

# Evidence for Effectiveness of Alexander Technique Lessons for Musculoskeletal Conditions

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## Introduction

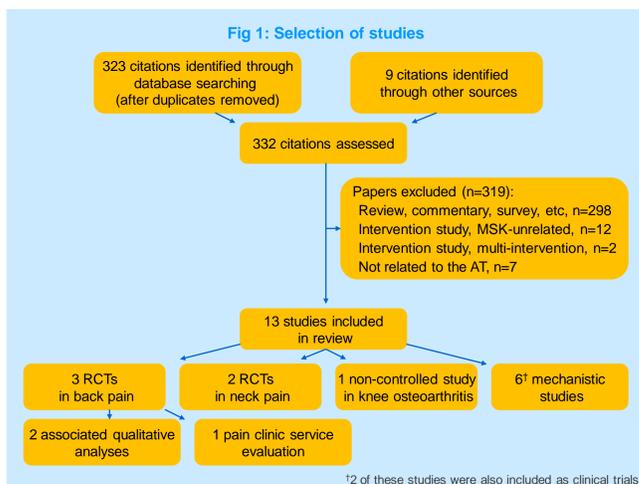
- The Alexander Technique (AT) is a self-management method to reduce maladaptive postural and movement habits.
- It is usually taught in one-to-one lessons by registered practitioners with a 3-year full-time training, and involves both cognitive and experiential learning.
- AT lessons have been shown to help people to better manage certain long-term health-related conditions.<sup>1</sup>
- Here we draw together clinical evidence on AT lessons and musculoskeletal (MSK) conditions, with physiological research, to provide a putative explanation of the observed benefits.

## Methods

- Databases (Medline, Embase, CINAHL, AMED, PsycInfo and Cochrane library) were searched in October 2016 using the term 'Alexander Technique' and no date limits.
- Citations were assessed to identify prospective studies evaluating AT instruction for any MSK condition, or assessing physiological effects of AT training.

## Results: Search outcome

- Of the 332 citations identified, 13 MSK intervention or mechanistic studies were included for further analysis (Figure 1).



## Results: Clinical studies

- Two large randomised controlled trials (RCTs) – ATEAM and ATLAS – and three smaller RCTs have been conducted in populations with chronic MSK conditions (Table 1).
- Supplementary information came from two uncontrolled studies.

### Chronic back pain

- In the ATEAM RCT:
  - Compared with usual care alone, 24 AT lessons led to significant long-term reductions in disability (Figure 2a) and pain (Figure 2b), (Table 1).<sup>2</sup>
  - Compared with 24 AT lessons, a combined intervention of 6 AT lessons followed by prescribed exercise was 72% as effective for disability (RMDQ) and 65% as effective for pain (comparative figures for 6 AT lessons independent of exercise effect were 41% and 56%, respectively).<sup>2</sup>

**Table 1: RCTs evaluating effect of AT lessons for people with chronic MSK conditions**

| Study                             | Risk of bias <sup>†</sup> | Interventions   | Main outcomes & primary endpoint                                     | Reported results  |
|-----------------------------------|---------------------------|---|--|---|
| <b>Low back pain</b>              |                           |   |  |   |
| <b>ATEAM<sup>2</sup> (N=579)</b>  | Low                       | <ul style="list-style-type: none"> <li>24 AT lessons + UC</li> <li>6 AT lessons + UC</li> <li>6 massage sessions + UC</li> <li>UC alone</li> </ul>                              | RMDQ<br>Days in pain/month<br>12 months                              | At 1 year, the 24 AT lessons group had: <ul style="list-style-type: none"> <li>Mean 3.4 fewer daily activities limited by back pain (RMDQ score) versus UC (p&lt;0.001)</li> <li>Median 3 days pain/month versus 21 days/month for UC (p&lt;0.001)</li> </ul> |
| <b>Vickers<sup>3</sup> (N=91)</b> | High                      | <ul style="list-style-type: none"> <li>20 AT lessons + UC</li> <li>10 self-help classes + UC</li> <li>UC alone</li> </ul>   | Pain VAS; Disability<br>Not specified                                | Versus control groups, AT group had less: <ul style="list-style-type: none"> <li>Disability at 3 &amp; 6 months (p&lt;0.005)</li> <li>Pain at 3 months (p=0.05)</li> </ul>  |
| <b>ASPEN<sup>4</sup> (N=69)</b>   | Low                       | <ul style="list-style-type: none"> <li>10 AT lessons + UC</li> <li>12 physio-led exercise classes + UC</li> <li>AT lessons + exercise classes + UC</li> <li>UC alone</li> </ul> | Feasibility of larger RCT (RMDQ was a secondary outcome)<br>6 months | <ul style="list-style-type: none"> <li>A full RCT would be feasible</li> <li>Versus UC, <i>clinically</i> important improvement in RMDQ in all intervention groups but p&gt;0.05</li> </ul>   |
| <b>Neck pain</b>                  |                           |   |  |   |
| <b>ATLAS<sup>5</sup> (N=517)</b>  | Low                       | <ul style="list-style-type: none"> <li>20 AT lessons + UC versus UC alone</li> <li>12 acupuncture sessions<sup>‡</sup> + UC versus UC alone</li> </ul>                          | NPQ<br>12 months   | <ul style="list-style-type: none"> <li>Versus UC, AT group had less pain and disability at 3, 6 &amp; 12 months (p&lt;0.01)</li> <li>Clinically meaningful improvement maintained at 1 year</li> </ul>  |
| <b>Lauche<sup>6</sup> (N=72)</b>  | Moderate                  | <ul style="list-style-type: none"> <li>5 AT lessons</li> <li>Heat treatment</li> <li>Guided imagery</li> </ul>  | Pain VAS<br>5 weeks  | AT group had less pain at 5 weeks than guided imagery group (p=0.01) but not heat treatment group   |

AT=Alexander Technique (all lessons one-to-one); UC=usual GP-led care; RMDQ=Roland Morris Disability Questionnaire; VAS=Visual analogue scale; NPQ=Northwick Park Neck Pain Questionnaire; <sup>†</sup>Graded using Cochrane Back and Neck Group guidelines, excluding non-relevant blinding criteria (Furlan et al, Spine 2015); <sup>‡</sup>Same overall intervention time as per AT group – note: ATLAS was not a head-to-head trial of AT lessons and acupuncture but a comparison of each intervention with UC.

## Results: Clinical studies (cont'd)

### Chronic back pain (cont'd)

- Participants (patients and health professionals) reported a high degree of acceptability of the AT intervention.<sup>7,8</sup>

**Fig 2a: Change at 1 year in disability compared with usual care in ATEAM trial**

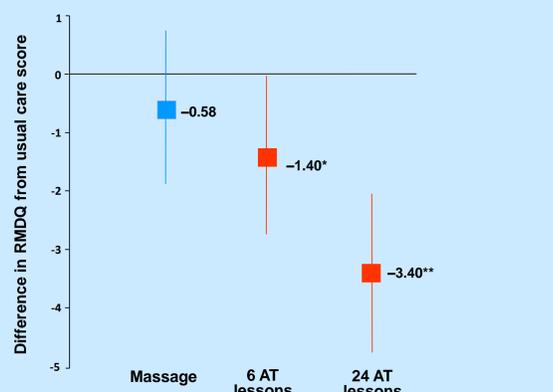


Figure shows mean values for Roland Morris Disability Questionnaire (RMDQ) and 95% confidence intervals \*p=0.045; \*\*p<0.001 versus usual care (UC). UC score: 8.1

**Fig 2b: Change in pain at 1 year compared with usual care in ATEAM trial**

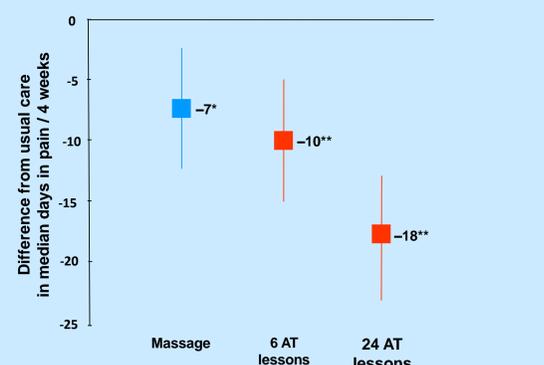


Figure shows median pain values and 95% confidence intervals \*p=0.004; \*\*p<0.001 versus UC (UC=21 days in pain)

- The ATEAM trial findings were broadly supported by:
  - ASPEN feasibility pilot: RMDQ reductions of same order of magnitude observed in ATEAM (Table 1).<sup>4</sup>
  - Unpublished RCT: significant reductions in disability up to 6 months (Table 1).<sup>3</sup>
  - NHS pain clinic service evaluation: ATEAM findings can translate into routine clinical practice.<sup>9</sup>

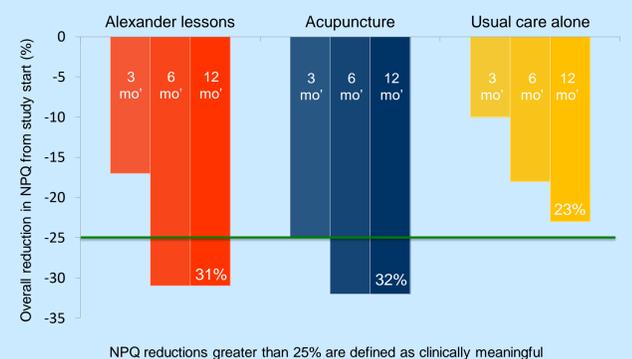
### Chronic neck pain

- ATLAS RCT:
  - Population with median 6 years' prior neck pain
  - Compared with usual care alone, 20 AT lessons led to:
    - significant long-term reduction in pain and disability (Table 1, Figure 3)
    - improvement in self-efficacy (p<0.001), which was associated with better clinical outcome (p<0.001).<sup>5</sup>
- A second, smaller RCT used an inappropriate follow-up period of only 5 weeks (Table 1).<sup>6</sup>

## Results: Clinical studies (cont'd)

### Chronic neck pain (cont'd)

**Fig 3: Change in Northwick Park Neck Pain questionnaire (NPQ) outcome from study start in ATLAS trial**



### Other MSK conditions

- A pilot, non-controlled study (N=21) reported preliminary evidence of long-term pain reduction in knee osteoarthritis patients:<sup>10</sup>
  - Following 20 AT lessons, WOMAC pain score had decreased by >50% versus baseline at both 3 and 12 months (p<0.01).

## Results: Mechanistic studies

- The six studies identified showed improved general movement coordination and balance in people with AT training compared with healthy controls (Table 2).
- It is thought that the observed improvements may result, at least in part, from improved muscle tone regulation and adaptability.

**Table 2: Studies of physiological effects of AT lessons<sup>†</sup>**

| Study                                     | Findings (all comparisons are with demographically matched control subjects)   |
|---|--|
| Cacciatore (N=37) <sup>11</sup>           | Greater adaptability of axial postural muscle tone and reduced hip stiffness in AT teachers  |
| Cacciatore (N=29) <sup>12</sup>           | Reduced inappropriate spinal bending in AT teachers during the movement of sit to stand  |
| Cacciatore (N=20) <sup>13</sup>           | Improved movement coordination in AT teachers, shown by smoother weight transfer   |
| ASPEN (N=69) <sup>4</sup>                 | Improved proprioception in low back pain patients following AT lessons   |
| Knee OA (N=41) <sup>†</sup> <sup>10</sup> | Maladaptive leg muscle co-contraction in knee OA patients decreased following AT lessons to near healthy control levels                                  |
| Gait study (N=13) <sup>14,15</sup>        | AT teachers (aged 60–75) show greater control of dynamic stability during walking than age-matched controls; and gait patterns similar to younger adults |

<sup>†</sup>AT teachers are often the subjects in such studies due to their extensive AT training; <sup>‡</sup>21 knee osteoarthritis (OA) patients and 20 healthy controls (clinical part of this study was uncontrolled). Improved postural coordination and balance also shown in earlier back pain case study<sup>16</sup>

## Discussion

- Available evidence supports the long-term effectiveness of one-to-one AT lessons for people with chronic back or neck pain.
- Some of the observed benefit may be due to improved movement coordination, balance and postural tone.
- What these studies do not reveal is *how* these physiological changes are brought about:
  - FM Alexander regarded his technique as a method for self-directed behavioural change through the control of reaction.<sup>17</sup>
  - Learning the AT enables individuals to consciously identify and amend unhelpful beliefs and associated maladaptive postural and movement habits that can contribute to pain and further deterioration.
  - Further research is urgently needed to explore this currently under-utilised intervention.

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