JOINT PROTECTION AND ENERGY CONSERVATION

Introduction

Pain and fatigue are two of the commonest concerns reported by people with rheumatoid arthritis (RA) \(^1,2\). For people with RA, performing everyday tasks may cause excess load or strain on joint structures already compromised by the disease process. Fatigue further exacerbates problems in managing daily activities. Joint strain can contribute to weakening of joint support structures (ligaments and capsules), increase pain and contribute to the development of deformities \(^3-5\). Joint protection aims to reduce load on vulnerable joints \(^3\) by altering work methods, tasks and the environment as necessary. Energy conservation aims to reduce effort through pacing activities and work simplification. A reduction in the load and effort required to do everyday tasks should theoretically result in less pressure on pain receptors, less irritation of the synovium and thus reduction of localised pain and inflammation. This should also help preserve the integrity of joint structures for longer, helping to limit development of deformities, allowing easier function that can be maintained for longer \(^3,4,6-9\).

Joint protection

Joint protection includes evaluating a person's activities to identify whether the manner in which they use their affected joints contributes to pain and deformity, and then altering working methods, using assistive devices, and modifying tasks accordingly to reduce load and effort \(^4,15\). People with RA should be enabled to continue with or resume their usual activities, with modification as necessary, wherever possible. The aim is to enhance individuals' quality of life in accordance with their standards and priorities.

It is important to be aware that clients may misinterpret the term joint protection and perceive they should be overly protecting joints, leading to a passive lifestyle. It may be better to use a different term with clients, such as joint education, managing or looking after your joints, in order to convey a positive attitude.

Aims:

1. manage and/or reduce pain during activities
2. reduce local inflammation in joints which is caused by mechanical (i.e. internal and external) pressures on joints
3. improve or maintain function
4. help limit the development and/or progression of deformities \(^3,4,6,7,10-12\).

There is evidence that joint protection can significantly improve both short-term \(^13\) and long-term \(^14\) pain, and significantly reduce early morning stiffness and the number of disease flare-ups \(^14\). There is some evidence that local inflammation is reduced \(^14\). Ability to perform activities of daily living is also maintained \(^14\) and made easier \(^8,9,13\). There is no evidence as yet to indicate whether joint protection can affect progress of deformities. Health care utilisation is also reduced (i.e. the numbers of visits to doctors due to arthritis) \(^14\).
Principles:

The following principles are included in joint protection education:

1. distribute load over several joints 6, 10, 12, 16–19
2. reduce the force and effort required to perform activities by altering working methods, using assistive devices and reducing the weight of objects 3, 4, 6, 7, 10, 12, 16, 18–20
3. use each joint in its most stable anatomic and/or functional plane 3, 4, 7, 10, 15, 18
4. avoid positions of deformity and forces in their direction 3, 4, 6, 7, 10, 12, 15–19
5. use the strongest, largest joints available for the job 3, 4, 7, 15, 10, 12, 18, 20
6. avoid staying in one position for too long 3, 4, 7, 10, 15, 20
7. avoid gripping too tightly 17, 19
8. avoid adopting poor body positioning, posture and using poor moving and handling techniques 3, 4, 16–18, 20
9. monitor pain levels and adjust activity accordingly (also referred to as ‘respect for pain’) 3, 4, 6, 7, 10, 15–17
10. maintain muscle strength and range of movement (although exercise is not always a component of joint protection taught by occupational therapists) 3, 4, 6, 7, 12, 16, 17.

Principles are obtained from a consensus of expert opinion in the literature. There is evidence that using two hands (principle 1) and using assistive devices (principle 2) specifically reduce short-term pain 13, 21, 22.

Some experts recommend that, if pain is present at rest, activity should be reduced 4. If pain or discomfort lasts for more than one 7 or two hours 23, activities should be modified. If joint protection is intended as a preventative measure in the earlier stages of RA, it is appropriate to encourage people to make permanent behaviour changes, relevant to the joints affected, in order to ensure joint protection is used sufficiently in daily life for it to have an effect 10, 20. Joint protection programmes emphasising permanent behaviour change demonstrate the most significant improvements in outcomes in evaluations 8, 9, 13, 14. People with RA naturally adopt some joint protection and energy conservation strategies over time in order to manage disease symptoms 25 and joint protection education aims simply to increase the speed and degree of change from an earlier stage.

Exercise has been shown to reduce pain and the number of tender and swollen joints in both active and well-controlled disease 26, 27. Both intensive (e.g. isometric and isokinetic knee exercises) and conservative exercises (e.g. range of movement and isometric exercises) have been tested in these studies. People with RA are generally recommended to balance rest with exercise 4. Exercise, energy conservation and joint protection should be seen as complementary strategies and explained as such to people with RA. Exercise is structured activity using the joints in correct, aligned planes of movement to maintain or increase muscle strength and range of movement. Joint protection enables people to perform everyday activities in correct, aligned planes of movement, avoiding excess joint loading.
Energy Conservation

Aims:

1. reduce fatigue
2. reduce pain
3. increase activity tolerance to achieve greater overall productivity and quality of life without exacerbating pain and fatigue.

Principles:

1. pace activities by balancing rest and activity, alternating heavy and light tasks and performing activities more slowly
2. use work simplification methods, e.g. planning ahead, prioritising, using labour-saving gadgets and delegating to others when necessary
3. avoid activities that cannot be stopped immediately if it proves beyond the person’s ability
4. modify the environment to support ergonomic/joint-protection practices.

Energy conservation is one component of fatigue management. There is some evidence that pacing does increase activity levels but no evidence as yet that is reduces fatigue and pain. This is primarily due to the fact that the few studies to date have been too short, with insufficient numbers. However, pacing is a strategy naturally adopted by people with RA, which indicates its effectiveness.

Teaching Joint Protection and Energy Conservation

Education is provided either individually or in groups. Teaching methods are typically supported by written information. Some 60% of occupational therapists demonstrate methods and 50% provide supervised practice, usually for two sessions over an hour and a half, although often less. Joint protection education increases knowledge of methods. Provision of a booklet only can be just as effective in increasing knowledge of arthritis and joint protection as providing a booklet plus teaching from an occupational therapist, as can self-study methods. Useful booklets are the Arthritis Research Campaign’s Looking after your joints when you have rheumatoid arthritis (2002), and Your home and arthritis (2003).

‘Typical’ education (i.e. relatively short interventions of one to two hours) is relatively ineffective in increasing use of joint protection, and therefore the benefits of joint protection (reduced pain etc) do not result. People with RA use joint protection spontaneously in response to pain and aching and ‘typical’ education can confirm they are doing the right thing, increase perceived benefits of joint protection and motivate them to make some more changes. However, difficulties in altering behaviour include: recalling advice correctly, not considering joint protection to be appropriate as yet, lack of skill, and difficulty changing lifelong habits.

Group education programmes of eight or more hours over four or more sessions, incorporating extensive supervised practice with feedback, goal-setting, homework programmes and supportive literature (books and workbooks), have been shown to be...
more effective in increasing use of joint protection and energy conservation than typical teaching methods. Individual education programmes using such methods have not been evaluated as yet. These group programmes have been provided to people with between 18 months and ten years’ disease duration on average, and had positive effects on behavioural change. Factors influencing the degree of change include increased attendance at programmes and higher rates of homework practice between sessions, and the experience of greater hand pain, suggesting that education should be provided when people have active hand/joint problems, as they are more likely to perceive the potential benefits of joint protection.

On average, 60% of people with arthritis are prepared to attend group education programmes so alternate effective methods of individual or self-study materials need evaluating. Stages of Change theory suggests people go through different stages in their readiness to make health behavioural changes: pre-contemplation, contemplation, preparation, action and maintenance. It may be helpful to identify a person’s degree of adjustment to their disease and readiness to change, and target offering well-constructed booklets, self-study materials and brief motivational interventions at people who are in the earlier stages of change (pre-contemplation, contemplation) to increase their knowledge and perception of the benefits of joint protection and energy conservation. Intensive group education programmes can be offered to people as they demonstrate readiness to change (preparation onwards). The opportunity to attend such programmes should be offered to people on a regular basis (e.g. annually) even if they were previously unwilling to attend, as they may have progressed in their readiness to change or there may previously have been practical barriers preventing attendance (e.g. work, child care, transport).

Education should emphasise ‘doing things differently’ rather than ‘giving things up’. People should be encouraged to remain as active as possible in their everyday activities and engage in physical activity, as people with RA using these positive coping strategies experience less pain, improved function and better psychological wellbeing.

Assessments

The following validated, reliable assessments are available:

Knowledge:

1. Joint Protection Knowledge Assessment – 20 multiple-choice questions
2. ACREU Rheumatoid Arthritis Knowledge Questionnaire – 31 questions including seven on joint protection and energy conservation
3. Arthritis Knowledge Questionnaire – 41 questions, some on joint protection and energy conservation
4. Patient Knowledge Questionnaire – 20 multiple-choice questions (five on joint protection and energy conservation)

Behaviours:

1. Joint Protection Behaviour Assessment – observation of kitchen activities (clinic- or home-based)
2. Brief Observation of Joint Protection – observation of watering a plant (clinic-based)
3. National Institutes of Health Activity Record – a self-report profile of two days’ activities in half-hour sections, recording body position, activity type, pain, fatigue and rest. This can also be used as a teaching tool to help people identify patterns of activity/rest, which activities are more painful, and periods of fatigue, in order to facilitate change.
Guidelines

1. Joint protection can reduce pain, early morning stiffness, disease flare-ups and help maintain functional ability in the long term, and should be offered to all people with RA \(^{14}\). \((\text{II++})\)

2. Energy conservation (e.g. pacing and work simplification) can increase activity levels and should be encouraged in all people with RA \(^{28,29}\). \((\text{II+})\)

3. Introductory joint protection and energy conservation education can be as effectively provided in well constructed education booklets or self-study materials to increase knowledge of the benefits of joint protection and a range of methods, as in face-to-face contact with an occupational therapist \(^{31,33}\), if necessary. These materials should be made available to people with RA. \((\text{II+})\)

4. Education should be supported with well constructed, professional information booklets (e.g. the Arthritis Research Campaign’s Rheumatoid Arthritis, Looking after your Joints and Your Home and your Rheumatism). \(\checkmark\)

5. Education using educational–behavioural methods (e.g. extended supervised practice, workbooks, goal-setting and homework programmes) in group programmes of eight hours or more is significantly more effective in increasing use of joint protection and energy conservation than ‘typical’ short-term education \(^{13,14,28,29,36,37}\). This method is also more effective than ‘typical’ education in reducing pain and other disease symptoms and maintaining functional ability \(^{15}\). It should therefore be provided in all departments where possible. \((\text{II++})\)

6. It may be more effective to teach joint protection when people already have some degree of pain/joint problems affecting functional ability than when the disease is in remission or having minimal effects \(^{24}\). \((\text{III+})\)

7. People with RA should be encouraged to use two hands to distribute load and use relevant assistive and labour-saving devices to reduce pain \(^{13}\). \((\text{III++})\)

8. People with RA should be encouraged to continue with and/or resume their normal activities as far as possible \(^{41}\), with modifications and pacing as necessary. \((\text{IV+})\)

9. Recommended principles should be taught (see above). \(\checkmark\)

10. People with RA should be offered repeat opportunities to attend group joint protection education programmes if they are not initially ready or able to do so. \(\checkmark\)

11. People with RA should be encouraged to make permanent behaviour changes, not just when the disease is active. \(\checkmark\)

12. Joint protection education should be relevant to the needs of the person, their interests (e.g. it may be helpful to teach in age-related groups) and which joints are affected (e.g. hands, neck, knees, etc). \(\checkmark\)
13. Joint protection should be taught in association with exercise (including hand exercises) and other approaches (e.g. splinting), to maintain joint health. The complementary nature of joint protection, exercise and energy conservation should be emphasised.

14. People with RA should be informed of where they can access assistive devices from public and private sources.

15. Joint protection education can be offered to other people with inflammatory types of arthritis, with similar joints affected, alongside people with RA.
References


5. Smith EM, Juvinal RC, Bender LF, Pearson JR, Flexor forces and rheumatoid metacarpophalangeal deformity. *Journal of the American Medical Association* 198(2). (IV+)


   (III Orthotics and Hand Actions; IV++ Retrospective Review of Education Programme)


Arthritis Research Campaign (2002) *Looking after your joints when you have rheumatoid arthritis*. Derbyshire: ARC