The Pandemic as an Opportunity to Reflect on Athletic Training Research

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As we emerge from the COVID-19 pandemic, the athletic training community needs to reflect on the pandemic's impact on athletic training research. This reflection requires the athletic training community to consider how studies were and will be affected, how investigators deliver research messaging to stakeholders, how editors and reviewers assess research, and how investigators' careers were impacted. We wish we could offer some grand proposal for how to address these critical questions. Instead, we seek to encourage an era of reflection on how athletic trainers do research, assess research, disseminate research, and who is involved in research. The athletic training community should use the pandemic as a once in a century temporal landmark to elicit a "fresh start effect."¹ It can become an opportunity "to relegate past imperfections to a previous period, induce people to take a big-picture view . . . , and thus motivate aspirational behaviors."¹ We offer topics for key stakeholders (e.g., authors, readers, editors, mentors, reviewers) to consider, and some immediate action items that should be implemented as the discussion evolves.

Authors

The pandemic represents a monumental time that dramatically impacted research in the lab and field. Research teams paused or prematurely stopped many studies. Furthermore, some studies that continued may be influenced by participants changing their behavior. As our patients return to activity, it will be challenging to know how to interpret findings from data collected during the pandemic or immediately after. For example, participants in a clinical trial may have become less compliant or adopted behaviors during the pandemic that could have skewed results. Furthermore, it is unclear how return to activity during or after the pandemic may impact injury or illness rates. Hence, authors must report the dates when data collection was occurring, a common element of manuscript checklists (e.g., CONSORT,² STROBE³). Authors should also consider if and how the pandemic may influence their study results and describe in the discussion if the pandemic influenced how a reader should interpret the results.

Authors should also learn from the pandemic about how they can optimize the delivery of key take-home messages to key stakeholders. The publication of a paper cannot be the end of a study, but instead, the beginning of a new chapter focused on dissemination.⁴ Authors need to provide a consistent, clear message about what is known or not. It may also be beneficial to identify key influencers (e.g., well-known coaches, professional organizations, popular magazines) among key stakeholders groups

for a study. Authors could then discuss the results with these influencers and encourage them to share the findings.

Readers

Readers need to consider how data collected before or during the pandemic may apply to their current clinical situation. Patient-reported outcomes and exposure to physical activity may have changed during the pandemic, and some of these changes may represent unmeasured confounding. For example, during the pandemic, accelerometers may have detected a decrease in physical activity during a shutdown. Alternatively, accelerometers may have detected similar minutes of moderate to vigorous activity before and during the pandemic. However, the person shifted from running outside to using an elliptical. Hence, readers need to think twice about whether there are spurious factors that may contribute to a study's findings. Furthermore, readers should consider whether a study's implications may differ when people initially return to sports versus a year after returning. For example, the prevalence of risk factors for acute and chronic injuries or illnesses may differ between the time that people initially return to sport after COVID-related shutdown and the period after they have acclimated to full participation.

Editors

Editors need to acknowledge that the pandemic put data collection on hold. If editors wait for research laboratories to resume studies and reach full enrollment, then editors could hinder patient care by delaying needed therapies or screening strategies. Hence, editors need to encourage authors to submit manuscripts with innovative and clinically compelling findings from studies stopped prematurely by the pandemic. The *P* value cannot be allowed to cripple progress.^{5,6} If authors provide compelling results that demonstrate potentially clinically meaningful effect estimates, editors should encourage the authors to acknowledge the limitations of a small sample and the need for more robust studies; but, editors should not stifle innovation. Allowing these preliminary findings may inspire other investigators to pursue new directions or review their existing data. It can spark invaluable discussions among researchers and clinicians. Editors should encourage innovation and foster discussions. Another benefit of publishing these promising papers is to support young investigators trying to establish their research line. The pandemic has potentially created a major impediment to their career development, and editors need to take reasonable steps to support the next generation of investigators.

Editors need to be brave. They need to exert their influence on the review process. Suppose a reviewer is sticking to the old paradigm of relying solely on *P* values to define significance. In that case, editors

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should advise them that while P values still have a role, they cannot be the only determinant of meaningfulness.⁶ Authors will continue to emphasize P values if reviewers keep making authors focus on P values.⁵ At *International Journal of Athletic Therapy & Training*, we encourage a more comprehensive approach to data analysis and interpreting results based on the emerging trends in clinical research. While many studies may have been impacted by the COVID pandemic, editors should continue to promote best practices of reporting methods and results. This includes adhering to recommended checklists (e.g., STROBE, CONSORT, PRISMA, etc.) and cultivating open and transparent relationships with reviewers to ensure that there are clear actionable items for authors to address in the revision process that help to enhance the message to the readers.⁷

Mentors/Reviewers (Grant/Papers)

Mentors and reviewers need to appreciate that the pandemic had a major impact on many researchers, especially early stage/young investigators, including postdoctoral fellows and doctoral students. Mentors and reviewers cannot expect young investigators to match old expectations. Adjusting expectations does not lower the bar; it recognizes that investigators faced unique and considerable hurdles over the past year. This change in assessment will not lower our standards but instead acknowledges that other things are important, and perhaps we should offer more value to some aspects of our research. A paper someone is reviewing may describe a study with a smaller sample size than expected, but does it offer some new insights? A grant someone is reviewing may offer less preliminary data, but can the investigators still perform the study, is it grounded in sound science, and will the potential results yield new insights or open up an innovative research line? If allowed, the pandemic could be a catalyst for shifting from a publish-or-perish mentality to something more meaningful.¹

Everyone

We are emerging from one of the largest and most public medical research/public health endeavors in history. On the plus side, we have seen what can be accomplished in therapeutics and vaccine development when there is a commitment of resources and efficient communication from clinicians to medical researchers. On the other hand, we also saw some of the confusion that arises when people “see the sausage being made,” and there is inconsistent messaging. For example, we saw the rapid rise and fall of possible therapeutics like hydroxychloroquine. All medical fields need to look at this past year and see what lessons can be learned. For example, in sports medicine—how can we improve our public health messaging about the importance of injury prevention programs, heat illness prevention, and other vital prevention strategies? How can we more efficiently disseminate information to clinicians and patients? How can we streamline the translation from research to bedside and bedside to research?⁸ How can we dispel or prevent the uptake of pseudo treatments? Answering these questions will require a discussion among researchers, editors, publishers, funding agencies, and other professional organizations. This discussion should represent one of the biggest endeavors that the field needs to undertake in the next few years. We have failed to efficiently translate research to practice and vice versa for too long. We must see the pandemic as an opportunity to reassess our current strategies and develop new paths forward.

We also cannot ignore the other major story of the year. Sports Medicine (including the research community) needs to do more to

promote diversity and inclusiveness. This requires our community do more than just ensuring our review panels, editorial boards, committees, and speaker panels represent our stakeholders’ diversity. We also need to have honest discussions about whether we are serving the whole community. We need to consider the implications of the possible lack of diversity in our research studies and how we can do better in the future. Every grant application and paper should discuss whether the study truly represents the target population and how failure to do so may impact the generalizability of the results.

Undoubtedly, the pandemic will leave its mark on medicine and research for decades. The extent to which it leaves a positive lasting impact on these communities depends on how we proceed in the coming months and years. Authors, editors, readers, mentors, and reviewers need to recognize the importance of learning from this moment and use it as an opportunity to reflect and reevaluate our priorities. If we fail to learn and recognize the impact this pandemic has had on our field, we risk propagating a failing dissemination strategy and losing valuable young investigators who are the key to our long-term success. Let us step up to the challenge and grow from this experience.

Author Biography

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