Associations between yoga and meditation practice and falls and injuries in older Australian women

DR ROMY LAUCHE

PUBLICATIONS

BACKGROUND

Yoga
- Traditional Indian spiritual, self-care and medical practice
- Originally aimed to unite mind, body and spirit through ethical, spiritual and physical practices

8 limbs of yoga
- ‘Yama’ and ‘Niyama’ (a code of conduct for an ethical lifestyle)
- ‘Asana’ (physical postures)
- ‘Pranayama’ (breath control)
- ‘Pratyahara’ (withdrawal of the senses from external objects to increase self-awareness)
- ‘Dharana’ (concentration)
- ‘Dhyana’ (meditation)
- ‘Samadhi’ (oneness with the object of meditation)
BACKGROUND

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- ‘Samadhi’

BACKGROUND

Is yoga of any relevance for Public health?
Yoga has arrived in mainstream healthcare

**Background**

**Falls**
- leading cause of non-fatal injuries leading to ER treatment
- prevalence increases with age
- around 50% of injuries in upper mid-aged women are falls-related
- major risk factor for disability and disablement
BACKGROUND

Yoga and falls
- Yoga as fall prevention (balance, muscle strength, coordination)
- BUT Yoga itself may be a risk factor for falls-related events
  - Associations with contusion, fractures, and nerve damages due to falls, and injuries resulting in emergency treatments

RESEARCH QUESTION

Is yoga practice associated with falls and injuries in upper middle-aged Australian women.
Australian Longitudinal Study on Women’s Health (ALSWH)

- Cohort study initiated in 1996
- Designed ‘to assess health and wellbeing and associated factors in Australian women’

Cohort of women born between 1946-1951
- Aged 59-64 years in 2010
- N=10,011

Outcomes

Prevalence of falls and injuries in the past 12 months:
- Have you slipped, tripped or stumbled?
- Have you had a fall to the ground?
- Have you been injured as a result of the fall?
- Have you sought medical attention for an injury from a fall?
METHODS

Dependent variable: Yoga practice
- 12 months prevalence
- Categories never/rarely/sometimes vs. often

How often have you used the following therapies for *your own health* in the *last 12 months*?
*(Mark one on each line)*

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamins / minerals</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Yoga or meditation</td>
<td>☐</td>
<td>☐</td>
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</tr>
</tbody>
</table>

METHODS

Statistical analysis
- Multiple logistic regression analyses
  - To determine whether yoga/meditation practice was associated with falls and falls-related injuries in yoga users vs. non-users
  - Yoga/meditation use as independent predictor
  - Adjustment for confounders (marital status, education, income, area of residence, and medical conditions related to falls)
- Odds ratio and 95% confidence interval were reported
- P<0.05, SPSS 22.0
RESULTS

Fall prevalence

- 44.1% had slipped, tripped or stumbled
- 27.7% had a fall to the ground
- 14.0% had been injured as a result of a fall
- 9.0% had sought medical attention for an injury from a fall

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>Odds Ratio</th>
<th>95% C.I.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slipped, tripped or stumbled</td>
<td>Regular Yoga/Meditation practice</td>
<td>No</td>
<td>1.00</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>0.92</td>
<td>0.79, 1.08</td>
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<td>Had a fall to the ground</td>
<td>Regular Yoga/Meditation practice</td>
<td>No</td>
<td>1.00</td>
<td>—</td>
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<tr>
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<td></td>
<td>Yes</td>
<td>0.90</td>
<td>0.76, 1.08</td>
</tr>
<tr>
<td>Been injured as a result of a fall</td>
<td>Regular Yoga/Meditation practice</td>
<td>No</td>
<td>1.00</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>1.04</td>
<td>0.83, 1.29</td>
</tr>
<tr>
<td>Sought medical attention for an injury from a fall</td>
<td>Regular Yoga/Meditation practice</td>
<td>No</td>
<td>1.00</td>
<td>—</td>
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<td>Yes</td>
<td>0.93</td>
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DISCUSSION

Safety of yoga Cramer et al., 2016

<table>
<thead>
<tr>
<th>Type of adverse events (AE)</th>
<th>No. of studies</th>
<th>Odds ratio (95% confidence interval)</th>
<th>P (overall effect)</th>
<th>Heterogeneity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yoga versus exercise</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention-related AE</td>
<td>11</td>
<td>1.02 (0.52, 1.99)</td>
<td>0.95</td>
<td>0%; 0.51; 1.00</td>
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<td>Non-serious AE</td>
<td>6</td>
<td>1.12 (0.60, 2.09)</td>
<td>0.71</td>
<td>0%; 0.36; 1.00</td>
</tr>
<tr>
<td>Serious AE</td>
<td>8</td>
<td>0.87 (0.50, 1.52)</td>
<td>0.64</td>
<td>0%; 9.85; 0.77</td>
</tr>
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<td>Yoga versus psychological or educational intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention-related AE</td>
<td>4</td>
<td>4.21 (1.01, 17.67)</td>
<td>0.05</td>
<td>0%; 0.53; 0.91</td>
</tr>
<tr>
<td>Non-serious AE</td>
<td>4</td>
<td>7.30 (1.91, 27.92)</td>
<td>&lt;0.01</td>
<td>0%; 0.71; 0.87</td>
</tr>
<tr>
<td>Serious AE</td>
<td>4</td>
<td>0.54 (0.10, 2.92)</td>
<td>0.47</td>
<td>0%; 0.26; 0.97</td>
</tr>
</tbody>
</table>
On a cold Saturday in early 2009, Glenn Black, a yoga teacher of nearly four decades, whose devoted clientele includes a member of celebrities and prominent gurus, was giving a master class at ShalaYoga in Manhattan. Black is, in many ways, a classic yogi: he studied in Pune, India, at the institute founded by the legendary B.\n
**DISCUSSION**

- **Musculoskeletal**: 34%
- **Nervous system**: 12%
- **Eyes**: 18%
- **Other**: 36%

Cramer et al., 2016, PLoS ONE
CONCLUSION

No association between yoga practice and falls or fall-related injuries have been found. Further studies are warranted for conclusive judgement of benefits and safety of yoga in relation to balance, falls and fall-related injuries.

ACKNOWLEDGEMENT

The research on which this study is based was conducted as part of the Australian Longitudinal Study on Women’s Health (ALSWH), The University of Newcastle and The University of Queensland. We are grateful to the Australian Government Department of Health and Ageing (DOHA) for funding the ALSWH and to the women who provided the survey data.

Prof. Gita Mishra, ALSWH liaison person.