

Mime therapy improves facial symmetry in people with long-term facial nerve paresis: A randomised controlled trial

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Question What is the effect of mime therapy on facial symmetry and severity of paresis in people with facial nerve paresis?

Design Randomised controlled trial. **Participants** 50 people recruited from the Outpatient department of two metropolitan hospitals with facial nerve paresis for more than nine months. **Intervention** The experimental group received three months of mime therapy consisting of massage, relaxation, inhibition of synkinesis, and co-ordination and emotional expression exercises. The control group was placed on a waiting list. **Outcome measures** Assessments were made on admission to the trial and three months later by a measurer blinded to group allocation. Facial symmetry was measured using the Sunnybrook Facial Grading System. Severity of paresis was measured using the House-Brackmann Facial Grading System. **Results** After three months of mime therapy, the experimental group had improved their facial symmetry by 20.4 points (95% CI 10.4 to 30.4) on the Sunnybrook Facial Grading System compared with the control group. In addition, the experimental group had reduced the severity of their paresis by 0.6 grade (95% CI 0.1 to 1.1) on the House-Brackmann Facial Grading System compared with the control group. These effects were independent of age, sex, and duration of paresis. **Conclusion** Mime therapy improves facial symmetry and reduces the severity of paresis in people with facial nerve paresis. [Beurskens CHG and Heymans PG (2006) *Mime therapy improves facial symmetry in people with long-term facial nerve paresis: A randomised controlled trial. Australian Journal of Physiotherapy* 177–183]

Key words: Facial Nerve Paresis, Physiotherapy, RCT, Facial Asymmetry, House-Brackmann Facial Grading System, Sunnybrook Facial Grading System

Introduction

Bell's palsy accounts for approximately half the peripheral facial nerve paralyses with the incidence at about 20 per 100 000 adults per year in western countries (Adour et al 1978, Peitersen 1982, Devriese et al 1990). Other causes of facial nerve paralysis include accidental and operative trauma, Herpes zoster oticus, or acute otitis media in children and chronic otitis media in adults. Complete recovery of facial function in Bell's palsy occurs in 70% of people within three months (Peitersen 1994) with about 30% of people continuing to suffer facial asymmetry at rest and during movement, as well as synkinesis. It is generally believed that spontaneous recovery of the facial nerve continues until about nine months. To minimise the impact of spontaneous recovery, this study included only people with a facial nerve paresis lasting more than nine months.

The sequelae of long-term facial asymmetry include difficulty with drinking, eating and speaking, and psychosocial problems (Devriese 1998). Facial symmetry is a determinant of facial attractiveness, being a marker of good health, and influences interpersonal attraction (Fink and Penton-Voak 2002, Heymans 2005). People suffering the sequelae of facial nerve paresis may be referred to physiotherapists since the medical practitioner's options are limited to invasive treatments such as injection of Botulinum toxin A and surgical reconstruction (Beurskens et al 2005). Although a variety of physiotherapy interventions have been used to treat facial nerve paresis (Beurskens et al 2004a),

randomised controlled trials have found no evidence in favour of one intervention over another (Mosforth and Taverner 1958: electrotherapy vs massage; Ross et al 1991: EMG-biofeedback vs mirror-feedback; Segal et al 1995a: 'small-movement-therapy' vs exercise). Around 1980, mime therapy was developed in the Netherlands specifically for people with facial nerve paresis through collaboration between medical clinicians and mime-actors (Devriese and Bronk 1977). Two decades of positive experiences in several Dutch university medical centres have shaped mime therapy into its present form (Beurskens et al 2004b, Beurskens and Heymans 2004).

To investigate the effectiveness of mime therapy in reducing facial asymmetry in people with long-term peripheral facial nerve paresis, we conducted a randomised, controlled trial. In contrast to previous trials, being placed on a waiting list was chosen as the control, because there is minimal evidence for physiotherapy intervention after facial nerve paresis. Our main hypothesis was that mime therapy would improve facial symmetry both at rest and during voluntary movement, as well as reduce synkinesis, more than being placed on a waiting list.

Method

Design The effectiveness of mime therapy was tested using a prospective randomised design with pre-and post-tests. The first author checked referral files against the inclusion criteria. A coin flip, by an independent administrative worker, designated the assignment to the mime therapy

(experimental) or waiting list (control) group for the first member of a pair as people with facial nerve palsy became available over time. In this way, the sequence of allocation was concealed from the recruiter. After pre-test, a participant was invited either to begin three months of treatment if allocated to the experimental group, or to make an appointment for treatment in three months time if allocated to the control group. At pre- and post-tests, video recordings of the participants were made by their physiotherapists using standardised positioning, facial tasks, and instructions. The first author scored the videotapes after all data had been collected. To ensure that the scorer remained blind to both the time of testing and the group assignment, the order in which the tapes were scored was randomised. The study was approved by the Advisory Committee on Ethics in Human Experimentation at the Radboud University Nijmegen Medical Centre.

Participants People with peripheral facial nerve palsy were recruited from the physiotherapy outpatient departments of the Radboud University Nijmegen Medical Centre or the 'Vrije Universiteit' Medical Centre Amsterdam. Referrals were made by general practitioners, ear, nose and throat specialists, plastic surgeons, and neurologists. People with facial nerve palsy were included in the trial if they were 18 years or older, had a unilateral peripheral facial nerve palsy lasting more than nine months but not congenital in origin, and had sufficient knowledge of the Dutch language to participate in the trial. They were excluded if they had had surgical reconstruction (nerve or muscle reconstruction).

Intervention Participants allocated to the experimental group were administered mime therapy by five trained physiotherapists. Participants were treated on an individual basis. Ten 45-min sessions of mime therapy were delivered about once a week over three months. A home program to be carried out for 30 min every day was also prescribed.

Mime therapy is a combination of mime and physiotherapy and aims to promote symmetry of the face at rest and during movement and to control synkinesis (Beurskens et al 2004b). First, participants were taught to massage their face and neck daily for 10–15 min. Massage consisted of effleurage and kneading both sides of the face. Stretching exercises of the affected side followed to relieve mimetic muscles involved in synkinesis. Then, participants were taught to recognise tension and to feel the difference between tension and relaxation in general and more specifically in the facial musculature, because synkinesis may increase muscle tone which can be exacerbated by stress. Third, specific exercises to co-ordinate both halves of the face and to decrease synkinesis were taught. Basic exercises (forehead wrinkle, eye closure, smile, snarl, lip pucker) with variations in amplitude and speed, exercises for one side of the face to control separate movements, relaxation of the lower jaw, exercises of the mouth (smiling, pouting) and the eye with simultaneous inhibition of synkinesis (slow, small movements and counteraction) were included. A mirror was used for feedback. Fourth, eye and lip closure exercises were taught. In cases of lagophthalmus (inability to close the eyelids fully) the upper eyelids were stretched. Eye exercises were performed with variations in speed and force, whilst keeping the lips still. Lip closure exercises comprised exercises of the cheek (filling the cheeks with varying amounts of air) and eating and drinking exercises whilst keeping the affected eye open (small movements). Fifth, exercises were performed to increase the participant's

awareness of lip movements and the position of the mouth for various sounds. Vowels as *a*, *e*, *i*, and *o*, and consonants such as *p* and *b* were used for the position of the lips. Lastly, expression exercises were taught. Mime therapy aims to develop a conscious connection between the use of certain muscles and facial emotional expression. Exercises were performed in two ways: working from the use of certain muscles towards an expression, or working from an expression as a starting point for a movement. For example: the participant was asked to raise the forehead or to perform an expression depicting amazement. Other expressions were evoked by asking the participant to: open the eyes wide (surprise), lift the upper lip (disgust), or tighten the lips (anger).

Participants allocated to the control group were placed on a waiting list for three months.

Outcome measures The primary outcome measure was facial symmetry measured using the 13-item Sunnybrook Facial Grading System (Ross et al 1992). The system measures three components of facial asymmetry: resting asymmetry, symmetry of voluntary movement, and synkinesis. Resting asymmetry of the eye, cheek (nasolabial fold) and mouth are collectively scored from 0 to 4 with 4 being the most asymmetrical. Symmetry of the voluntary movements – forehead wrinkle, gentle eye closure, open mouth smile, snarl, and lip pucker – are each scored from 1 to 5 with 5 being the most symmetrical, giving a total range of 5 to 25. Synkinesis during the voluntary movements – forehead wrinkle, gentle eye closure, open mouth smile, snarl, and lip pucker – are each scored from 0 to 3 with 3 being the most synkinetic, giving a total range of 0 to 15. A composite facial symmetry score is calculated as

$$[4 \times \text{symmetry of voluntary movement} - 5 \times \text{resting asymmetry} + 1 \times \text{synkinesis}]$$

with 100 representing normal facial symmetry. The Sunnybrook Facial Grading System has high reliability (Ross and Nedzelski 1998, Brach et al 1997, Beurskens et al 2004c).

The secondary outcome measure was severity of palsy measured using the House-Brackmann Facial Grading System. The House-Brackmann Facial Grading System consists of six grades, where Grade 1 represents normal function and Grade VI represents total paralysis. It is one of the most widely used scales and has been shown to have good inter-rater reliability; however, its sensitivity to change in facial symmetry is low (Evans et al 1989, Coulson et al 2005).

Therapists scored their patients *in vivo* and these scores were compared to the scores from the video recordings made by the first author (CB) who was blind to group assignment, in order to evaluate the effect of video recording on measurement. Both scores were highly correlated for the Sunnybrook Facial Grading System (composite score: Pearson's $r = 0.93$; resting asymmetry: $r = 0.77$; symmetry of voluntary movement: $r = 0.91$; synkinesis: $r = 0.88$) and the House-Brackmann Facial Grading System (Spearman's $R = 0.84$). These values have a similar magnitude to the Intraclass Correlation of the three components of the Sunnybrook Facial Grading System in a comparable Dutch sample (Beurskens et al 2004). The analyses are all based on the blinded scorings.

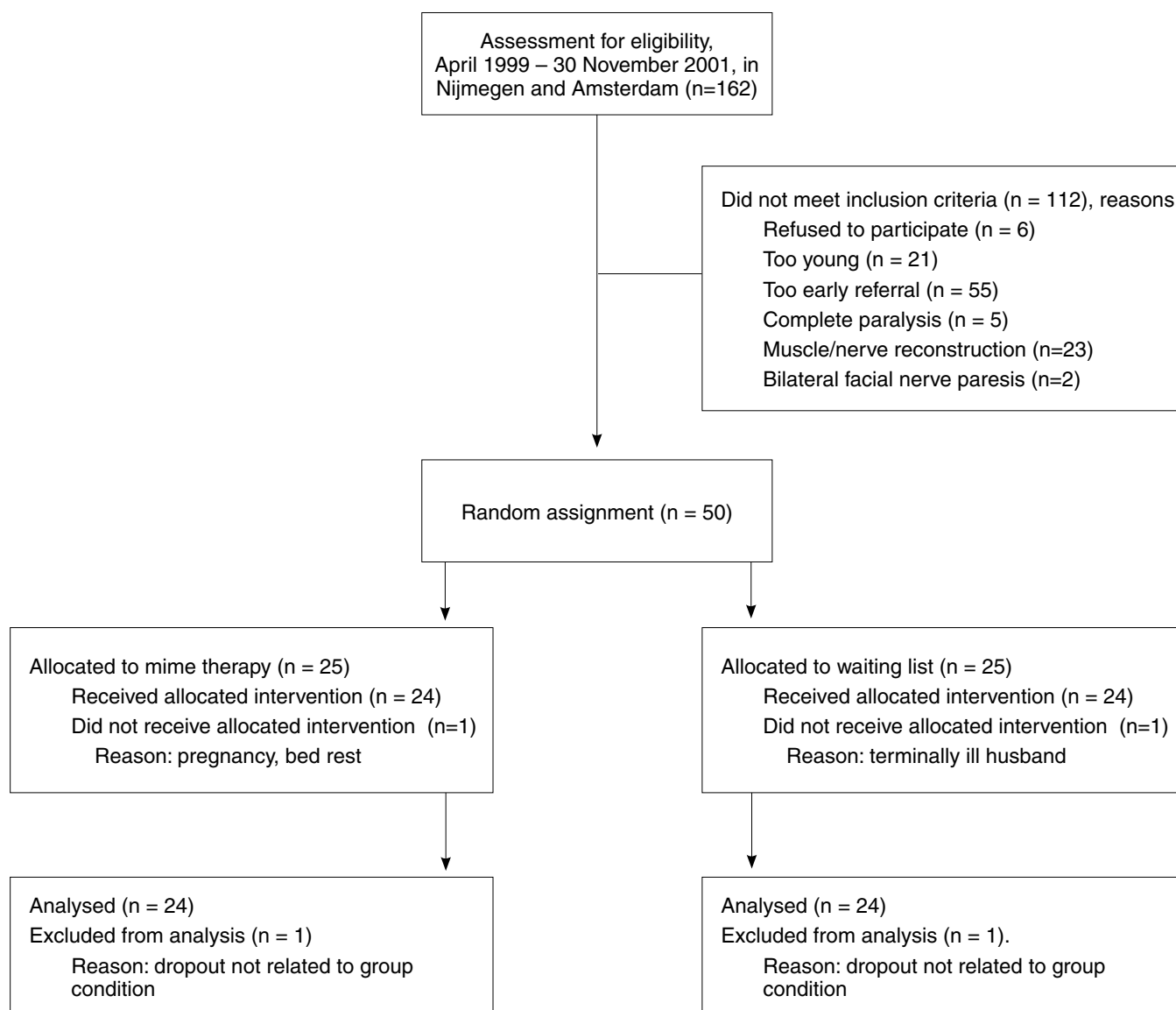


Figure 1. Flow of participants through the trial.

Data analysis Only observed differences (between the experimental and control group and between pre- and post-tests) consistent with the direction specified by our hypothesis were tested for their statistical significance (ie, using one-sided statistical tests). To guarantee the clinical significance of the efficacy of mime therapy we were interested only in large effects, ie, a standardised mean difference of at least Cohen's $d = 0.80$. Consultation of Woodward's Table B7 (Woodward 1999) indicated that, with the two-group design and a directional hypothesis, with 48 participants we would have 90% power to detect an effect size of 0.85 with a significance level of 5%. As protection against dropouts the sample was fixed at 50 people, 25 in each group.

The equivalence of the experimental and control groups at pre-test was tested with two-tailed t-tests and chi-square tests. Group differences at post-test provide the basis for conclusions about the effect of intervention. Preceding all effect-related statistical tests, group means at post-test were checked as to whether they were not worse in

the experimental group than in the control group. For the House-Brackmann Facial Grading System score, mean (SD) values are reported but group differences were analysed using a non-parametric test, ie, Mann-Whitney test. For the Sunnybrook Facial Grading System composite score, an analysis of covariance was performed using the pre-test score as covariate. For the three Sunnybrook Facial Grading System components, a multivariate analysis of covariance was performed, followed by single variable F tests. This was done to avoid an undue inflation of type 1 error rate with the pre-test scores as covariates. Standardised effect sizes (Hedges's g) were then estimated in those cases where group differences were significant ($p < 0.05$). The (in)dependence of the effect of intervention from sex, age, and duration of the paralysis was examined by examining the interactions from three two-way analyses of variance (sex by group, age by group, duration of paresis by group). Finally, an analysis of the effect of intervention at the item level of the Sunnybrook Facial Grading System was carried out using a multivariate analysis of covariance, with the pre-

Table 1. Mean (SD) score, mean (SD) difference within groups, and mean (95% CI) difference between groups of all outcomes for the experimental (n = 24) and control group (n = 24).

Outcome	Score				Difference within groups		Difference between groups in changes
	Month 0		Month 3		Month 3 minus Month 0		Month 3 minus Month 0
	Exp	Con	Exp	Con	Exp	Con	Exp minus Con
HB-FGS (1 to 6)	4.2 (0.8)	3.8 (0.8)	3.3 (0.8)	3.9 (0.8)	-0.9 (0.3)	0.0 (0.2)	-0.9 (-1.1 to -0.8)
SB-FGS Composite (0 to 100)	34.2 (19.0)	35.3 (17.6)	54.9 (18.2)	34.5 (16.2)	20.7 (7.9)	-0.8 (3.6)	21.5 (17.9 to 25.1)
SB-FGS							
Resting asymmetry (0 to 20)	12.3 (3.3)	11.5 (5.1)	7.1 (3.9)	11.9 (4.9)	-5.2 (3.5)	0.4 (2.8)	-5.6 (-7.4 to -3.8)
Eye (0 to 1)	0.71 (0.46)	0.83 (0.38)	0.71 (0.46)	0.71 (0.46)	0.00 (0.7)	-0.13 (0.5)	0.13 (-0.22 to 0.48)
Cheek (0 to 2)	0.71 (0.46)	0.83 (0.48)	0.46 (0.51)	0.79 (0.51)	-0.25 (0.5)	0.0 (0.4)	-0.25 (-0.51 to 0.01)
Mouth (0 to 1)	0.88 (0.34)	0.75 (0.44)	0.25 (0.44)	0.88 (0.34)	-0.63 (0.5)	0.07 (0.1)	-0.70 (-0.91 to -0.49)
SB-FGS							
Symmetry vol movt (20 to 100)	53.8 (17.1)	55.0 (14.7)	66.7 (15.3)	54.8 (14.2)	12.8 (7.2)	-0.2 (2.8)	13.0 (9.8 to 16.2)
Forehead wrinkle (1 to 5)	2.4 (1.4)	2.5 (1.3)	2.6 (1.5)	2.4 (1.3)	0.3 (0.7)	-0.1 (0.3)	0.4 (0.1 to 0.7)
Gentle eye closure (1 to 5)	3.5 (0.8)	3.5 (0.9)	4.0 (0.7)	3.7 (0.9)	0.4 (0.5)	0.1 (0.4)	0.3 (0.0 to 0.6)
Open mouth smile (1 to 5)	2.4 (1.0)	2.6 (0.9)	3.5 (0.9)	2.6 (0.9)	1.1 (0.7)	0.0 (0.6)	1.1 (0.7 to 1.5)
Snarl (1 to 5)	2.5 (1.1)	2.2 (0.9)	3.2 (1.0)	2.3 (0.9)	0.7 (0.8)	0.0 (0.6)	0.7 (0.3 to 1.1)
Lip pucker (1 to 5)	2.6 (1.0)	2.8 (0.8)	3.4 (0.8)	2.8 (0.8)	0.8 (0.7)	0.0 (0.5)	0.8 (0.5 to 1.2)
SB-FGS							
Synkinesis (0 to 15)	7.6 (2.7)	7.8 (3.2)	4.9 (1.8)	8.0 (3.5)	-2.7 (1.9)	0.3 (2.6)	-3.0 (-4.3 to -1.7)
Forehead wrinkle (0 to 3)	1.5 (0.9)	1.5 (0.8)	1.0 (0.6)	1.7 (0.9)	-0.5 (0.8)	0.1 (0.7)	-0.6 (-1.0 to -0.2)
Gentle eye closure (0 to 3)	1.2 (0.7)	1.4 (0.7)	0.8 (0.5)	1.4 (0.7)	-0.4 (0.5)	0.0 (0.5)	-0.4 (-0.7 to -0.1)
Open mouth smile (0 to 3)	1.3 (0.8)	1.3 (0.9)	0.8 (0.5)	1.7 (0.9)	-0.5 (0.3)	0.3 (0.6)	-0.8 (-1.1 to -0.5)
Snarl (0 to 3)	1.5 (0.7)	1.6 (0.7)	0.8 (0.6)	1.6 (0.8)	-0.7 (0.7)	0.0 (0.5)	-0.7 (-1.1 to -0.4)
Lip pucker (0 to 3)	2.0 (0.8)	2.0 (0.9)	1.4 (0.7)	2.1 (0.9)	-0.6 (0.5)	0.1 (0.5)	-0.7 (-1.0 to -0.4)

Exp = mime therapy, Con = waiting list; HB-FGS = House-Brackmann Facial Grading System; SB-FGS = Sunnybrook Facial Grading System

test scores as covariates. Sensitivity of the results to dropout was tested by a 'worst-case' scenario, in which the dropout in the experimental group was assigned the worst observed outcome, and the dropout in the control group assigned the best observed outcome in their group.

Results

Flow of participants through the trial Recruitment in both physiotherapy departments started in April 1999. It ended in November 2001 when 50 people with facial nerve

Table 2. Number (%) of experimental (n = 24) and control participants (n = 24) that improved, did not change, and got worse for all outcomes by 3 months.

Outcome	Improved		Did not change		Got worse	
	Exp	Con	Exp	Con	Exp	Con
HB-FGS	21 (88)	0 (0)	3 (12)	23 (96)	0 (0)	1 (4)
SB-FGS	24 (100)	9 (38)	0 (0)	2 (8)	0 (0)	13 (54)
SB-FGS						
Resting asymmetry	20 (83)	2 (8)	4 (17)	19 (79)	0 (0)	3 (12)
Eye	5 (21)	5 (21)	14 (58)	17 (71)	5 (21)	2 (8)
Cheek	7 (29)	2 (8)	16 (67)	21 (88)	1 (4)	1 (4)
Mouth	15 (63)	0 (0)	9 (38)	21 (88)	0 (0)	3 (12)
SB-FGS						
Symmetry vol movt	23 (96)	5 (21)	1 (4)	13 (54)	0 (0)	6 (25)
Forehead wrinkle	8 (33)	0 (0)	15 (63)	22 (92)	1 (4)	2 (8)
Gentle eye closure	10 (42)	2 (8)	14 (58)	22 (92)	0 (0)	0 (0)
Open mouth smile	19 (79)	3 (12)	5 (21)	19 (79)	0 (0)	2 (8)
Snarl	13 (54)	3 (12)	11 (46)	18 (75)	0 (0)	3 (12)
Lip pucker	16 (67)	3 (12)	8 (33)	19 (79)	0 (0)	2 (8)
SB-FGS						
Synkinesis	21 (88)	2 (8)	2 (8)	9 (38)	1 (4)	13 (54)
Forehead wrinkle	12 (50)	5 (21)	11 (46)	11 (46)	1 (4)	8 (33)
Gentle eye closure	10 (42)	3 (12)	14 (58)	18 (75)	0 (0)	3 (12)
Open mouth smile	13 (54)	1 (4)	8 (33)	15 (63)	3 (12)	8 (33)
Snarl	16 (67)	2 (8)	7 (29)	19 (79)	1 (4)	3 (12)
Lip pucker	14 (58)	1 (4)	10 (42)	21 (88)	0 (0)	2 (8)

Exp = mime therapy, Con = waiting list; HB-FGS = House-Brackmann Facial Grading System; SB-FGS = Sunnybrook Facial Grading System

paresis (21 males and 29 females; mean age 44 years, SD 14, range 20–73) met the inclusion criteria and had consented to participate in the study (Figure 1). The causes of facial nerve paresis were Bell's palsy (n = 34); acoustic neuroma operation (n = 6), Herpes zoster oticus (n = 5), accidental trauma (n = 3), operative trauma (n = 1) and Lyme disease (n = 1). The median time between onset of the paralysis (divided equally between left and right sides) and admission to the trial was 13 months (range 10–480). The average severity of the paresis on admission to the

trial was Grade 4 for the House-Brackmann Facial Grading System (SD 0.8, range 2–5), and facial symmetry was 35 for the Sunnybrook Facial Grading System (SD 18, range 6–70). Most people were referred by an otolaryngologist. Twenty-five participants were allocated to the experimental group and 25 to the control group. Groups did not differ significantly in sex, age, referral, cause of paresis, severity of paresis, affected side, and time interval between the paralysis and the referral. The groups also did not differ significantly at pre-test with regard to the outcome measures

(Table 1). There was one dropout in each group: one patient was pregnant and obliged to maintain bed rest (after five treatment sessions), the other (on the waiting list) because of nursing her terminally ill husband (Figure 1).

Effect of intervention The mean (SD) of all outcome measures pre- and post-test are presented in Table 1. The number (%) of participants who improved, did not change, or got worse for all measures is presented in Table 2.

After three months of mime therapy, the experimental group had improved their facial symmetry by 20.4 points (95% CI 10.4 to 30.4, $p < 0.001$) on the Sunnybrook Facial Grading System compared with the control group when determined using ANCOVA with the pre-test score as a covariate, or 21.5 points (95% CI 17.9 to 25.1) when determined directly from the change scores. This overall difference was based upon significant between-group differences for each of the three Sunnybrook Facial Grading System components (resting asymmetry: $p < 0.001$; symmetry of voluntary movement: $p < 0.001$; synkinesis: $p < 0.001$). Furthermore, there were significant between-group differences for 12 of the 13 items in favour of the experimental group. Resting asymmetry of the eye was the only item not affected by mime therapy. The same pattern of results was obtained when we included dropout scores estimated according to the worst-case scenario. Examination of the standardised between-group effect sizes after adjustment for pre-test scores show that they are substantial. The effect size is $g = 3.6$ for the composite score, $g = 1.8$ for resting asymmetry, $g = 2.5$ for symmetry of voluntary movement, and $g = 1.5$ for synkinesis.

After three months of mime therapy, the experimental group had reduced the severity of their paresis by 0.6 grade (95% CI -1.1 to -0.1, $p = 0.01$) on the House-Brackmann Facial Grading System compared with the control group when determined using ANCOVA with the pre-test score as a covariate, or 0.9 grade (95% CI -1.1 to -0.8) when determined directly from the change scores.

These effects were independent of age, sex, and duration of paresis. The age variable was trichotomised (below 35, 35–50, above 50 years). Duration of paresis was dichotomised at the median (13 months). No significant interactions of intervention with sex, age, or duration of paresis were found for the Sunnybrook Facial Grading System or its three components. The effects of mime therapy appear to be similar for both sexes, across the three age groups, and regardless of duration of paresis.

The analyses have shown that mime therapy is effective. The possibility exists that both groups show a differential but detrimental change, instead of the clinically desired improvement. Examination of the within-group and between-group means presented in Table 1 show that there was an improvement in facial symmetry during voluntary movement and a reduction in facial asymmetry, synkinesis, and the severity of paresis from pre-test to post-test for all outcomes except one (resting asymmetry of the eye). Furthermore, examination of the individual participants presented in Table 2 shows that the majority of people benefit from mime therapy. Facial symmetry improved in 100% of the experimental group compared with 38% of the control group. Severity of paresis was reduced in 88% of the control group compared with 0% of the control group.

Discussion

The main goal of this research was to determine whether mime therapy would improve facial symmetry. The results support our hypothesis that mime therapy substantially improves facial symmetry in people with long-term facial nerve paresis. There were greater improvements in the Sunnybrook Facial Grading System for all three components of facial symmetry in the group that received mime therapy compared with the group on the waiting list. Similar improvements were present in the House-Brackmann Facial Grading System. After mime therapy, facial asymmetry at rest and synkinesis decreased and facial symmetry of voluntary movement increased. That is, the facial appearance of the majority of people improved as a consequence of mime therapy. This therapy can be generalised across sex, age, and duration of the paresis as it has been tested on people with long-term facial nerve paresis who are similar to the patients who have been seen by both outpatient departments for more than ten years.

The effect sizes are large and therefore clinically relevant. Three months of mime therapy improved facial symmetry by 20 points on the Sunnybrook Facial Grading System compared with being placed on a waiting list, where 10 points is considered clinically significant. This translates into large standardised effect sizes of 3.6 standard deviations after adjustment for pre-test scores and 1.8 standard deviations without adjustment for pre-test scores. Mime therapy also reduced the severity of paresis by 0.6 grade on the House-Brackmann Facial Grading System compared with being placed on a waiting list, which is also clinically significant. In contrast, non-randomised controlled trials using the House-Brackmann Facial Grading System report non significant pre-post differences (Coulson and Croxson 1995, Segal et al 1995b).

It is possible that resentment from being placed on a waiting list may have had an effect on the control group. However, as waiting lists (from some weeks to several months) in the Dutch health care system are normal, people considered it 'normal' that treatment would start after receiving a call from the hospital. Therefore, there is no indication that people in the mime therapy group felt 'advantaged', or that people in the waiting list groups felt 'disadvantaged'.

Only one aspect of facial symmetry – eye asymmetry at rest – did not improve as a result of mime therapy. It appears that eye asymmetry in most people with facial nerve paresis is caused by a synkinetic tension of the orbicular oris muscle (64% of the participants had a small interpalpebral fissure). It may be more difficult for people to concentrate on the eye when trying to relax, than to concentrate on the mouth/cheek region where there are several muscles to focus upon.

Future research into mime therapy should aim to replicate the present results, assess the long-term effects of mime therapy, and examine its dose-response curve. The effects of mime therapy may also be examined in an early stage of the paresis. The relationship between facial asymmetry and psychosocial handicaps (such as impaired communication, low quality-of-life, and depression) could also be investigated. Finally, a study of the theoretical background responsible for the effectiveness of mime therapy (including an eventual placebo component) is recommended.

In conclusion, this is the first study that demonstrates

efficacy of mime therapy. It also demonstrates the sensitivity of the Sunnybrook Facial Grading System in measuring the effectiveness of intervention for people with facial nerve paresis. An improvement in resting asymmetry, symmetry of voluntary movement, and synkinesis, was expressed as a higher composite score of the Sunnybrook Facial Grading System and a lower House-Brackmann Facial Grading System. The effects are not dependent on age, sex, or duration of the paresis. The clinical implication is that mime therapy is a good treatment choice for people with long-term facial nerve paresis. The cost of the intervention is relatively low because the amount of professional support is small since a home program is an integral part of the treatment. Time spent with the therapist is only about 10 hours. Training of physiotherapists and speech therapists to apply mime therapy is a good investment in providing professional care for people suffering the sequelae of long-term facial nerve paresis.

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