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THE BRITISH WHEEL OF
YOGA™

A research report of the therapeutic effects of yoga for health and wellbeing

Prepared at ScHARR for the British Wheel of Yoga



About The British Wheel of Yoga



The British Wheel of Yoga

- The British Wheel of Yoga is a registered charity and has recently become incorporated as a limited company. It is the largest yoga organisation in the UK having nearly 8000 members and has been running for over 40 years. The BWY has a tripartite role as a membership organisation, a teaching organisation, and it is recognised by the Sport and Recreation Alliance (previously CCPR) and Sport England as the National Governing Body for Yoga (NGB).



About ScHARR



ScHARR

- ScHARR is a large school within the Faculty of Medicine, Dentistry and Health at the University of Sheffield. This School covers all aspects of health research from conducting clinical trials to collating and synthesising existing research evidence. The authors of this report regularly conduct high quality systematic reviews for the National Institute of Health and Clinical Excellence (NICE) and the National Instituted for Health Research Health Technology Assessment Programme (NIHR HTA).



Findings at a glance



Research shows that Yoga can

- Effectively improve osteoarthritis of the hand
- Improve some subjective symptoms in asthma sufferers
- Effectively treat chronic low back pain and some of its side effects
- Benefit those with cancer
- Help people with depression
- Reduce the risk factors for diabetes and cardiovascular disease in healthy people
- Improve cognitive function and perceived stress during the menopause
- Effectively treat stress
- Have a positive effect on overweight women with problems with binge eating
- Benefit women both before and during giving birth



A research report of the therapeutic effects of yoga for health and wellbeing



Aims

- To inform and strengthen the evidence base for yoga in an unbiased way
- To support and further professional knowledge and understanding about yoga
- Provide a platform for further research



Summary of findings

- There is a healthy and thriving community of researchers attempting to assess the benefits of yoga for health and wellbeing.
- Despite some flaws and gaps in the current body of evidence, there is much to support the use of yoga for both mental and physical health, in both the healthy general population and for people with some common health conditions
- There is some evidence that yoga is effective for osteoarthritis of the hand
- There are some positive results for improvement of some subjective symptoms in asthma sufferers
- Yoga can be effective for chronic low back pain and some of its side effects
- There seem to be significant benefits of yoga for people with cancer



Summary of findings continued

- There are positive conclusions about yoga for people with depression
- Yoga has positive benefits in reducing risk factors for diabetes and cardiovascular disease in healthy people
- Evidence showed statistically significant improvements in some aspects of cognitive function and perceived stress for those practicing integrated yoga during the menopause
- Yoga and relaxation are both effective treatments for stress in the short term
- Yoga seems to have a positive effect on overweight women with problems with binge eating
- There are very positive benefits of yoga for women both before and during giving birth



Conditions investigated in this report

Included in the report is research on healthy adults aged 18 to 65, as well as studies on yoga for people with some common health conditions (in the same age range) including:

- Asthma
- Back pain
- Cancer
- Cardiovascular disease
- Depression and Anxiety
- Diabetes
- Menopause
- Pregnancy
- Healthy adults



A must-read report

This report is a valuable source of up-to-date and credible information for:

- Health or social care practitioners with an interest in any of the conditions investigated
- Yoga teachers interested in yoga research



About the yoga included

- Yoga is an ancient physical and mental practice, which has been used in the East for thousands of years.
- Over the last century, yoga has gained popularity in the West, and is now practiced by many thousands of people across the UK.
- Yoga is practiced in varying forms and styles, but generally consists of four main practices; physical exercise (poses or “asana”), relaxation, meditation, and breathing techniques (pranayama).
- This research report aimed to include all forms of yoga, regardless of the style or practice used.



About the study types included

Systematic review

- A type of literature review which uses rigorous methods to maximise the number of relevant studies that are found.
- They are reported in such a way that they could be replicated by another researcher.
- They include quality appraisal of the research included to see how reliable the results are.
- Systematic reviews may include a meta analysis, where results from different studies are combined to get an overall picture of effectiveness

Random controlled trial (RCT)

- These trials are the best way of finding out if a treatment is effective, as the trial design prevents many types of bias that are difficult to exclude from other types of studies.
- Trial participants are randomly assigned to two (or more) groups. One group receives the treatment (e.g. yoga) and the other group receives no treatment or a different treatment.
- The health of the participants in the treatment group can then be compared with that of the other group.



Summary of the methodology

Literature searching

- Key biomedical databases including Medline and Medline in Process, Embase, Cinahl, Assia, Cochrane Library, Science Citation Index, Psycinfo, Cameol, Amed, British Nursing Index (and Archive) and Sport Discus.
- Databases were searched in April 2011 from inception,
- Results were limited to English Language and humans.

Reproducible inclusion and exclusion criteria

- Based on study type, population, intervention, comparator and outcomes
- Stage one, pre-set (a priori) criteria to short list eligible studies on the basis of study title and abstract.
- Stage two, key study characteristics were extracted into an excel database and coded.

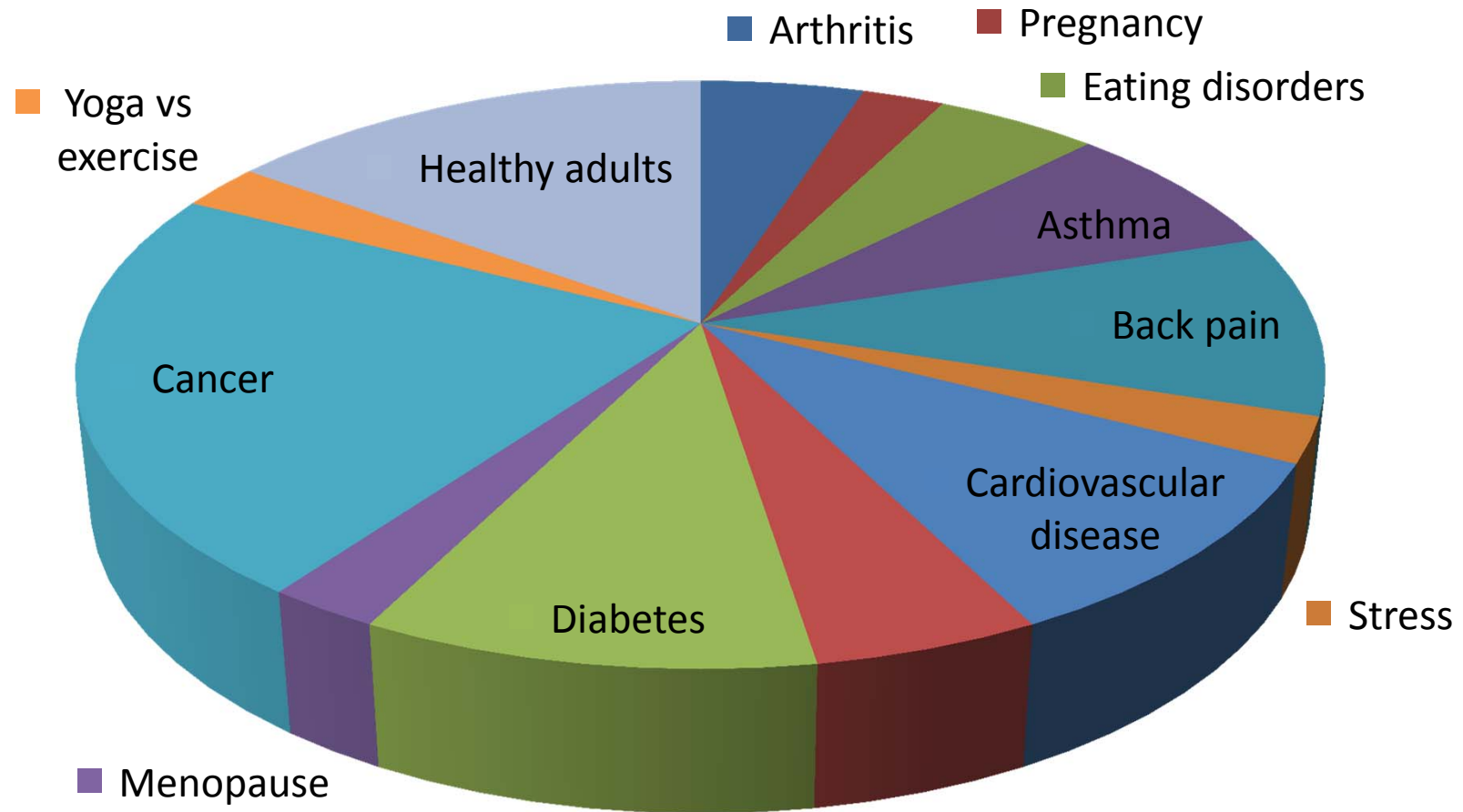
Quality assessment

- The main concern is whether bias has been introduced to the results.
- For RCT bias was considered using the Cochrane Collaboration¹ e.g. *how the random sequence was generated?*
- For systematic reviews the CASP checklist² was used e.g. *Were studies of the best design?*

1. Higgins JPT, Green S. Cochrane Handbook for Systematic Reviews of Interventions. Version 5.1.0 [updated March 2011]. 2011. The Cochrane Collaboration, 2011. 12-12-00112.
2. Critical Appraisal Skills Programme. CASP checklist for systematic reviews. <http://www.casp-uk.net/> . 2012.



Studies included by condition type



A total of 40 studies were included



Yoga for Healthy Adults

Key findings

- The majority of the research on yoga for healthy adults is positive
- Psychological benefits including improvements in anxiety and mood
- Wellbeing benefits including improvements in cardiovascular function and improvements in comfort and strength for computer users

Guidelines for future research

- More robust statistical analysis is required with study methodology and reporting



Yoga for Osteoarthritis and Osteoarthritis of the hand

Key findings

- There is some evidence that yoga is effective for osteoarthritis of the hand, such as
 - changes in tenderness
 - improvements in range of motion and pain during activity
 - improvements in pain at rest

Guidelines for future research

- A larger study would help to confirm results



Yoga for Asthma

Key findings

- There are some positive results for improvement of some subjective symptoms such as:
 - the number of attacks
 - drug use
 - mental state
 - lung function
- In the absence of any evidence of negative effects, yoga appears to be a potentially beneficial therapy for people with asthma

Guidelines for future research

- Future study design should carefully consider
 - whether pranayama on its own is the most appropriate yoga intervention
 - how many weeks it should take to see an effect
 - how long yoga sessions should last
 - how many sessions should be given in a week



Yoga for Back Pain

Key findings

- Viniyoga, Iyengar yoga and yoga delivered by British Wheel of Yoga teachers can be effective for chronic low back pain and some of its side effects such as loss of function and depression
- There is a reduction in pain at 4 weeks
- Yoga may help reduce medication usage

Guidelines for future research

- Large scale, high-quality studies can further support the existing body of evidence



Yoga for Cancer

Key findings

- There seem to be significant benefits of yoga for people with cancer with positive results on quality of life and aspects of mood
- Further positive results include:
 - improvements in intrusive thoughts
 - hot flushes
 - joint pain
 - anxiety and depression
 - changes in cortisol levels

Guidelines for future research

- Larger scale studies with patient subgroups would be beneficially



Yoga for Depression

Key findings

- There are positive conclusions about yoga for people with depression. These include:
 - improving aspects of mood
 - improved emotional and cognitive functioning
 - a decrease in the stress hormone measured through salivary cortisol levels at certain times of the day

Guidelines for future research

- The potential benefits of yoga as a low risk, non-pharmacological treatment for depression



Yoga for Diabetes and Cardiovascular Disease

Key findings

- Yoga has positive benefits in reducing risk factors for diabetes and cardiovascular disease in healthy people.
- Those with risk factors, including those with metabolic syndrome, those at high risk of type 2 diabetes, and those with type 2 diabetes found mostly positive trends toward improvements
- For the above group and patients with cardiovascular disease, such as hypertension and people who had experienced heart failure, positive results included improvements in:
 - blood pressure, pulse rate, fitness, stress, flexibility, blood serum markers
- Positive trends were found for girth, quality of life and BMI.

Guidelines for future research

- Future research should address potential issues with attendance, motivation and adherence and larger trials would be beneficial



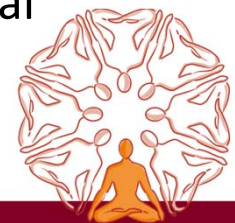
Yoga for Menopause

Key findings

- Evidence showed statistically significant improvements in some aspects of cognitive function and perceived stress for those practicing integrated yoga.
- Improvements for:
 - Greene Climacteric Scale (GCS; includes psychosocial, somatic, vasomotor, sexual)
 - Vasomotor Symptom Checklist (VCL; includes hot flushes, night sweats, disturbed sleep, daily interference and symptom related bother)
 - Neuroticism

Guidelines for future research

- Studies to further investigate menopausal symptoms, quality of life, mood, depression, satisfaction with life and sleep quality would be beneficial



Yoga for Stress

Key findings

- Yoga and relaxation are both effective treatments for stress in the short term
- Yoga appears to be more effective in the short term at improving overall mental health.
- Improvements in social function, mental health and vitality

Guidelines for future research

- Better quality randomised studies and replicated studies are required to confirm results



Yoga for Eating Disorders

Key findings

- Yoga seems to have a positive effect on overweight women with problems with binge eating. Including improved BMI, hip and waist measurements

Guidelines for future research

- Further studies are needed to see if this positive effect extends to other eating disorders



Yoga for Pregnancy

Key findings

- There are very positive benefits of yoga for women both before and during giving birth. Benefits include:
 - increased comfort and decreased pain during labour
 - decreased length of labour
 - pre-natal improved quality of life
 - decreased pre-natal stress



Discussion – key findings

Key findings

- This research report outlines some of the key recent research on yoga for both healthy adults and people with health conditions.
- Many studies included in the review reported statistically significant positive outcomes, and this is very encouraging for an intervention as complex and variable as yoga, applied across such a wide range of conditions.
- Further studies reported trends and non-significant outcomes in favour of yoga.



Discussion – key findings

Key findings

- Conditions that are highly studied include cancer (14 studies, mainly in breast cancer survivors), depression (15 studies) and in those at risk/diagnosed with diabetes and cardiovascular disease (28 studies).
- For cancer, studies published since 2005 have been consistently positive for quality of life and aspects of mood, as well as for intrusive thoughts, hot flushes, joint pain, anxiety and depression.
- For those with depression, a similar question regarding which groups benefit most was raised. Results are largely supportive of yoga for depression.



Discussion – key findings

Key findings

- The studies of diabetes and cardiovascular disease often reported proxy outcomes relating to risk factors for disease such as weight loss and lipid profiles. This is usual for studies into these conditions. Results across studies were mixed, but often displayed at least positive trends towards yoga.
- Groups which seem to respond consistently well to yoga in the literature include pregnant women, and healthy adults.
- Larger, better quality studies of back pain show positive effects.



Discussion – future research

Any future research should attempt to:

1. Considered all the evidence, and therefore draw an overall conclusion as to the efficacy of yoga.
2. Address methodological issues, such as:
 - i. An increase in number of participants to expect to be able to detect an effect
 - ii. More detailed analyses, focussing on before-after comparisons rather than between group comparisons, so conclusions about efficacy can be drawn
 - iii. Better reporting to assess bias
 - iv. Studies which blind study personnel and outcome assessors
 - v. Consider whether the results reached clinical significance as well as statistical significance. E.g. whether the effect seen would constitute an improvement when judged by a clinical expert, or be noticeable by the participant themselves.



Discussion – future research continued

3. Include statistical analyses and research design which considers differences in the forms of yoga taught, the techniques focussed on and even the teachers themselves.
4. Consider recruiting people who attend by choice, or in the context of a medical intervention, so people are self-motivated to attend. In this sense, the positive results seen are even more encouraging.
5. Record adverse events. Whilst intuitively it seems unlikely that yoga will have any severe or serious side effects, this is still a very important consideration, and must be addressed by future research.



Discussion – further primary research

1. Osteoarthritis – only one study on hand osteoarthritis was found
2. Development of an outcome measure which captures the benefits of yoga more accurately. This should be preference based to allow for the incorporation of the results into a cost-effectiveness model
3. Whether the motivation and attitude people come to yoga with affects the results they are likely to see
4. Determining what conditions people turn to yoga for, and focussing on these in future research studies



Discussion – future secondary research

1. Developing a “logic model”, as used in public health interventions,
2. Conducting a “realist synthesis” (a novel approach to complex interventions) of the evidence.
3. Meta analysis, drawing and building on the results of this review. Though it should be noted that it is unclear whether this would be possible; meta analysis requires that study design, interventions, outcome measures and study participants are very similar and there may not be sufficient similar studies to warrant this.
4. Meta synthesis of the qualitative literature, which could incorporate aspects of logic modelling and/or realist synthesis.



Conclusion

- In conclusion, there is a healthy and thriving community of researchers attempting to assess the benefits of yoga for health and wellbeing.
- Despite some flaws and gaps in the current body of evidence, there is much to support the use of yoga for both mental and physical health, in both the healthy general population and for people with some common health conditions.





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