

# Furthering our understanding

*The author of Lennon (2024) responds to the Letter to the Editor on their research article on biomechanics and fetal positioning*

**D**ear Sir/Madam,  
Thank you for taking the time to write to the editor and providing me with the opportunity to address the points that you have highlighted.

On re-reading the article, I think my choice of wording 'during labour and birth' in the sentence in paragraph two of the introduction was my mistake. This should read 'the biomechanics of the body during pregnancy in preparation for labour and birth', as this is what I wished to describe. The term biomechanics, as used throughout the article, then reflects the reference used from Conder et al (2019) to describe how the body adapts in pregnancy. These findings have provided pregnancy healthcare workers with a better understanding of what changes occur in pregnancy, and can be used to help pregnant people adapt their posture to overcome some of the mobility and pelvic girdle issues that are frequently encountered (Clarke-Patterson et al, 2022).

To give you a background to my midwifery practice, I think I need to do a bit of explaining. In the mid-1990s, new studies and initiatives focused on taking the bed out of the centre of the delivery room and encouraging women to be upright and mobile in labour. One example was the active birth courses facilitated by Andrea Robertson (1994), which built on the works of fetal optimal positioning by Jean Sutton (2001). Jean combined her 30 years' experience as a midwife with common sense and the

principles of mechanical engineering to describe the effectiveness of optimal fetal positioning, which women instinctively know what to do to give birth (Sutton, 2001). These teachings, incorporated into midwifery practice in my first few years as a staff midwife, have continued to be front and central of antenatal birth preparation and intrapartum care.

Over the years, fetal optimal positioning, the importance of antenatal exercise and encouraging and facilitating upright and active birth continues to be used to inform pregnant people, as seen in documents, webpages and clinical guidelines in the NHS, Health Service Executive and World Health Organization. More recently, visual tools have been developed to provide a framework/reference to reinforce information shared at antenatal clinics and birth preparation classes to encourage pregnant people to be active and mobile in pregnancy (Carroll et al, 2022; O'Brien et al, 2022). One example is labour hopscotch (Carroll et al, 2022; O'Brien et al, 2022), which has been used in some Irish maternity Units since 2015 and in all Irish maternity units since 2020. Another example is the biomechanics for birth toolkit, which has been incorporated into many English NHS trusts (O'Brien, 2023). The added study findings into the biomechanics of the body in pregnancy and being able to demonstrate the changes that occur in the pelvis while adopting various positions using computer generated models or models of the bony pelvis further help pregnant people understand the rationale behind practising these techniques (Desseauve et al, 2015; Chan et al, 2019; Hemmerich et al, 2019).

The development of these toolkits has arisen from midwives recognising that women need encouragement to be

active in pregnancy. Exercising and being cognisant of the various tools and props available to use in labour helps facilitate an understanding of the anatomy of the pelvis, optimal fetal positioning and the onset of spontaneous labour (O'Brien et al, 2022). Having a visual aid provides a talking point at antenatal clinics and classes to encourage pregnant people to practice various techniques that they can then use during labour and avoid unnecessary interventions that could the normal physiology of labour (Carroll et al, 2022).

The implementation of the biomechanics for birth toolkit further builds on the already used labour hopscotch. It describes in more detail the importance of regular exercise in pregnancy, as recommended by the World Health Organization, and focuses on good posture and antenatal techniques, such as rebozo, side lying releases and lunges, to encourage fetal optimal positioning. It also recommends the use of these techniques to remain active in labour, to work with the body to maximise the chances of a physiological birth (O'Brien et al, 2022).

These visual aids are a powerful tool for standardising care nationally, especially for midwives to use when caring for those in labour to facilitate choice, as otherwise the pharmaceutical options available are limited. To term these toolkits as unvalidated is harsh when they are visual aids that have been developed based on documented information that has been provided to pregnant people for almost three decades and forms the basis of antenatal care across several countries. In the true definition of biomechanics, as cited by the author of the letter, these toolkits could be viewed as misleading to the readers of my article. However, I guide you back to what biomechanics means in this article and then I feel that the use of

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the term and the writings in the article become valid and not misleading.

The reference supporting the effect of gravity and the effectiveness of contraction is referred to in the discussion in O'Brien et al (2022), and is referenced to and supported by the systematic review and meta-analysis undertaken by Berta et al (2019). I apologise if this was viewed as misleading and inadequate referencing. I was attempting to describe the effectiveness of labour hopsotch as found in an Irish maternity service, with this finding being supported by a valid reference from a systematic review.

The word count for the article was limited, so details pertaining to the methodology of the study were summarised and this appears to have resulted in questions about the ethics and data collection. The first sentence in the methods should read as 'a retrospective audit study'. Thus, as described in the article, ethics approval was not required. The local research and ethics committee was approached about approval, and I was informed that this was not required.

The ethics committee signposted me to the clinical audit team, as I was looking to ascertain if the introduction of the additional toolkit of biomechanics for birth made any difference to the annual reported outcomes for advanced midwife practitioner care. Part of the job description, and one of the key performance indicators, as an advanced midwife practitioner involves providing an annual report about the demographics, parity, Robson category, age, onset of labour, birth outcomes etc. The data for this are obtained from the maternity unit electronic pregnancy record (E3) stats generator. This system is on Health Service Executive computers, which require personalised and password protected log ons to open the computer and a separate password protection log on for E3.

All women receiving advanced midwife practitioner care are captured on the advanced midwife practitioner pathway in the system. To generate statistics, you put the advanced midwife practitioner care pathway into one of the search box, populate what questions you require to

generate data on and provide the start and finish dates required. This populates an anonymous spreadsheet of the results. These figures can be sorted, analysed and reported on with no breach of confidentiality and no link back to individuals.

The questions were devised by the advanced midwife practitioner and a student midwife, with the data required to provide the results being double checked by the person in charge of data collection and forwarded to the clinical audit support team in the hospital to analyse and provide statistics. The report was written up by the author of the article and reviewed and edited by a senior midwifery lecturer. I have rechecked with the clinical audit team in the hospital if clinical audit was the platform to use to generate the data for this project and they are happy that this was correct.

The biomechanics discussed from 26 weeks refers to the Health Service Executive visual toolkit of labour hopsotch and the biomechanics of birth toolkit. The author has attended training days provided by the HSE and the Saolta Group in both toolkits. As described previously, these have arisen from long standing techniques used in maternity services to optimise physiological birth and fetal optimal positioning, and to encourage pregnant people to exercise regularly in pregnancy.

I have been a midwife for over 30 years and have worked across the entire spectrum of pregnancy care, including antenatal education. As per the definition of biomechanics that guides this article, I have relevant up-to-date extended scope of practice to initiate and participate in health promotion conversations, as per the Health Service Executive 'make every contact count initiative', so long as the pregnant person wishes to participate in the conversation. In the definition of biomechanics, as per the author of the letter, I did not undertake training to provide that level of information and I apologise if the article has misled readers into thinking that I did provide that level of intervention.

I hope that this addresses all the points that arose in the letter. If I have not

explained clearly or there are outstanding issues, I would be happy to discuss further. In the future, I look forward to in depth true biomechanics studies, as the more of an understanding we have of the workings of the pelvis and how it changes to facilitate birth the further we can educate pregnant people and maternity care providers. **BJM**

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