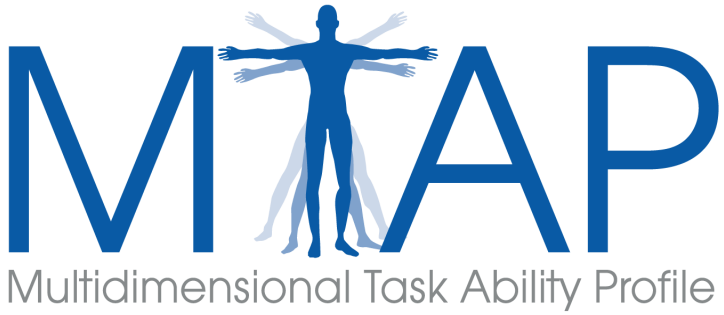
MTAP
Multimensional Task Ability Profile

Rethink **FUNCTIONAL** Assessment
Realize **OUTCOMES**

Integrating the Multidimensional Task Ability Profile in Medical-Legal Evaluation

Applicability with the AMA 5th Edition Guides to the Evaluation of Permanent Impairment



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Moreover, we recommend that any researcher, medical consultant, insurance company and physicians purchase a copy of the AMA Guidelines to permanent Impairment 5th edition, 2001. AMA Press, (800) 621-8335. Or order an AMA 5th Edition copy from Amazon.com

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The Multidimensional Task Ability Profile (MTAP)

The Multidimensional Task Ability Profile (MTAP) is a web-based and computer–administered patient reported outcome measure designed to assess physical function. The MTAP identifies specific functional limitations and the general effect of these limitations on a person's ability to work, provide self-care and participate in other home or community activities.

The MTAP assesses a wide range of common activities of daily living (ADLs); from self-care, to cooking and light housekeeping, to heavy home maintenance and lawn gardening tasks. Through serial testing the MTAP can monitor treatment progress, maximum functional improvement and treatment outcomes. Automated scoring and reporting mechanisms, including the **"Patient Report Card"** and **"Workability Report"** prepared in the patient's native language (English or Spanish), are practical features of the software.

The Multidimensional Task Ability Profile (MTAP) is utilized to quantify functional limitations that occur in Impairment Ratings

The MTAP will augment an impairment rating by quantifying and documenting specifically what ADLs and type of functional losses are affected with an impairment (validates the impairment correlated with functional and ADLs loss).

The AMA Guidelines (5th and 6th Editions), Medicare and the National Institutes of Health currently recommend and describe the importance of utilizing Patient Reported Outcome Measure (PROs) to assess physical function in combination with other objective findings in order to establish impairment, disability, and function. The full body assessment capability of the MTAP can be correlated to the majority of musculoskeletal as well as many other organ system impairments that affect physical function and may realize disability.

The AMA 5th edition describes an Impairment, Disability and Handicap as:

Impairment.

The Guides continue to define impairment as: "A loss, loss of use, or derangement of any body part, organ system, or organ function." According to the Guides, determining whether an injury or illness results in a permanent impairment requires a medical assessment performed by a physician**.**

An impairment may lead to functional limitations or the inability to perform activities of daily living. A 0% whole person (WP) impairment rating is assigned to an individual with an impairment if the impairment has no significant organ or body system functional consequences and does not limit the performance of the common activities of daily living indicated in Table 1-2. A 90% to 100% WP impairment indicates a very severe organ or body system impairment requiring the individual to be fully dependent on others for self-care, approaching death.

Importance of functional loss, inability to perform certain ADL class and Impairment

Impairment percentages or ratings developed by medical specialists are consensus-derived estimates that reflect the severity of the medical condition and the degree to which the impairment decreases an individual's ability to perform common ADLs, excluding work. Impairment ratings were designed to reflect functional limitations and not disability. The whole person impairment percentages listed in the Guides estimate the impact of the impairment on the individual's overall ability to perform activities of daily living, excluding work, as listed in Table 1-2.

Table 1-2 Activities of Daily Living Commonly Measured in Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) Scales [6,7]

Activity	Example
Self-care, personal hygiene	Urinating, defecating, brushing teeth, combing hair, bathing, dressing oneself, eating
Communication	Writing, typing, seeing, hearing, speaking
Physical activity	Standing, sitting, reclining, walking, climbing stairs
Sensory function	Hearing, seeing, tactile feeling, tasting, smelling
Nonspecialized hand activities	Grasping, lifting, tactile discrimination
Travel	Riding, driving, flying
Sexual function	Orgasm, ejaculation, lubrication, erection
Sleep	Restful, nocturnal sleep pattern

The MTAP can provide accurate percentages of ADL ability for lower and higher activity levels of function to better describe how the impairment impacts the ADLs

The ADLs listed in the above table correspond to the activities that physicians should consider when establishing a permanent impairment rating. A physician can often assess a person's ability to perform ADLs based on knowledge of the patient's medical condition and clinical judgment. When the physician is estimating a permanent impairment rating, Table 1-2 can help to determine how significantly the impairment impacts these activities. Using the impairment criteria within a class and knowing the activities the individual can perform, the physician can estimate where the individual stands within that class. **The MTAP will quantify all ADLs with percent deficits from low level, self-care to heavy ADLs**. **The incorporation of a standardized ADLs measurement that can more accurately document functional loss leads to a more robust explanation of the impairment and or disability.**

Impairment Rating Criteria, prognosis, residual function and ADL limitations

Impairment ratings were designed to reflect functional limitations and not disability. The whole person impairment percentages listed in the Guides estimate the impact of the impairment on the individual's overall ability to perform activities of daily living, excluding work. **A physician may choose the most appropriate of any validated ADLs scales for a more in–depth assessment of ADLs to obtain further functional information to supplement clinical judgment, or to gain assistance in determining where the individual stands within an impairment range.**

Although there is no exact formula or method recommended by the AMA 5th edition, to correlate impairments with ADLs, the guides note as above that the impairment percentage should be descriptive to the loss of ADLs excluding work. Published and validated patient reported functional outcomes tools like the MTAP allow the physician to standardize the reporting of functional loss by incorporating specific percentage loss in ADLs category. The MTAP reporting and specific ADLs category loss can be directly incorporated into the Med Legal report to further describe the impact of the impairment on ADLs and the entire MTAP report can be referenced for complete details.

The ADLs percent loss should be proportional to the patient's impairment and MTAP results and subsequently combined with clinical judgment. For example: A 50 to 70 % Whole Person Impairment (WPI), indicates a severe organ or body system impairment and the lower levels ADLs such as: Self Care will be highly affected, moreover, the patient will be unable to perform any medium and higher level ADLs. An individual with this type of high WPI will likely be institutionalized or reliant on others for assistance on self-care, cooking, light housekeeping and transportation. At an extreme level of low function, an individual with 90-100% WPI would be fully dependent on self-care, approaching death. Respectively, where there are minor or lower level impairments, for example: 5 % WPI, then the higher level ADLs such as Heavy Housekeeping, Lawn and Garden tasks will be affected and lower level ADLs such as self-care, cooking and housekeeping affected to a lesser extent.

The incorporation of the MTAP functional loss and ADLs categories is simple and easy to complete. The clinician can incorporate the MTAP ADLs category after arriving at the proper impairment rating. The physician will describe the percent loss of ADL category and overall functional loss with information from the patient report card. Physician reporting styles vary, some describe functional loss with several sentences from the report card, cut and paste sections of ADLs category loss and others incorporate or reference the entire MTAP report.

Prior to incorporating the ADLs categories and functional information it's important to determine reliability of the test by observing the consistency score on the Health and Behavioral Assessment Report. The INFIT and OUTFIT scores that are in excess of 1.50 indicate unacceptable inconsistency and require clinical confirmation. Once the consistency of the test is verified, the MTAP results can be incorporated into the Med Legal report.

Through the IRT and Rasch analysis, the MTAP is validated for clients with secondary gain

The MTAP was validated on a diverse patient population, including thousands of patients from the workers' compensation and personal injury systems, in which secondary gain is an ever-present issue. The INFIT and OUTFIT scores have been found to be sensitive to outlier responses that allow the clinician to address complex polytrauma cases. In the absence of polytrauma, INFIT and OUTFIT scores that are in excess of 1.50 indicate unacceptable inconsistency and require clinical confirmation. In addition to the manifestation of adverse psychosocial behaviors, some possible reasons for inconsistent INFIT and OUTFIT scores may include but not limited to: poor language proficiency, the misunderstanding of items or questions due to poor literacy, or cognition difficulties. Clinical correlation and or additional psychometric testing is advised with high or unreliable INFIT/OUTFIT scores.

Example: Consistent and Inconsistent: INFIT/ OUTFIT scores can be found under Response Consistency section of the Health and Behavioral Assessment Report below. Note entire report example is illustrated on p. 7.

Inconsistent INFIT/OUTFIT scores example report verbiage:

The patient Physical Function score is 11/200 via the MTAP standardized functional outcome tool and demonstrates inconsistent responses. The Health and Behavioral Assessment report notes that the INFIT (2.15) and OUTFIT (4.05)

scores that are in excess of 1.50 indicate unacceptable inconsistency and require clinical confirmation. Detailed clinical correlation described in example #3 pp. 10.

Consistent INFIT/OUTFIT scores example report verbiage:

The patient Physical Function score is 113/200 via the MTAP standardized functional outcome tool and demonstrates consistent responses. The Health and Behavioral Assessment report notes that the INFIT (0.61) and OUTFIT (0.86) scores that are below 1.50 indicating acceptable consistency. This demonstrates valid and reliable outcome responses that can be clinically confirmed. Detail clinical correlation described in example #1 pp. 9.

Test Physical Therapy

Multidimensional Task Ability Profile
Health and Behavioral Assessment

Junior Hernandez
(Current) Test A = 08/31/14

1 = Able 2 = Slightly Restricted 3 = Restricted 4 = Very Restricted 5 = Unable ? = Don't Know

Question	A
1) Use a spoon to eat a bowl of soup.	2
2) Make a shopping list with a pencil.	2
3) Turn a lever knob to open a door.	1
4) Pour a cup of coffee from a coffee pot.	3
5) Cut a piece of steak with a fork and sharp knife.	2
6) Walk 200 feet (61 m) on a sidewalk.	2
7) Cut a coupon from a cereal box.	1
8) Peel a potato with a potato peeler.	1
9) Turn a large nut on a bolt until it is finger tight.	2
10) Walk up a few stairs.	2
11) Remove the lid of a soup can with a rotary opener.	1
12) Get out of an automobile driver's seat.	2
13) Drive a screw with a small screwdriver.	2
14) Walk up flight of stairs.	2
15) Change a light bulb overhead.	3
16) Climb a step-ladder.	2
17) Retrieve a small tool from the floor.	1
18) Hammer a large nail into a piece of lumber.	1
19) Use a roller to paint an interior wall.	2
20) Hike mile (1.6 km) on a trail in the woods at a leisurely pace.	2
21) Remove a large nail from a piece of lumber with a claw hammer.	2
22) Crawl under a dinner table to retrieve a spoon.	1
23) Sweep a driveway with a push broom.	2
24) Use a pair of pliers to tighten a sprinkler.	2
25) Sit in an armchair at a theatre for 2 hours.	3

Question	A
26) Unload two 10-pound (4.5-kg) grocery bags from the trunk of an automobile.	2
27) Drive a wood screw with a large screwdriver.	1
28) Use a garden rake to collect leaves from a lawn.	2
29) Sand a table with an electric sander.	1
30) Cut a piece of wood with a hand saw.	2
31) Break loose a rusted nut with a hex wrench.	2
32) Trim a tree with a long handled shear.	4
33) Unload 20-pound (9.1-kg) grocery bag from the trunk of an automobile.	3
34) Carry 20-pound (9.1-kg) sack of groceries for 100 feet (30.5 m).	2
35) Lift 20-pound (9.1-kg) tool box from the floor to a bench.	3
36) Lift 20-pound (9.1-kg) milk crate from the floor to eye-level.	4
37) Use an automobile jack to lift a car.	3
38) Dig a hole with a spade shovel to plant a small tree.	3
39) Carry 20-pound (9.1-kg) bucket up a step-ladder.	3
40) Use a T-handle wrench to remove automobile lug nuts.	3
41) Carry 30-pound (13.6-kg) bucket in one hand for 50 feet (15.2 m).	4
42) Use a hoe to mix cement in a wheelbarrow.	3
43) Drive a stake with a sledge hammer.	4
44) Carry 50-pound (22.7-kg) crate for 50 feet (15.2 m).	4
45) Lift 50-pound (22.7-kg) milk crate from the floor to a bench.	4
46) Lift 50-pound (22.7-kg) milk crate from the floor to eye-level.	4
47) Push a full wheelbarrow up a ramp.	4
48) Lift 100-pound (45.4-kg) milk crate from the floor to a bench.	5
49) Carry 100-pound (45.4-kg) crate for 50 feet (15.2 m).	4
50) Lift 100-pound (45.4-kg) milk crate from the floor to eye-level.	5

Summary:

Exam	Pain Intensity	Present Health	Start Time	Duration
A	1	2	6:43 pm	12 minutes

Pain Intensity: 1-10 (0=No pain; 10=Worst imaginable pain)
Present Health: 1-4 (1=Excellent; 2=Good; 3=Fair; 4=Poor)

Test notes:

Response Consistency (Current Test)

Junior Hernandez is a male in the 'B' age group. Therefore, the statistical match between Junior Hernandez's reported ability and the difficulty of items near his expected ability level is **Consistent** (INFIT = 0.61). The global statistical match between ability and items at the extremes of difficulty (i.e. very easy and very difficult) is **Consistent** (OUTFIT = 0.86).

INFIT and OUTFIT Scores: < 1.5 Consistent; > 1.5 Inconsistent. NOTE: Clinical correlation is advised for inconsistent scores. When there are multiple areas of impairment, individual item responses may be accurate but can lead to inflated INFIT and OUTFIT scores.

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INFIT and OUTFIT scores ➔

MTAP “Patient Report Card”, corresponding ADLs and Typical Energy Required (METS) in each ADL Category

Test Physical Therapy

Multidimensional Task Ability Profile
REPORT CARD

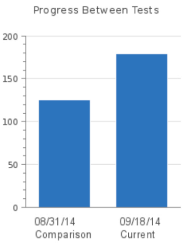
Junior Hernandez
November 10, 2014

Overall Physical Ability
Your current Physical Ability Score is 179 on a 0-200 scale. This demonstrates an improvement of 43% in physical functioning since August 31, 2014.

Activities of Daily Living (ADLs)
Your ability to perform ADLs has improved 41% since August 31, 2014.

Ability to Perform

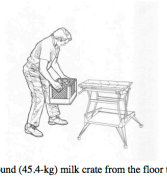
ADL Category	Comparison 08/31/14	Current 09/18/14
Self Care	Many 79%	Almost all 90%
Cooking, Light House Keeping	Almost all 81%	Almost all 90%
Heavy Housekeeping, Light Gardening, Home Maintenance	Many 64%	Almost all 93%
Outside Home Repair, Lawn and Garden Maintenance	Few 27%	Almost all 81%



Physical Demand Characteristics (PDC) of Work
You are able to meet the physical demands for jobs in the Medium work category according to the PDC levels defined by the U.S. Department of Labor. This is an improvement from your PDC level of Light on August 31, 2014.

Improvement Potential
You indicated that you have some restrictions with tasks such as those shown below. Let us know if we do not seem to be adequately addressing problems such as these, or if you have recently experienced difficulty in these areas. Most importantly, let us know if you are experiencing difficulty with other tasks that you regularly perform at work or home. We want to do everything we can to help you improve your physical abilities.


Hammer a large nail into a piece of lumber.


Lift 100-pound (45.4-kg) milk crate from the floor to a bench.

Please let us know how we can continue to assist you. Have a great week!

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Provider Signature: _____

ADL SELF CARE	HEAVY HOUSEKEEPING / LIGHT HOME MAINTENANCE
1.0-2.5 METS	***3.5-5.0 METS***
bathing or showering, sitting	bathing dog, large
dressing & undressing; standing or sitting	cleaning, house or cabin, general
getting ready for bed, in general	mopping floors
grooming (washing, brushing teeth)	mowing lawn, riding mower
having hair cut or shampooed by someone else	packing/unpacking boxes
low demand sexual activity	picking fruit off trees, picking fruits/vegetables
placing food on plate, cutting food, eating	planting seedlings, shrubs
sitting on toilet, cleaning self	playing active sports with child(ren)
opening containers & taking medication	raking leaves off lawn
talking and eating	trimming shrubs or bushes by hand
LIGHT HOUSEKEEPING	**HEAVY HOME MAINTENANCE**
1.5-4.0 METS	***4.5-6.0 METS***
bathing dog, small carpentry, outside	carpentry, outside
child care, seated (dressing, bathing, feeding)	carpentry, refinishing cabinets or furniture
cooking or food preparation	cleaning gutters
gathering clothes to pack, packing suitcase	clearing land, hauling branches
ironing clothes	digging, spading, filling garden, composting
laundry, fold or hang clothes	gardening with heavy power tools
making bed	gardening, general
packing/unpacking boxes, light	hanging storm windows
playing low demand sports with child(ren)	mowing lawn, general
putting away groceries, carrying packages	mowing lawn, walk, hand mower
serving food, setting table	mowing lawn, walk, power mower
knitting, sewing, or wrapping presents	painting, outside home
sweeping floor or sidewalk	painting, papering, plastering, scraping
vacuuming carpet	planting trees
washing dishes	trimming trees
watering lawn or garden, standing or walking	washing fence, painting fence
watering plants	weeding, cultivating garden

Example 1 (Consistent);

Example Reporting of ADLs with Impairment.

Whole Person Impairment (WPI): **12% impairment (WPI)** for the upper extremity and: **3% WPI** for excess pain; or can be combined utilizing the combined values table on page 604, yielding a combined whole person impairment of **15% WPI.**

The standardized patient reported functional outcome measure (MTAP) demonstrated consistent responses. The Health and Behavioral Assessment report notes that the INFIT (0.42) and OUTFIT (0.53) scores that are below 1.50 indicating acceptable consistency. This demonstrates valid and reliable outcome responses that were clinically confirmed.

The patient Physical Function score is 113/200 via the MTAP standardized functional outcome tool. The patient continues to have difficulty with many activities of daily living, including the ability to perform:

Self-care, almost all (82%);

Cooking and light housekeeping, most (77%);

Heavy housekeeping, light gardening and home maintenance, some (53%);

Outside home repair, lawn and garden maintenance, very few (15%);

Moreover, she describes continued moderate to severe difficulty on a frequent basis with activities such as: "making a shopping list with a pencil", "turning a lever knob to open a door", "overhead lifting", "and filing above shoulder level" or "lifting any heavy objects described as >20 pounds".

In my opinion, the patient's pain and the effect on function and ADL's are accurately reflected in the combined total 15% WPI. Please see the Multidimensional Task Abilities Profile item score dated December 11, 2014, for more complete ADL information.

Example 2 (Consistent):

DRE Lumbar Category IV, 23% impairment of the whole person, describing loss of motion segment integrity defined from flexion and extension radiographs as at least 4.5 mm of translation of one vertebra on another.

The standardized patient reported functional outcome measure (MTAP) demonstrated consistent responses. The Health and Behavioral Assessment report notes that the INFIT (1.27) and OUTFIT (1.07) scores that are below 1.50 indicating acceptable consistency. This demonstrates valid and reliable outcome responses that were clinically confirmed.

The patient Physical Function score is 72/200 via the MTAP standardized functional outcome tool. As documented in the patient's history, medical record review, including the deposition, as well as the MTAP a standardized, published functional outcome measure; the patient continues to have difficulty with many Activities of Daily Living, including the ability to perform:

Self-care, almost all (96%);

Cooking and light housekeeping, most (51%);

Heavy housekeeping, light gardening and home maintenance, some (20%);

Outside home repair, lawn and garden maintenance, very few (0%);

He is unable to participate in hobbies and has difficulty with most activities of daily living, including needing assistance with self-care. He describes that his wife and son frequently help him to put on his shoes or clothing (pants) and assist him with bathing or other grooming tasks. Moreover, he receives assistance with other chores such as: house cleaning, meal preparation and depends on his wife for most transportation needs.

Excess pain:

3% WPI has been provided for excess pain.

The 23% impairment of the whole person for the lumbar spine and the 3% impairment for excess pain can be classified separately or combined utilizing the Combined Values Table on page 604. **23% c 3%= 26% WPI.**

The patient is awarded **26% WPI**, which appears to correlate highly with his diminished ability to perform activities of daily living **as measured by a standardized, published, patient reported functional outcome measure (MTAP). T**he MTAP scores validate the patient's reports that he receives assistance from other to perform various ADLs including self-care and other light physical demands. Please see the Multidimensional Task Abilities Profile item score dated January 11, 2015, for more complete ADL information.

Example 3 (Inconsistent):

The patient is classified into a Lumbar DRE category I, 0% WPI, impairment of the whole person.

The patient history, examination and diagnostics did not support any level of impairment or functional loss. Examination procedures were inconsistent with relation to an injury or impairment. The patient Physical Function score is 11/200 via the MTAP standardized functional outcome tool and demonstrated inconsistent responses. The Health and behavioral assessment report notes that the INFIT (2.15) and OUTFIT (4.05) scores that are in excess of 1.50 indicate unacceptable inconsistency and require clinical confirmation.

The patient lacks physical findings with relatively normalized exam including normal ROM, negative orthopedic or neurological testing, yet reports moderate to severe subjective complaints. Moreover, the patient's history was irregular and not credible with the reported injury and he appears to be catastrophizing or misrepresenting the alleged events of the reported injury.

The inconsistent functional scores and ADLs categories on the MTAP report card are consistent with a highly impaired individual reliant on others for most ADLs, approaching death. However, this individual drove himself to the appointment and opened the door on his own volition. The patient reports severe difficulty with all ADLs categories:

Self-care, almost all (8%);

Cooking and light housekeeping, most (5%);

Heavy housekeeping, light gardening and home maintenance, some (0%);

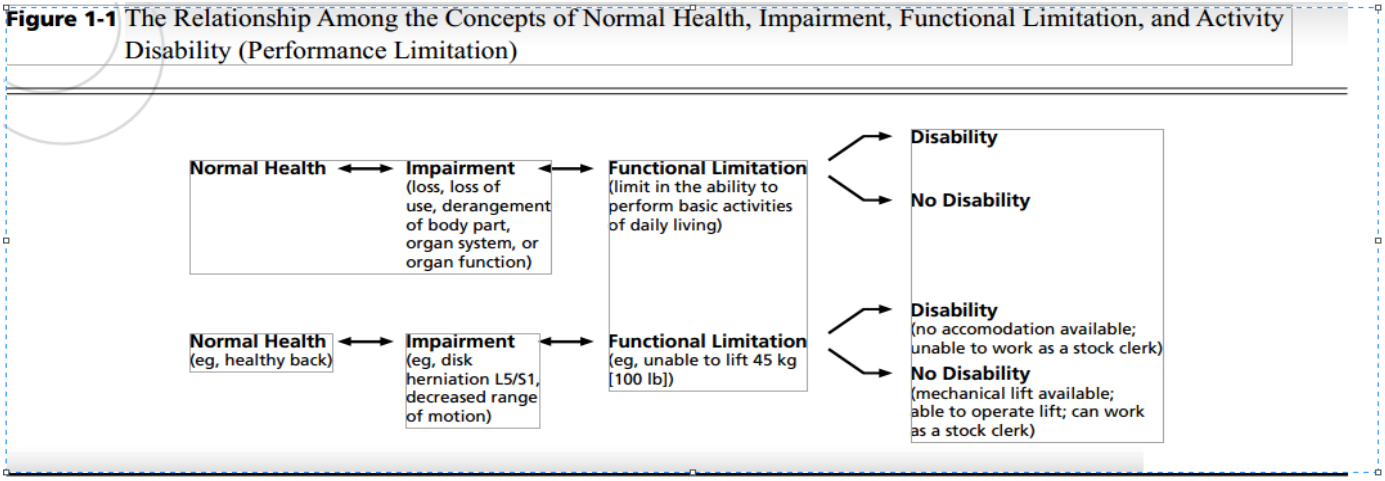
Outside home repair, lawn and garden maintenance, very few (0%);

He is unable to participate in hobbies and is noted to have difficulty with most activities of daily living, but reports that he does not have assistance with self-care

In my opinion, the patient's moderate to severe pain and the effect on ADL's are accurately reflected in the combined total 0 % WPI. It is further my opinion that the patient may have suffered from a slight injury but has long recovered without Impairment or disability. It is evident by the irregular history, lack of diagnostics objective testing, positive Waddell's scores and inconsistent patient reported functional outcome scores. From all available subjective and

objective data, it appears that the patient has a tendency to exaggerate and catastrophize non-existing physical findings. Additional psychometric testing such as the Battery for Health Improvement 2 (BHI-2), Pain Catastrophizing Scale (PCS) or other validated testing. Please see the Multidimensional Task Abilities Profile Health and Behavioral Profile January 15, 2015, for more complete ADL information.

More complex ADLs such as Work and Disability.



Addressing more complex ADLs, Work and disability.

The medical judgment used to determine the original impairment percentages could not account for the diversity or complexity of work but could account for daily activities common to most people. Work is not included in the clinical judgment for impairment percentages for several reasons:(1) work involves many simple and complex activities; (2) work is highly individualized, making generalizations inaccurate; (3) impairment percentages are unchanged for stable conditions, but work and occupations change; and (4) impairments interact with such other factors as the worker's age, education, and prior work experience to determine the extent of work disability.

For example, an individual who receives a 30% whole person impairment due to pericardial heart disease is considered from a clinical standpoint to have a 30% reduction in general functioning as represented by a decrease in the ability to perform activities of daily living. For individuals who work in sedentary jobs, there may be no decline in their work ability although their overall functioning is decreased. Thus, a 30% impairment rating does not correspond to a 30% reduction in work capability. Similarly, a manual laborer with this 30% impairment rating due to pericardial disease may be completely unable to do his or her regular job and, thus, may have a 100% work disability.

As a result, impairment ratings are not intended for use as direct determinants of work disability. When a physician is asked to evaluate work-related disability, it is appropriate for a physician knowledgeable about the work activities of the patient to discuss the specific activities the worker can and cannot do, given the permanent impairment.

The MTAP "Workability Report" information can be incorporated into the Medical Legal report and help describe the residual function, ability to perform ADLs and complex activities such as work

The MTAP has been calibrated to then Department of Labor Physical Characteristics of Work (PDC) and therefore can assist physicians with more complex ADLs and work capacity to develop work restrictions or assist with disability. Identify any medical consequences for performing activities of daily living. The physician should also identify any medical consequence of performing work. If requested, the physician may need to analyze different job tasks to determine if an individual has the residual function to perform that complex activity.

The MTAP reporting will provide the current baseline work PDC including: Unemployable, Sedentary, Light, Medium, Heavy and Very Heavy Work PDC categories as described by the US Department of Labor. This information will help guide clinical decisions and provides a simple tool to establish permanent and temporary work restrictions. When serial testing is performed work progress can be verified and the work restriction adjusted until a plateau is established. Descriptions and details of the MTAP linkage with PDC tables are noted below, including PDC chart.

The Workability Report notes the patient's occupation, job demands, and present PDC work level. Moreover the report compares the present work ability to the job requirements and describes if the patient's work status is adequate; below or above the job demands. This information can be easily incorporated into Med Legal Reports for Total Partial Disability (TPD), Total Temporary Disability (TTD), restrictions or modified duty status and permanent work restrictions.

Example Work Restrictions:

Mr. Smith's job title of Carpenter requires **Heavy** lifting and carrying physical demands from 50 to 100 lbs. As of 10-7-14 he has improved 74% in physical function and can perform **Medium** work physical demands from 20-50 lbs. This MTAP workability report is consistent and correlates to the patient's history, physical exam, diagnostics and his responses to treatment.

Due to Mr. Smith's improvement to date, it is recommended he return to work modified duty eight hours per day and be precluded from **Heavy** work > 50 Lbs. He may be allowed to perform **Medium** work lifting or carrying from 20-50 lbs. Repetitive above shoulder work > than 20 lbs. should also be avoided due to the most recent RTC surgical procedure.

The patient's work status will be updated in 3-4 weeks once work conditioning and physical therapy are completed. Once he meets the **Heavy Work** physical demands, he will return to full unrestricted duties as a Carpenter.

Please see MTAP Workability report November 10th, 2014 for complete details.

Multidimensional Task Ability Profile
Workability Report

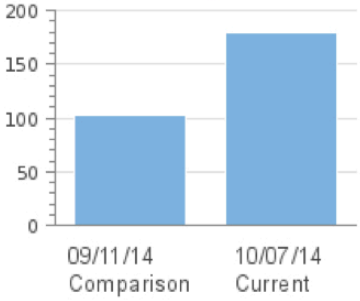
Darrell Bruga
January 19, 2015

Job Title and Work Demands

Your overall Physical Ability score is 179 on a scale of 0-200. This independent test demonstrates an improvement of 74% in physical functioning since September 2014.

Your current job title, Carpenter, requires physical demands in the **Heavy (50-100 lbs.)** work category according to the Physical Demands Characteristics (PDC) levels defined by the U.S. Department of Labor.

Overall Physical Ability



Physical Demand Characteristics of Work

[1] Current PDC Level. [2] Target PDC Level

Physical Demand Level	Occassional 0-33% of the workday	Frequent 34-66% of the workday	Constant 67-100% of the workday	Typical Energy Required
Sedentary	10 lbs.	Negligible	Negligible	1.5-2.1 METS
Light	20 lbs.	10 lbs.	Negligible	2.2-3.5 METS
Medium[1]	20 to 50 lbs.	10 to 25 lbs.	10 lbs.	3.6-6.3 METS
Heavy[2]	50 to 100 lbs.	25 to 50 lbs.	10 to 20 lbs.	6.4-7.5 METS
Very Heavy	Over 100 lbs.	Over 50 lbs.	Over 20 lbs	Over 7.5 METS

Workability

Based on today's MTAP testing you are able to meet the physical demands for jobs in the **Medium (20-50 lbs.) PDC** work category. Therefore you are below your occupational demands. The **Medium PDC** level is an improvement of 74% from September 2014. One of the primary rehabilitation goals will be to enable you to safely and dependably return to work or accommodate to modified or full duty activities. A home exercise plan to achieve your functional goals will be included.

Improvement Potential

You indicated that you have some restrictions with tasks such as those shown below. Let your provider know if these problems are not being adequately resolved, or if you have recently experienced difficulty with other tasks that you requlary perform at your work or home.

Lift 100-pound (45.4-kg) milk crate from the floor to a bench.

Carry 100-pound (45.4-kg) crate for 50 feet (15.2 m).

Please let us know how we can continue to assist you. Have a great week!

3840 Watt Ave • Sacramento, CA • 95821 • (800) 994-3220
www.lifeteamhealth.com

Provider Signature: _____

How was the MTAP linked and compared to the PDC external work measurements?

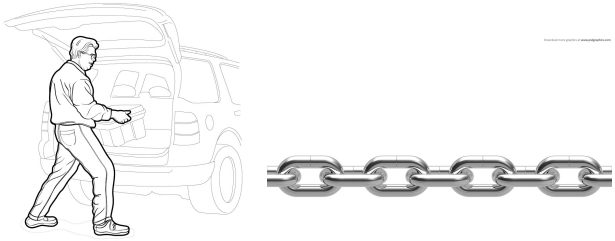
The MTAP collects information about physical performance ability and compares it to external work standards to help guide decisions related to work preparedness. Rather than simply collect information about physical performance ability in general, the linking of items to work standards provides the possibility of a crosswalk from MTAP scores to ratings on external scales that are used for return to work, modified work duties or permanent work restrictions.

The development and selection of MTAP items includes the "Physical Demand Characteristics of Work" categorization of the strength demands of jobs, which was developed by the United States Department of Labor. This scale is used in the job analysis systems that the United States Department of Labor has published and used to collect data for the Dictionary of Occupational Titles (DOT). Although the DOT has itself been abandoned by the United States Department of Labor in favor of the O*NET system, the PDC system continues to be used in rehabilitation around the world and has been adopted by the Economic Resources Institute for the eDOT project, which continues to collect job analysis data in a rapid and dynamic electronic model using the Internet. The PDC categorization system is an important external reference for the MTAP due to widespread adoption by rehabilitation professionals. It allows MTAP scores to be linked to all jobs that are classified according to PDC level. Additional external linkages are available, including linking MTAP responses to levels of activities of daily living (ADL), instrumental activities of daily living (IADL), and to the EPIC Lift Capacity (ELC) test.

Physical Demand Characteristics (PDC) of Work

Physical Demand Level	Occasional 0-33% of the workday	Frequent 34%-66% of the workday	Constant 67%-100% of the workday	Typical Energy Required
Sedentary	10 lbs.	Negligible	Negligible	1.5 - 2.1 METS
Light	20 lbs.	10 lbs.	Negligible	2.2 - 3.5 METS
Medium	20 to 50 lbs.	10 to 25 lbs.	10 lbs.	3.6 - 6.3 METS
Heavy	50 to 100 lbs.	25 to 50 lbs.	10 to 20 lbs.	6.4 - 7.5 METS
Very Heavy	Over 100 lbs.	Over 50 lbs.	Over 20 lbs.	Over 7.5 METS

Pictures allow for calibration and MTAP items are *linked* to demonstrable physical ability



PDC Level: Heavy

PDC Level: Heavy

How can the MTAP assist with return to work?

An important focus of the MTAP is the functional capacity of the evaluee in terms of the demands of competitive employment. This focus allows important comparisons to job demands data. The comparison between the MTAP and the United States Department of Labor Physical Demands Characteristic system allows a crosswalk of the MTAP results and interpretation in terms of the evaluee's ability to work. The Ability Scores of applicants, employees, and workers returning from medical leave can be compared to the difficulty of the job tasks, allowing the decision-making of employers, health care professionals, and insurance claims professionals to have a strong and defensible objective basis. Most importantly, the MTAP Workability Report and Patient Report card are useful tools to help promote discussions between patients and providers regarding functional improvement and stimulate return to work.

The MTAP was cross validated and compared with "Objective" Functional Capacity Testing (FCE).

A Functional Capacity Evaluation (FCE) is a comprehensive battery of objective performance based tests that is routinely used to determine ability for work, leisure or activities of daily living. FCEs can help determine decisions about: treatment effects (comparing baseline performance and progress), return-to-work and job-placement decisions, impact on work performance of leisure and non-work-related illness and injuries, disability and impairment reporting, treatment plans and case management. The Employment Potential Improvement Corporation (EPIC) or EPIC Lift Capacity (ELC) compared in research studies to the MTAP, is an evidenced based FCE that is well published and utilized as one of the gold standard FCEs utilized worldwide.

The MTAP uses sophisticated statistical analyses including item response theory (IRT) and Rasch analysis to calibrate MTAP items with actual objective testing (FCE) in order to maximize the precision of assessing an individual's overall function. This modern approach to test analysis provides a more robust item calibration and proportional evaluation of total scores. The MTAP was found to be highly correlated to the EPIC Lift Capacity (ELC) test. The MTAP is reliable ($r = 0.98$, $p < 0.05$) and correlates highly with actual physical function as assessed during objective FCE lifting tasks ($r = 0.89$, $p < 0.05$).

EPIC Lift Capacity/ELC:

Note: The subject wears a heart monitor during the FCE to continuously record performance data while they lift, carry and perform various work tasks with blinded weights. The EPIC/ELC possesses published normative performance data that allow comparison within age and gender categories.

Should the MTAP be utilized in combination with FCE testing?

The robust predictive ability of the MTAP allows it to be used in conjunction or in place of traditional objective performance measures that may be more time-consuming, impractical and expensive. Many FCEs possess performance tests that are routinely provided but do not help determine the disability reporting or return to work (RTW) conclusions. A self-report score indicating adequate ability in one or another FCE construct provides justification to not test that construct unless there is some other reason to test. Given the demonstrated linkages between the MTAP and the EPIC Lift Capacity test, it is now possible to check consistency of effort across platforms, using different measurement systems. Conversely, when the results of one test confirm the results of the other test, the results of both can be accepted with increased confidence.

For example, the real-time use of the MTAP by the patient in parallel with a functional capacity evaluation will identify mismatches. The FCE professional's resolution of the mismatch should sharpen the disability determination and improve intervention and patient compliance.

MTAP Workability report VS FCE summary sheet.

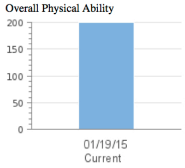
Multidimensional Task Ability Profile
Workability Report

John Doe
January 19, 2015

Job Title and Work Demands
Your overall Physical Ability score is 200 on a scale of 0-200.

Your current job title, U.S. Customs & Border Protection Officer, requires physical demands in the **Very Heavy (over 100 lbs.)** work category according to the Physical Demands Characteristics (PDC) levels defined by the U.S. Department of Labor.

Overall Physical Ability



Physical Demand Characteristics of Work [1] Current PDC Level. [2] Target PDC Level

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Heavy	50 to 100 lbs.	25 to 50 lbs.	10 to 20 lbs.	6.4-7.5 METS
Very Heavy[1,2]	Over 100 lbs.	Over 50 lbs.	Over 20 lbs	Over 7.5 METS

Workability
Based on today's MTAP testing you are able to meet the physical demands for jobs in the **Very Heavy (over 100 lbs.) PDC** work category. Therefore you are equal to your occupational demands. One of the primary rehabilitation goals will be to enable you to safely and dependably return to work or accommodate to modified or full duty activities. A home exercise plan to achieve your functional goals will be included.

Please let us know how we can continue to assist you. Have a great week!

Provider Signature: _____

Spine and Sport
Functional Capacity Evaluation
Summary Page

Patient: John Doe **Date:** March 29, 2013 Age: 38 Weight: 215 lb. Height: 76"

Referral Source: Veterans Administration **Date of injury:** January 2007 **Claim#** XXXXX8157

Referring Provider Nguyen, Quinh-Giaol **MPI** [redacted] **Authorization#** 305049-4

Employer: U.S. Customs & Border Protection **Job Title:** U.S. Customs & Border Protection Officer

DIAGNOSIS: Degenerative disc disease, lumbar spine **Blood pressure:** 125/85mmHg

More than four hours of physical testing, report preparation, research, calculations and editing were performed in the completion of this Functional Capacity Evaluation.

The information contained in this report is intended to be used in conjunction with the physician's assessment of the patient when determining return to work status. Please call if you have any questions or need additional information regarding the Functional Hand Evaluation.

Subjective Complaints:	Usual Pain Severity: **0-1/10** Usual Pain Frequency: **Intermittent**	Worst Pain Severity: **9/10** Worst Pain Frequency: **Occasional**
Perceived Ability:	Multidimensional Task Ability Profile (MTAP): **200/200, Very Heavy Work**	
Waddell's Nonorganic Signs:	Total Score = **0/5** (Scores of 3 or more are significant for nonorganic physical signs)	
Reliability:	Tested **reliable** on all aspects of the FCE. Consistent global effort.	
Objective PDC:	**Very Heavy Work, up to 100 pounds**	
Pinch Strength:	**Excellent** bilaterally.	
Jamar Power Grip:	**Excellent** bilaterally	
Hand Dexterity:	**Average** bilaterally	
Functional Occupational Duty Simulation:	**Able to perform** all essential job duty simulation for U.S Customs & Border Protection	

Normative Data for EPIC Tests:
Lifting Capacity:
% Loss of Lift Capacity **0%**

Note: The % Loss of Lift Capacity, Disability Category determinations, and Work Restrictions outlined in this report are based entirely on FCE objective measurements and do not take into consideration subjective factors of disability, or the primary treating physician's clinical opinions.

What is the science behind the MTAP that helps objectify subjective information? MTAP incorporates the item response theory (IRT) and Rasch Analysis to provide a more robust patient reported outcome tool.

Although item calibration and rating scale calibration is widespread in the field of Education, the need for such calibration has only recently been appreciated in Healthcare. Educators have recognized the problems created by the use measurements from non-calibrated instruments for decades, resulting in the development of computer-intensive analytic methods to empirically calibrate items and rating scales with item response theory (IRT) models. The IRT approach to measurement is based on the assumption that the relationship between each evaluee and each item is necessary to understand, requiring statistical methods that investigate the relationship.

The item calibration and Rasch analysis includes the ability to predict how a subject or evaluee would likely answer or respond to certain items to a high degree of probability. The Rasch item response theory provides an INFIT score as an indicator of responses different from the expected response pattern on items near the ability level of the evaluee. This INFIT score provides a method to examine reliability of the match of the evaluee to the items. The OUTFIT score is sensitive to items that are outliers, either very easy or very difficult, compared to the evaluee's Ability score. This OUTFIT score reflects unusual responses that are at the extremes of the evaluee's Ability score.

In recent years, the methods of Rasch and other item response theorists have been applied in Healthcare to improve the psychometric reliability and validity of measures and are being used in the National Institutes of Health Patient Reported Outcomes Measurement Information System (PROMIS) project. These procedures allow the proportional calibration of ordinal self-report items on an interval scale. This improves the reliability and validity of the instrument and allows higher levels of sensitivity and specificity.

The MTAP consistent with EBM guidelines and has established validity and reliability testing.

The MTAP meets the new recommendations for documentation of patient reported functional outcome measures (Medicare, Official Disability Guidelines (ODG), American College of Occupational and Environmental Medicine (ACOEM), and the American Medical Association (AMA) Guides to the Evaluation of Permanent Impairment, 5th and 6th editions).

Reliability and validity was established in J Occ Med, Mayer, et al., 2005. Subsequent studies followed with item response theory calibration (IRT) and Rasch analysis, J Occ Med, Matheson, et al., 2006. Validated to actual physical performance (FCE's), The Spine Journal, Vert Mooney, et al., 2010. Additional reliability, validation and cross-cultural adaptation to Spanish, Verna, et al., 2012. Several additional studies have been published with comparison to various outcome measures and FCEs, which are readily available on PUB Med: **http://www.ncbi.nlm.nih.gov/pubmed**.

MTAP Validity, Reliability, EBM and Publications

Peer-Reviewed Manuscripts

Verna JL, Matheson LN, Gables S, Hause R, Mayer JM. Development and Reliability Testing of Spanish Language and English Language Versions of the Multidimensional Task Ability Profile. Journal Occupational Rehabilitation, 2013 Jun;23(2):220-7.

Mooney V, Matheson LN, Verna JL, Leggett S, Dreisinger T, Mayer J. Performance-integrated self-report measurement of physical ability. The Spine Journal 10 (2010) 433–440.

Matheson L, Mayer JM, Mooney V, Sarkin A, Dreisinger T, Verna J, Leggett S. A method to provide a more efficient and reliable measure of self-report physical work capacity for patients with spinal pain. Journal of Occupational Rehabilitation, 2008;18(1):46-57.

Mayer JM, Mooney V, Matheson LN, Erasala GN, Verna JL, Udermann BE, Leggett S. Continuous low-level heat wrap therapy for the prevention and treatment of delayed onset muscle soreness of the low back muscles *Archives of Physical Medicine and Rehabilitation*, 2006;10.

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Mayer JM, Mooney V, Matheson LN, Leggett S, Verna JL, Balourdas G, DeFilippo G. The reliability and validity of a new computerized pictorial activity and task sort. Journal of Occupational Rehabilitation, 2005;15(2):185-95.

Matheson LN. History, design characteristics, and uses of the pictorial activity and task sorts. *Journal of Occupational Rehabilitation*, 2004;14(3):175-95.

Bibliography - Spinal Function Sort and Hand Function Sort - Pencil and paper instruments from which the MTAP was derived

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Robinson RC, Kishino N, Matheson LN, Woods S, Hoffman K, Unterberg J, Pearson C, Adams L, Gatchel R. Improvement in postoperative and nonoperative spinal patients on a self-report measure of disability: The Spinal Function Sort (SFS). *J Occup Rehabil*, 2003;13(2):107-13.

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Gibson L, Strong J. The reliability and validity of a measure of perceived functional capacity for work in chronic back pain. *J Occup Rehabil*, 1996;6(3):159-75.

Matheson LN, Matheson ML, Grant J. Development of a measure of perceived ability. *J Occup Rehabil*, 1993;3(1):15-30.

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Matheson LN, Verna J, Dreisinger TE, Leggett S, Mayer J. Age and gender normative data for lift capacity. Work. 2014;49(2):257-69.

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Jay MA, Lamb JM, Watson RL, Young IA, Fearon FJ, Alday JM, Tindall AG. Sensitivity and specificity of the indicators of sincere effort of the EPIC Lift Capacity Test on a previously injured population. *Spine*, 2000;25(11):1405-12.

Gibson L, Strong J. The reliability and validity of a measure of perceived functional capacity for work in chronic back pain. *J Occup Rehabil*, 1996;6(3):159-75.

Matheson LN, Mooney V, Holmes D, Leggett S, Grant J, Negri S, Holmes B. A test to measure lift capacity of physically impaired adults: Part II. Reactivity in a patient sample. *Spine*, 1995;20(19):2130-4.

Matheson LN, Mooney V, Grant J, Affleck M, Hall H, Melles T, Lichter R, McIntosh G. A test to measure lift capacity of physically impaired adults: Part I. Development and reliability testing. *Spine*, 1995;20(19):2119-29.

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