



# Obstetric fistula: The role of physiotherapy: A report from the Physiotherapy Committee of the International Continence Society

Gill Brook MCSP (DSA)CSP, MSc<sup>ID</sup> | The ICS Physiotherapy Committee

International Organization of Physical Therapists in Women's Health, Burras Lynd, Otley, West Yorkshire, United Kingdom

## Correspondence

Gill Brook, Burras Lynd, Burras Lane, Otley, West Yorkshire, LS21 3ET, United Kingdom.

Email: gill.brook@lineone.net

**Aims:** To discuss the role of physiotherapy in the management of women who have suffered an obstetric fistula, referring to research findings when appropriate and available, and the experiences of clinical specialists in the field.

**Methods:** The experiences of physiotherapists who have worked in countries where obstetric fistula is prevalent, and the limited literature available, were considered in producing this consensus document on behalf of the ICS Physiotherapy Committee.

**Results:** The role of physiotherapy both pre- and post-fistula repair was identified, and is multi-faceted. Women may have general rehabilitation needs based on the obstructed labor itself and subsequent care. All affected women may benefit from pelvic floor muscle assessment, education and exercises to optimize the outcome of their surgery; further pelvic floor physiotherapy may be indicated for those who experience persistent genitourinary dysfunction following closure of the fistula.

**Conclusions:** Further robust research is required to confirm the effectiveness of physiotherapy in the management of women who have suffered an obstetric fistula and the optimum development of such services. Based on the available literature and the experience of physiotherapists in the field, there was consensus within the ICS Physiotherapy Committee that patient outcomes can be improved if physiotherapy is provided as part of the multidisciplinary team. Physiotherapy should not be overlooked when fistula services are being developed.

## KEY WORDS

physiotherapy, rectovaginal fistula, vesicovaginal fistula

## 1 | INTRODUCTION

Although accurate figures are not available, it has been estimated that 50 000–100 000 women develop an obstetric

Diane Newman led the peer-review process as the Associate Editor responsible for the paper.

In line with the journal's guidance on Author Contributions, members of the ICS Physiotherapy Committee who commented on the draft document are listed in the Acknowledgments section.

fistula as a result of obstructed labor each year while several million women live with the effects of the injury.<sup>1</sup>

The role of physiotherapy in the management of women who have suffered an obstetric fistula (OF) has been recognized by previous authors.<sup>2–4</sup> A physiotherapist brings specific knowledge and skills, contributing to quality of care and optimum outcomes. This paper will discuss the role of physiotherapy, referring to research findings when appropriate and available, and the experiences of clinical specialists in the field (see Acknowledgments). It will be neither an

exhaustive list of services, nor prescriptive, but should offer an overview of current and potential physiotherapy provision. The role will be discussed in terms of general rehabilitation, and specific pelvic floor physiotherapy.

## 2 | ROUTINE PHYSIOTHERAPY ASSESSMENT

Physiotherapy assessment (Appendix 1) may be undertaken pre- or post-repair and should be patient specific.<sup>2</sup>

## 3 | GENERAL PHYSICAL REHABILITATION

Although some women will present in relatively good general health, in countries where OF is prevalent, others may be experiencing general weakness, walking difficulties, foot drop, or joint contractures. These may be associated with the obstructed labor itself or management during the postnatal period when it is not uncommon for women to lie down for prolonged periods in the hope that their incontinence will stop. Timely physiotherapy is indicated to address these dysfunctions.

### 3.1 | Foot drop and contractures

Foot drop has been reported in up to 30% of women following OF in Ethiopia<sup>5</sup> with both a lower<sup>6</sup> and higher<sup>7</sup> incidence noted elsewhere. If left unattended, and compounded by a lack of mobilization, it can result in not only ankle but other lower limb joint contractures. It is probably due to compression of the lumbosacral nerve trunk within the pelvis during the obstructed labor, or peroneal nerve injury related to prolonged squatting.<sup>8</sup> Foot drop may vary from “simple” (no tightness of the Achilles tendon and full passive dorsiflexion) through to “severe” where passive dorsiflexion is severely limited, and the woman may walk on her toes. The goals of physiotherapy will be to prevent or reduce joint contracture, facilitate muscle activity, enable independent mobility, and independence in activities of daily living. In complex cases, and subject to availability, serial casting or even surgery may be needed if more conservative measures fail.

Functional electrical stimulation (FES) has been used in the management of foot drop for many years and has been shown to be both effective and preferred by some patients (following stroke) when compared to use of an orthosis.<sup>9</sup> However, it may not be an option due to a lack of equipment or suitably skilled staff.

Tennfjord et al<sup>6</sup> found that walking difficulties were common in women with OF, who demonstrated decreased ankle and knee range of movement, but increased hip movement and muscle strength, possibly due to

compensatory adaptation. There were no recommendations on physiotherapy to address these findings, but a treatment program can be developed to meet the specific needs of the woman with focus on recovery of her ability to carry out the activities of daily living necessary for post-operative reintegration into her community.

### 3.2 | General weakness

As a result of prolonged immobility, with resultant muscle atrophy ± poor nutrition and comorbidities, women can experience general weakness and deconditioning. The goals of physiotherapy will be to improve muscle strength and function, exercise tolerance, mobility, and ability to undertake activities of daily living.

For women with such physical rehabilitation needs it is difficult to accurately predict how long recovery will take or how complete it will be, particularly in the case of foot drop or contracture. It is not an area that has been researched to date. Whereas a woman with simple foot drop may be fit for surgery and subsequent discharge very quickly (albeit with an altered gait if the loss of ankle dorsiflexion does not resolve), a woman with marked joint contractures may require many months of treatment both pre- and post-operatively.

Although pre-operative rehabilitation may help ensure that a woman is fit to go home soon after surgery, there are undoubtedly women who will benefit from physiotherapy post-operatively to enhance their physical recovery.

### 3.3 | Group exercises

While some treatments will require one-to-one attention from the physiotherapist, much can be undertaken satisfactorily in a group of women with similar impairments and rehabilitation needs. This is not only an efficient and cost-effective use of a healthcare professional's time, but also an opportunity for women to meet other patients—possibly at different stages of recovery—and share common experiences and concerns.

Exercise interventions will depend very much on the rehabilitation needs and physical capabilities of the women concerned, facilities, and the equipment available, plus the knowledge and skills of the clinicians involved. An exercise program should be developed with consideration of the available evidence and best practice at the time. It may be appropriate to include warm-up and stretch, posture correction, and a range of exercises that could include medium level aerobic, balance, muscle strengthening, mobility, and functional activities.

### 3.4 | Activities of daily living

Physiotherapy should always consider the needs of the individual, including their social circumstances. In

countries where OF is prevalent, many women undertake heavy work on a daily basis at home and in employment, so rehabilitation should integrate appropriate functional activities such as lifting and carrying. Women who have suffered an OF will almost inevitably have sub-optimal function of their pelvic floor and associated muscles in addition to any of the impairments previously described. Therefore the importance of correct body mechanics should be emphasized to optimize recovery, facilitate a return to normal activities, and reduce the risk of further injury or dysfunction.

## 4 | PELVIC FLOOR PHYSIOTHERAPY

Women who have suffered an OF may benefit from pelvic floor assessment, advice, and treatment (if required) before undergoing surgical repair. Research has indicated that there can be an improved outcome of surgery both in terms of successful closure of a vesicovaginal fistula and reduced risk of persistent urinary incontinence<sup>10</sup> if women are taught a correct pelvic floor muscle (PFM) contraction and advised to practice pelvic floor muscle exercises (PFME). Other researchers<sup>11</sup> have recommended pre-operative assessment although most of their study population were first seen following fistula repair.

PFME should be preceded by a digital vaginal examination to ensure that the correct muscles are being contracted.<sup>10</sup> There are no standardized instructions on how a PFM contraction should be taught but researchers have suggested<sup>12</sup> that a directive to tighten as if stopping the escape of wind (gas), ± as if to hold in urine, produces the correct action. During examination, the clinician can also assess PFM function more extensively (eg, tone, relaxation) plus the condition of the vagina and surrounding structures. The anatomy and tissues may look and feel very different from those of women previously examined by physiotherapists who work in countries where obstructed labor is never or rarely allowed to progress. It may be difficult or impossible to feel or identify some structures. This can be dependent on the site and extent of the fistula, plus the length of time which has elapsed since the injury occurred. Digital anorectal examination may be indicated, particularly if the vagina is very scarred.

There is no universally agreed optimum regime for PFME.<sup>13</sup> In studies of an OF population, Keyser et al<sup>11</sup> used the PERFECT assessment tool<sup>14</sup> and advised on a personalized exercise regime. Castille et al<sup>10</sup> advised on 5 s contractions, carried out for 10 min twice a day. Another author<sup>2</sup> suggested women exercise within their own capability, increasing the length of hold and number of repetitions as muscle strength improved.

A voluntary PFM contraction just before and during a cough, referred to as "The Knack,"<sup>15</sup> has been shown to reduce leakage significantly in women with stress urinary incontinence. It might also be prudent to teach "The Knack"<sup>15</sup> to women following OF; with coughing, other increases in intra-abdominal pressure, and with urinary urgency, to minimize the risk of leakage and reduce pressure on the pelvic floor.

In addition to PFME, Castille et al<sup>10</sup> advised women on measures to reduce pressure on their pelvic floor and repair site, with posters on display within the healthcare facility to reinforce this message. The poster included diagrams of tasks which should be avoided and a good lifting technique among other pictorial advice. This is a potentially useful measure in any center where women with OF are treated.

## 5 | RECTO-VAGINAL FISTULA

In a study of 14 928 Ethiopian women with OF, 13.5% had a recto-vaginal defect.<sup>16</sup> The vast majority had also suffered a uro-vaginal fistula. Therefore, physiotherapists working in this field will encounter women who are experiencing not only urinary incontinence, but also loss of stool. A digital anorectal examination may be indicated, to assess not only the pelvic floor muscles but also external anal sphincter function, and to advise on appropriate exercises. As with persistent urinary incontinence post-repair of a vesico-vaginal fistula, physiotherapy should be offered to women with persistent anal incontinence following repair of their recto-vaginal defect. Exercises and adjunct modalities such as biofeedback or neuromuscular stimulation (if indicated and available) may be appropriate.

## 6 | EARLY POST-OPERATIVE PHYSIOTHERAPY

Although post-operative care may vary from center to center, early mobilization is common practice, minimizing the risk of respiratory and circulatory complications related to prolonged bed rest. Women who are not able to mobilize within the first few days post-operatively may benefit from physiotherapy including appropriate positioning in bed and lower limb exercises. Following abdominal surgery physiotherapy may be required to prevent impaired lung function and retention of secretions. In relation to existing musculoskeletal dysfunctions, it should be possible to continue with much of the physiotherapy started pre-operatively.

If women experience constipation, possibly as a result of post-operative dietary modification and immobility, then abdominal massage may help stimulate peristalsis and increase frequency of bowel movements, in addition to advice on an adequate diet and fluid intake. It is easily taught

and no adverse side-effects have been reported.<sup>17</sup> In the case of complex fistula surgery, it would be prudent to seek the opinion of the fistula surgeon if massage is considered within the early days post repair.

In the absence of any evidence in support or against the re-introduction of PFME post-operatively with a urinary catheter in situ, practice will be determined by the opinion of local medical and physiotherapy staff.

## 7 | PERSISTENT URINARY DYSFUNCTION

Despite successful repair of vesico-vaginal fistula in up to 95% of women<sup>18</sup> a considerable number will experience persistent urinary incontinence.<sup>3,19</sup> It may be difficult to differentiate between different types of incontinence because of the complexity of the patient's condition and the frequent lack of access to investigations such as urodynamics. However, it is likely that any can occur.<sup>20</sup> The lack of a differential diagnosis is no barrier to physiotherapy assessment and treatment.

Pelvic floor muscle training (PFMT) is recommended as a first line intervention in the management of women with urinary incontinence.<sup>13</sup> Arguably, it might be less effective with women following vesico-vaginal fistula because of severe damage to the continence mechanism suffered as a result of their obstructed labor.<sup>21</sup> However, Dietz et al,<sup>22</sup> in a study of 95 women in Addis Ababa before or shortly after vesico-vaginal fistula repair, found that PFM anatomy and function was no more likely to be abnormal than in a general urogynaecological population. Ninety-one of the 95 women were able to contract the muscles voluntarily, suggesting that PFMT is feasible. Two recent studies showed a positive effect from pre- and post-operative physiotherapy in terms of the incidence of post-operative urinary incontinence<sup>10</sup> and improved PFM strength and endurance with a reduction of incontinence in more than 70% of those undergoing treatment.<sup>11</sup> In one follow-up study, improvement was maintained at 1 year with a significant improvement in quality of life scores.<sup>23</sup>

PFMT has previously been described and should be strongly encouraged with women experiencing persistent urinary incontinence following their fistula repair. It should be preceded by a digital vaginal examination with attention to the anatomy of the lower genito-urinary tract which will probably have changed significantly following surgery. A minimum of 3 months PFMT has been recommended in a general population.<sup>24</sup> It has been suggested that supervised training<sup>13,24</sup> or more sessions with a healthcare professional<sup>25</sup> are beneficial but this may be impractical in many settings where women have traveled far to seek treatment and wish to go home at the earliest possible opportunity. Internal

hands-on soft tissue therapy may also be appropriate if the physiotherapist concerned is sufficiently skilled.

In many countries adjunct therapies such as biofeedback or neuromuscular stimulation are offered to some women in addition to PFMT. A digital vaginal examination and verbal encouragement is a simple form of feedback that should be widely or universally available to women who give their consent. Beyond that, biofeedback comes in many forms as does neuromuscular electrical stimulation. There are undoubtedly barriers to the use of such equipment in the countries where OF is most prevalent. Equipment and consumables may be prohibitively expensive, if they are even available. Infection control and essential maintenance are additional challenges. Even if these barriers can be overcome, any form of intravaginal treatment will be unsuitable for a considerable number of women because of a lack of capacity within the vagina.

Many women have a reduced bladder capacity following repair of their vesico-vaginal fistula.<sup>20</sup> This may well result in urinary frequency, increased bladder sensation, and/or urinary urgency, which may be accompanied by incontinence. The medical team concerned may offer guidance on prompted voiding following removal of the catheter post-operatively and this should be respected. Bladder training has been recommended as first line management of urgency or mixed urinary incontinence<sup>13</sup> although there is an absence of evidence to demonstrate its effectiveness with this patient population. Advice can be given on deferment of micturition in small increments in order to increase the bladder's functional capacity to a point where it has less of a major impact on a woman's lifestyle.<sup>2,11</sup> Suppression of micturition, for example, sitting down or standing still, distraction, manual pressure on the perineum, or a PFM contraction<sup>2,11</sup> might be advised and guidance on appropriate fluid intake given.

Within developed countries, symptoms of an overactive bladder are commonly assessed by completion of a bladder diary completed over a minimum of 3 days.<sup>24</sup> In some countries where OF occur, these are unlikely to be practical, in part due to low literacy levels. A simple method whereby women tear off a piece of paper and place it in an envelope (supplied to them for that purpose) each time they pass urine has been described as a useful alternative<sup>26</sup> although it provides less detail than a measured input/output chart.

If there is evidence, or even a suspicion of incomplete bladder emptying (which can in turn contribute to urinary frequency and urgency), women can be advised on double or triple voiding which may result in more complete bladder emptying.<sup>11</sup> Intermittent self-catheterization may be appropriate, taught by a suitably skilled clinician.

Some women will undoubtedly remain incontinent. Intravaginal continence devices may be unsuitable for many; therefore, it is essential that low cost, accessible containment products are available locally to improve the

quality of life of those affected; a need that has been recognized and prioritized by the World Health Organization.<sup>27</sup>

Despite persistent urinary symptoms, it is likely that many women will return home following surgery if they are otherwise well. Reviewing a group of women at a 6-month follow-up, Browning and Menber<sup>28</sup> reported a trend for those who were incontinent at discharge to improve over time. Castille et al<sup>10</sup> followed up women (using local nurses) at 3, 6, and 12 months but this would undoubtedly be a logistic and financial challenge in some countries. It is good practice to encourage post-operative follow-up to assess the long-term outcomes of fistula surgery, and physiotherapy should be available for those women with persistent urinary or musculoskeletal dysfunctions.

Inevitably, there will be women with intractable, severe urinary dysfunctions which require more invasive management. If a continence procedure is to be undertaken, then pre-and post-operative advice on PFM training may help maximize the benefit of surgery. For some women, urinary diversion might be offered; for example, Mainz II pouch, whereby urine is redirected to the lower digestive tract and ultimately passed per rectum. For this procedure to render the patient continent, it is essential that she has sufficient PFM and external anal sphincter strength and endurance otherwise leakage will persist. Once more, pre-operative pelvic floor muscle/external anal sphincter assessment and treatment are indicated.

## 8 | PAIN

Although the principal concern of a woman who has suffered an OF may be incontinence, the nature of her injury and its sequelae can result in pain and this should not be ignored.

Tennfjord et al<sup>6</sup> reported an incidence of leg pain following obstructed labor and obstetric fistula in 20% of the women they assessed versus 7% in a control group. The authors reported spontaneous recovery in less than a third. The cause of such lower limb pain may be multifactorial. Some cases will be due to neurological effects of the labor itself, while others may be related to a period of immobility afterwards, resulting in a loss of function in the lower limbs, with or without joint contractures. In some cases, a compensatory increase in movement of certain joints has been found,<sup>6</sup> possibly to facilitate ambulation. In practice within fistula centers, physiotherapists have reported incidents of leg pain which is elicited or exacerbated by a change of position from lying to sitting or standing, suggestive of a vascular cause. Treatment for leg pain should include adequate, appropriate medication as required, general care provided by a fistula center and appropriate physiotherapy.

Back pain is a common complaint in many populations, and pregnancy-related lumbopelvic pain has been described by many authors. It has been reported that as many as one in five women will still be experiencing lumbopelvic pain 2-3 years after childbirth.<sup>29</sup> So, it is no surprise that some women who have suffered an OF will complain of back or pelvic girdle pain, which may or may not be directly related to obstructed labor and the intervening period before they present for treatment. A comprehensive, evidenced-based and best practice physiotherapy assessment should ensure that appropriate treatment can be offered based on the clinician's knowledge and skills. It is important to include assessment of any divarication/diastasis of recti abdominis which should be addressed with appropriate exercises to maximize the chance of recovery.

Severe vaginal scarring has been identified as a risk factor for failure of closure of vesico-vaginal fistula, and residual urinary incontinence.<sup>18,30</sup> These women may be those commonly seen by a physiotherapist post-operatively when they have persistent leakage. In addition, there are likely to be women with an altered vagina (related to obstructed labor or repair) who are continent but report vaginal pain and/or dyspareunia. A suitably skilled physiotherapist can offer a range of internal hands-on soft tissue therapy which some women may be willing and able to continue themselves to enhance their recovery. Pain or anticipated pain may result in poor relaxation of the PFM, hypertonicity, or vaginismus. Hypertonicity, in turn, is a significant component in sexual pain disorders.<sup>31</sup> Therefore, pelvic floor re-education with an emphasis on relaxation is indicated for at least some of these women. Within some countries vaginal dilators are used for the treatment of vaginal scarring, for example, following radiation, and are also offered to women with vulvar pain. A small study into the latter<sup>32</sup> showed some positive outcomes, as part of a larger package of treatment. Vaginal dilators may, therefore, be an additional treatment choice for women with vaginal scarring, abnormal pelvic floor muscle activity or pain in the area, if they are available.

## 9 | OTHER ROLES

Although there are physiotherapy teams within some fistula centers, it is unlikely that they are as prevalent, or as well resourced, as physiotherapy departments in hospitals elsewhere in the world. So, in addition to the interventions already described (Table 1) some clinicians.<sup>10,11</sup> describe a role for visiting physiotherapists in the education of not only local physiotherapists, but also nurses and other hospital staff. Physiotherapists working within fistula centers can learn from the doctors and nurses assessing and caring for women and, in

**TABLE 1** Physiotherapy intervention

Appropriate assessment (see Appendix 1)	
Before fistula repair surgery	After fistula repair surgery
Pelvic floor muscle education & exercises	Address any early post-operative concerns: <ul style="list-style-type: none"> <li>• respiratory dysfunction</li> <li>• decreased mobility</li> <li>• constipation</li> <li>• pain management</li> </ul>
Rehabilitation for any general weakness, foot drop, or contractures	Continue with rehabilitation for any persistent general weakness, foot drop, or contractures
Appropriate pain management if indicated	Persistent urinary, anorectal or pelvic floor dysfunction—reassess and treat
Discharge or review postoperatively if required	Surgery for persistent incontinence—advise and treat pre- and post-operatively

exchange, share their own particular skills. This includes the identification of pelvic floor muscle hypotonicity, hypertonicity, as well as the ability to contract the muscles correctly and PFME. In the case of fistula centers with no resident physiotherapy team this should be seen as the principal role of any visiting staff, to contribute to a sustainable, quality service for the patients. It is recognized that the conservative management of pelvic floor dysfunction may be provided by a range of clinicians but cannot then be termed “physiotherapy” since this may only be provided by a registered physiotherapist.<sup>33</sup>

With increasing availability of the Internet worldwide it is becoming easier for overseas physiotherapists to maintain contact with, and offer ongoing support to, staff within fistula centers. However, the view of clinicians who have contributed to this paper is that distance learning and support, useful as they are, should not take the place of regular visits.

Some women who have previously suffered an OF will go on to have another pregnancy. In a study of 240 women at 6-month follow-up after fistula repair,<sup>28</sup> 6 were pregnant. Nielsen et al<sup>34</sup> found 4 of 38 women reviewed at 14–28 months post-repair had been pregnant in the interim period. It is unlikely that many, if any, physiotherapists will have regular contact with these women throughout their pregnancy. However, since the women are encouraged to present at a suitable healthcare center before the end of their pregnancy ahead of an elective Caesarean section, there may be an opportunity to see them at that stage for appropriate advice and treatment. Physiotherapists should also take any opportunity to liaise with local midwives, or other healthcare staff in contact with pregnant women, so that they can incorporate appropriate advice into their antenatal checks and refer women to physiotherapy if such a local service exists. If physiotherapy input into midwifery training schools is available and welcomed, then this is an efficient and comprehensive

means to ensure that relevant advice reaches the women concerned.

## 10 | CHALLENGES

There are, undoubtedly, major challenges (Table 2) facing physiotherapists working with women following OF in the countries where they are most prevalent. These should be recognized and, where possible, addressed.

It is quite likely that there will be few funds available to buy equipment and consumables which are normally available within physiotherapy departments. There will often be no department, nor even a dedicated area in which physiotherapy can be carried out. However, this need not stop delivery of a quality service.

Language will almost inevitably be a challenge for any non-native physiotherapist. Although some exercises can be taught by demonstration, a comprehensive subjective and objective assessment cannot be completed satisfactorily

**TABLE 2** Challenges

Personnel	Lack of physiotherapists Lack of specialist education
Financial constraints	Staff salaries Equipment Consumables Training
Facilities	Department Treatment space with adequate privacy
Communication	Language Literacy
Religion & culture	Understanding (eg, in relation to anatomy, pathophysiology) Sensitivities (eg, vaginal examination)
Evidence base	Limited research and clinical audit evidence

unless there is someone present to translate. In the absence of such assistance it is also impossible to adequately explain the process of digital vaginal examination, address any patient concerns, and obtain valid and informed consent, without which many physiotherapists are not permitted to proceed with an intimate examination.<sup>35</sup>

In a large study of women who had suffered an obstetric fistula,<sup>16</sup> 77.4% were illiterate; a far higher level than that found in many countries. Therefore, physiotherapists cannot rely on the written word for most patients, and must ensure that any information they are relaying is explained clearly and simply, checking regularly that it has been understood. Where visiting physiotherapists are training local physiotherapists and other hospital staff, it is equally important to ensure that education is delivered at a suitable level for the individuals concerned. In particular, they should understand the level and nature of physiotherapy education in that country.

It should go without saying that any physiotherapist visiting a fistula center in a different country must be aware of religious and cultural factors which might impact on their interaction with patients and staff.

## 11 | OUTCOME MEASURES AND FUTURE RESEARCH

With the exception of a few authors,<sup>11,10</sup> there is little research that supports the role of physiotherapy in the management of women who have suffered an OF. Further robust evaluation of our interventions is indicated on the role of pelvic floor education and PFM rehabilitation for all women who have suffered OF; the specific management of persistent urinary symptoms after successful repair; plus the broader rehabilitation of women with related musculoskeletal dysfunctions.

In addition to controlled trials, it is also useful for therapists to audit their service, in which case outcome measures are essential. As described earlier, some use a pelvic floor muscle assessment tool<sup>14</sup> at initial assessment, and this can be repeated at discharge to evaluate any benefit.<sup>11</sup> The same authors used the Addis Ababa Fistula Hospital incontinence scale<sup>3</sup> to measure the effect of their intervention. Castille et al<sup>10</sup> preferred the Ditrovie scale,<sup>36</sup> a French language continence quality of life tool. Although not reported with this population, the ICIQ-UI Short Form is a simple questionnaire that assesses the impact of symptoms of incontinence on quality of life<sup>37</sup> and it, too, may be of use as might a simple visual analogue scale. There are numerous other tools which may be useful in the assessment of women with the range of complex dysfunctions associated with obstetric fistula, and measurement of the effect of physiotherapy intervention.

### Executive summary

- Pelvic floor physiotherapy offered pre- and/or post-fistula repair may improve outcomes in terms of urinary and fecal incontinence and should include specific advice on bladder and bowel care in addition to pelvic floor muscle training to optimize outcome.
- Women who have suffered an obstetric fistula may present with a range of significant musculoskeletal dysfunctions including foot drop and soft tissue contractures.
- Physiotherapists have an important role in optimizing general health and addressing rehabilitation needs before and after fistula repair, to aid recovery.
- The role of physiotherapy should not be overlooked when fistula services are being developed.
- Robust research is required to confirm the impact and role of physiotherapy with this patient group, particularly in countries where obstetric fistula is still prevalent.

## 12 | CONCLUSION

This paper highlights a lack of evidence for the role of physiotherapy in the management of women with OF. However, there was consensus within the ICS Physiotherapy Committee, some of whom have experience in treating affected women, that patient recovery, clinical outcomes, and quality of life can be improved if physiotherapy is provided as part of the multidisciplinary team. Further robust research is required to confirm the effectiveness of physiotherapy in the management of these women and the optimum development of such services.

### ACKNOWLEDGMENTS

Thank you to the following physiotherapists/physical therapists for sharing their experiences of working with women who have suffered an obstetric fistula; their contributions are greatly appreciated: Yves Castille, Lesley Cochrane, Heather Enns, Loran Hollander, Laura Keyser, Michelle Pieké, Jessica McKinney, Tracy Spitznagle, and Merete Tennfjord. Also to the ICS Physiotherapy Committee for their comments and suggestions, especially Rhonda Kotarinos, Doreen McClurg, Paula Igualada-Martinez, Petra Voorham van der Zalm, and Rebekah Das. Particular thanks to the physiotherapy team at the Hamlin Addis Ababa Fistula Hospital.

## ORCID

Gill Brook  <http://orcid.org/0000-0003-4354-3833>

## REFERENCES

1. World Health Organization. International Day to End Obstetric Fistula. 2017. Online: <http://www.who.int/life-course/news/events/intl-day-to-end-fistula/en/>
2. Cochrane L. Principles for pre- and postoperative physiotherapy. In: Lewis G, De Bernis L, editors. *Obstetric Fistula: Guiding Principle for Clinical Management and Programme Development*. Geneva: World Health Organization; 2006.
3. Hancock B. *Practical Obstetric Fistula Surgery*. London: Royal Society of Medicine Press; 2009.
4. FIGO & partners. *Global Competency-Based Fistula Surgery Training Manual*. London: FIGO; 2011. Online: <http://www.endfistula.org/webdav/site/endfistula/shared/documents/publications/Web%20Manual%20Eng.pdf>
5. Williams G. The Addis Ababa Fistula Hospital: an holistic approach to the management of patients with vesicovaginal fistulae. *Surgeon*. 2007;5:54–57.
6. Tennfjord MK, Muleta M, Kiserud T. Musculoskeletal sequelae in patients with obstetric fistula: a case-control study. *BMC Women's Health*. 2014;14:136.
7. Waaldijk K, Elkins TE. The obstetric fistula and peroneal nerve injury: an analysis of 947 consecutive patients. *Int Urogynecol J*. 1994;5:12–14.
8. Miller S, Lester F, Webster M, Cowan B. Obstetric fistula: a preventable tragedy. *J Midwifery Women's Health*. 2005;50:286–294.
9. Bulley C, Shiels J, Wilkie K, Salisbury L. User experiences, preferences and choices relating to functional electrical stimulation and ankle foot orthoses for foot-drop after stroke. *Physiotherapy*. 2011;97:226–233.
10. Castille Y-J, Avocetien C, Zaongo D, Colas J-M, Peabody JO, Rochat C-H. Impact of a program of physiotherapy and health education on the outcome of obstetric fistula surgery. *Int J Gynecol Obstet*. 2014;124:72–80.
11. Keyser L, McKinney J, Salmon C, Furaha C, Kinsindja R, Benfield N. Analysis of a pilot program to implement physical therapy for women with gynecologic fistula in the Democratic Republic of Congo. *Int J Gynecol Obstet*. 2014;127:127–131.
12. Crotty K. Investigation of optimal cue to instruction for pelvic floor muscle contraction in women using ultrasound imaging. Unpublished PhD thesis. 2014. Online: <http://uhra.herts.ac.uk/bitstream/handle/2299/15431/02054898%20Crotty%20Kay%20final%20PhD%20submission.pdf?sequence=1>.
13. Dumoulin C, Adewuyi T, Booth J, et al. Adult conservative management. In: Abrams P, Cardozo L, Wagg A, Wein A, editors. *Incontinence* (6th ed.). Bristol: International Continence Society; 2017.
14. Laycock J. Vaginal examination. In: Laycock J, Haslam J, editors. *Therapeutic Management of Incontinence and Pelvic Pain* (2nd ed.). London: Springer-Verlag. London; 2008. 61–63.
15. Miller JM, Sampselle C, Ashton-Miller J, Son Hong GR, DeLancey JOL. Clarification & confirmation of the Knack maneuver: the effect of volitional pelvic floor muscle contraction to preempt expected stress incontinence. *Int Urogynecol J*. 2008;19:773–782.
16. Muleta M, Rasmussen S, Kiserud T. Obstetric fistula in 14,928 Ethiopian women. *Acta Obstet Gynecol*. 2010;89:945–951.
17. McClurg D, Low-Strong A. Does abdominal massage relieve constipation? *Nurs Times*. 2011;107:20–22.
18. Goh JT, Browning A, Berhan B, Chang A. Predicting the risk of failure of closure of obstetric fistula and residual urinary incontinence using a classification system. *Int Urogynecol J*. 2008;19:1659–1662.
19. Murray C, Goh JT, Fynes M, Carey MP. Urinary & faecal incontinence following delayed primary repair of obstetric genital fistula. *Br J Obstet Gynaecol*. 2002;109:828–830.
20. Arrowsmith SD, Barone MA, Ruminjo J. Outcomes in obstetric fistula care: a literature review. *Curr Opin Obstet Gynecol*. 2013;25:399–403.
21. Brook G, Tessema AB. Obstetric fistula: the use of urethral plugs for the management of persistent urinary incontinence following successful repair. *Int Urogynecol J*. 2013;24:479–484.
22. Dietz HP, Tekle H, Williams G. Pelvic floor structure and function in women with vesicovaginal fistula. *J Urol*. 2012;188:1772–1777.
23. Castille Y-J, Avocetien C, Zaongo D, Colas J-M, Peabody JO, Rochat C-H. One-year follow-up of women who participated in a physiotherapy and health education program before and after obstetric fistula surgery. *Int J Gynecol Obstet*. 2015;128:264–266.
24. National Institute for Health and Care Excellence. *Urinary Incontinence: The Management of Urinary Incontinence in Women*. NICE Clinical Guideline 171. London: National Institute for Care and Health Excellence; 2013.
25. Imamura M, Abrams P, Bain C, et al. 2010; Systematic review and economic modelling of the effectiveness and cost-effectiveness of non-surgical treatments for women with stress urinary incontinence. *Health Technology Assessment* 14: No 40.
26. Borazjani A, Tadesse H, Ayenachew F, et al. Urinary frequency in patients with persistent urinary incontinence following successful closure of obstetric vesicovaginal frequency. *Neurourol Urodyn*. 2014;33:1029–1030.
27. World Health Organization. *Priority Assistive Products List*. Geneva, Switzerland: WHO Document Production Services; 2016.
28. Browning A, Menber B. Women with obstetric fistula in Ethiopia: a 6-month follow up after surgical treatment. *BJOG Int J Obstet Gynaecol*. 2008;115:1564–1569.
29. Noren L, Ostgaard S, Johansson G, Ostgaard HC. Lumbar back and posterior pelvic pain during pregnancy: a 3-year follow-up. *Eur Spine J*. 2001;11:267–271.
30. Nardos R, Browning A, Chen CCG. Risk factors that predict failure after vaginal repair of obstetric vesicovaginal fistulae. *Am J Obstet Gynecol*. 2009;200:578.e1–578.e4.
31. Rosenbaum TY. Pelvic floor involvement in male and female sexual dysfunction and the role of pelvic floor rehabilitation in treatment: a literature review. *J Sex Med*. 2007;4:4–13.
32. Murina F, Bernorio R, Palmiotto R. The use of Amielle vaginal trainers in the treatment of vestibulodynia; an observational, multicentric study. *Medscape J Med*. 2008;10:23.
33. Bø K, Frawley HC, Haylen BT, et al. An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for the conservative and nonpharmacological management of female pelvic floor dysfunction. *Int Urogynecol J*. 2017;28:191–213.
34. Nielsen HS, Lindberg L, Nygaard U, et al. A community-based long-term follow up of women undergoing obstetric fistula repair in rural Ethiopia. *BJOG Int J Obstet Gynaecol*. 2009;116:1258–1264.

35. Chartered Society of Physiotherapy. *Consent and Physiotherapy Practice PD078*. London: Chartered Society of Physiotherapy; 2012.
36. Amarenco G, Marquis P, Leriche B, Richard F, Zerbib M, Jacquetin B. A specific scale for assessing the disruption of quality of life during voiding disorders: scale Ditrovie. *Ann Réadapt Méd Phys*. 1997;40:21–26.
37. Avery K, Donovan J, Peters TJ, Shaw C, Gotoh M, Abrams P. ICIQ: a brief and robust measure for evaluating the symptoms and impact of urinary incontinence. *Neurourol Urodyn*. 2004;23:322–330.

**How to cite this article:** Brook G, The ICS Physiotherapy Committee. Obstetric fistula: The role of physiotherapy: A report from the Physiotherapy Committee of the International Continence Society. *Neurourology and Urodynamics*. 2019;38:407–416. <https://doi.org/10.1002/nau.23851>

## APPENDIX 1

### Routine physiotherapy assessment

Researchers and clinicians have suggested the following inclusions, dependent on the patient's abilities and limitations:

- Subjective assessment (before physical examination) to include presenting symptoms, for example, impaired mobility, loss of function, pain, bladder or bowel dysfunction. Past medical history and social history should be included unless previously undertaken and available.
- Movement, for example, in bed, transfers<sup>2,11</sup>
- Gait analysis<sup>2,11</sup>
- Lower limb range of movement and muscle strength—looking for muscle weakness, foot drop, joint contractures<sup>2,6</sup>
- Spinal assessment
- Reflexes<sup>6</sup>
- Pain—location, type<sup>2,11</sup>

- Functional activities, for example, squatting, lifting, carrying<sup>2,10,11</sup>
- Abdominal and perineal mobility, pain, scar tissue<sup>11</sup>
- Pelvic floor muscle (PFM) function:
  - digital vaginal<sup>2,4,11</sup> ±anorectal examination
  - manometric,<sup>10</sup> electromyography, or other biofeedback
  - PFM, for example, strength, endurance, tone, relaxation<sup>4,9,11</sup>
- Diaphragmatic breathing<sup>11</sup>
- Pad test, volume passed on urination<sup>10</sup>
- Subjective report of level of incontinence (most relevant post-operatively), for example, Addis Ababa Fistula Hospital score.<sup>3,11</sup> Type of urinary incontinence, for example, stress, urgency, or mixed.
- Bladder diary (language and literacy dependent).

Inevitably, assessment will be longer and more detailed for some women than for others. Pelvic floor muscle assessment is universally important and appropriate documentation is essential.