Role of exercise for cancer rehabilitation in UK hospitals: a survey of oncology nurses

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A growing body of evidence indicates the potential benefits of exercise for cancer patients but little is known about exercise promotion within cancer services. A postal survey of oncology nurses in UK hospitals was conducted to ascertain the extent to which exercise has a role in cancer care. The survey design was based on the Total Design Method leading to a completed sample of 221 (62% response rate). Nineteen hospitals (9%) offered some kind of exercise programme or class for patients. In a further 17 (8%), there were other opportunities for exercise available (e.g. an exercise bicycle for inpatients). Sixty-five per cent of nurses were in favour of the notion of providing a specific exercise rehabilitation service for patients. Scarce resources and lack of awareness and expertise were identified as common barriers to establishing such a service. Fifty-eight per cent of nurses were unaware of, or unfamiliar with the published research on exercise for cancer rehabilitation and 33% reported receiving no training relating to exercise and health. The survey results indicate that some hospitals include exercise in the services offered to patients and that the majority of nurses favour adopting exercise as a rehabilitation intervention. However in general, the use of exercise within cancer care in the UK is currently rare.

Keywords: cancer, rehabilitation, exercise, physical activity, nursing.

BACKGROUND
A growing body of evidence indicates the potential benefits of physical exercise for improving quality of life for patients undergoing treatment for cancer (Smith 1996; Courneya & Friedenreich 1999a; Pinto & Maruyama 1999; Courneya et al. 2000; Courneya 2001). Several randomized trials have demonstrated that patients participating in exercise programs maintain a higher level of physical function and suffer less from psychological distress, fatigue and other treatment-related symptoms than control patients during chemotherapy or radiotherapy (Winningham & MacVicar 1988; MacVicar et al. 1989; Mock et al. 1994, 1997, Dimeo et al. 1997; Segal et al. 2001).

Despite the apparent value of exercise for patients receiving cancer therapies, only a minority of them report engaging in regular physical activity during treatment (Courneya & Friedenreich 1997, Wyatt et al. 1999; Jones & Courneya 2002a). Cancer-related fatigue is one of the main barriers to exercise for patients [MacVicar & Winningham 1986], and patients suffering fatigue have been traditionally advised to rest (Curt 2001; Winningham 2001). However, exercise is now included in the clinical practice guidelines for fatigue of the National Comprehensive Cancer Network in the United States (Mock 2001).

Little is known about the degree to which exercise is actually promoted as an aid to rehabilitation among cancer patients. North American studies suggest that exercise is not even mentioned in the majority of cancer treatment consultations [Young-McCaughan & Sexton 1991; Denmark-Wahnefried et al. 2000; Jones & Courneya
2002b), and when it is, the subject is often initiated by the patient. Yet, the majority of cancer survivors report that they would have welcomed information on exercise at the time of their diagnosis [Denmark-Wahnefried et al. 2000; Jones & Courneya 2002a]. Furthermore, in studies of breast cancer patients, a physician’s recommendation to exercise or the perceived approval of the physician was associated with greater levels of physical activity [Segar et al. 1998; Courneya & Friedenreich 1999b; Courneya et al. 2001], suggesting that health care professionals may have an influential role in promoting exercise among their patients.

Even less is known about exercise promotion within cancer care in the United Kingdom, where the subject of exercise for cancer rehabilitation has so far received little research attention. Since the publication of the ‘Policy Framework for Commissioning Cancer Services’ (Department of Health 1995) and the National Cancer Plan (Department of Health 2000), greater emphasis has been given to the rehabilitative and psychosocial needs of patients within cancer services. However, exercise is not mentioned in either of these documents in relation to patient care. The aim of this study was to ascertain the extent to which exercise has a role in the cancer services available in the UK by conducting a postal survey of oncology nurses.

**METHOD**

**Sample**

The survey population was defined as National Health Services hospitals that provide cancer services in the UK. The sample frame was derived from the listings in ‘Cancer Care 2001/02 – A Comprehensive Review of Diagnostic and Screening Services Treatment Centres and Palliative Care Services within the United Kingdom’ (Cambridge Cancer Research Fund 2001). With regard to respondent selection, oncology nurses were considered the most appropriate members of staff to receive the questionnaire for this survey because they have the greatest involvement in patient care and rehabilitation. All hospitals for which an oncology nurse was listed were included in the sample.

**Survey design**

The survey was based on key elements of the Total Design Method [Dillman 1978, 2000] – a systematic approach to the entire process of designing and implementing a survey. The theoretical basis of the Total Design Method lies in the principles of social exchange theory [Thibaut & Kelley 1959; Homans 1961; Blau 1964], which suggests that human behaviour is motivated by the interaction of perceived costs and rewards. The aim is to optimize the quality and quantity of survey response through careful design of the survey instruments and procedure in order to minimize the burden on respondents [reducing social costs] and maximize their motivation to respond [increasing social rewards].

Instead of relying simply on the altruism of respondents to complete the questionnaire, the Total Design Method is based on a broad exchange relationship. It requires convincing respondents that the survey is addressing a problem with which they identify, and that by completing the questionnaire, they contribute to the solution of that problem. The perceived rewards for participants from this form of social exchange are more important for encouraging questionnaire completion than providing monetary incentives in return for responding, which would represent an economic exchange.

**Survey instrumentation**

According to the Total Design Method, the cover letter accompanying the questionnaire is crucial for determining whether the recipient responds to the survey. The letter conveys the critical message that the survey is important and the respondent’s participation is vital for its success. There is an emphasis on personalization – the effect of making the respondents feel that they have been accorded individual attention. This is achieved through the wording of the letter and aspects of its appearance. For example, in this survey, each covering letter was individually signed by the researcher, and an accurate date and the name and address of the recipient were printed at the top.

The questionnaire is presented in Fig. 1. Shortness and simplicity were considered essential for increasing the likelihood that busy oncology nurses would make time to complete it. Close-ended questions with response categories were used with space provided alongside for optional additional comments. The primary aim of the survey was to discover whether exercise featured among the services provided for patients or not. Hence, question one asked about the availability of a range of patient services including those relating to exercise. Secondary aims included the attempts to determine levels of familiarity with the evidence base on exercise and cancer rehabilitation, levels of training on exercise and health, and attitudes towards provision of an exercise rehabilitation service. These were addressed by questions two to five. Questionnaires were coded to allow follow-up of nonresponders, but partici-
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Figure 1. Copy of questionnaire.

pants could ensure total anonymity by tearing off the code from the top right corner.

Procedure

Ethical approval for the survey was provided by the South-west Multi-centre Research Ethics Committee. The first mailing consisted of the covering letter, questionnaire and reply envelope and was sent to all potential participants by first-class mail. A pre-printed postcard was sent to the same individuals exactly 1 week later thanking those who had responded and prompting those who had not. The final mailing was sent only to nonresponders 3 weeks after the first mailing and comprised a revised covering letter and a replacement questionnaire and reply envelope. High quality official University stationary was used for all mailings and real stamps were affixed to outgoing and reply envelopes rather than using bulk mailing procedures. These details add to the impression of importance and personalization and have been demonstrated to increase response rates (Edwards et al. 2002; Gore-Felton et al. 2002).

RESULTS

Survey response

Of the 354 questionnaires sent, 14 were returned undelivered by the postal service due to the addressee being
unknown. A further 14 were returned uncompleted by hospital administrative staff because the intended recipient had retired (n = 3), died (n = 2), left the post (n = 4) or was not known (n = 5). Three questionnaires were returned uncompleted with a note indicating that the subject of the questionnaire was not relevant to the recipient. Twenty others were returned uncompleted with no explanation. Seven questionnaires were completed anonymously with the code removed. A total of 221 completed questionnaires were received, hence results are based on 62.43% of the original sample.

**Patient services**

Hospitals providing cancer care had additional services available for their patients including physiotherapy, clinical psychology, occupational therapy, dietetics, support groups, information resources and complementary therapy (Table 1). For exercise-related services, the comments from a number of respondents revealed that their responses referred to physiotherapy exercises (e.g. for postsurgery mobility, lymphoedema prevention, pelvic floor muscles). These were excluded because they were already represented under physiotherapy.

Nineteen [8.6%] hospitals provided some kind of exercise programme for patients. The 16 hospitals that provided further detail are presented in Table 2. Ninety-two [41.6%] respondents indicated that advice regarding exercise was provided to patients. Additional comments suggested that advice was usually provided by a physiotherapist or nurse, although other staff (e.g. occupational therapist, oncologist, surgeon) were also identified. Seven respondents referred specifically to advice about exercise and fatigue. The remainder referred to the importance of physical activity during and after treatment and for helping with general health, coping and performing activities of daily living. Seventy-seven [34.8%] hospitals had information resources about exercise available for patients. These were typically in the form of information leaflets, booklets, books and videos. Nineteen respondents sent samples of these materials with the questionnaire (Table 3). Seventeen [7.7%] hospitals provided other opportunities for patients to exercise (Table 4).

**Familiarity with evidence base and training in exercise promotion**

Figure 2 displays the respondents’ reported levels of familiarity with the evidence on exercise for cancer rehabilitation and of training in exercise for health promotion. One hundred and twenty-nine [58.4%] respondents reported their familiarity with the evidence base as none or low. Forty-one [18.6%] were unaware of the existence of published research on the subject, while a further 88 [39.8%] were unfamiliar with the general findings of existing research.

### Table 1. Services available to cancer patients through UK hospitals (n = 221)

<table>
<thead>
<tr>
<th>Services</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical psychology</td>
<td>129 (58.4%)</td>
</tr>
<tr>
<td>Occupational therapy</td>
<td>180 (81.5%)</td>
</tr>
<tr>
<td>Dietetics</td>
<td>198 (89.6%)</td>
</tr>
<tr>
<td>Complementary therapy</td>
<td>163 (73.8%)</td>
</tr>
<tr>
<td>Support groups</td>
<td>180 (81.5%)</td>
</tr>
<tr>
<td>Information resource</td>
<td>179 (81.0%)</td>
</tr>
<tr>
<td>Others (e.g. social services)</td>
<td>171 (77.4%)</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>198 (89.6%)</td>
</tr>
<tr>
<td>Exercise professional</td>
<td>5 (2.3%)</td>
</tr>
<tr>
<td>Exercise programme</td>
<td>19 (8.6%)</td>
</tr>
<tr>
<td>Exercise advice</td>
<td>92 (41.6%)</td>
</tr>
<tr>
<td>Exercise resources</td>
<td>77 (34.8%)</td>
</tr>
<tr>
<td>Other exercise opportunities</td>
<td>17 (7.7%)</td>
</tr>
</tbody>
</table>

### Table 2. Exercise programmes provided for cancer patients through UK hospitals

- Aqua aerobics (n = 5)
- Yoga/Pilates (n = 3)
- Exercise class (n = 3)
- Post-treatment exercise programme (n = 2)
- Walking programme (n = 1)
- Multifaceted rehabilitation programme including exercises, swimming and tai chi (n = 1)
- Chair-based exercise programme for palliative care patients (n = 1)

### Table 3. Exercise-related information resources sent by respondents

- Fatigue leaflet/booklet (n = 2)
- Flyer about exercise class (n = 1)
- ‘Going Home’ booklet (n = 1)
- ‘Breathlessness in lung cancer’ booklet (n = 1)
- Complementary therapies booklet (n = 1)
- Leaflet about drop-in center (n = 1)
- Leaflets/booklets on physiotherapy exercises (n = 12)

### Table 4. Other exercise opportunities available to cancer patients through UK hospitals

- Exercise bicycle (n = 4)
- Opportunities at local day hospice (n = 4)
- Local fitness suite/leisure centre (n = 9)
- Tai chi (n = 2)
- Hospital gym (n = 1)
- Annual outdoor adventure holidays (n = 1)
- Information about local swimming pools and health clubs (n = 1)
- Good walking environment around cancer centre – woods and paths (n = 1)
- Speakers about fitness and Pilates (n = 1)
research. Similarly, 196 (88.7%) reported that professional training did not cover exercise for health promotion in any way or was low in this respect (e.g. one lecture).

Attitudes to provision of service

One hundred and forty-three (64.7%) respondents answered ‘yes’ when asked if, under ideal circumstances, a specific rehabilitation service relating to exercise should be available to cancer patients (e.g. one to one counselling with an exercise professional and/or access to an exercise facility with other cancer patients). Eight (3.6%) answered ‘no’ and 63 (28.5%) were uncertain. Lack of expertise, awareness and resources were cited as common barriers to establishing a specific exercise rehabilitation service (Table 5).

Table 5. Barriers to establishing a specific exercise rehabilitation service

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of awareness of potential benefit</td>
<td>123 (55.7%)</td>
</tr>
<tr>
<td>Lack of expertise within unit</td>
<td>119 (53.9%)</td>
</tr>
<tr>
<td>Lack of available resources</td>
<td>168 (76.0%)</td>
</tr>
<tr>
<td>Others</td>
<td>22 (10.0%)</td>
</tr>
<tr>
<td>• Not appropriate for some patients [n = 6]</td>
<td></td>
</tr>
<tr>
<td>• Risks for some patients [n = 1]</td>
<td></td>
</tr>
<tr>
<td>• Patients too ill or live too far away [n = 1]</td>
<td></td>
</tr>
<tr>
<td>• Compliance would be poor during treatment [n = 1]</td>
<td></td>
</tr>
<tr>
<td>• Insufficient patients to justify dedicated service [1]</td>
<td></td>
</tr>
<tr>
<td>• Lack of interest from staff [n = 2]</td>
<td></td>
</tr>
<tr>
<td>• Insufficient evidence [n = 3]</td>
<td></td>
</tr>
<tr>
<td>• Structured service not necessary [n = 5]</td>
<td></td>
</tr>
<tr>
<td>• Cultural &amp; language barriers [n = 1]</td>
<td></td>
</tr>
<tr>
<td>• Organisational structure [n = 1]</td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION

The results of this survey suggest that exercise has a role in the cancer care provided in some UK hospitals, but not the majority. Nine per cent of those sampled offered some kind of exercise programme or class for patients. In a further 8%, there were other opportunities for exercise available, such as an exercise bicycle for inpatients. Over one-third reported that resources and/or advice regarding exercise were provided.

Although less common than conventional patient services, it is encouraging that the importance of exercise for rehabilitation is being recognized in some institutions. Furthermore, the majority of nurses who responded were in favour of the notion of providing an exercise rehabilitation service. Inevitably, the lack of resources was perceived as the most common barrier to actually establishing such a service, but over half of the respondents also cited lack of awareness or expertise. This is perhaps a reflection of the role of exercise promotion for health within the nursing profession in the UK generally. One-third of the sample reported receiving no training relating to exercise for health and over half reported minimal training. Over half of the nurses in the sample were either unaware of, or unfamiliar with, the published evidence relating to exercise and cancer rehabilitation.

This lack of awareness may explain the responses of some nurses who evidently perceived exercise interventions to be synonymous with physiotherapy. This was despite the questionnaire instructions defining exercise and giving examples. Although there is undoubtedly some overlap, the goals of exercise programmes are wider reaching than those of physiotherapy, as indicated by the comments of some respondents (e.g. ‘there is a need for more than just a focus on mobility as with physiotherapy’). In the short term, exercise helps to preserve physical function, manage treatment-related symptoms and enhance psychological well-being. In the longer term, the adoption of a physically active lifestyle helps maximize health-related quality of life and prevent chronic disease such as obesity and osteoporosis. Studies from North America suggest that patients are generally receptive to health promotion interventions soon after diagnosis (Denmark-Wahnefried et al. 2000, Jones & Courneya 2002a), although it is unclear whether provision of self-help materials are sufficient or more intensive programmes are required to encourage lifestyle changes (Pinto et al. 2000). A survey of cancer patients in Canada suggested that most would have preferred to receive exercise counselling face
to face from an exercise specialist affiliated with a cancer unit. Only seven per cent would have preferred written materials [Jones & Courneya 2002a].

Several of the nurses in the present survey commented that provision of exercise could best be achieved within a multidisciplinary rehabilitation service aimed at targeting the varying needs of patients. This kind of model was advocated by Smith [1996], a clinical oncology nurse at the National Institutes of Health in Bethesda, Maryland, US. She reviewed the evidence for physical exercise as an oncology nursing intervention and argued that exercise protocols, similar to mouthcare and antiemetic regimes, could be developed and incorporated into the care plans for patients by a collaborative team with expertise in clinical oncology, physiotherapy, nutrition and exercise science. Durak [2002] made similar recommendations, suggesting that a comprehensive oncology rehabilitation programme should include an exercise specialist along with an occupational and physiotherapist, dietitian, psychologist, and social worker. Although such a scenario might be ideal for patient care, it is unlikely to be realistic for most hospitals in the UK, given serious competition for limited resources. It appears though to be compatible with the principles of the Department of Health report on commissioning cancer services [Department of Health 1995] regarding the development of networks of expertise and integration of services to ensure best possible care for all patients.

The increasing consideration given to the rehabilitative and psychosocial needs of patients since the National Cancer Plan [Department of Health 2000] suggests that there may be scope for the inclusion of exercise within cancer services. The potential of exercise to impact on the physical/functional as well as psychosocial problems of patients, suggests that it could make a valuable contribution to patient care along with other existing quality of life interventions such as psychological and complementary therapies.

In conclusion, the results of this survey suggest that some hospitals include opportunities and advice regarding exercise within the services offered to patients. Furthermore, the majority of nurses favour adopting exercise as a rehabilitation intervention. However in general, provision of exercise within cancer care in the UK is currently rare. Lack of resources was identified as the most common barrier.

ACKNOWLEDGEMENTS

This work was funded by Cancer Research UK [CUK] grant number C3875/A3887.

REFERENCES

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