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Graded exercise therapy: chronic fatigue syndrome

Intervention

Graded exercise therapy (GET).

GET aims to increase the patient's ability to undertake physical activity by preventing/reversing the physical deconditioning and exercise intolerance related to prolonged (relative) inactivity.

GET includes the establishment of a baseline of achievable patient-specific exercise or physical activity, followed by increments in the duration of physical activity.

The overall aim is to help the patient gradually increase physical activity, and become more independent in their everyday life.

GET differs from cognitive behavioural therapy (CBT) by not directly targeting cognitive factors. GET and CBT may be used together.

GET differs from adaptive pacing therapy (APT) by encouraging the participant to extend their physical functioning beyond their current ability.

Indication

CFS is primarily a disorder of young to middle-aged adults, and is about twice as common in women than in men.
The worldwide prevalence is between 0.2% and 2.6%.

Patients with chronic fatigue syndrome (CFS). The aim of the intervention is to improve functional capacity and reduce symptoms.

Center for Disease Control (CDC) diagnosis for CFS has three criteria:

1. New onset of severe fatigue lasting ≥6 consecutive months, which is unrelated to exertion, is not substantially relieved by rest, and is not a result of other medical conditions.

2. The fatigue causes a significant reduction of previous activity levels.

3. Four or more of the following symptoms lasting ≥6 months:

- impaired memory or concentration
- post-exertional malaise, where physical or mental exertions bring on 'extreme, prolonged exhaustion and sickness'
- unrefreshing sleep
- muscle pain (myalgia)
- pain in multiple joints (arthralgia)
- headaches of a new kind or greater severity
- sore throat that is frequent or recurring
- tender lymph nodes (cervical or axillary).

The most prominent symptom of CFS is fatigue, which results in avoidance of exercise, exercise intolerance, and reduced aerobic capacity and muscle strength (i.e. physical deconditioning). In patients with CFS, GET has been shown to reduce fatigue, prevent physical deconditioning and improve physical functioning, as well as improve sleep, cognition and mood.

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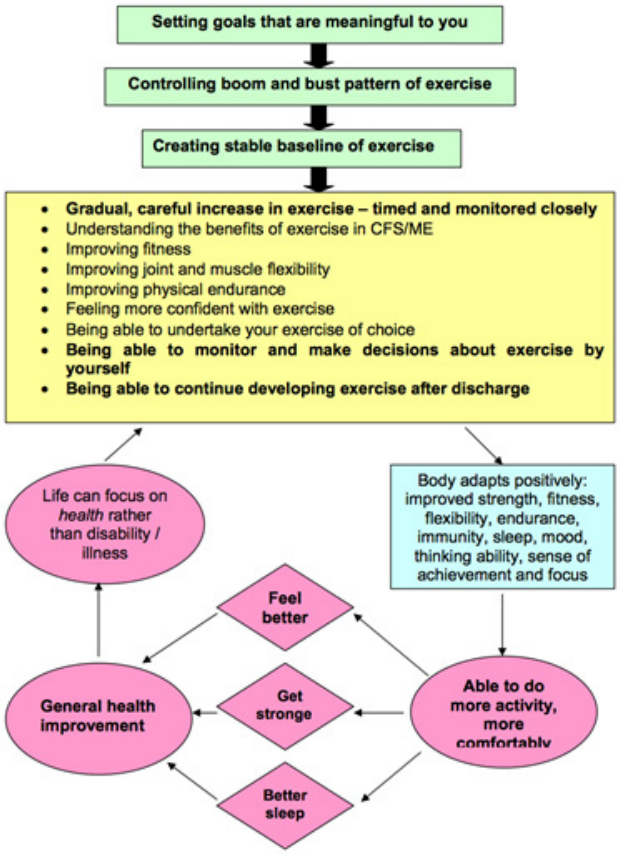
Indication

GET has also been shown to improve muscle strength, cardiovascular endurance and symptoms in a wide variety of conditions that have chronic fatigue as a symptom, such as heart disease, cancer and chronic obstructive pulmonary disease (COPD). Figure 1 explains the cycle or reconditioning with exercise.

Figure 1. Feeling better with exercise: the cycle of reconditioning



Source: Bavinton J, Darbishire L, White PD. PACE manual for therapists: graded exercise therapy for CSF/ME. Final trial version: version 7 (internet), p.27. Accessed 5 March 2015 at http://www.pacetrial.org/docs/get-therapist-manual.pdf

Precautions

Activity can produce symptoms. Patients are encouraged to see symptoms as temporary and reversible, as a result of the current physical weakness, and not as signs of progressive pathology. A mild and transient increase in symptoms is explained as a normal response to an increase in physical activity.

Adverse effects

Surveys by patient groups of their members have suggested that GET may be harmful to some people with CFS. However, this finding is believed to be due to inappropriately planned or progressed exercise programs, possibly undertaken independently or under supervision from a person without appropriate experience.

Availability

GET should be supervised by a physiotherapist or exercise therapist, preferably with specific experience and training in applying GET to patients with CFS.

The PACE trial has produced a comprehensive GET therapist manual (and a manual for patients), which can be downloaded free of charge by going to www.pacetrial.org and selecting the relevant manuals from the trial information section.

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Description

GET is delivered in three phases over several sessions (e.g. 15 sessions in the PACE trial – see Table 1).

After assessment of the patient's current physical capacity, and mutual negotiation of meaningful and functional physical goals, a baseline of physical activity is agreed upon and commenced, at a manageable low level of intensity.

Any activity that is titratable is appropriate, including walking, swimming, and the use of exercise machines. These activities can be mixed.

Increments of duration: duration of physical activity/exercise is then increased slowly (10–20%), once every 1–2 weeks.

Increasing intensity: intensity is increased by encouraging the patient to speed up the pace of their walk, increase the resistance on exercise machines or do an activity faster, using their heart rate monitor (HRM) as a guide.

However, increase in intensity is done with care and is likely to be done in stages. It can be useful to build up the intensity by adding in shorter bursts of higher intensity activity to the program; for example, starting with 1 minute of fast walking interspersed with 2 minutes of normal pace.

If increased symptoms occur after an increment, the patient is encouraged to stick at the current level until symptoms reduce, and then increase afterwards. However, activity is mutually reviewed on a regular basis, and plans may be adjusted depending on the patient's general health and symptoms.

SUMMARY OF GET SESSIONS

Session Number	Week No	Time (mins)	Summary	Homework
1	1	90	- Subjective assessment - Engagement in GET model - Education - Start to investigate exercise goals	Activity diary + exercise questionnaire + goal setting
2	2	50	- Goal setting - Education - Review physical activity diary - Negotiate baseline activity - Demonstrate stretches	Baseline physical activity + stretches
3	3	50	- Mutually agreed and prioritised goals - Exercise baseline negotiation	Start exercise baseline + activity baseline + stretches
4	4	50	**GET - Active treatment** - Demonstrate heart rate monitors - Sleep advice for exercise - HR/Borg comparisons - Reviewing exercise record - Planning next session of exercise - Written setback plan - Assessing motivation - Reviewing goals - Preventing/managing setbacks - Muscle relaxation - Maintaining changes - Adding strengthening exercises	Exercise
5	6	50		
6	8	50		
7	10	50		
8	12	50		
9	14	50		
10	16	50		
11	18	50		
12	20	50		
13	22	50	- HR/Borg comparisons - Tail off HRM - Encouraging variety / independence - Plan ongoing exercise	Exercise + variety + independence
14	24	50		
15	36	50	Treatment booster session: - Maintenance of changes - Future goal setting and planning - Discharge	Ongoing exercise + goal setting

KEY:
- Phase 1: Assessment, engagement and treatment planning
- Phase 2: Active treatment
- Phase 3: Ending treatment and preparing for future
- Treatment booster session

Source: Bavinton J, Darbishire L, White PD. PACE manual for therapists: graded exercise therapy for CSF/ME. Final trial version: version 7 (internet), p.31. Accessed 5 March 2015 at http://www.pacetrial.org/docs/get-therapist-manual.pdf

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Tips and challenges

Although GET has been extensively tested in clinical trials, it remains controversial within some support groups.

The PACE trial highlighted a number of clinically important considerations when working, including:

- individualising treatments and a flexible exercise prescription
- encouraging variety and maintaining exercise levels
- encouraging exercise routines and strategies for planning exercise
- the importance of not exceeding the planned level of exercise
- the importance of relying on HR, rather than a sense of effort
- the importance of achieving a healthy balance of exercise.

Compliance

Most trials have found few dropped out of GET, and no more than other treatments.

Increased rest is not recommended

Although exercise can worsen symptoms temporarily, a prolonged lack of exercise can also worsen CFS, therefore increased rest is not recommended and should be strongly discouraged.

Mental health disorders

More than two-thirds of patients with CFS meet diagnostic criteria for mental health disorders such as anxiety disorders, dysthymia or depression. Whether this is due to the CFS or not, it should be treated so that the patient can better manage their CFS.

Many therapies have been tried in CFS but only CBT and graded exercise therapy appear to produce meaningful benefit. However, neither treatment is curative.

Grading

NHMRC Level 1 evidence.

References

White PD, Goldsmith KA, Johnson AL et al.; PACE trial management group. Comparison of adaptive pacing therapy, cognitive behaviour therapy, graded exercise therapy, and specialist medical care for chronic fatigue syndrome (PACE): a randomised trial. Lancet 2011;377:823–36.

Larun L, Brurberg K, Odgaard-Jensen J et al. Exercise therapy for chronic fatigue syndrome. Cochrane Database of Systematic Reviews 2015, Issue 2. Art. No.: CD003200. DOI: 10.1002/14651858.CD003200.pub3

Consumer resources

For patient information about the PACE trial Graded Exercise Therapy, go to www.pacetrial.org, select trial information and then click on 6. GET participant manual.

Chalder T. Coping with chronic fatigue. London: Sheldon Press, 1995. Available in multiple formats from Amazon for approximately $10. www.amazon.co.uk/

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