





# BMJ Open Effectiveness of posture-correction interventions for mechanical neck pain and posture among people with forward head posture: protocol for a systematic review

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## ABSTRACT

**Introduction** Forward head posture (FHP) is the most common postural deviation of the upper back. It is believed to be one of the predisposing factors for the development of mechanical neck pain (MNP). We propose doing a systematic review to find the effectiveness of interventions targeted on FHP with MNP and assess implementation fidelity associated with these interventions.

**Methods and analysis** Medline (PubMed), Web of Science (Social Science Citation Index), EMBASE, Scopus, PEDro and CINAHL databases will be searched for studies published in English from their inception. Forward and backward citations of the included studies will be investigated for identifying additional records. We will include randomised controlled trials and non/quasi-experimental studies with two groups assessing the effectiveness of interventions targeted on FHP with MNP. Observational studies, non-randomised studies with single group and reviews will be excluded. We will consider the following outcome measures: postural variables of FHP, neck pain, performance-based functional disability scores of the neck, quality of life, basic activities of daily living and work-related outcomes. The unique citations will be screened by titles/abstracts and full texts, independently. The Cochrane Risk of Bias 2 tool will be used to critically appraise the included studies. The risk of bias and data abstraction of included studies will be undertaken independently. A qualitative synthesis will be conducted and, if sufficient studies with comparable outcome measures are available, we will statistically pool the result.

**Ethics and dissemination** We will undertake a systematic review of primary studies, and will not directly recruit participants hence, ethical clearance is not applicable. We will aim to present the findings of the completed systematic review at an international conference and subsequently submit the manuscript in a peer-reviewed journal for publication. PROSPERO registration number CRD42021250310.

## INTRODUCTION

‘Mechanical neck pain’ (MNP), also referred to as ‘non-specific neck pain’, is a commonly seen condition associated with head and

## Strengths and limitations of this study

- This systematic review is the first of its kind that will comprehensively summarise and provide level of evidence on the effectiveness and implementation fidelity of posture-correction interventions on forward head posture with mechanical neck pain.
- We anticipate heterogeneity between different types of posture-correction interventions, duration of intervention and follow-up, and the definitions of mechanical neck pain and forward head posture that may affect pooling the result.
- Although this systematic review will search the literature comprehensively, due to language restriction and non-access to subscription-based databases, there is possibility to miss important studies that might be eligible to be included.

neck posture.<sup>1</sup> Kanlayanaphotporn *et al* used the following definition of MNP: ‘Pain primarily confined to the area on posterior aspect of the neck that can be exacerbated by neck movements or by sustained postures’.<sup>1 2</sup> However, other researchers have used the definition of MNP with slight variations.<sup>1</sup> MNP is commonly associated with forward head posture (FHP).<sup>3</sup> FHP is defined as excessive anterior positioning of the head in relation to a vertical reference line.<sup>4</sup> Excessive anterior positioning of the head refers to ‘shift of reference point of head (external auditory meatus) in front of vertical reference line’.<sup>5</sup> The vertical reference line is the line that passes through centre of gravity of human body in sagittal view.<sup>5</sup> FHP is the most common cervical postural deviation in the sagittal plane.<sup>5</sup>

Plausible causes of the non-specific neck pain have not been completely understood.<sup>6 7</sup> However, multiple factors are known