

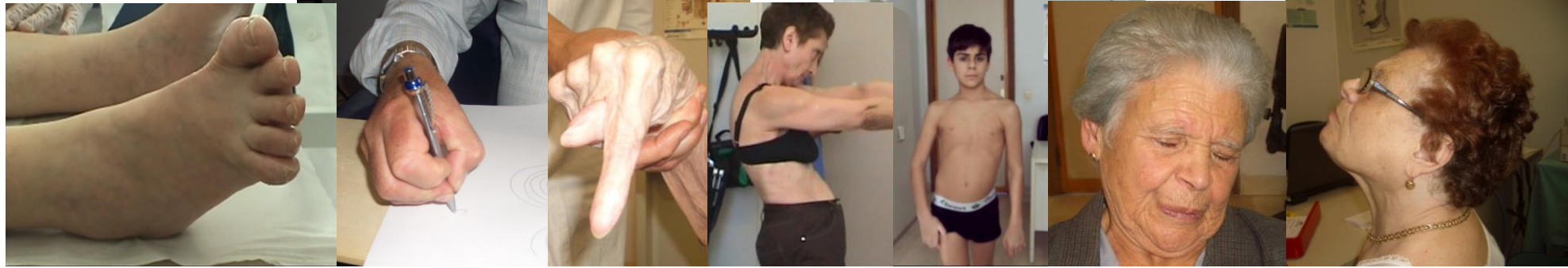
Dystonia beyond Dystonia: **How important are non-motor symptoms, and are we investigating and managing them properly?**

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Some good reasons to care for dystonia



- It is not “uncommon”
- Latency to diagnosis could still be long
- Related disability poorly understood
- Manageable (often sub-optimally) but not completely curable, let alone preventable
- Understanding dystonia = understanding motor control

TALK OUTLINE

Quality of life and disability

Non-motor problems in dystonia

1. Pain

2. Emotional

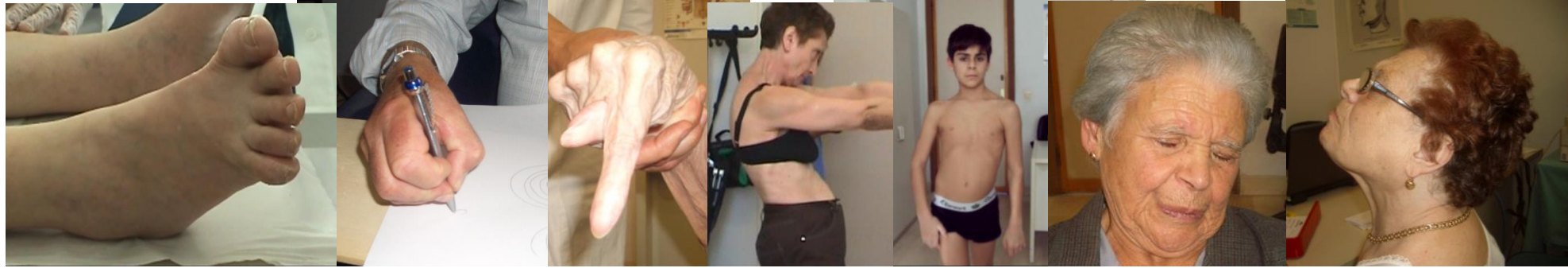
3. Cognitive

Rehabilitation in dystonia

What is the evidence?

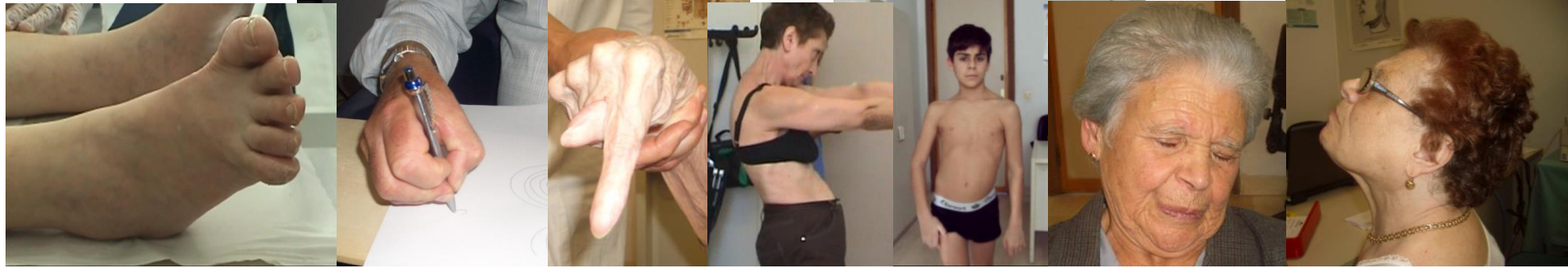
Alternative treatments in dystonia

What impacts quality of life in dystonia?



- Specific questionnaires for QoL in dystonia
- Greater severity → greater functional disability
- More severe pain
- Frequent complaints →
 - difficulty in keeping up with professional and personal demands (74.3%)
 - feeling uneasy in public (72.9%)
 - hindered by pain (68.6%)
 - feeling depressed, annoyed or bitter (47%), lonely or isolated (33%)

What causes disability in dystonia?



- More data on cervical dystonia
- Despite motor improvements with botulinum toxin, many patients still experience difficulties with performing daily life activities
- Psychiatric features (depression, anxiety) and pain → largest contribution to disability

Much more than physical functioning and dystonia severity



“After my diagnosis almost three years ago there have been times when I’ve thought (and have been made to feel by my Neurologist/and GP) **that I was imagining the many symptoms** I had with seemingly no explanation. Wish I'd had this article to hand then!!”

“More research is good, but **it's hard to know how much is the dystonia itself, and how much is the symptoms of suffering from a little known or understood disease that can be extremely isolating.** I look forward to more work on this area.”

“How pertinent these points are. I had DBS 3 yrs. ago & it improved my neck Dystonia dramatically. **All the other disabling Dystonic symptoms (as mentioned) remain with me however.** We definitely require more research here....& **an acknowledgment of these symptoms by Government bodies!**”

“My non-motor symptoms included extremely dry eyes and pins and needles. These have significantly reduced after my DBS surgery. **More research is required to fully understand the cause of non-motor symptoms.**”

Pain: which are the main types of pain in dystonia?

- 55-89% of people with cervical dystonia have pain (68% in neck and shoulders → spreads to upper back, up to the head on the bent side and down to the ipsilateral upper limb)
- 10-20% have chronic daily headache (occipital 79%, cervical 73%, temporal 43%, frontal 36%, vertex 25%, retroorbital 11%)
- “exhausting”, “radiating”, “prickly”, “pulling the neck”
- 38% of people with focal hand dystonia have pain
- 36% of people with focal lower limb dystonia have pain
- People with blepharospasm have painful photophobia
- NEVERTHELESS → No specific classification criteria

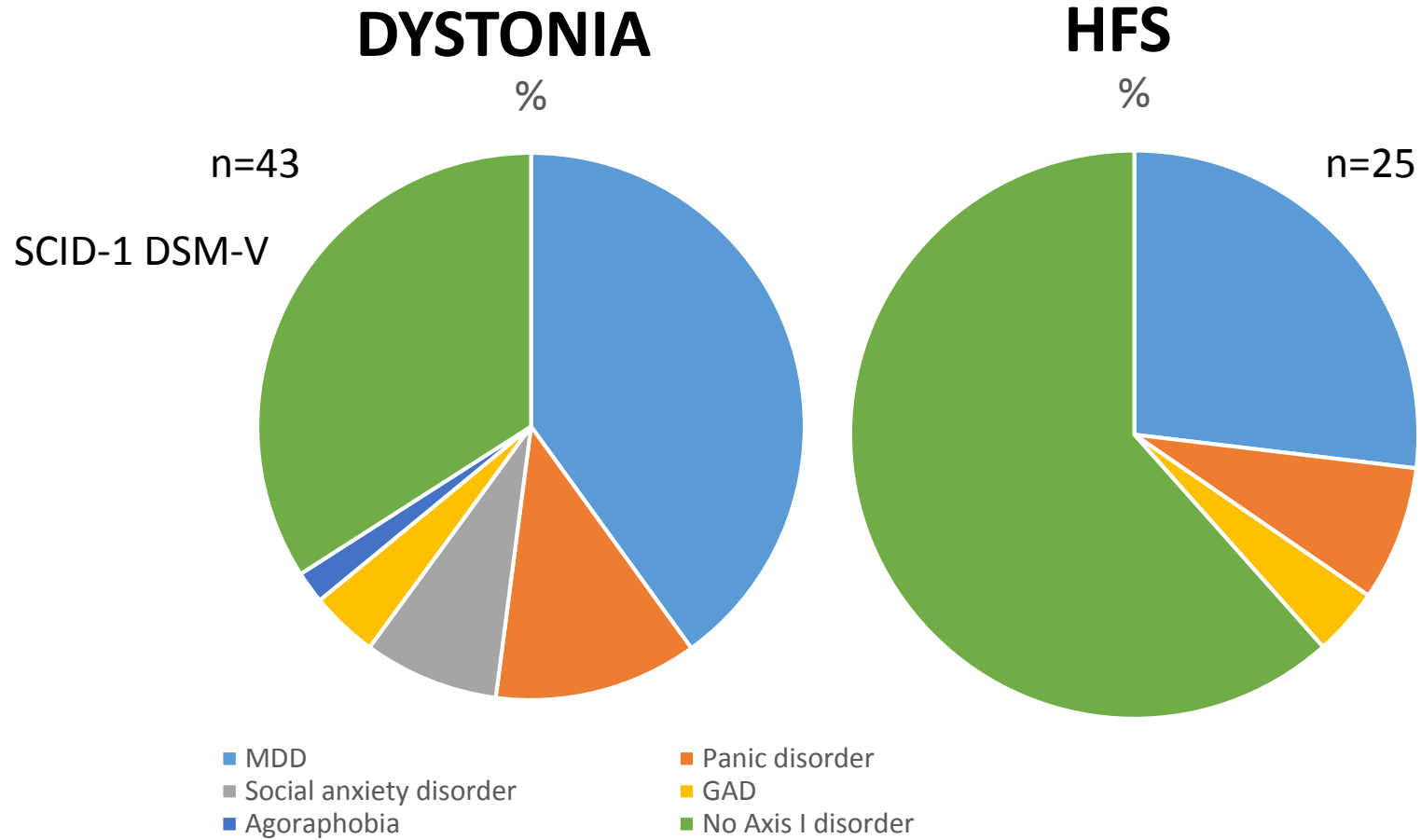
Pain: what are the risk factors?

- Hypothesized mechanisms include:
 - prolonged contraction of the “dystonic” muscles
 - prolonged contraction of the “compensating” muscles
 - altered brain processing of painful stimuli
- OVERALL, we really cannot answer this question
- ????????????

Pain: how can we treat it?

- Oral meds for dystonia are non-specific
- Botulinum toxin injections relieve pain in cervical dystonia, even before relaxing muscles
- In one study, BoNT-A reduced pain in 66% of patients by week 4 and in 74% by week 12
- Botulinum toxin injections relieve pain in focal hand dystonia (about 70% of treated patients)
- Deep brain stimulation of the globus pallidus internus is likely to reduce pain
- Continuous intrathecal infusion of baclofen through pump may reduce pain, but is invasive

Are people with dystonia more likely to be depressed?



Dystonia pts with depression are significantly younger and nr of SCID diagnoses correlates negatively with age ($r=-0.54$, $p=0.001$)

Are people with dystonia more likely to be depressed and anxious?

- HADS-anxiety, Liebowitz Social Anxiety Scale, GAD scale, PDSS *do not correlate* with the global severity, spread and associated disability of dystonia
- HADS-depression → *weak correlation with pain and disability related to CD (TWSTRS)*
- After treatment with BoNT-A, depression and anxiety do not improve significantly

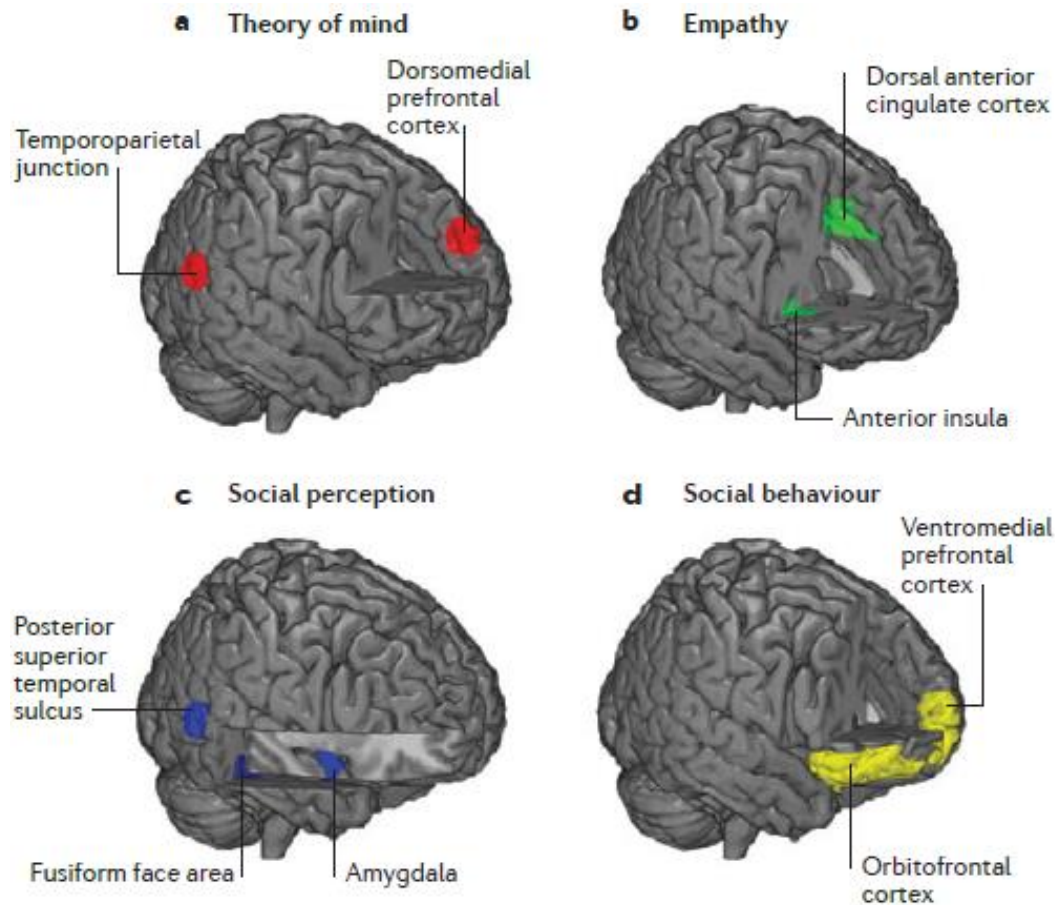
Are depression and anxiety in dystonia affecting quality of life?

- *Instruments: Craniocervical dystonia questionnaire-24 (CDQ-24) & EQ-5D*
- **HADS score (depression)** → strong correlation to ADL, emotional well-being, social/family life and stigma domains ($r > 0.6$)
- **LSAS (fear/anxiety and avoidance subscores → social anxiety)** → strong correlation to stigma domains ($r > 0.6$)
- **GAD (generalized anxiety)** → strong correlation to emotional well-being and pain domains ($r > 0.6$)
- **PDSS composite score (panic disorder)** → strong correlation to pain domains ($r > 0.6$)
- **Ways of coping questionnaire** → reduced tendency to seek social support, which correlates weakly with CD severity and related disability

SHI-CD

(Social cognition and Habituation to social stimuli In Cervical Dystonia)

10 psychometric instruments + Repeated Faces Task



- Understand social cognition abilities of people with CD
- Social cognition guides social interaction and promotes quality of life
- Understand whether performance on tests of social cognition relates to mood and anxiety issues
- Do raised social anxiety and low mood depend, in part, by reduced ability to process social stimuli?

Are people with dystonia who also have depression and anxiety more prone to use meds?

- Dystonia coalition cross-sectional study → 37 centres in US, Canada, Europe and Australia → 2,026 participants (76% focal [61% cervical, 12% laryngeal, 10% limb, 9% cranial, 8% blepharospasm])
- If anxiety/depression was present, patients were **twice as likely to be taking oral medications** (also useful) for dystonia
- Particularly:
 - BENZODIAZEPINES
 - OTHER SLEEP-INDUCING MEDS (e.g. zopiclone)
 - MUSCLE RELAXANTS
 - ANTICHOLINERGICS (e.g. trihexyphenidyl)

May/should people with dystonia who also have depression and anxiety be treated with antidepressants?

- There is no valid reason to be extra cautious to treat depression and anxiety with antidepressants (SSRIs) in patients with cervical dystonia
- No evidence confirming that antidepressants improve depression in patients with dystonia, compared to placebo
- Placebo matters in dystonia → high expectation rates for good effects and adverse effects (e.g. with BoNT-A)

[Zoons et al. J Neurol Neurosurg Psychiatry 2018; Duarte et al., Parkinsonism Relat Disord 2018]

Does deep brain stimulation surgery improve depression and anxiety in people with dystonia?

- Overall, anxiety, mood and cognition seem to remain stable postoperatively.
- There may be some improvement if patients with moderate-severe depression are included (?due to different causes)
- Caution for neuropsychiatric problems in the screening for DBS remains very important

[Eggink et al., Parkinsonism Relat Disord 2018]

Do people with dystonia have sleep problems?

- At least half of the patients with cranial (BSP, OMD) and cervical dystonia have poor night sleep quality (increased sleep latency, decreased sleep efficiency, with more awakenings and less REM sleep)
- This does not depend on the severity of dystonia also because dystonia disappears in sleep
- The poor sleep quality is influenced in part by concurrent depression, and may worsen quality of life in dystonia
- Patients with dystonia do not commonly complain of excessive daytime sleepiness

Do people with dystonia have sleep problems?

- Treatment with BoNT-A, even if successful in reducing motor symptoms, does not eliminate sleep problems
- Likewise, we ignore the effect of GPi-DBS upon sleep
- How much can the use of other medications, e.g. benzodiazepines, explain these sleep disturbances?

[Hertenstein et al., Sleep Med Rev 2016]

Do people with dystonia suffer from excessive fatigue?

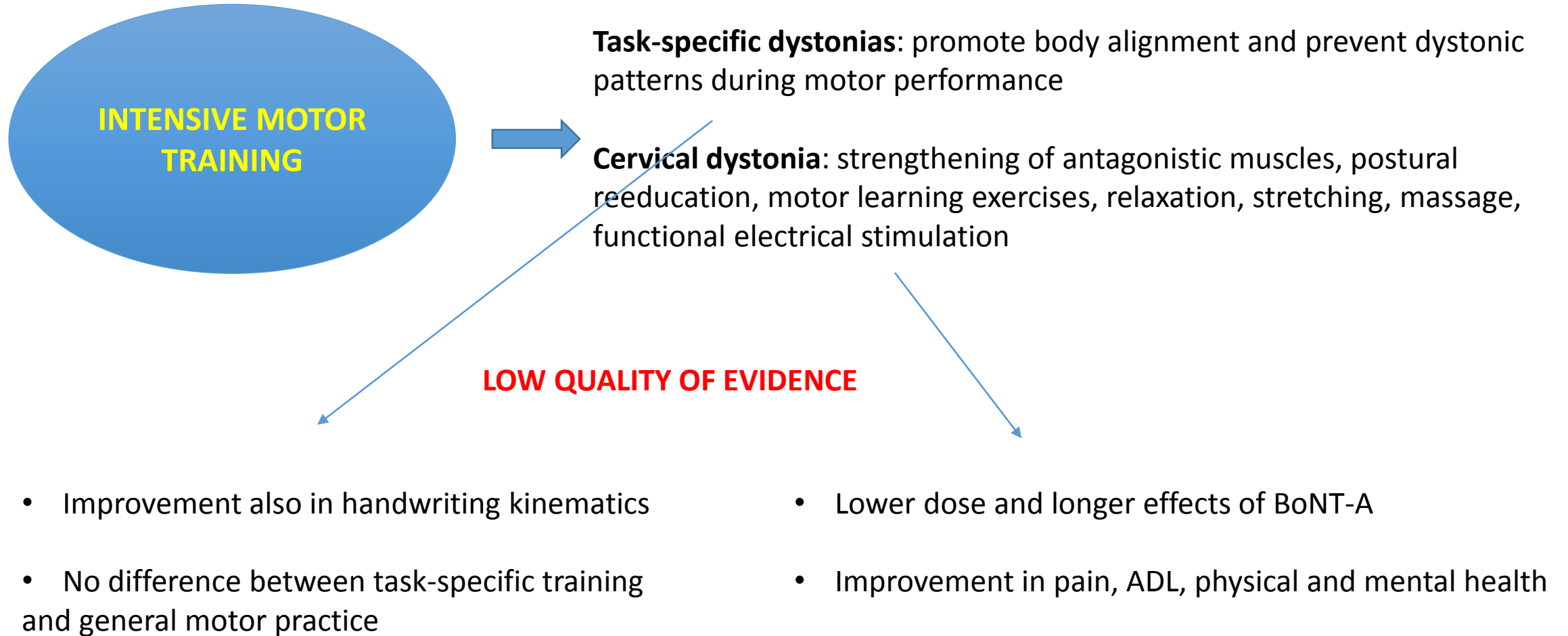
- More than 40% of adults with dystonia suffer from moderate to severe fatigue
- More fatigue correlates with poorer quality of life, regardless of depression and sleep problems
- We don't know whether this improves with treatment

[Wagle Shukla et al., Int J Neurosci 2016]

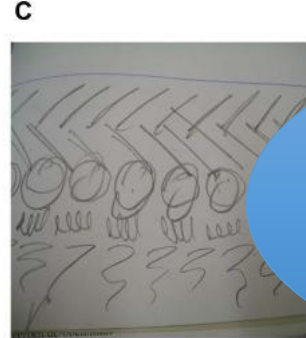
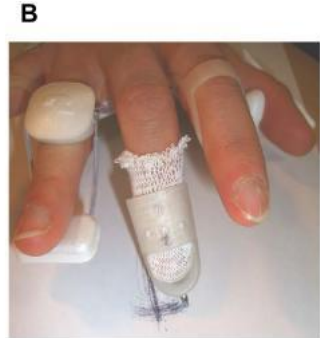
Rehabilitation in focal dystonias

- Rate of utilization varies worldwide
- In the US, few therapists see patients with dystonia regularly
- In Europe, only half of 24 countries provide access (in Sweden it is second after BoNT-A)
- People with CD report effectiveness of adjunct PT but only 31% ever received it
- Lack of definitive evidence of effectiveness is a key factor

Physical treatment I. Movement practice (12 studies)

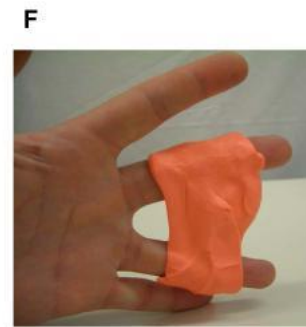
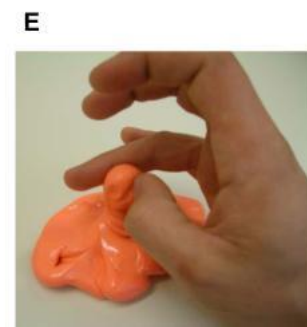
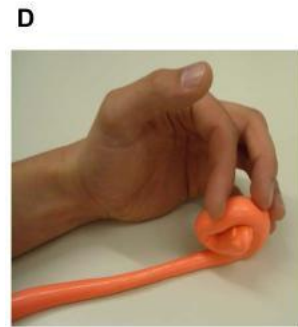


Physical treatment II. Modulating sensory pathways (15 studies)



TRAINING WITH
CONSTRAINT

VERY LOW QUALITY OF
EVIDENCE



SENSORY
TRAINING OR
REORGANIZATION

VERY LOW QUALITY OF
EVIDENCE

Physical treatment III. Normalization of muscle activity with external techniques (13 studies)

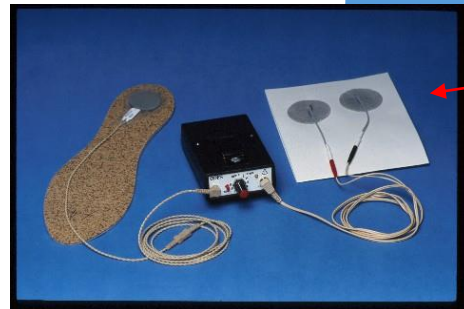
VERY LOW QUALITY OF EVIDENCE

COMPENSATORY STRATEGIES:

New writing techniques
Splinting/devices

ACTIVE METHODS:
BIOFEEDBACK through
visual, auditory, EMG,
EEG

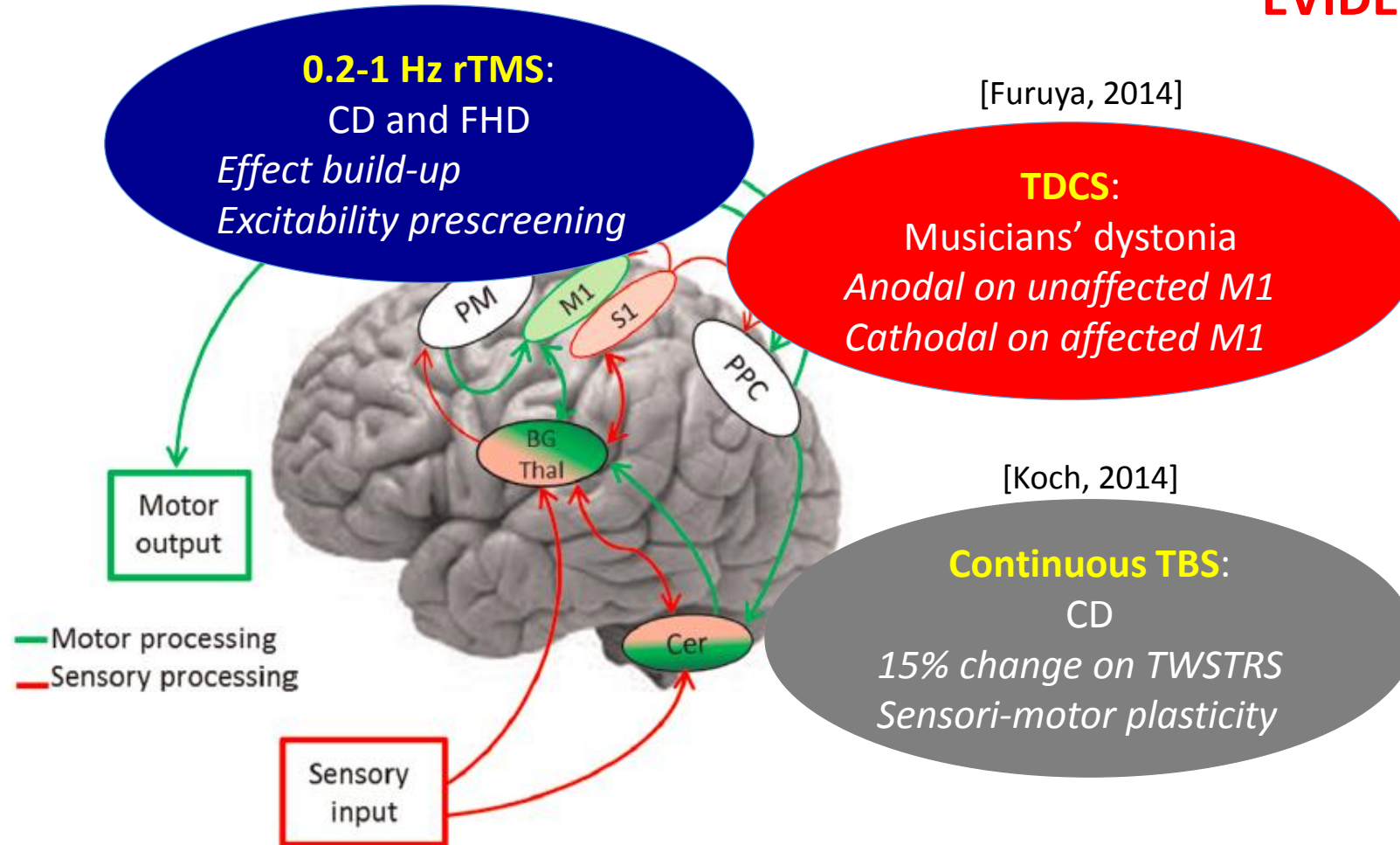
PASSIVE METHODS:
Vibration, TENS, FES,
extracorporeal shock
wave therapy, kinesiotape



Non-invasive brain stimulation: a new dawning?

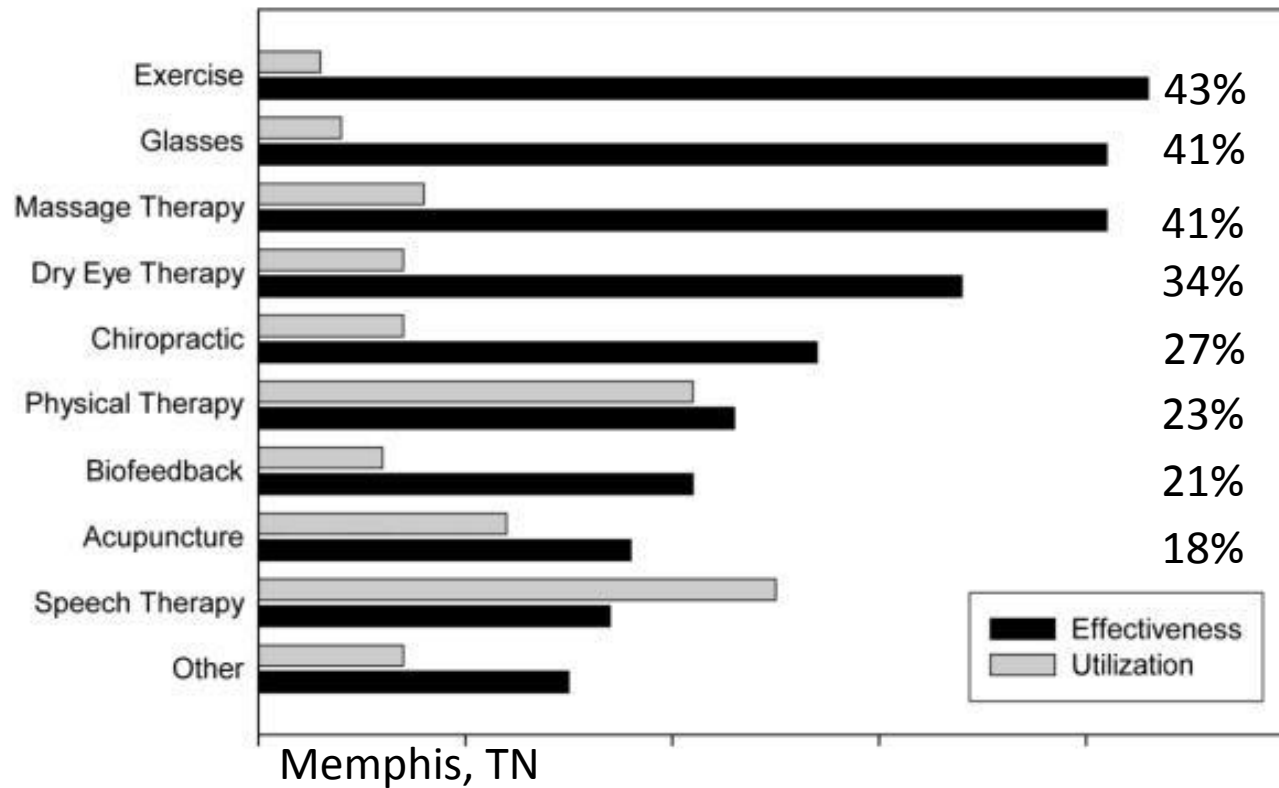
**LOW QUALITY OF
EVIDENCE**

[Pirio Richardson, 2015; Kimberley, 2015]



Complementary and alternative medicine: diverse medical and health care systems, practices and products not generally considered part of conventional medicine

53% of 389 pts → use I-CAM → effectiveness rate 28%
90% of 389 pts → use BoNT-A → effectiveness rate 59%



- Lack of evidence
- Can traditional studies reflect accurately CAM effectiveness? problems of specificity and personalization
- Health insurance
- Need for national standards for certifying CAM practitioners or what qualifies as a specific therapy

[Fleming et al., Parkinsonism Relat Disord 2012]

MULTIDISCIPLINARY CLINIC

ASSESSMENT

- Comprehensive Neurological examination
- Neuropsychiatric assessment (psychiatrist or clinical psychologist)
- External referrals (as required) →
ophthalmology
voice clinic

