

Recent research



The following papers are available to UK registered osteopaths and final year osteopathy students via the ozone, the General Osteopathic Council website:

<https://www.osteopathy.org.uk/ozone/resources/research/research-journals/>

Louveau A, Smirnov I, Keyes T, Eccles J, Rouhani S, Peske J, Derecki N, Castle D, Mandell J, Lee K, Harris T, Kipnis J. **Structural and functional features of central nervous system lymphatics.** *Nature*, June 2015. Available online at <http://bit.ly/brain-lymphatics>

Illif J, Wang M, Liao Y, Plogg B, Peng W, Gundersen G, Benveniste H, Vates G, Deane A, Goldman S, Nagelhus E, Nedergaard M. **A Paravascular Pathway Facilitates CSF Flow Through the Brain Parenchyma and the Clearance of Interstitial Solutes, Including Amyloid β .** *Science Translational Medicine*, August 2012;4(147) p147ra111. Available online at <http://bit.ly/glymphatics>



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<http://bit.ly/ncor-critical-appraisal>
for some help with how to critically review a paper.

Lymphatics and the brain

The press-release accompanying a recent paper (Louveau et al, 2015) in *Nature* has been causing quite a stir. It suggests that researchers have found "missing" lymphatic vessels in the brain.

This is a potentially exciting find, since it could suggest new avenues for research into the causes of diseases such as dementia and multiple sclerosis. It could also offer new targets for therapeutic interventions.

However, it's worth reading the full paper to understand the details.

The core research was done mainly in mice, with a small number of formalin-fixed human samples examined later to determine whether the findings might be present in humans. Tantalisingly the paper states "We identified a potentially similar structure in human dura... but further studies will be necessary". It's worth noting that the vessels were identified in only 2 of the 9 human samples.

The paper is a fascinating insight into the work of the modern anatomists at Professor Kipnis's lab, where the work was conducted. They used antibody staining techniques of whole mouse brains to find markers associated with lymphatic endothelial cells. They confirmed that the new vessels were non-vascular by injecting a luminous agent intravenously. This agent did not appear in the new vessels.

The researchers propose that the new vessels may form a connection with the so-called "glymphatic" system: the means whereby astrocytes clear the extracellular space in the brain (Illif et al). Despite its name, the glymphatic system is *not* lymphatic. The newly-discovered lymphatic vessels are located in the dura alongside the sinuses; hence they are external to the pia mater. This locates them outside the "blood-brain barrier" so if they are linked to the glymphatic system it is by as-yet unknown mechanisms.

All in all this is a very interesting first step, and much more work will be necessary to determine if these vessels truly exist in humans, and how they function.

MOCAM study

The University of Southampton are looking for osteopaths to participate in a research study. The MOCAM (Mechanisms in Orthodox and Complementary and Alternative Medicine Management of Back Pain) study seeks to understand how best to produce positive outcomes for patients with back pain.

Interested osteopaths will need to recruit 10 patients with a new episode of back pain. Osteopaths will be reimbursed for each patient they recruit, and will be asked to perform treatments as they usually would.

To find out more about the study contact Dr Susan Eardley by email at s.eardley@soton.ac.uk or phone 023 8059 1942. For full details visit <http://bit.ly/mocam-study>

PROMs update

Thank you to those osteopaths who have been piloting our Patient Reported Outcome Measure (PROMS) app in their practices. The pilot process has allowed us to make some small modifications to the app. It is now available to use in osteopathic practices. If you would like to know more about what is involved in using the app in your practice, please contact Carol Fawkes by email at c.fawkes@qmul.ac.uk or by telephone on 07732178308.

Paediatrics review update

Huge thanks to all osteopaths who donated to our campaign to investigate the treatment of babies and children in manual therapy. We have received nearly £8,000 from donors around the world. With news of further potential donations from osteopathic partner organisations, NCOR will be in a position to start recruiting for a systematic reviewer this September.

The review has also been warmly welcomed by the Association of Paediatric Chartered Physiotherapists who said they support "research that helps increase the evidence base of the the most effective and appropriate treatment interventions". The full article can be read in *Frontline*, the magazine of the Association of Chartered Physiotherapists, online at <http://bit.ly/apcp-ncor>

This work will help NCOR establish a centre for systematic reviews, and the paediatric review will be the first of several reviews that NCOR aim to produce in the coming years.

NCOR will always accept donations online at <http://www.ncor.org.uk/donate>

Keeping up to date



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