The Physiological Society **Brand Guidelines**

March 2021

The Physiological Society

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Logos

1.1 Logo variations

The Physiological Society logo is available to use in four colours.

The Full colour logo is our primary logo. The logo should preferably be used on a white background but may be used on light colours and images. Please ensure that there is enough contrast for the icon and wordmark to be visible and legible.

The Cyan and white logo should be used on dark blue backgrounds or very dark images only.

The White logo should be used on backgrounds using our six brand colours excluding the dark blue and on dark images and graphics. When using this logo, ensure that there is enough contrast for the logo to be visible and legible.

A Black logo is also available but is only to be used in instances where the other logos cannot be used such as when printing in black only.

The logos have been produced in the following formats.

EPS – These files are for professional design use. There are CMYK logos for general use and Pantone logos for printing in spot colours.

JPG and PNG – These versions are for use with programs such as Microsoft Word and digital use.

Full colour logo
Formats: CMYK EPS File, Pantone EPS File, JPG, PNG File

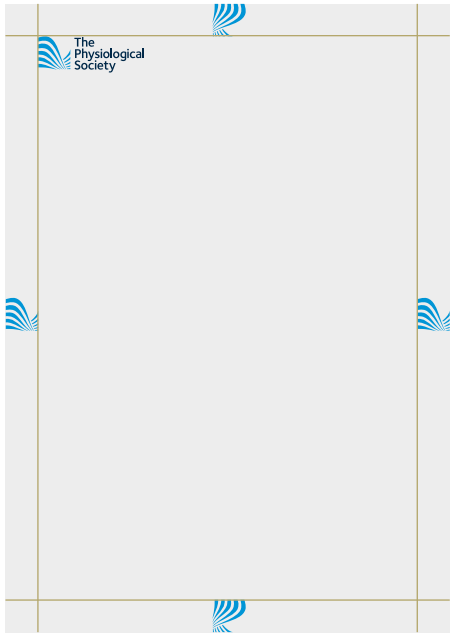
Cyan and white logo
Formats: EPS File, PNG File

White logo
Formats: EPS File, PNG File

1.2 **Positioning**

The Physiological Society's logo can be positioned in any corner if it best suits the design of each piece of communication. Usually the logo works best along the hard edge of the document, either top left or bottom left. Avoid centring the logo.

The margin around the logo should equal the width of the wave graphic. If this is not possible ensure that the margins are of equal measure, e.g. If a logo is positioned top left, the top and left margins should be the same.



1.3 **Minimum exclusion zone**

To ensure that the logo is prominent and visible, an area of clear space must surround the logo at all times. Ideally this should be equal to the width of the wave graphic. If space doesn't allow this, the clear space should be a minimum of the width of the 'P' in the logo. This will scale up in relation to the size the logo is being used.

1.4 **Print sizes**

The Physiological Society logo should always be prominent and clear on our materials. To ensure consistency across our print and digital materials we have specified sizes for common page sizes and applications.

To make sure that our logo is always legible, the smallest recommended size for the logo is 20mm in width for printed materials.

A3
70mm

The Physiological Society

A4
50mm

The Physiological Society

A5
35mm

The Physiological Society

Min
20mm

The Physiological Society

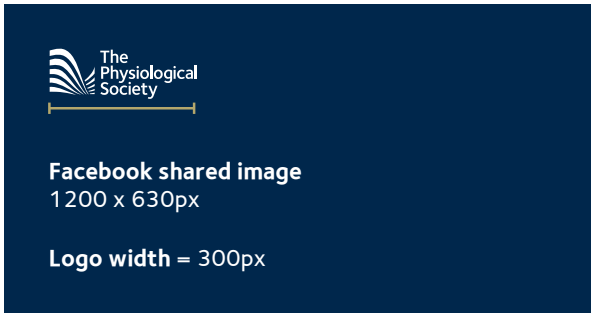
1.5 **Digital sizes**

As a rule, the width of the logo when sized for digital use should be 25% of the width of the item being produced. This is a guide and there may be exceptions to the rule for oddly proportioned sizes. The smallest recommended size of the logo for a digital use is 72px.

Shown opposite are some of the common social media sizes correct at time of printing.

Before creating new work, ensure that you are using the most up to date information on social media image sizes.

Minimum size
72px



1.6 **Branding bar**

The branding bar can be used for materials where the logo does not work over an image or background, or where contact and social media details are required. It should appear with either a white or dark blue background.

It works best on event adverts or posters to create a clear division from the details of the event. The branding bar should only appear at the bottom of the materials, and should not be used on materials smaller than A5.

A4 Branding bar dark blue Shown to scale. 12mm margin between borders and sections.

Cyan and white logo
5omm width

Contact details
Foundry Sterling bold 12pt

Social media details
Foundry Sterling medium 11pt

A5 Branding bar white Shown to scale. 8mm margin between borders and sections.

Cyan and white logo
35mm width

Contact details
Foundry Sterling bold 9pt

Social media details
Foundry Sterling medium 8pt

1.7 **Logo misuse**

Do not place the full colour logo on coloured backgrounds or images.

Do not place the cyan and white logo on backgrounds or images that are not very dark or conflict with the cyan colour.

Do not place the white logo on light coloured backgrounds or images.

Do not place any logo directly over busy backgrounds or images.

Do not alter the colour of the logos unless it is for a special print process such as foil blocking.

Do not modify or rearrange the logo or wordmark. The only exception is for social media profile images where the wave can be used without the wordmark, but the wave still shouldn't be rotated or flipped.

Make sure that the logo is not distorted in any way.

Do not rotate the logo. It should always be used in a horizontal format or a vertical format in special circumstances such as event displays.

1.8 Journal logos

The Physiological Society publishes two Journals that lead the discipline, promoting best practice and pushing the boundaries of scientific endeavour, *The Journal of Physiology* and *Experimental Physiology.*

Both of the Journals use the typography and brand colours of The Physiological Society.

The two logos shown opposite should only appear in the colours shown. *The Journal of Physiology* logo uses the dark blue brand colour and *Experimental Physiology* uses dark blue and red.

For details on the colours, see page 14.

When using the logos alongside The Physiological Society logo, a space equal to the wave graphic should be left between them.

The top of the **'T'** in the The Journal of Physiology logo should line up with the top of right hand section of the wave graphic.

The Top of the **'X'** in the Experimental Psychology logo should line up with the top of right hand section of the wave graphic.

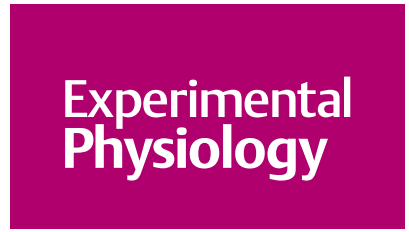
The Journal of Physiology

Full colour logo

White logo

Experimental Physiology

Full colour logo



White logo

Logo alignment and sizing

2

Typography

2.1 **Our typefaces**

Primary font

The Foundry Sterling font family should always be used for text on printed materials and for digital applications such as social media posts and online advertising. The brand uses four weights of the font.

Foundry Sterling Book

Foundry Sterling Book Italic

Foundry Sterling Medium

Foundry Sterling Bold

Internal font

In circumstances where it is not possible to use our primary font such as emails, and internal documents, the Calibri font family should be used.

Calibri Regular

Calibri Regular italic

Calibri Bold

Website font

For digital applications such as our website the Roboto font family is used. Use Roboto Condensed for headings and Roboto regular for text.

Roboto Condensed Regular

Roboto Condensed Bold

Roboto Regular

Roboto Bold

2.2 **Using type consistently**

The Physiological Society
Advancing physiology since 1876

As the largest network of physiologists in Europe, with academic journals of global reach, we continue our 140-year tradition of being at the forefront of the life sciences. We bring together scientists from over 60 countries, and our members have included numerous Nobel Prize winners from Ivan Pavlov to John O'Keefe.

About us

The Physiological Society brings together over 4000 scientists from over 60 countries. Since its foundation in 1876, its members have made significant contributions to our knowledge of biological systems and the treatment of disease.

We promote physiology and support those working in the field by organising world-class scientific meetings, offering grants for research, collaboration and international travel, and by publishing the latest developments in our leading scientific journals, The Journal of Physiology, Experimental Physiology and Physiological Reports.

The Society also runs events for the general public on how physiology relates to everyday life, and for students who may be considering physiology as a career.

Main headings should be typeset in Foundry Sterling bold or medium. A mixture of the two weights can also be used to add emphasis. The bold weight should be used as the primary font for advertisements and the medium weight for academic uses such as headings within reports. The line spacing of the headings should be 120% of the font size.

Standfirsts and quotes should be typeset in Foundry Sterling medium.

Sub headings should be typeset in Foundry Sterling bold.

Body text should be typeset in Foundry Sterling regular unless it's important to highlight key information, and then the heavier weights can be used. Body text should be no smaller than 11pt so that it is legible to as many people as possible.

The colour of body text in reports and publications should be an 80% tint of black.

2.3 **Accessibility guidelines**

The Physiological Society communications need to be visually engaging and legible for all of our audiences. To ensure communications are accessible to as many audiences as possible, we need to consider a variety of things including text size and style, text alignment and colour contrast.

Text size
Body text should be a minimum of 11pt so that it is legible to as many people as possible.

Capitalisation
Setting large amounts of text in capital letters can be harder to read than lower-case letters. Using capital-case is acceptable only for headings and emphasising single words

Italicisation
Some audiences can find italics difficult to read so they should be used sparingly. Using a bold weight, an underline or a strong colour are good alternatives to add emphasis.

Leading
Leading or line spacing is the space between one line of text and the next. If the line spacing is too narrow or too big the text will be difficult to read. As a basic rule, the leading should roughly be a minimum of 120% of the text size. For example, 11pt text would have a line spacing of 13pt.

Word spacing
Changing the spacing between letters or words (horizontal scaling) is sometimes used to fit more text on to a line. Where possible this should be avoided to avoid compromising legibility. In cases where this cannot be avoided, the horizontal scaling should be set to no less than 97%.

Line length
Long lines of text are harder to read. For optimum readability, a good guideline is between 12 and 15 words per line.

Alignment
Left-aligned text with a ragged right hand margin is the most legible as it is easiest to find the start and finish of each line. Avoid centring large sections of text or justifying text (where all lines of text are of an equal length).

Colour contrast
There should always be a high contrast between the text and the background. Contrast is greatest when dark colours are used with light colours or white. Avoid using text in our brand colours on dark backgrounds or images. Body text and small text using very dark colours are the most accessible and should be set to an 80% tint of black in our communications.

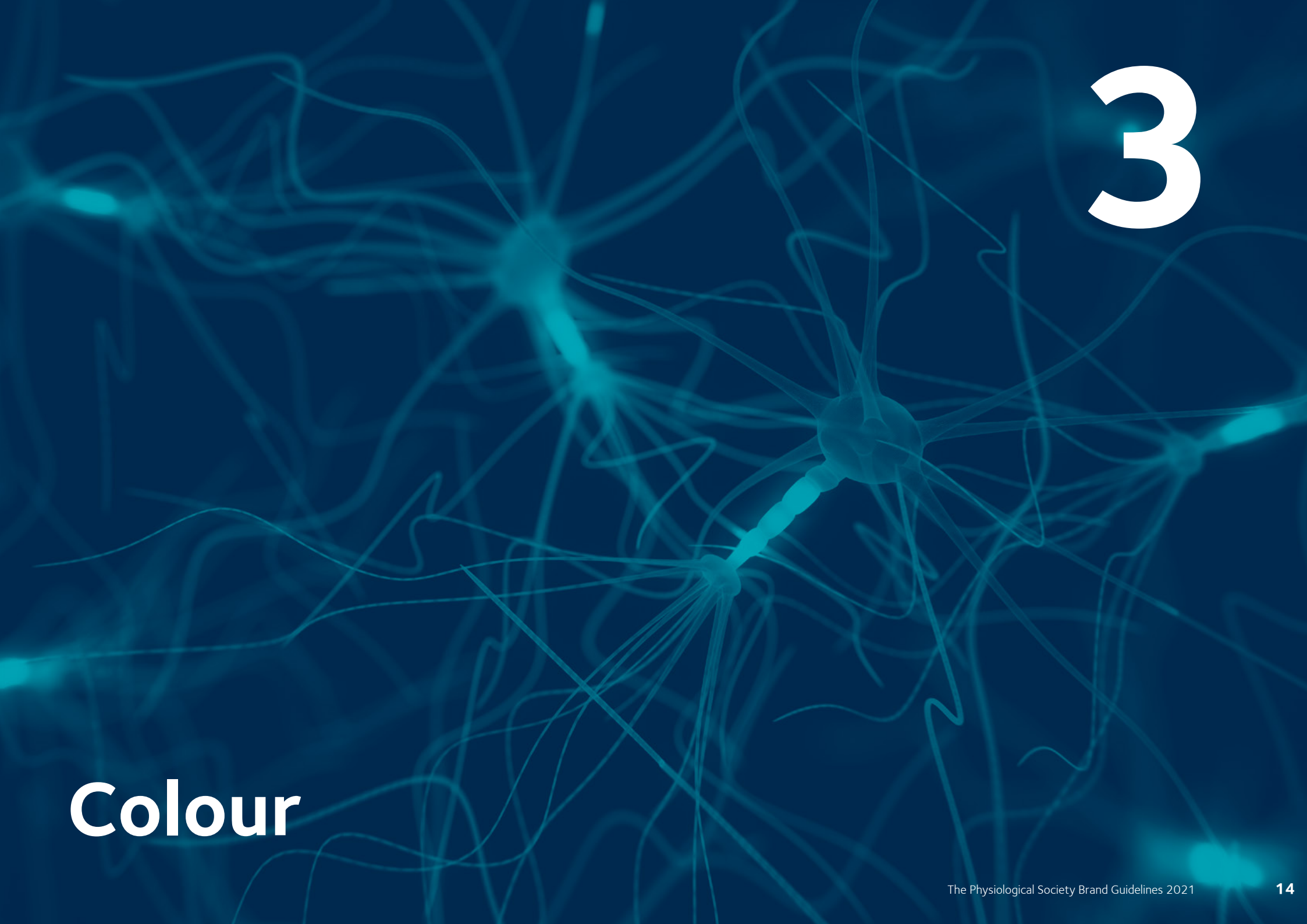
When using white text, the background should be as dark as possible. Avoid using white text unless it is a heading or a large point size on our gold and primary cyan backgrounds.

You can check the accessibility of colour contrast for digital use at:
webaim.org/resources/contrastchecker

For examples on colour combinations to avoid, see the Colour misuse section on page 16.

Colour blindness
In order for charts and diagrams to be made accessible for people with colour blindness, it is important that information is not displayed in colour only. Where this is not possible (e.g. gene expression heat maps), colour tints and contrast should be carefully considered. When using our brand colours in charts and diagrams, try varying the tints of the different colours to improve the contrast between them. Further recommendations:

- Do not convey information in colour only. Show difference both in colour and shape (solid and dotted lines, different symbols etc).
- Label elements of a graph on the graph itself rather than colour coding them.
- People with colour deficiencies are usually unable to tell the difference between red and green. Some will also struggle to distinguish between blue and green and yellow and red/purple. Avoid these colour combinations in charts and diagrams and consider using more accessible combinations such as green and magenta or yellow and blue.



3

Colour

3.1 **Colour palette**

The primary colours of the brand are dark blue and teal. These should be the dominant colours in any materials produced.

A secondary palette of colours exist to add interest to materials, appeal to different audiences or to highlight key information. This secondary palette should not be used on its own and should appear with one of the two primary colours unless within a document.

The brand colours work best when they are bright and vibrant. Tints of the colours may be used but only with the full strength colour also appearing. This is relevant for backgrounds of text boxes and for colouring charts and graphs. Tints should be used in 20% increments.

TPS Primary Blue
CMYK 100. 44. 0. 76.
RGB 0. 39. 76.
HEX #00274C
Pantone 5395 U

TPS Primary Cyan
CMYK 85. 21. 0. 0.
RGB 0. 152. 219.
HEX #0098DB
Pantone 2925 U

TPS Red
CMYK 6. 100. 0. 26.
RGB 175. 0. 110.
HEX #Af006E
Pantone 234 U

TPS Teal
CMYK 100. 0. 30. 2.
RGB 0. 154. 166.
HEX #009AA6
Pantone 320 U

TPS Gold
CMYK 13. 19. 61. 30.
RGB 180. 167. 108.
HEX #B4A76C
Pantone 4515 U

TPS Purple
CMYK 63. 99. 9. 45.
RGB 90. 36. 90.
HEX #5A245A
Pantone 261 U

TPS Grey
CMYK 0. 0. 0. 60.
RGB 112. 114. 119.
HEX #707277
Pantone 10 U

3.2 **Colour misuse**

Using red or purple text on a dark blue background is difficult to read

Do not use red or purple text on a dark blue background or dark image.

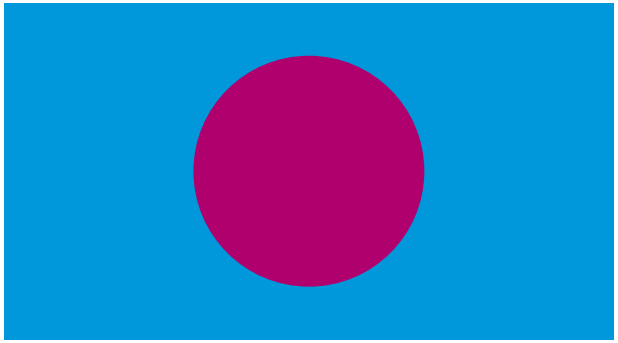
Using dark blue text on a red or purple background is difficult to read

Do not use dark blue text on a red or purple background.

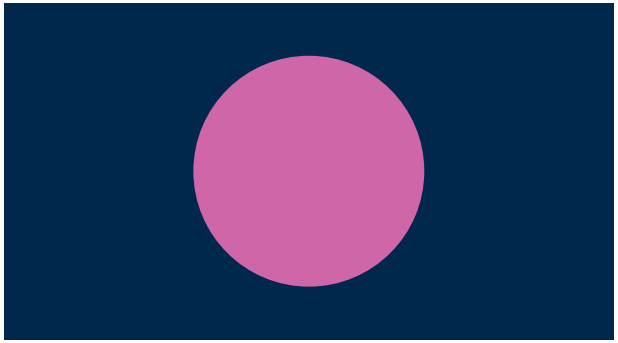
Using coloured text on a Cyan background is difficult to read

Only dark blue or white text should be used on the primary cyan colour. Never use any of the other brand colours.

Avoid using too many colours on the same page of a design. As a guide, use no more than three brand colours.



Do not use colour combinations that clash, strobe or have poor contrast.



Do not use tints of brand colours as a dominant colour in a design.

For more information on accessibility and use of colour, please refer to the accessibility guidelines section on page 13.

4

Imagery

4.1 **Imagery topics**

Photography and illustration are key elements of The Physiological Society's brand and should emphasise the organisation's sense of purpose and expertise.

The chosen imagery should be impactful and eye-catching. This can be achieved through the subject matter, colour, depth of field or movement.

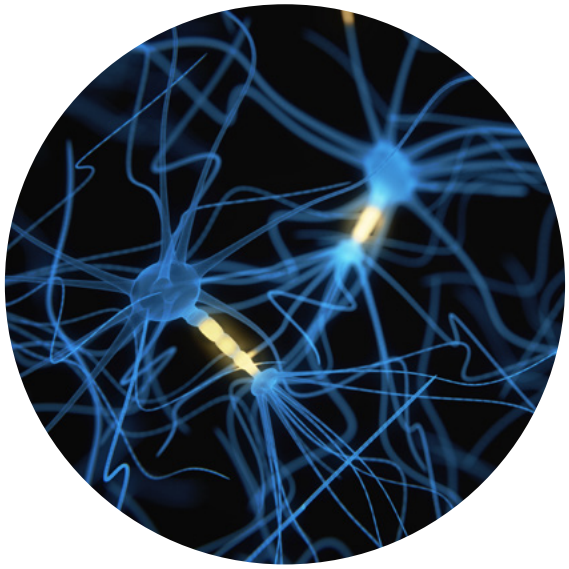
There are four themes for photography and illustration to reflect various aspects of The Physiological Society's work, these are:

Physiology in detail
Communicating the depth and variety of physiological research. From individual cells and molecules to tissue and bone structures.

Physiology at work
Illustrating the expertise and knowledge of the people and the work that goes into making The Society what it is.

Applications of physiology outside the lab
Showing physiology in a context, how it impacts people's every day life and how it enables us to understand the body's function.

Network and collaboration
Highlighting the community and collaborative aspects of the society as well as the interconnectivity of physiology.



4.2 Photography examples

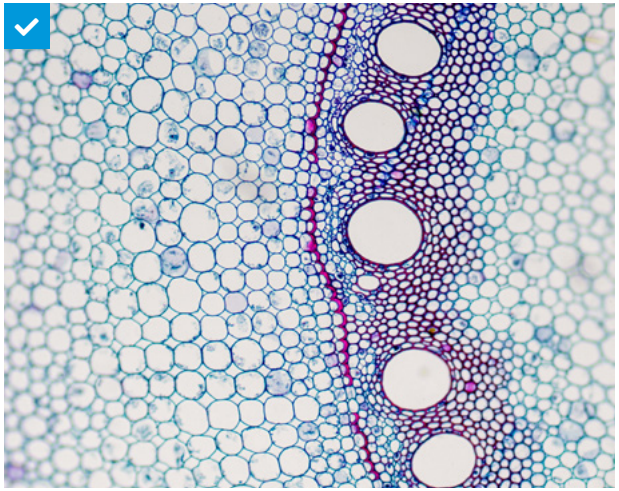
Physiology in detail

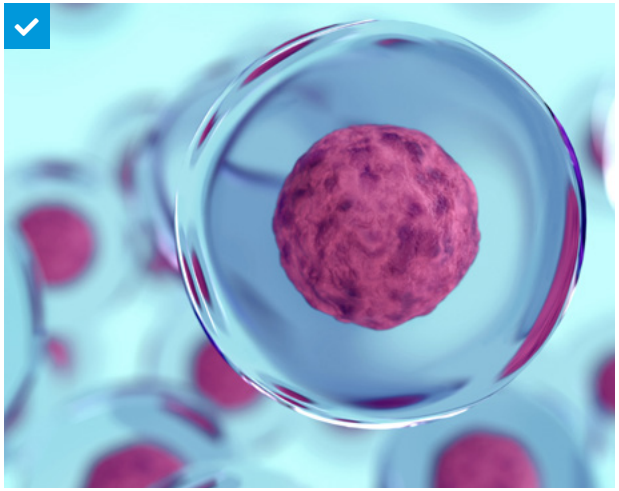
Show

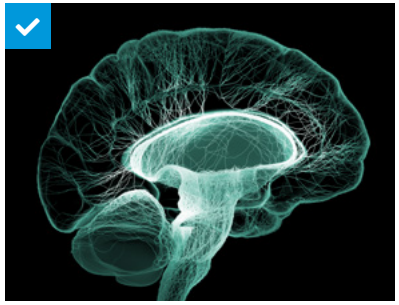
- ✓ Real scientific photos where possible that are relevant to the discipline
- ✓ High-quality rendered images when photography is not possible with real scientific grounding
- ✓ Rendered images with a consistent style
- ✓ A broad range of scientific images, from the microscopic to larger structures and organisms and across disciplines within physiology

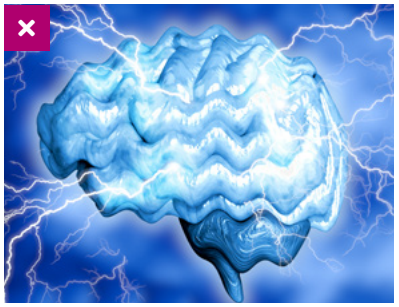
Avoid

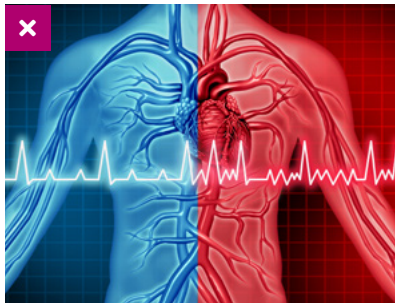
- × Badly rendered images
- × Images that look unscientific or unnatural
- × Rendered images that have an inconsistent style
- × Images that are scientific but are not relevant to the discipline for example plant physiology images











4.2 Photography examples

Physiologists at work

Show

- ✓ A balance of age, gender, ethnicity and other protected characteristics
- ✓ Expertise and professionalism relevant to the discipline
- ✓ Settings that feel natural and real
- ✓ These can vary from shots of physiologists in their labs to those within their teaching environments
- ✓ A broad range of scientific work, from the microscopic to practical experiments
- ✓ A broad range of physiological disciplines
- ✓ Physiologists carrying out work or experiments alone and in collaboration

Avoid

- × Images that feel fake or unrealistic for example, too futuristic
- × Overuse of scientists in lab coats and clichéd actions such as examining vials of coloured liquid
- × Cheesy stock images








4.2 Photography examples

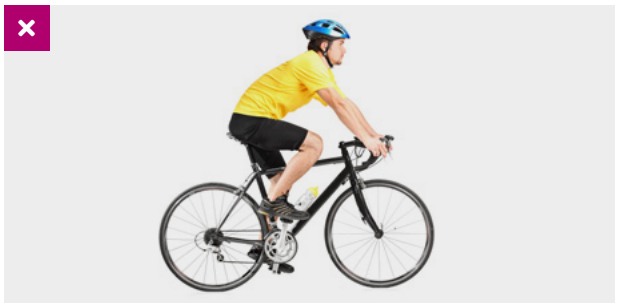
Applications of physiology outside the lab

Show

- ✓ Real images as opposed to stock photography where possible
- ✓ A balance of age, gender, ethnicity and other protected characteristics
- ✓ A balance of people with a range of fitness levels
- ✓ Settings and activities that feel natural and real
- ✓ Physiology in action
- ✓ A broad range of activities that show the different ways physiology impacts different parts of life

Avoid

- × Cheesy stock images
- × Images without backgrounds



4.2 **Photography examples**

Network and collaboration

Show

- ✓ Real images as opposed to stock photography where possible
- ✓ A balance of age, gender, ethnicity and other protected characteristics
- ✓ Physiologists across different career stages and students
- ✓ Members networking and collaborating together
- ✓ Social and professional aspects of The Physiological Society
- ✓ Physiologists in an educator role

Avoid

- × Images showing people looking bored or uninspired
- × Images that look too posed or staged

4.3 **Illustration examples**

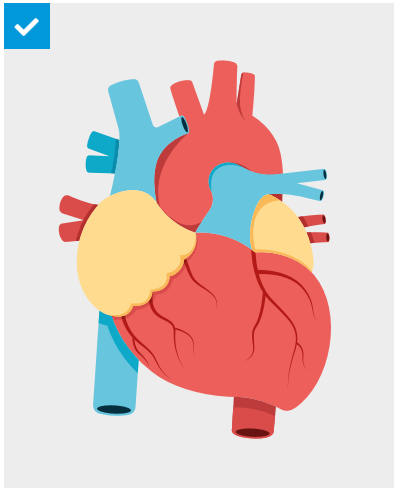
Illustration can also be used to reflect aspects of The Physiological Society's work.

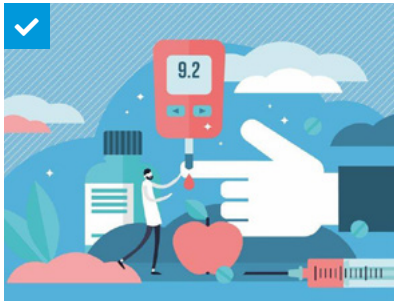
Show

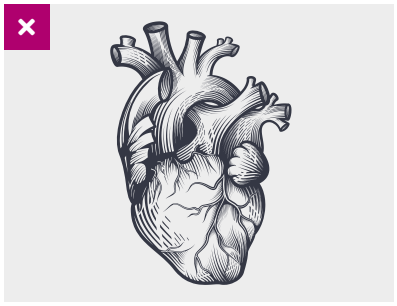
- ✓ A balance of age, gender, ethnicity and other protected characteristics when showing people
- ✓ Scientifically and anatomically accurate illustrations when depicting physiological topics
- ✓ Brand colours within the illustrations or use colours that do not clash with our brand colours
- ✓ Simple flat illustration styles

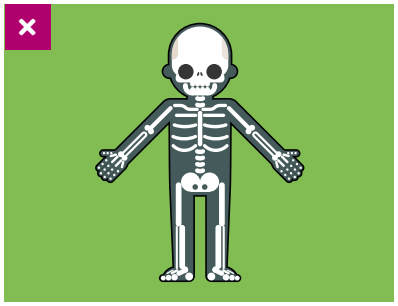
Avoid

- × Illustrations that are too cartoony
- × Illustrations in different styles
- × Images that look unscientific or unnatural
- × Colours that do not fit with our brand colours









5

Design elements

5.1 **Iconography**

Icons are useful within The Physiological Society brand to add interest to designs, create infographics or illustrate concepts when space is limited. For consistency, icons should always be created in the following format.

- ✓ Icons should be constructed as a line drawing with a single line thickness
- ✓ All icons in a design should have equal line thickness. As a guide, icons on an A4 document should have a line thickness of 2mm
- ✓ Icons can use straight lines but must have rounded corners and line ends
- ✓ Keep the icons as simple as possible
- ✓ Icons should be produced in a single brand colour and white, or using the dark blue and another brand colour
- ✓ Icons can use colour fills to increase contrast if needed

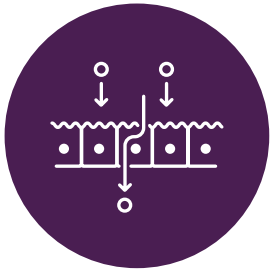
Do not

- × Use multiple line thicknesses
- × Create icons with square edges
- × Create icons in different design styles and colours

Thematic icons

Cardiac & Vascular

Neuroscience



Epithelia & Membrane Transport

Human & Exercise

Endocrinology

Metabolic

Education & Teaching

Incorrect styles

5.2 **Graphs, charts and diagrams**

When producing charts and diagrams keep the design as simple as possible to not detract from the data.

Charts should be created using our seven brand colours where possible. If there are more fields of data, or a single colour chart graphic is needed, tints of the brand colours should be used. If tints are used, use different increments and ensure that there is enough contrast between the different colours. Only after this should non brand colours be used.

Avoid placing similar colours next to each other in pie charts or bar charts.

For more information on accessibility for graphs, charts and diagrams please refer to the accessibility guidelines section on page 13.

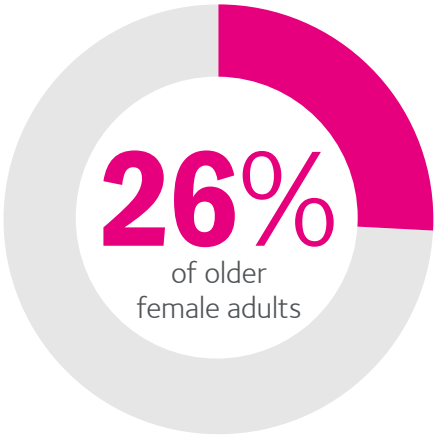
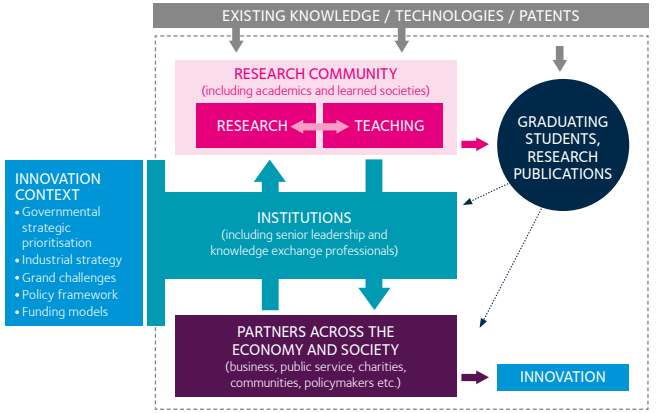


Figure 1 Overview of stakeholders involved in knowledge exchange (adapted from Public and Corporate Economic consultants)



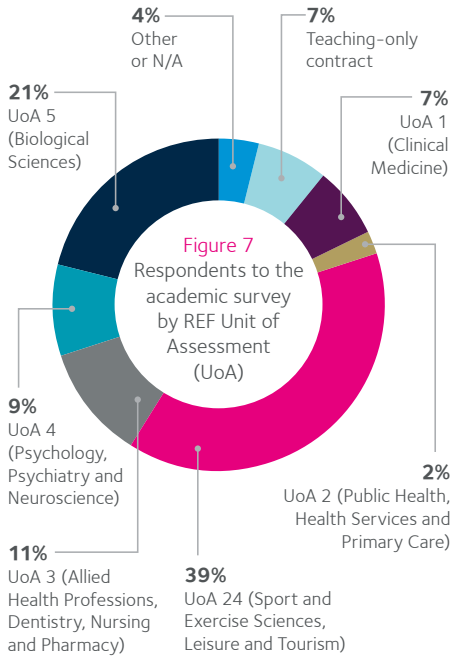
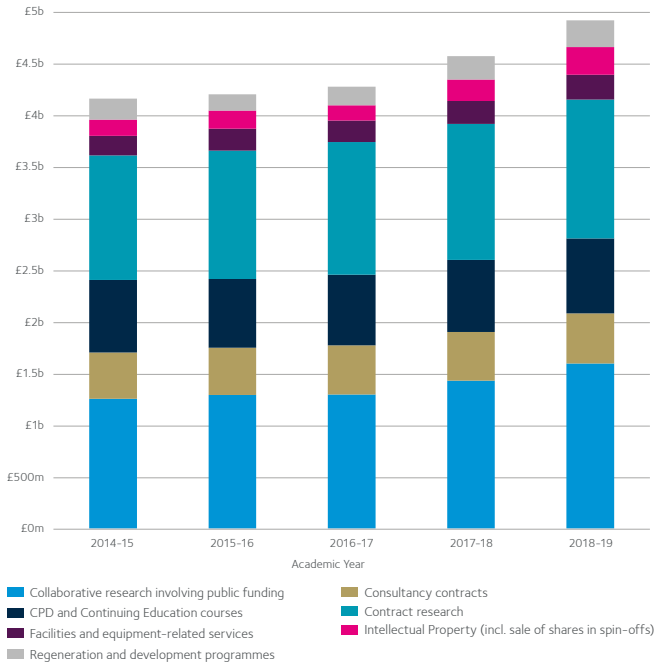


Figure 4 Total UK knowledge exchange cash terms income 2014-2019[14] (based on HE-BCI survey data)

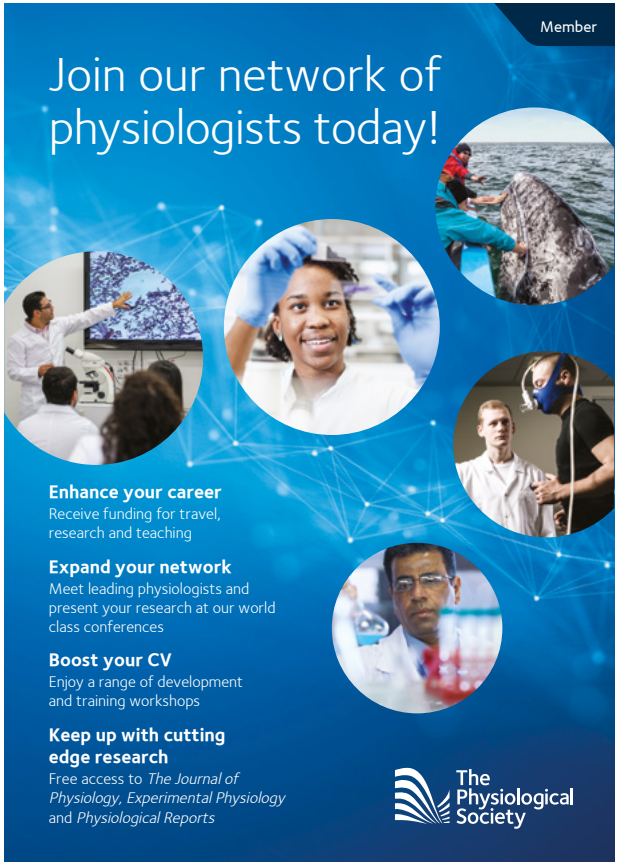


5.3 **Circular elements**

Circular elements are used in a number of different ways within The Physiological Society brand. The shape visually reflects the curves of the logo and allows for multiple pictures to be used on materials in a fluid way, without the design feeling blocky or rigid.

Circular elements can be used:

- To hold multiple photos on a spread
- To illustrate the interconnection of the different parts of physiology and The Physiological Society
- To include a combination of icons and words that highlight specific detail



5.4 **Network graphics**

Abstract images of connected networks are used within the brand to depict the network aspect of The Physiological Society and the interconnection of the disciplines of physiology.

Used as backgrounds to materials, they also add interest and depth. Circular images can be overlaid on top, building into the network concept.

The network graphics should be selected or edited to appear in the brand colours.

Depending on suitability and design, these abstract networks can be photographic or illustrative.

Make sure that the network graphics always have an element of depth.

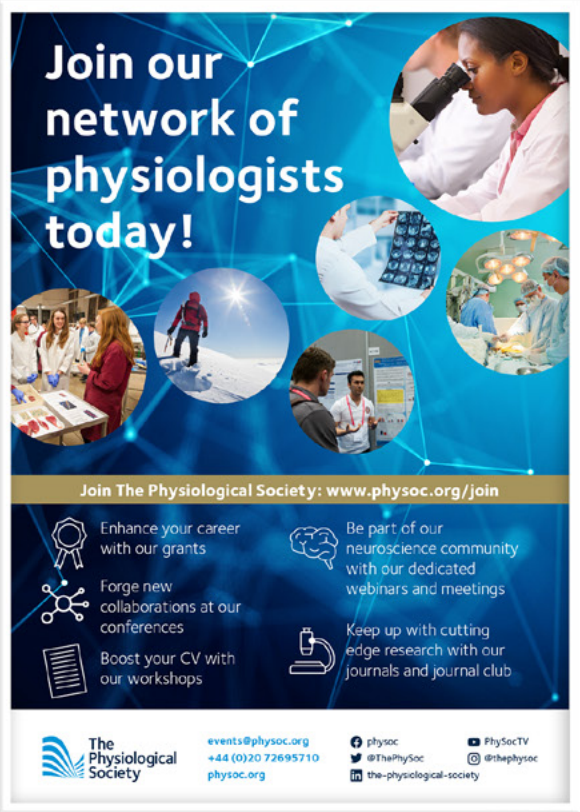





6

Design examples

6.1 **Adverts**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Physiology of Obesity: From Mechanisms to Medicine
Organised by Pete Aldiss, University of Edinburgh, UK and Jo Lewis, University of Cambridge, UK
Adipose Tissue in Metabolic Physiology
Tuesday 6 October, 14:00 – 15:00 BST
Muscle Physiology in Obesity
Tuesday 13 October, 14:00 – 15:00 BST
Cardiometabolic Dysfunction in Obesity
Tuesday 20 October, 14:00 – 15:00 BST
R Jean Banister Prize Lecture 2019
Mind Affects Matter: Brainstem Circuits Linking Stress, Physiology, and Behaviour
Marie Holt, Florida State University, USA
Tuesday 17 November, 15:00 – 16:00 GMT
GL Brown Prize Lecture 2019-2020
Healing Tiny Hearts Across Generations
Dino A. Giussani, University of Cambridge, UK
Thursday 3 December, 15:00 – 16:00 GMT
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The Physiological Society


COVID-19: Lessons Learned from the Frontline
14 - 16 DECEMBER 2020 VIRTUAL CONFERENCE
Bringing together physiologists and critical care specialists, this conference will review the challenges of understanding the pathophysiological changes occurring throughout the body following COVID-19 infection.
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COVID-19 and Mental Health: Exploring the Impact on Academics
Organised by:
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Steve Mathieu, Queen Alexandra Hospital, Portsmouth, UK
Hugh Montgomery, University College London, UK
Mike Tipton, University of Portsmouth, UK
Register by Monday 7 December 2020 at 23:59 GMT physoc.org/covidconference
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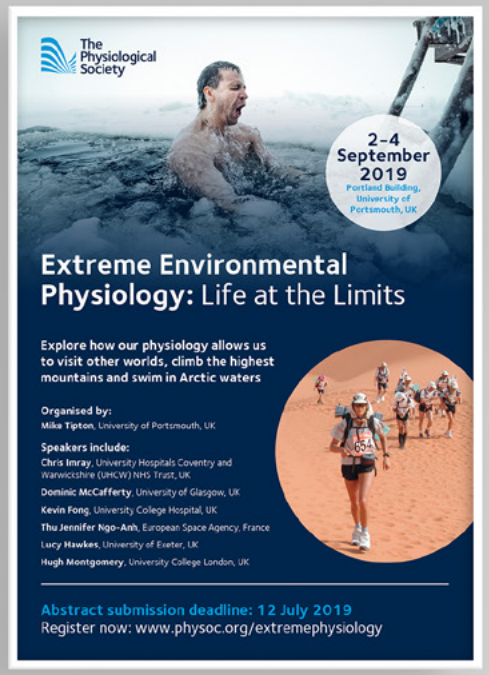
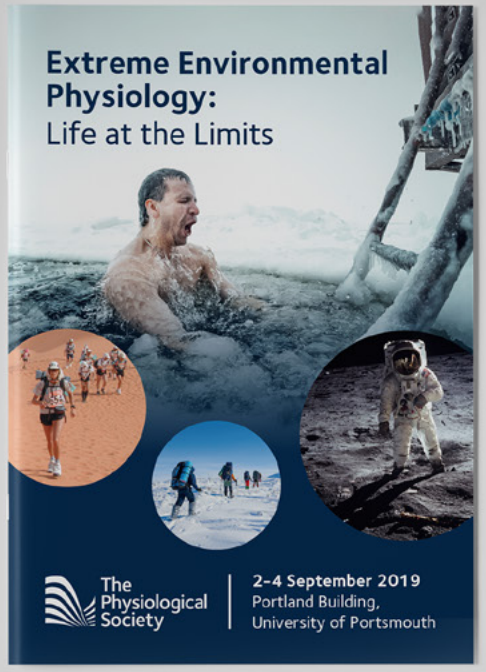
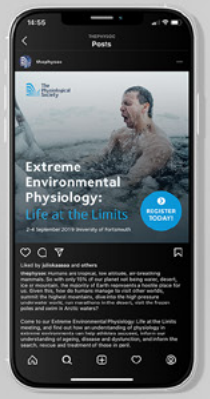
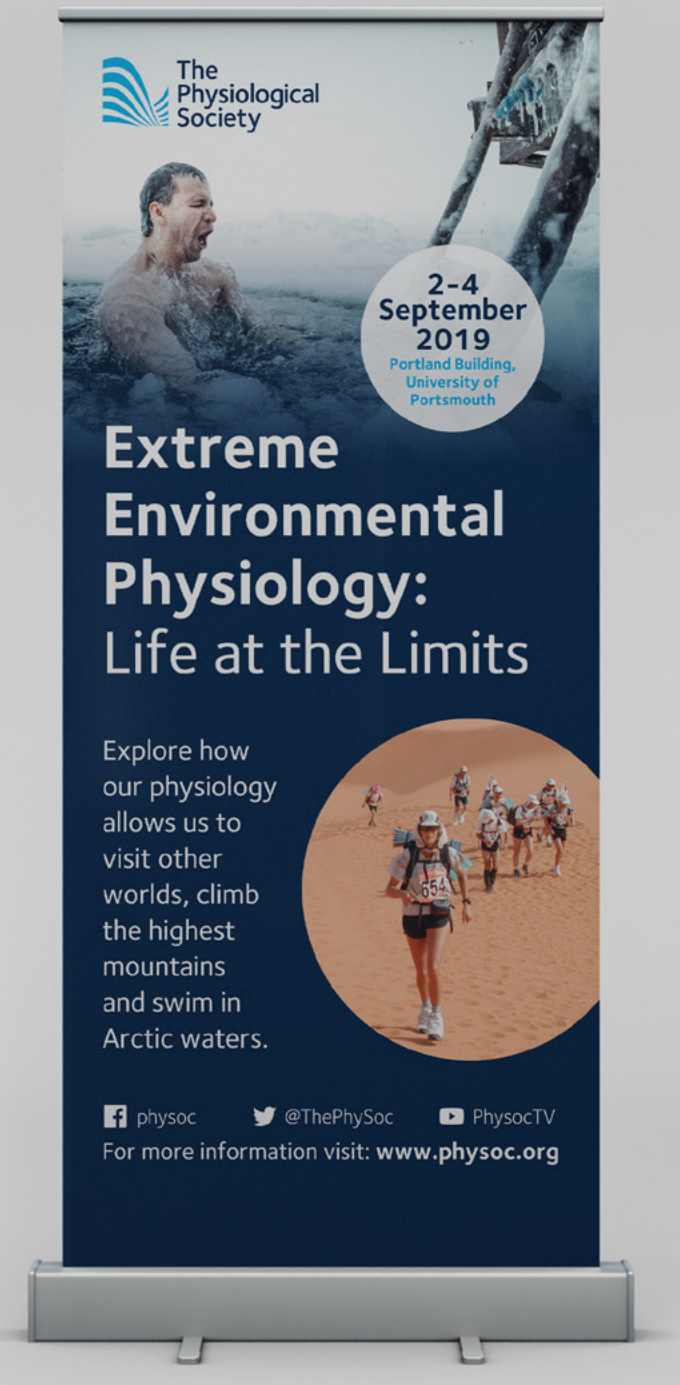
6.2 **Suite of materials**

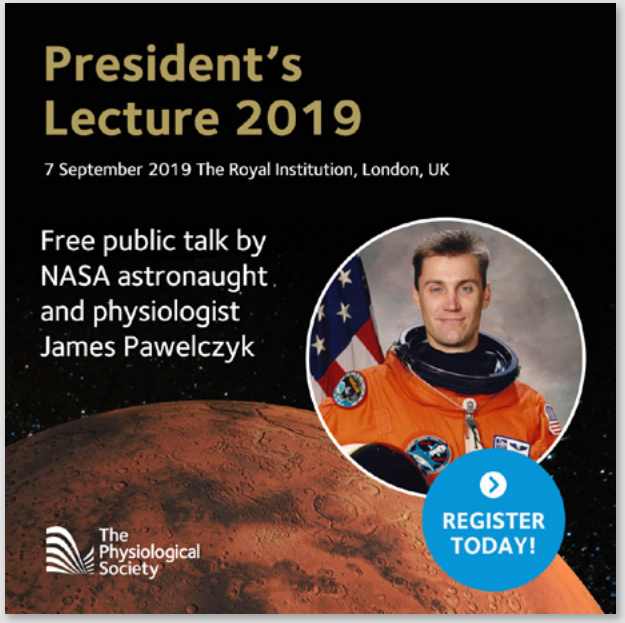


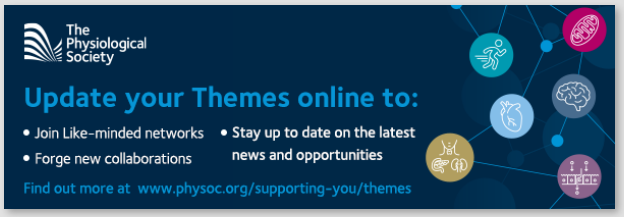




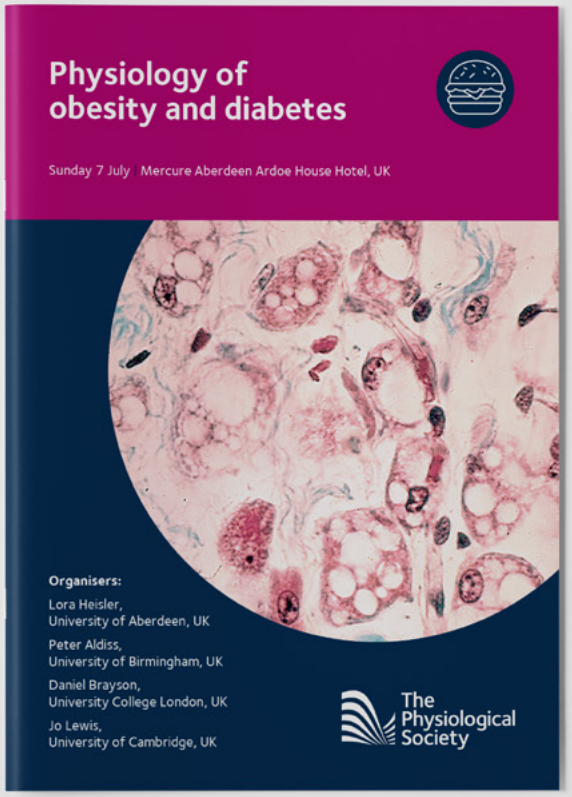


6.3 **Social media adverts and email footers**





6.4 **Report and programme covers**



6.4 **Report and programme covers**

6.5 **Report page design**

This collaboration is seldom exclusively driven by financial gain. Physiologists are motivated to engage in knowledge exchange because it provides new insights into their research (55%) and furthers their institution's mission (44%) far more than because it provides the potential for personal income (13%).

However, physiologists report (53%) that it is a challenge to balance their wider workload in order to engage further with public and private organisations in demand of their knowledge and skills. There is some difficulty in identifying the best partners to work with (34%), and this report makes recommendations to improve this. Cultural differences between academia and external partners, however, were not a particular concern (6%).

> We found that physiologists are very active across the spectrum of knowledge exchange activities. Over half of respondents have produced joint publications with external partners in the last 3 years.

Technology transfer is a subset of knowledge exchange, which includes some of the more formal and more traditionally understood interactions such as licensing patented inventions and the creation of new enterprises – spin-offs – from academic discoveries. Again, we see that physiologists compare favourably with the wider picture of UK technology transfer, although it is to be expected that a lower proportion of individuals report these activities. Around 8% of physiologists report patenting an invention compared with 6% of the wider group surveyed in 2015; 4% of our respondents had licensed research outputs to a company compared with 3% in the Hughes 2015 survey sample.

Excitingly, nearly 60% of physiologists report that knowledge exchange activity has led directly to new research projects – a similar proportion to that seen in the Hughes 2015 survey. However, several other categories (such as reputation enhancement and improving teaching material) show that physiologists perceive fewer immediate benefits than other disciplines, which merits further investigation.

Throughout the report, we highlight a range of case studies in order to showcase how the knowledge exchange carried out by physiologists benefits and improves health, life and wealth in the UK and beyond.

RECOMMENDATIONS

The knowledge exchange ecosystem depends on interactions between the **research community** (including academics and learned societies etc.), **institutions** (including senior leadership and knowledge exchange professionals) and **partners across the economy and society**. This is set within an **innovation context** that is shaped by overarching policies such as funding models and government priorities. This report aims to maximise the contribution of physiology to knowledge exchange and address barriers by making 12 recommendations across the 4 elements of the ecosystem.

Make the UK the best place in the world to conduct, commercialise and benefit from healthy ageing research

Innovation context

1 **The UK Government, through the Department for Business, Energy & Industrial Strategy, the Department for International Trade and UK Research and Innovation (UKRI),** should invest in establishing a Global Coordinating Centre for Healthy Ageing Research and Development to focus on identifying world-class productive knowledge exchange between academia and public and private sectors to meet the objectives of the Industrial Strategy Healthy Ageing Grand Challenge.

This will ensure the UK becomes the international partner of choice for academic discovery through to the commercialisation of the innovative new products and services that will flow. This will fully realise the benefits from the UK's world-leading physiology research into the mechanisms underpinning ageing and knowledge exchange in the area. It will promote opportunities for physiologists to engage with global networks to address shared challenges, attract further investment and talent, and increase productivity in the UK health economy.

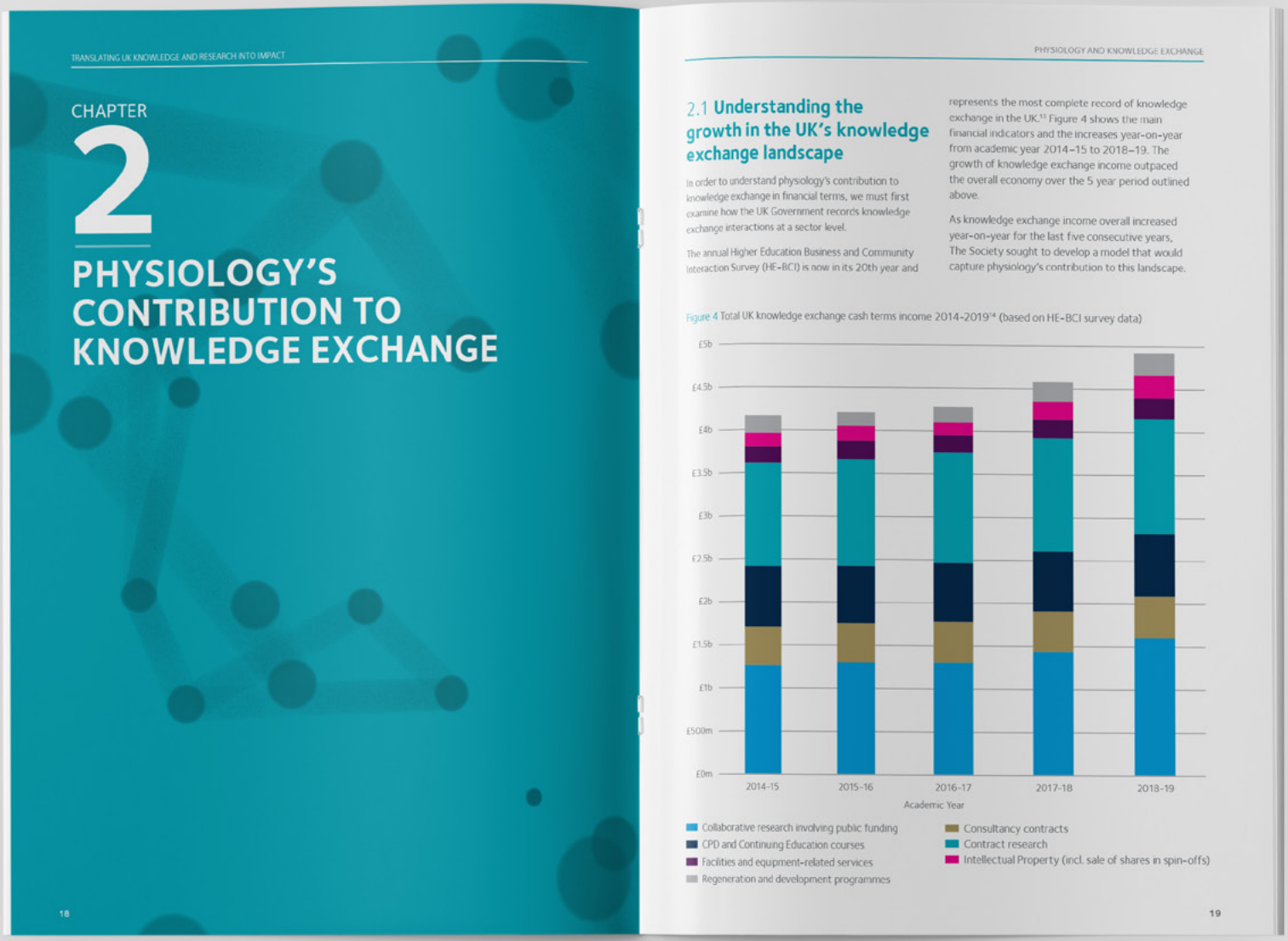
Innovation context

2 **The UK Government and devolved administrations** should increase investment for knowledge exchange between now and 2024 through Higher Education Innovation Fund (HEIF) allocations and devolved equivalents in other parts of the UK, in line with the commitment to increase R&D funding.

Research community

3 **The Physiological Society** should work with the Centre for Ageing Better, a recognised Cabinet Office "What Works Centre", to place physiological research at the heart of the evidence base for public health policy around ageing.

6.5 **Report page design**



6.5 **Report page design**

CASE STUDY

DEVELOPING A NEW INTERNATIONAL LIGHTING STANDARD

Professors Robert Lucas and Timothy Brown, University of Manchester

Professors Robert Lucas and Timothy Brown are interested in understanding how visual signals are communicated and processed within the brain to control not just visual perception but also the timing of our body clock, which can lead to subconscious changes in physiology and behaviour such as alertness, mood and cognitive performance. Inappropriate light exposure (such as night-shift work) can therefore compromise health, wellbeing and performance by disrupting biological rhythms and patterns of sleep. Their research has revealed the importance of a new photoreceptor as the main origin of such non-visual effects. They have established a novel method for quantifying these effects and demonstrated the application of this approach for predicting meaningful biological effects of lighting in real-world applications. Through working with key stakeholders, this has led to the development of a new International Lighting Standard (CIE S 026/E:2018) and consensus guidelines that account for these non-visual effects of light, which have been adopted by the lighting industry and regulatory policymakers to ensure healthy lighting.

2.2 Quantifying physiology's contribution to knowledge exchange activity

While all UK institutions submit data to the HE-BCI survey, there is no requirement to report data by academic discipline. Hence, our request to estimate the proportion of their HE-BCI return that related to physiology was something of a novel challenge and only requested of institutions identified by members of The Physiological Society as most active in the discipline.

Physiology HE-BCI data methodologies

We are immensely grateful to all the institutions that have invested considerable time and effort to provide us with estimates of their physiology-related knowledge exchange. There is a diverse range of practice in terms of how data and reporting are embedded, and we encouraged institutions to approach the task using their best judgement and a degree of expert estimation. Some identified specific departments/units that were most active in physiology while others looked at data from individual academics. Most institutions noted that some activity could be wholly linked to physiology, with further activity drawing on a number of disciplines including physiology. We have used the broader definition and included both direct and indirect physiology-related knowledge exchange on the basis that while much of the value flows from a wider range of subjects, all of what we display was – in some part – dependent on physiology. This is intended to put the economic and social contribution of physiology directly in the spotlight and demonstrate its contribution alone and as a fundamental, integrative and interdisciplinary science. Regeneration income is a HE-BCI category but was excluded from the process on the basis that it tends to be made up from (large) public funding schemes such as the European Regional Development Fund (EDRF), which would likely entail substantially more for institutions to analyse potentially less robust in terms of the physiology-related elements given the activity is less directly user-inspired.

Impact of COVID-19 on developing project evidence

Our approach was agreed just as the UK moved to combat the spread of COVID-19, the resulting lockdown and remote working added substantially to the complexity of the task. Of course, physiologists have been at the forefront of the global search for effective treatments for COVID-19. This may have limited the time available to provide fully complete estimates, but as the report's case studies outline, has also provided a timely reminder of the contribution that physiology makes to global health and wellbeing.

We therefore wish to stress that these data are not meant to be a complete record of the precise levels of physiology-related knowledge exchange. More, we see them as the beginning of a conversation to highlight the role physiology plays – directly and indirectly – in improving quality of life and economic growth across the UK and beyond in order assist institutions and government in developing knowledge exchange strategy.

While the process has been challenging, we have worked to support both knowledge exchange teams and physiologists in building relationships and have had very positive feedback. There is now a greater understanding of what each side can bring to effective knowledge exchange, with both knowledge exchange teams and physiologists reporting that they expect to continue working more closely as a result of this project. Further work with partners (particularly PraxisAuril) will be required to embed this understanding by providing guidance to knowledge exchange teams as to where they might draw more on the knowledge and skills of physiologists. This will occur in parallel with work by The Physiological Society and others to highlight the support infrastructure available to promote not only knowledge exchange but the concomitant benefits to research and teaching also.

6.5 **Report page design**

CASE STUDY

BRINGING ANIMAL MODELS RESEARCH INTO SCHOOLS

Professor Andreas Prokop, University of Manchester

Professor Andreas Prokop researches mechanisms of nervous system ageing and degeneration using the fruit fly *Drosophila melanogaster* as a model organism. During the course of his research, he and Fly Facility Manager Sanjai Patel began a schools outreach programme to showcase their research and soon realised that taking fly experiments into school biology lessons was an effective way to rekindle pupils' interest in science whilst teaching topics relevant to the curriculum. In 2015, they launched the droso4schools initiative and began a collaboration with teachers in two local education institutions. This resulted in the development of practical school biology lessons (for ages 11–18) using memorable experiments based on Prokop's research whilst conveying knowledge relevant to GCSE/A-level. Their lessons, resources and ideas are freely available online and are now being used to educate and inspire pupils on six continents, with follower initiatives having been launched in Nigeria, Latin America, Indonesia, Croatia and Turkey.

4.3 Placing knowledge exchange at the heart of physiology research and teaching

It was notable from our survey that the respondents have a lower perception of the impact of knowledge exchange on their research and teaching than those in other disciplines. While this could be – at least in part – a product of our simplified survey it is a concern that warrants further investigation. It should be understood that there are a range of ways that experience in knowledge exchange can enhance teaching and research, be it simply the inspiration for a new line of investigation or using 'real-world' examples to support teaching points. Opportunities to substantially update course structure may be infrequent but will be of fundamental importance in terms of ensuring graduates have the most up-to-date and relevant knowledge and skills.

The UKRI 2020–21 Corporate Plan sets out a welcome ambition to "*catalyse creativity and incentivise a diverse and inclusive system that builds on existing strengths, provides critical capability, fosters private and inward investment and creates new knowledge to enrich lives and build prosperity*".

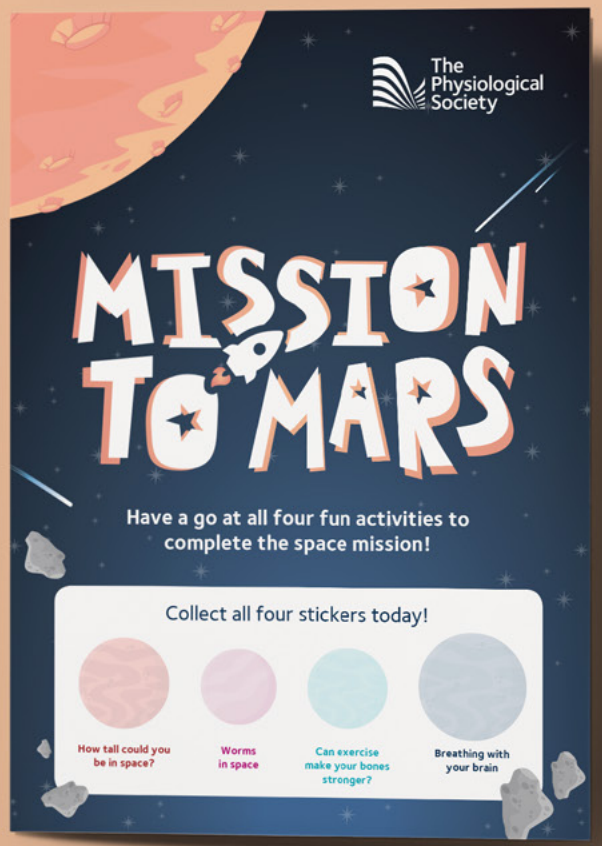
Everyone involved in the UK's broad research and innovation ecosystem has an important role to play in improving interconnectivity to build a thriving system that connects discovery to prosperity and public good. To do this, knowledge exchange must be placed at the heart of the research and teaching ecosystems.

To encourage and embed this cross-fertilisation of people and ideas across all aspects of the system, The Physiological Society should work in partnership with NCCPE and NCUB to establish a network of physiologist Knowledge Exchange Academic Champions to promote knowledge exchange opportunities, with co-chairs drawn from industry and academia.

The diversity and autonomy of UK higher education institutions undeniably contributes to the excellent global reputation enjoyed by the sector. It is right that policymakers and funders respect this diversity of practice. However, it was clear from data gathered for this project that institutions having staff in physiology and related departments with a clear responsibility for knowledge exchange and external impact had a better understanding of both strategy and operational context.

6.6 **Pop up banners**

6.7 **Brand stretch** - Children's activity booklet



6.7 **Brand stretch** - Biobakes Fundraising and Outreach grants

7

Checklist

7.1 Visual checklist

Use this checklist to help you ensure that the brand guidelines have been followed correctly.

- ☐ **The logo choice is correct, and it has been positioned correctly.**
- ☐ **The imagery used is on-brand and fits with the key categories.**
- ☐ **The correct font has been used and applied to deliver visual impact.**
- ☐ **The correct colour palette has been used.**
- ☐ **The visual style has been creatively used and applied.**
- ☐ **The icons used follow the brand style.**
- ☐ **The accessibility guidelines have been followed.**
- ☐ **Sign off has been obtained from Head of Policy and Communications.**