

# Ophthalmic and vision science, neurophysiology & autonomic neurovascular function

Join the team and make a difference

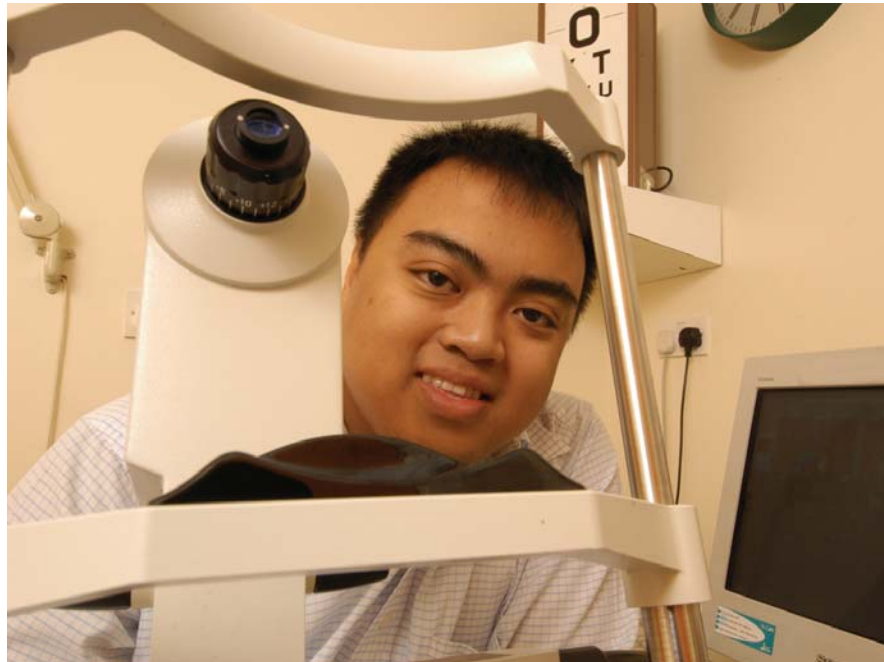
These areas of healthcare science focus on testing and diagnosing problems with some of the key bodily functions. Ophthalmic and vision science studies disorders of vision, plus diseases of the eye and the visual pathway. Neurophysiology deals with neurological problems, while autonomic neurovascular function measures heart rate, blood pressure control and sweating.

## What will you do?

Working in **ophthalmic and vision science**, you will assess the structure and function of the eye and the visual system. You will carry out a diverse range of tests and procedures that include measurement of the field of vision and the pressure in a patient's eye, taking images of the eye and its supporting structures, and taking measurements to determine the optical power of the lens to be inserted in the patient's eye during cataract surgery. By assessing and monitoring these various functions and structural changes, you will provide essential information to help ophthalmologists diagnose and treat conditions such as glaucoma, cataract and diabetic retinopathy.

You may come into contact with patients with a range of problems, from poor sight through to complications of diabetes. Although you'll see people of all ages, many conditions are brought on by age, so you will need to be sympathetic to the needs of elderly people.

Most scientists in this area work in an outpatient clinic alongside a wide range of



other healthcare professionals and in ophthalmic diagnostic units. However, there are also opportunities for research work, helping to improve existing techniques and develop new ones.

In **neurophysiology**, you will help to diagnose and monitor neurological disorders, including epilepsy, strokes, dementia, nerve and muscle dysfunction and multiple sclerosis. You will see both inpatients and outpatients, working with people of all ages.

The work is hugely varied. You could be working as part of a team that is removing part of a patient's spine, deliberately stimulating nerves, or tracking electrical activity in the brain.

Some of the techniques that you will use in this area include:

- EEG (electroencephalography) – this records the electrical activity of the brain
- evoked potentials – these help to measure how the brain responds to specific stimuli, for example a flashing light or sounds
- EMG (electromyography) and NCS (nerve conduction studies) – these assess the function of the nerves and muscles within the body.

You will work with a range of patients, from premature babies through to the elderly, and because of the nature of the work you will often be working with people in real pain. Therefore, it's vital to have excellent interpersonal skills and adapt to difficult situations.

By specialising in **autonomic neurovascular function**, you will be part of a developing and increasingly vital area of the NHS.

You will be responsible for measuring how a patient's heart rate and blood pressure control system is functioning, as well as monitoring their sweating. You'll carry out a range of tests with each patient, then interpret and report on your results.

Your work will help clinicians diagnose stand-alone disorders such as pure autonomic failure – an imbalance of the nervous system that often results in low blood pressure – as well as autonomic nervous system problems associated with conditions like diabetes and Parkinson's disease. Your findings will also help with the short and long-term management of these conditions.

You will use a variety of systems and procedures, often similar to those used by

neurophysiologists and cardiac physiologists, but the devices and software programmes are specifically designed to measure heart rate, blood pressure and sweating.

As you will need to perform numerous tests on the same patient, you may see fewer than five people each day. Often you will see the same patient on several occasions over a short period.

There will also be a lot of interaction with other NHS staff, such as nurses, doctors and occupational therapists, who need to know more about how these vital functions assist in their own roles.

The opportunity to share your expertise and specialist knowledge with other healthcare professionals can be one of the most rewarding aspects of working in this area.



### Where will you work?

Where you are based will depend on the exact nature of the work you do.

In vision science, you will be based in a clinic, within a hospital outpatients department.

Neurophysiologists may be in an operating theatre in a general hospital, or a dedicated unit within a specialist centre.

Neurovascular specialists are often attached to neurophysiology or cardiology departments of larger hospitals or can be part of a dedicated specialist unit.

### What skills and qualities will you need?

- excellent interpersonal skills – you will be carrying out delicate and sometimes painful work. Therefore, you'll need to show patience and understanding to put patients at their ease
- excellent hand-eye co-ordination – many of the procedures demand great care, concentration and attention to detail
- communication skills – this is essential when explaining your findings to patients and writing reports for other medical professionals
- data analysis – it's important you can analyse and interpret your findings accurately

### What entry routes are available?

To work in **ophthalmic science**, you will need to complete a foundation degree in ophthalmic science and technology while also undergoing an in-house training programme. You will be paid as you undergo the on-the-job elements of your training. Your employer may also pay your tuition fees as you take the theoretical elements of your training through day release at a higher education institute. On completion of your training, you will be eligible to join the Voluntary Registration Council.

To work as a **clinical physiologist in neurophysiology**, you usually need a vocational BSc in clinical physiology (neurophysiology). You will be paid as you undergo the on-the-job elements of your training. Your employer may also pay your tuition fees as you take the theoretical elements of your training through day release at a higher education institute. If you join the NHS with another sciences degree, you can take top-up theoretical courses which will be dependent on your prior knowledge, as well as the on-the-job

elements of your training. On completion of your training, you will be eligible to join the voluntary register of the Registration Council of Clinical Physiologists.

To specialise in **autonomic neurovascular function**, you'll need to complete a BSc in clinical physiology. Any additional experience in neurophysiology or cardiology is preferable but not essential. You will then complete two years of interactive, on-the-job training to gain the necessary practical skills and learn how to interpret and report on your findings.

If you have a first-class or upper second-class degree in a relevant subject, you may be eligible to join the NHS Clinical Scientists Training Scheme. This is a four-year programme of in-depth training in a specialist area, during which you will be paid whilst undertaking the clinical elements of your training. Some employers may also pay your tuition fees and offer financial support while you undertake theoretical academic elements of your training. This will usually lead to an MSc or specialist postgraduate diploma, and give you the opportunity to



work at the forefront of research and knowledge, as a clinical scientist registered with the Health Professions Council. For more information, visit

[www.nhscinicalscientists.info](http://www.nhscinicalscientists.info)

With GCSEs or an equivalent NVQ and/or previous work experience, it is often possible to start work as a trainee or assistant in healthcare science, combining on-the-job training with study so that you learn as you earn. For more information, see the *Clinical support worker* factsheet.

Some employers also offer apprenticeships in engineering and science, enabling you to gain experience and qualifications in a particular role.

For more information on the range of opportunities available in healthcare science, please visit [www.nhscareers.nhs.uk/list/qualifications](http://www.nhscareers.nhs.uk/list/qualifications). This gives more specific details about what qualifications are necessary for each role. You can search for current vacancies and download job descriptions at [www.jobs.nhs.uk](http://www.jobs.nhs.uk)

## How can you develop your career?

There are excellent career prospects and openings for research, management and education – in fact, you will be encouraged to study, perhaps for an MSc or PhD. You will be encouraged to continually expand your knowledge as advances are made, contributing to the growth of the role and you may even carry out related specialised work.

With training, responsibility and experience, you could reach the highest level in the profession, attaining consultant status, at which level you are likely to be in charge of

a large department or making a significant contribution to your area of expertise.

Find out more about what training is open to you and how you can develop your career, at [www.nhscareers.nhs.uk/list/training](http://www.nhscareers.nhs.uk/list/training)

As well as moving into more senior and specialised roles within this area, you will also have the chance to take on additional responsibilities and progress within the organisation as part of the Career Framework. For more information about this initiative, please see the *Careers in healthcare science* booklet.

## Pay

Agenda for Change (AfC) is the national pay system for the NHS. This applies to all healthcare science staff except the most senior managers. These are examples of roles and the AfC bands at which they may be paid: healthcare science support worker (Band 2); healthcare science assistant (Band 4); healthcare science practitioner (Band 5); healthcare science specialist (Band 6); healthcare science advanced (Band 7); healthcare science consultant (Band 8a-c). For more information, visit [www.nhscareers.nhs.uk/list/payandbenefits](http://www.nhscareers.nhs.uk/list/payandbenefits)

**To find out more about careers in this area of healthcare science, please go to**  
[www.nhscareers.nhs.uk/list/working](http://www.nhscareers.nhs.uk/list/working)

**For more information on the professional bodies relevant to healthcare science, visit**  
[www.nhscareers.nhs.uk/list/contacts](http://www.nhscareers.nhs.uk/list/contacts)