

Use of oro- motor exercises in acquired dysarthria intervention

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Definitions

oro-motor exercises

Movements of the oral muscles, usually repetitive, **without phonation** e.g. lip spreading, tongue protrusion

Sometimes described as 'active' exercises, usually addressing weakness (as distinct from e.g. tapping, massage, application of ice)

acquired dysarthria intervention

As a component of treatment for acquired neuro-muscular motor speech disorder



Non-speech oro-motor exercises as a component of dysarthria intervention

- Commonly described in dysarthria therapy resource manuals
- Reported to be in wide clinical use (Duffy 2007; Palmer and Enderby 2007)
- Robertson and Thomson (1987)
- Swigert (1997)
- Kaye (2000)
- Sugden –Best (2002)



Do non-speech oro-motor (NSOM) exercises benefit speech?

- No robust direct evidence of speech improvement attributable to NSOM exercises
- Ongoing debate as to whether the movement basis for NSOM exercises is relevant to speech (Weismer 2006)
- Resolving the debate regarding use of NSOM exercises in treatment is an important area for efficacy research (Duffy 2007)

Survey of speech and language therapists

- Do SLTs currently use NSOM exercises in their management of people with acquired dysarthria of neurological origin?
- Why or why not?
- What outcomes are hoped for?
- With which dysarthria patients?
- Which speech organs?
- What exercise regimes?

Postal questionnaire

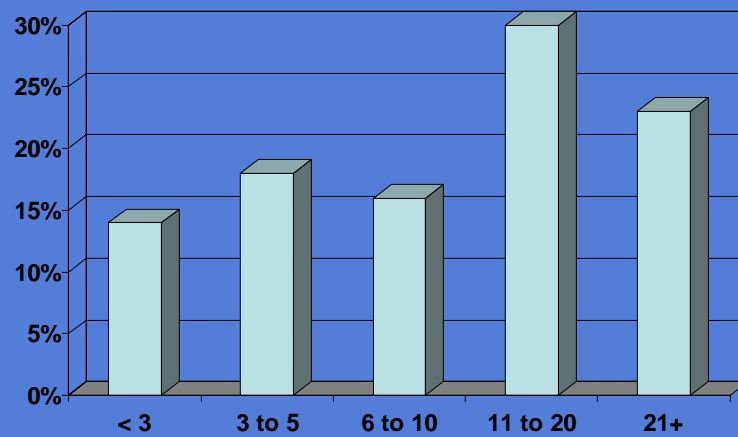
- Speech and language therapists identified by service heads/managers as working with adults with acquired dysarthria
- Scotland: 208
- Wales: 99
- N Ireland: 34

Total distribution: 341

Response

191 anonymous returns = 56%

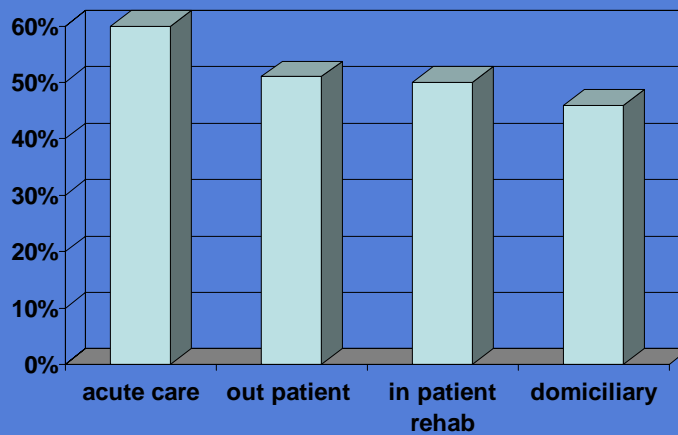
Years of experience



Do SLTs use non-speech oromotor exercises?

- **Yes: 81% (154)**
 - **No: 19% (37)**
- No association with:
- years of experience
 - academic institution attended

Main work settings





Work settings: in patient rehabilitation

Association between
NSOM exercise use
and:

**In patient
rehabilitation** as a
main work setting

Chi-square = 3.91
(d.f.1), $p < 0.05$

Respondents for whom
**in-patient
rehabilitation** is a main
work setting are more
likely to use NSOM
exercises, than those
for whom this is not a
main setting



Work settings: domiciliary

NSOM exercise use
and:

Domiciliary as a main
work setting

Chi-square = 3.18
(d.f.1), $p = 0.07$

Respondents for whom
domiciliary is a main
work setting show a
trend towards being
more likely to use
NSOM exercises, than
those for whom this is
not a main setting

NSOM exercise use in dysphagia and apraxia of speech

Dysphagia

- Yes: 87%
- No: 10%
- No response: 3%

Apraxia of speech

- Yes: 38%
- No: 62%

NSOM exercise use in dysphagia

	dysphagia yes	dysphagia no
dysarthria yes	140	9
dysarthria no	25	10

- A minority of those who use NSOM exercises in dysarthria, **do not** use exercises in dysphagia
- >70% of those who do not use NSOM exercises in dysarthria, **use** exercises in dysphagia

NSOM exercise use in apraxia of speech

	AOS yes	AOS no
dysarthria yes	62	84
dysarthria no	6	29

- Over 40% of those who use NSOM exercises in dysarthria, **use** exercises in apraxia of speech
- A minority of those who do not use NSOM exercises in dysarthria, **use** exercises in apraxia of speech

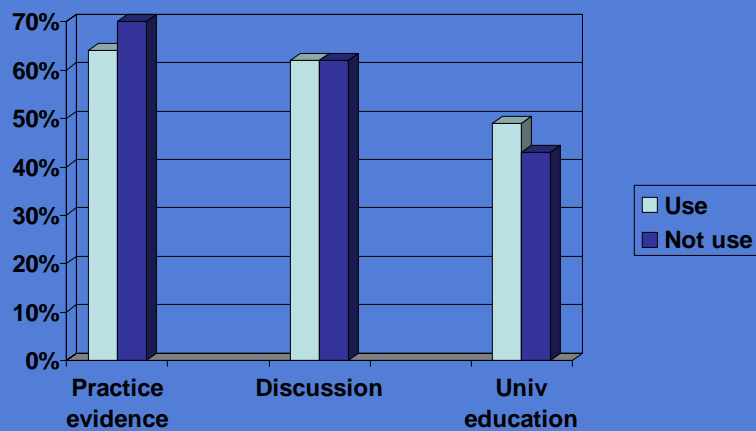
Rationale for using NSOM exercises in dysarthria (154 respondents)

- Evidence based on own practice: 64%
- Discussion with colleagues: 62%
- Expectations of patients: 51%
- University education: 49%
- Tradition: 45%
- Observation of other SLTs: 44%
- Lack of evidence re alternatives: 43%

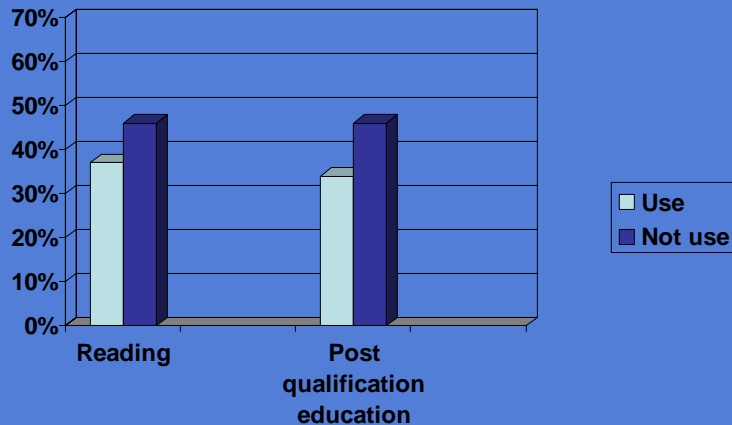
Rationale for not using NSOM exercises in dysarthria (37 respondents)

- Lack of published evidence: 78%
- Evidence based on own practice: 70%
- Discussion with colleagues: 62%
- Post qualification education: 46%
- Relevant reading: 46%
- University education: 43%

Rationale for using/not using NSOM exercises



Rationale for using/not using NSOM exercises



NSOM exercise users: Influenced by evidence from own practice?

Practice influence	Yes	No
Experience		
≤10 years	39	34
11 years +	59	22

chi-square = 6.25 (d.f.1)
p = 0.01

Significant association between being more experienced and 'evidence from own practice' as a rationale for **using** NSOM exercises



NSOM exercise non-users: Influenced by evidence from own practice?

Practice influence	Yes	No
Experience		
≤10 years	9	17
11 years +	9	2

chi-square = 6.89 (d.f. 1)
p = 0.01 (exact sig)

Significant association between being more experienced and 'evidence from own practice' as a rationale for **not** using NSOM exercises



NSOM exercise users: Influenced by undergraduate education?

Undergrad influence	Yes	No
Experience		
≤10 years	41	32
11 years +	34	47

chi-square = 3.09 (d.f. 1)
p = 0.08

Trend towards being less experienced and undergraduate university education as a rationale for **using** NSOM exercises



NSOM exercise non-users: Influenced by undergraduate education?

Undergrad influence	Yes	No
Experience		
≤10 years	12	4
11 years +	6	15

chi-square = 7.84 (d.f.1)
p < 0.01 (exact sig)

Significant association between being less experienced and undergraduate university education as a rationale for **not** using NSOM exercises

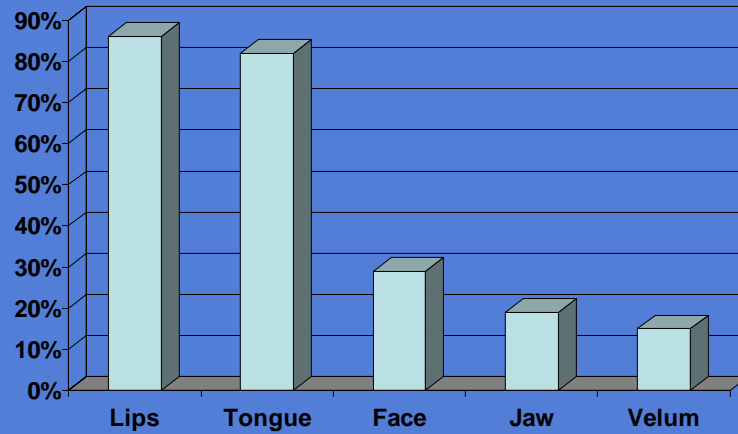


Exercise regime

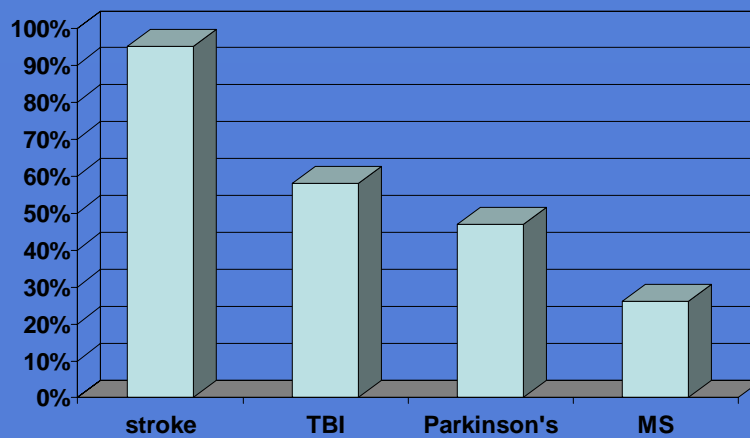
- Much variation:
- Most commonly recommended practice regimes:
 - 4-6 repetitions of each exercise;
 - 6-10 minute practice periods;
 - 3 practice periods each day.

99% provide written information and instruction, usually sourced from therapy resource manuals

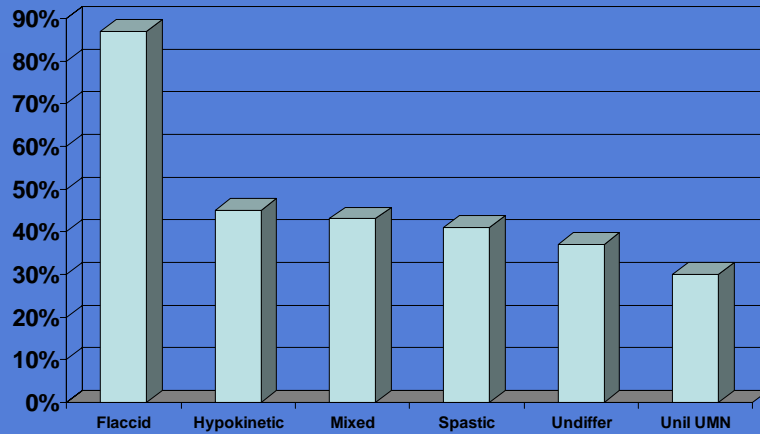
Anatomical structures targeted: always/very often



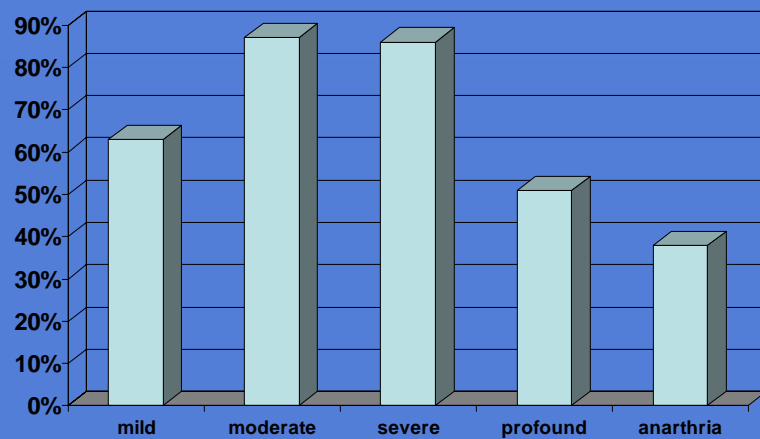
Main neurological conditions



Dysarthria diagnostic classes



Dysarthria severity



Anticipated clinical improvements from NSOM exercises

- intelligibility/articulation
- movement (strength, tone, rate, range, direction, control)
- sensory awareness/feedback
- appearance/facial symmetry
- motivation/morale/mood

- eating/drinking/saliva control

Conclusions

- 4 out of 5 SLTs working with acquired dysarthria use non-speech oro-motor exercises with this population;
- Those who use NSOM exercises are not more or less experienced than those who do not;
- NSOM exercises are used for all oral structures, especially lips and tongue.

Conclusions

- NSOM exercises are used with:
 - many neurological diseases, especially stroke, TBI and Parkinson's disease/Parkinsonism;
 - all dysarthria types, especially flaccid, hypokinetic, mixed and spastic;
 - all severities of dysarthria;
- The typical practice regimes recommended to patients are 3 practice periods each day, each of 6-10 minutes, with each exercise repeated 4-6 times; written information/instruction is supplied.

Conclusions

- Both those who use, and those who do not use NSOM exercises, give similar rationales for their practice, including evidence from their own practice, discussion with colleagues, reading, their university and post-qualification education;
- There is a significant association between being more experienced and citing evidence from own practice as a rationale for both **using** and also for **not using** NSOM exercises;
- Various clinical outcomes are anticipated from NSOM exercise use, related to speech, movement, sensation, appearance, emotional status, and feeding

Next step

- **Does outcome differ** for those dysarthric patients who receive non-speech oro-motor exercises as part of their intervention and those who do not?

Acknowledgements

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