



## **Physiotherapy Committee Teleconference Minutes Wednesday 25 April 2018**

**Attending:** Doreen McClurg (Chair; DM), Petra J. Voorham - van der Zalm, Heather Moky, Rhonda Kay Kotarinos, Nelly Faghani, Melanie Morin, Gill Brook, Paula Igualada-Martinez,

**Apologies:** Peter Meyers, Cristina Naranjo Ortiz, Adelia Lucio, Cristiane Carboni,

### **1. Welcome**

DM welcomed everyone to the meeting.

### **2. Apologies**

PM apologised for not being on the call, he also confirmed his decision to step down from the physiotherapy committee. DM confirmed that PM's position would officially end in Philadelphia.

AL and CNO apologies.

### **3. Minutes of meeting in Florence**

The minutes were provided with the agenda from DM– to be signed off at the meeting in Philadelphia (along with any others) but are attached just for reference. A copy is also available on the ICS website here:

<https://www.ics.org/Documents/Documents.aspx?DocumentID=5040>

### **4. Philadelphia – general update from ICS office**

JE confirmed no updates.

### **5. Abstract reviewing**

JE confirmed the numbers were lower than Florence, which was expected, but higher than Montreal. So, the office is pleased with the figures at the moment.

DM was an abstract reviewer with CNO and PV reviewed with MM. MM thought this was beneficial for PTs to review PT content. HM said she would be happy to help next year with some coaching. MM highlighted that the way you search and select abstracts is not as good as last year, but if we have more people involved this might help. MM abstracts need to be reviewed by at least 3 people. MM reviewed 200 abstracts in total! There was a variation in

quality, to be expected, but try to be fair in the ratings.

**6. Workshops accepted – Physio basic (Paula anything to add)**

PIM confirm a summary of the workshops this year: 64 workshops were submitted, 32 accepted and of those, there is physiotherapy participation in 12 of them.

5 workshops are chaired by physiotherapists (W3 Pregnancy, W6 Bowel dysfunction, W25 ICS Wiki, W28 ICS Physio update, W29 Ethics)

Only 4 workshops with physiotherapy involvement were not accepted.

See attached PDF.

MM asked if PIM could discuss tips to workshop acceptance at the forum? MM did this for abstract previously. PIM agreed that would be possible

PIM need to discuss submission process with Avicia.

**Action: PIM need to discuss submission process with Avicia**

**7. ICS Male terminology**

ICS this is going forward- Beth Shelly is going to be on this document. JE confirmed the SSC reviewed the applications and she is confirmed as a member on the committee.

**8. Fistula paper (Gill)**

GB before the document goes to publication it needs to have 3 experts reviewers. Jacques Corcos comments received. Waiting on Chris Payne's feedback. It's also gone to the Board, Education and Standardisation Steering Committee for sign off.

Request that the title includes the committee or acknowledgement of the committee. Need to make a final decision- thoughts?

DM asked whether anyone else on the committee was involved? GB said several committee members had sent her questions, comments and suggestions to improve the draft document.

Group discussed it and agreed on Gill Brook and ICS PT Committee, with the committee members who had contributed named in Acknowledgements.

**9. Rebekah's education survey (Gill)**

GB provided a spreadsheet of the latest version of PF examination survey which Rebekah is leading. We are still awaiting details from Sweden and Turkey. These are the last 2 that are still open, all others have replied.

DM asked whether middle of May should be the deadline? GB agreed that this would be fine, she will chase and if not responses then we will finalise this research. DM confirmed Rebecca Das will be named on this document. Anyone else would like to be involved in this document? RK and HM happy to help as required going forward. DM to contact as and when

required.

#### **10. Physiotherapy Forum Update**

PJV provided a copy of the agenda, see attached. PJV so far so good. A letter of confirmation has been emailed out and they have to sign to confirm their attendance. Following last year's action- where people dropped out last minute. We need 1 more workshop, working on this at the moment. DM asked if anyone knows of PT's attending that could be involved in workshops. HM advised lots of options, PJV advised that a number of people were contacted but they wanted funding to attend. HM suggested that PJV send the list of names and she can cross check this against the people that she contacted.

There will be a reception after the forum, as part of the ticket.

DM asked whether people selected the workshop when registering? PJV confirmed they did. MM thought we need to introduce immediate feedback as we received limited feedback last year.

JE to discuss with AB evaluation process- is it possible to include in the main evaluation?

DM need to remind people in the forum to complete the survey.

Will need to decide committee volunteers, before the forum, at the committee meeting.

#### **11. Education document (See attached).**

Physiotherapy for Female Urinary Incontinence, see attached draft. Doreen to clarify what kind of feedback is required from the committee on this draft and the requirements of the journal. Feedback by the end of 4<sup>th</sup> May.

#### **12. Physio committee – nominations/voting**

Two expressions of interest received from Jenniffer Voelkl and Gustavo Latorre. Peter is now stepping down, so we have 2 positions available. Would the committee like to accept? All agreed.

#### **13. School of Physiotherapy - Cristiane Carboni/Rhonda Kotarinos**

RK reviewed the current videos. RK and CC were joint Directors but only CC has applied to stay on as director. RK felt, from her review, that the content wasn't of benefit to PTs. The group discussed this. JE advised that the current content is taken from previous annual meetings or filming in the office. This was before the current process was in place and we would like to generate more relevant content for PTs. It would be great if RK could stay on the group and provide her input.

Group discussed the institute generally and their views on the system/content.

RK advised that she has not heard anything since the deadline to review the video content. JE to follow up with Avicia who is leading this project.

**Action: Avicia to provide an update on the Institute project and the involvement of the Director/Committee.**

**14. AOB**

None.

DM thanked everyone for being on the call.



**ICS Physiotherapy Committee meeting Minutes**

**Tuesday 12<sup>th</sup> September 2017**

**Venue: Fortezza da Basso**

**Room: n5 Palazzina Lorenese**

**Time: 08:00-10:00**

**Known Attending:** Doreen McClurg (Chair), Cristiane Carboni, Heather Moky, Melanie Morin, Nelly Faghani, Paula Iguallada-Martinez, Petra Voorham - van der Zalm, Rebekah Das, Rhonda Kotarinos, Gill Brook

**Known Apologies:** Adelia Lucio, Peter Meyers,

**Also in attendance:** Jenny Ellis, Cristina Naranjo Ortiz,

**1. Committee picture to be taken**

The committee picture was taken and is available on the ICS website.

**2. Approval of Tokyo meeting minutes (Attached)**

The committee approved the Tokyo minutes, RD (1<sup>st</sup>) and DMC (2<sup>nd</sup>.)

**3. Terms of Office (Attached)**

DM will stay on for another 3 year term. DM thanked RD for her contribution to the committee, RD was presented with a certificate of appreciation. DM confirmed GB was required to stay on the committee for another year to assist with projects.

**Action:** Office to add 1 year on to GB co-opted term.

**4. Terms of Reference (Attached)**

DM requested that the committee review the current TOR following the meeting and confirm whether any changes are required- to be discussed on the committee forum.

**Action:** Office to add TOR to the forum for review- 1 month deadline.

**5. Outstanding Actions:**

Action: Committee to sign off Montreal and teleconference minutes at the next quorate teleconference/meeting.

The committee were not quorate in Tokyo, the minutes could therefore not be ratified. 1<sup>st</sup> by PM, 2<sup>nd</sup> RD.

DM welcomes everyone to the meeting-it's been a busy few days! PVDZ confirmed that we have 137 delegates booked for the PT session, we have 12 roundtables

## 6. Discussion on on-going work

### a. Rebecca Das survey (Attached)

RD provided an update on her work. The survey showed that people trained privately rather than at university. We have responses from Australia and the Netherlands.

RD advised that she was now on version 9 of the excel files. We are just waiting to hear from Sweden (Karen Toren) and Portugal. We do have some sparse areas in the research, RD asked whether the committee thought this needed to be followed up- all agreed it should.

**Action: RD to highlight sparse areas of data for further exploration.**

RD confirmed that the focus has been on vaginal exam of PT function so far. The committee discussed creating a group to go through the content and outline two areas:

>Core teaching

>Niche teaching and at which university

The aim of this survey would be to publish the findings in NAU but RD was unsure whether this would fit the remit of the journal? JE advised that the journal published a range of content- consensus documents etc.

HM felt this would be valuable as it highlights the differences in the nurse and PT role. This document could help define the role of a PT. All agreed.

RD asked who to hand this data over to? DM will take over with the assistance of GB and PVDM.

**Action: RD to hand data over to DM, GB and PVDM to take forward.**

The committee thought it would be useful to review the data to date- a forum discussion would be useful.

**Action: Office to upload RD data to committee forum for review and discussion.**

### b. Gill Brook's Fistula work (short report attached or to be given)

GB provided a background of her co-opted position- working on the PT and fistula project. As per the report, we have a draft ready but we need to do a review of this draft before it can progress. GB asked for reviewers from the committee- PM & RK volunteered.



**Action:** GB to email draft to the office to upload to a private forum for PM & RK to review and provide their feedback.

GB suggested a 2 week review period.

c. **Heather Moky's Conservative Management of Male Pelvic Floor Muscle Function and Dysfunction working group**

HM provided the committee with an update on the proposal. There is a meeting on Thursday with Bernard Haylen (SSC Chair) to discuss this further. HM is working on a draft scoping document, once final this will be emailed to the committee as a whole to review.

**Action:** HM to email committee draft scoping document for the proposed Conservative Management of Male Pelvic Floor Muscle Function and Dysfunction working group.

d. **Feedback from ICS education committee on our application re our proposal re article and filming etc (Proposal attached) Doreen. Discussion on events around this and moving forward.**

The group discussed the draft to date and history of the document- see attached documents.

RD suggested content is based on Development, translation and evaluation of a new pedagogical tool to teach physiotherapy assessment of women with pelvic floor dysfunction video. Abstract 196, ICS 2011, Madill S, Chaffey S, Dumoulin C- to demonstrate informed consent process, infection control etc. MM expressed concern regarding infection control as this differs worldwide. Group agreed but suggested a best practice approach could be included.

RK suggested that this could be a series- UI, POP, faecal etc. This would be a long term goal for the committee.

Funding for filming was discussed- does this need to be agreed by the Board? JE advised that we have a separate modules budget managed by the education committee, so you just need to contact Elise to arrange.

MVK joins meeting.

e. **Scientific Education Committee and Board updates**

MM provided an update on this year's abstracts- not much has changed regarding the number of PT abstracts, we still have a good response rate. MM advised that she was looking into a breakdown of stats for PT submission.

**Action:** MM to provide breakdown of PT abstract submissions for

PM asked what skills are required to review abstracts? MM advised that they review on scientific merit and originality. The scientific committee are working on creating a video to assist reviewers. MM recommended that the committee watch this if they are interested in reviewing abstracts.

**Action: MM to send committee abstract review video once available.**

CNO advised that the Board meeting went well. The BoT would like Chairs to monitor the engagement of members, inactive members will be encouraged to step down.

MVK provided an update on the education committee projects. MVK highlights the changes to the committee since she joined, the committee are taking everything to the next level and there's a lot of work to do. Elise is doing a great job! MVK wished PI good luck in the role.

Changes this year include the workshop time limits. This created fresh content for the meeting with lots of new sessions and short, engaging sessions. The committee thanked MVK for her service to the education committee.

**7. ICS Institutes (See attached info from Dan)**

DM highlighted the new physiotherapy school under the ICS institute. This is just starting and will create a lot of work but will provide members with excellent resources for PTs worldwide.

**8. Change of name for Roundtables at annual meeting- discussion**

The group discussed how the name originally was on for the PT session but we now include roundtables in the main programme. We need to differentiate between our session and the main session. The group discussed this and decided Physiotherapy Forum would be a better name, we will start using from next year.

**Action: Office to change Physiotherapy Roundtable to Physiotherapy Forum on 2018 programme.**

Group discussed whether the workshops should change or stay the same. It was agreed that they would change their name to discussion groups.

**9. Discussion on Round table and finalizing timetable**

There have been a few last minutes issues- we lost 2 workshop chairs and due to this had to close workshops and offer alternatives for the delegates. All 12 workshops are now fully booked with 10 people per table.





The committee discussed how to deal with last minute cancellations. It was suggested that we have back up chairs in place for future events.

**Action:** RT co-ordinator to arrange for back up chairs for future events.

HM suggested that we ask the chairs to sign a contract when they confirm their position. This contract would include key dates that they need to be aware of and when responses are required.

PVDM asked whether any committee members would like to co-chair the sessions? We have 3 rooms booked for the workshops and need a co-ordinator in each room. DM, NF and PM volunteered.

DM thanked PVDM for all her hard work, the organisation has been amazing! Round of applause from members for PVDM.

DM advised that we will need volunteers for next year. NF, HM and RK volunteered to help PVDM.

**Action:** Office to update the RT subcommittee to include NF, HM and RK.

The group advised that they will need a call to discuss further.

**Action:** Office to arrange a call between PVDM, NF, HM and RK.

The committee discussed the merits of holding a drinks reception for PT's- timings, location etc. The group were concerned about value for money, enjoyment of delegates etc. JE advised if the committee wanted to explore this further then it is possible to send PT delegates a post meeting evaluation, in addition to the standard evaluation, to obtain more valuable feedback. DM advised this was a possibility.

**Action:** DM to let office know if a post meeting evaluation for PTs was required.

## 10. AOB

DM asked whether there was a need for a workshop at 2018? This year's workshop is dual translated and run by MS, who is now retiring. Group discussed and felt a workshop would be beneficial but it would need CME accreditation to encourage people to attend. DM to look into this further.

**Action:** DM to look at possible workshops for ICS 2018 and accreditation for PTs.

CC advised she would draft a news schedule and email it around to committee members.

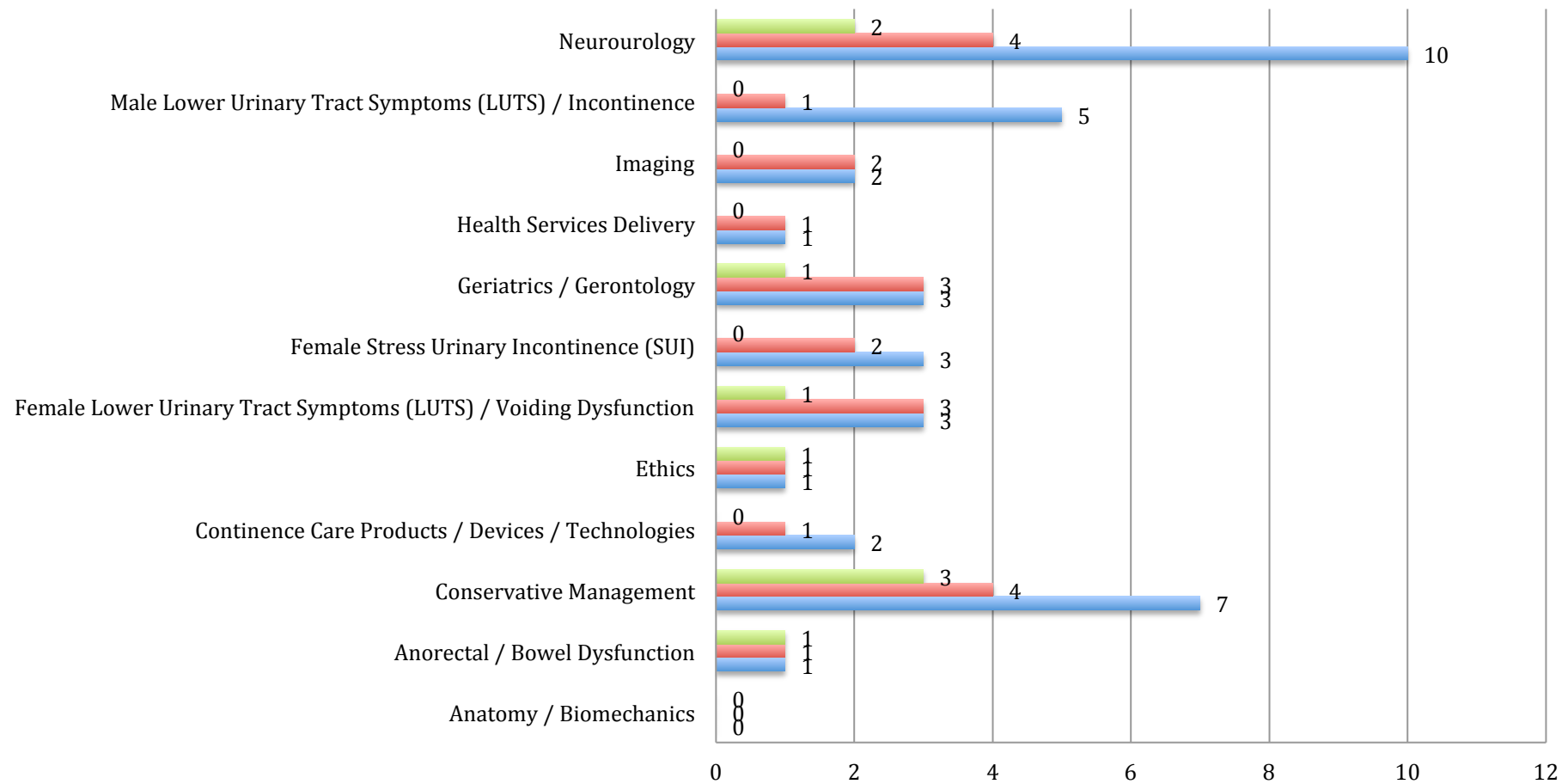
**Action:** CC to draft a committee news schedule and email it to committee members.



**ENDS**

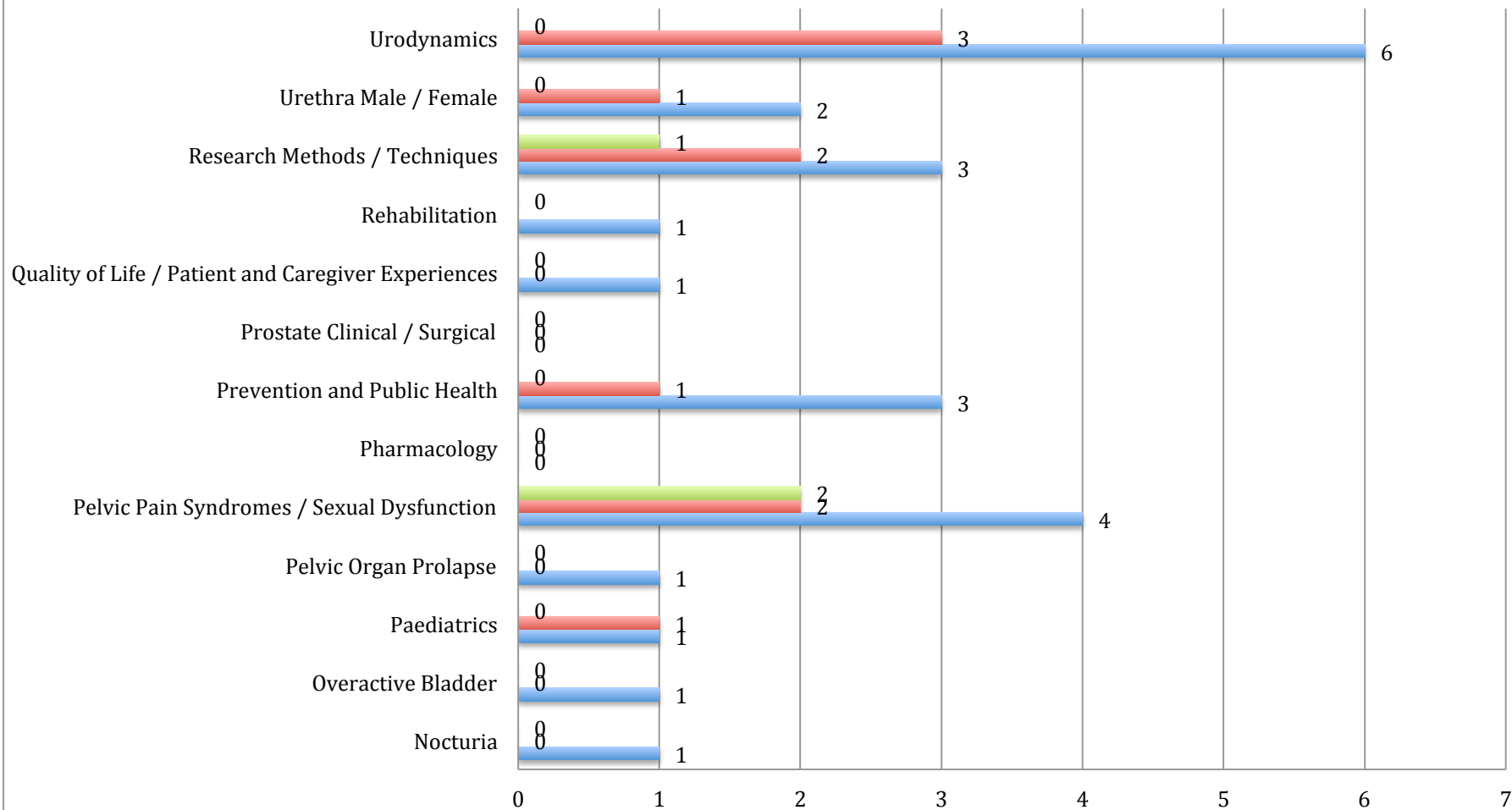
## Workshops ICS 2018 - Philadelphia

■ Physiotherapy participation n=12   ■ Workshops accepted n=32   ■ Workshops submitted n=64



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■ Physiotherapy participation n=12   ■ Workshops accepted n=32   ■ Workshops submitted n=64



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| 2 | Continence and Pelvic Floor Physiotherapy | Australia | University of Melbourne | Post Graduate Certificate in Physiotherapy | Pelvic Floor Assessment form | Skin  | resting tone (perineal muscles)        | Peer assessment | Physiotherapists | Signed informed consent | Exam |
|---|---|-----------|-------------------------|--|------------------------------|---|--|-----------------|------------------|-------------------------|------|
|   |   |           |                         |  |                              | Mucosa  | resting tone (levator ani)             |                 |                  |                         |      |
|   |   |           |                         |  |                              | Urethral meatus                                   | Vaginal sensation                      |                 |                  |                         |      |
|   |   |           |                         |  |                              | Anus  | Vaginal length                         |                 |                  |                         |      |
|   |   |           |                         |  |                              | PFM contraction (labia parted)                    | Puborectalis attachment to pubic bone  |                 |                  |                         |      |
|   |   |           |                         |  |                              | Cough (labia parted)                              | Levator hiatus                         |                 |                  |                         |      |
|   |   |           |                         |  |                              | Neurological examination: light touch/sharp/blunt | POP                                    |                 |                  |                         |      |
|   |   |           |                         |  |                              |   | Voluntary PFM contraction              |                 |                  |                         |      |
|   |   |           |                         |  |                              |   | Voluntary PFM relaxation               |                 |                  |                         |      |
|   |   |           |                         |  |                              |   | Involuntary PFM reaction to cough      |                 |                  |                         |      |
|   |   |           |                         |  |                              |   | Resting tone                           |                 |                  |                         |      |
|   |   |           |                         |  |                              |   | PFM lift                               |                 |                  |                         |      |
|   |   |           |                         |  |                              |   | Muscle quality (thickness, defects)    |                 |                  |                         |      |
|   |   |           |                         |  |                              |   | Pain VAS                               |                 |                  |                         |      |
|   |   |           |                         |  |                              |   | Trigger points                         |                 |                  |                         |      |
|   |   |           |                         |  |                              |   | ICS or Oxford strength grade Perineals |                 |                  |                         |      |

|   |  |           |                               |  |                                |  |  |                 |   |                         |   |
|---|--|-----------|-------------------------------|--|--------------------------------|--|--|-----------------|---|-------------------------|---|
|   |  |           |                               |  |                                |  | ICS or Oxford strength grade Levator ani                                     |                 |   |                         |   |
|   |  |           |                               |  |                                |  | Coordination   |                 |   |                         |   |
|   |  |           |                               |  |                                |  | Endurance  |                 |   |                         |   |
|   |  |           |                               |  |                                |  | Fast contractions  |                 |   |                         |   |
|   |  |           |                               |  |                                |  |  |                 |   |                         |   |
| 3 | Conservative Management of Pelvic Organ Prolapse 1 | Australia | University of South Australia | Professional Certificate in Conservative Management of Pelvic Organ Prolapse | Practical assessment checklist | Tissue health and integrity  | Tone of superficial perineals, pubococcygeus, puborectalis and illicoccygeus | Peer assessment | Physiotherapists, Nurses, General Practitioners | Signed informed consent | Practical assessment (peers and tutors) |
|   |  |           |                               |  |                                | Evidence of prolapse or perineal hypermobility at rest on cough and on strain      | Integrity of rectovaginal fascia   |                 |   |                         |   |
|   |  |           |                               |  |                                | Pelvic floor contraction and maintenance with cough, lifting head and lifting foot | Integrity of the levator ani attachments, assessment of avulsion             |                 |   |                         |   |
|   |  |           |                               |  |                                | Valsalva to reproduce prolapse   | Measurement of levator hiatus dimensions, lateral and antero-posterior       |                 |   |                         |   |



|   |  |                |                        |                           |   |  |  |  |                  |                         |  |
|---|--|----------------|------------------------|---------------------------|---|--|--|--|------------------|-------------------------|--|
|   |  |                |                        |                           |   | Measurement of genital hiatus and perineal body, calculation of ballooning | Pelvic floor contraction and maintenance with cough, lifting head and lifting foot                       |  |                  |                         |  |
|   |  |                |                        |                           |   |  | Use of tongue depressor to retract anterior and posterior vaginal walls to assist assessment of prolapse |  |                  |                         |  |
|   |  |                |                        |                           |   |  | POP staging of anterior and posterior walls and cervix   |  |                  |                         |  |
|   |  |                |                        |                           |   |  | Digital POP-Q  |  |                  |                         |  |
|   |  |                |                        |                           |   |  | Assessment of POP in standing  |  |                  |                         |  |
|   |  |                |                        |                           |   |  |  |  |                  |                         |  |
| 4 | Physiotherapy in Women's Health & Continence for Physiotherapists (2 different programmes) | United Kingdom | University of Bradford | Post Graduate Certificate | Protocol for basic vaginal and pelvic floor examination | Skin   | Vaginal dimensions   | Peer assessment (Opt in. Can opt out as model but still examine) | Physiotherapists | Signed informed consent | Masters level assessment - patient assessment, examination, treatment planning/advice and viva |
|   |  |                |                        |                           |   | Mucosa   | Vaginal sensation  |  |                  |                         |  |

|   |                                |             |                        |                   |                         |                                   |  |                 |                  |                         |      |
|---|--------------------------------|-------------|------------------------|-------------------|-------------------------|-----------------------------------|--|-----------------|------------------|-------------------------|------|
|   |                                |             |                        |                   |                         | Introitus                         | Vaginal pain                               |                 |                  |                         |      |
|   |                                |             |                        |                   |                         | POP                               | Vaginal wall descent                       |                 |                  |                         |      |
|   |                                |             |                        |                   |                         | Perineum                          | Uterine descent                            |                 |                  |                         |      |
|   |                                |             |                        |                   |                         | Cough                             | Urethral mobility                          |                 |                  |                         |      |
|   |                                |             |                        |                   |                         | Strain                            | Bladder neck descent                       |                 |                  |                         |      |
|   |                                |             |                        |                   |                         | PFM contraction                   | Superficial PFM gross function             |                 |                  |                         |      |
|   |                                |             |                        |                   |                         | Accessory muscle activity         | Levator ani detailed assessment as follows |                 |                  |                         |      |
|   |                                |             |                        |                   |                         | Dermatome check                   | Comparison left and right                  |                 |                  |                         |      |
|   |                                |             |                        |                   |                         |                                   | PERFECT evaluation                         |                 |                  |                         |      |
|   |                                |             |                        |                   |                         |                                   | PFM tone and relaxation                    |                 |                  |                         |      |
|   |                                |             |                        |                   |                         |                                   | PFM response to cough                      |                 |                  |                         |      |
|   |                                |             |                        |                   |                         |                                   | Teach 'the Knack' if appropriate           |                 |                  |                         |      |
|   |                                |             |                        |                   |                         |                                   |  |                 |                  |                         |      |
| 5 | Master of Pelvic Physiotherapy | Netherlands | SOMT University Campus | Master of Science | Pelvic Floor Assessment | vagina closed (yes/no)            | Introduction one finger (possible?)        | Peer assessment | Physiotherapists | Signed informed consent | Exam |
|   |                                |             |                        |                   |                         | scars /episiotomy (yes/no, clock) | Introduction two fingers (possible?)       |                 |                  |                         |      |

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|  |  |  |  |  |  | mucosa,<br>trophic/atrophic                      | pain (left, right,<br>anterior,<br>posterior)                           |  |  |  |  |
|  |  |  |  |  |  | vulvar skin disorders<br>(normal/red/sclerotic)  | Numeric Rating<br>Scale<br>provocation of<br>pain 0-10                  |  |  |  |  |
|  |  |  |  |  |  | vulvar irregularities<br>(cyst, tumor), (yes/no) | Tone, normal,<br>hyper, hypo,<br>LvsR                                   |  |  |  |  |
|  |  |  |  |  |  | voluntary<br>contraction                         | Symmetry :<br>Differences in<br>anatomy?                                |  |  |  |  |
|  |  |  |  |  |  | co-contraction                                   | Sensation:<br>normal, LvsR,<br>hyper, hypo,<br>allodynia                |  |  |  |  |
|  |  |  |  |  |  | Visible relaxation                               | Proprioception  |  |  |  |  |
|  |  |  |  |  |  | Coughing: perineal<br>movement visible           | Voluntary<br>contraction<br>(MVC), Yes/No,<br>Strong/Normal/<br>Weak    |  |  |  |  |
|  |  |  |  |  |  | Cough: time to<br>contract                       | Inward<br>movement<br>during<br>contraction,<br>Yes/No,<br>Strong/Weak  |  |  |  |  |
|  |  |  |  |  |  | Incontinence during<br>coughing                  | Ventral<br>movement<br>during<br>contraction,<br>Yes/No,<br>Strong/Weak |  |  |  |  |

|  |  |  |  |  |  |                                     |   |  |  |  |  |
|--|--|--|--|--|--|-------------------------------------|---|--|--|--|--|
|  |  |  |  |  |  | Valsalva (visible)                  | co-contractions, Yes/No, abdominal, gluteal, legs, diaphragm, other                   |  |  |  |  |
|  |  |  |  |  |  | Descent of perineum during Valsalva | co-contractions after instruction, Yes/No, abdominal, gluteal, legs, diaphragm, other |  |  |  |  |
|  |  |  |  |  |  | Descent of urethra during Valsalva  | timing of contraction   |  |  |  |  |
|  |  |  |  |  |  | Prolapse of mucosa of the urethra   | Palpable urethral lift Yes/No, strong/weak  |  |  |  |  |
|  |  |  |  |  |  | Incontinence During Valsalva        | closing of the hiatus(2 fingers) Yes/No, strong/weak                                  |  |  |  |  |
|  |  |  |  |  |  | Prolapse vagina wall                | Closing of the hiatus (one finger if 2 is not possible), Yes/No, strong/weak          |  |  |  |  |
|  |  |  |  |  |  | Prolapse during Valsalva            | symmetry of contraction   |  |  |  |  |

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|  |  |  |  |  |  |  | Avulsion of the levator ani  |  |  |  |  |
|  |  |  |  |  |  |  | If avulsion levator ani, gap between L and R                           |  |  |  |  |
|  |  |  |  |  |  |  | endurance in sec, max 30 sec, 50% MVC                                  |  |  |  |  |
|  |  |  |  |  |  |  | Repetitions of endurance (max 3)                                       |  |  |  |  |
|  |  |  |  |  |  |  | Repetitions of MVC   |  |  |  |  |
|  |  |  |  |  |  |  | Pay attention to: compensation of abdomen, legs, gluteal and breathing |  |  |  |  |
|  |  |  |  |  |  |  | degree of relaxation, complete, incomplete, delayed, absent            |  |  |  |  |
|  |  |  |  |  |  |  | Cough: reflex contraction palpable, yes/no                             |  |  |  |  |
|  |  |  |  |  |  |  | Cough: descent of perineum, yes/no                                     |  |  |  |  |

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|--|--|--|--|--|--|--|---|--|--|--|--|
|  |  |  |  |  |  |  | Cough: Timing<br>of contraction<br>during coughing<br>(before, during,<br>after, non)                   |  |  |  |  |
|  |  |  |  |  |  |  | Cough:<br>Incontinence,<br>No/yes, urine,<br>vag flauts, anal<br>flatul, faeces                         |  |  |  |  |
|  |  |  |  |  |  |  | Valsalva:<br>descent of<br>perineum,<br>Yes/No/Excessi<br>ve (descent<br>below ischial<br>tuberosities) |  |  |  |  |
|  |  |  |  |  |  |  | Valsalva:<br>unaware<br>relaxation,<br>Yes/No/Parado<br>xical   |  |  |  |  |
|  |  |  |  |  |  |  | Valsalva:<br>incontinence,<br>No/yes, urine,<br>vag flauts, anal<br>flatul, faeces                      |  |  |  |  |

|   |  |         |                        |   |  |                                   |  |                    |                      |  |  |
|---|--|---------|------------------------|---|--|-----------------------------------|--|--------------------|----------------------|--|--|
|   |  |         |                        |   |  |                                   | Conclusion:<br>overactive,<br>underactive,<br>coordination<br>disorder, non-<br>functioning or<br>normal |                    |                      |  |  |
|   |  |         |                        |   |  |                                   |  |                    |                      |  |  |
| 6 |  | Belgium | HE L de Vinci -<br>UCL | Post<br>Graduate<br>University<br>Certificate in<br>Physiotherap<br>y | Pelvic<br>Floor<br>Assessmen<br>t form | Skin                              | Integrity of<br>structures   | Peer<br>assessment | Physiotherapi<br>sts |  |  |
|   |  |         |                        |   |  | Mucosa                            | POP  |                    |                      |  |  |
|   |  |         |                        |   |  | Urethral meatus                   | Vaginal<br>sensation/length  |                    |                      |  |  |
|   |  |         |                        |   |  | Vagina                            | Anal<br>sensation/length   |                    |                      |  |  |
|   |  |         |                        |   |  | Anus                              | Hiatus<br>urogenitalis   |                    |                      |  |  |
|   |  |         |                        |   |  | PFM contraction<br>(labia parted) | Muscle quality<br>(thickness,<br>defects)  |                    |                      |  |  |
|   |  |         |                        |   |  | Cough (labia parted)              | resting tone<br>(perineal<br>muscles)  |                    |                      |  |  |
|   |  |         |                        |   |  |                                   | resting tone<br>(levator ani)  |                    |                      |  |  |
|   |  |         |                        |   |  |                                   | resting tone of<br>EAS   |                    |                      |  |  |
|   |  |         |                        |   |  |                                   | Relaxation PFM   |                    |                      |  |  |

[illegible]



[illegible]

|   |                             |                |  |   |   |   |   |  |                  |  |                                 |
|---|-----------------------------|----------------|--|---|---|---|---|--|------------------|--|---------------------------------|
| 8 | Female urinary incontinence | Canada (Qubec) | University of Sherbrooke, University of Montreal | Postgraduate program in Physical Therapy: 15 credits, 6 courses | Pelvic floor assessment video, practical demo, power point presentation | Skin (lesion, colour, turgor, signs of atrophy) | Resting tone (hypo/normo/hyper and Resting scale)   | Peer assesment (ICI book, Evidence-based Physical therapy for the pelvic floor ) | Physiotherapists | Practical courses mandatory. Verbal consent. | Theoretical and practical exams |
|   |                             |                |  |   |   | Mucosa  | Pain at palpation (numerical rating scale), tension and trigger point ( 0 to 12 O'clock, continence ring)<br>PFM superficial and deep |  |                  |  |                                 |
|   |                             |                |  |   |   | Scar  | Pain at palpation (numerical rating scale), tension and trigger point (obturator internus)  |  |                  |  |                                 |
|   |                             |                |  |   |   | Pilosity  | Flexibility (antero-post and lateral, number of fingers)  |  |                  |  |                                 |
|   |                             |                |  |   |   | Urethral meatus                                 | Scar, lesion  |  |                  |  |                                 |

|  |  |  |  |  |  |   |   |  |  |  |  |
|--|--|--|--|--|--|---|---|--|--|--|--|
|  |  |  |  |  |  | Vulval varicosity,<br>hemorrhoids   | PFM function:<br>scales (PERFECT,<br>ICS, Brink),<br>endurance,<br>speed of<br>contraction,<br>symetry,<br>compensation |  |  |  |  |
|  |  |  |  |  |  | Vaginal secretions<br>(qty, signs of<br>infection)  | Synergy with<br>tranverse<br>abdominis and<br>external rotator  |  |  |  |  |
|  |  |  |  |  |  | Neurological exam<br>(anal reflex,<br>sensitivity,<br>dermatomes)   | PFM contraction<br>and timing<br>during coughing  |  |  |  |  |
|  |  |  |  |  |  | Perineum, anus and<br>vaginal introitus at<br>rest, valsalva, cough,<br>PFM contraction<br>(movement and<br>prolapse) | Quality of<br>relaxation<br>(complete,<br>incomplete,<br>delayed, absent)   |  |  |  |  |
|  |  |  |  |  |  | Other muscles<br>compensation during<br>PFM contraction   | Avulsion (dietz<br>technique (Gap),<br>Dumoulin and<br>Kruger's<br>technique)   |  |  |  |  |
|  |  |  |  |  |  | Palpation of the<br>perineum for<br>assessing pain,<br>tensions, trigger<br>points                                    | Muscle quality<br>(thickness,<br>defects)   |  |  |  |  |

[illegible]

[illegible]

17<sup>th</sup> Physiotherapy forum 2018: Chair P.J. Voorham- van der Zalm

Wednesday: afternoon

Drinks afterwards

State of the arts:

- Tine van Aggelpoel: Toilet training: how about stool?" PhD candidate Belgium(confirmed)
- Hedwig Neels : Tackling barriers to after childbirth." PhD thesis Belgium(confirmed)
- Carina Siracusa : Oncology and functional outcomes : Womens health (confirmed)
- Dr. Moheb Yani: Mapping brain networks of pelvic floor muscle control " PhD thesis: US(confirmed)
- Doreen McClurg: PT committee

Workshops

1. Tinne Van Aggelpoel Hands on anorectal balloon training – a physiotherapeutically approach in adults and children". (confirmed)
2. Hedwig Neels: pelvic floor rehabilitation after childbirth: (confirmed)
3. Alexandra Vermandel practical physiotherapy and pediatric urology : (confirmed)
4. Anorectal dysfunction in adults: Danielle van Reijn (confirmed)
5. Beth Shelly: Therapeutic neuroscience education: how to teach patients about pain: (confirmed)
6. Nelly Faghani: IC vs PBS and treatment options (confirmed)
7. Margret Sherburn:: Pelvic pain reasoning model (confirmed)
8. Dorien Bennik: electrostimulation of the pelvic floor(confirmed)
9. Carina Siracusa : Oncology and functional outcomes : Womens health (confirmed)
10. Cristiana Carboni: Male Pelvic pain (confirmed)
11. Barbara Kohler: the ICF-IAF (ICF-Assessment Form) (confirmed)
12. Sinead Dufour: Diastasis (confirmed)
13. Rhonda K. Kotarinos: Skeletal muscle physiology and pelvic floor contracture in relationship to LUTS
14. Nicole van Bergen: Post partum consult: **has to be confirmed**
15. ???

## **Physiotherapy for Female Urinary Incontinence**

### **Module 1 Assessment**

#### **Introduction**

This International Continence Society (ICS) Teaching Module demonstrates the role of the physiotherapy assessment for female urinary incontinence in clinical and research practice. The module further presents the basic skills and a practice protocol for the physiotherapy assessment process, including troubleshooting and interpretation.

The assessment process, which is used to formulate a specific treatment plan, investigates the nature of the underlying disorder and – if present – the urinary incontinence severity (assessed on the basis of the International Classification of Functions, Disability and Health (ICF) (WHO 2001). These are examined in the context of whether the underlying disorders and/or any identified unfavourable prognostic factors are modifiable by physiotherapy.

#### **Objective**

1. To introduce essential and current evidence-based information on the physiotherapy assessment of female urinary incontinence for physiotherapists working with women with urinary incontinence.

#### **Learning Outcomes**

On completion of this module the participants should:

1. Have a fundamental understanding of female urinary incontinence
2. Have knowledge on the basic assessment of the female with urinary incontinence
3. Be aware of professional standards and apply cultural adaptations as appropriate
4. Be able to apply evidence-based clinical reasoning skills to formulate an appropriate diagnosis and treatment plan

#### **Module requirements**

In order to successfully complete the module the participant must complete all components of the module, which are:

1. Pre and post reading of key papers as identified at the end of the document
2. Detailed reading of this ICS course paper
3. Assessing and reviewing the accompanying ICS power point presentations
4. Assessing the ICS video on vaginal assessment of the female patient

### **Pre and post modular tasks**

#### **In order to increase the effectiveness of undertaking the module you should**

1. Become familiar with the basic physiology of the urinary system
2. Become familiar with the basic anatomy of the pelvic floor
3. Become familiar with the correct terminology regarding bladder function and dysfunction
4. Identify any protocols or policies within your workplace relevant to your professional practice in the assessment of women with urinary incontinence.
5. Undertake the assessment of women with urinary incontinence, in stages if necessary, to become familiar with the process. A structured assessment pro forma is useful and an example is included as an Appendix.

To familiarize with the previous concepts additional references have been included at the end of this document.

### **Background**

#### **Anatomy and function of the Female genitourinary system**

##### **1. Anatomy of the pelvic floor muscles**

The term pelvic floor relates to the compound structure, which closes the bony pelvic outlet. The term pelvic floor muscle refers to the muscular layer of the pelvic floor. The pelvic floor consists of different layers, the most cranial being the peritoneum of the pelvic viscera and the most caudal being the skin of vulva and



perineum (DeLancey, 1992). The middle layers of the pelvic floor are made up of predominantly muscular tissue. Two different groups of muscles together form the muscular layer of the pelvic floor: the superficial and the deep pelvic floor muscles. The superficial pelvic floor muscles are the bulbospongiosus, ischiocavernosus, external anal sphincter and superficial and deep transverse perineal muscles. The deep pelvic floor muscles are the levator ani and coccygeus that, along with the endopelvic fascia, comprise the pelvic diaphragm. The levator ani is composed of three muscles—the puborectalis, pubococcygeus, and iliococcygeus. The urethra, vagina and rectum pass through the pelvic floor and are surrounded by the pelvic floor muscles (ref).

The pelvic floor muscles receive innervation through the ventral branches of S2-S4 of the sacral plexus via the pudendal nerve. The pudendal nerve has sensory motor and autonomic fibres that are supplied via three main branches—the inferior rectal nerve, the perineal nerve, and the dorsal nerve of the clitoris. The pudendal nerve innervates the clitoris, the bulbospongiosus and ischiocavernosus muscles, the perineum, the anus, the external anal sphincter, and the urethral sphincter. This nerve contributes to external genital sensation, continence and orgasm. Muscles of the levator ani are thought to have direct innervation from sacral nerve roots S3-S5. (ref)

## **2. Physiology of the pelvic floor muscles**

The coordinated contraction and relaxation of the pelvic floor muscles provide both support to the pelvic organs and maintain continence.

The pelvic floor muscles provide active support through a constant state of muscular contraction (resting state) and passive support from the surrounding connective tissue and endopelvic fascia. During an increase in intraabdominal pressure, the pelvic floor muscles automatically contract with an upward movement and closure of the vagina and urethral and anal sphincters to maintain the support action of the pelvic floor (REF).

A pelvic floor muscle contraction closes the urethra preventing involuntary loss of urine. The detrusor activity is inhibited by a pelvic floor muscle contraction. These two actions are important for maintaining continence (REF).

A contraction of the pelvic floor muscles results in a ventral and cranial movement of the perineum with an upward movement of the pelvic organs. Relaxation of the pelvic floor muscles results in a reduction in the support given to the urethra, vagina, and anus. Pelvic floor relaxation occurs only briefly and intermittently during the processes of normal micturition and defecation (REF).

### **3. Neurogenic Basis of continence and micturition**

Micturition, also known as urination, is the excretion of urine from the urinary bladder through the urethra to the outside of the body.

#### **1. Neural control of micturition**

The micturition process involves the coordination of the central (the pontine micturition center, the periaqueductal gray, and the cerebral cortex), autonomic, and somatic nervous systems.

The micturition process consists of two phases:

- The storage phase: the coordinated relaxation of the detrusor muscle and contraction of the urethral sphincters via sympathetic stimulation allow the bladder to fill in and store urine.
- The voiding phase: micturition occurs when the detrusor muscle contracts and the urethral sphincter relaxes via parasympathetic stimulation. At the same time, the pelvic floor muscles also voluntarily relax. (REF)

The ability to initiate micturition voluntarily and to empty the bladder completely is critically dependent on correct function of storage and voiding reflexes. The storage reflexes are responsible for the maintenance of continence, and the voiding reflexes initiate and support complete bladder emptying. The neural reflex system is based

on receptors that are located in the detrusor muscle, in the trigone, in the bladder neck, in the urethra and in the levator ani muscles (REF). Mahony and co-authors described 12 main reflexes, 4 of which are storage reflexes, 7 are micturition reflexes and 1 stops voiding and reinstalls the storage phase (REF).

The perineo-detrusor inhibiting reflex (storage reflex) is particularly relevant to the physiotherapist assessing and treating women with urinary incontinence as a contraction of the pelvic floor muscles can activate this reflex and induce inhibition of the detrusor muscle (REF).

## 2. Neural control of continence

The ability to maintain continence in situations when the pelvic floor is stressed is maintained by a competent striated and smooth muscle sphincter mechanism, the pelvic floor muscles, adequate bladder storage function and the correct function of the storage and voiding reflexes (REF).

### **Pathophysiology of the female urinary system**

#### **1. Definitions**

Urinary incontinence (UI) is a common symptom that can affect women of all ages, with a wide range of severity and nature. UI is defined by the International Continence Society (ICS) as 'the complaint of any involuntary leakage of urine' (Abrams et al 2017). The patient's perceived amount of leakage is a good indication of the degree of incontinence. Whatever the amount, UI is always abnormal. Currently the prevalence of any grade of UI among community-dwelling adult women in the community ranges widely, from 10% to 70% (Thom et al 2005).

The most common types of UI are stress, urge and mixed urinary incontinence. Stress UI (SUI) is involuntary urine leakage on effort or exertion. During effort or exertion, the intra-abdominal pressure is raised, and the urethral sphincter is unable to maintain a pressure higher than that exerted on the bladder. Subsequently, UI occurs during everyday activities such as lifting, laughing, jumping, sneezing, or coughing (Abrams et al 2017).

Urgency UI (UUI) is involuntary urine leakage accompanied or immediately preceded by urgency (a sudden compelling desire to urinate that is difficult to delay). During bladder filling, the bladder contracts abnormally, which produces a sensation of the need to urinate that becomes gradually stronger which is very difficult to ignore, and ultimately results in UI. UUI may be associated with overactive bladder syndrome (OAB), a condition that denotes urgency, frequency (the complaint of micturition occurring more frequently during waking hours), and nocturia (the complaint of interruption of sleep one or more times because of the need to urinate), with ('OAB wet') or without ('OAB dry') UUI (Abrams et al 2017).

Mixed UI is involuntary urine leakage associated with urgency and exertion, effort, sneezing or coughing (Abrams et al 2017).

## **2. Aetiology**

Urinary incontinence occurs when bladder pressure rises higher than urethral pressure either because there is a limit to what urethral pressure can resist physiologically or because it is weak. Whilst no single etiological factor exists in all women with UI, there are a series of predisposing factors such as obesity, prolapse, collagen disorder, menopause and pregnancy and childbirth that can provoke weakness to the urethra continence mechanism (Abrams et al 2017).

More specifically and relevant to physiotherapy, SUI has been attributed to hypermobility of the bladder neck and urethra, intrinsic urethral insufficiency and damage to the urethral continence mechanism (interplay between the tension of the pubourethral ligaments, the levator ani together with the connection of the vaginal wall, the endopelvic fascia to the arcus tendineus fascia pelvis and the pelvic nerves) because of aging, hormonal changes, childbirth trauma and/or pelvic surgery (Wyndaele and Hashim 2017).

The mechanism behind MUI is considered to be a combination of the dysfunctions causing either SUI or UUI as previously described. An alternative theory is that UI into the proximal urethra (SUI) triggers a sensory urgency and/or bladder contractions leading to UUI (Wyndaele and Hashim 2017).

### **3. Risk factors**

**Risk Factors:** Considering the heterogeneity of the studies regarding risk factors for UI, age, BMI, parity and mode of delivery are definitely associated with UI in women and for all of these factors, the association with SUI is greater than UUI (Abrams et al 2017).

The risk factors for SUI in women are collagen and oestrogen deficiency, advanced age, chronic obstructive airway disease, ethnicity, constipation, pregnancy and childbirth, obesity (body mass index>30), hysterectomy and neurological disease (Wyndaele and Hashim 2017).

### **Principles of exercise physiology**

#### **1. Normal muscle physiology**

The pelvic floor musculature (skeletal muscle) contains a mixture of both slow and fast muscle fibres. Slow oxidative muscle fibres (tonic, type I) sustain activity, whereas fast glycolytic muscle fibres (phasic, type II) are involved in bursts of activity. The pelvic floor musculature is considered a postural muscle composed predominately of 66% Type I slow twitch muscle fibres and 34% Type II fast twitch muscle fibres. The function of the tonic activity is instrumental in providing support to the pelvic viscera as well as maintenance of constriction of the urethra, vagina and anal canal. Pregnancy, vaginal delivery and age can decrease muscle mass and it is imperative to know about the consequences of these changes before being able to design an appropriate therapeutic exercise programme.

#### **2. Principles of Exercise Physiology**

Exercise physiology refers to the physiological effects that exercise has on the human body. The primary principles of a strength-training program are progressive overload, specificity, maintenance, and reversibility (REF).

Progressive overload refers to muscle performance including both strength and endurance. To achieve this it is necessary to work the muscles harder than usual with concentrated effort. The initial training period must ensure that the correct

pattern of movement (specificity) is being used and then to be followed by encouragement of maximum voluntary contractions (MVC) for overload. Repeating the MVC as many times as possible with a short rest between each MVC can further increase endurance.

There are several ways to overload a muscle:

- add weight or resistance
- sustain the contraction
- shorting resting periods between contractions
- increase number of repetitions
- increase speed of the contraction
- increase frequency and duration of the workouts
- alternate form of exercise
- alternate range to which a muscle is being worked

An initial assessment is essential to establish the starting point in the exercise programme; this is the only way to determine an appropriate “exercise prescription” to overload the muscles.

Specificity refers to the effect of exercise training “specific” to the area of the body being trained (ACSM). Although muscles work in patterns of movement, it is essential to ensure that the pattern of movement is neither detrimental nor masks activity in the target group. There are some studies (REF) that suggest that there is a co-contraction of the pelvic floor muscles with the hip adductors, gluteal and abdominal muscles however this may not happen in women with pelvic floor dysfunction and gross contraction of these muscles may result in a raised intra-abdominal pressure and pelvic floor descent. An increase in intraabdominal pressure may cause further pelvic floor muscle stretch and weakness. Therefore the physiotherapist should start with focusing on specific pelvic floor muscle training (PFMT). Miller et al. have shown that by teaching women to contract the pelvic floor muscles before and during a cough (the knack), stress urinary loss can be reduced by an average of 73.3% after 1 week of practice.<sup>24</sup>

Muscle training can succeed in improving strength, power, and endurance. But in order to maintain the improvement, the exercise needs to be continued on a regular basis.<sup>21</sup> Skeletal muscle has been known over a period of 6 months training to improve 25–50% in strength<sup>21</sup>, therefore a minimum period of 15–20 weeks PFMT exercise has been recommended.<sup>20</sup> It is believed that effects of the first 6–8 weeks are due to neural adaptation<sup>22</sup>; muscle hypertrophy takes longer and continues over many months.<sup>22</sup> A reduced exercise programme can maintain moderate levels of strength and endurance<sup>25</sup>; but if training ceases, the oxidative capacity of the muscle diminishes in 4–6 weeks,<sup>26</sup> with the endurance ability declining more quickly than the ability to exert maximal power.<sup>27</sup>

### 3. Pelvic floor muscle training (PFMT)

PFMT is almost universally considered a first line intervention for the treatment of urinary incontinence. PFMT encompasses variable goals: strengthening, endurance, coordination or any combination of the three.<sup>1</sup> Dumoulin, et al, state that the American College of Sports Medicine's progression principles should be followed when developing a pelvic floor muscle-training program. Specific to pelvic floor training, the progressive overload would indicate the intensity of the exercise and the number of repetitions should be gradually increased. The speed of the repetitions with submaximal loads should be changed based upon on the intended goal, whether it is for endurance or strength. When training for endurance the rest periods should be shortened and lengthened for strength and power training. Increasing the overall volume of training should be done progressively. The current progression model for strength training is as follows:

- 1) A repetition range of 8-12 maximum contractions at moderate velocity.
  - 2) 1-2 minute rest between sets.
  - 3) Initial training frequency of 2-3 times per week progressing to 4-5 times.
  - 4) 2-10% increase in load when current workload can be done 1-2 times over goal.<sup>Error! Bookmark not defined.</sup>
-

The current progression model for endurance is as follows<sup>1</sup>:

- 1) Light to moderate loads 40-60% of maximal load with high repetitions >15.
- 2) Short rest periods <90 seconds. Error! Bookmark not defined.

The physiotherapist shall develop a pelvic floor muscle-training program after a thorough, comprehensive evaluation of the patient. Following the principles of progression models for strength training and individualizing programs for each patient are the most important elements to a successful pelvic floor muscle-training programme.

## **Assessment**

### **Subjective assessment**

Symptoms are the subjective indicator of a disease or change in condition as perceived by the patient, carer, or partner, and may lead her to seek help from health care professionals. Symptoms are the complaints mentioned by the patient during the patient interview or stated on questionnaires filled by the patient. Symptoms alone cannot be used to make a definitive diagnosis nor can they denote the pathophysiological mechanism (ICS REF).

Incontinence symptoms should be investigated through a careful urological history in order to characterize the type of incontinence. The sensitivity of subjective assessment was found sufficient to discriminate urgency incontinence, stress incontinence and mixed incontinence before undertaking conservative management (Holroyd-Leduc et al. 2008; Castro Dias et al. 2017b). Severity of urinary loss (frequency and quantity), circumstances of leakage, time of onset and duration of symptoms, degree of bother and desire to undertake treatment should also be evaluated (Castro Dias et al. 2017b). The anamnesis should also encompass the evaluation of bladder storage symptoms (frequency of micturition, nocturia, urgency), sensory symptoms (increased or reduced bladder sensation during bladder



filling) as well as voiding and post-micturition symptoms (e.g straining to void, abnormalities with the urine stream, postmicturition leakage) (Haylen *et al.* 2010).

The clinical history should also cover other related symptoms of pelvic organ prolapse (e.g. bulging, pressure, low backache, splinting/digitation), sexual dysfunctions (e.g. pain, obstructed intercourse, vaginal laxity), anorectal dysfunctions, (e.g. incontinence, urgency, constipation, bleeding) and pelvic pain (Haylen *et al.* 2010).

Past medical history (including obstetrical history), medication and co-morbidities (e.g. mobility problems, cognitive and neurological deficits) that could interfere with urinary symptoms should be reviewed (Castro Dias *et al.* 2017b). Likewise, risk factors (see section 3) related to incontinence should be investigated with a particular attention to those that can be modified with behavioural interventions (e.g. amount and type of fluid intake, bladder irritants). Moreover, results of previous incontinence investigation and treatment should be taken into account (Castro Dias *et al.* 2017b).

In addition assessment should focus on recognizing symptom patterns and identifying possible 'red flags', such as:

- unexplained incontinence
- pain while urinating
- hematuria
- signs of inflammation
- infections
- fever
- (nocturnal) perspiring
- signs of general malaise
- severe loss of weight
- loss of urine without the patient feeling the urge to empty his or her bladder and without pain

Several validated questionnaires have been recommended by the International Consultation on Incontinence (ICI) to assess symptoms of incontinence, prolapse, sexual and bowel dysfunction symptoms and health-related quality of life (Please refer to (Castro Dias et al. 2017a)). Among these, the ICIQ questionnaire is highly recommended with a grade A level for most of its different modules (Castro Dias et al. 2017a) and the PRAFAB Questionnaire looking at protection, body image etc (Hendriks 2007 to be added Ref 212 Ch 5 A ICI Book)

### **Objective assessment**

Bladder diary/voiding/micturition usually includes fluid intake, incontinence episodes, pad usage, the degree of incontinence as well as a record of episodes of urgency and sensation and activities related to involuntary loss of urine (Castro Dias et al. 2017b). The collection of data can be performed over 1 to 7 days. The 3-day diary has good psychometric properties (Jimenez-Cidre et al. 2015) and is generally recommended (Grade C) (Castro Dias et al. 2017b).

A stress test can be performed to confirm urinary leakage during provocative activities such as coughing and Valsalva with a full bladder.(Price et al. 2012) The test can be performed in a lying position, and if no leakage is observed, it can be repeated in a standing position (Castro Dias et al. 2017b).

The following objective measurements can be taken depending on availability and expertise of the physiotherapist.

Pad testing allows the quantification of the amount of urine lost over the duration of testing, by measuring the increase in the weight of the pads used (weighed pre- and post-testing) (Haylen *et al.* 2010). This test can be performed in-office with recommended durations of 20 min or 1 h during standardized provocative activities. It should be executed at fixed bladder volume to ensure validity of the test (Grade C recommendation) (Jorgensen et al. 1987; Khullar et al. 2017). The test is considered positive with pad weight gain of  $\geq 1\text{g}$ . Home-based pad testing can also monitor

incontinence severity during 24h of daily activities (pad weight gain  $\geq 1.3\text{g}/24\text{h}$  = positive test) (Grade C Recommendation) (Khullar *et al.* 2017).

Urinalysis should be performed as a screening test to detect haematuria, proteinuria, glycosuria, pyuria and bacteriuria (Grade D) (Castro Dias *et al.* 2017b) and if positive, adequate management and referral to a specialist should be undertaken.

Post-void residuals (PVR) is the volume of urine left in the bladder at the completion of micturition (Haylen *et al.* 2010) and is recommended in patients with a suspected decreased bladder emptying. Non-invasive ultrasound measurement is preferred as it was shown to be as accurate as catheterization (Grade A) (Castro Dias *et al.* 2017b).

### **Physical examination**

The examination and palpation of the abdomen should be performed to detect the following: (a) Scars indicating previous relevant surgery or traumas; (b) Bladder fullness/retention; (c) Other abdominal masses or distension (e.g. ascites) (Castro Dias *et al.* 2017b).

Neurological examination including dermatomes and myotomes assessments should be carried out to exclude underlying neurological conditions causing incontinence. A particular attention should be drawn to neurological signs related to saddle anesthesia (S2–4), but these should be complemented by a more general neurological examination as indicated (Haylen *et al.* 2010).

### **Pelvic floor muscle assessment**

Prior to an intimate assessment, a valid consent must be obtained from the patient and procedures must adhere to current infection control policy. The women should adopt a supine lying position with the knees bent and feet apart.

### **External examination**

Relevant observations on perineal inspection include: skin/mucosa lesions (erythema, lichen, fissures), oestrogenisation status, scars from childbirth or surgery, vaginal gap, haemorrhoids, vulvar varicosities, urethral caruncle or urethral mucosa prolapse (Laycock et al. 2008; Castro Dias et al. 2017b).

Dermatomes and sensory innervation to the perineum through light touch and pin-pricks as well as cutaneous sacral reflexes (bulbocavernosus and anal reflexes) are features of the neurological exam that should be assessed (Laycock et al. 2008; Castro Dias et al. 2017b).

External palpation of the perineum and muscle insertion (pubic arch, ischial tuberosity and coccyx) is also helpful to identify tenderness, muscle tension or trigger points (Laycock et al. 2008).

Another important aspect of the external examination is the observation of the perineal movement when the patient is asked to contract/relax the pelvic floor muscles, to cough or to perform a Valsalva (Castro Dias et al. 2017b). This allows a subjective appreciation of the pelvic floor muscle function.

### **Intra-vaginal assessment**

Due to the location of the PFM inside the pelvis, the evaluation of the PFM function is difficult only by observation. Vaginal palpation is an accepted method to evaluate muscle tone and strength and is perhaps the most accessible and valid measure of PFM function (155, 156). If possible, it is desirable to document findings for each side of the pelvic floor separately to allow for any unilateral defects and asymmetry.

Intravaginal palpation can be performed in a clockwise manner to detect pain/tenderness, tension areas, muscle volume, asymmetry, vaginal length, reduced

sensation and scars (Laycock et al. 2008). Palpation of the obturator internus muscle may also reveal tenderness and tensions.

Pelvic floor muscle tone can be assessed with the Reissing's 7-level scale ranging from +3 very hypertonic to -3 very hypotonic (0 being normal tone) (Reissing et al. 2005). Superficial layers of the PFM, including the ischiocavernosus, bulbocavernosus and transverse superficial, can be assessed at 3, 6 and 9 o'clock. The deeper PFM layers are evaluated at 3, 6 and 9 o'clock for the pubococcygeus sling and 5 and 7 o'clock for the iliococcygeus. Pain intensity during palpation can be evaluation with a 0-10 numerical rating scale (Dworkin et al. 2005).

Measurement of flexibility and hiatus diameters can also be assessed by estimating in centimeters the distance between the left and right muscle bellies just below the pubic bone by separating two fingers inserted in the vagina (transverse hiatus diameter) (Boyles et al. 2007). The distance between the back of the pubic symphysis and posterior fourchette can also be measured (antero-posterior diameter) (Boyles et al. 2007; Gentilcore-Saulnier et al. 2010).

The PFM contractile properties can also be evaluated using several scales such as the Brinks' scale (Brink et al. 1994), Devreese's scale (Devreese et al. 2004) and Messelink's scale (Messelink et al. 2005; Slieker-ten Hove et al. 2009) as well as the Laycock PERFECT assessment scheme (Laycock et al. 2001). The latter incorporates the modified Oxford scale, a scale from 0 to 5 to assess pelvic floor muscle strength. Following the recommendation from Crotty et al. (Crotty et al. 2011), a verbal cue that includes both the anterior and posterior parts of the pelvic floor muscle yield stronger contractions: "Squeeze and lift from the front and back together". In addition to strength, the Laycock PERFECT assessment scheme also includes an assessment of endurance, the number of repetitions and fast contractions (Laycock et al. 2001). The palpation of the levator urethral gap during contraction also proved to be a good technique to detect levator defect/avulsion (Dietz et al. 2008).

The assessment of the ability to relax the pelvic floor muscles after a contraction can be evaluated with the Messlink's scale (i.e. present/absent and partial/complete) (Messelink et al. 2005) or the Reissing's scale (from 0 to 5; 0 returns to resting state; 5 remains fully contracted) (Reissing et al. 2005).

The ICS report into the standardization of terminology of pelvic floor muscle function and dysfunction (158) classifies the pelvic floor muscles according with the ability to contract in: a) Normal pelvic floor muscles: Pelvic floor muscles which can voluntarily and involuntarily contract and relax. b) Overactive pelvic floor muscles: Pelvic floor muscles which do not relax, or may even contract when relaxation is functionally needed, for example, during micturition or defaecation. c) Underactive pelvic floor muscles: Pelvic floor muscles which cannot voluntarily contract when this is appropriate (155) . d) Non-functioning pelvic floor muscles: Pelvic floor muscles where there is no action palpable. (ICI PAGE 517)

Considering that palpation have been criticized when used for research purposes, several different methods are available to assess pelvic floor muscle function such as ultrasound (Dietz et al. 2001; Morin et al. 2014), electromyography (EMG) (Voorham-van der Zalm et al. 2013), dynamometry (Dumoulin et al. 2004; Morin et al. 2007; Morin et al. 2008) and manometry (Frawley et al. 2006) but are beyond the scope of this introductory module.

Pelvic organ prolapse can also be assessed with the Pelvic Organ Prolapse Quantification system (POP-Q) as suggested by Haylen et al. (Haylen et al. 2016)

### **Anal assessment**

Anal examination may be useful to assess pain, sensibility, the integrity of the posterior vaginal wall, mobility of the coccyx as well as tonicity and strength of the external anal sphincter, levator ani and transverse muscle. Anal sphincter tear can present as a "gap" in the anal sphincter complex. Fecal impaction can also be assessed (Castro Dias et al. 2017b).

### **Clinical reasoning – differential diagnosis and treatment planning**

Clinical reasoning is a complex phenomenon invariably defined in terms of the cognitive processes that health care professionals employs to analyses and interpret patient information with reference to their prior knowledge and experience (1).

The main purpose of clinical reasoning therefore is to allow the physiotherapist to understand and interpret the unique picture of each individual in the clinical setting to facilitate decision-making and treatment planning (2) and to find out any serious pathology that may impede treatment and require onwards referral to the most appropriate practitioner.

Most physiotherapists use the hypothetico-deductive reasoning. With this type of clinical reasoning the physiotherapist forms initial hypotheses from the subjective assessment and these are confirmed or negated through the objective assessment (Dood and McAteer 2002). Continuous hypothesis and reflection following the initial assessment coupled with knowledge and clinical practice will allow the physiotherapist to recognise patterns and the clinical reasoning process will continue to improve (Jones 1995).

An important aspect of clinical reasoning is differential diagnosis. Through the process of differential diagnosis, the physiotherapist is able to diagnose and eliminate any imminently life-threatening conditions that require urgent further investigation and a medical referral (Mathers 2012). The differential diagnoses of urinary incontinence are broad. Occasionally more than one contributing factor exists and distinguishing these different presentations is imperative because each condition warrants a different therapeutic approach. For example, Urinary tract infection (UTI) is a known cause of urinary incontinence, especially urgency incontinence, and therefore symptoms and details regarding treatment of UTI should be sought. Constipation may impede bladder emptying and there are certain diseases such as diabetes mellitus or multiple sclerosis that may affect the bladder function directly. The medication history is also important as it may contribute to urinary incontinence (Das et al 2013).

The treatment plan relates to the signs and symptoms identified through subjective and objective assessment, patient's awareness of the health problem, and the interactions among these components (5).

**Conclusion**