

**FAQ****THERAPEUTIC SURFACES****ACTIVE THERAPY SUPPORT SURFACES:  
PHYSIOLOGICAL MEASUREMENT OF THE SKIN  
TEMPERATURE AT THE INTERFACE BETWEEN THE  
BODY AND SPECIALISED PRESSURE-  
REDISTRIBUTING SUPPORT SURFACES.**

Goossens RHM. 2011

Following the first presentation of this work (NPUAP 2011) the following questions have been put to the Author

**Q.** Do you think that the results of your study suggest that the mode of action, which separates and defines Active and Reactive surfaces, is sufficiently different to warrant the development of separate performance measures for microclimate?

**A.** Yes most probably. An International consensus, published by the Tissue Viability Society<sup>1</sup>, clearly indicated that Active surfaces manage critical performance indices, such as pressure redistribution, using very different techniques to those that define Reactive surfaces. Our work suggests that these Active surfaces might also manage microclimate in different ways and so will require different test methods.

**Q.** What form will these tests take?

**A.** As with any experimental design, the purpose is to deliver reliable, valid and clinically relevant information to guide clinical prescription. While this current study certainly opened the door for many lines of research, I am not sure the academic world is even clear as to which metrics represent clinically relevant measures in terms of microclimate and tissue damage<sup>2</sup>. The literature identifies at least 6 criteria, which might be important; we need to exercise caution before we rush to design, test and prescribe medical devices based on laboratory measures until we are sure we are measuring the right thing.

For this reason the Active Therapy Work Group<sup>3</sup>, of which I am part, has agreed to add 'microclimate' to the current work plan in response to the current level of clinical interest. The group will consider the scope for specific, and clinically relevant, microclimate tests on Active surfaces.

**Q.** In the meantime do you think it is reasonable to use the currently available microclimate tests: tests that focus on the device rather than the skin response?

**A.** If we agree there is a different mode of action, then we need to develop different performance measures if the results are to be clinically meaningful. Put simply; a Reactive surface is in constant contact with the skin and so the surface is an important factor to dissipate heat and moisture. The surface itself, and the fabrics used in construction, will be manipulated by design and the performance measured in a laboratory using techniques such as rate of airflow (low air loss), 'water vapour transmission rates' (WVTR) and temperature dissipation.

By contrast, an Active surface periodically off-loads the skin, mimicking the **physiological** mechanisms that operate within the human body during spontaneous movement: this effect can contribute to normalise the local tissue environment before heat and moisture become a problem. In 2001, Van Gilder and Lachenbruch considered the optimum surface for the avoidance of heat and moisture-related pressure injury would be one that served '*to minimize the blocking effect of the surface, and, thus restore the skin's natural environment*'<sup>4</sup>. Although this premise was pitched at air fluidised therapy, it would seem that the loading and off-loading action of Active surfaces might also neatly fit this requirement. To measure these effects, requires a different focus and a different laboratory model. Today, one possibility is the use of human volunteers.

At this point in time, it is not clinically relevant to compare temperature and moisture data arising from laboratory tests designed for Reactive surfaces with the same tests for Active surfaces. Both surfaces have good clinical evidence from field studies and this would perhaps make a more reliable guide to clinical selection.

**Q.** What is the bottom line?

**A.** Until there is clarity about the role of microclimate, and the delivery of clinically relevant test methods, pressure redistribution must remain a priority. Clinicians would be wise to base their prescription on overall clinical performance and evidence from field-based studies.

#### References

<sup>1</sup> Tissue Viability Society. Laboratory measurement of the interface pressures applied by active therapy support surfaces: A consensus document. *Journal of Tissue Viability*. 2010; 19(1): 2-6

<sup>2</sup> NPUAP-EPUAP Clinical Practice Guideline 2009. [www.epuap.org](http://www.epuap.org). (Causative factors other than pressure and shear are yet to be elucidated.)

<sup>3</sup> Active Therapy Workgroup is an international collaboration working alongside the Support Surfaces Standardization Initiative (S3i), an NPUAP sponsored body. <http://www.npuap.org/s3i.htm>

<sup>4</sup> Van Gilder C. & Lachenbruch, C. A. Air-fluidized therapy: physical properties and clinical uses. *Annals of plastic surgery*. 2010; 65 (3): 364-70.

These FAQ's have been developed to answer common questions which arise during clinical practice and in the market place when clinical evidence is scarce. It is important to consider the holistic care of the patient and use clinical judgement making decisions based on the answers. If you cannot find an answer for which you are looking, please email [karen.milton@arjohuntleigh.com](mailto:karen.milton@arjohuntleigh.com) with your question(s) and we will endeavour to provide an answer and make it available to help educate others.

ArjoHuntleigh is a branch of Arjo Ltd Med. AB. Only ArjoHuntleigh designed parts, which are designed specifically for the purpose, should be used on the equipment and products supplied by ArjoHuntleigh. As our policy is one of continuous development we reserve the right to modify designs and specifications without prior notice. © and ™ are trademarks belonging to the ArjoHuntleigh group of companies.  
© ArjoHuntleigh, 2011

TS.FAQ.29.0.GB.INT.0

#### Therapy & Prevention Product Division

ArjoHuntleigh, 310-312, Dallow Road Luton, Bedfordshire LU1 1TD, UNITED KINGDOM • Phone: +44 1582 413 104 • Fax: +44 1582 459 100

[www.ArjoHuntleigh.com](http://www.ArjoHuntleigh.com)