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Sinani, Charikleia ORCID logoORCID:
<https://orcid.org/0000-0001-8942-8780> (2019) Transcranial Direct Current Stimulation (tDCS) to treat hemiplegia. Hemihelp (105). pp. 18-20.

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hemihelp

Part of the Contact family

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CLIMBING NEW HEIGHTS

Looking forward to 2020

www.contact.org.uk/hemiplegia



Notice Board

Information leaflets

We have been updating our information leaflets for families. Botulinum Toxin & Hemiplegia and Ankle Foot Orthoses will soon be ready for download...



TV star

One of our hemi families has featured on TV! Cora, RH, is the six-year-old star in Series 2, Episode 4 of Paul O'Grady's Little Heroes, on ITV. Read more about her experiences of receiving Botox at Great Ormond Street Hospital [here](#).



"Contact has stopped us feeling so alone."

#ChangingLives

contact

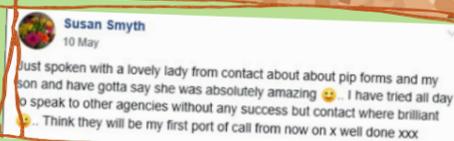
#ChangingLives

This year we're celebrating 40 years of Contact and asking you to help us continue #ChangingLives of families with disabled children.

We're asking you to donate £40 or £4 a month - or anything you're able to give, because every penny really does count.

Helpline

Contact's **helpline and online advice** service has been awarded the Helplines Partnership's Helplines Standard accreditation until 2022. The award is a renewal of our existing accreditation, which was coming to an end this year. Click [here](#) for details and info on all our advice services.



HemiHelp is part of Contact, which is a trading name of Contact a Family, a company limited by guarantee and registered in England and Wales.
Company No: 1633333
Charity No: 284912;
SC039169 in Scotland

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www.contact.org.uk

For advice and support on hemiplegia please [click here](#)

Your contributions are always welcome

Please send your news, views, letters, details of events, articles and photographs to lizzie.salter@contact.org.uk

Design

Huge thanks to [zed creative](#) for their ongoing support and pro-bono help in designing the HemiHelp magazine

Advertising

Want to advertise in the HemiHelp Magazine? Please email lizzie.salter@contact.org.uk for costs and design specifications.

The views expressed in this magazine are not necessarily those of HemiHelp or Contact.

Visit us
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hemiplegia](http://contact.org.uk/hemiplegia)



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Hello again!

Somehow, we're nearly at the end of 2019 and it's been brilliant – see below. Now we can start getting excited about what we'll do in 2020! Please **get in touch** about the events and information you'd most value, or if you'd like to contribute to the magazine.

And now, *drum roll* here's my roundup of 2019...

- Lots of lovely hemi families met up and tried new things at our events: 100 people came to our Birmingham Try It Day, 36 enjoyed a blazing hot day at Thorpe Park, 20 attended our Challenging Behaviour Workshop in London, and last week 60 came climbing in Manchester (see our cover - more on that in the next issue).
- We trained volunteer moderators for our closed HemiHelp Facebook group, welcomed 483 new members, and declined 363 join requests. We've had 3,680 posts, full of support, info, advice and some healthy ranting!
- Cara Evans, LH, previous CEO of HemiHelp, completed the handover of HemiHelp to Contact and moved on – but is still volunteering as a Facebook group moderator.

- We finished transferring HemiHelp web info to **Contact hemi pages**. We re-launched our **MyHemiCheck** resource. Lots of hemi families have got advice on Education, Benefits and other aspects of living with hemiplegia, from Contact's **advice service** and free helpline 0808 808 3555.
- We made our informative and entertaining (biased, me?) online magazine a subscription item to raise much-needed funds for our services, and have so far raised over £1,000.
- Our wonderful fundraisers have run marathons, waded through mud, biked London, and lots more. We don't receive any Government funding – **anything you can give** will help us make sure families living with hemiplegia don't feel alone.

Season's Greetings, and very best wishes for 2020!

Lizzie

Lizzie Salter
Project Manager,
HemiHelp



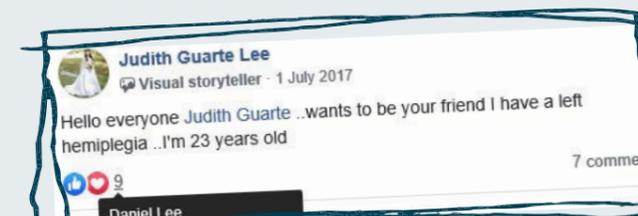
We found love through HemiHelp!



We always knew our Facebook group was a great place to share experiences and feel less alone with the challenges of life with hemi. But until recently, its matchmaking powers had gone undetected...

Judith Guarte's first post on 1st July 2017 was from her home in the Philippines. She had just discovered the name of her condition and was looking for friendship from other people with hemi. Daniel Lee, from London, was the first 'like' on her post. Judith said, "After Daniel liked my post, we became Facebook friends and started chatting online every day."

Daniel, who plays **para-badminton** for England, said, "To my delight Judith kept on talking to me and we just kept on finding out more about each other. Particularly, our hemi is quite similar and we had complete admiration for one another about our history and how we grew up with our disability. We really accepted one another for who we are and embraced our disabilities."



The couple first met up in person in November 2017 and knew immediately they wanted to be together. Daniel proposed in September 2018 and they have just **married**, a year later. They are now **crowdfunding** to fund Judith's visa application process, so they can live together in London. We wish them the best of luck in their lives together. To give Daniel the last word:

"As a man with hemi, I thought it would be hard to find a girlfriend. There are 7.7 billion people on the earth, and I found my Judith. I love her so much because she is so genuine and true to herself. We always thank this Hemi Facebook group for letting us meet each other. Hemi Power forever!"

Special Educational Needs Law and EHCPs in England

All parents want the best education for their child. What can you do if you feel your child is not in the right school, or not getting the specialised help they need? Victoria Federico, Solicitor and Head of Education Law at Shoosmiths, explains.



If you are unhappy with your child's provision, you can ask your Local Authority for an Education, Health and Care Needs Assessment, leading to the issue of an Education, Health and Care Plan (EHCP). This legal document covers children from birth to 25 years old. It can be a powerful tool, describing the child's special educational needs, additional support required and the right school to meet those needs.

EHCPs are legal documents. Crucially, your child's needs and the support required must be 'specified and quantified' (described accurately in words and numbers) to make the provision legally enforceable, ensuring the correct level of funding is provided.

Special educational provision, contained within Section F of an EHCP, can include any additional support your child needs which 'educates or trains' them. This can include occupational, speech and language, music or art therapies; plus physiotherapy, hydrotherapy and the 1:1 support e.g. "Child X must have direct physiotherapy, from a qualified physiotherapist, for a minimum of 1 hour per week".

Unfortunately, many EHCPs can initially be inadequate, as well as unlawful. This impacts directly on your child, who may be placed in a school or college which does not suit their needs, and may not receive vital therapies and provision.

"Child X must have direct physiotherapy, from a qualified physiotherapist, for a minimum of 1 hour per week"

Challenging your Local Authority at a SEN Tribunal

You will receive your Local Authority's EHCP decision by letter. If you are unhappy with the decision – whether a refusal to carry out an EHC assessment or issue an EHCP, and/or the content of an EHCP once issued – you can challenge it by appealing to the Special Educational Needs and Disability Tribunal. If your appeal is not solely about the school named on the EHCP, there is a requirement to consider mediation before any appeal is lodged. The decision letter must give details for a mediation service, as well as notice of your right to appeal.

Mediation is a meeting between you, the Local Authority, any relevant additional people, and an independent mediator, who chairs the meeting but will not make decisions. It's an opportunity to come to a solution without going to Appeal. If successful, things will be resolved more quickly, with less stress. The Tribunal will not

take into account whether or not you attempted mediation, and deciding against it does not negatively impact your appeal.

To appeal you need to download and complete the correct form from the Tribunal website for the decision you are challenging – the Tribunal service can advise. Any appeal must be lodged either within two months of the date on the decision letter or within 30 days of the date on your mediation/mediation information certificate, whichever is latest. You must note the date, and lodge your appeal before your deadline.

Once your appeal is registered the Tribunal will issue a timetable. The time until your hearing is usually 12 weeks. During this time the Local Authority need to respond to your appeal and you will both have a deadline for providing further evidence.

Please feel free to **contact me** if you have any questions.

*This information applies to families in England only. Wales and Northern Ireland issue **Statements** and Scotland issues **Coordinated Support Plans (CSPs)**. Find further information on our **website**.*

*Contact's Helpline team on Freephone **0808 808 3555** can provide information or signpost you to advice in your nation. Our Education Specialist Jill Hardman has **Top Tips** for choosing the right school for your child. Or visit Contact's website for more information about EHC plans.*



Money Matters – Advice on Benefits

It costs more to raise a child with additional needs so financial help can make a real difference to your family. Unfortunately, the Benefits system is complicated. Here, Derek Sinclair from Contact's Advice service outlines some of the main benefits and other sources of financial help for families whose children have additional needs.



Disability Living Allowance (DLA)

DLA is the main benefit for disabled children under 16. It aims to help you meet extra costs you might have as a result of your child's disability. It's made up of two parts:

- A care component, which is paid if your child needs extra help or supervision
- A mobility component, paid if your child has problems getting around.

DLA isn't means-tested so it's not dependent on how much you earn or your savings. Instead, you need to show that your child needs more care than other children of the same age who are not disabled.

Contact's website has more information and tips on **DLA**.

Personal Independence Payment (PIP)

Personal Independence Payment (PIP) has replaced Disability Living Allowance (DLA) for young people and adults aged 16-64. PIP isn't means-tested and can be paid whether you are in or out of work. Qualification depends on the difficulties your child has carrying out certain tasks essential to independent living, and the problems they have getting around outdoors. Part of the assessment may be a face-to-face meeting with a health professional.

If your child is under 16 and on DLA, they will be invited to claim PIP shortly after their 16th birthday. If your child is older and currently still gets DLA, they will be asked to claim PIP at some point in the near future. Find out more about **PIP** on Contact's website:

Universal Credit

This relatively new benefit is for people of working age and replaces means-tested benefits like income support, housing benefit, income based Jobseeker's Allowance and Employment and Support Allowance, and tax credits – so-called legacy benefits.

Currently, existing claimants will not be required to claim Universal Credit unless they try to claim a new means-tested benefit. However, over the next few years all existing means-tested benefit claimants will be moved onto Universal Credit. You can find the latest updates about this benefit on Contact's website, including a podcast to help guide you through **Universal Credit**.

Other help

If your child has been awarded DLA or PIP, you may be entitled to other help too, such as **Carers Allowance** – the main benefit for carers. You can't get Carers Allowance if your earnings are too high, but it doesn't matter if you have a partner who has earnings or what savings you have.

Carer's Assessment

As a parent carer you might have needs of your own. You can ask for a carer's assessment which focuses on you as a parent and may

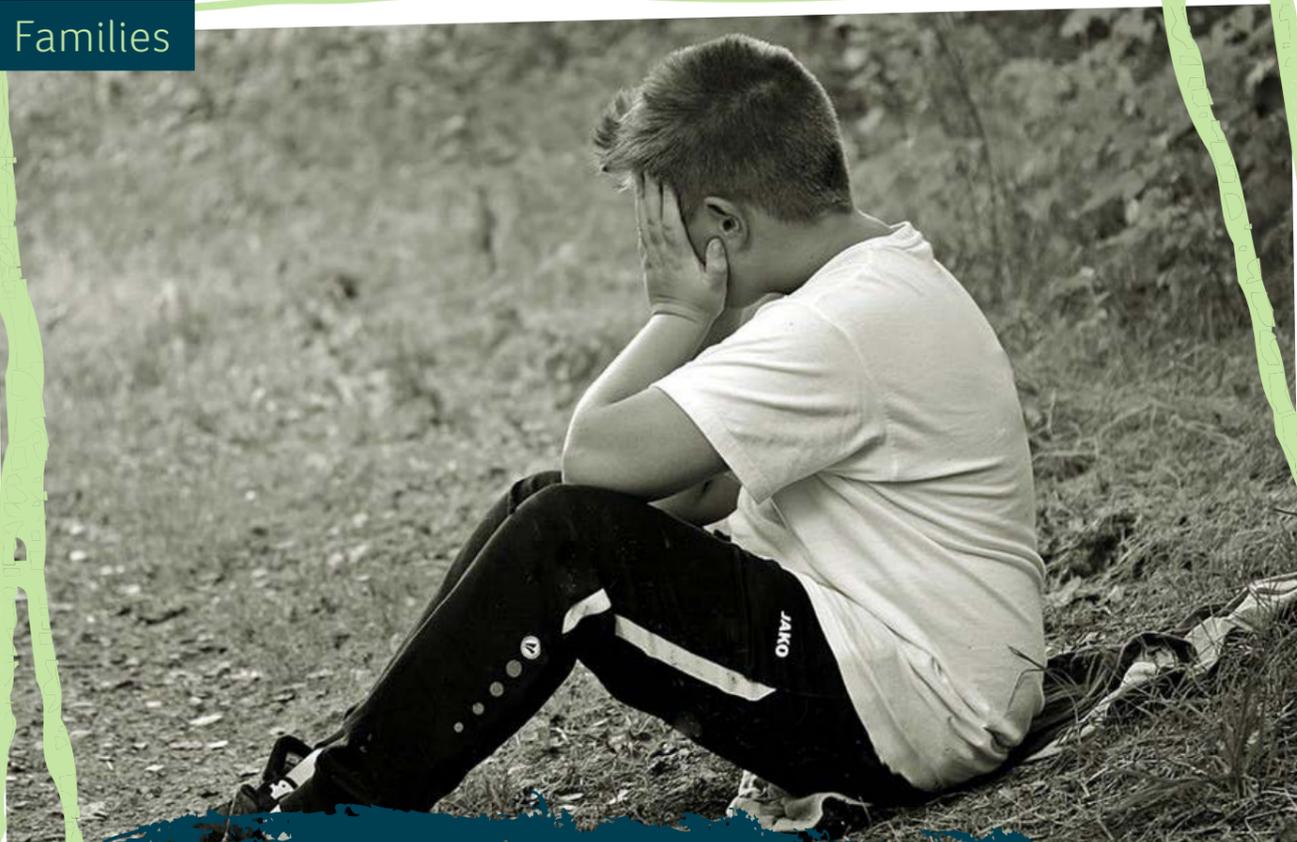
lead to your local authority providing services or financial support to help with in your caring role and/or emotional support and short breaks. Contact's **carers assessment factsheet** will tell you more.

Find out more

Contact's website is packed with information about benefits and financial help for families caring for a child with additional needs or disability. Take a look at:

- The **Benefits, Grants and Money** section on Contact's online Common Questions Tool for answers to some of your most common money and benefit questions.
- The **Money Matters guide** is a checklist of the financial help you might be able to claim.
- Information about your employment rights and money in work: **Benefits in work**.
- Advice about **Housing Benefit and help to pay Council Tax**.
- **Money advice** information including dealing with debt.

“Qualification depends on the difficulties your child has carrying out certain tasks essential to independent living, and the problems they have getting around outdoors”



Emotional and Behavioural Problems in Children with Hemiplegia – Part Two

This issue: the physiology of emotions and behaviour; assessing challenging behaviour; how to begin to address it.

Firstly, while children and adults with hemiplegia may struggle to regulate their emotions for the reasons given in the last article, it's important to be sure that your child's challenging behaviours are not caused by physical or psychological pain or distress. Any extremely negative past experiences, including abuse and neglect, must be identified and addressed. And there are reasons any child

might exhibit challenging behaviour: hormonal changes, fear of change, task avoidance, sleep problems, poor understanding, anxiety and many others.

It is also important to consider your own needs and be kind to yourself, but assess how your reactions may be part of the picture. We will look at this in more detail in our next issue.

What is Behaviour?

Behaviour is 'the way in which an animal or person behaves in response to a particular situation or stimulus' - Oxford Dictionary. It is not random, but a form of communication. It expresses our thoughts, feelings and needs, and is a way to get those needs met.

The Iceberg Principle for Assessing Behaviour

Iceberg Principle invites us to treat challenging behaviour as the 'tip of the iceberg' – the part we can see. We need to discover the hidden root cause in order to address those difficulties or needs. This can be time-consuming and take a lot of effort, but is worth it. Gather information from as many professionals as possible: parents, school support staff and other carers. The most effective interventions will take into account what social, developmental, biological, language and communication, and psychological factors are affecting the child's behaviour.

Tantrum vs meltdown and why they happen

In this context, 'arousal' refers to the response to stress of physiological systems (heart rate, muscle tension, sweat glands) and behavioural systems, not sexual arousal. Everyone's arousal levels rise and fall throughout the day, and we all have an optimal level, which varies in each person. Most adults unconsciously regulate their arousal levels - we might stop and have a cup of tea if we are feeling stressed. Children, particularly those with a brain injury, may not be able to self-regulate. They may be less able to communicate their needs and wants, so their arousal level is more likely to escalate.

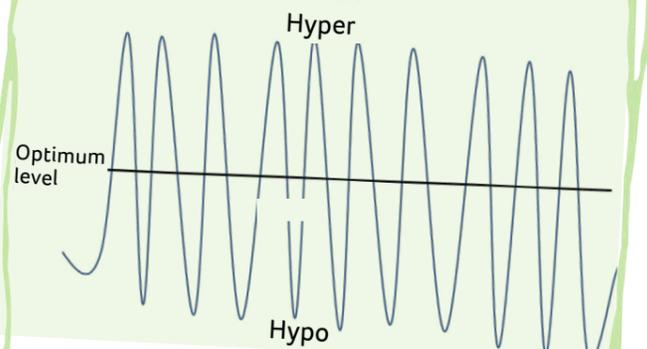
Temper tantrums are a deliberate, calculated outburst designed to get a child something they want or need. They are typical in small children who have less language to explain themselves. Children have control over this behaviour and are able to stop if they get what they want, or when they realise their behaviour won't achieve their aim.

Meltdowns are very different. They are difficult and potentially dangerous reactions to feeling overwhelmed. They can occur when arousal levels become hyper (see diagram overleaf). When arousal passes a certain point - perhaps from trying to process too much sensory input - a person's behaviour may cease to meet their needs and instead become how they express a high level of emotion. This sometimes brings relief and sometimes makes matters worse. >>>





Levels of arousal



Model of crisis



And the higher the arousal level, the more likely the risk of challenging behaviour.

So children don't have meltdowns on purpose; they can't stop once they are in the middle of one; and they can feel bad about them afterwards. The arousal level will always reduce, but it may take a few hours, and while it is at its height, it is not possible to 'calm down'. Make sure your child is safe while adrenaline levels are high. Arousal levels may become hypo following the incident, with the child becoming introverted.

Triggers

Behavioural triggers are actions or events that 'set off' particular behaviours. Start to record details of any possible triggers. This is

not so straightforward: a trigger could happen immediately before the behaviour occurs, but could be a response to something which happened hours before, or the last time the child was in a similar situation. Over time, it may be easier to perceive a pattern.

Note what happens as a result of the behaviour. What is the child trying to communicate? What needs are being met by people's reactions? Adult responses may help reduce the behaviour but might also be maintaining it. A child sent as a punishment to sit alone in a quiet place due to bad behaviour may actually achieve their aim: perhaps to avoid schoolwork which is too challenging; or to get respite from a busy classroom due to sensory issues.

Our aim is to calm the arousal level when we know a trigger is approaching, or immediately afterwards, before the child escalates to hyper levels and nothing can be done other than letting the child exhaust themselves. We need to know what the trigger is, whereabouts the child is on the model of crisis, and what will calm them.

Once you have this full picture, the child can be taught new coping skills, and a positive behaviour support plan can be put in place which gives parents and carers ways to respond to the child which:

- meet the child's needs
- stop arousal levels reaching crisis point
- encourage alternative, more acceptable behaviours from the child

We will discuss this in the final article, next issue.

Further reading: [Contact website](#), [Challenging Behaviour Foundation](#), [NHS advice](#).

HemiHelp Challenging Behaviour Workshop

Friday 1st November, London

Some of the information in this issue's **Challenging Behaviour** article is based on the **Challenging Behaviour workshop** we ran in November.

Twenty parents/carers of children with hemiplegia met for the free workshop, organised by HemiHelp and delivered by Alaina Dingwall, a family worker from Contact's Wandsworth team. Mums, Dads and one child's school LSA discovered possible reasons children with hemiplegia might present behavioural challenges, how to investigate why the behaviour is occurring, and different strategies to try out at home and school.

Parents valued the opportunity to share experiences, learn new approaches and realise that their child's behaviour is not unique nor something to blame themselves for. The workshop stressed that parents need to take care of themselves and realise they are already doing a good job – something the attendees valued.

100% of attendees went home feeling better informed about how to get the support they needed, where to find ideas and resources, and would recommend Contact.



"I now feel that what my wife and I do as a response to our child's behaviours seems common and normal."

"I have come away knowing I am not alone and there are others who are in a similar situation and understand."

"I learned that all behaviour is part of communication and how to manage my own behaviour better, to help my child."

"I found today's session incredibly useful. It was great to meet other parents facing similar challenges."

HemiHelp will organise an online webinar of the workshop in early 2020 to make it accessible to all our families – watch this space!

The Benefits of Working in Theatre

Hannah Shelmerdine, 19, LH, writes about her journey to becoming an actor.



I was the quiet, bullied, non-sporty kid; who loved to sing; who the teacher thought would never amount to anything. I was in mainstream education and the only person in my primary school with a disability. At age 8, my parents signed me up to drama classes outside of school. That decision changed my life completely.

I am now at Northumbria University doing a Drama degree specialising in Applied Theatre. I have earned five different qualifications. I have taught drama to adults with additional needs. My confidence and social skills have developed; I have a solid group of friends; my dexterity, balance, core strength and fine motor skills have all come on immensely.

I never believed I would get cast in anything, due to the lack of roles for disabled actors. So I decided to create the roles and

break the stigma myself. I am writing a play with the idea that any disabled actor can have the story adapted to them. I have just made my professional debut at the award-winning Hope Mill theatre in Manchester, playing a disabled character in 'A Series of Truths', which I helped create. And I have an audition for a **major feature film**. So dreams do come true.

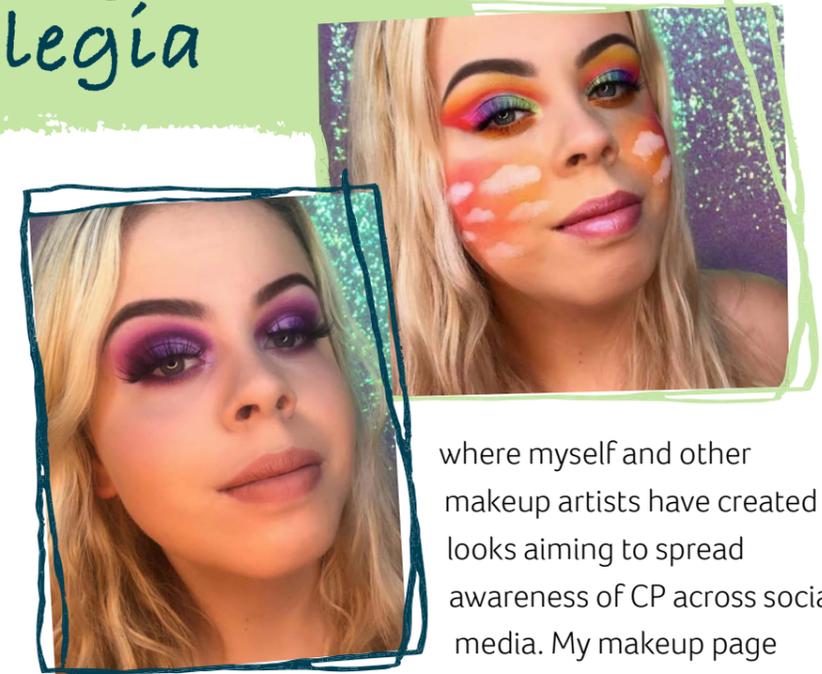
Some of us are creative, not sporty. Take the lead from your child because the Arts will always welcome you with open arms: whether that's in a theatre as tech or onstage; painting, pottery, singing or dance. You never know what it could lead to. But most of all, whatever you or your child does, enjoy it and do it for the love and joy it brings.



"I never believed I would get cast in anything, due to the lack of roles for disabled actors."

Makeup, Body Image and Hemiplegia

Charlotte Compton tells how her hobby turned into a business, and how her business helped how she felt about her hemiplegia...



where myself and other makeup artists have created looks aiming to spread awareness of CP across social media. My makeup page started as just a hobby but it

Body image is something I've always struggled with. If people were to ask what my least favourite thing about my body is then the appearance of my arm on my hemi side would be top of the list. It's my biggest insecurity. My hemiplegia causes my left arm to be in a 'locked' position and bent at the elbow. When I'm walking, it can often rise, which is something I can't control. My hemi is relatively mild but this is what makes it a little more noticeable.

I've always had a love for makeup. I feel it's a real art and a form of expression. When I started posting makeup photos on social media I felt my arm was something I could hide.

I started my Instagram account over a year ago and over this period I've gained a great following and have since set up my own business @makeupbychar.x. In the last year, I've launched two campaigns for Cerebral Palsy awareness

has helped me to embrace my hemiplegia and how my body looks.

Through posting photos and videos of me doing my makeup and my affected arm being on camera, I've gained more confidence in my appearance and how people see me. I've realised that hemiplegia isn't the first thing people notice about me and I'm learning to embrace it. It's completely ok to have 'hang ups' or things you don't like about your body but rather than standing in front of the mirror picking out what you hate, find things that you like. That's not being boastful. That's just being kind to yourself.

Makeup by Char

Help for 'Hidden Disabilities'

The Government recently extended eligibility for Blue Badge parking permits to include 'hidden disabilities'. We take a look at this and other schemes in the UK which aim to improve travel for people living with less visible conditions.

As of this summer, local councils will consider giving a Blue Badge to those who:

- Cannot travel without risk of serious harm to their health and safety or someone else's (such as young children with autism).
- Cannot travel without 'very considerable psychological distress'.
- Have very considerable difficulty when walking, meaning "both the physical act and experience of walking".

Read more on our [website](#) and full rules [here](#).

Encouragingly, this is not the only scheme aiming to improve travel for people with 'invisible' or 'hidden' disabilities.

Sunflower Lanyard

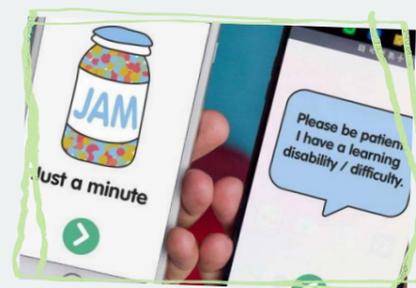
First launched by Gatwick Airport in May 2016, the sunflower lanyard discreetly makes staff aware the wearer might require extra assistance, time, or access to a quiet space or toilet facilities. Over 10,000 lanyards

later, it's now in use at most UK and some international airports, major supermarkets, some shopping centres, theatres and railway companies, as well as within the NHS. Lanyards are free at Customer Services, check-outs or assistance desks. They can also be purchased **online**.

JAM Card

The **JAM 'Just a Minute' cards**

and app were developed by a Belfast social enterprise. The credit card sized signs discreetly ask for extra time and assistance due to conditions which may make communication difficult. The scheme has over 20,000 cards in circulation and 2,000 app users in Northern Ireland. Last March, **Virgin Trains** became the first company outside Northern Ireland to sign up, training staff to recognise the card and have a greater understanding of different



types of additional needs. **Southeastern Rail** have been piloting JAM cards and sunflower lanyards since October with a view to rolling the schemes out across its 176 stations.



Transport for London

Transport for London provide a **'Please offer me a seat'** blue badge or card for passengers who have difficulty standing on public transport. The Priority Seating scheme saw 30,000 badges issued in its first year.

Stickman Cards

Stickman Communications uses cartoons combined with straightforward explanations to help people communicate 'positively yet realistically about a wide range of disabilities, conditions, needs and symptoms. Badges include 'My disability is not obvious' and 'My disability is not always visible.'

Local Schemes

You may also find schemes operating local to you, such as **Helping Hand** in Brighton and Hove.

Here are some HemiHelp families' experiences using sunflower lanyards at airports

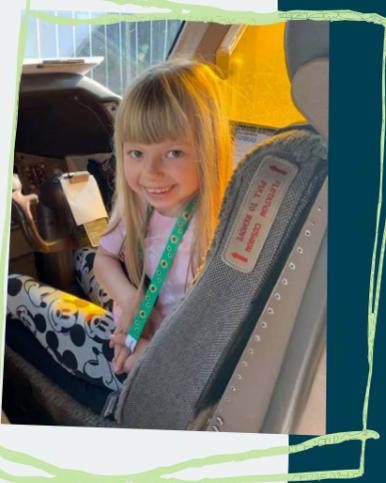
"It worked a treat. A security officer, initially quite brusque, got down on my daughter's level to reassure her and gave her a sticker for passing her security checks. When we boarded the flight attendant quietly said I could let them know if there was anything we needed."



"All the staff at Heathrow knew about the sunflower lanyard and were very helpful. We got to wait in the VIP waiting area and got priority boarding."



"Sitting in the captain's chair before our flight to Florida. The lanyard was very useful. She loved wearing it and felt very special."



"I have hemi and epilepsy and when I checked in to fly Emirates from Heathrow I was given a sunflower lanyard. It fast tracked me through immigration and gave me lounge access as well as priority boarding. I was well impressed."
Jack Walker, 27.

Transcranial Direct Current Stimulation (tDCS) to treat hemiplegia

Dr Charikleia Sinani, Senior Lecturer in Physiotherapy, York St John University, tells us about the emerging use of transcranial Direct-Current Stimulation (tDCS) to improve motor function in patients with hemiplegia.



Cerebral Palsy (CP) affects 2-3 in 1000 children, around 30% of whom have unilateral or hemiplegic CP. A variety of medical interventions and treatments are available to improve motor function and quality of life.

A lesser-known treatment is transcranial direct-current stimulation (tDCS): non-invasive brain stimulation. Commonly, two electrodes are placed on a targeted area of the skull, e.g. above the area of the brain that controls memory. Constant low electric direct current flows between these two areas, while the individual rests, or maybe learns or performs

a new task. The individual normally feels tingling, prickling and itching of the scalp.

tDCS was first used in the 1960s to help individuals with depression. Since then, it has been used to improve cognitive function in healthy adults; improve memory in adults with Alzheimer's and Parkinson's disease; treat chronic pain; and reduce the symptoms of schizophrenia. tDCS has also been used (in addition to rehabilitation) to improve function in the affected upper or lower limbs of children and young people with hemiplegia.

There are three types of stimulation: **anodal (positive) stimulation**, **cathodal (negative) stimulation** and **sham stimulation**.

Anodal (positive) stimulation increases brain function. It depolarises the neuron's membrane: the neuron undergoes a rapid shift in electric charge distribution, resulting in less negative charge inside it, which causes excitation and spontaneous cell firing.

Cathodal (negative) stimulation decreases brain function. It hyperpolarises the neuron's membrane: the neuron undergoes a rapid shift in electric charge distribution, resulting in less positive charge inside it, which decreases neuron excitability and spontaneous cell firing.

During **Sham stimulation**, the current is only applied for a short period of time, with no change to the brain neurons' membrane. This is used as a control test during research, in the same way that a placebo is used in drug trials. It helps prove the effects of Cathodal and Anodal stimulation.

The outcomes depend on the type and duration of the stimulation, the strength of the current and the number of the sessions. Applying the electric current changes the brain neurons' membrane and tDCS is believed to achieve changes to the brain even after the stimulation has ended.

To treat hemiplegia, the two electrodes are typically placed over the area of the brain responsible for motor function: the 'motor cortex'. This is located somewhere at the middle of the scalp and goes across the right and left sides of the scalp. The **anodal (positive) stimulation** is commonly applied over the motor

cortex opposite to the limb that is affected whereas the **cathodal (negative) stimulation** is applied over the motor cortex on the same side of the limb that is affected. Each stimulation session may last about 20 minutes and a child can receive one or multiple sessions.

Research evidence suggests that spasticity (overactive muscles) is reduced by multiple sessions of anodal stimulation. Function of the upper limb is more likely to improve if multiple sessions of anodal tDCS is applied while a child is learning a motor task or combined with another treatment. Function of the lower limb such as walking speed, sway and balance are also more likely to improve when multiple sessions of anodal tDCS are applied.

One study found that the location and the type of the brain damage may be good predictors when deciding to apply tDCS to improve the function of the lower limb. However, further research is needed to guide the application of tDCS in children with hemiplegia. One of my PhD students found parents and young people were reluctant and fearful to receive tDCS, but parents shouldn't be deterred from having their child involved in research studies. To date, there is no evidence to show that its application has adverse effects when used in children with CP and it is an affordable procedure that is beginning to be used in clinics with promising results. >>>

"To treat hemiplegia, the two electrodes are typically placed over the area of the brain responsible for motor function."

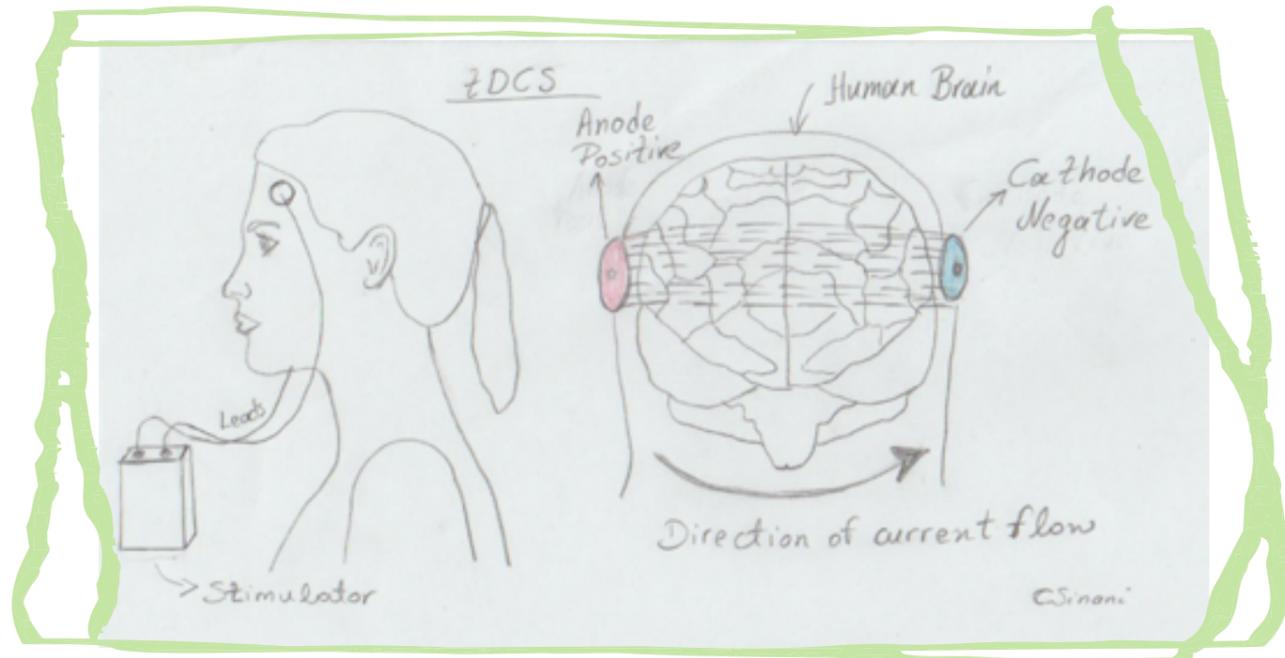


Figure 1. Use of transcranial direct current stimulation (tDCS). The stimulator uses a 9 Volt battery. The intensity of the current used in children and young people with CP is 1mA or less. Drawing is based on Higgins and George (2008).

Useful resources

- Fleming, M.K., Theologis, T., Buckingham, R. & Heidi Johansen-Berg, H. (2018) Transcranial direct current stimulation for promoting motor function in cerebral palsy: a **review**. *Journal of NeuroEngineering and Rehabilitation*, 15, 121-129.
- Higgins ES, George MS. (2008). *Brain Stimulation Therapies for Clinicians*. American Psychiatric Press: Washington, DC.
- Saleem, G.T., Crasta, J.E., Slomine, B.S., Cantarero, G. L. & Suskauer, S.J. (2019). Transcranial Direct Current Stimulation in Pediatric Motor Disorders: A Systematic Review and Meta-analysis. *Archives of Physical Medicine and Rehabilitation*, 100(4), 724-738.

- Scheffler, G., Williams, J.H.G., Mon-Williams, M. & Sinani, C. (2010) Potential Facilitation of Upper Limb Performance in Children with Hemiplegia using TDCS. *European Journal of Paediatric Neurology*, 14 (6), November, 553-553.
- Scheffler, G., Holt, R.J., Sinani, C., Mon-Williams, M., Helms, P.J.B., Williams, J.H.G. (October, 2012). Exploring Stakeholders' views on receiving transcranial direct current stimulation in cerebral palsy. 4th International Cerebral Palsy Conference, Pisa, Italy.
- Scheffler, G., Holt, R.J., Sinani, C., Mon-Williams, M., Helms, P.J.B., & Williams, J.H.G. (May, 2012). Views on receiving transcranial direct current stimulation (tDCS) in cerebral palsy: An Interview Study. 24th Annual Meeting of the European Academy of Childhood Disability, Istanbul, Turkey.
- **Transcranial current stimulation**

Spotlight on Two of our Amazing Fundraisers!

It wouldn't be a winter issue without a Santa – and stepping up to the plate is Alex Cook! He'll be wearing the iconic red suit on 5th December, to run 5km through London at night with thousands of other Santas, passing Tower Bridge, Shakespeare's Globe and other famous landmarks.

Alex has right hemi and says he's proud to support such a great cause. "The members of this great charity and Facebook group have really helped me over the years with advice and kind words, helping me cope and adapt into the person I am today. They've inspired me to never give up and to achieve great things."

At time of going to print Alex has raised an amazing £701.25! **Click here** to support him (and us!). Thank you Alex and good luck! >>>





On September, 8-year-old Harrison Marks, LH, met a huge challenge by completing the Nuclear Rookies mud and obstacle race, raising an incredible £858 for Contact and HemiHelp!

Harrison was very nervous as the race approached. But on the day he beat his fears, enjoyed getting muddy and completed all the obstacles! His favourites were the slip and slide, even with the freezing water, and the high nets. The worst part was the monkey bars as his left arm is not strong enough to hold him up.

Harrison had a huge grin on his face as he passed the finish line. He is so proud of himself, as is everyone, especially mum Lisa, who ran the adult race. Harrison is hoping to go back in 2020 and do two races to get the special medallion!



A big thank you to all our fundraisers for their support! If you would like to raise money for Contact and HemiHelp, please contact **Kaya Korablina** 😊



Part of the Contact family

The Fledglings Christmas Shop is Open!

Fledglings - the charity that provides products for children with additional needs - joined the **Contact** family last February. Fledglings was founded in 1998 by Ruth Lingard, a special needs teacher and social worker passionate about helping families find simple solutions to everyday challenges.

We work with 80 partners to offer over 500 product solutions which help make life easier for parents, and more fulfilling for children. Even if we don't stock a product, we'll know someone who does. Suggestions of products to add to our shop are always welcomed. Please feel free to give us your recommendations by signing up to our [e-newsletter!](#)

We are proud that **everything we do supports our families**. Every purchase from Fledglings directly supports Contact's work: this is our **cycle of support**, allowing us to continue to provide the help and advice needed by families with disabled children.

We'd love you to join our community! Whether for your own family or a friend's children, Fledglings have ideas for a perfect gift - not only fun but suitable for each child's needs. For children with **hemiplegia**...

- Sensory toys like **Rainbow Putty** can encourage two handed play. It helps develop hand muscle strength and can be very calming and therapeutic.
- A **Jar of Nuts and Bolts** can improve dexterity and muscle strength. Their large size makes them easier for children to handle and manipulate.
- The **Fine Motor Toolkit** includes a grabber, scooper, twisty dropper, and squeeze tweezer. These are great tools to help develop fine motor skills.
- **Dr Barman's Superbrush** toothbrushes with a double head allow children with sensory issues to brush more easily - best paired with the non-foaming, unflavoured **Oranurse toothpaste**.

We hope you will find the perfect gift in our Christmas shop and we wish you and your family a warm and happy Christmas holiday!



Sports stars

Continuing our series of articles on the amazing sporting achievements of young people with hemiplegia is *Gabrielle Reid, AKA Gabz the Boxer!*

My name is Gabby and I'm 16, with RH. I started boxing at nine years old. I didn't love it straight away but one day something clicked! Five hard years of training later, my first fight was truly one of the best days of my life. I put everything I had into it and got my hand raised as the winner - the feeling is second to none!

My hemi can make certain things harder. Until about two years ago I couldn't do one skip, but I put the work in and now I can do as many as I put my mind to. Mentally, there are times when I really don't believe in myself, but then I think how far

I've come and where I would be without boxing and I keep going! I couldn't do this on my own though, I have a great team behind me including the best coach, Mo, plus my mum, friends, family and sponsors. I'm so grateful for them all!

I won't let my hemiplegia get in my way; in fact, it works in my favour



because what I've been through makes me stronger mentally. People think I can't do things because of my condition but I've always been determined to prove them wrong. In the future, my dream is to get to the Olympics and win gold! I look up to many other boxers who have shared my dream. They are all from normal backgrounds and some even had their own personal battles, like me with my hemi. Lawrence Okolie was clinically obese before starting boxing; Anthony Joshua used to be in trouble with the police then five years later he was in the Olympics! This shows that if you work hard for something you can get it – and I'm not afraid to work hard!

You can follow Gabby's journey on **Facebook** or her **website**.

Evidence based rehabilitation for the arm and hand that achieves meaningful results

Suitable for children with:

- ✓ Hemiplegia
- ✓ Cerebral palsy
- ✓ Acquired brain injury
- ✓ Arm weakness following a stroke
- ✓ Neurological conditions

Benefits of CIMT:

- Increase range of movement of arm and hand
- Increase strength of arm and hand
- Increase hand function
- Increase independence
- Improve quality of life

CIMT programmes include:

- Effective evidence-based treatment for upper limb weakness / hemiplegia.
- Intensive rehabilitation programme delivered daily over 3-4 weeks.
- One-on-one sessions with specialist CIMT therapists.
- Play-based therapy designed to achieve individual goals.



For more information visit www.cimt.co.uk/hemihelp

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HemiHelp is now part of Contact, which is a trading name of Contact a Family, a company limited by guarantee and registered in England and Wales.

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