

MTM - Methods-Time Measurement Testing

Methods-Time Measurement (MTM) is a Pre-determined Motion-Time Standards (PMTS) system. PMTS systems were originally used by Industrial Engineers to determine the time needed to carry out manufacturing processes. This system enables the engineer to establish estimates for production time and costs, and establish efficiency measures. Methods-Time Measurement (MTM), the most widely developed and validated PMTS system in the world, were first developed by [Maynard, Stegemerton and Schwab](#) in the United States in 1948, based on analysis of films of industrial tasks performed by qualified operators at many work places. Since that time the MTM system has continued to be validated in many work sites and production systems. The [MTM Association](#) co-ordinates world wide development, training and standardization practices.

Fundamental motions evaluated by the MTM system include the following:

- Reach
- Leg motions
- Move
- Side step
- Turn body
- Apply pressure
- Bend, stoop or kneel on one knee
- Grasp
- Position
- Foot motions
- Sit
- Stand from sitting
- Disengage
- Release
- Eye travel
- Walk
- Eye use
- Kneel on both knees
- Crank

Many studies have been performed using MTM data in empirical research and program evaluation. MTM data has been shown to have extremely high reliability and content validity. MTM data has been accepted in the courts and arbitrations as a valid standard of work performance. The data is used to establish fair labor standards by numerous employers and unions. Mr. Dirk J. Rauglas, Executive Director, MTM Association for Standards and Research stated in a personal correspondence "To the best of my knowledge, no arbitration has been lost due to the MTM System". He enclosed a list of 194 corporations that use the MTM software. This list would not include users who rely on Industrial Engineers to design a MTM system for their internal use.

Methods-Time Measurement (MTM) systems provide a quantifiable description of the functions required of a worker in the performance of their work demands. MTM systems furnish the rehabilitation professional with a definition of functions that are transferred from the workplace to the clinic and back to the workplace. An evaluatee's demonstrated ability in the assessment is compared to the [Industrial Standard](#) (I.S.) (the time it takes an

average worker with average skill to perform a specific motion throughout an average eight hour day). In this respect a functional capacity evaluation based on MTM data has content, context, criterion and predictive validity that a functional capacity evaluation might otherwise lack.

Evaluatee results can be stated conclusively in work place criterion of ability to perform occupational requirements at an occasional, frequent or constant rate. Job modification, accommodation and engineering aides recommendations can arise prescriptively. Evaluatee reliability can be compared to the established coefficient of variance for MTM data to assist in determination of client consistency. Evaluatee outcome measurement is generated from baseline and post-rehabilitation testing comparison. Most importantly there is sufficient criterion measurement to allow conclusive recommendations regarding return to employment despite evaluatee symptom magnification and self limiting behavior.