm shower, the body's core temperature increases, which leads to increased blood circulation and heart rate. This activity is beneficial for individuals who are recovering from surgery or illness and are looking for a low-impact way to increase their physical activity. However, it is important to note that individuals with certain medical conditions, such as cardiovascular disease or low blood pressure, should consult their healthcare provider before engaging in this activity.

MET Levels 3.0-3.5

Metal-ball METs Levels (3) Tree - (3.5) Tree Hand

MET Levels 3.0 to 3.5 have the client engaging in moderate activity. At 3.5, the client can discharge from Phase 1 of cardiac rehab and transition from inpatient (hospital) to outpatient (home). Driving and outdoor leisure activities may resume. ADL activities that can occur include standing during a warm shower, unlimited walking ~3 mph, and climbing <2 flights of stairs. Leisure & IADLs that may resume include light chores, vacuuming, dusting, sweeping, laundry, light gardening, home management, driving, bowling, mild resistance exercising, treadmill, and cycling ~6 mph may resume.

Standing Warm Shower

Standing Warm Shower

A Standing Warm Shower is an example of MET Levels 3.0-3.5. This level of activity involves standing for a moderate amount of time and performing light activities such as showering. It requires a higher energy expenditure than lower MET levels but still falls within the range of light to moderate-intensity activities. Standing Warm Shower can be beneficial for improving circulation and muscle strength, as well as promoting relaxation and reducing stress. However, it may not be suitable for individuals with certain medical conditions or limitations that make standing for extended periods of time difficult or uncomfortable.

MET Levels 3.5-4.0

Metal-ball METs Level (3.5) Tree Hand - (4) Fork

MET Levels 3.5 to 4.0 are still moderate activity levels and have the patient standing during activities that are incorporated into daily activities. Activities such as walking at ~3.5mph, cycling at ~8 mph, or stairs are introduced, as are tolerated medium chores such as washing dishes, washing clothes, ironing, hanging clothes, making beds, home repair, and home management. Golfing with a bag cart, slow swimming, and exercises that increase extremity repetitions in standing, using up to 7-10 # weights seated, or even using the treadmill with a 2-4% grade may occur.

Golfing

Golfing

Golfing can also be considered an example of MET levels 3.5 to 4.0. During a typical round of golf, a player engages in moderate physical activity, which includes walking and carrying or pushing a golf bag, swinging a golf club, and occasionally bending to retrieve golf balls. These activities require a moderate amount of energy expenditure, which corresponds to MET levels in the range of 3.5 to 4.0. However, the specific MET level may vary depending on factors such as the player's age, gender, and level of fitness, as well as the course terrain and the intensity of the game. Overall, golfing can be a fun and enjoyable way to incorporate moderate physical activity into one's lifestyle.

MET Levels 4.0-10

Metal-ball METs Level (4) Fork - (10) Tin

MET levels 4.0 to 10 have the client resuming normal activities and even being discharged from cardiac rehab. The client is now able to engage in standing hot showers, and when MET levels are 5.0, resuming sexual activities. When the MET levels are equal or greater than 6.0, the client is finally able to engage in vigorous activities such as carrying groceries upstairs, climbing stairs rapidly, high-impact aerobics, race walking or running, playing basketball or soccer, or even cross-country skiing.

High-Impact Aerobics

High-Impact Aerobics

High-impact aerobics is an intense form of cardiovascular exercise that involves a series of high-impact movements such as jumping jacks, burpees, and jumping lunges. This form of exercise requires a high level of physical exertion and can be classified under MET levels 4.0-10.0. High-impact aerobics is known to improve cardiovascular health, increase endurance and stamina, and help with weight loss. However, due to its high-impact nature, it can also put stress on joints and increase the risk of injury, making it important for individuals to gradually increase their level of activity and use proper form and technique during the exercise.

Considerations

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Cardiac Rehabilitation

Heart Rehabilitation

Cardiac rehabilitation is an important program of exercise and education for anyone recovering from a heart attack, heart failure, or other heart problem that has required surgery or medical care. The cardiac rehabilitation program monitors the patient's heart rate and MET levels and provides care accordingly. Cardiac rehabilitation is a supervised program that often involves exercise training, emotional support, and education about lifestyle changes to reduce heart disease risk, such as eating a heart-healthy diet, maintaining a healthy weight, and quitting smoking.

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