

Dutch evidence statement for pelvic physical therapy in patients with anal incontinence

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Received: 15 September 2014 / Accepted: 18 October 2014
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Abstract

Introduction and hypothesis To promote agreement among and support the quality of pelvic physiotherapists' skills and clinical reasoning in The Netherlands, an Evidence Statement Anal Incontinence (AI) was developed based on the practice-driven problem definitions outlined. We present a summary of the current state of knowledge and formulate recommendations for a methodical assessment and treatment for patients with AI, and place the evidence in a broader perspective of current developments.

Methods Electronic literature searches were conducted in relevant databases with regard to prevalence, incidence, costs, etiological and prognostic factors, predictors of response to therapy, prevention, assessment, and treatment. The recommendations have been formulated on the basis of scientific evidence and where no evidence was available, recommendations were consensus-based.

Results The evidence statement incorporates a practice statement with corresponding notes that clarify the recommendations, and accompanying flowcharts, describing the steps and

recommendations with regard to the diagnostic and therapeutic process. The diagnostic process consists of history-taking and physical examination supported by measurement instruments. For each problem category for patients with AI, a certain treatment plan can be distinguished dependent on the presence of pelvic floor dysfunction, awareness of loss of stools, comorbidity, neurological problems, adequate anorectal sensation, and (in)voluntary control. Available evidence and expert opinion support the use of education, pelvic floor muscle training, biofeedback, and electrostimulation in selected patients.

Conclusions The evidence statement reflects the current state of knowledge for a methodical and systematic physical therapeutic assessment and treatment for patients with AI.

Keywords Anal incontinence · Diagnostic process · Evidence · Physiotherapy · Therapeutic process · Statement

Abbreviations

AI	Anal incontinence
BF	Biofeedback
BSS	Bristol Stool Scale
EMG	Electromyography
ES	Electrostimulation
FI	Fecal incontinence
FIQL	Fecal Incontinence Quality of Life Scale
GPE	Global Perceived Effect
ICF	International Classification of Functioning, Disability, and Health
ICS	International Continence Society
ICIQ-B	The International Consultation on Incontinence Questionnaire—Bowels
IUGA	International Urogynecological Association
KNGF	Royal Dutch Society for Physical Therapy
PFMT	Pelvic floor muscle training
RAIR	Rectoanal inhibitory reflex

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Introduction

Recently, a Dutch and English version of the Evidence Statement Anal Incontinence of the Royal Dutch Society for Physical Therapy (KNGF) was developed [1]. It addresses the outlined practice-driven problem definitions with regard to: definition of anal incontinence (AI), prevalence, incidence, costs, etiological and prognostic factors, predictors of response to therapy, prevention, and the diagnostic and therapeutic physical therapy processes. The main objective of this manuscript is to present a summary of the current state of knowledge and to formulate recommendations for a methodic and systematic physical therapeutic assessment and treatment for patients with AI, and to place the (so far limited) evidence in a broader perspective of current developments.

This evidence statement uses the terminology used by the International Urogynecological Association (IUGA) and the International Continence Society (ICS) [2]. AI as a symptom is defined as “complaints of involuntary loss of feces or flatus” [2]. The term AI is used for incontinence for solid and liquid feces and flatus, while the term fecal incontinence (FI) refers only to incontinence for liquid and solid feces. Here, AI is used as an umbrella term and it is explicitly used where the specific symptoms of flatal incontinence or FI are indicated.

A summary of recommendations for the diagnostic and therapeutic process is presented at the end of the article.

Literature search

A search for relevant literature published between 1980 and November 2012 was conducted in the electronic databases of the Cochrane Library, PubMed, EMBASE, PEDro, and CINAHL using the following keywords: “anal, anus, bowel, f(a)ecal, f(a)eces, rectal,” and “incontinence.” Where possible, publications on AI, FI, and flatal incontinence were examined separately. The evidence statement on AI is restricted to adult patients with AI, since the causes of AI in children are often of a different nature and their complaints therefore require a different approach. For etiological factors and factors predicting response to pelvic physical therapy only prospective cohort studies were considered. For preventive measures and effectiveness only randomized controlled trials were examined. For the remainder, findings from other relevant literature, such as (systematic) reviews [3–12], guidelines [13], and other initiatives [2, 14–17] were used. The recommendations have been formulated on the basis of scientific evidence and “best practice.” The scientific evidence for each aspect is briefly summarized in a conclusion indicating the level of evidence. This was written using the evaluation lists and the criteria of the Evidence Based Richtlijn Ontwikkeling (evidence-based guideline development; EBRO) developed under the auspices of the Dutch Institute for Health Care

Improvement (CBO) [18]. Where no scientific evidence was available, the recommendation was formulated on the basis of consensus among the evidence statement development team. Comments and additions were collected in a Delphi round from a multidisciplinary feedback group (colorectal surgeon, nursing home physician, gastroenterologist, pelvic physiotherapists, and general practitioner). The methodology used to formulate the recommendations is presented in Tables 1 and 2. For more details on background and supporting literature, reference is made to the original document [1].

Prevalence and etiological factors

The estimated prevalence of AI in the general population is 2–24 % and that of FI 0.4–18 % [10]. The prevalence greatly increases among people admitted to residential (long-term, nonmedical) care (30–47 %) [19]. High prevalence values have also been reported for postpartum women and persons with multiple pathological conditions, such as cognitive impairments or neurological disorders [20]. AI is often associated with other pelvic floor, pelvic, and abdominal problems, such as constipation, rectal prolapse, and urinary incontinence. About 50 % of patients with FI also have urinary incontinence (double incontinence). This could be caused by dysfunction of the levator ani muscle, and among vulnerable older persons in need of care by functional limitations that hamper normal toileting [21]. The involuntary losses associated with AI may considerably affect people’s participation in social life (participation restrictions) [22].

Normal continence requires sufficient functioning of the following systems:

1. Resistance system: levator ani muscle and internal and external anal sphincters
2. Capacity system: capacity of the rectum to store bowel content by compliance
3. Reflex system (includes the set of reflexes that are elicited when the rectum is filled as feces from the sigmoid reach the rectum): the external anal sphincter reflex, the recto-anal inhibitory reflex (RAIR), and the recto-rectal reflex

Incontinence is not a disorder, but a symptom of the failure of one or more components of the normal continence mechanism. As the etiology of AI is in most cases multifactorial, it is difficult to determine the relative contributions of each individual factor. Etiological factors for FI or AI are as follows:

1. In women:
 - a) Postpartum FI or AI—third- or fourth-degree tear and AI during pregnancy (level 1) [4]

Table 1 Levels of evidence: classification of the methodological quality of individual studies

Intervention, prevention	Etiology, prognosis
A1: systematic review of at least two independent A2-level studies	
A2: randomized, double-blind, comparative clinical trial of good quality and adequate sample size	Prospective cohort study with adequate sample size and follow-up, effectively controlled for confounding and with effective measures to prevent selective follow-up
B: comparative study not meeting all criteria mentioned under A2 (including case-control studies and cohort studies)	Prospective cohort study, not meeting all criteria mentioned under A2, or retrospective cohort study
C: noncomparative study	
D: expert opinion, for instance the members of the guideline development team	

- b) ≥ 50 years (FI)—history of rectocele (e.g. resulting from chronic straining; level 3) [23]
- c) ≥ 65 years (FI)—stroke, cognitive impairments, Caucasian ethnicity, depression and chronic diarrhea (level 3) [24, 25]
- d) AI—abdominal and vaginal hysterectomy (combined bilateral salpingo-ovariectomy, higher age at time of surgery and a history of obstetric damage further increase the risk; level 3) [26, 27]
2. In men:
- a) FI— ≥ 85 years and kidney problems (level 3) [25]
- b) Flatal incontinence—radiotherapy for treatment of prostate cancer (reduced rectal capacity by radiation proctitis; level 3) [28]
3. In women and men: FI—kidney problems, diarrhea, feeling of incomplete evacuation, history of pelvic radiation treatment, urgency complaints, and urinary incontinence (level 3) [23–25]
4. In older people in residential homes:
- a) FI—advanced age (level 1) [19, 29]
- b) FI—urinary incontinence, limited mobility, having a neurological disorder, cognitive decline, dementia, problems of trunk control, non-Caucasian ethnicity, and difficulties with general activities of daily living (level 2) [19, 29]

Factors predicting response to pelvic physical therapy

Prognosis for recovery in AI depends on the underlying nature and severity of AI. The following predictors of the response to pelvic physical therapy can be distinguished.

- Increased chance of recovery:
 - Adequate training dosage (training specific muscles 3 times a day, 2–3 times a week for 5 months, with 8–12 slow and virtually maximal contractions) and adequate therapy compliance (level 1) [30–32]
 - Higher level of motivation on the part of the patient and better interaction between patient and therapist (level 4) [6]
 - Teaching patients to cope with their health problem and inspiring patients (level 4)
- Reduced chance of recovery: neurological disorder or a disorder of or damage to the spinal cord, which means that the patient is unable to follow or comprehend instructions (level 4) [13, 33]

Factors specifically associated with the chances of recovery after electrostimulation (ES), biofeedback (BF) with pelvic floor muscle training (PFMT), and a combination of BF with PFMT and ES, are reported in the original document [1].

Table 2 Levels of conclusion: classification of methodological quality of individual studies

Conclusion based on:	Recommendation based on the level of the conclusion:
Level 1: one study at A1-level or at least two independent A2-level studies	It has been demonstrated that...
Level 2: one study at A2-level or at least two independent B-level studies	It is plausible that...
Level 3: one B- or C-level study	There are indications that...
Level 4: expert opinion	In the opinion of the evidence statement developmentteam...

Referral for physical therapy

In the Netherlands, patients are usually referred to a pelvic physiotherapist by their family doctor or a medical specialist, or sometimes by an obstetrician. Patients can also contact a pelvic physiotherapist without referral, sometimes on the advice of a menopause counselor. Direct access to physical therapy for patients with AI requires considerable caution and attention to possible problems. Patients with AI frequently have medical pathology that requires different or supplementary healthcare, and a history of pathology may provide prognostic relevant factors. Hence, the therapist is advised to contact the patient's family doctor or a specialist before starting the diagnostic process for physical therapy (level 4).

When red flags, clinical indicators of possible serious underlying conditions, arise during screening of a patient (both in the case of direct access and referral), further physical therapeutic assessment and treatment is not (yet) indicated and the referring doctor or family physician should be contacted accordingly.

Diagnostic process

In the diagnostic process, the pelvic physiotherapist examines the nature, severity (assessed on the basis of the International Classification of Functioning, Disability and Health (ICF) [34]), and degree of modifiability of the patient's health problem (general and local impeding factors). This information is derived from history-taking, self-reports by the patient, questionnaires, defecation diaries, and a pelvic physical therapy examination. Intake assessment focuses on reason for contact; red flags; proctological, gynecological, obstetric, urological, and sexological history in relation to the musculoskeletal system; comorbidities; coping strategies; psychosocial problems; defecation and micturition patterns; nutrient and fluid intake; status of the components of the continence mechanism (muscle function, reservoir function, consistency of stools, awareness and acknowledgement of health problem, and their interactions); the patient's pattern of expectations. This process can be integrated into education and advice.

Measurement instruments

Recording the severity of a patient's AI and its consequences for their everyday life and sense of self-respect is important for the patient's perception of the health problem. Moreover, they are essential in evaluating the effects of physical therapy. The Wexner (Cleveland Clinic) score is a suitable instrument to assess the severity of AI as a health problem and how well the patient is coping [35]. In view of its simplicity and manageability, the Global Perceived Effect (GPE) can be used to evaluate patient-perceived changes in health status [36]. The

International Consultation on Incontinence Questionnaire—Bowels (ICIQ-B) is a newly developed and fully validated questionnaire for use in individuals with AI of varying causes [37]. It also provides assessment of the impact of these symptoms on quality of life. The findings of psychometric studies and systematic reviews of the literature suggest that the Fecal Incontinence Quality of Life Scale (FIQL) [38] might be recommended as an instrument to assess disease-specific quality of life [7, 9, 39, 40]. There are as yet no validated Dutch versions of the ICIQ-B and FIQL. A patient's defecation diary enables the therapist to determine the defecation frequency and the severity of the FI [7, 41]. It is recommended to keep a defecation diary until the consistency and frequency of defecation have normalized and certain regularity has been established. The Bristol Stool Scale (BSS) is a good instrument to monitor the consistency of the stools and can be included in a defecation diary [42]. An example of a defecation diary including the BSS is presented in the original document [1].

Physical examination

Physical examination includes:

1. General inspection: breathing, spinal column, pelvis, hips, and gait analysis
2. Local inspection of vagina, anus, and perineum: inspection of the pelvic floor at rest, during contraction (contraction strength, lifting, and inward movement of the pelvic floor during contraction, relaxation, co-contractions, breathing), coughing and straining
3. Supplementary functional examination: palpation at rest, palpation during contraction, endurance, pre-contraction, straining, Valsalva and coughing, relaxation
4. Supplementary functional examination: rectal balloon and electromyography (EMG). Filling a rectal balloon intrarectally with air allows the therapist to measure and the patient to become aware of the initial sensory perception of filling, the RAIR, the initial feeling of urgency, and the maximum tolerable volume. In addition, EMG can be used to measure the activity at rest and during contraction and relaxation, as well as the response, as well as the response of the pelvic floor muscles to filling, Valsalva and straining with an inflated balloon

Physical therapy analysis/diagnosis

It is very important to analyze whether and to what extent there is sufficient balance between strain and physical condition. The physical condition may be affected by dysfunctions of the continence mechanisms:

1. Damage to or weakness of the pelvic floor muscles (external anal sphincter and levator ani muscle)
2. Damage to or weakness of the internal anal sphincter
3. A neurological problem: nuclear/infranuclear dysfunction, peripheral innervation, spinal cord, brainstem or awareness

The physical condition partly depends on other factors, such as general mobility, diet, intestinal system (peristalsis or fecal composition), medication, problematic history (e.g., adverse sexual experiences, physical violence), and comorbidity. The patient's physical condition (at local, personal, and participation level) determines how much they can bear.

The analysis process is used to determine the nature, severity, and modifiability of the problem. The guideline development team, in consultation with the members of the feedback group, has distinguished four problem categories for patients with AI (regarding further subdivisions consult Table 3 for a summary and the flowchart in the original document [1]):

- I. AI with pelvic floor dysfunction and awareness of loss of stools (urgency). The treatment plan is developed based on the presence or absence of a neurological problem, anorectal sensation, voluntary or involuntary control, and factors that adversely affect pelvic floor function
- II. AI with pelvic floor dysfunction without awareness of the loss of stools (passive). The treatment plan is developed based on the presence or absence of a neurological problem and anorectal sensation
- III. AI without pelvic floor dysfunction
- IV. AI with or without pelvic floor dysfunction, in combination with general factors impeding the recovery or adjustment processes. The treatment plan is developed based on the presence or absence of comorbidity

The nature and severity of any pain symptoms must be taken into consideration for all four problem categories, as these represent a complicating factor.

Therapeutic process

The therapeutic process includes the actual treatment, evaluation, and conclusion of treatment. The treatment plan relates to the identified problem category and the objective is to improve one or more of the following components of continence: muscle function, reservoir function, consistency of stools, awareness and acknowledgement of the health problem, or interactions among these components. No adverse effects or worsening of symptoms has been reported for any of the forms of therapy discussed below.

The following therapeutic interventions can be identified:

1. Providing education and advice: a patient-specific education plan is used for each problem category (problem categories I–IV). Taking account of the patient's views, preferences, and expectations, the pelvic physiotherapist explains any relevant aspects, using visual aids where necessary, and discusses the normal function of the continence mechanism (level 4).
2. Electrostimulation: ES is applied in various ways, using different stimulation parameters and combining it with other therapies (such as BF or PFMT). The precise mechanism of action of ES is unknown, but the main mechanism may be based on an increased awareness of the anal sphincter. It has been demonstrated that there is insufficient evidence to recommend ES for the treatment of FI, based on only four studies, which were heterogeneous in terms of patient sample, treatment protocol, and outcome

Table 3 Problem categories for patients with anal incontinence

I–II AI with pelvic floor dysfunction

I				II		III	IV	
With awareness of the loss of stools (urgency): EAS+puborectalis/levator ani muscle				Without awareness of the loss of stools (passive): IAS		AI without pelvic floor dysfunction	AI (I/II/III)+general factors impeding recovery or adjustment processes	
IA ^a Without voluntary control of the pelvic floor	IB ^a Without involuntary control of the pelvic floor	IC ^a With voluntary control of the pelvic floor	ID ^a Plus negative effects on pelvic floor function ^b	IIA ^c Anorectal sensation normal	IIB ^c Anorectal sensation abnormal		IVA Without comorbidity	IVB With comorbidities

AI anal incontinence, EAS external anal sphincter, IAS internal anal sphincter

^a The problem category is complicated in the case of the presence of a neurological problem (local/central) or an abnormal anorectal sensation

^b From respiratory problems, musculoskeletal problems, and/or toileting posture, regime, and/or behavior

^c The problem category is complicated in the case of the presence of a neurological problem (local/central)

measures (level 1) [8]. There have also been uncontrolled studies that repeatedly mention that “the international literature, as well as our own research findings, confirm that ES is effective and that ES plays an important role as a component of conservative treatment for some patients with AI” [8]. Therefore, it is recommended that ES is useful for a specific group of patients, to improve the voluntary control of the pelvic floor in patients who lack this voluntary control (problem category IA; level 4).

3. Pelvic floor muscle training: PFMT consists of repeated voluntary contractions and relaxations of the pelvic floor muscles in order to improve muscle strength, voluntary control of muscle relaxation, endurance, repeatability, coordination, and the correct position of the pelvic floor. Where necessary, PFMT aims to train the patient’s awareness regarding the way in which and the extent to which the pelvic floor muscles can be used. It has been demonstrated that some elements of PFMT have a therapeutic effect, but no definitive conclusion can be drawn about the role of anal sphincter exercises in the treatment of patient with FI (level 1) [6]. Supported by the recommendations of the “International Consultation on Incontinence” and based on the low costs and the absence of adverse effects of the therapy, PFMT can be part of an integrated approach, which involves education/advice, training the patient’s awareness of the way in which and the extent to which the pelvic floor muscles can be used, where necessary with the help of BF and/or rectal balloon training (for problem categories IC, ID, II–IV; level 4). Besides, exercises to reduce the anorectal angle, focusing on the puborectalis muscle (similar to “the knack” described for the inward movement of the urethra) can be used to improve the patient’s voluntary control of their pelvic floor (for problem category IB; level 4).
4. Biofeedback can be used in various ways for patients with AI:
 - a) To reduce or increase rectal sensation using a rectal balloon.
 - b) Strength training (EMG [activity of motor units] or pressure [anal manometry or probe]): BF is used to visualize the activity of a patient’s anal sphincter and/or pelvic floor muscles, such as the puborectalis muscle, and to enable awareness of contraction and relaxation. As the patient sees or hears the signal, they are encouraged to increase their contraction strength and keep up the contraction longer or to pay more attention to proper relaxation.
 - c) Coordination training (triplet): a balloon is inserted into the rectum. Two other, smaller, pressure-recording balloons are introduced into the upper and lower parts of the anal canal. As the rectal balloon is

filled, it elicits the RAIR. This causes anal relaxation, which is visualized by the two recording balloons, and which the patient must become aware of and must learn to counteract by means of a voluntary anal sphincter contraction. This contraction must be long and powerful enough to allow the resting pressure to return to its initial value.

It has been demonstrated that some BF elements have a therapeutic effect. PFMT with BF appears to be more effective than PFMT alone, and BF with ES appears to be more effective than ES alone. However, the available literature does not allow any definitive conclusions to be drawn on the role of BF in the treatment of patients with FI (level 1) [6]. However, in the opinion of the evidence statement development team, BF can be used when there is doubt about the ability of a patient without voluntary control of the pelvic floor to perform pelvic floor contractions (problem category IA) or if a patient shows insufficient progress, in order to accelerate progress in the context of an integrated approach (e.g., education and advice, voluntary control, PFMT) based on all modifiable components (problem categories IC, ID, II and IV; level 4).

Preventing AI

Fecal incontinence in patients with liquid stools: constipating medication (loperamide [oxide] and diphenoxylate with atropine; level 1) [11] and increased fiber intake (psyllium or gum arabic; level 3) [43]. Its mechanism of action is based on increasing the amount of feces in the rectum and a more solid consistency, which then stimulates the reservoir function and increases the chances of improved control. In addition, increasing the amount of feces in the rectum may also optimize the evacuation of feces from the rectum, reducing the risk of passive incontinence.

1. FI: body weight reduction through a behavioral intervention in women with obesity and urinary incontinence (level 3) [14, 16, 44]
2. AI: PFMT during pregnancy reduces risk of AI after 32–26 weeks of pregnancy among women who have had a previous delivery (level 3) [45]
3. Patients with incomplete evacuation can benefit from irrigation of the rectal ampulla with an irrigation system, such as a rectal balloon catheter, enema (Microlax) or Peristeen, as a method of preventing fecal loss for a limited period of time (level 4)
4. FI: patients with liquid stools may benefit from reducing fluid intake when ingesting constipating medication or dietary fiber, which may thicken the stools (level 4)

Evaluation

The therapist should evaluate the treatment with the measurement instruments used during assessment and should also evaluate the modifiable components of the continence mechanism that emerged from the physical examination. The therapist and patient may jointly consider arranging a re-evaluation, in the form of a check-up or reminder therapy, at predefined dates after the conclusion of the treatment.

Conclusion

This manuscript reflects the current state of knowledge of a methodic and systematic physical therapeutic assessment and treatment for patients with AI. Overall, evidence was (still) weak and therefore this statement also reflects consensus among experts. The benefit of this evidence statement is to improve the quality and uniformity of care and to increase transparency to the clinicians and patients involved. More high-quality research is needed to validate the consensus-based recommendations.

Spin off

It has been decided to publish an evidence statement instead of a guideline, as this has enabled us, by combining evidence, expert judgment, and consensus, to support health care providers in approaching their patients methodically, the paucity of published evidence notwithstanding.

Anal incontinence covers only one important domain of symptoms that pelvic physiotherapists are able to treat. Other important domains include stress and urgency urinary incontinence, prolapses (bladder, uterus or intestines), sexual problems, constipation, pelvic pain, and support before and after surgery (gynecological, urological, and gastrological). Pelvic physiotherapists are musculoskeletal experts and well-trained and well-utilized to assess and treat the consequences of the various health problems mentioned earlier. The KNGF evidence statement AI [1] as well as the KNGF guideline on pregnancy-related pelvic pain (Richtlijn Zwangerschapsgerelateerde bekkenpijn; in Dutch [46]) and the recently updated KNGF Guideline on Stress Urinary Incontinence (SUI) [47] contribute to more transparency and visibility with regard to the important role of pelvic physical therapy throughout the field of clinicians who are involved (often in a multidisciplinary context) in continence care. Moreover, efforts should be undertaken to work toward evidence statements or guidelines for the other treatable domains involved in pelvic physical therapy. Irrespective of the limited evidence base, conservative treatment is unanimously recommended, singly or in combination, for the majority of patients

with AI [14]. Clinicians should keep in mind that conservative treatment is a first-line approach and should be considered before surgery, mainly because of the low costs and absence of side effects [14].

Our recommendations will raise discussion and future research questions, which will ultimately result in advancements in the area of pelvic physical therapy in AI. Future challenges include conducting further high-quality RCTs (with adequate training intensity, sample size, methodological quality, and consistent use of consensus-based terminology) and performing studies to gain insight into adequate stimulation parameters and which methodologically sound measurement instrument to choose.

Summary of recommendations

1. Diagnostic process:
 - a) Measurement instrument—in the opinion of the evidence statement development team, the screening, diagnostic, and treatment evaluation processes should involve a patient-reported outcome measure (level 4)
 - b) Wexner score—in the opinion of the evidence statement development team the Wexner score is a suitable instrument for assessing the severity of AI as a health problem and how well the patient is coping (level 4)
 - c) GPE—in the opinion of the evidence statement development team the GPE is a suitable instrument for evaluating patient-perceived changes in health status (level 4)
 - d) Defecation diary—in the opinion of the evidence statement development team a defecation diary should be used to assess the defecation frequency and the severity of the FI (level 4)
 - e) Bristol Stool Scale—in the opinion of the evidence statement development team the BSS is a suitable instrument for assessing the consistency of a patient's stools (level 4)
 - f) ICIQ-B and FIQL—although not available in Dutch, the evidence statement development team recommends the ICIQ-B for assessing bowel symptoms and the impact of these symptoms on the quality of life and the FIQL for assessing the disease-specific quality of life (level 4)
2. Therapeutic process:
 - a) Providing education and advice
 - i. Patient-specific education plan—in the opinion of the evidence statement development team, a patient-

- specific plan should be used for each individual problem category (level 4)
- b) Electrostimulation
- i. It has been demonstrated that there is insufficient evidence to recommend ES for the treatment of FI, based on only four studies, which were heterogeneous in terms of patient sample, treatment protocol, and outcome measures. In addition, it is unclear on what basis patients should be selected for ES and what ES modality would be optimal (level 1)
 - ii. In the opinion of the evidence statement development team, ES is useful for a specific group of patients, to improve the voluntary control of the pelvic floor in patients who lack this voluntary control (problem category IA; level 4)
- c) Pelvic floor muscle training:
- i. It has been demonstrated that some elements of PFMT have a therapeutic effect, but no definitive conclusion can be drawn about the role of anal sphincter exercises in the treatment of patients with FI (level 1).
 - ii. In the opinion of the evidence statement development team, PFMT can be recommended as part of an integrated approach, which involves education/advice, training the patient's awareness of the way in which and the extent to which the pelvic floor muscles can be used, where necessary with the help of BF and/or rectal balloon training (for problem categories IC, ID, II–IV; level 4).
 - iii. In the opinion of the guideline development team, exercises to reduce the anorectal angle, focusing on the puborectalis muscle (similar to the “knack” described for the inward movement of the urethra) can be used to improve the patient's voluntary control of their pelvic floor (for problem category IB; level 4). The “knack” is a voluntary contraction that a person can use to learn to contract their pelvic floor muscles just before a cough or lifting a heavy object, to prevent the loss of urine or stools.
- d) Biofeedback:
- i. It has been demonstrated that some BF elements have a therapeutic effect. PFMT with BF appears to be more effective than PFMT alone, and BF with electrostimulation appears to be more effective than ES alone, but no definitive conclusion can be drawn regarding the role of BF in the treatment of patients with FI (level 1)
 - ii. There are indications that a combination of manometry BF or rectal balloon training and PFMT is more effective than PFMT alone if previous conservative treatments have failed (level 3)
 - iii. In the opinion of the evidence statement development team, BF can be used when there is doubt about the ability of a patient without voluntary control of the pelvic floor to perform pelvic floor contractions (problem category IA) or if a patient shows insufficient progress, in order to accelerate progress in the context of an integrated approach (e.g., education and advice, voluntary control, PFMT) based on all modifiable components (e.g., for problem categories IC, ID, II, and IV) (level 4)
- Funding** The project was subsidized by the Royal Dutch Society for Physical Therapy (KNGF).
- Conflicts of interest** None.
- Authors' contributions** L.C.M. Berghmans: protocol/project, literature search, grading literature, expert opinion, manuscript writing/editing; J.A.M. Groot: protocol/project, grading literature, expert opinion, manuscript writing/editing; I.C. van Heeswijk-Faase: protocol/project, grading literature, expert opinion, manuscript writing/editing; E.M.J. Bols: protocol/project, literature search, grading literature, expert opinion, manuscript writing/editing.
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