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| **Domain:** | Substance Use-related Neurobehavioral and Cognitive Risk Factors |
| **Measure:** | Laboratory Test of Risk Taking (Balloon Analogue Risk Task) |
| **Definition:** | This measure assesses the participant’s tolerance for exposure to risk in pursuit of a reward. |
| **Purpose:** | Risk taking is a multidimensional construct defined as behavior with the potential for rewards as well as negative consequences (e.g., health or safety outcomes). In contrast to self-report measures, which capture individual aspects of risk taking, such as impulsiveness and sensation seeking, this measure is a direct assessment of risk-taking behavior. Because risk behaviors can begin in childhood and adolescence and continue into adulthood, this measure can be used to predict the emergence of potential new risk behaviors such as substance use. |
| **Essential PhenX Measures:** | Current Age |
| **Related PhenX Measures:** | Executive Function Disinhibiting Behaviors - Impulsivity Delayed Reward Discounting (Monetary Choice Questionnaire) |
| **Collections:** | Personality Substance Use-related Neurobehavioral and Cognitive Risk Factors |
| **Keywords:** | Adolescents, Adult, Balloon Analogue Risk Task, BART, Child, Decision Making, Drug Abuse, Drug Use, Executive Function, Impulsivity, Risk, Risk Taking, Substance Abuse, Substance Use, University of Maryland, SAA, Substance Use-related Neurobehavioral and Cognitive Risk Factors, computer administered |

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| **Protocol Release Date:** | February 24, 2012 |
| **PhenX Protocol Name:** | Laboratory Test of Risk Taking (Balloon Analogue Risk Task) |
| **Protocol Name from Source:** | The Expert Review Panel has not reviewed this measure yet. |
| **Description:** | The Balloon Analogue Risk Task (BART) is a computerized, laboratory-based test of risky behavior, which can be used with adolescents and adults. During the test, participants inflate, or pump up, a hypothetical balloon. Participants receive a certain amount of money for each pump of the balloon until it pops, at which point all money is lost. Participants can stop inflating the balloon at any point in the trial and collect the accrued money. Unlike other decision tasks that elicit choices between different discrete response options (with different scheduled penalty probabilities), the penalty probability in the Balloon Analogue Risk Task accelerates as a function of reward pursuit within the *same* behavioral option (such as alcohol drinking).  For more information about the Balloon Analogue Risk Task, please refer to the [link[www.cognitiveatlas.org/task/id/trm\_4d559bcd67c18|Cognitive Atlas Interpretation]]. |
| **Specific Instructions:** | None |
| **Protocol:** | **Summary of the Balloon Analogue Risk Task (BART)**  Participants are shown a computer screen with a small balloon, a balloon pump, a box displaying money earned for the current balloon, a button to collect a monetary amount for the current balloon, and a box displaying total amount of money earned. Five cents are added to the temporary account each time participants click the pump, until the balloon pops, at which time all temporary money for that trial is lost. Participants can collect all the money in the temporary account at any time by pressing the collect money button. The number of pumps before the balloon pops is randomized across the trials. The task is completed after a total of 30 balloon trials, which are randomized as to how many pumps before the balloon pops.  **Scoring**  Although several summary scores can be calculated, the BART score is defined as the average number of balloon pumps that did not pop.  This program can be found at [www.addiction.umd.edu/CAPERWebSite/downloads.html](http://www.addiction.umd.edu/CAPERWebSite/downloads.html) |
| **Selection Rationale:** | The Balloon Analogue Risk Task (BART) is a widely used task that directly assesses the propensity of the participant to take risks. Similar to real-world situations, the BART rewards risky behavior up until a point, but long-term, continued risky behavior leads to negative consequences. |
| **Source:** | Lejuez, C. W., Read, J. P., Kahler, C. W., Richards, J. B., Ramsey, S. E., Stuart, G. L., Strong, D. R., & Brown, R. A. (2002). Evaluation of a behavioral measure of risk taking: The Balloon Analogue Risk Task (BART). *Journal of Experimental Psychology: Applied*, *8*, 75-84.  The Balloon Analogue Risk Task can be downloaded from the "Tasks" tab on the Center for Addictions, Personality, and Emotional Research website (Department of Psychology at the University of Maryland). |
| **Life Stage:** | Adult Adolescent |
| **Language of source:** | English |
| **Participant:** | Adults and adolescents aged 13 years or older |
| **Personnel and Training Required:** | The Balloon Analogue Risk Task can be administered by research assistants trained in the ethical and competent use of psychological tests. |
| **Equipment Needs:** | The computerized version of the Balloon Analogue Risk Task requires Windows XP, Windows Vista, or Windows 7 and NTFS file system, and internet connection for download and installation. |
| **Standards:** | |  |  |  |  | | --- | --- | --- | --- | | **Standard** | **Name** | **ID** | **Source** | | Common Data Element (CDE) | Neurobehavioral Risk Taking Test Assessment Score | 3371873 | [CDE Browser](https://cdebrowser.nci.nih.gov/CDEBrowser/search?elementDetails=9&FirstTimer=0&PageId=ElementDetailsGroup&publicId=3371873&version=1.0) | |
| **General references:** | Aklin, W. M., Lejuez, C. W., Zvolensky, M. J., Kahler, C. W., & Gwadz, M. (2005). Evaluation of behavioral measures of risk taking propensity with inner city adolescents. *Behaviour Research and Therapy, 43*(2), 215-228.  Fernie, G., Cole, J. C., Goudie, A. J., & Field, M. (2010). Risk-taking but not response inhibition or delay discounting predict alcohol consumption in social drinkers. *Drug and Alcohol Dependence, 112*(12), 54-61.  Lejuez, C., Aklin, W. M., Zvolensky, M. J., & Pedulla, C. M. (2003). Evaluation of the Balloon Analogue Risk Task (BART) as a predictor of adolescent real-world risk-taking behaviours. *Journal of Adolescence, 26*(4), 475-479.  Skeel, R. L., Neudecker, J., Pilarski, C., & Pytlak, K. (2007). The utility of personality variables and behaviorally-based measures in the prediction of risk-taking behavior. *Personality and Individual Differences, 43*(1), 203-214.  White, T. L., Lejuez, C. W., & Wit, H. (2008). Test-retest characteristics of the Balloon Analogue Risk Task (BART). *Experimental and Clinical Psychopharmacology, 16*(6), 565-570. |
| **Mode of Administration:** | Self-administered evaluation |
| **Derived Variables:** | None |
| **Requirements:** | |  |  | | --- | --- | | **Requirement Category** | **Required** | | Major equipment | No | | Specialized training | No | | Specialized requirements for biospecimen collection | No | | Average time of greater than 15 minutes in an unaffected individual | No | |
| **Process and Review:** | The Expert Review Panel has not reviewed this measure yet. |