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ACTIVITY CALCULATOR

A METHOD FOR ACHIEVING A BALANCED LIFESTYLE FOR PEOPLE WITH CHRONIC FATIGUE

INTRODUCTION

The Activity Calculator is a method that may help people with chronic fatigue to obtain a balance between what they *wish* to do and what they *are able* to do. It was created by the occupational therapists (OTs) Greke Hulstein – van Gennep and Karin ten Hove – Moerdijk at Meander Medical Centre in Amersfoort, the Netherlands, as they recognized the need for a standardised method to provide coaching in energy management for clients with chronic fatigue. The Activity Calculator provides a tool to document and describe activity patterns and demands, analyse energy costs of individual activities, and prioritise and plan alternative daily activity patterns.

The Activity Calculator can be used by clients with different kind of diagnoses that involve fatigue, i.e. chronic fatigue syndrome, chronic pain, multiple sclerosis, rheumatoid arthritis, stroke, traumatic brain injury and Parkinson disease, and where activity management is considered to be an appropriate approach. An essential condition is that clients are aware of how current behaviour may influence the experienced fatigue, and that they are open to behavioural change. Children have successfully used the Activity Calculator, but individual adjustments may be needed.

The Activity Calculator, including the manuals and several documents, is presently available in Dutch, English and Norwegian. OTs only are allowed to attend the certification course that gives access to the manuals and provides training in the use of the Activity Calculator. Since 2008, about 25% of all OTs in the Netherlands have attended this course. The first course in

Norway was organised in 2015. Irma Pinxsterhuis and Kirsti Hellesøy have conducted several courses in Norway since 2018. There have also been organised certification courses in Belgium.

HOW DOES IT WORK?

The clients start with completing a record of activities that they normally carry out during a day, week or month. Next, the clients use this record to categorise their activities by asking themselves: “How do I experience this activity:

- Most of the time, on average
- No matter at what time I do that activity
- And not related to the energy used in other activities the same day?”

Then, the clients assign each activity to one of four categories on the “overview weights list”: light, medium, strenuous or relaxing.

After all the activities have been assigned to these categories, the activities are scored as follows; light activities are giving 1 point per ½ hour, medium activities 2 points per ½ hour, strenuous activities 3 points per ½ hour, while relaxing activities are giving -1 point per ½ hour.

In addition, the clients complete time registration lists for 3 - 5 representative days. These should be “typical” work days and “typical” non-workdays. Days that are exceptional, such as attending a wedding or a funeral, are not representative and thus are not included. The clients register when they start each activity and the time that was spent on each activity in units of 15 minutes. Then, they use their “overview weights list” to find the category each activity was assigned to, and calculate the points for each activity (for an example, see table 1).

Time	Activity	Time length	Relaxing	Light	Medium	Strenuous	Points
8.00	Bathing/dressing	30 min.		x			1
8.30	Preparing and eating breakfast	30 min.		x			1
9.00	Walking the dog	45 min.			x		3
9.45	Drinking a cup of coffee	15 min.	x				-0,5
10.00	Cleaning	30 min.				x	3
10.30	Grocery shopping	60 min.				x	6

Table 1: Example of a time registration list

When the clients experience a loss of energy by doing the activity, it “costs” energy and might be categorised as light, medium or strenuous. When the activity conserves or provides new energy, the activity will be categorised as relaxing.

Next, the activity level is calculated. The activity level is the total number of calculated points that the clients are able to do in one day, regardless of whether it is a good day or a bad day. The activity level can be calculated in different ways,

depending on the clients' activity profile; some clients may show great variety in activity level from day to day, while others have a high activity level during the beginning of the day without taking breaks, or generally have a low activity level.

Finally, clients plan their activities based on the calculated activity level and their priorities. Based on the preferences of the clients, they then choose a tool to plan their activities. This may be activity cards, pre-set day or week schedule (on paper or digital in Excel), a diary, the Activity Calculator App or an individually designed tool.

HOW TO USE THE ACTIVITY CALCULATOR WITHIN THE OCCUPATIONAL THERAPY TREATMENT?

In the initial stages of the Canadian Practice Process Framework (CPPF) (1) it is important to assess the client's awareness of how current behaviour influences the onset, maintenance, deteriorations and improvement of fatigue and how it affects occupational participation. Once aware, the clients consider pros and cons of the old and the new behaviour. This consideration may result in the intention and willingness to change (2).

COPM may be used to define long term and short term goals (CPPF – step 4). At this stage, the Activity Calculator can be considered as a method to obtain these goals and simultaneously work on the last barriers that may hinder the clients from making behavioural changes.

The Activity Calculator is especially suitable for clients that experience problems with:

- Structuring the day
- Doing too little or doing too much
- Handling the number of activities
- Finding a balance between activity and rest
- Increasing the number of activities
- Gaining insight into their own capacities and activity level
- Communicating their limitations to others

The Activity Calculator should not be introduced to clients who:

- May use the Activity Calculator to avoid certain responsibilities
- Relate problems with fatigue to mainly external factors and not to their own behaviour
- Show a tendency to over-control
- Are not ready to change behaviour
- Need to prioritise other goals in life,

including treatment goals

- Can be offered only one or two consultations and no follow-up elsewhere
- Have a language barrier with the OT

In the treatment phase (CPPF – stage 5), the clients receive instructions about the Activity Calculator. The clients start with completing a record with activities they normally carry out during a day, week or month. In addition, the clients complete some time registration lists. During therapy sessions, the OT provides guidance and support with categorising the activities, awarding points to the activities, calculating the activity level, and planning activities based on the activity level. Between the occupational therapy sessions, the clients are encouraged to work with the Activity Calculator independently.

It may take some time before the clients are able to plan activities based on the activity level, as this may involve major changes in both the client's and their family's lives. Ideally, the activity level is the limit of what the clients are able to do in one day, and this limit should not be reached before the end of the day. This means that it is not advisable to go beyond the activity level during the day and use relaxation point during the rest of the day to get down to activity level at bedtime. However, it is acceptable that the clients may choose to ignore this advice occasionally due to special events or extraordinary situations.

In the treatment phase, working with the Activity Calculator is combined with education in energy management. This may help the clients to become more aware of the meaning of activities. The clients may perform activities that he or she experiences as strenuous or time consuming but not meaningful, while he or she is unable to prioritise meaningful activities due to fatigue. The occupational therapist may use terms such as "Patterns of daily occupations" and "occupational balance" (3) when explaining to clients how a balance between what they wish to do and what they are able to do can be achieved.

Once the client is familiar with the planning system, the Activity Calculator can be used as a method to support the performance of the COPM goals.

As soon as clients have started to work with the Activity Calculator, it is important to evaluate regularly to detect the need for modifications (CPPF – step 6). During the

sessions, the clients can show how they are working with the registration records or their individual planning tool. The OT can also ask the clients to write down their maximum scores for each day to evaluate the activity level. If the clients experience improvement, the activity level can be adjusted gradually. It is also possible to use the activity level to achieve the clients' final goal. In this case, the clients start with describing an "ideal day" or "ideal week". All the activities on the "ideal day" or "ideal week" are awarded points, and the total score will tell the clients what the activity level of their final goal will be. The OT discusses with the clients how they gradually can work towards this ideal activity level.

During the final stages of CPPF, it is important to assess personal challenges the clients might face to maintain the use of the Activity Calculator after finishing the occupational therapy treatment in a way that makes sense to them. Some continue to use the chosen tool (cards, day or week schedule, App etc.) to plan their activities over time. Others have learned how much they are able to do from day to day, without calculations, and have thus achieved behavioural change. At times of high risk, such as personal crises, social pressure, holidays or moving to another house, the clients may be better able to manage his energy by using the Activity Calculator again for some time.

RESEARCH CONCERNING THE ACTIVITY CALCULATOR

A few studies concerning the Activity Calculator have been conducted by BSc. students at different schools for occupational therapy in the Netherland. In addition, the Activity Calculator is being researched by Jacqueline Leenders and colleagues, as part of the Lifebalance study at Radboud UMC in the Netherlands.

One study showed that the Framework Occupational Adaptation may be most suitable as theoretical model behind the Activity Calculator (4).

BSc. students van Dijke, Frijters, Steijsiger and Westerveld interviewed ten patients with chronic pain about their experiences with the Activity Calculator. They found that the Activity Calculator, even 6 – 24 months following its introduction, still helped the patients to achieve a balance between what they wished to do and what they actually were able to do, and made it

easier to deal with the pain while performing occupations in daily living. In addition, the Canadian Occupational Performance Measure (COPM) (5) was applied to assess changes in Performance and Satisfaction in fourteen patients. The COPM-scores showed improvements on both scales after the introduction of the Activity Calculator (6).

As part of the Lifebalance study, some BSc. students interviewed five persons with fascioscapulohumeral dystrophy (FSHD) and five persons with mitochondrial myopathy about their experiences with categorising activities (7). This study showed that the participants experienced difficulties with categorising their activities. The students concluded that OTs should explain more thoroughly to the clients the differences between the four categories and how to apply the basic rules for categorising activities(7).

Another recent study performed by BSc. students showed that it is essential to apply occupational therapy knowledge and skills to use the Activity Calculator correctly in the treatment of patients with fatigue. They concluded that these required knowledges and skills could not be learned at the certification course (8). Therefore, only occupational therapists are allowed to attend the certification courses.

CONTACT INFORMATION

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