'Normality' versus 'pathology': Readers' views

Birch I (2006) 'Normality' versus 'pathology': An alternative conceptual framework. *The Diabetic Foot* **9**(2): 102–7

I wondered why I was asked to provide a comment on this piece of work which conceptually looks at 'normality' versus 'pathology' (*Figures 1* and *2*). The only conclusion that I could come to was that I am the most normal person that could have been found!

One could begin by asking if there is normality within diabetes and the diabetic foot or whether all patients are their own 'norm'. What is important to clinicians is not so much to define the normal but to recognise that which is likely to develop pathology and stratify the degree of risk. So something that could be defined as the 'normal' insult would not cause a problem applied to an area of the foot in the absence of any disease, but in a diabetic foot, with neuropathy for example, then it could have a deleterious effect and produce pathological damage. Normally in the absence of a 'normal' insult, the diabetic foot would remain sound.

So what we have here is a play on words and I would agree that a concept of normality is of little consequence as opposed to the recognition of pathology and risk within an individual.

Let us look at the case of the use of statins following myocardial infarction. Statins reduce the risk of re-infarction, and this effect appears independent of the initial cholesterol level, whether it is normal or abnormal (LIPID Study Group, 1998). Patients with raised cholesterol levels would have a coronary risk reduction, yet a population with a low or normal cholesterol will have a similar event rate reduction following statin therapy. Some cholesterol levels, therefore, would be higher than normal, some would be normal and some would be lower than normal. The benefit is the same.

Our research of the diabetic foot is not geared towards 'normality' but initially geared towards defining 'pathology'. From 'pathology' we work backwards. From understanding pathology we understand the aetiology. From understanding aetiology we formulate hypotheses for both prevention and treatment. Those hypotheses are then tested, ideally in a randomised controlled study, and then this produces evidence to support the hypothesis.

It is with this model that most of the work and advancement in the management of the diabetic foot has occurred. Ulcers heal when off-loaded; debridement reduces pressure; reduced pressure is associated with a reduced ulceration rate. We can then apply science to different methods of off-loading and compare and contrast.

So I agree entirely that pathology is our starting point and understanding 'pathology' and a recognition of pathology is the basis of all effective intervention. The diabetic foot is a mixture of complex pathologies affecting different tissues and those are all exposed to different external forces. We start with the foot, look for pathology, assign individual risk and then work to maintain wholeness, not normality.

LIPID Study Group (1998) Prevention of cardiovascular events and death with pravastatin in patients with coronary disease and a broad range of initial cholesterol levels. *New England Journal of Medicine* **339**(19): 1349–57

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I support the concept of the author. Systematic research over the years (including my own) provides evidence that 'normal' values of the foot fall between a number of loci, which themselves interact (Akhlaghi et al, 1994; Brodie, 1999).

However, if the number of identifying variables is 'almost infinite' rather than infinite, then normal variation must actually be finite, even if very remote. At this stage of research, and given the present research tools, we lack the ability to establish all the variables within each locus and measure the interactions between loci.

I do very much agree with Birch's conclusions that in order to achieve progress, research needs to concentrate on pathological values and their role in the foot. This will help to achieve a greater understanding of the functioning of the foot and should contribute to the overcoming of the technical limitations of our measurements.

Akhlaghi F, Pepper M, Daw J, Potter MJ (1994) In-shoe step-to-step pressure variations. *The Foot* **4**(2): 62–8
Brodie BS (1999) MSc dissertation. University of Brighton, Brighton

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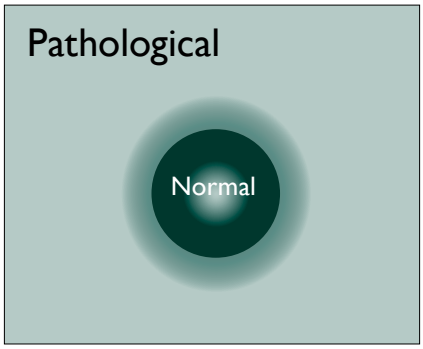

Figure 1 (right). The concept of normal as a central point. Movement of variable values away from the normal arithmetic mean represents an increasing probability that a pathology will occur or has occurred.

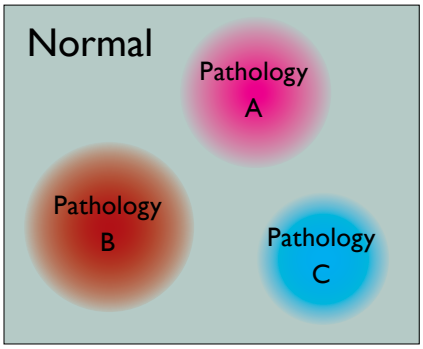

Figure 2 (far right). The concept of normal as those values not associated with pathologies, as proposed by Birch.