

**Rehabilitation for Fibromyalgia Syndrome:
Comparison of Holistic and Complementary Alternative Medicine
(CAM) Therapy Effectiveness**

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Abstract

Aim: To measure within-person change scores on the Short-Form-36 General Health Survey (SF-36) to compare the holistic effectiveness of Watsu therapy to AIX therapy as a rehabilitation intervention for people with Fibromyalgia Syndrome (FMS). Holistic therapy was defined as any treatment or combination of treatments that claimed to address the physical, psychological, social and spiritual components of health.

Design: The two treatments (Watsu and AIX) and time of data collection (start and end of treatment) were the factors in the two-conditions, within-subjects with reverse order counterbalancing design.

Setting: A specialist rehabilitation service provider, Queen Elizabeth Hospital, Rotorua.

Participants: 13 females diagnosed with FMS

Outcome Measures: The eight subscales of the SF-36

Results: Significant change differences with large effect sizes were found for Watsu on the SF-36 subscales of physical functioning, bodily pain, vitality and social functioning for both treatment and interaction effects.

Conclusions: Results indicate that Watsu therapy provided an effective holistic intervention for this sample. Further research is required to understand the dynamics of Watsu therapy and the extent to which these results are generalisable.

Introduction

The study (approved by the Bay of Plenty Ethics Committee) compared the effectiveness of two water-based rehabilitation therapies, Watsu and AIX massage, for people with Fibromyalgia Syndrome (FMS).

FMS lacks a definitive physiological cause but is characterised by chronic, diffuse musculoskeletal pain, fatigue, bilateral tender points and disturbed sleep (Adams & Sim, 1998; Wolfe, 1997). One approach to treatment views FMS as caused by physical dysfunction and attempts to address the dominant symptom of chronic pain through biological interventions. Such an approach has had limited success (Carette, 1995; Wolfe, 1997), which suggests that FMS does not result purely from biological dysfunction (Carette, 1995; Reilly, 1999). A second view is that the individual's evaluation of self, others and life events (Nielson, Walker & McGain, 1992) including changes in relationships and cognitive reappraisal of health goals, perceptions of disability, life roles and pain (Davis, 1989; Reilly, 1999; Schmidt, 1991) need also to be addressed for interventions to be successful. A third perspective is that health cannot be fragmented into components and that worldviews, attitudes and behaviours cannot be separated into physical, psychological and social components. In fact, separation of the individual from both self and their world and lack of acknowledgement of the interdependence of both is forwarded as a cause of ill health (Do Rozario, 1997). From this perspective, health requires the individual to perceive themselves as whole and complete through their unique relationships and connections with nature, others, self, the divine and the common spirituality these all share.

FMS may be at least partially the result of maladaptive reactions to life experiences, leading to adverse physiological responses and, ultimately, extensive loss of physical function (Schmidt, 1991). Such a view emphasises the interaction of spiritual, social, biological and psychological factors that can result in ill-health. Supporting evidence indicates that those with FMS (a) tend to have low self-esteem (Bernard, Prince & Edsall, 2000, Burckhart, Mannerkopi, Hedenberg & Bjelle, 1994) (b) exhibit behaviours of catastrophising, depression (Bennett, Burckhart, Clark, O'Rielly, Weins & Campbell, 1996, Okifuji, Turk & Sherman, 2000) (c) exhibit irrational thinking (Parker, Smarr, Buescher, Phillips, Frank, Beck, Anderson & Walker, 1989; Smith, Follick, Ahern & Adams, 1986).

Interventions using multidisciplinary teams have been shown to demonstrate a degree of sustainable success (Carette, 1995). Commonly these are biopsychosocial interventions in which clinicians focus on biological (doctors and physiotherapists), social (occupational therapists) and psychological (counsellors) aspects of health (Kashikar-Zuck, Graham, Huenefeld & Powers, 2001; Schuessler & Konermann, 1993; White, Lemkau & Clasen, 2001).

Multidisciplinary interventions often purport to address health in a holistic manner but holistic medicine is defined as the art and science of healing the whole person, which

includes body, mind and spirit while biopsychosocial interventions focus on body and mind (Graham-Pole, 2001).

Complementary and alternative medicine (CAM) is the accepted term for any treatment or therapy that is not commonly a part of mainstream practice (Graham-Pole, 2001). Frequently, multidisciplinary interventions include specific CAM therapies, such as acupuncture and various types of massage but assume the aim of treatment is to address physical, psychological and social dysfunction.

In contrast, holistic treatments assume that the cause of dysfunction is a loss of the sense and experience of wholeness and connection of the individual with all that constitutes their world (Fitzgerald, 1997). The holistic approach proposes that health is primarily determined by the state of the spiritual component of self. Consequently, treatment strategies need to provide processes for acknowledgement, exploration of relationships and connection that leads to growth of the core of self, which is the spiritual (Faull, 2001; Hamilton & Jackson, 1998). Spirituality, defined as relationships, connections, beliefs and meaning (Dyson, Cobb & Forman, 1997, Selway & Ashman, 1998) is reflected in attitudes and behaviours we hold with regard to the physical, psychological and social aspects of self and therefore directly affects wellbeing in these areas.

Inclusion of CAM therapies within multidisciplinary rehabilitation cannot be assumed to result in holistic intervention. Within a biopsychosocial treatment philosophy, CAM therapies do not claim to address the spiritual component of health. In contrast, the holistic philosophy forwards the concept that intervention to be successful must address the person as a whole, commonly in a singular treatment strategy or therapy (Kissman & Maurer, 2002).

If a CAM therapy were examined in isolation from the multidisciplinary context in which it is traditionally applied, one would expect that any health gains would be, at best, small. On the other hand, any therapy that claimed to be holistic should provide a large effect on health without any other accompanying treatments.

Within the study setting, Queen Elizabeth Hospital, Rotorua, AIX massage, which is a CAM treatment, has been an accepted part of rehabilitation for 60 years. AIX massage is a full body massage under jets of warm water (35?-39?C) that focuses on the physical component of health. The claimed benefits of the AIX massage are the reduction of muscular spasms and tension, increase in immune efficiency, increased circulation and promotion of tissue healing. Consequent psychological benefits of AIX are purported to be reduction of stress and possible increase in self-esteem (Fritz, 1995).

The holistic treatment investigated was Watsu. Originally based on Shiatsu (the name is a combination of 'water' and 'shiatsu'), the overall aim is to provide an environment whereby the individual has the opportunity to access processes that enhance physical, psychological, social and spiritual wellbeing. As Yavelow (1999) states, 'Once your body is free and your mind is at peace, there is nothing left to keep your spirit from shining through' (p.2). Immersion and movement in water, which is a component of all

living matter, is reasoned to be a major catalyst for such experiences and exploration. Moreover, the resistance, buoyancy and warmth provided by water are used to increase mobility and flexibility. Also, the rhythmic movement through the water with accompanying massage are reasoned to facilitate relaxation, decrease pain, abnormal muscle tone, muscle spasms as well as encourage deep breathing (Dull, 1997; Kauder, 1999; Vargus, 1998).

Does Watsu possibly intervene holistically and in so doing provide a therapy to improve health status statistically and clinically significantly more than a similar CAM treatment?

The study focused on females with FMS, a disability in which people have intertwined physical, social, cognitive and arguably spiritual loss of well-being. It is a group that appears to require an intervention that is holistic. Therefore, it was hypothesised that;

1. Watsu treatment would have a significant and large positive effect on composite health status for those with FMS.

AIX massage therapy, while sharing some similarities with Watsu, focuses on the physical component of health. As FMS is a syndrome with no definitive evidence of physical causation, it is hypothesised that;

2. AIX massage will have no significant effect on the health status for those with FMS.

Method

Participants

Participants were thirteen (13) females over 18 years old with no skin lesions and diagnosed by a rheumatologist as having FMS. One had participated in a three-week inpatient rehabilitation programme at Queen Elizabeth Hospital, which included AIX massage but had not previously met either of the two therapists or the researcher involved in the study. The other participants had no previous interaction with Queen Elizabeth Hospital. Ages ranged from 26 to 65 years with a mean of 46.3 (SD = 12.27) years and they resided in the Bay of Plenty, East Coast, Hawkes Bay, Taranaki and Auckland regions of New Zealand. Average length of time with FMS was 4.3 years (SD = 1.3), all participants had received secondary school level qualifications and three had university qualifications. Main occupations were predominantly home and/or childcare but four participants were employed as professionals in various fields.

Design

The design was two-conditions, within-subjects with reverse order counterbalancing. Counterbalancing was included to control order effects, sequence effects were not considered problematic. Each treatment consisted of four sessions over two weeks comprised of two sessions per week with a two-day gap between sessions. The first treatment block was followed by three weeks of no treatment before commencement of

the second treatment block. As it was not possible to control for participant interaction, at the beginning of the study, the researcher facilitated a group discussion for all participants to ensure equality of access to peer support. The study was conducted in a rehabilitation centre, which has a comprehensive and readily accessible information resource. Therefore, the researcher familiarised all participants with this resource to provide equality of access to information.

The study tested the therapies for clinically significant effects and the required power (.80) was calculated with the assumption that effect size would be large (> .40). Participants were randomly assigned to treatment groups (either Watsu or AIX as first treatment) and equal sized groups were planned.

Procedure

1. An advertisement inviting people to participate in the study was distributed to volunteer support groups that include people with FMS.
2. Those interested telephoned or emailed the researcher and, if they met the participant criterion, they were sent the information sheet.
3. The researcher then rang them to discuss the study and ask if they wished to participate
4. Once all possible participants were recruited within the time constraints, they were randomly assigned to treatment groups by being selected for a treatment group in the same order as they were recruited.
5. Participants then selected one of two possible starting days and an appointment time that was convenient and available. The starting day chosen (either Monday or Tuesday) determined the day they would receive their second weekly treatment session (Thursday for those who selected Monday, Friday for those selecting Tuesday). These appointment times and days remained the same within each treatment condition.
6. The number of participants at the beginning of the study were 18, however one withdrew just before the study commencement date. Therefore, initially, the treatments groups contained nine (Watsu first treatment) and eight (AIX first) participants.
7. All these participants completed their first treatment but three members of the AIX first treatment group withdrew before they received Watsu and a fourth member of this group (marked below by *) withdrew after one Watsu session. Reasons given for withdrawing from the study were:
 - ? The development of an open wound
 - ? Enforced change in work commitments
 - ? A family emergency
 - ? *Diarrhoea
8. The final number of participants included in analysis was 13.
9. A consent form was completed before the beginning of the first session.
10. The study questionnaire was administered at the start and completion of each treatment.
11. Demographic questions of age, time with disability, main occupation and education level were asked at the completion of the study.

Treatments and Therapists

Both therapists were female and wore swimwear during sessions.

AIX Treatment:

The participant, while lying on a massage table with a towel covering private areas, was sprayed continuously with a stream of warm (35?-39?C) mineral water from a series of shower jets. Massage included circular motion of the hands, the edge of the hands gently tapping as well the use of fingers aimed to ease any specific points of muscle tension. The therapist talked and listened to the participant to facilitate trust and relaxation, to assess appropriateness of massage intensity and identify any specific areas to work on or avoid. At the end of treatment the participants showered, dressed and had the option of resting on a bed before leaving. Sessions were for 30 minutes.

Watsu Treatment:

Prior to changing into swimwear, the therapist asked questions about symptoms and provided the opportunity for the participant to discuss what she was feeling, had observed, etc between sessions. Then the therapist and participant entered the therapy pool (32?-35?C). After explaining how the session would start and end, the participant, supported by the therapist, lay back in the water and closed her eyes. Supported mainly by the forearm placed predominantly under the small of the back and the head, the therapist moved the participant through the water in a flowing, rhythmical motion which included intermittent gentle massage and stretching. The proximity between the participant and the therapist ranged from full arms length to close cradling type of contact. After a session of approximately 45 minutes, the therapist assisted the participant to a seated position in the pool. After resting between 5 – 15 minutes, participants were accompanied to the shower. Participants then showered, dressed and then left.

Therapists:

The AIX therapist was 27 years old, has practised AIX massage for 6 years and has a qualification of Introduction to Relaxation Massage.

The Watsu therapist was 43 years old, has practised Watsu for six years and is a registered World Aquatic Bodywork Association Watsu Practitioner and Instructor. She is also a registered Hellerwork Practitioner, General Obstetric Nurse and Midwife with an undergraduate degree in social science.

Questionnaire

The Short-Form-36 Health Survey (SF-36) was designed as a generic indicator of health status for use in population health surveys but has gained popularity as an outcome measure in clinical practice and research.

The questionnaire comprises 36 items consisting of eight subscales, which are physical function, role physical (role limitations due to physical health problems), bodily pain, social functioning, general health perception, role emotional, vitality (energy level) and mental health (psychological stress and wellbeing).

The SF-36 has been extensively investigated for validity (McHorney, Ware & Raczek, 1993; McHorney, Ware, Lu & Sherbourne, 1994; Brazier, Harper, Jones, O’Cathain, Thomas, Usherwood, et al., 1992; Sullivan, Karlsson & Ware, 1995; Alonso, Prieto & Anto, 1995; Perneger, Leplege, Etter & Rougemont, 1995; McCallum, 1995). It has been found to be sensitive to change, although studies indicate that in the areas of psychological health it can be less sensitive on some subscales than alternative measures (for example, Martin, Engleberg, Agel & Swiontkowski, 1997; Riddle & Stratford, 1998). However, the correlation of the subscales with other measures have been found to be consistently high enough to consider the SF-36 an appropriate and valid composite measure of health in the context of the present study.

Analysis

The raw data was transformed into standard scores by the formula recommended by the Medical Outcome Trust (1992), which standardises data and then converts these to percentage scores.

The transformed data was then entered into the SPSS Version 10 program (SPSS Inc., 1999) in four groups, comprising ‘before’ and ‘after’ scores under the two treatment conditions for each of the study questionnaires eight subscales.

Two-way within groups analysis of variance of each set of subscale scores were undertaken. Factors were treatment type (watsu and aix) and time (before and completion of treatment).

Results

Analyses of treatment effect (table 1) revealed significant differences for physical function, $F(1,12) = 9.037, p < .05$; bodily pain, $F(1,12) = 15.006, p < .05$; vitality, $F(1,12) = 9.037, p < .05$; and social function, $F(1,12) = 9.459, p < .05$.

Table 1: Means and Standard Deviations of SF-36 Subscale Scores for Treatments

	M (and SD) for Group			
	Start of Watsu (n = 13)	Completion of Watsu (n = 13)	Start of AIX (n = 13)	Completion of AIX (n = 13)
SF-36 Subscale Scores				
Physical Function	47.308 _a (21.274)	63.847 _b (23.377)	56.154 _a (19.701)	60.000 _a (23.094)
Bodily Pain	35.923 _a (19.350)	55.077 _b (14.186)	42.692 _a (15.129)	42.308 _a (13.979)
Vitality	31.154 _a (16.975)	51.154 _b (19.912)	38.077 _a (20.365)	34.231 _a (19.879)
Social Function	53.846 _a (21.881)	69.231 _b (22.018)	75.000 _a (17.678)	66.346 _a (23.599)
Role Physical	41.539 _a (36.020)	61.692 _a (31.047)	47.692 _a (35.155)	41.539 _a (27.642)
General Health	47.692 _a (23.859)	51.539 _a (15.191)	49.231 _a (19.023)	52.308 _a (19.538)
Role Emotional	63.462 _a (33.253)	77.077 _a (27.723)	65.385 _a (37.553)	67.308 _a (41.313)
Mental Health	63.692 _a (17.007)	74.000 _a (22.891)	69.231 _a (15.525)	71.385 _a (15.987)

Note. Means with different subscripts differ significantly ($p < .05$).

A significant interaction effect between order or timing of treatment and treatment type similarly emerged for physical function, $F(1,12) = 6.158$, $p < .05$; bodily pain, $F(1,12) = 6.513$, $p < .05$; vitality, $F(1,12) = 6.158$, $p < .05$; and social function, $F(1,12) = 4.851$, $p < .05$.

Cohen’s convention for effect size for analysis of variance states .40 as large and it is rare within the clinical context for the effect size to exceed .50. The effect sizes for both treatment and interaction main effects of the four statistically significant subscales are presented in table 2.

Table 2: Main Effects of Treatment and Interaction for Significant SF-36 Subscales

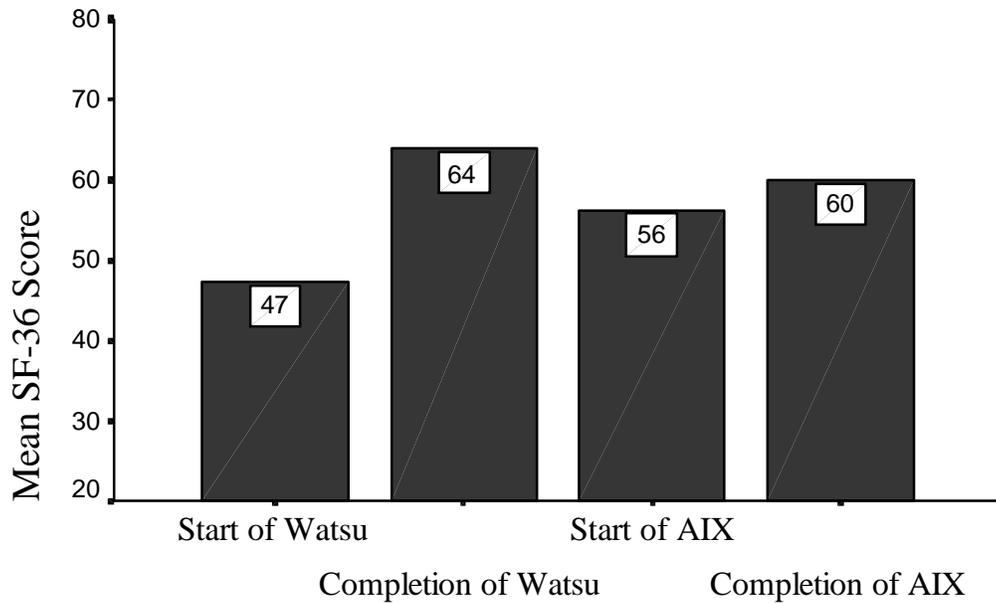
	SF-36 Subscale R^2 Effect Scores			
	Physical Function	Bodily Pain	Vitality	Social Function
Treatment Effect	.430	.556	.430	.441
Interaction Effect	.339	.352	.339	.288

Figures 1 – 4 clearly illustrate that, across all four of these subscales, the ‘start of watsu’ group (comprised of those that received watsu first and watsu after aix) resulted in a consistently lower mean score across the aforementioned SF-36 subscales than the ‘Start of AIX’ group. The differences of mean scores at start of Watsu, compared to those at start of AIX illustrate the significant effect of Watsu in interaction with treatment order, which illustrates that participants who received Watsu first carried a higher health score

into their second treatment while those with AIX as their first treatment did not do likewise. The completion of treatment data strongly reflects the interaction effect and highlights the large effect of Watsu on these subscale scores.

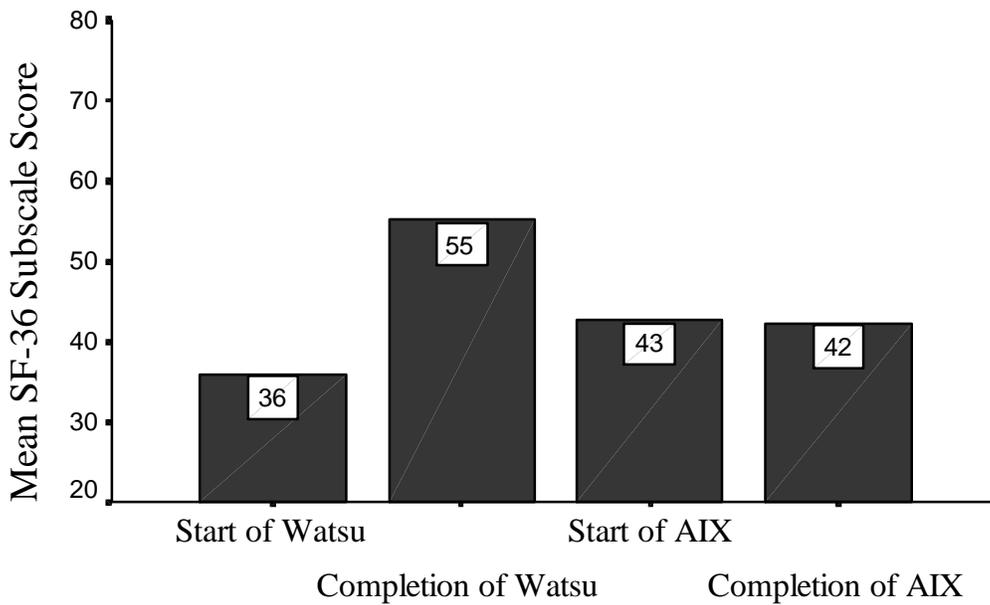
Figure 1: Comparison of Treatment over Time for

Physical Function



Time of Data Collection

Bodily Pain



Time of Data Collection

Figure 3: Comparison of Treatments over Time
for Vitality

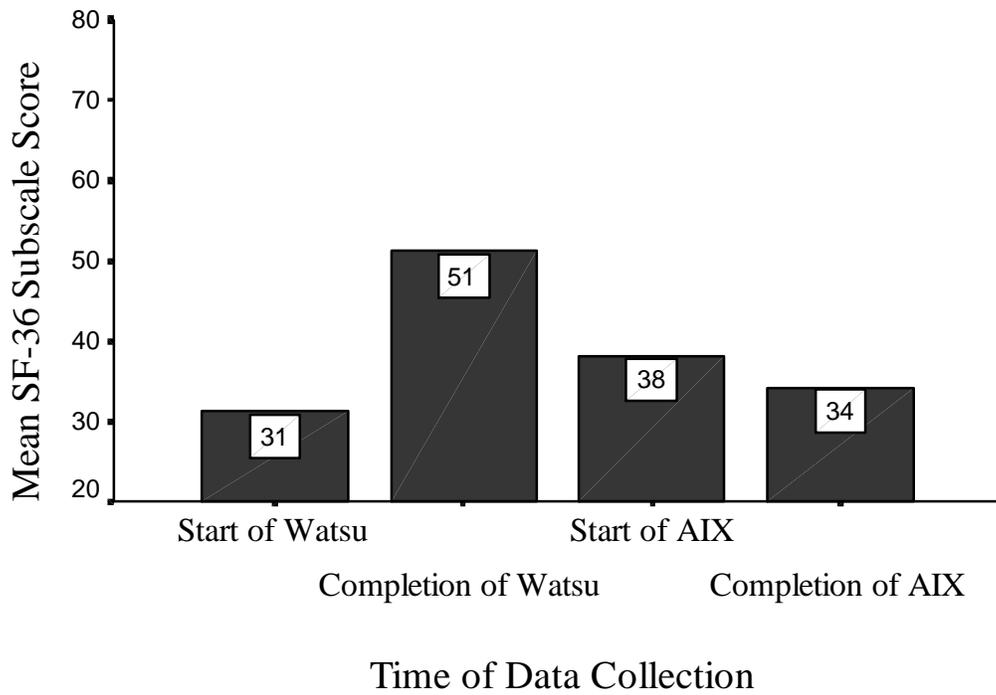


Figure 4: Comparison of Treatments over Time
for Social Function



While these results strongly suggest that Watsu is a highly effective holistic therapy for the study sample, the fact that there were only 13 participants who completed the study possibly limits interpretation of the results to the sample. Only further research with greater number of participants will reveal if these results are generalisable.

These results have been interpreted as supporting the view of Watsu as a comprehensive, holistic therapy, but there remains the fundamental question of how Watsu achieves these results. Multidisciplinary rehabilitation commonly is comprised of health professionals from medical, nursing, physiotherapy, occupational therapy and counselling disciplines. It is possible that the actual technique of Watsu is only a part of Watsu treatment. Training in Watsu practice focuses not only on technique but emphasises the need for therapist self-awareness and self-understanding. To qualify as a practitioner, individuals must demonstrate an ability to listen and respond on multiple levels with the recipient. This major component of Watsu training may enable the Watsu therapist to combine elements of a number of roles traditionally carried out by different professions.

There remains the question whether or not order effects remain. As four of the eight participants who received AIX first withdrew, this group was only half the size of those who received Watsu first, which may have affected the counterbalancing. Finally, as a different therapist was used for each treatment, the results could indicate difference between therapists in such matters as types and levels of training, time with participant, level of belief and commitment to therapy or even personality.

Only further research, involving multiple therapists, different contexts and comparing Watsu with other treatments will provide clarity with regard to how replicable and generalisable Watsu is as a holistic rehabilitation intervention. However, the results do give a strong indication that Watsu has the potential to be an effective therapy that results in large health gains for people with FMS.

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