Deciding with (or without) the Future in Mind: Individual Differences in Decision-Making

Marina Cosenza*, Olimpia Matarazzo, Ivana Baldassarre, and Giovanna Nigro

Second University of Naples, Viale Ellittico,
31 – 81100 Caserta, Italy
{marina.cosenza,olimpia.matarazzo,ivana.balsassarre,
giovanna.nigro}@unina2.it

Abstract. The aim of this study was to examine the influence of propensity to risk taking, impulsivity, and present versus future orientation in decision-making under ambiguity. One hundred and four healthy adults were administered the computer versions of the Iowa Gambling Task (IGT) and the Balloon Analogue Risk Task (BART). They then completed the Barratt Impulsiveness Scale (BIS-11) and the Consideration of Future Consequences Scale (CFC-14). Results indicated that high scores on the BIS-11 Non-Planning impulsivity scale, the CFC-14 Immediate scale, and the BART result in poorer performance on the IGT. In addition, the results of regression analysis showed also that the BART total score was the most powerful predictor of performance on the IGT. The study revealed that individuals who are more prone to risk, less likely to plan ahead carefully, and more oriented to the present, rather than to the future, performed worse on the IGT.

Keywords: Decision-making, impulsivity, risk taking, future orientation.

1 Introduction

In the mid-19th century John Martyn Harlow [25-26] described the case of Phineas Gage, a railroad construction worker whose frontal lobe was damaged during a strange accident with a tamping iron. Before the accident, Phineas Gage was a man of normal intelligence, active and persistent in executing his plans of operation. He was responsible, sociable, and popular among peers and friends. After receiving treatment and care, Mr. Gage was able to recover from his physical injuries, but became "fitful, irreverent, indulging at times in the grossest profanity (which was not previously his custom), manifesting but little deference for his fellows, impatient of restraint or advice when it conflicts with his desires, at times pertinaciously obstinate, yet capricious and vacillating, devising many plans of future operations, which are no sooner arranged than they are abandoned in turn for others appearing more feasible" [26]. The profound personality changes caused co-friends and acquaintances to say that he was "no longer Gage".

* To contact the authors, please write to: Marina Cosenza, Department of Psychology – Second University of Naples, Viale Ellittico, 31 – 81100 Caserta, Italy.

S. Bassis et al. (eds.), *Recent Advances of Neural Network Models and Applications*,
Smart Innovation, Systems and Technologies 26,
DOI: 10.1007/978-3-319-04129-2_44,

In 1994 the amazing case of Phineas Gage was reconsidered by Damasio, Grabowski, Frank, Galburda, and Damasio [15]. These authors reconstituted the accident by relying on measurements taken from Gage's skull and concluded that the most likely placement of Gage's lesion included the Ventromedial region of the prefrontal cortex, bilaterally[1]. In studying the case of Mr. Gage and analyzing other similar cases (patients with damage to the VM prefrontal cortex), it was observed that after the brain damage these patients showed difficulties in expressing emotion and in experiencing feelings in appropriate situations, in planning their workday and future, and abnormalities in decision-making [8], [14], [16], [19]. On the basis of these observations, Damasio and colleagues proposed the Somatic Marker Hypothesis (SMH) [14], [16], one of the most influential conceptualization of how emotions are involved in deciding in terms of neural architecture.

In brief, the Somatic Marker Hypothesis (SMH) proposes that decision-making is a process that depends on emotion. Emotional experience may remain at the unconscious level or not. "The central feature of the SMH is not that non-conscious biases accomplish decisions in the absence of conscious knowledge of a situation, but rather that emotion-related signals assist cognitive processes even when they are non-conscious" (p. 159) [9]. According to the SMH, somatic markers are represented and regulated in the emotion circuitry of the brain, particularly in the ventromedial prefrontal cortex (VMPFC), that associates implicitly represented affective information with explicit representations of potential actions or outcomes. Empirical support for the SMH comes from studies using the Iowa Gambling Task (IGT) [7], [11], that was first developed to assess and quantify the decision-making defects of neurological patients by simulating real-life decision in conditions of reward and punishment and of uncertainty.

In the IGT participants make a series of choices from a set of four computerized 'decks of cards'. The four decks of cards are labeled A, B, C and D. Every card in decks A and B results in a $100 win and for each selection from deck C and D participants win $50. At the beginning of the task participants are given a loan of $2000 and asked to play with the aim of earning as much. Deck A and deck B (disadvantageous decks) yield large immediate monetary gains but larger monetary losses in the long-term, whereas deck C and deck D (advantageous decks) result in small immediate monetary gains but smaller long-term losses. So, the decks of the IGT differ in terms of long-term outcome, as well as in terms of punishment frequency. Playing mostly from disadvantageous decks leads to an overall loss, while playing from advantageous decks leads to an overall gain. The players cannot predict when a penalty will occur, nor calculate with precision the net gain or loss from each deck. Because it is impossible to calculate the best option from the beginning of the task, players have to learn to avoid bad decks by following their feeling and hunches, and by using the feedback they get after each choice.

[1] More recently, Van Horn, Irimia, Torgerson, Chambers, Kikinis, and Toga [38] found that while considerable damage was, indeed, localized to the left frontal cortex, the impact on measures of network connectedness between directly affected and other brain areas was profound, widespread, and a probable contributor to both the reported acute as well as long-term behavioral changes.

Since in a standard administration of the task there are 100 trials that are divided in five blocks of 20 cards, the most common method for scoring the IGT is to calculate net scores from individual blocks of trials. For each block and for all task the net score is equal to [(Deck C + Deck D) - [(Deck A + Deck B)]. A positive net score indicates that decision-making performance on the IGT was advantageous. A negative net score indicates that the decision-making performance on the IGT was disadvantageous [5].

Studies using the IGT on neurological or psychiatric patients provide strong support to the SMH: Compared to healthy controls, patients with ventromedial prefrontal cortex damage and drug addicts show "myopia" for the future consequences. They persist in making disadvantageous choices despite the rising losses associated with them [4]. However, research on healthy individuals has indicated that a substantial number of participants violate the assumption that healthy participants prefer the good decks over the bad decks [36] (for reviews see also [18] and [24])[2]. Interestingly, some studies have showed that in most healthy participants decision-making is guided by the frequency of gain and losses, rather than by the advantageousness or disadvantageousness of a deck of cards [13], [32], [39]. There is also growing evidence that many healthy individuals apply a "win-stay, lose-shift" strategy, as suggested by Lin et al. [32], and that their behavior is not driven by long-term outcomes expectancies [29]. These results seem to contradict the assumption that while neurological or clinical populations should perform badly on the IGT, normal populations should perform quite well on it [7].

Given that performance of healthy participants is characterized by considerable variability, it may be that their performance simply reflects individual differences. As Buelow and Suhr [12] have recently pointed out, "Overall, the results of the few studies that have explored personality correlates of IGT performance in nonclinical samples suggest that underlying personality characteristics, independent of a psychological disorder, mental disorder, or frontal lobe dysfunction, may impact performance on the IGT" (p. 109). Although contradictory findings have been reported, sensitivity to reward and punishment, propensity to risk taking, and trait impulsivity can bias IGT performance in normal population (see among others [17], [21], [24], [33], [37]). To paraphrase Bechara [3], now the most challenging question seems to be the following: Why do (even) normal participants show "myopia" for the future? Why can they not "foresee the future"? Why are they insensitive to the future consequences of their actions?

In an attempt to address these issues, we investigated the role of risk taking, impulsivity, and present orientation *versus* future orientation in decision-making in normal individuals.

[2] Bechara and Damasio [6] have found that, about 30% healthy participants showed impairment on the IGT. Glicksohn, Naor-Ziv and Leshem [23] have found that 46% healthy female undergraduates exhibited poor performance on the IGT task, and Glicksohn and Zilberman [24] have shown that roughly 40% of male participants exhibited poor performance on the task.

2 Method

2.1 Participants

One hundred and four healthy adults (41 men, 63 women), with ages ranging from 18 to 60 years (M = 32.13; SD = 12.24), took part in this study. Since substance and/or alcohol dependence, as well as addiction to gambling were found associated with poor decision-making [4] (for reviews see [2], [12]), exclusion criteria were addiction to gambling, substance and alcohol dependence[3]. We recruited participants from the local area surrounding Second University of Naples.

All participants were administered the computer versions of the Iowa Gambling Task (IGT) [5], [7], and the Balloon Analogue Risk Task (BART) [30], a behavioral measure of propensity for risk taking. They then completed the Italian versions of the Barratt Impulsiveness Scale (BIS-11) [20], a self-report measure of impulsivity, and the Consideration of Future Consequences Scale (CFC-14) [28], that assess the extent to which people consider the potential distant outcomes of their current behaviors and are influenced by those potential outcomes.

2.2 Instruments

For the present study we used the computerized version of the IGT and the Balloon Analogue Risk Task. The BART is a computerized, laboratory-based measure of risk taking that involves actual risky behavior for which, similar to real-world situations, riskiness is rewarded up until a point at which further riskiness results in poorer outcomes. The BART task consists of different balloons that have to be pumped up by participants. Each pump inflates the balloon. With each pump, 5 cents are accrued in a temporary reserve, but after every pump the balloon may explode. In such a case, all money in temporary bank is lost. The participants can stop pumping and accumulate their earnings in a permanent bank. After each balloon explosion or money collection, the participant's exposure to that balloon ends, and a new balloon appears until a total of 90 balloons (i.e., trials) has been completed. The 90 trials comprise 3 different balloon types (i.e., blue, yellow, and orange). Each balloon color has a different probability of exploding [30]. The total score on the BART is the average number of pumps of unexploded balloons (Adj BART).

The Barratt Impulsiveness Scale (BIS-11) [34] is a 30-item self-rating questionnaire designed to measure impulsiveness. Each item is measured on a 4-point Likert scale, with no available neutral response. The BIS-11 assess three components of impulsivity: Motor Impulsiveness (acting without thinking and lack of perseverance), Attentional (or Cognitive) Impulsiveness (not focusing on the task at hand), and Non-Planning Impulsiveness (not planning and thinking carefully).

[3] Preliminary, participant completed: a) The Alcohol Use Disorders Identification Test (AUDIT) [1], a 10 items designed to identify drinkers at risk for alcohol abuse and dependence; b) the Drug Abuse Screening Test (DAST-10) [35], a screening tool that assesses drug use behaviors in the last year; c) the South Oaks Gambling Screen (SOGS) [31], a sensitive measure of gambling severity. Inclusion criteria were AUDIT scores < 8, DAST-10 scores = 0, and SOGS scores ≤2.

The Consideration of Future Consequences Scale (CFC-14) [27-28][4] is a 14-item measure that aims to measure individual differences in the extent to which people weigh the immediate as opposed to distant implications of current behaviors and events. Responses are made with a Likert-type scale ranging from 1 to 7. The CFC-14 contains two subscales, one tapping Consideration of Immediate Consequences (CFC-I), the other tapping Consideration of Future Consequences (CFC-F).

3 Results

All data analyses were conducted using SPSS 15.0. The alpha level was set at $p = .05$.

Performance on the IGT was assessed in the standard manner using net scores, measured by subtracting the total number of disadvantageous deck choices from total advantageous selections.

Since the maximum net score of any patients with damage to the VM prefrontal cortex was below 10, performance with net scores <10 reflects decisions that are within the range of VM patients (i.e. impaired), whereas performance with net scores >10 reflects decision within the normal range (i.e. not impaired) [5], [9]. Our results indicated that 37,5% of the participants (43.9% of men and 33.3% of women) exhibited impaired performance on the task (Net Total score ≤10).

Pearson correlation coefficients and partial correlations were calculated to examine the relations between IGT score, BART score and ratings of the self-report scales. The learning process was evaluated using a repeated measures ANOVA with five points of measurement (block 1–5). To investigate the relative contribution of the BART and the self-report measures to behavioral decision, the significant scales of the correlation analysis were added as independent variables in a linear regression model with the IGT NET raw total score being the criterion variable. Additionally, age, gender and years of education were included in the stepwise regression analysis.

First-order correlations between all variables are displayed in Table 1.

Table 1. Pearson correlation coefficients among all variables

	1	2	3	4	5	6
1. BART						
2. Attentional Impulsiveness	-.031					
3. Motor Impulsiveness	.048	.379**				
4. Non-Planning Impulsiveness	-.027	.398**	.343**			
5. CFC-14 Immediate	-.008	.164	.271**	.139		
6. CFC-14 Future	-.053	-.024	-.255**	-.381**	-.173	
7. IGT NET total	-.359**	-.222*	-.223*	-.270**	-.234*	.163

* $p< 0.05$; ** $p< 0.01$

As can be seen, scores on the IOWA gambling task (NET Total) were significantly correlated with the BART scores, all the BIS-11 scales, and the CFC-14 Immediate scale.

Furthermore, significant correlations were found between BIS-11 Motor Impulsiveness scale and both CFC-14 scales, and between the BIS-11 Non-Planning

[4] We are grateful to Prof. Alan J. Strathman, who sent us the CFC-14, when it was still in press, and other precious material.

Impulsiveness scale and the CFC-14 Future scale. After partialling out BIS-11 and CFC-14 scores, along with gender, age and education, the negative association between the two behavioral measures (IGT and BART) remained still significant (r = .389; p< .001).

Results of the repeated measures ANOVA analysis proved that participants learned to avoid the risky decks over time ($F_{4, 412}$ = 13.64; p<.001, η^2_p = .12) (see Figure 1).

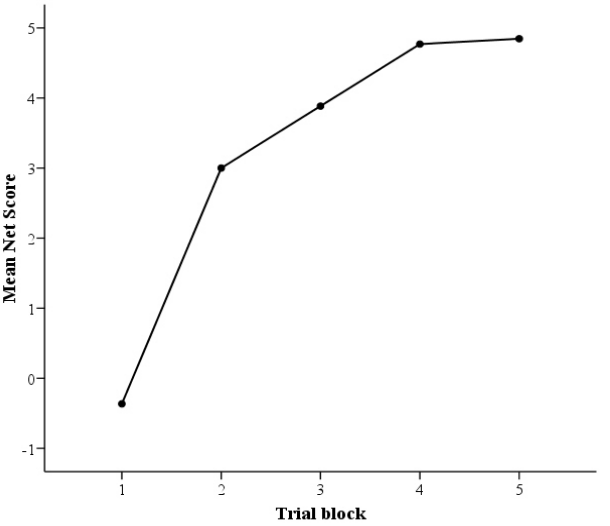

Fig. 1. Mean net score performance across the 5 blocks of 20 trials

Table 2. Summary of hierarchical regression analysis

Variable	*B*	R^2	ΔR^2	β	*t*	*p*
Step 1						
Gender	2.058			.053	.538	.592
Age	.282			.180	1.821	.072
Education	2.799	.040	.040	.093	.943	.348
Step 2						
Gender	1.839			.047	.495	.622
Age	.261			.167	1.733	.086
Education	2.148			.072	.744	.459
Non-Planning Impulsiveness	-1.095	.105	.065	-.257	-2.686	.008
Step 3						
Gender	1.145			.029	.315	.753
Age	.323			.207	2.170	.032
Education	2.130			.071	.755	.452
Non-Planning Impulsiveness	-.952			-.223	-2.367	.020
CFC-14 Immediate	-.540	.156	.051	-.232	-2.435	.017
Step 4						
Gender	.742			.019	.220	.826
Age	.286			.183	2.064	.042
Education	2.119			.071	.810	.420
Non-Planning Impulsiveness	-.999			-.234	-2.676	.009
CFC-14 Immediate	-.536			-.230	-2.604	.011
BART	-1.020	.281	.125	-.355	-4.107	.000

Finally, the linear regression model indicated that high performance on the IGT was positively associated with age, and lower scores on the BART, the BIS-11 Non-Planning Impulsiveness scale, and the CFC-14 Immediate scale. The overall model explained nearly a third part of the total variance of the IGT performance (R^2 = .281; $F_{6, 97}$ = 6.33; p < .001). Results of hierarchical regression analysis are reported in Table 2.

4 Conclusion

The present study examined the influence of propensity to risk taking, impulsivity, and present *versus* future orientation in IGT performance in healthy individuals. Results indicated that high scores on the BIS-11 Non-Planning impulsiveness scale, the CFC-14 Immediate scale, and the BART result in poor performance on the IGT. In addition, the results of regression analysis showed that the BART total score was the most powerful predictor of performance on the IGT.

The study revealed that individuals who are more prone to risk, less likely to plan ahead carefully, and more oriented to the present, rather than to the future, performed worse on the Iowa Gambling Task. Besides, the results indicated that older participants outperformed young participants.

These findings add further evidence that trait impulsivity is associated with poor decision-making [17], [22], [40], and clearly indicate that propensity to risk taking, as measured by the Balloon Analogue Risk Task, is a powerful predictor of impaired performance on the IGT. The observed association between IGT and BART is in line with the study of Upton et al. [37], who found that IGT and BART performance were related, but only in the later stages of the IGT, and only in participants with low trait impulsivity. However, the negative association between IGT and BART scores we found after partialling out BIS-11 and CFC-14 scores, along with demographic variables, represents a novel finding, indicating that the higher the propensity to risk taking, the poorer the decision-making, independently on impulsivity and future time perspective.

Taken together, the results of our research give further support to the general assumption that underlying personality characteristics impact performance on the IGT and demonstrate that more pronounced risk taking tendencies, associated with higher impulsivity and higher concern with immediate consequences of behavior, foster "myopic" decision-making in normal individuals.

References

1. Babor, T.F., Higgins-Biddle, J.C., Saunders, J.B., Montiero, M.G.: The Alcohol Use Disorders Identification Test: Guidelines of Use in Primary Care, 2nd edn. World Health Organization, Geneva (2001)
2. Barry, D., Petry, N.M.: Predictors of Decision-Making on the Iowa Gambling Task: Independent Effects of Lifetime History of Substance Use Disorders and Performance on the Trail Making Test. Brain & Cognition 66, 243–252 (2008)
3. Bechara, A.: Risky Business: Emotion, Decision-Making, and Addiction. Journal of Gambling Studies 19, 23–51 (2003)

4. Bechara, A.: Decision Making, Impulse Control and Loss of Willpower to Resist Drugs: A Neurocognitive Perspective. Nature Neuroscience 8, 1458–1463 (2005)
5. Bechara, A.: Iowa Gambling Task Professional Manual. Psychological Assessment Resources, Lutz (2007)
6. Bechara, A., Damasio, H.: Decision-Making and Addiction (Part I): Impaired Activation of Somatic States in Substance Dependent Individuals When Pondering Decisions with Negative Future Consequences. Neuropsychologia 40, 1675–1689 (2002)
7. Bechara, A., Damasio, A.R., Damasio, H., Anderson, S.W.: Insensitivity to Future Consequences Following Damage to Human Prefrontal Cortex. Cognition 50, 7–15 (1994)
8. Bechara, S., Damasio, H., Tranel, D., Anderson, S.W.: Dissociation of Working Memory from Decision Making within the Human Prefrontal Cortex. The Journal of Neuroscience 18, 428–437 (1998)
9. Bechara, A., Damasio, H., Tranel, D., Damasio, A.R.: The Iowa Gambling Task and the Somatic Marker Hypothesis: Some Questions and Answers. Trends in Cognitive Science 9, 159–162 (2005)
10. Bechara, A., Martin, E.M.: Impaired Decision Making Related to Working Memory Deficits in Individuals with Substance Addictions. Neuropsychology 18, 152–162 (2004)
11. Bechara, A., Tranel, D., Damasio, H.: Characterization of the Decision-Making Deficit of Patients with Ventromedial Prefrontal Cortex Lesions. Brain 123, 2189–2202 (2000)
12. Buelow, M.T., Suhr, J.A.: Construct Validity of the Iowa Gambling Task. Neuropsychology Review 19, 102–114 (2009)
13. Caroselli, J.S., Hiscock, M., Scheibel, R.S., Ingram, F.: The Simulated Gambling Paradigm Applied to Young Adults: An Examination of University Students' Performance. Applied Neuropsychology 13, 203–212 (2006)
14. Damasio, A.R.: Descartes' Error: Emotion, Reason, and the Human Brain. Grosset/Putnam, New York (1994)
15. Damasio, H., Grabowski, T., Frank, R., Galburda, A.M., Damasio, A.R.: The Return of Phineas Gage: Clues Aboutthe Brain from the Skull of a Famous Patient. Science 264, 1102–1104 (1994)
16. Damasio, A.R., Tranel, D., Damasio, H.: Somatic Markers and the Guidance of Behavior: Theory and Preliminary Testing. In: Levin, H.S., Eisenberg, H.M., Benton, A.L. (eds.) Frontal Lobe Function and Dysfunction, pp. 217–229. Oxford University Press, New York (1991)
17. Davis, C., Patte, K., Tweed, S., Curtis, C.: Personality Traits Associated with Decision-Making Deficits. Personality and Individual Differences 42, 279–290 (2007)
18. Dunn, B.D., Dalgleish, T., Lawrence, A.D.: The Somatic Marker Hypothesis: A Critical Evaluation. Neuroscience and Biobehavioral Reviews 30, 239–271 (2006)
19. Eslinger, P.J., Damasio, A.R.: Severe Disturbance of Higher Cognition after Bilateral Frontal Lobe Ablation: Patient EVR. Neurology 35, 1731–1741 (1985)
20. Fossati, A., Ceglie, A.D., Acqarini, E., Barratt, E.S.: Psychometric Properties of an Italian Version of the Barratt Impulsiveness Scale-11 (BIS-11) in Nonclinical Subjects. Journal of Clinical Psychology 57, 815–828 (2001)
21. Franken, I.H.A., Muris, P.: Individual Differences in Decision-Making. Personality and Individual Differences 39, 991–998 (2005)
22. Franken, I.H.A., van Strien, J.W., Nijs, I., Muris, P.: Impulsivity is Associated with Behavioral Decision-Making Deficits. Psychiatry Research 158, 155–163 (2008)
23. Glicksohn, J., Naor-Ziv, R., Leshem, R.: Impulsive Decision Making: Learning to Gamble Wisely? Cognition 105, 195–205 (2007)

24. Glicksohn, J., Zilberman, N.: Gambling on Individual Differences in Decision Making. Personality and Individual Differences 48, 557–562 (2010)
25. Harlow, J.M.: Passage of an Iron Rod through the Head. Boston Medical and Surgical Journal 39, 389–393 (1848)
26. Harlow, J.M.: Recovery from the Passage of an Iron Bar through the Head. Publications of the Massachusetts Medical Society 2, 327–347 (1868)
27. Joireman, J., Balliet, D., Sprott, D., Spangenberg, E., Schultz, J.: Consideration of Future Consequences, Ego-Depletion, and Self-Control: Support for Distinguishing between CFC-Immediate and CFC-Future Sub-scales. Personality and Individual Differences 45, 15–21 (2008)
28. Joireman, J., Shaffer, M.J., Balliet, D., Strathman, A.: Promotion Orientation Explains Why Future-Oriented People Exercise and Eat Healthy: Evidence from the Two-Factor Consideration of Future Consequences-14 Scale. Personality and Social Psychology Bulletin 38(10), 1272–1287 (2012)
29. Kloeters, S., Bertoux, M., O'Callaghan, C., Hodges, J.R., Hornberger, M.: Money for nothing – Atrophy Correlates of Gambling Decision Making in Behavioural Variant Frontotemporal Dementia and Alzheimer's Disease. NeuroImage: Clinical 2, 263–272 (2013)
30. Lejuez, C.W., Read, J.P., Kahler, C.W., Richards, J.B., Ramsey, S.E., Stuart, G.L., Strong, D.R., Brown, R.A.: Evaluation of a Behavioral Measure of Risk Taking: the Balloon Analogue Risk Task (BART). Journal of Experimental Psychology: Applied 8, 75–84 (2002)
31. Lesieur, H.R., Blume, S.B.: The South Oaks Gambling Screen (SOGS): A New Instrument for the Identification of Pathological Gamblers. American Journal of Psychiatry 144(9), 1184–1188 (1987)
32. Lin, C.-H., Chiu, Y.-C., Lee, P.-L., Hsieh, J.-C.: Is Deck B a Disadvantageous Deck in the Iowa Gambling Task? Behavioral and Brain Functions 3, 1–10 (2007)
33. Mardaga, S., Hansenne, M.: Personality and Skin Conductance Responses to Reward and Punishment. Influence on the Iowa Gambling Task Performance. Journal of Individual Differences 33, 17–23 (2012)
34. Patton, J.H., Stanford, M.S., Barratt, E.S.: Factor Structure of the Barratt Impulsiveness Scale. Journal of Clinical Psychology 51, 768–774 (1995)
35. Skinner, H.A.: The drug abuse screening test. Addictive Behaviors 7, 363–371 (1982)
36. Steingroever, H., Wetzels, R., Horstmann, A., Neumann, J., Wagenmakers, E.: Performance of Healthy Participants on the Iowa Gambling Task. Psychological Assessment 25, 180–193 (2013)
37. Upton, D.J., Bishara, A.J., Ahn, W.-Y., Stout, J.C.: Propensity for Risk Taking and Trait Impulsivity in the Iowa Gambling Task. Personality and Individual Differences 50, 492–495 (2011)
38. Van Horn, J.D., Irimia, A., Torgerson, C.M., Chambers, M.C., Kikinis, R., Toga, A.W.: Mapping Connectivity Damage in the Case of Phineas Gage. PLoS One 7(5), e37454, 1–24 (2012)
39. Wilder, K.E., Weinberger, D.R., Goldberg, T.E.: Operant Conditioning and the Orbitofrontal Cortex in Schizophrenic Patients: Unexpected Evidence for Intact Functioning. Schizophrenia Research 30, 169–174 (1998)
40. Zermatten, A., Van der Linden, M., d'Acremont, M., Jermann, F., Bechara, A.: Impulsivity and Decision Making. Journal of Nervous and Mental Disease 193, 647–650 (2005)