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Ever increasing circles

J. Haslam & J. Laycock
Clinical specialist physiotherapists in women's health and continence (retired), Cumbria, UK

Abstract
Circles can be used to describe many continuous events, including the acquisition of knowledge (i.e. learning); circles can also be used to describe 'rings' of various shapes and sizes. This paper describes the Haslam Hypotheses of Circles and the Laycock Rings of Continence.

Keywords: Hypotheses of Circles, knowledge, pelvic floor assessment, Rings of Continence.

Introduction

Ever increasing circles can be used in many contexts to suggest many things: circles have no beginning or end; the formulae for the area and circumference of a circle follow indisputable mathematical rules. However, in the vernacular, there are also non-mathematical circles, including book, poetry, knitting, prayer and dancing circles, to name just a few. The present authors aim to further 'circle knowledge' by considering the Haslam Hypotheses of Circles regarding knowledge and the updated Laycock Rings of Continence.

History

We can learn from reflecting on women and attitudes in 1948 when the Obstetrics Physiotherapy Association came into being and the National Health Service (NHS) was formed. At that time, there was still post-war rationing of food and clothes, and women were redefining their place in society after proving themselves both adept and resourceful during the war years.

Also in 1948, Dame Josephine Barnes, who later became president of the Association of Chartered Physiotherapists in Women's Health (ACPWH), spoke graphically on the radio when she discussed the symptoms of and solutions for the problems caused by the menopause on *Woman's Hour.* It would appear that it was not thought appropriate for women's problems to receive air time by the post-war British Broadcasting Corporation (BBC) hierarchy since a memo from the controller was later circulated saying:

> 'We do not wish to hear about hot flushes and diseases of the ovaries at 2 o'clock in the afternoon. The women in my office agree.'

However, the BBC archives show that many listeners to the programme wrote in saying otherwise (Murray 2008). I would imagine that women's health (WH) physiotherapists at the time would have been outraged at the attitude of the BBC. We have come a long way since 1948, with the eventual evolution into the ACPWH in 1994.

Over the past 60 years, WH physiotherapists (WHPs) have increased their knowledge by keeping up-to-date with changes in technology and medical practices. Women's health now encompasses a wide range of specialities, and the acquisition of knowledge makes the job more challenging and stimulating.

The Haslam Hypotheses of Circles

The following thoughts about possible connections between knowledge and WH physiotherapy have been developed over the past 18 years, but have not been previously formalized in writing. A quote attributed to Socrates (470–399 BCE) describes the search for knowledge in this way: 'Wisdom begins in wonder.'

Haslam's first hypothesis

Knowledge can be considered to be contained within the area of a circle. The perimeter of that circle equates with the things that you do not

Correspondence: Jeanette Haslam, The Highlands, Alston, Cumbria CA9 3DA, UK (e-mail: jeanette@thehaslams.net)

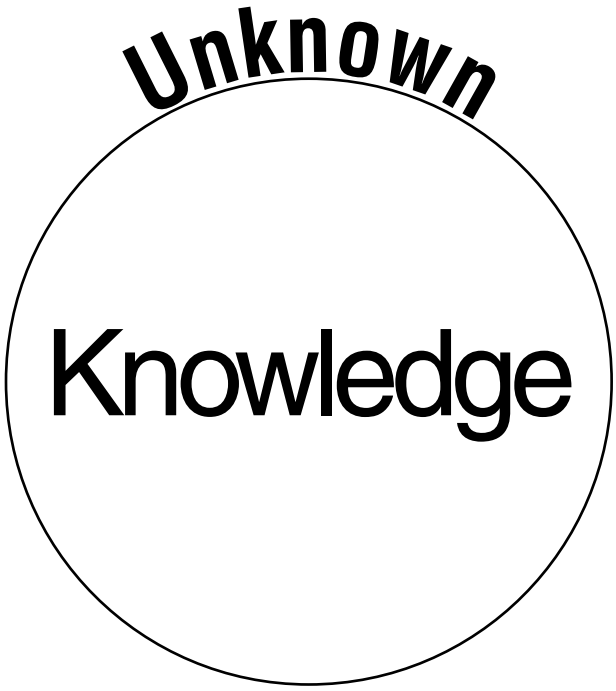

Figure 1. Haslam's first hypothesis of circles.

know and need to learn, as shown in Fig. 1. An individual's original knowledge regarding WH may be gained by a placement with a WHP as a student, chance encounters, junior rotation through a WH department, personal needs, reading or other means. An encounter with an enthusiastic WHP can play a large part in the establishment of this particular circle. It is regrettable that there now seem to be far fewer WH student placements than in former years.

Haslam's second hypothesis

This can be best summed up in the well-known phrase, 'The more you know, the more you know you don't know.' The secret is not to become dispirited at this time, but rather, to enjoy the journey of learning. Getting to know your postgraduate centre is a huge help. Librarians, by their very calling, generally love to help the enthusiastic seeker of knowledge. Finding out which relevant journals are available and when these generally arrive can enter the diary of 'jobs to do'. A journal club made up of like-minded people can be stimulating and increase one's knowledge of current research findings. Literature searching skills can be developed. Perhaps most useful of all, is talking to others: finding details of how and when other WHPs in meet up locally is a vital part of learning. Being a member of the ACPWH opens yet more doors by giving one access to resources and the Association's workshops offer more specialist knowledge.

Other multi-professional organizations, such as the International Continence Society (ICS), open other doors. The ICS annual conference is an opportunity to meet overseas colleagues, and its membership fee also includes a monthly journal, *Neurourology and Urodynamics.*

Knowledge can also be increased by academic and practical courses, such as the WH courses at the University of Bradford, Bradford, UK, conducted in association with ACPWH, or other university-led courses. Gaining credits for modules and eventually aspiring to a higher-level postgraduate diploma or degree gains one greater respect amongst colleagues and other health professionals. Individual 'experts' also run courses at various levels and can be great sources of knowledge. Never be afraid of looking foolish by asking questions: the only foolish question is the one that remains unasked. Being aware that you do not know it all is vital, but it is also important to be realistic and understanding that no one knows everything.

Anyone can increase their knowledge – the wise person is the one who knows how to apply it. Another appropriate quote attributed to Socrates is:

> 'I cannot teach anybody anything, I can only make them think. Education is the kindling of a flame, not the filling of a vessel.'

Haslam's third hypothesis

Be aware that all that you learn is not necessarily retained! With knowledge, you will be more competent and increasingly enjoy your profession/work. Nevertheless, there comes a time when some things are forgotten, and it is essential to refresh your mind regarding what you need to know and accept that there will always be someone who knows more than you on any particular matter – use them as an extra resource. The more that you collaborate with others, the more that you can prevent this 'hole of forgetfulness' taking hold (see Fig. 2). Socrates left no writings of his own, but is reported to have said: 'The only true wisdom is knowing that you know nothing.' This is, I would hope, an encouragement to learn more – rather than just giving up. Socrates is also credited with saying, 'I know nothing except the fact of my ignorance.' This is what I would interpret as his way of ensuring that his perimeter became ever larger.

Many people who are interested in their subject will have 'temporary memory loss' regarding

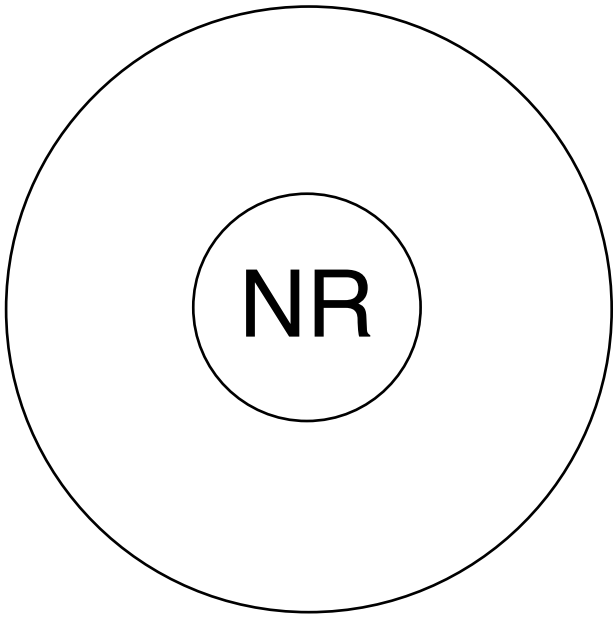

Figure 2. Haslam's third hypothesis of circles: (NR) not recalled.

detail at some point. Do not be judgemental since the wise will always follow this up by saying, 'I can find that out again.'

Research

Keeping up to date with current research is essential to ensure that we are providing appropriate care whilst remembering that 'absence of evidence is not evidence of absence' (Altman & Bland 1995). Any paper is open to criticism in parts, but should be given the respect of being read thoroughly. Primary sources should always be sought before making a judgement.

Increasing communication and the wonders of the Internet mean that knowledge is open to all. Provided that you have an Internet connection, the world is your oyster, and the circle of 'non-recall' is kept under control. But beware: just because 'it' is on the Internet or in the newspaper, this does not mean that the information is accurate or correct in all ways. Despite this fact, the mainstream media can pick up information, extrapolate from it and come up with new widely reported 'beliefs'. An example of this happened in the early part of 2008 when the press in the UK and abroad ran headlines in the press regarding stiletto heels and the pelvic floor muscles (PFMs). This story still continues to run.

On 3 February 2008, *The Sunday Times* mischievously headed a report 'Stilettos take women's sex life to higher level' (Dobson & Swinford 2008). Many other papers picked up the story, and even BBC News carried the statement 'High heels "may improve sex life" ' on the 4 February 2008 (BBC 2008). The publication that stimulated such headlines was not a scientific report, but a letter to *European Urology* (Cerruto *et al.* 2008). The authors had reported on abdominal and PFM electromyography (EMG) activity in women with stress incontinence during the previous year (Cerruto *et al.* 2007). The letter stated that, following a report in the *Daily Mail* (Dobson 2007) about a paper by Flensmark (2004) suggesting that heeled footwear may cause schizophrenia, Cerruto *et al.* (2008) had decided to continue their 2007 study. Neither this letter nor Cerruto *et al.* (2007) gave specific details of the type and placement of the electrodes employed, or the possibility of artefacts. Limited data were provided and statistical analyses supporting their conclusions were not reported.

The table provided in the letter (Cerruto *et al.* 2008) showed that the median resting activity in both continent and incontinent women seemed unaffected by heel height. The greatest median maximal activity on contraction activity in the continent group was with a heel height of 2–2.4 cm (about 1 inch). A heel height higher than this seemed to be associated with a trend towards lower EMG activity on maximal PFM contraction.

The authors stated that they had been 'astonished in the face of "bizarre medical theories" published in nonscientific journals', then proceeded to provide the very same standard of evidence that provoked such reports in the newspapers. The letter also stated: 'As a paladin of all women who love heeled shoes, I tried to find something healthy in them, and at the end I reached my goal.' But the final comment in the letter stated that wearing heeled shoes 'might affect [women's] pelvic floor muscle activity' (Cerruto *et al.* 2008).

This letter generated publicity, and wild statements were made, such as, 'High heels strengthen the pelvic floor and may be as helpful as Kegel exercises in toning the pleasure muscle,' which was accompanied by a picture of very high-heeled black shoes with red soles (Eve Magazine 2008).

From all of this, it is to be concluded that the wise WHP will, of course, always attempt to keep up with current reports and research. The first author's (J.H.) initial thought on reading reports of Cerruto *et al.* (2008) was, *A-ha, more evidence regarding the plantar dermatomes*, but

Table 1. Two planes of pelvic floor muscle examination per vagina

Position on clock face (o' clock)	Plane	
	Vertical	Horizontal*
12	Symphysis pubis	Coccyx
6	Perineal body	Perineal body
4 & 8	Pubococcygeus†	Pubococcygeus‡
10 & 2	–	Iliococcygeus
11 & 1	Compressor urethrae and urethrovaginal sphincter	–
12	Sphincter urethrae	–

*Examining index finger fully extended.
†Palpated by distal pad of flexed index finger.
‡Palpated at *base* of extended index finger.

this was not the case. Any medical reports in the mainstream media should be considered in a critical way and followed up by referring to the primary source.

In other words, always look to complete the circle, and long may your circles of knowledge increase.

More circles: Rings of Continence

Physiotherapy involves looking for clues to help diagnose a patient's problem; this involves recording the results of all the assessments, tests and investigations, and then deciding on the best course of action to ameliorate the condition. Many clinicians use an assessment proforma to ensure that the assessment is complete (Haslam & Laycock 2008a).

Rings of Continence

When assessing a woman with a PFM disorder, recording the findings of the vaginal and/or anorectal examination can be quite time-consuming, and therefore, the Rings of Continence (RoC) scheme was devised to simplify the documentation (Laycock 2002).

Originally, two rings, representing the vagina and the anal canal, were included on the assessment proforma, and findings (e.g. prolapse, scar tissue, the strength of the pubococcygeus/external anal sphincter and pain) were 'drawn' on the rings (Laycock 2002). This scheme used a vertical plane and described positions with regard to a clock face (see Table 1).

This scheme has been further developed to include vaginal assessment of the PFMs on a horizontal plane (Whelan 2008) and the urethral muscles (Laycock 2008). Figure 3 shows the three RoC, Fig. 4 shows the relative positions of

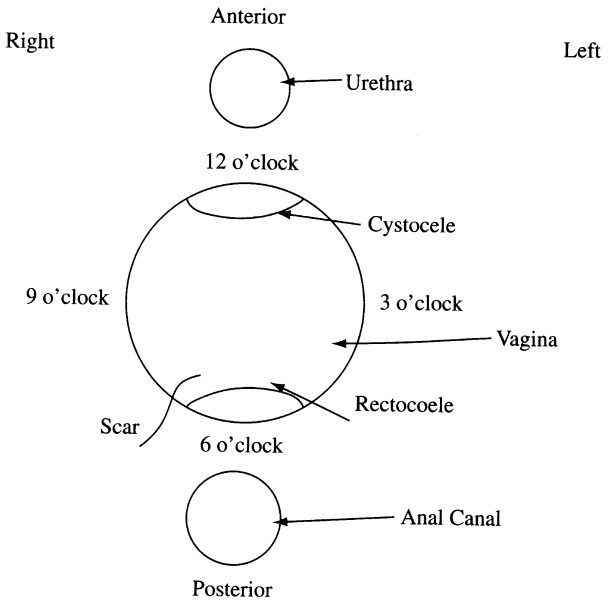

Figure 3. Rings of Continence. Reprinted from Haslam & Laycock (2008b, Fig. 7.1) with the kind permission of the publisher.

the vertical and horizontal planes, and Table 1 describes the planes relative to the face of a clock.

Assessment of the contractility of the urethral muscles tends to be overlooked, but this may be the cause of urinary incontinence. Although small, with practice these muscles can be palpated per vagina with the distal pad of the index finger placed at 11, 12 and 1 o'clock (vertical plane), and recorded on the RoC (see Table 1 and Fig. 3).

Pelvic floor muscle strength can be graded using a Modified Oxford Scale (MOS), as described by Laycock & Jerwood (2001). This study showed that, with good teaching, the MOS demonstrates good inter-tester reliability (see Table 2).

However, a committee representing the ICS recommended a simpler scale (Messelink *et al.* 2005), as shown in Table 3.

The ICS Scale is less sensitive than the MOS and does not readily demonstrate improvement in muscle strength. Furthermore, the ICS committee failed to describe 'normal'. However, the second author (J.L.) proposes that the ICS scale should be used for recording the strength of the urethral muscles, but suggests that 'normal' is replaced by 'moderate'.

When palpating the PFMs, diagnosing the 'state' of the individual muscles may be difficult. Table 4 suggests possible interpretations of these findings. Table 5 describes evidence that supports the interpretations.

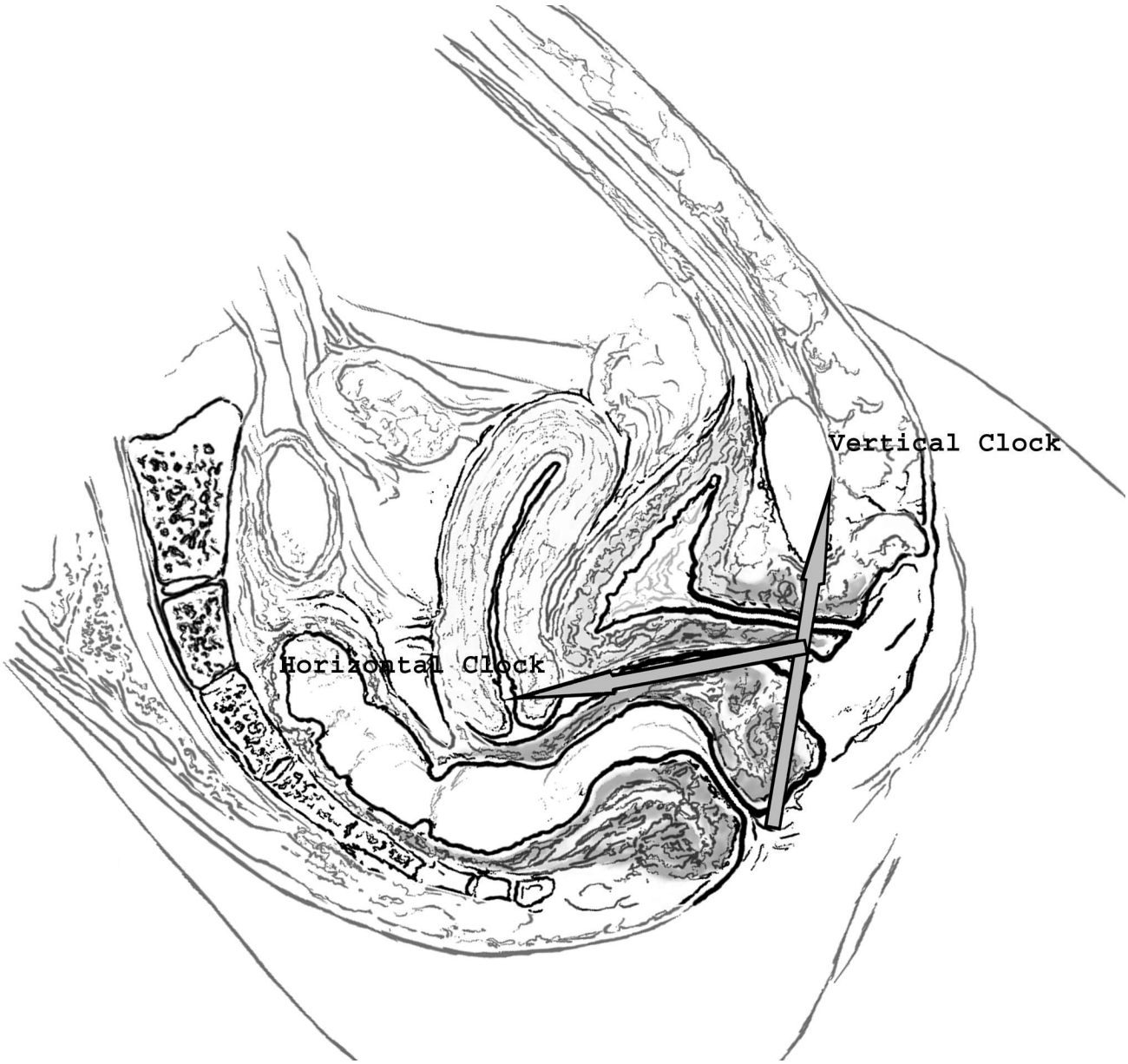

Figure 4. Planes of Examination. Reprinted from Haslam & Laycock (2008b, Fig. 7.2) with the kind permission of the publisher.

The above has suggested a method of recording PFM assessment findings and described possible interpretations. More research is needed to substantiate this subjective muscle assessment technique and validate the recording scheme.

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Table 2. Modified Oxford Scale

Muscle grade	Description
0	No discernible contraction
1	Flicker
2	Weak
3	Moderate
4	Good
5	Strong

Table 3. Pelvic floor muscle grading: the International Continence Society Scale

Muscle grade	Description
0	Absent
1	Weak
2	Normal
3	Strong

Table 4. What am I palpating during a vaginal examination? Palpation of pelvic floor muscles at rest and during a contraction

Muscle type
Normal
Denervated
Damaged
Inhibited/hypoactive
Overactive/hyperactive

Table 5. Evidence of pelvic floor muscle condition

Muscle state	Palpation	Evidence
Normal	Muscle able to contract, hold and relax fully on command	Normal electromyography (concentric needle) (Vodusek 1994)
Denervated	Gap in muscle belly	Re-innervation demonstrated by polyphasicity on concentric needle electromyography (Vodusek 1994)
Damaged	Scar tissue Gap in muscle	Magnetic resonance imaging (Stoker *et al*. 2003)
Inhibited	Feels fibrous/tendinous	Muscle does not 'lift' on attempted contraction (compared with surrounding muscles) (Whelan 2008)
Overactive	Feels taut	Muscle release not maximal (Whelan 2008)

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Jeanette Haslam retired from WH physiotherapy in 2007. Her last employment in the NHS was with Chorley and South Ribble District General Hospital, Chorley. She was involved with the University of East London continence course, and later, the Master's-level course with the University of Bradford. She served two periods as chairman of the ACPWH education subcommittee and was an ACPWH workshop tutor. In 1999, Jeanette gained an MPhil from the University of Manchester following research on 'Evaluation of pelvic floor muscle assessment; digital, manometric and surface EMG in females'. In 2001, she was honoured to receive a Distinguished Service Award from the Chartered Society of Physiotherapy (CSP).

Jo Laycock retired from active physiotherapy in 2005, having spent over 30 years working in WH, specializing in incontinence. In 1992, she gained a PhD for her research on 'Assessment and treatment of female urinary incontinence', and was later awarded Fellowship of the CSP. Jo was honoured to receive an OBE from Her Majesty the Queen in 2001.