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# The Role of Personality in Sport and Physical Activity

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## Abstract

There is now good evidence that athletic success and participation in physical activity can be predicted by personality traits. In this article, we review new studies that have contributed to our understanding of these relationships and outline potential avenues of inquiry to support the development of personality-trait research in exercise and sport. Our review identified a number of novel findings from contemporary studies. In the context of sport performance, new studies have demonstrated that personality traits relate to long-term athletic success, interpersonal relationships, and athletes' psychological states before, during, and after competitions. In the context of health-related exercise, new studies have demonstrated that personality traits relate to leisure-time sitting time, strength and mobility in old age, and unhealthy (addictive) exercise behaviors. There is also evidence that physical activity contributes to personality change. Our recommendations include a more targeted focus on adolescence (as this is the age of greatest change in personality and sport participation) and a greater consideration of consultant personality traits in applied research and professional practice (given their role in intervention effectiveness).

## Keywords

exercise participation, Five Factor model, physical fitness, developmental changes, applied psychology

People are remarkably varied in their ability to perform under stressful or challenging circumstances and in their tendencies to engage in health-related behaviors. To understand and encourage behavior change, the sources of these individual differences need to be uncovered. This review focuses on the personality dimensions outlined in the Five Factor theory of personality (McCrae & Costa, 2008). Investigations have explored associations between personality traits and performance-related outcomes (e.g., academic and occupational success) and between personality traits and health-related outcomes (e.g., diet and stress). Amid the academic articles available, a considerable number have centered on personality-trait associations in the context of sport and physical activity. The development of this field originated when researchers started to notice particular traits among athletic adolescents (e.g., Fleming, 1934), and their articles tended to emphasize the contribution of athletic behavior to personality change. Over time, the focus shifted to consider personality traits as precursors to two core outcomes: sport performance (athletic success) and physical activity (exercise participation). We review each of these areas in turn,

focusing on recent advances before considering new research questions and avenues of further study.

## Personality in Sport Performance

Personality traits predict a number of performance markers in competitive contexts such as work and academia (see, e.g., Poropat, 2009). Organized sport represents another competitive context in which some personality traits have been found to coincide with greater levels of success. For example, athletes competing in national or international competitions report higher levels of conscientiousness and lower levels of neuroticism than do those competing in club or regional competitions (Allen, Greenlees, & Jones, 2011), and athletes selected for the Paralympic Games report higher levels of tough-mindedness (a component of agreeableness) and lower levels of anxiety (a component

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of neuroticism) than do those not selected for the Paralympic Games (Martin, Malone, & Hilyer, 2011). Longitudinal studies have also found that adolescent athletes with particular personality traits are more likely to progress to professional sport (Aidman, 2007) and that adult athletes with high levels of conscientiousness or low levels of neuroticism have more successful performance statistics over the course of a competitive season (Piedmont, Hill, & Blanco, 1999). In particular, Aidman (2007) assessed the personality traits of 32 elite youth athletes and monitored their progress over 7 years. The study found that personality traits, in combination with coaches' ratings of players' potential, could distinguish those players who had progressed to become professional athletes ( $n = 13$ ) from those who had withdrawn from participation ( $n = 19$ ) with 100% accuracy (84% of athletes were correctly classified on the basis of personality traits alone).

To better understand the processes connecting personality traits to athletic success, researchers have recently begun to explore associations between personality traits and discrete athletic behaviors. It has been found that sport participants with high levels of conscientiousness use better preparation strategies (Woodman, Zourbanos, Hardy, Beattie, & McQuillan, 2010), take fewer reckless risks (Merritt & Tharp, 2013), and use more effective coping strategies (Kaiseler, Polman, & Nicholls, 2012) before and during athletic competitions. It has also been found that sport participants with high levels of extraversion or low levels of neuroticism respond to unsuccessful outcomes with more positive cognitive and emotional symptoms (Allen, Greenlees, & Jones, 2014) and that sport participants with high levels of agreeableness or conscientiousness report more favorable relationships with their teammates (Jackson, Dimmock, Gucciardi, & Grove, 2010) and coaches (Jackson, Dimmock, Gucciardi, & Grove, 2011). Little is known about how personality traits contribute to aggressive or unethical behavior or how they might relate to important choices or clinical symptoms between competitions (e.g., eating disorders, doping). Nevertheless, the studies available might go some way toward explaining why conscientious athletes and athletes with low neuroticism tend to be more successful.

The relationship between personality and athletic success is often thought of as unidirectional—the general assumption being that personality traits cause some individuals to perform better or worse in athletic situations. However, it is also possible that athletic success, and the life changes that accompany this success, contribute to personality change. There is evidence from occupational settings that career success permeates personality change and, in particular, contributes to increases in levels of extraversion (Le, Donnellan, & Conger, 2014). This is because success in occupational roles often accompanies changes in interpersonal activities (e.g., greater leadership

behavior) that might challenge personality stability in adulthood. In athletic settings, success can also generate greater interpersonal activities, but, more importantly, it can lead to considerable income and media attention (e.g., changes in privacy, adoration by fans), and it remains unclear how these factors might contribute to personality change. We can speculate that the additional life stress that coincides with these factors might, under certain circumstances, contribute to undesirable changes (e.g., increases in neuroticism). Longitudinal studies are needed to explore bidirectional associations and potential moderator variables (e.g., social support) during important personal or career transitions (e.g., the transition from amateur to professional athlete).

### Personality in Health-Related Exercise

Physical inactivity has been identified as the fourth leading risk factor of global mortality, causing an estimated 5.3 million deaths each year (Lee et al., 2012). It is therefore unsurprising that psychologists are targeting the identification of factors associated with participation in regular exercise. There is now good evidence that personality traits relate to physical-activity levels. For example, new studies of adult sitting behavior have shown that low levels of conscientiousness, extraversion, and openness and high levels of neuroticism predict a greater occurrence of leisure-time sitting time (Ebstrup, Aadahl, Eplöv, Pisinger, & Jørgensen, 2013). Comprehensive meta-analyses have also demonstrated that high levels of extraversion and conscientiousness and low levels of neuroticism relate to high levels of physical activity (Rhodes & Smith, 2006; Stephan, Boiché, Canada, & Terracciano, 2014). In particular, industriousness (a component of conscientiousness) and activity (a component of extraversion) are often identified as important physical-activity correlates (Rhodes & Pfaeffli, 2012).

The majority of research on personality and physical activity has targeted young adults. More recently, there has been a shift toward understanding physical-activity levels across the life span. Studies have demonstrated that older adults with high levels of extraversion have greater muscular strength (Tolea, Terracciano, et al., 2012) and that individuals with high levels of extraversion, openness, or conscientiousness or low levels of neuroticism record greater energy expenditure at peak walking pace (Terracciano et al., 2013). Importantly, a 3-year longitudinal study of older adults (mean age = 75) found that high levels of conscientiousness related to a faster initial walking speed and a slower decline in walking speed over the course of the study (Tolea, Costa, et al., 2012), and a 6-year follow-up found that high levels of openness related to a reduced risk of acquired walking limitations (Tolea, Ferrucci, et al., 2012). It has

also been found that positive attitudes toward aging mediate a positive association between openness and levels of physical activity (Emile, Chalabaev, Stephan, Corrion, & d'Arripe-Longueville, 2014) and that high neuroticism relates to low levels of physical activity, but only when education levels are particularly low (Jaconelli, Stephan, Canada, & Chapman, 2013).

The identification of important mediating and moderating variables has been a central focus in studies of behavior change. In their systematic review, Rhodes and Pfaeffli (2012) identified 17 studies that had explored mediating relationships—most often components of the theory of planned behavior (Ajzen, 2012)—and found evidence for a partial mediation of attitudes toward exercise and perceived behavioral control in the relationship between extraversion and levels of physical activity. Studies have also explored demographic variables that might moderate the relationship between personality traits and exercise behavior and the personality traits that might moderate associations between psychological states and behavior change. Associations between personality dimensions and physical-activity levels appear relatively consistent across age groups, culture, gender, and activity modes (Rhodes & Pfaeffli, 2012), but there is evidence that exercise intentions are more strongly related to exercise behavior when levels of conscientiousness are particularly high (Rhodes & Dickau, 2013).

It is customary for association studies to consider personality traits as precursors to physical-activity levels despite the bidirectional associations theorized in earlier articles (e.g., Fleming, 1934). Until recently, the potential for exercise participation to contribute to changes in personality remained unclear. However, a recent longitudinal study of personality change in adulthood found that physically active adults declined less on conscientiousness, extraversion, openness, and agreeableness than did less physically active adults (Stephan, Sutin, & Terracciano, 2014). These initial findings suggest that an active lifestyle might help to prevent undesirable personality change and support original proposals that personality traits are shaped through exercise participation. The processes through which this occurs are unknown, but the authors speculated that physical activity might help to maintain desirable personality traits by lowering the incidence of cognitive decline or facilitating better coping responses to adverse life events.

The benefits of regular physical activity are well established. However, excessive exercise can have adverse effects, including depression, body-image concern, and disordered eating behavior (Berczik et al., 2012). New lines of research have begun to uncover the personality traits that relate to unhealthy (obsessive and compulsive) exercise behavior. Studies have found that high levels of neuroticism, extraversion, and conscientiousness and low levels of agreeableness relate to exercise addiction

(Andreassen et al., 2013; Lichtenstein, Christiansen, Elklit, Bilenberg, & Støving, 2014), with excitement seeking (a component of extraversion), achievement striving (a component of conscientiousness), and straightforwardness and compliance (components of agreeableness) featuring the strongest associations (Lichtenstein et al., 2014). These findings indicate that people who are susceptible to exercise addiction might be identifiable through personality-trait profiling, which has implications for the early identification and treatment of this clinical disorder.

## Moving Forward

The studies reviewed so far have provided some interesting perspectives on personality-trait associations in sport and physical activity. The greater focus on older adults has been an important development in the field—as have the greater use of longitudinal designs and variations in outcome measures (e.g., leisure-time sitting time, energy expenditure). In terms of research progression, the field might benefit from a more targeted focus on adolescent populations. In the context of sport performance, researchers might explore behavior-change interventions that target continued participation in sport among adolescents who have great athletic potential but personality traits associated with a high risk of drop-out. In the context of health-related exercise, researchers might explore changes in personality traits throughout adolescence and their relationship to changes in exercise motives. Longitudinal designs that target bidirectional associations might help to explain the shift from environmental to genetic influences on sport participation (Aaltonen, Ortega-Alonso, Kujala, & Kaprio, 2013) and the decline in exercise participation throughout adolescence (Kimm et al., 2002).

Adolescence is a critical developmental stage during which we observe not only the greatest changes in levels of physical activity (Hallal et al., 2012) but also the greatest changes in personality (McAdams & Olson, 2010). There is reason to consider that these associations might not be mutually exclusive. Studies have found that sport participation contributes to the development of important life skills (Gould & Carson, 2008) and long-term health-related quality of life (Vella, Cliff, Magee, & Okely, 2014). Through sport participation, adolescents gain confidence, learn new physical capabilities, develop important social relationships, develop leadership skills, and gain satisfaction by working toward goals (Gould & Carson, 2008). It is reasonable, therefore, to consider that sport participation might contribute to personality change during adolescence. A critical question is whether different modes of physical activity have similar effects on personality change. For instance, team sports combine physical activity with high levels of social interaction, whereas individual sports often combine high levels of

physical activity with low levels of social interaction. It would be interesting to explore the potential differences between activity modes in their effects on personality stability and change during adolescence.

The role of personality in sport teams and exercise groups has received little empirical attention. In other (non-athletic) settings, it has been found that greater variation among group members in some personality traits (e.g., extraversion) and greater similarity in others (e.g., agreeableness) relate to more successful group performances (e.g., [Kramer, Bhave, & Johnson, 2014](#)). Similar associations might be observed in team sports, and this could have implications for applied practice in terms of selecting or deselecting players to fit the needs of a particular team or competition. In physical-activity settings, people often choose to take part in structured (group) exercise classes, and individual behavior in these contexts (e.g., adherence levels) might also depend on the personality traits of other class members. For example, adherence levels might be higher when the group as a collective (or the group leader) scores highly on desirable personality traits (e.g., extraversion) or when the target person has personality traits similar (or dissimilar) to those of other group members.

Personality similarity is one potential contributing factor to adherence levels in exercise programs, and this extends beyond other members of the exercise class to the personality traits of the consultant or service provider administering the physical-activity intervention. Consultants are often responsible for recruiting participants into behavior-change interventions and monitoring their progress. It is reasonable to expect that clients' engagement and commitment to behavior-change recommendations might be contingent on their interactions with their service provider (e.g., relatedness) and that these interactions are conditioned by personality traits ([Cuperman & Ickes, 2009](#)). Psychologist–client personality similarity is considered an important factor in turning intentions into behavior ([Bare, 1967](#)), and researchers would do well to consider the personality traits of consultants when designing and implementing physical-activity interventions and evaluating their success. As far as we are aware, the personality traits of service providers have not featured in studies of behavior change that have targeted leisure-time physical activity. To critically evaluate intervention success, it is important to consider all potential moderator variables, and these include the personality traits of the people delivering the interventions.

## Conclusions

The available evidence shows that sport performance and physical-activity levels can be predicted by personality traits. Conscientiousness and neuroticism appear to be most important for athletic success, and these associations

seem to mirror those observed in other performance contexts (e.g., academic and occupational success). Personality-trait dimensions also relate to interpersonal relationships in athletic dyads and can predict athletes' psychological states before, during, and after competitions. Little is known about the contribution of athletic success to personality change or how personality-trait similarities among team members relate to group success. In the context of physical activity, extraversion and conscientiousness (and, to a lesser extent, neuroticism) predict physical-activity levels in nonclinical samples. These dimensions also relate to strength and mobility in older adults and, along with agreeableness, can predict unhealthy (addictive) exercise behavior. Importantly, new research has suggested that leisure-time physical activity can contribute to personality change during adulthood. We recommend additional longitudinal studies that explore bidirectional associations between personality traits and various modes of physical activity. This information would be particularly valuable to researchers pursuing the various environmental factors that contribute to personality-trait development, and might also be of value to health professionals targeting the promotion of physical activity and healthy living in developed nations.

## Recommended Reading

- Allen, M. S., Greenlees, I., & Jones, M. V. (2013). Personality in sport: A comprehensive review. *International Review of Sport and Exercise Psychology*, 6, 184–208. A detailed narrative review of personality in sport performance that includes population-based differences and issues in applied practice.
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- Rhodes, R. E., & Pfaeffli, L. A. (2012). (See References). A systematic review of the relationship between personality traits and participation in physical activity that explores facet-level relationships and moderator variables including age, culture, and physical-activity mode.
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## Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.



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