

Ethics Review for Human Research – APPLICATION



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

2010:

TITLE OF PROJECT: Replication and Extension of Caffeine Withdrawal: Does it cause caffeine consumers to behave more impulsively?'

Name of applicant: Rosanna Frankish

Address: 67b Douch Rd, RD2, Ohaupo

Phone/Email: 0275552554/rpjf2@students.waikato.ac.nz

Supervisor (where applicable): Dr Lewis Bizo and Prof Mary Foster

Other people involved:

Project (select appropriate): Masters Thesis

Other, please specify:

Course requirement (course number: PSYC594-10C)

Renewal of previously approved project

Proposed starting date: 20 July 2010

Important Note: Please download the *Guidelines* from the Psychology webpage and read them BEFORE you proceed. Hard copies of this Application form and the Guidelines are available at the Psychology secretaries' office K1.26.

Psychology Research and Ethics Committee Decision:

Exempted Approved Reapproved Rejected

Convenor signature: _____

Date: _____

I request ethics approval and have provided

- a detailed description of the procedure that involves the participants
- the completed questionnaire (attached), and
- a copy of the consent form which will be used or reason why a consent form is considered unnecessary (questionnaire).
- Other: Information sheet, Caffeine consumption questionnaire, Demographic questionnaire, Delay discounting tasks, Advertising information
- I will bring any changes in methods or procedures as well as any unanticipated consequences which pose potential risks to the participants immediately to the attention of the Research and Ethics committee.

If first year Psychology students are your participants, please provide

- a copy of the sign-up sheet which will be displayed on the School's research sign-up board. Only PSYC102/103 students can receive course credit for participation.

If children are your participants (16 years and below), please provide

- for school children - letter to be sent to the principal, board of trustees, and parents/caregivers explaining the research and asking for permission. If your study involves preschool children, please include the correspondence to the relevant preschool personnel asking for permission.
- Information sheet for the parents/caregivers.

If employees from an external organisation are your participants, please provide

- a copy of the letter and any information to be sent to the relevant manager(s)/supervisor(s) explaining the research and asking for permission.

Applicant's signature: _____ **Date:** _____

I have read this ethics review application, and in my opinion, this research is ethically sound. I consider that this student and any other people involved have the necessary background and experience to carry out this research ethically and competently under my supervision.

Supervisor's signature (if applicable): _____ **Date:** _____

IMPORTANT: Staff members/supervisors carry full responsibility at all times for the ethical appropriateness of all graduate and undergraduate research under their supervision, even when such research has been approved by the Research and Ethics committee. They should work closely with the students to anticipate the ethical issues of any research.

Are you willing to have the content of this application used for a review of the School of Psychology's ethical review procedures (no names will be associated with the information)?

Yes No

University of Waikato
School of Psychology
CONSENT FORM

PARTICIPANT'S COPY

Research Project: Replication and Extension of 'Caffeine Withdrawal: Does it cause caffeine consumers to behave more impulsivity?'

Name of Researcher: Rosanna Frankish

Name of Supervisor (if applicable): Dr Lewis Bizo and Prof Mary Foster

I have received an information sheet about this research project or the researcher has explained the study to me. I have had the chance to ask any questions and discuss my participation with other people. Any questions have been answered to my satisfaction.

I agree to participate in this research project and I understand that I may withdraw at any time. If I have any concerns about this project, I may contact the convenor of the Research and Ethics Committee (Dr Robert Isler, phone: 838 4466 ext. 8401, e-mail r.isler@waikato.ac.nz)

I would like to receive a summary of the findings at the completion of the research: YES

NO

Participant's Name: _____ Signature: _____ Date: _____

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University of Waikato
School of Psychology
CONSENT FORM

RESEARCHER'S COPY

Research Project: Replication and Extension of 'Caffeine Withdrawal: Does it cause caffeine consumers to behave more impulsivity?'

Name of Researcher: Rosanna Frankish

Name of Supervisor (if applicable): Dr Lewis Bizo and Prof Mary Foster

I have received an information sheet about this research project or the researcher has explained the study to me. I have had the chance to ask any questions and discuss my participation with other people. Any questions have been answered to my satisfaction.

I agree to participate in this research project and I understand that I may withdraw at any time. If I have any concerns about this project, I may contact the convenor of the Research and Ethics Committee.

I would like to receive a summary of the findings at the completion of the research: YES

NO

Participant's Name: _____ Signature: _____ Date: _____

SCHOOL OF PSYCHOLOGY

Ethics Review for Human Research

QUESTIONNAIRE

The following questions address specific aspects of the research method related to ethical considerations, based on the Principles in the *Guidelines document* (see attached). **Please read these Guidelines BEFORE you fill out the questionnaire.**

Before you answer this questionnaire make sure you have provided a complete description of your research procedure that involves the participants. Attach interviews, questionnaire or survey items. If interviews are to be interactive, based on grounded theory, or open-ended, include the major broad areas of questioning to be covered in the interview. Participants should be made aware of all the broad areas to be covered so they can decline to answer any questions.

Tick this box if the research procedure that involves participants is outlined on extra sheet.

Alternatively, you may outline the procedure below:

1. *The value of the research (Please check the guidelines)*

1.1. Please state the research goals, what is trying to be achieved.

It is believed that caffeine is the most largely consumed drug in the world, an increased understanding is essential. This study intends to replicate a study by Kingston (2010) to provide supportive evidence of the method and findings. Based on Kingston's (2010) findings it is expected:

- Caffeine consumers in a state of abstinence will discount more steeply than caffeine consumers who are non-abstinence from caffeine
- Participants will discount the value of hypothetical caffeine related rewards more than hypothetical monetary rewards
- Non-abstinent caffeine consumers are expected to discount the value of delayed monetary rewards similarly to non-consumers

This study intends to investigate the effect of caffeine on impulsivity and decision making.

1.2. What provision is there to give participants information about these research goals?

Participants will be informed of the research goals in the information sheet (please see attached) and will be given to them before informed consent is obtained.

- 1.3. How will the research results be clearly and simply communicated to participants? (or stakeholders) afterwards in a way that is easily understood and accessed?

Participants will be asked if they would like to receive a summary of the findings at the completion of the research and will be informed that at the completion of the research they are able to look at the research in the University of Waikato Library.

2. Risk should be minimised (Did you check the guidelines?)

- 2.1. Does your research procedure involve interacting face to face with participants in some way?

Yes No

If Yes please provide details about where this will take place:

Within the University of Waikato School of Psychology in working hours, in the departments main buildings J/K block.

- 2.2. Are there any potential risks or discomfort to participants?

Yes No If Yes, please provide details in the box below.

Participants who consume large amounts of caffeine may experience mild discomfort during the withdrawal stage of the experiment, this information is fully enclosed in the information sheet, participants are aware they can withdraw at any stage, and the telephone number of a health facility is provided if they require assistance.

3. The informed consent of participants should be obtained, without coercion

- 3.1. a. Who will be the participants? How many?

60 participants are required; 30 caffeine consumers, 30 non-caffeine consumers. Participants will be staff and students from the University of Waikato.

- b. Will some of them be known to you?

No

- c. Will you be in a position of authority or power over any of them?
Yes No If yes, please provide details in the box below.

- 3.2. How will the participants be selected and recruited to take part?

Participants will be recruited by appealing to classes at the University of Waikato, with the consent of the course coordinator, before classes begins and advertising through the use of flyers around the University of Waikato. Psyc102 students will receive a notice via Moodle.

- 3.3. Describe how and when the participants will give their consent to take part? Who will be present?

After first contacting the researcher, participants will be sent an information sheet via email. When participants present themselves at the agreed time and place, the experimenter will answer any questions regarding the nature of the study and will then give a consent form for participants to sign. Only the researcher and the individual participant will be present.

- 3.4. How will the participants be informed of the right to withdraw from the research at any stage, for any reason, without penalty or loss of benefits to which the participant would otherwise be entitled?

The participant will be informed in both the information sheet and consent form

- 3.5. Will participants receive material benefits as an incentive to participate in the research? Such benefits might include: monetary payment, lottery tickets, prizes, etc.
Yes No If Yes, please specify the nature and amount of benefit, plus the justification.

Psyc 102 students will be given the opportunity to receive up to 1% course credit for participation, this is an incentive to gain a large number of undergraduate students.

- 3.6. Will participants receive any payment for their time or reimbursement of expenses?
Yes No If Yes, please explain.

- 3.7. If the participants are younger than 16 years, will you get the consent from their parents or caregivers as well as from participants themselves?
Yes No N/A If No, why not?

- 3.8. If the participants are adults but are unable to give consent on their behalf what provision is being made to obtain consent? N/A

4. *Privacy and confidentiality should be respected*

4.1. a. What steps have been taken to preserve confidentiality?

Any data provided to the researcher will remain anonymous and confidential. Contact details and names will only be required for scheduling experimental sessions, after completing the sessions identifying details will be destroyed. Demographic details will remain anonymous and used for analytic purposes only. Voluntary and informed consent is required before participating in this study, consent forms and data will be kept securely at the University of Waikato for a period of three years at which point they will be destroyed. Any further use of the data will only be reported as group data.

b. What will happen to data (e.g., audio tapes, filled in questionnaires) that identify participants after completion of the research?

Data will be identified through the allocation of a participant number and will be kept securely at the University of Waikato for a period of three years at which point they will be destroyed.

4.2. Who else will see any information provided by participants which is linked to participants' names?

None, other than the researcher.

5. *Deception should be minimised*

5.1. Does the research involve any concealment of information or deception?

Yes No If Yes, please answer the following:

- a. What is the justification for the use of such procedures on scientific grounds? Include an explanation of why non-deceptive procedures could not be used.
- b. How will you obtain consent from participants to waive their right to prior information on the nature and purpose of the study?
- c. How will you ensure that all participants are given a full explanation of information withheld and the reasons it was withheld as soon as practicable?
- d. How will participants be debriefed about the deception?

6. *Research goals and methods should be socially and culturally responsive*

6.1 Will people be selected as participants on the basis of their ethnicity, culture, gender, sexuality and/or in other ways which will target specific collectivities?

Yes No

6.2 If Yes, describe the group and explain how the selection process ensures that no person or group will feel offended by either their inclusion in or their exclusion from the research.

6.3 What has been done to ensure that the research procedures are not likely to be insensitive, inhibit participation or cause offence (e.g., to specific ethnic, gender or age groups)?

6.4 Will the research focus on participant's culture, ethnicity, sexual orientation, or religion?

Yes No If Yes, please answer the following:

- a. What steps have been taken to ensure that neither the conduct of the research, nor its outcomes, will unfairly affect the participants or their collectivities?
- b. If the participants as a group differ from the researcher in terms of culture, ethnicity, sexual orientation or other significant ways relevant to the research, what procedures will be used to ensure that involvement in the research is culturally safe and non offensive for the participant?

Responsiveness to Māori

The University and the School of Psychology has an explicit commitment to ensuring that Treaty of Waitangi is acknowledged and responded to as part of the ordinary life and activities of the institution (Goal 1.2 of the University of Waikato Charter). The Treaty of Waitangi has implications for all psychological research. In some instances, the implications may be quite small (eg. ensuring that samples of participants include Māori). At other times, the implications may be major (eg. requiring careful consultation and obtaining informed consent from Māori stakeholders and collectivities, as well as from individuals).

Whatever the research, we are asking you to demonstrate that you have given thought to the Treaty and its implications for research. For background information, please refer to section 6 of the Guidelines (attached to Application form).

6.5 Will the proposed research have actual or potential implications for, or impacts upon Māori?

Yes No
(Please explain your response).

The implications for Maori in this study are the same for all cultures. The global consumption of caffeine means further understanding its implications for consumers will benefit all, including Maori. The researcher will ensure all cultures and cultural needs are respected throughout the study.

If you have answered 'yes' to this question, please also respond to those questions that follow.

- a. Does your research require consent from or consultation with any specific Māori groups or individuals?

Yes No

- b. If yes, what were the outcomes of any necessary consultation or consent seeking activities you engaged in?
- c. Where necessary, how will Māori stakeholders or advisers have an ongoing role in your research?
- d. What steps have you taken to recognise and protect the cultural and intellectual property rights of Māori individuals or collectives?

7. *Exploitation of researcher-participant relationship should be prevented*

- 7.1. Are you associated with the participants in any way that might influence the ethical appropriateness of you conducting this research (e.g., employer/employee, supervisor/worker, personal relationship, or lecturer/student)?

Yes No

If Yes, please describe the steps you have taken to protect the participants including any limits placed on the use of the information.

8. *Property rights should be respected*

- 8.1. Is there any risk that the research findings may exploit the participants? Refer to the Guidelines.

Yes No If Yes, please explain the potential risk and how you will prevent it.

- 8.2. In the case of “qualitative case studies” or interviews will you show draft transcripts to participants for comments and corrections?

Yes No N/A If No, why not?

9. *Any conflict of interest should be declared*

- 9.1. Do you get sponsorship for your project?

Yes No If Yes, please answer the following:

How will the nature of commission or sponsorship be declared both to participants and in public findings?

Replication and extension of **Caffeine Withdrawal: Does it cause Caffeine Consumers to Behave More Impulsively?**

Delay has a negative effect on the value of the outcome, as the reinforcer delay increases the value of that reinforcer decreases. The decrease in value to increase in delay effect is known as delay or temporal discounting (cf. Mazur, 1987). When an individual displays a preference for the smaller, more immediate option they are displaying 'impulsive' behaviour (Diller, Saunders & Anderson, 2008). Choosing the larger, more delayed option is defined as the individual displaying 'self-control' (Diller et al., 2008). Figure 1 shows Green and Myerson's (2004) example of the discounting process over time. Discounting refers to the rate at which the larger reward is discounted as a function of time (Green & Myerson, 2004).

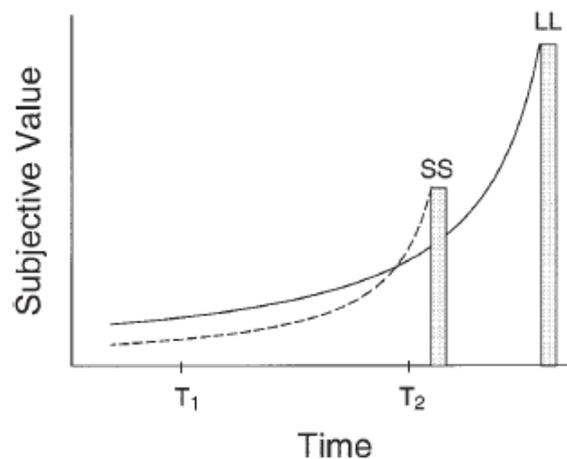


Figure 1. Choice between a smaller reward, available sooner (SS), and a larger reward, available later (LL). The curved lines represent change in subjective value as a function of time. The heights of the bars represent the actual reward amounts. $T_1 = \text{Time 1}$; $T_2 = \text{Time 2}$.

Figure 1. Reproduced figure from Green and Myerson, 2004

Delay discounting tasks present a number of options for which the participant is to choose between a smaller, hypothetical reward immediately available and a larger, more delayed hypothetical reward (Kollins, 2003).

Stimulant drugs can have a weakening effect on the reinforcing value of an outcome when a choice is given, stimulant drugs effect choice behaviour (Diller et al., 2008). Increased impulsive choice behaviour has been implicated in clinically relevant disorders, including; drug abuse and attention-deficit hyperactivity disorder (ADHD) (Diller et al., 2008).

Research has found that stimulant drugs decrease impulsive behaviour, individuals with

impulse-control disorders, like ADHD, take stimulant drugs to decrease their impulsive decision making (Diller et al., 2008). Simon, Mendez and Setlow (2007) found impulsive choice behaviour remained up to three months after cocaine use ceased in rats. The large variation in evidence about impulsive choice behaviour and stimulant drugs indicate the correlation is not transparent and more research must be done to clarify the relation between stimulant drugs and impulsivity. Stimulant drugs are often used to decrease impulsive behaviour, so it is essential the relation between the two be examined. Kingston (2010) extended Diller et al. (2008)'s research by investigating the effects of caffeine withdrawal on impulsive behaviour in human participants. To date, Diller et al. (2008) and Kingston (2010) are the only research to look at the effect of caffeine on delay discounting. Caffeine is thought to be the most commonly used stimulant drug world-wide, it is readily available and without any form of control. Caffeine has known effects, including; attention, vigilance, reaction time, alertness (Einöther, Martens, Rycroft & De Bruin, 2010). Diller et al. (2008) found that impulsive choice decreased in rats while they were under the influence of caffeine, suggesting caffeine may have similar mechanisms acting as other drugs of abuse. Kingston (2010) aimed to extend Diller et al.'s (2008) study, on the effects of caffeine on delay discounting, into human subjects. Kingston (2010) found the effects of caffeine withdrawal increase delay discounting in humans, as shown in figure 2.

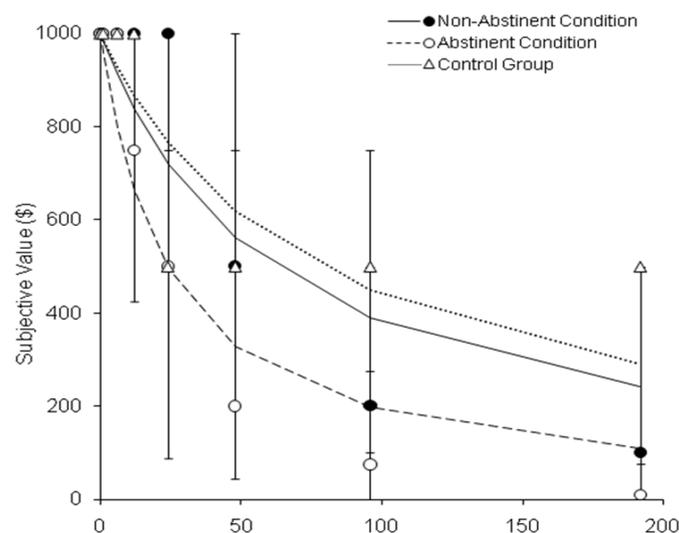


Figure 2: Reproduced figure from Kingston (2010)

The following study will replicate and extend Kingston's (2010) research to provide evidence of the effect of caffeine of human consumers. The aim of the study is assess caffeine withdrawal effects on performance in two delay discounting tasks. One delay discounting

task will be the presentation of hypothetical monetary reward choices, while the other will be the presentation of hypothetical commodities (caffeine & neutral) reward choices. It is predicted that participants will demonstrate increased impulsivity on delay discounting tasks compared to a non-caffeine consuming control group.

Method of data collection

Participants will be recruited by advertising around The University of Waikato by use of flyers, addressing classes in lecture halls before classes begin and by messages sent via the Moodle system to PYSC102 students. Caffeine consumers and non-caffeine consumers will be recruited. Voluntary and informed consent will be obtained prior to attending the delay discounting sessions. Participants will complete an adapted version of the Caffeine Consumption Questionnaire (Shohert & Landrum, 1992), this will determine how much caffeine they consume daily. The Caffeine Consumption Questionnaire was designed for American consumers, and since has been adapted for Australian consumers (Kingston, 2010). The New Zealand and Australian caffeinated products are predominantly the same so the adapted Australian version will be used. Demographic details will be obtained by presenting a demographic questionnaire to fill in which asks age, gender, stimulant consumption over the last 24hours, and time of last caffeine consumption. Participants will complete the delay discounting task within the J/K blocks at the University of Waikato, the participants and the experimenter will be present for the task to be complete.

Delay discounting tasks will be assessed using a pen and paper recording system for the participants to mark their appropriate response. Each delay will be presented in two columns, the participant will mark their choice in each row. 63 options per commodity being assessed (monetary or commodity related). Figure 3 shows an example of one delay table used in the hypothetical money task.

	Tick			Tick
\$1 now	<input type="checkbox"/>	OR	\$1000 in 1 month	<input type="checkbox"/>
\$2 now	<input type="checkbox"/>	OR	\$1000 in 1 month	<input type="checkbox"/>
\$10 now	<input type="checkbox"/>	OR	\$1000 in 1 month	<input type="checkbox"/>
\$20 now	<input type="checkbox"/>	OR	\$1000 in 1 month	<input type="checkbox"/>
\$50 now	<input type="checkbox"/>	OR	\$1000 in 1 month	<input type="checkbox"/>
\$100 now	<input type="checkbox"/>	OR	\$1000 in 1 month	<input type="checkbox"/>
\$200 now	<input type="checkbox"/>	OR	\$1000 in 1 month	<input type="checkbox"/>
\$500 now	<input type="checkbox"/>	OR	\$1000 in 1 month	<input type="checkbox"/>
\$1000 now	<input type="checkbox"/>	OR	\$1000 in 1 month	<input type="checkbox"/>

Figure3: Example of the delay discounting task for hypothetical monetary rewards

Ticking the ‘\$1 now’ option on the provided table would indicate the immediate reward and by ticking ‘\$1000 in 1 month’ would indicate the delayed choice. The monetary amounts in the hypothetical monetary reward task were changed to an equivalent amount of credit available at a cafe of the participants choice, figure 4 shows a page in the hypothetical cafe reward task. The hypothetical café reward task will be completed by high caffeine consumers.

	Tick			Tick
Credit for 1 coffee at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for coffee at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$4 credit for coffee at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for coffee at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$10 credit for coffee at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for coffee at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$20 credit for coffee at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for coffee at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$50 credit for coffee at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for coffee at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$100 credit for coffee at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for coffee at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$200 credit for coffee at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for coffee at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$500 credit for coffee at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for coffee at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$1000 credit for coffee at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for coffee at a cafe of your choice available in 1 month	<input type="checkbox"/>

Figure 4: Example of Delay Discounting task for hypothetical Cafe credit task

Those participants whom do not consume high amounts of caffeine will be asked to complete the hypothetical beverage task. Figure 5 shows an example of one page in the hypothetical beverage task.

	Tick			Tick
Credit for 1 beverage at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for beverages at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$4 credit for beverages at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for beverages at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$10 credit for beverages at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for beverages at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$20 credit for beverages at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for beverages at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$50 credit for beverages at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for beverages at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$100 credit for beverages at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for beverages at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$200 credit for beverages at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for beverages at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$500 credit for beverages at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for beverages at a cafe of your choice available in 1 month	<input type="checkbox"/>
\$1000 credit for beverages at a cafe of your choice available now	<input type="checkbox"/>	OR	\$1000 credit for beverages at a cafe of your choice available in 1 month	<input type="checkbox"/>

Figure 5: Example of Hypothetical Delay Discounting Task for Hypothetical Beverage Task

The sessions will be either an abstinent versus a non-abstinent category when participants (caffeine consumers) are asked to abstain from consuming caffeine for a minimum of 12 hours (abstinent session) or instructed to consume as they usually would (non-abstinent session). The reward type will vary between hypothetical monetary rewards, hypothetical beverage credits and hypothetical coffee credits. To counterbalance the order in which participants took part in either the abstinence or non-abstinent sessions and the monetary and commodity related tasks a randomized block design will be used.

The delayed reward will remain constant while the smaller, more immediate option will increase in value. The time when an individual changes their choice to the smaller, more immediate option is referred to as the indifference point. The indifference point provides the perceived value of the delayed reward at a certain point in time, it allows for calculations to be made about discount rate and mathematical discounting models to be fit (Green & Myerson, 2004). The larger, later reward’s delay is increased until the indifference point has been found in seven different delays (Baker, Johnson & Bickel, 2003).

Expected Outcomes

Based on Kingston’s (2010) findings it is expected that the caffeine consumers will discount

future events more steeply when they are in a state of deprivation compared to being in their regular state of caffeine consumption, and non-caffeine consumers are expected to display the least amount of discounting on the delay discounting tasks.

Caffeine consumers are predicted to discount the value of hypothetical caffeine related outcomes more than hypothetical monetary rewards; this is expected to occur in caffeine consumers in a state of withdrawal and consumers who are regularly consuming caffeine.

Non-caffeine consumers are predicted to discount the value of hypothetical beverage related outcomes more than hypothetical monetary rewards.

Caffeine consumers who have consumed their regular caffeine are expected to discount the value of hypothetical monetary rewards similarly to those who don't consume caffeine. All expected outcomes are based on Kingston's (2010) findings.

References

- Baker, F., Johnson, M. W., & Bickel, W. K. (2003). Delay discounting in current and never-before cigarette smokers: Similarities and differences across commodity, sign, and magnitude. *Journal of Abnormal Psychology, 112*, 382-392.
- Diller, J., Saunders, B.T., & Anderson, K.G. (2008). Effects of acute and repeated administration of caffeine on temporal discounting in rats. *Pharmacology, Biochemistry and Behavior, 89*, 546-555.
- Einöther, S.J.L., Marten, V.E.G., Rycroft, J.A. & De Bruin, E.A. (2010). L-Theanine and caffeine improve task switching but not intersensory attention or subjective alertness. *Appetite, 54*, 406-409.
- Green, L. & Myerson, J. (2004). A Discounting Framework for Choice With Delayed and Probabilistic Rewards. *Psychological Bulletin, 130*, 769-792.
- Kingston, A. (2010). Caffeine Withdrawal: Does it Cause Caffeine Consumers to Behave More Impulsively? *Department of Psychology Southern Cross University*.
- Kollins, S.H. (2003). Delay discounting is associated with substance use in college students. *Addictive Behaviours, 28*, 1167-1173
- Mazur, J. E. (1987). An adjusting procedure for studying delayed reinforcement. In M. L. Commons, J. E. Mazur, J. A. Nevin, & H. Rachlin (Ed.s), *Quantitative analysis of behavior: Vol. 5. The effect of delay and of intervening events of reinforcement value* (pp. 55-73). Hillsdale, N. J.: Erlbaum.
- Rachlin, H., Raineri, A., & Cross, D. (1991). Subjective probability and delay. *Journal of the Experimental Analysis of Behavior, 55*, 233-244.
- Shohet, K. L., & Landrum, E. R. (2001). Caffeine Consumption Questionnaire: A standardised measure for caffeine consumption in undergraduate students. *Psychological Reports, 89*, 521-526.

Simon, N.W., Mendez, I.A. & Setlow, B. (2007). Cocaine Exposure Causes Long-Term Increases in Impulsivity Choice. *Behavioural Neuroscience*, 121, 543-549

Information

My name is Rosanna Frankish; I am a student in the Masters of Applied Behaviour Analysis programme at the University of Waikato's Psychology department. I would like to invite you to participate in my research to examine the effects of caffeine on simple decision making tasks.

It has been claimed caffeine is the most commonly used drug in the world, it has physiological effects which effect attention and energy. The form caffeine is consumed in has grown substantially; with energy drinks, tea, some carbonated beverages and, of course, coffee, the choices for consuming caffeine are close to endless. This study intends to look at the effects of caffeine withdrawal on decision-making involving future events. It is thought that caffeine consumers will display more impulsive decision-making when they are in a state of withdrawal, compared to non-caffeine consumers and those not in a state of withdrawal.

You will be required to:

- Attend 2 lab sessions - one week apart
- One lab session will require you to consume caffeine as you usually would, while the other lab session will require you to abstain from any caffeine consumption for 24 hours prior to participating. A phone call will be made to confirm which state is required for which session.
- In lab 1 you will be asked to provide demographic details and answer a short questionnaire regarding caffeine consumption.
- Both lab sessions will include pen and paper delay discounting tasks, this requires you to choose between two options of hypothetical money. The choice made provides information regarding individual self control tendencies. The laboratory sessions are expected to take between 30 minutes and one hour.

May experience mild discomfort:

Large amounts and regular caffeine consumers may feel some mild discomfort abstaining from caffeine for at least 12 hours before one laboratory session, I will try to limit discomfort by having laboratory sessions in the morning. If you experience discomfort or distress at any stage of the research process, feel free to contact Healthline. This is a free service provided to New Zealanders who require health advice, it is a 24 hour service.

Contact Healthline on: 0800 611 116 or www.healthline.govt.nz

Data will remain anonymous and confidential:

Contact details and your name will only be required for scheduling experimental sessions, after completing the sessions your identifying details will be destroyed. Demographic details will remain anonymous and used for analytic purposes only. Voluntary and informed consent is required before participating in this study, consent forms and data will be kept securely at the University of Waikato for a period of three years at which point they will be destroyed. Any further use of the data will only be reported as group data.

Participation in this study is entirely voluntary:

You are not required to participate and are free to withdraw at any time without question or negative consequence. Participants are required to restrain from consuming psychiatric drugs,

illegal drugs, nicotine or alcohol in the past 24hrs before participating.

If you have any enquires regarding your participation in the study feel free to contact the researcher or supervisor:

Researcher: Rosanna Frankish

Department of Psychology at the University of Waikato

rpjf2@students.waikato.ac.nz

Phone: 0275552554

Supervisor: Dr Lewis Bizo

School of Psychology at the University of Waikato

lbizo@waikato.ac.nz

Prof Mary Foster

School of Psychology at the University of Waikato

m.foster@waikato.ac.nz

Demographic Details

Please fill in the following questions:

1. Age _____

2. Gender _____

3. Have you consumed any of the following in the last 24hours: (*circle your answer*)

Session 1	Psychiatric Medication	<i>Yes</i>	<i>No</i>
	Illegal Drugs	<i>Yes</i>	<i>No</i>
	Nicotine	<i>Yes</i>	<i>No</i>
	Alcohol	<i>Yes</i>	<i>No</i>

Session 2	Psychiatric Medication	<i>Yes</i>	<i>No</i>
	Illegal Drugs	<i>Yes</i>	<i>No</i>
	Nicotine	<i>Yes</i>	<i>No</i>
	Alcohol	<i>Yes</i>	<i>No</i>

4. Number of minutes/hours since you last consumed caffeine

Session 1 _____

Session 2 _____

Questionnaire reproduced from Kingston (2010)

CAFFEINE CONSUMPTION QUESTIONNAIRE				
Please answer the following questions as completely and honestly as you can.				
This information is confidential do not write your name anywhere on this page.				
Thank you for your co-operation.				
Please answer the following questions about your caffeine consumption in the past week				
Respond to items that you consumed at least once in the past week				
COFFEE (number of cups in the past week)	MORNING 6am-midday	AFTERNOON Midday-6pm	EVENING 6pm-2am	NIGHT 2am-6am
Espresso (café style)				
Drip-brewed				
Plunger style				
Instant				
Decaffeinated				
Other: Please Specify				
TEA (caffeinated not herbal) (number of cups in the past week)				
HOT CHOCOLATE (number of cups in the past week)				
SOFT DRINK (number of cups or cans in the past week)				
Coca-cola				
Pepsi				
Other: Please Specify				
ENERGY DRINKS (number of cans in the past week)				
Red bull				
V				
Other: Please Specify				
OVER THE COUNTER DRUGS CONTAINING CAFFEINE (number of tablets in the past week)				
NoDoz				
Guarana				
Other: Please Specify				
CHOCOLATE (number of bars in the past week)				

I Need

RESEARCH PARTICIPANTS



Images reproduced from Microsoft Word Clip Art (2007)

Are you interested in Money? Predicting future events?

This study is investigating if caffeine consumers and non caffeine consumers make similar decisions about future events.

Participants will be asked to complete a simple pencil and paper task. Participation will require approximately half an hour per day, over 2 days.

If you are enrolled in PSYC102-08B you will receive up to 1% course credit.

Supervised by Lewis Bizo and Mary Foster

More details contact Rosie: rpjf2@students.waikato.ac.nz