Chapter - II

Review Literature

Fernand Gobet, Guillermo Campitelli, Andrew J. Waters July-August 2002. Rise of human intelligence: Comments on Howard (1999). Based upon the evidence that the best chess players in the world are becoming increasingly represented by relatively young individuals, Howard claimed that human intelligence is rising over generations. We suggest that this explanation has several difficulties and show that alternative explanations relating to changes in the chess environment, including increased access to chess knowledge, offer better explanations for the increased presence of young players at top-level chess.

Searching the real world for signs of rising population intelligence
Average raw scores on IQ tests have been rising for decades but it still is controversial whether population intelligence really is increasing. The present study looked at several real world indicators for evidence of a rise. First, the prevalence of mild mental retardation in the US population and elsewhere has been steadily declining for decades. Second, players in various intellectual games, particularly chess but to a lesser extent bridge and go, are reaching high performance levels at earlier and earlier ages. There are many more prodigies. Third, scientific productivity, measured by number of journal articles and patents awarded, has risen greatly over the last few decades, even though much top intellectual talent may be shifting from science. Finally, I surveyed perceptions of teachers who had taught in high schools for over 20 years. Most reported perceiving that average general intelligence, ability to do school work, and literacy skills of school children had not risen since 1979 but most believed that children’s practical ability had increased. Most reported perceiving a decline in students’s motivation, which may be affecting their perceptions of general intelligence. All these trends have various possible causes other than rising intelligence. However, together, and with other recent empirical evidence, most indicators suggest population intelligence really could be rising.

Robert W. Howard September 1999. Preliminary Real-World Evidence That Average Human Intelligence Really is Rising Average IQ score has been rising for several decades but researchers dispute whether population intelligence really is increasing. Clear real-
world evidence of a rise may settle the issue. I first examined the domain of chess, where performance can be readily measured and tracked over decades and people of all ages compete. The young increasingly have dominated the game since the 1970's, outperforming older players at progressively earlier ages. The median age of the top 50 players dropped from 38 years old in the 1970's to 29 in 1995, and the proportion aged under 25 more than doubled. The median age of the top 10 dropped from the late-30's in the 1970's to the mid-20's in the 1990s. The median age of world championship contenders dropped from 37 in 1971 to just 26 in 1994. The Soviet team which won the 1970 Chess Olympiad had a median age of 40 and the Russian team which won the 1998 Olympiad had a median age of 22.5. The longstanding record for youngest grandmaster, set in 1958, has been broken four times since 1991. I also looked at patent and educational statistics, which have been used to suggest that intelligence is not rising. Number of U.S. patents granted largely rose from 1963 to 1996. SAT test scores overall largely have fallen from 1951, but possibly for many reasons. The chess data are the first real-world evidence that population intelligence really may be rising.

Hiromi Masunaga, John Horn March 2000. Characterizing mature human intelligence: Expertise development Results from a study of 263 male players at 48 levels of expertise in the game of GO, and ranging from 18 to 78 years of age, suggest a need to revise the extended theory of fluid (Gf) and crystallized (Gc) intelligence to take account of continued development of intelligence throughout adulthood. The extended theory of Gf–Gc is based on evidence that Gf, short-term apprehension and retrieval (SAR) and cognitive speed (Gs), decline with age over adulthood. Results from a number of studies, however, suggest that within the domains of expertise, high levels of reasoning, feats of memory and speeded thinking similar to Gf are displayed by older adults. To explore this hypothesis, measures of reasoning, memory and cognitive speed were constructed within the domain of expertise related to playing the complex game of GO. Analysis of the structure of the GO-embedded measures and standard measures of Gf (SAR and Gs) indicated a form of short-term memory — labeled expertise working memory (EWM) that had substantially wider span than the short-term working memory (STWM) of SAR. This finding is consistent with the hypothesis that long-term working memory is built up during the course of developing high levels of expertise. The results also suggest that a form of expertise deductive reasoning (EDR), utilizing EWM and incorporating large stores of
knowledge, is distinct from Gf. Expertise cognitive speed (ECS), however, was not found to be reliably distinct from the Gs factor. Analyses of cross-sectional age differences indicate an age-related decline in both EDR and EWM, but as higher levels of expertise are reached, age-related decline does not occur. To the extent that there is continued press to advance expertise throughout adulthood, there may be improvement, not decline, in the EDR and EWM forms of intelligence.

H. Perlini, Trevor R. Halverson April 2006. Emotional Intelligence in the National Hockey League The purpose of the present study was threefold: a) to evaluate the standing on emotional intelligence of National Hockey League players, relative to the general population, b) to evaluate the relationship of draft rank and emotional intelligence (EI) measures to hockey performance, and c) to evaluate the relative predictive value of these measures to performance indices: total NHL points and NHL games played. During the 2003–04 hockey season, 79 players across 24 NHL teams completed the Bar-On EQ-i. The findings indicated that years-since-draft was the strongest predictor of performance and draft rank was the weakest predictor of performance. With respect to EI, both intrapersonal competency and general mood added significant variance to predictions of number of NHL points and games played. Implications for predicting performance in the NHL, amongst draft prospects, is discussed.

Le but que poursuit la présente étude se divise en trois volets: a) évaluer l'intelligence émotionnelle chez les joueurs de la Ligue nationale de hockey par rapport à la population; b) évaluer la relation entre le classement au repêchage et les mesures de l'intelligence émotionnelle (EI) et la performance au hockey; c) évaluer la valeur prédictive relative de ces mesures sur les index de performance suivants: nombre total de points récoltés dans la LNH et nombre de parties jouées dans la LNH. Pendant la saison de hockey 2003–2004, 79 joueurs provenant des 24 équipes de la LNH ont répondu au test EQ-i de Bar-On. Les résultats ont indiqué que le nombre d'années écoulées depuis le repêchage était le plus puissant prédicteur de la performance tandis que le classement au repêchage était le plus faible prédicteur de la performance. En ce qui a trait à l'IE, les compétences intrapersonnelles et l'humeur générale ajoutaient toutes deux une variance significative aux prédictions relatives au nombre de points récoltés dans la LNH et au nombre de parties jouées. On discute, pour finir, des répercussions de la prédiction de la performance dans la LNH chez les candidats au repêchage.
Evidence that rising population intelligence is impacting in formal education Consensus is growing that rising IQ scores at least partly reflect rising population intelligence. However, there is no apparent impact in formal education, the one real world domain where it should be strongly and obviously impacting. Teachers evidently are not reporting brighter children. There is only one relevant formal study, however, which found that most Australian high school teachers surveyed did not perceive that students became brighter between 1979 and 1999. The present study investigated several possible reasons why; declining motivation in high school students masking rising intelligence, too short a time span or the wrong nation examined. The study was replicated in Australian primary school teachers who had been teaching for 20 or 30 years and in Singapore and Korea, where the environmental improvements thought to raise IQ have happened mainly in the last 40 years. Also, these nations lack the West's grave classroom motivation problems. Most Australian primary teachers did not perceive brighter children even over 30 years, but most in the two Asian nations did, particularly those in Singapore. General intelligence may have largely stopped rising in Western nations decades ago while visuospatial ability has been increasing, which with test sophistication has been pushing up IQ scores slightly. When the environmental improvements occur rapidly, teachers readily note brighter children.

Superior performance and neural efficiency: The impact of intelligence and expertise. Superior cognitive performance can be viewed from an intelligence perspective, emphasising general properties of the human information processing system (such as mental speed and working memory), and from an expertise perspective, highlighting the indispensable role of elaborated domain-specific knowledge and acquired skills. In exploring its neurophysiological basis, recent research has provided considerable evidence of the neural efficiency hypothesis of intelligence, indicating lower and more focussed brain activation in brighter individuals. The present EEG study investigates the impacts of intelligence and expertise on cognitive performance and the accompanying cortical activation patterns in the domain of tournament chess. Forty-seven tournament chess players of varying intelligence and expertise level worked on tasks drawing on mental speed, memory, and reasoning. Half of the tasks were representative for chess, while the
other half was not. The cortical activation was quantified by means of event-related desynchronisation (ERD) in the upper alpha band. Independent effects of expertise and intelligence emerged at both, the performance and the neurophysiological level. Brighter participants performed better than less intelligent ones which was associated with more efficient brain functioning (lower ERD) across all tasks. Additionally, a high expertise level was beneficial for good task performance but exerted a topographically differentiated influence on the cortical activation patterns. The findings suggest that superior cognitive performance and the underlying cortical activation are not only a function of knowledge and domain-specific competences but also of the general efficiency of the information processing system.

Kermit M. Patton November 2005. The role of scanning in open intelligence systems. Every month, SRI Consulting Business Intelligence (SRIC-BI) professionals assemble more than 100 short abstracts of developments that they perceive to be signals of change, discontinuities, inflection points, outliers, or disruptive developments. The effort is part of a continuous scanning process and Scan program that allows SRIC-BI to gauge the ongoing turbulent confluence of culture, commerce, and technology that defines today's business environment. For more than 25 years, scanning has played an essential role in SRIC-BI's and SRI International's foresight capabilities by providing a systematic means for surveying the broad external environment for change vectors. Traditional monitoring processes in most organizations are largely arbitrary, depending on what concerned individuals or leaders in the organization are reading, thinking about, and sharing informally with each other. But in today's world, arbitrary is insufficient. No foresight function can operate with confidence without a disciplined process for spotting new patterns of change and bringing those issues into the organization for early consideration and action. This article describes the scanning process as SRIC-BI practices it, the importance of open intelligence systems, what benefits the scanning process can provide to organizations, and what problems organizations typically run into when setting up scanning systems.

David L. Van Rooy, Chockalingam Viswesvaran August 2004. Emotional intelligence: A meta-analytic investigation of predictive validity and nomological net This study used meta-analytic techniques to examine the relationship between emotional intelligence (EI) and performance outcomes. A total of 69 independent studies were located that reported correlations between EI and performance or other variables such as general mental
ability (GMA) and the Big Five factors of personality. Results indicated that, across criteria, EI had an operational validity of .23 (k=59, N=9522). Various moderating influences such as the EI measure used, dimensions of EI, scoring method and criterion were evaluated. EI correlated .22 with general mental ability (k=19, N=4158) and .23 (Agreeableness and Openness to Experience; k=14, N=3306) to .34 (Extraversion; k=19, N=3718) with the Big Five factors of personality. Results of various subgroup analyses are presented and implications and future directions are provided.

Hiromi Masunaga, John Horn March 2000. Characterizing mature human intelligence: Expertise development Results from a study of 263 male players at 48 levels of expertise in the game of GO, and ranging from 18 to 78 years of age, suggest a need to revise the extended theory of fluid (Gf) and crystallized (Gc) intelligence to take account of continued development of intelligence throughout adulthood. The extended theory of Gf–Gc is based on evidence that Gf, short-term apprehension and retrieval (SAR) and cognitive speed (Gs), decline with age over adulthood. Results from a number of studies, however, suggest that within the domains of expertise, high levels of reasoning, feats of memory and speeded thinking similar to Gf are displayed by older adults. To explore this hypothesis, measures of reasoning, memory and cognitive speed were constructed within the domain of expertise related to playing the complex game of GO. Analysis of the structure of the GO-embedded measures and standard measures of Gf (SAR and Gs) indicated a form of short-term memory — labeled expertise working memory (EWM) — that had substantially wider span than the short-term working memory (STWM) of SAR. This finding is consistent with the hypothesis that long-term working memory is built up during the course of developing high levels of expertise. The results also suggest that a form of expertise deductive reasoning (EDR), utilizing EWM and incorporating large stores of knowledge, is distinct from Gf. Expertise cognitive speed (ECS), however, was not found to be reliably distinct from the Gs factor. Analyses of cross-sectional age differences indicate an age-related decline in both EDR and EWM, but as higher levels of expertise are reached, age-related decline does not occur. To the extent that there is continued press to advance expertise throughout adulthood, there may be improvement, not decline, in the EDR and EWM forms of intelligence.
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Roland H. Grabner, Aljoscha C. Neubauer, Elsbeth Stern 28 April 2006. Superior performance and neural efficiency: The impact of intelligence and expertise Superior cognitive performance can be viewed from an intelligence perspective, emphasising general properties of the human information processing system (such as mental speed and working memory), and from an expertise perspective, highlighting the indispensable role of elaborated domain-specific knowledge and acquired skills. In exploring its neurophysiological basis, recent research has provided considerable evidence of the neural efficiency hypothesis of intelligence, indicating lower and more focussed brain activation in brighter individuals. The present EEG study investigates the impacts of intelligence and expertise on cognitive performance and the accompanying cortical activation patterns in the domain of tournament chess. Forty-seven tournament chess players of varying intelligence and expertise level worked on tasks drawing on mental speed, memory, and reasoning. Half of the tasks were representative for chess, while the other half was not. The cortical activation was quantified by means of event-related desynchronisation (ERD) in the upper alpha band. Independent effects of expertise and intelligence emerged at both, the performance and the neurophysiological level. Brighter participants performed better than less intelligent ones which was associated with more efficient brain functioning (lower ERD) across all tasks. Additionally, a high expertise level was beneficial for good task performance but exerted a topographically differentiated influence on the cortical activation patterns. The findings suggest that superior cognitive performance and the
underlying cortical activation are not only a function of knowledge and domain-specific competences but also of the general efficiency of the information processing system.


Objectives: The purpose of the present study was to explore psychological performance crises under time pressure towards the end of basketball games. Three hypotheses were tested: (a) situations in the end phase of the game would be evaluated as highly critical; (b) crisis probability will increase within the end phase of the game, from its beginning towards its end; (c) players' decision behaviour would be of lesser quality under high- versus low-criticality situations. A panel of six experts observed elite basketball players at the end phase of 10 close games at the highest international level. In the study's first stage, three experts evaluated the criticality of each possession during the observed game intervals. In the second stage of the study, three experts' evaluations of team- and player-decision making behaviour in offense, defense and scoring attempts were analyzed. Results: In the study's first stage, experts' judgments indicated that the final phase of the game was characterized as comprising twice as many highly critical possessions than low-criticality possessions. In addition, the number of highly critical possessions grew dramatically towards the end of the phase. In the study's second stage, results indicated that highly critical possessions were characterized by a lower quality of decision making compared to low criticality possessions. Conclusions: Results in both stages supported all three hypotheses, in accordance with crisis theory. It is recommended that researchers further observe athletes' decision behaviour within the framework of crisis theory, and practitioners are advised to direct athletes' mental preparation towards the end phases of games.

Joyce M. Alexander, Kathy E. Johnson, Mary E. Leibham, Christiane DeBauge 2005. Constructing domain-specific knowledge in kindergarten: Relations among knowledge, intelligence and strategic performance. Thirty kindergarten children from two classrooms participated in a 3-week curricular unit on dinosaurs designed to teach taxonomic relations and distinguishing features aligned with 15 dinosaur species. Both domain-specific learning and strategic performance on a Twenty Questions game were assessed twice throughout the curriculum, as well as during a postcurriculum assessment involving the comparison domain of birds. Performance on all knowledge measures improved significantly across the 3 weeks, with
more substantial knowledge gains for higher-aptitude children. Ninety percent of children asked strategic questions that eliminated multiple items while playing Twenty Questions: Domain-specific knowledge was related to strategic questions focused on the features or behaviors taught during the curriculum, while IQ scores were related to strategic questions that did not pertain to curricular content. Because children did not demonstrate metacognitive awareness of their strategic questioning, we suggest that the curricular content prompted implicit changes in strategy use.

P. Totterdell, D. Leach October 2001. Negative mood regulation expectancies and sports performance: an investigation involving professional cricketers

Objectives: To test whether the performance of professional sports competitors is related to their expectancy of improving an unpleasant mood.

Method: Two related studies of professional cricketers were conducted. In Study One, 46 players completed a battery of questionnaire scales, including a measure of negative mood regulation (NMR) expectancy. In Study Two, 19 participants from Study One took part in a time-sampling study in which they rated their mood on a pocket computer throughout a competitive match. The results from Study One showed that NMR was significantly correlated with players' batting average for the season. In contrast, reflexivity, well-being, and age were significantly associated with NMR but not with batting average. The results from Study Two showed that players who had greater NMR had significantly higher ratings for happy mood, smaller negative changes in happy mood, and greater batting averages during the match. Results of regression analysis supported an explanation of the association between NMR and performance in terms of a mediating effect of happy mood. Overall, the findings suggest that NMR expectancy can facilitate professional sports performance.


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(c) players' decision behaviour would be of lesser quality under high- versus low-criticality situations. Design and Methods: A panel of six experts observed elite basketball players at the end phase of 10 close games at the highest international level. In the study's first stage, three experts evaluated the criticality of each possession during the observed game intervals. In the second stage of the study, three experts' evaluations of team- and player-decision making behaviour in offense, defense and scoring attempts were analyzed. Results: In the study's first stage, experts' judgments indicated that the final phase of the game was characterized as comprising twice as many highly critical possessions than low-criticality possessions. In addition, the number of highly critical possessions grew dramatically towards the end of the phase. In the study's second stage, results indicated that highly critical possessions were characterized by a lower quality of decision making compared to low criticality possessions. Conclusions: Results in both stages supported all three hypotheses, in accordance with crisis theory. It is recommended that researchers further observe athletes' decision behaviour within the framework of crisis theory, and practitioners are advised to direct athletes' mental preparation towards the end phases of games.

Subramanian Rama Iyer, Ramesh Sharda April 2009. Prediction of athletes performance using neural networks: An application in cricket team selection Team selection for international sports competitions requires predicting performance of individual athletes. We explore the use of neural networks to rate players and select specific players for a competition. We take cricket as an example. Cricket is a game with mass following in British Commonwealth Countries as well as some other countries. National teams visit other countries for bilateral matches as well as play in World Cup tournaments. We employ neural networks to predict each cricketer’s performance in the future based upon their past performance. We classify cricketers into three categories – performer, moderate and failure. We collected data on cumulative player performance from 1985 onwards until the 2006–2007 season. The neural network models were progressively trained and tested using four sets of data. The trained neural network models were then applied to generate a forecast of the cricketer’s near term performance. Based on the ratings generated and by applying heuristic rules we recommend cricketers to be included in the World Cup 2007. We evaluate the actual performance of the cricketers in the World Cup to validate the applicability of neural networks. The results show

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that the neural networks can indeed provide valuable decision support in a team selection process.

Jennifer L. Etnier, Priscilla M. Nowell, Daniel M. Landers, Benjamin A. Sibley August 2006. A meta-regression to examine the relationship between aerobic fitness and cognitive performance. Many studies have been conducted to test the potentially beneficial effects of physical activity on cognition. The results of meta-analytic reviews of this literature suggest that there is a positive association between participation in physical activity and cognitive performance. The design of past research demonstrates the tacit assumption that changes in aerobic fitness contribute to the changes in cognitive performance. Therefore, the purpose of this meta-analysis was to use meta-regression techniques to statistically test the relationship between aerobic fitness and cognitive performance. Results indicated that there was not a significant linear or curvilinear relationship between fitness effect sizes (ESs) and cognitive ESs for studies using cross-sectional designs or posttest comparisons. However, there was a significant negative relationship between aerobic fitness and cognitive performance for pre–post comparisons. The effects for the cross-sectional and pre–post comparisons were moderated by the age group of the participants; however, the nature of this effect was not consistent for the two databases. Based on the findings of this meta-analytic review, it is concluded that the empirical literature does not support the cardiovascular fitness hypothesis. To confirm the findings of this review, future research should specifically test the dose–response relationship between aerobic fitness and cognitive performance. However, based upon the findings of this review, we also encourage future research to focus on other physiological and psychological variables that may serve to mediate the relationship between physical activity and cognitive performance.

G.J. Mohr, R.H. Gundlach April 1927. The relation between physique and performance. Experiments to discover whether Kretschmer's physical types could be determined among a convict population and whether, with a selected number of typical men, differences in performance on a large battery of tests could be determined. The incidence of the types among the prison population is not markedly different from that observed by other investigators in other populations. Types cannot be precisely differentiated by mere inspection. A number of men classified as asthenic have relatively larger chest, hip and abdominal measurements than do many classed as athletic. The subjectively classified athletics
run considerably into the range of the pyknics on the same criteria. The distributions both for estimate of type and for the physical measurements "indicate that we are dealing with a normal distribution constituting a continuous progression from the characteristics that define the extreme asthenic to those that determine the 'best' pyknic habitus." The same statement can be made for performance data. Grouping of asthenics and athletics into a single group of leptosomes seems not justified on the basis of any of the physical and testing data. With respect to the tests, there is no doubt that differences in performance of the groups can be demonstrated. The following tests yielded significant differences between the groups: Army Alpha, information, reaction time at irregular intervals, writing fast, cancellation, speed of color fusion, Young's light series, Franz's dot-tapping, writing backwards, substitution. The differences between the various means for the groups are expressed in terms of reliability of the difference. Other differences determined show that the asthenics are relatively more schizothymic and the pyknics more cyclothymic in tendency. (PsycINFO Database Record (c) 2006 APA, all rights reserved)

C.P. Stone, R.S. Barker, June 1937. Aspects of personality and intelligence in postmenarcheal and premenarcheal girls of the same chronological age 175 postmenarcheal and 175 premenarcheal girls paired for chronological age were compared with respect to Otis intelligence-test scores, personality and socio-economic status of parents. Postmenarcheal girls made a mean score on the Otis which was 2.25 points higher than that of the premenarcheal group. The difference was not statistically reliable. The Pressey interest-attitude scores showed the postmenarcheal girls to be more mature than premenarcheal girls of the same chronological age. Postmenarcheal girls were also more mature as measured by the Sullivan test for developmental age. Both of these differences were statistically reliable. The Bernreuter personality inventory failed significantly to differentiate postmenarcheal and premenarcheal girls of the same chronological age. The two groups were from families of approximately the same socio-economic status. Bibliography.

David L. Van Rooy, Chockalingam Viswesvaran August 2004. Emotional intelligence: A meta-analytic investigation of predictive validity and nomological net. This study used meta-analytic techniques to examine the relationship between emotional intelligence (EI) and performance outcomes. A total of 69 independent studies were located that reported correlations between EI and performance or other variables such as general mental
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Dennis M. O'Sullivan, Marvin Zuckerman, Michael Kraft July 1998. Personality characteristics of male and female participants in team sports. Males members of two college teams, baseball and football, and female members of two teams, field hockey and lacrosse (combined) and equestrians, were compared on the five scales of the Zuckerman-Kuhlman Personality Questionnaire (ZKPQ). All teams were significantly higher on the Activity and lower on the Neuroticism-Anxiety scales than the general college population of the University of Delaware. Lacrosse and field hockey athletes were higher on activity than equestrians and baseball players were higher than football players on this scale. Contrary to predictions, football players scored lower than the general university male population on Impulsive Sensation Seeking and the lacrosse and field hockey players did not differ from the general college females on Impulsive Sensation Seeking. The baseball players also scored lower on this scale. The hypothesis that body contact sports attract high sensation seeking and aggressive participants was not supported. Sensation seeking is more characteristic of participants in high risk sports offering unusual sensation and personal challenges.

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Marc A. Brackett, Susan E. Rivers, Sara Shiffman, Nicole Lerner, Peter Salovey October 2006. Relating Emotional Abilities to Social Functioning: A Comparison of Self-Report and Performance Measures of Emotional Intelligence. Three studies used J. D. Mayer and P. Salovey's (1997) theory of emotional intelligence (EI) as a framework to examine the role of emotional abilities (assessed with both self-report and performance measures) in social functioning. Self-ratings were assessed in ways that mapped onto the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), a validated performance measure of EI. In Study 1, self-ratings and MSCEIT scores were not strongly correlated. In Study 2, men's MSCEIT scores, but not self-ratings, correlated with perceived social competence after personality measures were held constant. In Study 3, only the MSCEIT predicted real-time social competence, again, just for men. Implications for analyzing how emotional abilities contribute to social behavior are discussed, as is the importance of incorporating gender into theoretical frameworks and study designs.
Merim Bilalić, Peter McLeod, Fernand Gobet September-October 2007. Does chess need intelligence? — A study with young chess players. Although it is widely acknowledged that chess is the best example of an intellectual activity among games, evidence showing the association between any kind of intellectual ability and chess skill has been remarkably sparse. One of the reasons is that most of the studies investigated only one factor (e.g., intelligence), neglecting other factors relevant for the acquisition of chess skill (e.g., amount of practice, years of experience). The present study investigated the chess skill of 57 young chess players using measures of intelligence (WISC III), practice, and experience. Although practice had the most influence on chess skill, intelligence explained some variance even after the inclusion of practice. When an elite subsample of 23 children was tested, it turned out that intelligence was not a significant factor in chess skill, and that, if anything, it tended to correlate negatively with chess skill. This unexpected result is explained by a negative correlation between intelligence and practice in the elite subsample. The study demonstrates the dangers of focusing on a single factor in complex real-world situations where a number of closely interconnected factors operate.

Dana S. Nau January 1982. The last player theorem Game trees are an important model of decision-making situations, both in artificial intelligence and decision analysis, but many of the properties of game trees are not well understood. One of these properties is known as biasing: when a minimax search is done to an odd search depth, all moves tend to look good, and when it is done to an even search depth, all moves tend to look bad. One explanation sometimes proposed for biasing is that whenever a player makes a move his position is ’strengthened’, and that the evaluation function used in the minimax search reflects this. However, the mathematical results in this paper suggest that biasing may instead be due to the errors made by the evaluation function.

Leonard F. Marquart, Jeffery Sobal (July 1994) Weight loss beliefs, practices and support systems for high school wrestlers. Wrestlers often engage in unhealthy practices to achieve a low body weight for competition. This study examined beliefs, practices, and potential support systems to promote safe weight loss among scholastic wrestlers. A written questionnaire was developed and administered to all nine high school wrestling teams in one rural county. Responses were obtained from 197 wrestlers. Most wrestlers reported that “making weight” was very important. Increased activity and decreased food intake were the most frequent weight loss
methods. Unsafe methods such as vomiting and use of laxatives were sometimes used, even though many wrestlers recognized these practices were unhealthy and decreased performance. Personal desire to win, coaches, and teammates were reported to be the greatest influences on weight loss efforts. Wrestlers believed that coaches and physicians were the most accurate sources of weight loss information. Nutrition counseling which goes beyond simply providing information about the risk of rapid weight loss among adolescent wrestlers is needed. Emphasis on motivating wrestlers to adopt healthy weight management strategies is important. Wrestlers perceive physicians as credible sources of information, and physicians should become more actively involved in educating both coaches and athletes about safe weight management.

David Carless, Kitrina Douglas (September 2008) Narrative, identity and mental health: How men with serious mental illness re-story their lives through sport and exercise. It has been suggested that mental illness threatens identity and sense of self when one's personal story is displaced by dominant illness narratives focussing on deficit and dysfunction. One role of therapy, therefore, is to allow individuals to re-story their life in a more positive way which facilitates the reconstruction of a meaningful identity and sense of self. This research explores the ways in which involvement in sport and exercise may play a part in this process. Qualitative analysis of narrative. We used an interpretive approach which included semi-structured interviews and participant observation with 11 men with serious mental illness to gather stories of participants’ sport and exercise experiences. We conducted an analysis of narrative to explore the more general narrative types which were evident in participants’ accounts. We identified three narrative types underlying participants’ talk about sport and exercise: (a) an action narrative about “going places and doing stuff”; (b) an achievement narrative about accomplishment through effort, skill or courage; (c) a relationship narrative of shared experiences to talk about combined with opportunities to talk about those experiences. We note that these narrative types differ significantly from—and may be considered alternatives to—dominant illness narratives. This study provides an alternative perspective on how sport and exercise can help men with serious mental illness by providing the narrative resources which enabled participants to re-story aspects of their lives through creating and sharing personal stories through which they rebuilt or maintained a positive sense of self and identity.
Laura Guidetti, Emanuele Franciosi, Maria Chiara Gallotta, Gian Pietro Emerenziani, Carlo Baldari (September-October 2010) Could sport specialization influence fitness and health of adults with mental retardation? Although several studies showed the positive effects of exercise and physical activity on health and well-being for individuals with ID, there is a lack of information about the influence of sport specialization on fitness and health components. Therefore, the aims of this study were to assess: (a) physical fitness of athletes with intellectual disability (ID) compared with individuals included in recreational and leisure activity programs (non-athletic people); (b) contribution of sport specialization on athletes’ fitness; and c) correlation of each fitness variable with subjects’ ID levels. Twenty-two track and field, 19 basketball, and 23 non-athletic adults were recruited. Before and after a 9-month period, all participants performed fitness tests assessing body composition, flexibility (SR), arm muscular strength (HG), lower and upper-body muscular strength and endurance (SUP and PUP), explosive leg power (SLJ), cardiovascular endurance (ST), balance ability (FT), motor coordination (TUGT). The results showed that participants’ weight, BMI and FT were significantly affected by time; SLJ by activity; ST, HG, PUP, SUP, and TUGT by both time and activity. Only track and field athletes increased significantly ST. All athletes improved significantly HG, PUP and SUP, instead non-athletic people decreased significantly SUP ($p < 0.01$). TUGT improved significantly in track and field athletes ($p < 0.05$), and decreased significantly in non-athletic people. ID level was positively correlated to TUGT. Findings of this study showed that physical activity improved fitness in adult athletes with ID, decreasing health risks. Athletes with lower ID obtained higher performance scores in motor coordination test.

Melinda Asztalos, Katrien Wijndaele, Ilse De Bourdeaudhuij, Renaat Philippaerts, Lynn Matton, Nathalie Duvigneaud, Martine Thomis, William Duquet, Johan Lefevre, Greet Cardon (July 2009) Specific associations between types of physical activity and components of mental health. Findings of previous studies suggest that the relationship between physical activity and mental health may change across different domains of physical activity, different dimensions of mental health, and different population subgroups. The present study examined associations between five types of physical activity with different contents: housework, leisure active transportation, biking to/from work, walking to/from work, and sports participation, and two dimensions of mental health: perceived stress and psychological distress, in 1919.
participants aged 20–65 years, using the data from the Flemish Policy Research Centre Sport, Physical Activity and Health. Multiple logistic regression analyses were performed with the total sample, and with the sample stratified by gender, age, and occupational category. Further, separate models were used in the gender and age subgroups of each occupational category. Sports participation was the only type of physical activity inversely associated with both stress (OR = 0.375; CI: 0.200–0.704) and distress (OR = 0.480; CI: 0.253–0.910). Sports participation related to less distress in unemployed mid-aged adults, and to less stress in unemployed women, unemployed young adults, and young adults with blue-collar jobs. Housework was associated with more stress and more distress in women with blue-collar jobs. In young adults with white-collar jobs, however, an inverse association between housework and distress was found. Biking to and from work was associated with more stress in men with blue-collar jobs. Results invite consideration for the utility, and perhaps the necessity, of differentiated health recommendations for physical health and for mental health in different population subgroups.

David Carless, Andrew C. Sparkes (March 2008) The physical activity experiences of men with serious mental illness: Three short stories. Although a considerable amount of research has explored the effects of physical activity on mental health, the voices of people with mental illness have been largely excluded from published reports. Through this study we aim to foreground service users’ voices in order to shed light on the personal and subjective nature of the relationship between physical activity and serious mental illness (SMI). An interpretive case study approach was used to explore in depth the physical activity experiences of three men with SMI. Creative analytic practice was used to write three creative non-fictions which, as first-person narratives, foreground the participants’ voices. We present three short stories in an effort to communicate participants’ personal and subjective experiences of physical activity in an accessible, engaging, and evocative manner. We hope to: (i) provide potentially motivating physical activity success stories for others who live with SMI; (ii) increase awareness among mental health professionals of the possibilities of physical activity; and (iii) provide an empathetic understanding of possibilities and problems of living with SMI which may help challenge the stigma surrounding mental illness. For us, the stories communicate the diversity and difference inherent in the ways men with SMI experience physical activity. We reflect on how the short story form allows these differences to be preserved and respected. We resist
making further interpretations of the stories preferring instead to encourage the reader to form her or his own conclusions.

Michael Lechner (July 2009) Long-run labour market and health effects of individual sports activities. This microeconometric study analyzes the effects of individual leisure sports participation on long-term labour market variables, health and subjective well-being indicators for West Germany based on individual data from the German Socio-Economic Panel study (GSOEP) 1984–2006. Econometric problems due to individuals choosing their own level of sports activities are tackled by combining informative data and flexible semiparametric estimation methods with a specific way to use the panel dimension of the data. The paper shows that sports activities have sizeable positive long-term labour market effects in terms of earnings and wages, as well as positive effects on health and subjective well-being.

Thorolfur Thorlindsson, Runar Vilhjalmsson, Gunnar Valgeirsson (1990) Sport participation and perceived health status: A study of adolescents. Although it is a well-accepted notion that sport participation enhances health, the precise nature of the relationship has been unclear. Based on a national survey of Icelandic adolescents, this study evaluates the direct and indirect effects of sport participation on perceived health status. It is shown that sport participation has a substantial direct effect on perceived health, controlling for other health related behaviours, psychological distress and disease status. Sport participation also affects perceived health indirectly through distress and smoking, but does not seem to operate through alcohol consumption. The meaning of these results and their implications for future research are discussed.

Yolanda Pastor, Isabel Balaguer, Diana Pons, Marisa Garcia-Merita (December 2003) Testing direct and indirect effects of sports participation on perceived health in Spanish adolescents between 15 and 18 years of age. This paper examines the direct and indirect effects of sports participation on perceived health. It is based on a representative sample of middle adolescents aged 15–18 (N=1038, M AGE=16.31, S.D.=0.92; 510 boys and 528 girls) from the Valencian Community (Spain). This study used two different models; Model A is an adaptation of Thorlindsson, Vilhjalmsson and Valgeirsson's (Social Science and Medicine 31 (1990) 551) model which introduces smoking, alcohol use, feelings of anxiety, feelings of depression and
psychophysiological symptoms as mediator variables; Model B is an extension of Model A with perceived physical fitness as an added mediator variable. Both models show a good fit to the data. Results showed that, in both models, sports participation affected perceived health directly and indirectly by decreasing smoking and alcohol consumption, feelings of depression and psychophysiological symptoms. In Model B, sport also affected perceived health via increased perceived physical fitness explaining almost 10% more of the variance.

C. Ferron, P. A. Michaud, F. Narring, M. Cauderay (June 1997) L’activité sportive des jeunes en Suisse: pratiques, motivations et liens avec la santéSports activities of Swiss youths: practices, motivations and links to health. Despite the relevance of this research topic from a public health perspective, there is currently a lack of objective data on the frequency and context of European adolescents' sport activity, their motivations to engage in sports, as well as the links between their sport habits and their health attitudes and behaviors. To describe the sport habits of adolescents in Switzerland and their motivations to get involved in a physical activity, to define the sociodemographic profile of adolescents defined as athletic, 3) to determine the nature of the associations between the frequency of sport activity and health variables. In the 1993 Swiss Multicentric Adolescent Survey on Health, anonymous self-administered questionnaires were distributed to a national representative sample of 10,000 in-school adolescents (15 to 20 years old). The answers were investigated by means of univariate analyses. Half of the sample do sports more than twice a week, boys more often as part of a sports club. Motivations depend on the gender, girls doing sports for self image and health motivations and boys for competition and relational reasons. Almost all the sociodemographic characteristics show statistically significant differences between «non athletic», «fairly athletic» and «athletic» adolescents, which suggests the influence of the sociocultural background on the perception of sport activity. These three groups also differ as regards their health behaviors, attitudes and perceptions: the most athletic adolescents generally give more positive answers in terms of prevention and perceived health. These findings have implications for health promotion, notably as regards the creation of the material conditions more likely to favor adolescents' involvement in physical activity.

Carol A. Janney, Caroline R. Richardson, Robert G. Holleman, Cristie Glasheen, Scott J. Strath, Molly B. Conroy, Andrea M. Kriska (June 2008) Gender, mental health service use and objectively measured physical activity: Data from the National Health and Nutrition
Examination Survey (NHANES 2003–2004). To examine the relationship between physical activity levels measured objectively by accelerometry and the use of mental health services (MHS) in a representative sample of males and females. NHANES 2003–2004 is a cross-sectional study of the civilian, non-institutionalized US adult population. Participants reported whether or not they had seen a mental health professional during the past 12 months. Three measures of daily physical activity (light minutes, moderate-vigorous minutes, and total activity counts) and sedentary minutes were determined by accelerometry. The relationship between physical activity and use of MHS was modeled with and without adjustments for potential socioeconomic and health confounders. Of the 1846 males and 1963 females included in this analysis, 7 and 8% reported seeing mental health professionals during the past 12 months, respectively. Men who used MHS were significantly less active than men who did not use MHS (227,700 versus 276,900 total activity counts, respectively, \( p < 0.05 \)). Men who did not use MHS engaged in 38 min (95% CI 16.3, 59.0) more of light or moderate-vigorous physical activity per day than men who used MHS. Physical activity levels of women, regardless of MHS use, were significantly lower than men who did not use MHS. Differences in total physical activity between women who did and did not use MHS were small (1.3, 95% CI −14.0, 11.4). Men and women who used MHS were relatively sedentary. Additional research is warranted to determine if increasing physical activity levels results in improved mental health in individuals who use MHS.

K. L. Lamb, K. Roberts, D. A. Brodie (1990) Self-perceived health among sports participants and non-sports participants. This paper examines and compares the self-perceived health (SPH) of a sample of sports participants \( n=1385 \) and a matched sample of non-participants \( n=292 \). Ratings of health were generally found to be favourable among both samples, but a non-parametric analysis of their distributions revealed that the SPH of sports participants was significantly \( (P<0.0001) \) better than that of the non-participants. SPH improved with age among both samples, but above the age of 34, the non-participants' perceived health ceased to be inferior to that of participants. Controlling for age and gender revealed no difference in SPH above 24 years among males and 34 years among females. SPH was related to a variety of additional health-related factors. Multiple regression analysis was used to identify the predictors of SPH for both samples, and highlighted marked differences between them in the
type and number of contributory factors. It is suggested that participation in active sports may enhance health awareness, especially among the young, and that future studies of this kind among sports populations should take account of the levels of commitment (frequency, duration and intensity) to sport.

Michael Sheard, Jim Golby, Anna van Wersch (2009) Progress Toward Construct Validation of the Sports Mental Toughness Questionnaire (SMTQ). This study examines the construct validity of an original self-report instrument for the assessment of mental toughness: the Sports Mental Toughness Questionnaire (SMTQ). Two independent studies supported a three-factor (Confidence, Constancy, and Control) 14-item model for the SMTQ. With a sample of 633 athletes (427 males, 206 females; \( M_{\text{age}} = 21.5 \text{ years}; SD = 5.48 \)), drawn from 25 sport classifications, and competing at international, national, county and provincial, or club and regional standards, the first study utilized item development and exploratory factor analytic techniques to establish the psychometric properties of the SMTQ. Study 2 employed confirmatory factor analytic techniques with an independent sample of 509 sports performers (351 males, 158 females; \( M_{\text{age}} = 20.2 \text{ years}; SD = 3.35 \)), competing at the aforementioned standards, and representative of 26 sports. Confirmatory analysis using structural equation modeling confirmed the overall structure. A single factor underlying mental toughness (\( G_{\text{mt}} \)) was identified with higher-order exploratory factor analysis using the Schmid-Leiman procedure. Collectively, satisfying absolute and incremental fit-index benchmarks, the inventory was shown to possess satisfactory psychometric properties, with adequate reliability, divergent validity, and discriminative power. The results revealed promising features of the SMTQ, lending preliminary support to the instrument's factorial validity and reliability. Further construct validation of the SMTQ is recommended, including its use as an index for evaluating the effect of intervention programs.

Norbert Schmitz, Johannes Kruse, Joachim Kugler (December 2004) The association between physical exercises and health-related quality of life in subjects with mental disorders: results from a cross-sectional survey. The present study examines the relationship between health-related quality of life and physical activity among adults with affective, anxiety, and substance dependence disorders. Analyses were conducted among participants in the German National Health Interview and Examination Survey (GHS), a nationally representative multistage
probability survey, conducted from 1997 to 1999. Multiple linear regression analyses were used to
determine the relationship between health-related quality of life and physical activity among
subjects with mental disorders. Affective, anxiety, and substance dependence disorders were
associated with substantial impairment in health-related quality of life. Higher levels of physical
activity were associated with higher health-related quality of life among persons with mental
disorders. Even after controlling for sociodemographic characteristics, physically inactive
subjects reported poorer quality of life. Physical activity can be considered as beneficial for
people suffering from mental disorders. The promotion of a physically active lifestyle is an
important public health objective.

S. Whitelaw, J. Teuton, J. Swift, G. Scobie (June 2010) The physical activity – Mental
wellbeing association in young people: A case study in dealing with a complex public health
topic using a ‘realistic evaluation’ framework. Some public health problems can be considered as
complex and the evidence base associated with them narrow and ambiguous. This paper reports
and reflects on our experiences of undertaking a critical evidence review in an area of this nature
– the relationship between physical activity and mental wellbeing among young people. A
critical literature review and wider conceptual reflection. The assertion that physical activity is
associated with mental wellbeing was generally upheld, though a range of quandaries were raised
that suggested the narrowness of some approaches to evidence. A wider systems orientation was
adopted, deploying Pawson and Tilley’s ‘Realistic Evaluation’ framework to gain insight into –
what is the nature of the association, why might there be an association and how might we best
deliver interventions to exploit potential association? The evidence broadly supported the
hypothesis that physical activity has the potential to improve mental wellbeing in young people.
We suggest that this more conditional position may have more utility. That is, it is best not to see
the relationship as a ‘given’; it can be difficult to achieve; and can only be realised in association
of a series of conducive ‘change mechanisms’.

Carlyle H. Folkens, Wesley E. Sime (April 1981) Physical fitness training and mental
health. Reviews theory and research that have attempted to relate fitness training to
improvements on psychological variables among normals as well as selected clinical
populations. Theoretical speculations in this area are critiqued, and research designs are
evaluated as either experimental or quasi-experimental and therefore interpretable, or
preexperimental and therefore largely uninterpretable. The research suggests that physical fitness training leads to improved mood, self-concept, and work behavior; the evidence is less clear as to its effects on cognitive functioning, although it does appear to bolster cognitive performance during and after physical stress. Except for self-concept, personality traits are not affected by improvements in physical fitness. Mentally retarded children demonstrate psychological improvement following physical fitness training, but no conclusion can be reached regarding the effects of physical fitness training with other clinical syndromes.

Paul J. Lloyd, Sandra L. Foster (Winter 2006) Creating Healthy, High-Performance Workplaces: Strategies From Health and Sports Psychology. Consulting psychologists are ideally suited to assist in the creation of healthy and life-enhancing workplaces that can increase employee productivity while promoting behaviors that reduce the risk of lifestyle disease incidence or mitigate the effects of such illnesses when already present. When psychologists integrate strategies from health psychology, these interventions can help reduce medical costs and contribute to worker productivity and morale, because these strategies are proven to decrease the incidence of the five leading lifestyle diseases: coronary heart disease, lung cancer, chronic obstructive pulmonary disorder, diabetes, and stroke. Integrating techniques from sports psychology as well results in even more effective healthy workplaces than could be achieved from using either set of techniques in isolation. Recommendations are offered for nutritional counseling, smoking cessation, stress management, and exercise initiation. Five skills from sports psychology mental training are described because they could be incorporated into psychologists' interventions for enhancing employee performance. A case study illustrates the key points.

Daniel L. Wann (December 2006) Understanding the Positive Social Psychological Benefits of Sport Team Identification: The Team Identification-Social Psychological Health Model. This article presents a theoretical model designed to account for the positive relationship between identification with a local sport team and social psychological health. This model, labeled the Team Identification-Social Psychological Health Model, predicts that team identification facilitates well-being by increasing social connections for the fan. Two forms of social connections are developed through team identification: enduring and temporary. Although the enduring and temporary social connections are expected to result in improved well-being, it
is predicted that this relationship will be moderated by threats to social identity and efforts to cope with the threats. The social connections resulting from team identification are expected to impact both state (via increases in temporary social connections) and trait well-being (via enduring connections). Finally, because research indicates that group and team identification are more closely related to social well-being than personal well-being, temporary and enduring social connections are predicted to have their greatest impact on social psychological health.

Mariana Kaiseler, Remco Polman, Adam Nicholls (November 2009) Mental toughness, stress, stress appraisal, coping and coping effectiveness in sport. The aim of the present study was to investigate the relationship between mental toughness, stressor appraisal, coping strategies and coping effectiveness among a sample of athletes. Participants were 482 athletes (male n = 305; female n = 177), aged between 16 and 45 years (M age = 20.44 years, SD = 3.98). In support of a priori predictions, mental toughness was associated with stress intensity and control appraisal, but not the type of stressor experienced by athletes. Total mental toughness and its six components predicted coping and coping effectiveness in relation to the self-selected stressor. In particular, higher levels of mental toughness were associated with more problem-focused coping, but less emotion-focused and avoidance coping. Coping effectiveness was influenced by the coping strategy employed by the athletes.

Jason J. Diehl, Haemi Choi (December 2008) Exercise: the Data on its Role in Health, Mental Health, Disease Prevention, and Productivity. How would you define exercise? If you look up exercise in the dictionary, it is defined as physical activity used for the purpose of conditioning any part of the body. Exercise is an important topic because in the United States less than 50% of the total population exercises on a regular basis. The lack of regular physical activity is linked to an increased rate of obesity, development of chronic diseases, and an overall decline in health. This article uses an evidence-based approach to demonstrate how exercise affects health, mental health, disease prevention, and productivity.

Gary Remington (June 2009) From mice to men: What can animal models tell us about the relationship between mental health and physical activity?. Physical activity has been
associated with numerous benefits that extend to mental health, although how these benefits are accrued is not clear. The notion that animal research can prove useful in this regard may initially seem irrelevant and even inapplicable. However, there is a growing body of evidence, focusing in particular on exercise, to suggest that the biochemical changes induced with exercise include many of the same systems involved in psychiatric illnesses such as depression and anxiety disorder. Moreover, these changes parallel what has been linked to the clinical benefits of pharmacotherapy. While animal studies cannot adequately tap into the psychological benefits of activity or exercise, they are better suited to address the biological component across a number of dimensions. The focus of this commentary is on how animal studies and/or models may be utilized to better understand the relationship between physical activity and mental health/illness. Animal work is not without its limitations and must stand the test of translational value. Against this standard, we are not pursuing comprehensive animal models that mirror the human condition as much as paradigms that elicit selected biological features of a mental disorder's underlying pathophysiology.

R. Dennis, C. Finch (2008) Sports Injuries. Participation in sport is encouraged by government agencies and physical activity experts because participation provides health, physical, mental, social, and economic benefits to the individual and community. However, an increased level of participation in sport can increase exposure to the hazards and risks associated with injury. This overview of sports injury describes their epidemiology, the types of injuries that can be sustained, the activities most commonly associated with injury, and the potential risk factors. Injury prevention strategies are also described, with examples to demonstrate the range of approaches available to sports participants, coaches, referees, and administrators.

Katrien Wijndaele, Lynn Matton, Nathalie Duvigneaud, Johan Lefevre, Ilse De Bourdeaudhuij, William Duquet, Martine Thomis, Renaat M. Philippaerts (July 2007) Association between leisure time physical activity and stress, social support and coping: A cluster-analytical approach. Identifying risk clusters of stress, anxiety and depression, taking into consideration social support and coping, two important factors through which leisure time physical activity may have stress-reducing effects, may lead to more effective exercise treatment strategies for stress. The aim of this study was to investigate whether stress, social support and coping cluster in meaningful ways in the general adult population, and whether individuals of
these clusters also differ in anxiety, depression and different types of leisure time physical activity. Cross-sectional study in a randomly chosen community based sample of adults in the Flemish region of Belgium. A sample of 2616 Flemish adults, aged 18–75, completed two self-report computerized questionnaires on mental health, physical activity and demographic characteristics in the presence of a scientific staff member. Three reliable clusters were identified in both males and females. The first cluster showed high levels of stress and ineffective coping and low levels of social support. The second one showed the opposite, and the third one an intermediate profile. Anxiety and depression were highest in persons of the stressed cluster and diminished gradually over the intermediate and the nonstressed ones. Sports participation and not other types of leisure time physical activity was significantly lower in the stressed cluster. By means of cluster analysis, risk groups of stress, anxiety and depression in adult males and females can be identified. Sports participation may have a beneficial effect in these at-risk groups.

Pascal M. Gygax, Pascal Wagner-Egger, Ben Parris, Roland Seiler, Claude-Alain Hauert (June 2008) A Psycholinguistic Investigation of Football Players' Mental Representations of Game Situations: Does Expertise Count?. In order to progress through a competitive sporting event, athletes need to form mental representations of the situations they encounter. In this paper, we present three experiments exploring the mental representations of football players when presented with written material describing football game situations. Experiment 1 assessed off-line processing by having players of different levels generate written football scripts. The results predominantly showed that players of lower expertise were less “other-oriented” and included more emotional elements in their mental representations. Experiments 2a and 2b further explored these differences. Using an on-line measure, a reading-time paradigm, we showed that First Division players’ mental representations more easily included “others” and less readily included emotions, as opposed to both National League and Fifth Division players. Although Fifth Division and National League were similar, different cognitive processes may underlie the construction of the players’ mental representations.

Jocelyne E Brooks, Stephen J Bull (March 2001) Derogation of student female athletes who consult a sport psychologist: An alternative perspective on the negative halo effect. This study attempts to further research female student athletes’ perceptions of the sport psychologist
and other sport and mental health professionals. 90 British student athletes from 17 different sports completed a two-part questionnaire to examine the potential derogation effect as a result of consulting one of three identified professionals and to explore the perceived definition and role of the sport psychologist. A fictitious selection report of a female field hockey player was presented to subjects with coach, sport psychologist and psychotherapist as the three professionals. It was hypothesised that subjects' recommendations regarding selection would differ depending on the consultant used. No differences were found which suggests the absence of a negative halo effect and that derogation would not occur within this sample group. Definitions and perceived role of the sport psychologist varied with the subjective tone of the responses from participants being mainly positive (74%). These results indicate that this female student athlete sample has a moderated, even a positive, perception of the sport psychologist. A general acceptance of the sport psychologist falls in line with the suggestions of Murstein and Fontaine (1993) concerning a reported increase in acceptance of mental health professionals.

Chris Philo (June 1997) Across the water: Reviewing geographical studies of asylums and other mental health facilities. It is possible now to identify a small field of geographical studies exploring how space, place, environment and landscape are bound up in the worlds of people experiencing mental health problems. Some of these studies take seriously the institutions which have been provided to shelter, control, care for and even cure such people, and this interest has often touched upon the rise of the ‘asylums’ in Europe and North America (chiefly as an eighteenth- and nineteenth-century phenomenon). This paper surveys the geographical literature tackling asylums and other mental health facilities, and then offers an interpretation of the theoretical claims and substantive research undertaken in this respect by Michael Dear and various co-workers. Running through the paper is an argument about the need for studies of ‘asylum geographies’ to be attentive to what Gunnar Olsson terms ‘ontological transformations’ between thoughts and things.

Karl Andriessen, Karolina Krysinska (2009) Can Sports Events Affect Suicidal Behavior? A Review of the Literature and Implications for Prevention. Engagement in sports and physical activity, either actively as an athlete or in a passive way as a spectator, impacts interpersonal behavior and physical and mental health. Aims: The study reviews literature on the relationship between sports spectatorship and suicidal behavior to ascertain whether sports
spectatorship has an impact on suicidal behavior, either increasing the risk or being a protective factor. **Methods:** The literature was searched via PubMed/MEDLINE and PsycINFO. Nine studies published between 1986 and 2006 were identified. **Results:** The reviewed studies focused on the impact of sports events on the societal level, and analyzed data regarding national or local suicide rates. Their results indicate that sports events can have an impact on suicide mortality and morbidity, but this relationship seems to be mediated by age, gender, marital status, and alcohol consumption, as well as the process and outcome of the game (e.g., victory vs. defeat of the favored team). **Conclusions:** There is some evidence that sports events can reduce the rates of suicide on the societal level; however, there is a lack of studies exploring how sports spectatorship might influence levels of suicide risk in individuals and how mediating variables might operate on the individual level.

Barbara Wilhite, John Shank *(July 2009)* In praise of sport: Promoting sport participation as a mechanism of health among persons with a disability. Achieving and maintaining health are no less important to people with a disability than they are to anyone else; it is just typically more challenging. This report explores sport as a mechanism of health for people with a disability. The International Classification of Functioning, Disability and Health (ICF) is used to frame the analysis and discussion of the narratives of 12 women and men with a disability who participate in sport. The goal was to describe how participating in sport, broadly defined, helps persons with a disability achieve and maintain health and health-related components of well-being. The ICF was used to frame a secondary analysis and discussion of participant narratives. Participants with physical or sensory disabilities responded to a request for participation in in-depth interviews to explore their sport participation; snowball sampling was used to ensure maximum variation in demographic characteristics. Interviews were transcribed verbatim and analyzed using a grounded theory approach. A secondary analysis was conducted that focused on the relationship of the data categories to the ICF. Sport benefits included enhanced functional capacity, health promotion, relationship development, increased optimism, and inclusion in meaningful life activities and roles. Health professionals were vital in introducing and encouraging people with disabilities to participate in sport. Sport is a valuable and promising mechanism for fostering physical and emotional health and building valuable social connections. Health professionals, in concert with individual, family, and community
members, may use the framework of the ICF to guide their clinical and educational reasoning for enhancing sport participation among persons with a disability.

Ester Cerin (June 2010) Ways of unraveling how and why physical activity influences mental health through statistical mediation analyses. Knowledge of the mechanisms responsible for the effects of physical activity on aspects of mental health is limited. Appropriate experimental trials and statistical mediation analyses of experimental, quasi-experimental and observational studies can help shed light on these mechanisms. A critical overview of methods for mediation analyses is provided. Recommendations relevant to studies in the field of physical activity and mental health are made. Main issues pertaining to the identification of mechanisms of influence (mediators) are discussed. Recommendations on appropriate methods of mediation analysis for cross-sectional and longitudinal data and ways of presenting findings from such analyses are provided. Finally, future directions in methods of mediation analyses are briefly outlined. There is a dearth of mediation studies in the field of physical activity and mental health, which explains why not much is known about the underlying mechanisms of influence. An array of experimental and statistical methods is available to those who wish to unravel how and why physical activity affects various aspects of mental health in diverse populations and circumstances. The correct use of, and presentation of findings from, methods of mediation analyses is vital for clarifying how mental health can be enhanced through participation in physical activity.

Michelle Jorna, Kylie Ball, Jo Salmon (October 2006) Effects of a holistic health program on women's physical activity and mental and spiritual health. Intervention studies aimed at promoting increased physical activity have been trialled in many different settings including primary care, worksites and the community. Churches are also potential settings for physical activity promotion. However, little is known about the effectiveness of this setting for promoting physical activity, particularly in Australia. The purpose of this study was to evaluate the effectiveness of a mind, body and spiritually based health promotion program in increasing physical activity and promoting mental and spiritual health. Nineteen women completed the 8-week intervention, and 30 women in a non-health related 8-week program at the same church comprised a comparison group. Pre- and post-program surveys assessed outcome measures. Between-group differences over time were examined using one-way MANOVA's. Physical
activity was higher in the intervention group than the comparison group. In contrast to the comparison group, both mental health (depression symptoms) and spiritual health improved significantly more among intervention participants. The data highlight the potential for a church-based setting and holistic approach to health promotion as a successful means of increasing physical activity and promoting mental and spiritual health among Australian women.

Cecilie Thøgersen-Ntoumani, Kenneth R. Fox, Nikos Ntoumanis (November 2005) Relationships between exercise and three components of mental well-being in corporate employees. The main purpose of the present study was to examine the relationships between exercise participation and three components of mental well-being (physical self, work-related, and global) in a sample of corporate employees. As a subsidiary and exploratory question, we also examined whether these well-being components are more strongly related to structured exercise participation scores compared to total levels of physical activity. Cross-sectional survey. The participants were 312 employees from an information technology company (n=204 males and n=108 females). Structural equation modelling was used to examine links between exercise participation and the three well-being components within a hierarchical framework, featuring global well-being constructs at the apex and specific elements of well-being at lower levels. Support was found for the a priori model in that there were direct paths from exercise to physical self and enthusiasm at work. Furthermore, there were indirect paths between exercise and global well-being components through measures of the physical self and enthusiasm at work. The results of an alternative model using physical activity as opposed to exercise were generally similar. The support found for the exercise and well-being model indicates that exercise is associated directly and indirectly with high well-being in various facets of employees' lives. Thus, this study extends previous research that has examined associations between exercise and isolated indicators of employee well-being. Finally, the results pertaining to physical activity suggest that workplace exercise promotion programmes should incorporate and promote lifestyle physical activity.

Lisa Pearson, Graham Jones (October 1992) Emotional Effects of Sports Injuries: Implications for Physiotherapists. It has been noted that injury can have psychological as well as physical consequences. This study was conducted to identify the emotional responses of sportsmen/women to injury. An additional aim was to draw implications for physiotherapists
who treat this group of patients. In Section A, 61 injured sportsmen completed two questionnaires: a Sportsmen's Feelings After Injury Questionnaire (SFAIQ), and a Bi-polar Profile of Mood States (POMS-BI). A matched group of 61 non-injured sportsmen also completed the POMS-BI, the Feelings about Exercising Questionnaire and a Sporting Details Questionnaire. The SFAIQ revealed that many of the injured sportsmen were frustrated, depressed and bored. When their POMS-BI scores were non-statistically compared to normative data, injured sportsmen were found to have a more negative mood profile. T-tests revealed that injured sportsmen were significantly more tense, hostile, depressed, unsure, tired and confused than their non-injured peers. In Section B of the study, six of the injured sportsmen were interviewed to provide some additional in-depth data about the emotional effect of injury and the potential of physiotherapists to influence this. Their responses confirmed the detrimental emotional effect of injury. The sportsmen believed that physiotherapists had considerable potential to influence their moods during the rehabilitation period. Physiotherapists may be able to facilitate their patients' recovery from injury by considering the psychological aspect when they construct rehabilitation programmes.

Ingibjörg H. Jonsdottir, Lars Rödjer, Emina Hadzibajramovic, Mats Börjesson, Gunnar Ahlborg Jr. (August 2010) A prospective study of leisure-time physical activity and mental health in Swedish health care workers and social insurance officers. This study analyzes longitudinal associations between self-reported leisure-time physical activity (PA) and perceived stress, burnout and symptoms of depression and anxiety. Cohort data collected in 2004 and 2006 from health care and social insurance workers in western Sweden (2694 women; 420 men) were analyzed. Cox regression was conducted to examine associations between baseline levels of PA and mental health (MH) problems 2 years later. Cross-sectional analysis show that individuals reporting either light physical activity (LPA) or moderate-to-vigorous physical activity (MVPA) were less likely to report high levels of perceived stress, burnout and symptoms of depression and anxiety, as compared to individuals reporting a sedentary lifestyle. The risks of symptoms of depression, burnout, and high stress levels at follow-up were significantly lower for those reporting LPA or MVPA at baseline. For symptoms of anxiety, an activity level corresponding to MVPA was required. Participation in PA appeared to lower the risk of developing MH problems two years later. This relationship involved LPA and MVPA regarding feelings of depression,
burnout and perceived stress, and exclusively MVPA regarding feelings of anxiety. The implications of these findings are important, as preventive strategies for psychosocial stress and mental health problems are needed.