

Original Article

The observed correlation between New Zealand gym member's perceived level of technique and rate of injury – A research survey

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ABSTRACT

Objectives: Many in the rehabilitation and fitness community agree that technical ability, skill, or technique is of the utmost importance regarding sports performance. However, whether or not it directly impacts one's rate of injury or ability to prevent or screen injuries is not unanimous. This study sets out to examine any correlation between a New Zealand gym member's perception of their own lifting quality, skill, and ability and their rate of injury. The research question was, "Is there a correlation between subjective self-reported technique and the prevalence of injury?"

Material and Methods: The sample size was $n = 70$. A convenience sampling method was used, and a 5-question survey was posted on social media (Instagram and Facebook) and open to all who met the inclusion criteria.

Results: Out of 70 participants, 56 self-reported a level of technique between 6 and 10/10. Fourteen participants reported a level of technique between 1 and 5/10. Of the 56 that fell within 6–10/10, 60.8% did not experience any injuries within the gym for the previous 24 months, with an average of 7.73/10 ($\pm 4.2\%$) (confidence interval [CI]: 7.404–8.056). In addition, 62.5% did not experience any injuries outside of the gym for the previous 24 months. Out of the 14 participants who self-reported 5/10 or less, 100% of them reported that they experienced injuries within the previous 24 months, with an average of 4 ± 0.592 ($\pm 14.8\%$) (CI: 3.408–4.592). In addition, 71.4% said yes to injuring themselves outside the gym within the previous 24 months.

Conclusion: It can be observed from this study that one's perception of technical ability in the gym may be correlated to how often they are injured. Further research investigating this correlation is required to reach a stronger conclusion.

Keywords: New Zealand, Technique, Injury, Performance, Biomechanics

INTRODUCTION

Many in the rehabilitation and fitness community agree that technical ability, skill, or technique is of the utmost importance regarding sports performance. However, whether or not it directly impacts one's rate of injury or ability to prevent or screen injuries is not unanimous. Some healthcare professionals have made bold statements in the past, claiming that improving technique is of little importance.^[1] While others continue to petition the importance of movement proficiency and technique, not only for gym activities under load, but daily trivial tasks too.^[2] Regardless, many clinicians and coaches worldwide implement movement and technique-based screening strategies within their practice to not only improve performance and ability but also prevent injury.^[3-12] This study sets out to examine any correlation between a New Zealand gym member's perception of their own lifting quality, skill, and ability and their rate of injury.

The research question and hypothesis

The research question

Is there an observed correlation in this study between subjective self-reported technique and the prevalence of injury?

MATERIAL AND METHODS

A convenience sampling method was used. A 5-question survey from www.ownsurvey.com was designed and posted on social media (Instagram and Facebook) [Figure 1] and open to anyone who met the inclusion criteria. The sample size was $n = 70$.

Inclusion criteria

- 18 years of age or above
- Currently living in New Zealand
- Have an active gym membership (of any kind).

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Figure 1: Online survey advertisement.

Survey questions

1. Do you understand and approve consent?
2. Do you currently have a gym membership?
3. How good is your technique in the gym? (from 1 to 10)
4. How many gym-related injuries have you had within the past 24 months?
5. How many non-gym-related musculoskeletal (MSK) injuries have you had within the last 24 months?

ETHICAL CONSIDERATIONS AND CONSENT

All research was carried out abiding by the guidelines stipulated by the WCG IRB International Review Board and the New Zealand Ministry of Health Ethics Committee (HDEC). This research survey complied with the established ethical standards required by the Code of Health and Disability Services Consumers' Rights 1996. As per the NZ HDEC guidelines, "Observational Studies" and "Research conducted wholly or principally for educational qualification" are exempt from HDEC review; however, they must still abide by the Code of Health and Disability Services Consumers' Rights 1996.

RESULTS

Out of 70 participants, 56 self-reported a level of technique between 6 and 10/10. Fourteen participants reported a level of technique between 1 and 5/10. Of the 56 that fell within 6–10/10, 60.8% did not experience any injuries within the gym for the previous 24 months, with an average of 7.73/10 ($\pm 4.2\%$) (confidence interval [CI]: 7.404–8.056) [Figure 2]. In addition, 62.5% did not experience any injuries outside of the gym for the previous 24 months.

Out of the 14 participants who self-reported 5/10 or less, 100% of them reported that they experienced injuries within the previous 24 months, with an average of 4 ± 0.592 ($\pm 14.8\%$) (CI: 3.408–4.592). In addition, 71.4% said yes to injuring themselves outside the gym within the previous 24 months [Figure 3].

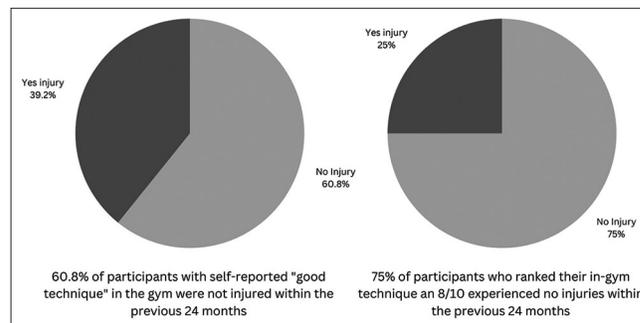


Figure 2: Injury percentage pie chart.

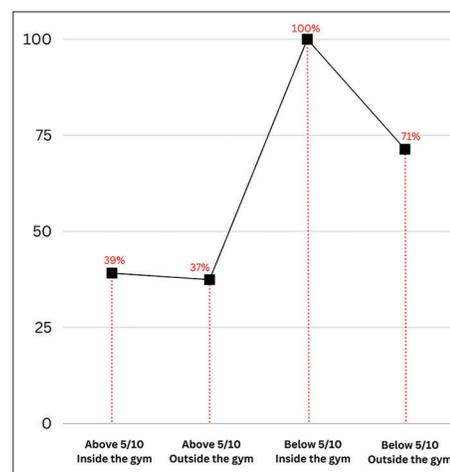


Figure 3: Participant self-reported injury incidence.

DISCUSSION

It can be observed from this study that one's perception of technical ability in the gym may be correlated to how often they are injured. Over 60% of those who believed that they had "good technique" (6–10/10) had NOT sustained MSK injuries (in or outside of the gym) within the previous 24 months. Furthermore, 100% of those who believed that they had poor technique inside the gym (1–5/10) had sustained MSK injuries within the past 24 months. Although there are limitations to this study, the above data do indicate that the null hypothesis can be rejected and the alternative hypothesis accepted; yes, there is an observed correlation between one's subjective self-reported technique and injury prevalence.

Many researchers will concede the importance of technique in regard to performance yet question its true correlation to injury (pain and disability).^[12-19] Various academics and coaches are dichotomized, as world-class coaches/lifters stand firmly by the belief that technique absolutely matters when it comes to injury prevention and rehabilitation.^[5,18,19] Many who dismiss "technique" will promote an ideology around one's ability to "adapt" – thus the adaptation model.

Although very valid, Williams and Horschig discuss the importance of understanding “adaptation” within the context of “load,” “capacity,” and “technique,” which they coined “The Technique Triad.”^[5]

They state

“Building capacity through many repetitions gradually involves neurophysiological adaptations that improve skill acquisition, neuromuscular efficiency, and technique. Therefore, the “adaptation model” inherently involves an element of technique in itself.”^[5]

In addition, various research studies have shown that movement quality under load dictates how forces are migrated throughout the human body and tissue systems.^[6-8] Moreover, all tissues in the human body have different healing times, and not all tissues adapt to load the same way.^[20] In fact, Mawston *et al.* and Holder showed that one could successfully alter and reduce lumbar flexion under load just with verbal cues.^[6,8] Furthermore, a 2009 review indicated that dynamic balance, body awareness, core, and trunk control are all critical components of a training program needed to reduce anterior cruciate ligament injury risk factors (risk factors such as valgus knee moments, inefficient muscle activation, and landing forces).^[10] In addition, Ikeda and McGill (2012) reported that altering motions, postures, and loads immediately reduced lower back pain, while Williams and Johnson successfully improved their patient’s Oswestry Disability Index and pain scores by 50% in 8 weeks using movement therapy and technique alterations.^[8,11]

Limitations

The main limitation of this study was the sample size ($n = 70$). Further research is required with a larger sample size.

CONCLUSION

Further research investigating this correlation is required to reach a stronger conclusion, such as a larger population study or survey of a larger sample and population size. Furthermore, other research designs could build upon the above hypothesis, such as cohort, retrospective, or even control trials that can aim to establish a causal relationship – of course, this is difficult when so many variables are involved. Regardless of differing opinions within the industry, this research is a great starting point to build upon and add to the body of research.

Ethical approval

All research was carried out abiding by the guidelines stipulated by the WCG IRB International Review Board and the New Zealand Ministry of Health Ethics Committee (HDEC). This research survey complied with the established ethical standards required by the Code of

Health and Disability Services Consumers’ Rights 1996. As per the NZ HDEC guidelines, “Observational Studies” and “Research conducted wholly or principally for educational qualification” are exempt from HDEC review; however, they must still abide by the Code of Health and Disability Services Consumers’ Rights 1996.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The author confirms that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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