Abstract
Many disability claims are based on the subjective symptom of fatigue, which can be caused by a wide spectrum of diagnoses including fibromyalgia, chronic fatigue syndrome and cardiopulmonary diseases. Chronic pain is very often a compounding problem.

It is vital for every insurer to have fair and objective criteria to distinguish between invalid claims and those with merit.

This review article proposes objective tools and parameters to achieve this goal.

Keywords
Chronic fatigue, fibromyalgia, chronic pain, Disability Impairment

Introduction
Fibromyalgia (FM) and the Chronic Fatigue Syndrome (CFS) cover a wide spectrum of signs and symptoms, which are virtually exclusively subjective in nature. The emphasis in Fibromyalgia is on pain where the emphasis in Chronic Fatigue Syndrome is on persistent fatigue.

There are many similarities between the two conditions. (Table 1)

Over many years the presenting symptom has varied and there is a significant body of opinion that believes that the CFS and FM are similar, if not identical conditions. According to Yunus(1), these two syndromes form part of a spectrum of conditions classified as Neuroendocrine Immune Dysfunction, as demonstrated in figure 1.

Both syndromes are poorly understood in terms of causation, pathophysiology, natural history and the appropriate medical management. Research has shown that CFS and FM also share demographic features, symptoms and common physical examination findings.

<table>
<thead>
<tr>
<th>Table 1: Symptom Similarities of Chronic Fatigue Syndrome and Fibromyalgia.</th>
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<tbody>
<tr>
<td>SYMPTOMS</td>
</tr>
<tr>
<td>• Wide spread pain</td>
</tr>
<tr>
<td>• Pain localized mainly at tender points</td>
</tr>
<tr>
<td>• Decrease in pain threshold</td>
</tr>
<tr>
<td>• Sleep disturbance</td>
</tr>
<tr>
<td>• Fatigue</td>
</tr>
<tr>
<td>• Anxiety</td>
</tr>
<tr>
<td>• Neurocognitive dysfunction</td>
</tr>
<tr>
<td>• Exercise intolerance</td>
</tr>
<tr>
<td>• Headache</td>
</tr>
<tr>
<td>• Irritable Bowel Syndrome</td>
</tr>
<tr>
<td>• Joint Stiffness</td>
</tr>
</tbody>
</table>

| SIGNS                                                      |             |
| • Tender points                                           | ✔✔✔          | ✔                     |
| • Lymphadenopathy                                         | —            | ✔                     |
| • Pharyngitis                                              | —            | ✔                     |
| • Fever                                                    | —            | ✔                     |

| CLINICAL EXAMINATION                                      |             |
| Generally non-contributory other than in Chronic Fatigue Syndrome there is in the initial stages symptoms and signs of a viral infection. | ✔ | ✔ |

| SPECIAL INVESTIGATIONS                                    |             |
| Non-contributory                                         | — | — |
The clinical syndromes and diagnostic criteria of these conditions are well described in medical literature\(^2,3\), and are beyond the scope of this paper.

These syndromes present challenges to Disability Assessment in the following ways:

- There is a significant financial benefit, which accrues from a certain level of functional impairment and the impact that this has on the claimant’s ability to perform the normal activities of daily living and their occupation.
- To remain ill has financial benefit.
- To date there have not been assessment criteria to assess functional impairment for the CFS and FM, which are aimed at assessing the exercise and work tolerance of the claimant in an objective and quantitative way.
- Admission of claims in claimants who are not objectively assessed reinforces the condition and in so doing does the claimant and society a disservice. This fosters somatization and medicalization of these conditions with the concomitant negative effects on the health care system and the economy.

**ASSESSMENT OF FUNCTIONAL IMPAIRMENT**

**Introduction**

The symptoms of patients suffering from CFS and FM are mainly subjective in nature, which complicates attempts to objectively quantify the degree of impairment. Furthermore, signs and symptoms of FM are found in the normal population who are still actively employed\(^4,5\). Hidding et al\(^6\) also reported “discordance between self-report questionnaires and observed functional disability” as a most striking feature of FM.

It is also evident that only minorities of patients are unable to work\(^7\), and that most patients are able to continue working with workplace adaptation\(^4\).

The above makes it imperative that some form of objective measurement be incorporated into the impairment assessment of these subjective syndromes. This will not only result in increased fairness in distinguishing between non-valid claims and those with merit, but will help maintain affordable insurance premiums to all.

Impairment is defined by the AMA as “conditions that interfere with an individual’s activities of daily living”\(^8\). The World Health Organization defines it as “any loss or abnormality of psychological, physiological, or anatomical structure or function”\(^9\).

**Pre-assessment criteria**

Functional impairment can only be assessed once the patient has received optimal treatment available, the condition has stabilized and the point of maximal medical improvement (MMI) has been reached.\(^10\)

According to international literature, no specific period of time could be established which could be regarded as an optimal period of treatment prior to MMI having been reached.

However, it is reasonable to assume that no clinician can prescribe all the treatment modalities agreed upon to be considered as optimal treatment, during a period of less than two years. This is necessary to allow different classes of medication to take full effect, to adjust dosages if indicated, and to institute a proper rehabilitation and work integration/adaptation program.

The IME must also ensure that the diagnosis was made correctly and according to the CDC criteria for CFS, and the ACR criteria for FM.

**Quantifying Functional Impairment**

The spectrum of symptoms that may lead to impairment, include the following\(^11,12\):

- Pain
- Headache
- Myofascial pain
- Joint pain
• Back pain
• Fatigue
• Cognitive impairment, mainly decreased memory, concentration, persistence and pace.
• Sleep disorders
• Mood disorders
• Various somatic symptoms like irritable bowel syndrome etc.

Table 2 summarizes the suggested assessment tools to be utilized to quantify impairment severity due to the symptoms experienced, and is adapted from the American Academy of Disability Evaluating Physicians (AADEP) position papers on CFS and FM.

In addition to the assessment criteria as suggested by AADEP (Table 2), our working group have included the following objective parameters:
• Objective proof of pain therapy
• Exercise capacity measurement

We also propose an overall evaluation of the validity of data, as described in section 4.

More specific details of the various impairment assessment tools, as specified in Table 2.

### i Pain Intensity/Frequency Grid (PIFG)

Pain intensity should be classified as minimal, slight, moderate or marked, according to the criteria as used by the American Medical Association (AMA). The use of non-narcotic or narcotic analgesics serves as an important differentiator. The frequency of pain experienced should also be documented as intermittent, occasional, frequent or constant.

The above categorization of pain intensity and frequency should be done by the examining physician, on information received by direct questioning of the patient, as well as collateral information received from family, friends and/or the employer.

### ii Pain Questionnaire (Annexure A)

Various pain questionnaires are available which have been proven in international research to be useful tools in the quantification of the intensity of pain.

We recommend the pain questionnaire of Hyman, as it also assesses the patient’s:
• Motivation
• Likelihood of responding to a rehabilitation program
• Expectations of disease outcome
• Work satisfaction

Also, these questions give an indication of the presence and extent of psychiatric overlay. If the pain is made worse by all physical activities e.g. bending, kneeling, sitting, lying as indicated by the questionnaire, the validity of the data should be questionable, as certain movements should have no effect on the pain.

### iii Pain diagram

The pain diagram should be completed by the claimant (Annexure B). The important data

<table>
<thead>
<tr>
<th>SYMPTOMS</th>
<th>ASSESSMENT TOOLS</th>
</tr>
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<tbody>
<tr>
<td>PAIN</td>
<td>• Pain intensity/frequency grid</td>
</tr>
<tr>
<td>• Headache</td>
<td>• Pain questionnaire</td>
</tr>
<tr>
<td>• Myofascial pain</td>
<td>• Pain diagram</td>
</tr>
<tr>
<td>• Joint pain</td>
<td>• Objective proof of pain therapy</td>
</tr>
<tr>
<td>• Back pain</td>
<td>• Fibromyalgia impact questionnaire (FIQ)</td>
</tr>
<tr>
<td></td>
<td>• ADL impairment</td>
</tr>
<tr>
<td></td>
<td>• ROM impairment where indicated</td>
</tr>
<tr>
<td>FATIGUE</td>
<td>• ADL impairment</td>
</tr>
<tr>
<td></td>
<td>• Exercise capacity</td>
</tr>
<tr>
<td>COGNITIVE IMPAIRMENT</td>
<td>• Neuropsychiatric analysis for impairment in memory,</td>
</tr>
<tr>
<td></td>
<td>concentration, persistence and pace</td>
</tr>
<tr>
<td>MOOD DISORDERS</td>
<td>• Psychiatric evaluation of</td>
</tr>
<tr>
<td></td>
<td>• Social interaction</td>
</tr>
<tr>
<td></td>
<td>• Activities of daily living</td>
</tr>
<tr>
<td></td>
<td>• Task completion (concentration, persistence, pace)</td>
</tr>
<tr>
<td></td>
<td>• Adaptation to work stress</td>
</tr>
<tr>
<td>SLEEP DISORDERS</td>
<td>• Assess according to AMA Guides, 4th Edition</td>
</tr>
<tr>
<td>SOMATIC SYMPTOMS</td>
<td>• Assess according to AMA Guides, 4th Edition</td>
</tr>
</tbody>
</table>
obtained from the type of pain and its distribution, should make physiological and pathological sense, and fit the patient’s diagnosis. If not, symptom magnification or malingering should be considered.

iv Objective proof of pain therapy
In addition to the pain intensity/frequency grid, impairment in Activities of Daily Living (ADL) and the Fibromyalgia Impact Questionnaire (FIQ), which are all subjective measures of pain, the assessor should substantiate the degree of pain by requesting the following objective evidence:

- Extracts from clinical records of the treating family physician to verify the number and frequency of consultations to seek treatment and/or prescriptions for pain relief.
- Copies of such prescriptions for pain relief medication, or copies of pharmacy bills.

v Self-report questionnaires
Various self-report questionnaires exist to evaluate subjective complaints like pain, tiredness, depression, etc.

Although these questionnaires are of limited value because of a lack of objectivity, it is felt that the information gained can contribute significantly to the holistic assessment of the disabled individual.

It is recommended that the FIQ(14) be used in all cases. Scrutinizing the contents of the FIQ after completion may yield valuable information about the extent of the client’s symptomatology. A total score for the questions exceeding 70 out of a possible total of 82, may indicate symptom magnification, somatization or malingering.

vi Impairment in Activities of Daily Living (ADL)
Claimants should be requested to complete a questionnaire on the impact of the disease on their abilities to cope with activities of daily living. Examples of ADL are given in table 3.

The client’s level of impairment in the activities of daily living should be quantified as follows:

**CATEGORY:**
1. No impairment. Functions as any normal person.
2. Mild impairment. Has difficulty with the specific activity, but can cope.
3. Moderate impairment. Can only do the specific activity with discomfort and effort.
5. Extreme impairment. The specific activities are impossible to do.

vii ROM impairment
FM may cause joint or back pain, which may limit the normal range of motion of certain joints or the spine.

This range of motion (ROM) impairment should be recorded with a goniometer or inclinometer as described in the AMA Guides, 4th Edition, Chapter 3.

Pain with no ROM limitation, constitutes no impairment.

viii Exercise Capacity Testing
The AMA Guides suggests that fatigue as a symptom of respiratory or quantifying impairment in exercise capacity should, objectively assess cardiac disease. This is done

<table>
<thead>
<tr>
<th>Table 3 Activities of Daily Living, with Examples. (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIVITY</strong></td>
</tr>
<tr>
<td>Self-care, personal hygiene</td>
</tr>
<tr>
<td>Communication</td>
</tr>
<tr>
<td>Physical activity</td>
</tr>
<tr>
<td>Sensory function</td>
</tr>
<tr>
<td>Hand functions</td>
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<tr>
<td>Travel</td>
</tr>
<tr>
<td>Sexual function</td>
</tr>
<tr>
<td>Sleep</td>
</tr>
<tr>
<td>Social and recreational activities</td>
</tr>
</tbody>
</table>
by using one of various graded exercise protocols on either a treadmill or cycle-ergometer, as described in the Guides on p171, to determine maximal energy expenditure in metabolic equivalents (METS).

METS represents the multiples of resting metabolic energy, which the patient can achieve with maximum effort exercise testing, with one MET being equal to an oxygen consumption of 3.5 ml/kg/min.

Research has shown that it is reasonable to expect a person to maintain 40% of his maximal exercise capacity for an 8-hour working day.(8)

Therefore, calculating 40% of the patient’s maximal workload, and comparing it to the work descriptions which could be maintained (Table 4), would classify the claimant’s abilities on physical grounds into either capable of doing light work, moderate work, heavy, very heavy, or arduous work.

The definitions of these different work intensities can be obtained from the USA Dictionary of Occupational Titles.(15)

It is recommended that exercise capacity testing be utilized to quantify the physical fatigue, or lack of energy, of a FM or CFS patient in the manner described above.

Due to the fluctuating nature of FM and CFS symptoms, the client should undergo exercise testing on at least two occasions at least one month apart.

Clients who meet the minimum recommended METS level for their type of work (Table 4), should not be considered disabled on the basis of fatigue, but should be evaluated according to any other criteria applicable (Table 2).

OTHER IMPAIRMENTS

Should the client suffer from significant impairment due to other symptoms of these syndromes, e.g. cognitive impairment, mood or sleep disorder, these impairments should be evaluated according to the appropriate section in the AMA Guides, 4th Edition.

Validity of Data

Because of the subjective nature of the symptoms of CFS and FM, the examining physician should always, before deciding on the extent of permanent impairment, attempt to validate the authenticity of the data obtained.

This could be compared to the Waddell signs, which indicate non-organic causes for low backache(16). If two or more of the following are present, symptom magnification or malingering may be considered.

1. A normal clinical examination, with specific reference to the minimum number of tender points needed to diagnose FM according to the ACR criteria.
2. Positive distraction test
   This refers to a specific tender point (+) eliciting pain upon direct pressure, but fails to reproduce the same response when the same pressure is applied while the patient’s attention is distracted.
3. A normal psychometric evaluation.
4. Total non-physiological or non-pathological pain distribution or type of pain as evidenced by the pain questionnaire and/or pain diagram.
   This should also apply when the pain distribution and nature does not fit the clinical diagnosis.
5. Non-correlation of exercise capacity (METS) achieved with pulse rate response and workload achieved. A patient complaining of excessive tiredness at low workloads and low pulse rate acceleration, should be viewed with suspicion, in the absence of cardiological and/or pulmonological disease. Patients with true impairment in exercise capacity will show excessive pulse rate acceleration at low workloads.
6. Total FIQ score exceeding 70 out of a possible total of 82 points.

<table>
<thead>
<tr>
<th>WORK INTENSITY FOR 70 KG PERSON</th>
<th>OXYGEN CONSUMPTION</th>
<th>METS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light work</td>
<td>7 ml/kg/min</td>
<td>&lt; 2 METS</td>
</tr>
<tr>
<td>Moderate work</td>
<td>8-15 ml/kg/min</td>
<td>2-4 METS</td>
</tr>
<tr>
<td>Heavy work</td>
<td>16-20 ml/kg/min</td>
<td>5-6 METS</td>
</tr>
<tr>
<td>Very heavy</td>
<td>21-30 ml/kg/min</td>
<td>7-8 METS</td>
</tr>
<tr>
<td>Arduous work</td>
<td>&gt; 30 ml/kg/min</td>
<td>&gt; 8 METS</td>
</tr>
</tbody>
</table>
Format of Report
The medical examiner should supply the employer and/or insurer with a complete medical report covering all the aspects mentioned in Table 5.

Assessing Disability
Disability is the alteration of capability to meet personal, social or occupational demands due to an impairment(8). Disability assessment is a legal and not a medical decision, taken by a panel of experts including a
• Medical advisor
• Legal advisor, and
• Claims consultant

The insurer assesses a disability claim by carefully evaluating the following four categories.
1 Claimant
2 Job description
3 Disability clause conditions
4 Medical condition

1 Claimant
Factors that need to be considered include:
• Gender and age
• Experience and qualifications
• Income, and
• Previous occupations

2 Job description
Generally, occupations can be classified into the following categories:
• Manual
• Operative
• Clerical
• Supervisor in clerical field
• Technical
• Supervisor in technical field
• Managerial
• Specialized, and
• Mixed

3. FUNCTIONAL IMPAIRMENT
Describe the frequency and severity of symptoms experienced. Provide adequate details in terms of the assessment tools discussed above:
• Pain:
  • PIFG
  • Initial pain questionnaire
  • Pain diagram
  • Objective proof of pain therapy
  • FIQ
  • ADL impairment assessment
  • ROM impairment if indicated
• Fatigue:
  • ADL impairment
  • Exercise capacity test
• Cognitive impairment:
  • Neuropsychiatric analysis
• Mood disorders:
  • Psychiatric evaluation
• Somatic symptoms:
  • Impairment assessment as per AMA Guides 4th Edition

4. CURRENT ABILITIES
Describe the usual activities of daily living (ADL’s) that the claimant is still capable of doing:
• Working
• Recreation
• Shopping
• Travel
• Housework
• Self care

5. WORKPLACE ADAPTATION
• Impact on activities at work
• Is intervention at the workplace/change of occupation possible?
• What effect has therapy had on work ability?
• Has an occupational therapy assessment been done?

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TABLE 5

1. DIAGNOSIS
- Diagnosis should be based on the 1990 American College of Rheumatology criteria.
- Cite the historical and current physical findings that support the diagnosis.

2. TREATMENT AND RESPONSE TO THERAPY
Response to therapy
a) Pharmacological intervention
  Name type of drugs and damages prescribed.
  Note period of treatment, compliance and response to therapy.
  Has the point of MMI been reached? Give details.
b) Non-pharmacological intervention
  • Cognitive-behavioral therapies
  • Exercise-based programs
  • Other non-pharmacological treatments
  Note period of treatment, compliance and response to therapy.
  Has the point of MMI been reached? Give details.

3. FUNCTIONAL IMPAIRMENT
Describe the frequency and severity of symptoms experienced. Provide adequate details in terms of the assessment tools discussed above:
• Pain:
  • PIFG
  • Initial pain questionnaire
  • Pain diagram
  • Objective proof of pain therapy
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• Cognitive impairment:
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  • Impairment assessment as per AMA Guides 4th Edition