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The Farriers' Perspective of Ergonomics

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BACKGROUND

Farriers, individuals who specialize in the shoeing of horses, navigate a variety of ergonomic challenges. Such challenges have the potential to severely impact their working ability and other occupations. Early research from Holler (1984) and King (2003) investigated farrier perceptions of hazardous job requirements and tool hazards. Additional factors to consider include other external factors such as human and animal interactions, physiological, and psychological factors (Flunker et al., 2020; Gombeski et al., 2017).

PROBLEM

Farriers have dynamic working conditions that present several potential risks to their overall health and wellbeing. Existing literature surrounding this population is due for an update. Farriers may also benefit from the incorporation of a more holistic approach to their ergonomic and occupational needs.

PURPOSE

To investigate current ergonomic conditions for farriers and their perspective of potential hazards as they relate to their work and other occupations, to justify and explore the holistic role of occupational therapy, and update outdated existing literature (Holler, 1984; King, 2003; AOTA, 2020; Reitz et al., 2020).

OBJECTIVES

- Explore ergonomic conditions of farriers
- Identify ergonomic hazards and occupational challenges
- Develop in-depth farrier needs assessment for the development of educational materials and future program development
- Justify skilled occupational therapy services for farriers

METHODS

The study utilized a mixed methods approach, by employing both phenomenological qualitative and quantitative descriptive data to explore the experiences of farriers in relation to their ergonomic conditions (Martiny et al., 2021).

Qualitative data was analyzed thematically after completion and transcription of semi-structured interviews and job observations. Quantitative descriptive data was analyzed using measures of frequency, central tendency, and variation to develop basic trends and relationships between qualitative and quantitative findings.

The biopsychosocial model addresses various biological, psychological, and sociological client factors and fosters a holistic approach to rehabilitative services (Gentry et al., 2021). It was used as a guide for exploring existing literature and conducting semi-structured interviews.

Participants:

- Final analysis included 11 interviews and 4 job observations.
- Included farriers aged 18 - 75 years of age who have worked as a farrier at least 6 months prior to participation
- Ages ranging 19 - 66 years
- Years experience ranging 1- 50 years

Research Questions:

- What are the occupational risks that farriers face as a result of ergonomic challenges?
- What are the environmental factors affecting farriers work conditions?
- What are farriers' perceptions and knowledge of best ergonomic practices?
- What are the activity steps required for farriers to prepare to trim or shoe horses?
- How often do farriers experience pain as a result of their work conditions?
- How do on the job injuries effect occupational engagement?

RESULTS

Descriptive Data:

- 9 of 11 work at least 40 hours per week
- Average daily drive time of 2.8 hours
- 5 reported 4-6 hours of sleep, 5 reported 6-8 hours, 1 reported less than 4 hours
- Average 6.4 job satisfaction rating on a scale of 1-7
- 8 of 11 interested in prevention of long-term injuries
- 6 of 11 interested in mental health improvement

Themes:

- Frequently reported areas of pain and injury
  - Hips, back, upper extremities, animal-related
- Environmental preferences
  - Space, level ground, well-lit, covered, adaptations
- Top 3 body protection techniques
  - Stretching, drinking water, protective clothing
- Emergency planning
  - Lack of plan, unfamiliar locations, financial planning
- Client and animal behavior
  - Well-behaved horses, upset animal indicators, good horsemanship, bad clients

Answering the Questions:

What are the occupational risks that farriers face as a result of ergonomic challenges?

- Less sleep means higher risk for injury and decreased mental health (Afonso et al., 2017)
- Greater than full-time hours, meant less time for outside activities such as leisure and personal responsibilities.
- Balancing the number of clients/hours per day (Crasset, 2015)

What are the environmental factors affecting farriers work conditions?

- Small, dark, hot barns, and uneven floors
- Clutter including objects, people, and other animals
- Bad-standing horses
- High risk tools
- Bad client interactions

What are farriers' perceptions and knowledge of best ergonomic practices?

Farriers were given a list of 8 basic body protection techniques. The top 3 included stretching, drinking water, and protective clothing. Lesser utilized basic techniques included cardiovascular exercises, lifting weights, dieting, posture exercises, and regular visits to a healthcare provider.

What are the activity steps required for farriers to prepare to trim or shoe horses?

Clean debris, cut old nails, remove the shoe, trim the outer hoof wall, frog and sole, shape the shoe, burn the foot, grind rough edges off the shoe, nail shoes back on, clench new nails, smooth the outer hoof wall, then apply a finishing medium such as wax or polish.

How often do farriers experience pain as a result of their work conditions?

- Older farriers with more experience more frequently reported pain and injuries
- Main areas of pain and injury included back, hips, upper extremities, and animal related injuries. Linked to long, seated driving hours and repetitive motions
- More horse contact typically involves higher risk of injury (Flunker et al., 2020).

How do on the job injuries effect occupational engagement?

- Inadequate amounts of time taken from work to heal
- Doctoring their own wounds
- Working through discomfort
- Experience of pain linked to decreased mental health (Rashedi et al., 2017)

OT Practice Implications:

The farrier population could benefit from the inclusion of OT services such as education and program development efforts to address ergonomic challenges. By proxy, secondary occupational challenges may also be mitigated.

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