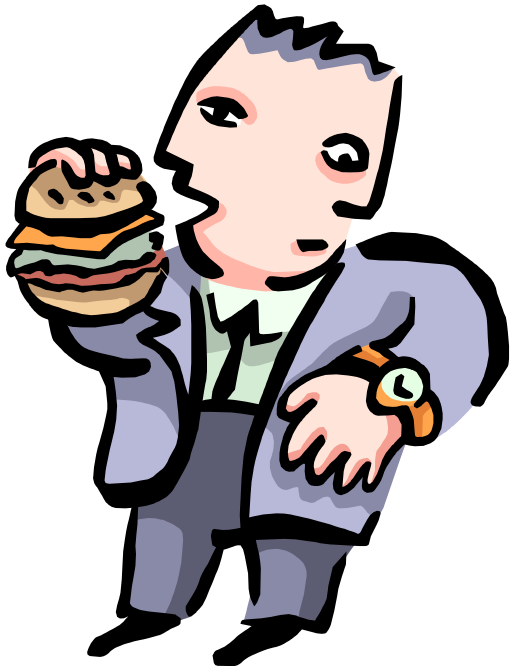
UNIVERSITY OF SUSSEX
SCHOOL OF PSYCHOLOGY

Psychology of Appetite
Final Year Option
C8839
15 Credits
Term 1 2017-18

Module Convenor: Martin Yeomans

NOTE: Most of the questions you need answers to about this Module are in this document. Please read it fully and carefully before your first seminar.

NOTE: This document concerns the structure and content of the Module. If you have questions about procedures, please consult the School of Psychology Administration Office in Pev1 2A13 or via psychology@sussex.ac.uk



PSYCHOLOGY OF APPETITE

Module Overview

Official Module Title: Psychology of Appetite

Official Module Code: C8839

Module Convenor:

The Psychology of Appetite Module is convened by **Prof Martin Yeomans**, a member of the School of Psychology. The remainder of this document was prepared by Prof Yeomans.

You are welcome to direct queries concerning the Module to him during his office hours (Term 1 2017: Monday 1600-1700 and Thursday 11:00-12:00) in Pevensey 1 room 1C4, or by email (martin@sussex.ac.uk).

Type of Module:

Psychology of Appetite is a final year optional Module which is available to all Psychology undergraduate students. It is available to Visiting and Exchange students from any School providing that they have an appropriate academic background.

Module description: The Module content list entry for Psychology of Appetite reads:
Taking a psychobiological perspective, the Module explores issues in our relationship with food. The initial focus will be on appetite control, and constructs of hunger and satiety. Discussion of flavour perception and hedonics then allows evaluation of concepts of food craving and addiction, and food choice and preference. Examination of non-nutritive effects of foods (including nutraceuticals) links food to mood and cognition. Finally, we explore the basis of the rise of obesity and disordered eating from a psychobiological perspective.

Module Aims and Objectives:

The recent rise in incidence of both obesity and disordered eating has meant that the traditional view of eating as a closely regulated behaviour to be revised. This Module examines current issues in our relationship with food, with the overall aim of giving students detailed knowledge of our current understanding of the control of normal and abnormal food intake and preferences. More specifically, the Module objectives are that by the end of the Module, if you attend lectures and cover the seminar material, you should:

- have knowledge of major theories of appetite control, and their relative strengths and weaknesses
- be able to critically evaluate recent developments in psychological and biological controls of appetite and their relevance to obesity and disordered eating
- be able to apply concepts from drug addiction to understanding our relationship with food
- understood the nature of eating disorders, and how these may be explained at biological, cognitive and social levels
- have developed further skills in analysing, summarising and commenting on appropriate technical material through the coursework report and unseen examination
- have developed further your skills in presenting work to an audience clearly and pertinently, and in making appropriate contributions to group discussion, during the seminars

Summary of Module Content and Structure:

The Module is presented through a combination of lecture-based material and student-lead seminar discussions, each accompanied by reading lists drawing heavily on recent primary reference sources. After a Module overview, the first two lectures describe current models of hunger and satiety in order to ensure all students have a broad understanding of general models and theories o homeostatic eating. The emphasis here is on behavioural and general physiological controls, and only touches on current neural models. The emphasis then moves to discuss the nature of foods, and how sensory signals from foods may themselves modulate appetite control, before a discussion of the current obesity crisis in light of out understanding of these basic appetite controls. Attention then turns to understanding of food choice and preferences, exploring innate and acquired food preferences and their relation to food choice. The first seminar extends these ideas, focussing on important recent developments. The second section of the Module is directed to non-nutritive aspects of eating, and specifically exploring how different components of our diets may influence our mood and cognitive performance. The idea that foods may act in similar ways to addictive drugs leads to discussion of the concept of food addiction, an idea that is the focus of the second seminar. To date the Module has concentrated on normal controls of eating and food preferences, but the increase in incidence of an ever-widening range of eating disorders is the basis for the final four lectures, stating with detailed evaluations of the diagnosis and psychopathological features of these disorders, and then exploring psychobiological models of anorexia and bulimia. The lecture Module ends by consideration of the role of dieting in development of eating disorders, and these issues are then discussed at length in the final seminar.

CORE READING MATERIAL AND TEXTBOOK RECOMMENDATIONS

At present there is **no** one textbook which covers all the material on this Module, and the Module will focus on primary source material, and recent reviews. However, the **introductory** material in the first few lectures is covered at a basic level in most major Psychobiology textbooks, and the following general textbooks all contain useful, **general background summaries** of key material.

Carlson, NR (2013) Physiology of Behavior, 11th edition. Allyn and Bacon. Chapter 12 Ingestive Behavior, (QU 4588 Car: NB the two previous editions are not substantially weaker on this topic).

Toates, F (2007) Biological psychology: 2nd edition. Prentice Hall.

Pinel, J P (2011) Biopsychology. 8th edition Allyn & Bacon. Chapter 12 “Hunger, Eating and Health”.

Specialised Books on Eating

Two textbooks cover a great deal of the Module content, although from rather different perspectives, with different emphases. Although dated now, Logue is still useful.

Logue, AW (2004) The psychology of eating and drinking, 3rd edition. Brunner-Routledge, Hove. TX 357 LOG
Dovey, TM (2010). Eating Behaviour. McGraw-Hill.

The following reference books are also relevant to specific sections of the Module:

Blass, EM (2008) Obesity: causes, mechanisms, prevention, and treatment. Sunderland Mass., Sinauer. RC 628 OBE
Cooper, SJ & Kirkham, T (2007) Appetite and body weight: integrative systems and the development of anti-obesity drugs. Amsterdam, Elsevier. RC 552.O25
Harris, RBS & Mattes, RD (2008) Appetite and food intake: behavioral and physiological considerations. Boca Raton, CRC Press. QU 4300 APP
Hetherington, MM (2001) Food cravings and addiction. Leatherhead Food RA. RC 552.C65 FOO
Prescott, J & Tepper, BJ (2004) Genetic variation in taste sensitivity. Marcel Dekker. QU 4597 GEN
Fairburn, CG & Brownell, K (2002) Eating disorders and obesity: a comprehensive handbook. Guilford Press, London. RC 552.E18 EAT
Shepherd, R & Raats, M (2006) The Psychology of Food Choice. CABI Publishing. TX 357 PSY
Stevenson, RJ (2009) The Psychology of Flavour. OUP.

Core articles

Most of the reading for this Module is taken from recent reviews and original papers. Lists of references will be provided with each lecture handout and core articles are listed for each lecture at the end of the handbook. Core articles can be downloaded from the Study Direct site for this Module in .pdf format

Organisation of Teaching

As with all Psychology 3rd year options, the Module has 2h contact a week and extensive background reading lists. Weekly meetings will either be through two one-hour lectures or a single 2-hour seminar.

The Table overleaf summaries the overall organisation of teaching. Details of days, rooms and times will appear on your timetables through Sussex Direct. Notification of any changes in organisation of teaching will appear on Sussex Direct.

TEACHING TIMETABLE

Week	Lecture	Seminar
1	1 Introduction/overview	
2	2 Basic concepts 1: Hunger	
	3 Basic concepts 2: Satiety	
3	4 Understanding food flavour	
	5 Development food preferences	
4	6 Integrating Flavour and Appetite	
	7 Appetite and the Brain	
5		Appetite and food preference development
6	8 The obesity crisis 1: epidemiology and treatment	
	9 The obesity crisis 2: causes	
7	10 Nutrients, mood and memory	
	11 Food addiction	
8		Obesity, food, mood and addiction
9	12 Defining disordered eating	
	13 Psychobiology of anorexia and bulimia	
10	14 Socio-cognitive components of anorexia and bulimia	
	15 Dieting and disordered eating	
11		Disordered eating
12	16. Revision and course feedback	

Module Requirements and Assessment.

As with other Sussex Modules, lectures and seminars are compulsory. The formal assessment of this Module is a combination of a 2-hour unseen examination in Summer Term (60%) and coursework (40%) comprising of two elements: an assessed seminar presentation in one of the three Module seminars (50% of coursework) and a 1000 word report (50% of coursework). ***Note that because the seminar presentations are formally assessed, failure to attend and present at these seminars will count as non-submission of assessment.***

There is no **formal** requirement for students to write an essay during this Module, but since the unseen examination is primarily based on essay questions, I am happy to informally comment on one essay or essay plan if students wish to write an essay as part of their examination preparation during term time.

Coursework report

For the coursework report, you can choose ONE of TWO options. For both report Options the final report has a word limit of 1000 words: this is intended to be a focussed and concise piece of work.

Option 1 coursework report is in the style of a peer commentary on a recent influential paper relating to the Module. Choose one of the articles below, read it thoroughly and then write a report which should include two sections:

1. A succinct summary of the major points made in this article (no more than 500 words)
2. A discussion of what the article has added to our understanding of the area of appetite it relates to. This might be a critical evaluation of whether the principle claims of the article are a fair evaluation of our current understanding, whether the article takes the field in a new direction. It should include some evaluation of the impact of the article (examples of impact might be how it has stimulated further research, altered a theoretical emphasis, questioned past assumptions about an area, altered practice for treatment etc.)

The list of target articles includes several papers which also feature as key papers in seminars. **IMPORTANT: you must ensure that the article you select does NOT relate closely to the topic you present in your seminar. If you are concerned that they may overlap please email the Module convenor.**

The target articles that you can choose from are:

Booth, DA & Nouwen, A (2010) Satiety. No way to slim. **Appetite: 55**: 718-721

Bryant, E. J., King, N. A., & Blundell, J. E. (2008). Disinhibition: Its effects on appetite and weight regulation. **Obesity Reviews, 9(5),** 409-419.

Halford, J. C., Boyland, E. J., Blundell, J. E., Kirkham, T. C., & Harrold, J. A. (2010). Pharmacological management of appetite expression in obesity. **Nature Reviews Endocrinology**, **6**, 255-269.

Havermans RC. (2011) "You Say it's Liking, I Say it's Wanting ...". On the difficulty of disentangling food reward in man. **Appetite. 57:** 286-94

Hill, A. J. (2004). Does dieting make you fat? **British Journal of Nutrition**, **92 Suppl 1,** S15-18

James JE, Rogers PJ. (2005) Effects of caffeine on performance and mood: withdrawal reversal is the most plausible explanation. **Psychopharmacology 182(1):**1-8.

Lowe, MR & Butryn, ML (2007) Hedonic hunger: a new dimension of appetite? **Physiology and Behavior, 91:** 432-439

Pelchat, ML (2002) Of human bondage: food craving, obsession, compulsion and addiction. **Physiology and Behavior, 76**: 347-352

Small, D. M. (2008). Flavor and the formation of category-specific processing in olfaction. **Chemosensory Perception, 2**, 136-146.

Wardle, J. (2007). Eating behaviour and obesity. **Obesity Reviews, 8 Suppl 1,** 73-75.

Option 2 coursework report is in the style of a research proposal. The aim of this piece of work is to get you to think about what we do and don't know in some of the key areas of the module, and write a research proposal for 3-years work that could advance our knowledge.

For each research area, I would expect the report to have three sections:

a) A succinct summary of the state of knowledge in that area
b) A summary of what in your estimation of the literature we do NOT know yet
c) An outline plan for a series of experiments or other forms of data collection that could redress our shortfall in knowledge.

The key research questions you can choose from are:

1. Is flavour nutrient learning a unique form of learning?
2. How do different senses integrate to generate flavour?
3. How do we make foods more satiating?
4. Do the ingredients in typical energy drinks really "give you energy"?
5. Is sugar addiction real?
6. Does dieting make you insensitive to satiety?

Seminar Presentations

Each student will give one 10-minute presentation during the module on a topic selected from a preset list. Full details of the topics can be found at the end of this handbook. . These presentations are worth 20% of overall Module assessment. There will be three seminar sessions each lasting 2 hours, running in Weeks 5, 8 and 11.

Seminar topics will be assigned by the end of the first week of the Module and have been chosen to build on the material presented in lectures in areas where there have been substantial recent developments, or which are particularly topical at present.

Presentations will be assessed using the formal criteria available on the Psychology web at
http://www.sussex.ac.uk/psychology/internal/students/examinationsandassessment/criteria

You must submit a copy of your presentation by email (to martin@sussex.ac.uk) BEFORE your presentation. Evaluation of the content of this handout will comprise 50% of the assessment of the presentation, with the remaining 50% assessment coming from the actual 10-minute presentation to the seminar group. The handout can simply be a copy of the slides you will use (printed as 6 slides per page) or a short (**no more than 2 page**) summary of the key content. The handout MUST include a reference list of the sources you have used.

On-line Support

On-line support is primarily through the Study Direct Psychology of Appetite web-page, and is linked through the Psychology web-page and Sussex Direct. Here you will find all Module documents ready to download, information on seminars including, later in the term, copies of presentations by fellow students from the 3 seminars. You will also find links to most key articles cited in the handbook.

Module Monitoring and Student Feedback

At the end of the term formal Module feedback will be obtained by questionnaire and seminar discussion. This is the 9th year this option has run, and feedback in previous years has been very positive, and performance in assessments above average for final year options. I'll try and keep up the good work this year!

Information on the following can be found at the link below:

- Submitting your work
- Missing a deadline
- Plagiarism and Collusion - Academic Misconduct
- Late penalties
- Exceptional circumstances
- Exams
- Help with managing your studies and competing your work
- Assessment Criteria

http://www.sussex.ac.uk/psychology/internal/students/examinationsandassessment

Martin Yeomans, August 2017

LECTURE CONTENT: KEY TOPICS

1. Introduction & Overview

This lecture is largely administrative and illustrates content in a relaxed format.

2. Basic concepts 1: Hunger.

- Defining hunger and the difference between subjective and physiological hunger
- Basic homeostatic conception of hunger
- Peripheral hunger signals
- Hunger as anticipatory motivation

Background reading:

Berridge KC (2004) Motivation concepts in behavioral neuroscience. **Physiology & Behavior 81:** 179-209

Cummings, D. E. (2006). Ghrelin and the short- and long-term regulation of appetite and body weight. **Physiology & Behavior**, 89, 71-84.

Woods, S. C. (1991). The eating paradox: how we tolerate food. **Psychological Review, 98(4)**, 488-505.

3. Basic concepts 2: Satiety.

- Satiation and satiety
- Oral factors in control of meal-size
- Post-ingestive signals and satiety

Background reading:

Logue, chapter 2

de Graaf C, Blom WAM, Smeets PAM, et al. (2004) Biomarkers of satiation and satiety. **American Journal of Clinical Nutrition 79:** 946-961

Benelam, B. (2009). Satiation, satiety and their effects on eating behaviour. **Nutrition Bulletin, 34**, 126-173.

Rolls BJ, Rolls ET, Rowe EA, Sweeney K. Sensory-specific satiety in man. Physiology and Behavior. 1981;27:137-42.

Small, CJ & Bloom, SR (2004) Gut hormones and the control of appetite. **Trends in Endocrinology and Metabolism, 15:** 259-263.

4. Understanding food flavour 1: the perception of flavour

- Multi-sensory science of flavour
- Neural representation of flavour

Background reading:

Auvray, M.; Spence, C. The multisensory perception of flavor. Conscious Cogn 2008, 17, 1016-1031.

Small DM, Prescott J. Odor/taste integration and the perception of flavor. Experimental Brain Research. 2005 Jul 19;166:345-57.

Stevenson (2009) the Psychology of Flavour

5. Development of food preferences

- Distinguishing hedonics, preferences and choices
- Mere exposure: familiarity and monotony effects
- Flavour-consequence learning
- Flavour-flavour learning

- Social facilitation and social conditioning
- Key developmental influences on food preference development

Background reading

Brunstrom JM. Associative learning and the control of human dietary behavior. Appetite. 2007 Jul;49(1):268-71.

Rozin P, Zellner DA. The role of Pavlovian conditioning in the acquisition of food likes and dislikes. Annals of the New York Academy of Sciences. 1985;443:189-202.

Yeomans, MR (2006). The role of learning in development of food preferences. In: Shepherd, R & Raats, M (Eds) The Psychology of Food Choice. CABI Publishing

Ventura, AJ & Worobey, J (2013). Early Influences on the Development of Food Preferences. Current Biology, **23**: R401-R408

6. Flavour and the control of appetite: current perspectives

- Palatability and the stimulation of appetite
- Sensory satisfaction
- Sensory expectation and the top-down control of satiety

Background reading:

Cassady BA, Considine RV, Mattes RD (2012). Beverage consumption, appetite, and energy intake: what did you expect? **American Journal of Clinical Nutrition 95(3**):587-93.

Cota, D., Tschop, M. H., Horvath, T. L., & Levine, A. S. (2006). Cannabinoids, opioids and eating behavior: The molecular face of hedonism? **Brain Research: Brain Research Reviews,** 51(1), 85-107.

Crum, A. J., Corbin, W. R., Brownell, K. D., & Salovey, P. (2011). Mind over milkshakes: Mindsets, not just nutrients, determine ghrelin response. **Health Psychology,** 30, 424-429.

de Graaf C, Kok FJ. (2010) Slow food, fast food and the control of food intake. **Nature Reviews Endocrinology, 6**: 290-3.

Stubbs RJ, Whybrow S (2004) Energy density, diet composition and palatability: influences on overall food energy intake in humans. **Physiology & Behavior 81:** 755-764

Yeomans, M. R., Blundell, J. E., & Lesham, M. (2004). Palatability: Response to nutritional need or need-free stimulation of appetite? **British Journal of Nutrition, 92,** S3-S14.

Yeomans, M. R., & Chambers, L. C. (2011). Satiety-relevant sensory qualities enhance the satiating effects of mixed carbohydrate-protein preloads. **American Journal of Clinical Nutrition, 94**, 1410-1417.

7. Appetite and the Brain

- The classic 2-centre theory and its shortcomings
- The role of the lateral hypothalamus
- Neural basis of flavour perception
- Neural integration of flavour and appetite

Background Reading

Berthoud, H.-R. (2002) Multiple neural systems controlling food intake and body weight **Neuroscience and Biobehavioral Reviews, 26 (4)**, pp. 393-428

Berthoud, H. R. (2011). Metabolic and hedonic drives in the neural control of appetite: Who is the boss? **Current Opinion in Neurobiology**, 21, 888-896.

Dagher, A. (2012). Functional brain imaging of appetite. **Trends in Endocrinology and Metabolism**, 23, 250-260.

Rolls, E. T. (2006). Brain mechanisms underlying flavour and appetite. **Philosophical Transactions of the Royal Society London, 361(1471**), 1123-1136.

Smith, GP (2000) The controls of eating: a shift from nutritional homeostasis to behavioural neuroscience. **Nutrition: 16:** 814-820

8. The obesity crisis 1: epidemiology and treatment

- Is their an obesity epidemic?
- Current treatments in obesity

Background reading

Blass, EM (2008) Obesity: causes, mechanisms, prevention, and treatment. Sunderland Mass., Sinauer. RC 628 OBE

Fabricatore, A. N. and T. A. Wadden (2006). "Obesity." **Annual Review of Clinical Psychology 2:** 357-77.

9. The obesity crisis 2: causes

- The genetics of body-size: predispositions and specific disorders
- Overeating and obesity
- Palatability and energy density

Background reading

Blundell, J.E., et al.(2008) Overconsumption and obesity: Peptides and susceptibility to weight gain. **Regulatory Peptides 149 (1-3)**, pp. 32-38

Loos, R. J. and C. Bouchard (2008). "FTO: the first gene contributing to common forms of human obesity." **Obesity Reviews 9(3)**: 246-50.

O'Rahilly, S. and I. S. Farooqi (2006). "Genetics of obesity." **Philosophical Transactions of the Royal Society B Biological Sciences 361(1471):** 1095-105.

Wansink, B. (2004). Environmental factors that increase the food intake and consumption volume of unknowing consumers. **Annual Review Of Nutrition, 24,** 455-479.

10. Nutrients, mood and memory

- The concept of nutraceuticals
- Food as mood modulator
- Blood glucose, mood and memory
- Caffeine, mood and performance
- Fats and mental health

Background reading

Benton D, Nabb S (2003) Carbohydrate, memory, and mood. **Nutrition Reviews 61:** S61-S67

Dye L, Lluch A, Blundell JE (2000) Macronutrients and mental performance. **Nutrition 16:** 1021-1034

Lieberman HR (2003) Nutrition, brain function and cognitive performance. **Appetite 40:** 245-254

11. Food addiction

- The McDonald's court-case: food addiction and obesity
- Food addiction: definitions and comparisons with drugs
- Caffeine as a model of ingestive dependence
- Wanting versus liking: addiction theory applied to food

Background reading:

Benton, D. (2010). The plausibility of sugar addiction and its role in obesity and eating disorders. Clinical Nutrition, 299, 288-303.

Gearhardt AN, Grilo CM, DiLeone RJ, Brownell KD, Potenza MN. Can food be addictive? Public health and policy implications. Addiction. 2011 Jul;106(7):1208-12.

Behavior 66: 3-14.

Havermans RC. (2011) "You Say it's Liking, I Say it's Wanting ...". On the difficulty of disentangling food reward in man. **Appetite. 57:** 286-94
Herebrand et al. (2014). "Eating addiction", rather than "food addiction", better captures addictive-like eating behaviour. **Neuroscience and Biobehavioral Reviews, 47**: 295-306
Grigson PS (2002) Like drugs for chocolate: separate rewards modulated by common mechanisms? **Physiology & Behavior 76:** 389-395
Sobik L, Hutchison K, Craighead L (2005). Cue-elicited craving for food: a fresh approach

12. Defining disordered eating

- Unusual eating disorders: pica, rumination and merycism
- Defining anorexia nervosa: clinical syndrome or clinical convenience?
- Bulimia and binge-eating disorder: pathological binge-eating
- Historical perspectives on anorexia and bulimia

Background reading:

Fairburn, CG & Brownell, K (2002) Eating disorders and obesity: a comprehensive handbook. Guilford Press, London.
Klein DA, Walsh BT (2004) Eating disorders: clinical features and pathophysiology. **Physiology & Behavior 81 (2):** 359-374

13. The psychobiology of anorexia and bulimia

- The genetics of anorexia and binge-eating
- Anorexia as an endocrine disorder
- Stress and exercise: the role of learned aversions in anorexia
- Depression and binge-eating: a serotonin link?
- Anorexia and bulimia as addictions?

Background reading:

Bergh, C., & Soderston, P. (1996) Anorexia nervosa, self-starvation and the reward of stress **Nature Medicine** *, 2,* 21-22.
Dawe S, Loxton NJ (2004) The role of impulsivity in the development of substance use and eating disorders. **Neuroscience And Biobehavioral Reviews 28 (3)**: 343-351
Fairburn CG, Harrison PJ (2003) Eating disorders. **Lancet 361 (9355)**: 407-416
Kipman, A et al. (1999) Genetic factors in anorexia nervosa. **European Psychiatry, 14:** 189-198
Polivy J, Herman CP (2002) Causes of eating disorders. **Annual Review of Psychology, 53:** 187-213
Stöving, RK et al. (1999) A review of endocrine changes in anorexia nervosa. Journal of **Psychiatric Research, 33:** 139-152

14. Socio-cognitive components of anorexia and bulimia

- Body-shape dissatisfaction and the onset of disordered eating
- Eating disorders as cultural diseases
- The role of the family

Background reading:

Crisp, A. H. (2006). In defense of the concept of phobically driven avoidance of adult body weight/shape/function as the final common pathway to anorexia nervosa. **European Eating Disorders Review,** *14*, 189-202.
Keel PK, Klump KL (2003) Are eating disorders culture-bound syndromes? Implications for conceptualizing their etiology. **Psychological Bulletin 129 (5)**: 747-769.
Polivy J, Herman CP (2002) Causes of eating disorders. **Annual Review of Psychology, 53:** 187-213

Stice E (2002) Risk and maintenance factors for eating pathology: A meta-analytic review. **Psychological Bulletin 128***:* 825-848
Ward, A et al. (2001) Attachment in anorexia nervosa: a transgenerational perspective. **British Journal of Medical Psychology, 74:** 497-505

15. Dieting and disordered eating

- From externality to dietary restraint
- Disinhibition: does dieting lead to binge eating?

Background reading:

Cowen, P.J., Clifford, E.M., Williams, C., Walsh, A.E.S., & Fairburn, C.G. (1995) Why is dieting so difficult? **Nature, 376,** 557.
Lowe, M.R. (1993) The effects of dieting on eating behaviour: a three-factor model. **Psychological Bulletin, 114**, 100-121.
Polivy, J., & Herman, C.P. (1985) Dieting and bingeing. **American Psychologist, 40,** 193-201.
Rodin, J. (1981) Current status of the internal-external hypothesis for obesity. What went wrong? **American Psychologist, 36***,* 361-372.

SEMINAR ORGANISATION AND CONTENT

Seminars have been designed with three aims in mind:

1 To help you understand better the core content presented in lectures
2 To go into specific topics in greater depth than lectures
3 To enhance your ability to précis and present key concepts in the psychology of appetite

To meet these aims, each seminar will have two sections. The main section (roughly 90 minutes) centres around four or five student presentations, each giving the presenter a chance to expand on ideas raised in lectures. A**ll students are required to present one topic, and this presentation will count for 20% of overall Module assessment (50% of your coursework component)**. Topic assignments will be finalised soon after the first lecture by the Module convenor. Each topic has one or two readily available core readings which form the basic content of each presentation, but you are encouraged to augment this basic material with original material from recent publications which you should research yourselves. Topics are divided into themes, and each seminar description summarise the topics to be presented.

Seminar presentations should be no more than 10 minutes long (and this timing will be strict to allow parity of assessment), with an additional 5 minutes for questions after each talk. Non-presenters should be prepared to ask questions as this gives an opportunity for presenters to clarify and expand on material, and how presenters deal with questions will be part of the assessment.

Part 2 (30 minutes) is an open discussion of the Module content, with a chance to clarify issues which were unclear in lectures.

References for seminar presentations

Most topics have an associated (usually short) summary review paper which gives the key background. Most of these papers are available from Study Direct, and I recommend everyone reads all of these. Seminar topic also has a specific research paper which updates the review, and which will allow the presenter to follow-up the topic. These are either available on-line or from the main library.

SEMINAR 1: APPETITE CONTROL AND FOOD PREFERENCE DEVELOPMENT

1. Is pre-meal ghrelin increases a learned response?

Lecture 2 introduced the "hunger-hormone" ghrelin, and reported how ghrelin increases before meals. But why does it? Is this purely physiology or a learned response?

Introductory review:

Cummings, D. E. (2006). Ghrelin and the short- and long-term regulation of appetite and body weight. **Physiology & Behavior**, 89, 71-84.

Key research articles:

Drazen, D. L., Vahl, T. P., D'Alessio, D. A., Seeley, R. J., & Woods, S. C. (2006). Effects of a fixed meal pattern on ghrelin secretion: Evidence for a learned response independent of nutrient status. **Endocrinology**, 147, 23-30.

Ott, V., Friedrich, M., Zemlin, J., Lehnert, H., Schultes, B., Born, J., & Hallschmid, M. (2012). Meal anticipation potentiates postprandial ghrelin suppression in humans. **Psychoneuroendocrinology**, 37, 1096-1100.

2. How much do we serve ourselves: understanding expected satiety

The first topic builds on the work we have covered on appetite control to think about a recent idea on how much we choose to eat and why.

Introductory review:

Brunstrom, J. M. (2011). The control of meal size in human subjects: A role for expected satiety, expected satiation and premeal planning. **Proceedings of the Nutrition Society,** 70, 155-161.

Key research articles:

Brunstrom, J. M., Shakeshaft, N. G., & Scott-Samuel, N. E. (2008). Measuring 'expected satiety' in a range of common foods using a method of constant stimuli. **Appetite**, 51, 604-614.

Fay, S. H., Ferriday, D., Hinton, E. C., Shakeshaft, N. G., Rogers, P. J., & Brunstrom, J. M. (2011). What determines real-world meal size? Evidence for pre-meal planning. **Appetite**, 56, 284-289

3. PROP and food preferences

In lectures we talked about bitter taste. But we never considered how individuals differ. Today the idea of "super-tasters" is commonly discussed in the lay pres.. This presentation explores this idea.

Introductory review:

Tepper, BJ (1998) 6-*n*-Propylthiouracil: A Genetic Marker for Taste, with Implications for Food Preference and Dietary Habits. **American Journal of Human Genetics, 63:** 1271- 1276.

Key research articles:

Dinehart, M. E., Hayes, J. E., Bartoshuk, L. M., Lanier, S. L., & Duffy, V. B. (2006). Bitter taste markers explain variability in vegetable sweetness, bitterness, and intake. **Physiology and Behavior, 87(2**), 304-313.

Tepper, B. J., White, E. A., Koelliker, Y., Lanzara, C., d'Adamo, P., & Gasparini, P. (2009). Genetic variation in taste sensitivity to 6-n-propylthiouracil and its relationship to taste perception and food selection. **Annals of the New York Academy of Science, 1170,** 126-139.

4. Why do we like caffeinated drinks?

Most of us drink caffeinated drinks. But they taste bitter… so how do we get to like these products?

Introductory review:

Rogers, PJ & Richardson, NL (1993) Why do we like drinks containing caffeine? **Trends in Food Science and Technology 4:** 108-111

Key research article:

Tinley, E, Yeomans, MR & Durlach, PJ.(2003) Caffeine reinforces flavour preference in caffeine-dependent, but not long-term withdrawn, caffeine consumers. **Psychopharmacology, 166:** 416-423

5. Can we learn about food before we are born?

The senses of taste and smell are developed in utero. So can we learn about foods before we are even born?

Introductory review:

Cooke, L., & Fildes, A. (2011). The impact of flavour exposure in utero and during milk feeding on food acceptance at weaning and beyond. **Appetite**, 57, 808-811.

Key research article:

Mennella, J. A., Johnson, A., & Beauchamp, G. K. (1995). Garlic ingestion by pregnant women alters the odor of amniotic fluid. **Chemical Senses**, 20(2), 207–209.
Mennella, J. A, Jagnow, C. P., & Beauchamp, G. K. (2001). Prenatal and postnatal flavor learning by human infants. **Pediatrics**, 107(6), e88–e90.

SEMINAR 2: FOOD, MOOD AND ADDICTION

The second seminar is in two parts. The first examines some of the most recent ideas relating appetite control to obesity, with 2 presentations, while the second moves away from ideas to do with appetite control to look in detail at more psychological aspects of our use of foods to ask: Can foods alter our mood and performance? Do they affect our mental health, and if so can we use foods to improve mental health?

1 FTO and the genetics of obesity

As discussed in lectures, despite the obesity epidemic our genetic make-up remains the best predictor of body-size. So what genes pre-dispose to obesity? FTO might be one..

Introductory review:

Loos, R. J. and C. Bouchard (2008). "FTO: the first gene contributing to common forms of human obesity." **Obesity Reviews 9(3)**: 246-50.

Key research articles:

Dina, C., Meyre, D., Gallina, S., Durand, E., Korner, A., Jacobson, P., et al. (2007). Variation in fto contributes to childhood obesity and severe adult obesity. **Nature Genetics, 39(6)**, 724-726.

2 The links between food reward and drug addiction.

Is food addictive? Results of studies of differences in reward pathways in the brain between obese and normal weight individuals suggest it might be… or does it?

Introductory review:

Grigson PS (2002) Like drugs for chocolate: separate rewards modulated by common mechanisms? **Physiology & Behavior 76:** 345-346

Key research articles:

Volkow, N. D., Wang, G. J., Fowler, J. S., & Telang, F. (2008). Overlapping neuronal circuits in addiction and obesity: Evidence of systems pathology. **Philosophical Transactions of the Royal Society B Biological Sciences, 363(1507)**, 3191-3200.

Rolls, E. T., & McCabe, C. (2007). Enhanced affective brain representations of chocolate in cravers vs. Non-cravers. **European Journal of Neuroscience, 26(4),** 1067-1076.

Herebrand et al. (2014). “Eating addiction”, rather than “food addiction”, better captures addictive-like eating behaviour. **Neuroscience and Biobehavioral Reviews, 47**: 295-306

3 Omega fatty acids, depression and schizophrenia

Can eating fish make you happy?

Introductory review:

Greenwood, CE & Young, SN (2001) Dietary fat intake and the brain: a developing frontier in biological psychiatry. **Journal of Psychiatry and Neuroscience 2001; 26(3)**:182-4.

Key research article:

Su, K-P, Huang, S-Y, Chiu, C-C, & Shen, WW (2003) Omega-3 fatty acids in major depressive disorder: a preliminary double-blind, placebo-controlled trial. **European Neuropsychopharmacology, 13:** 267-271

4 Meals, mood and performance: contrasting effects of breakfast and lunch

How might taking specific meals (rather than nutrients per se) alter our mental functioning?

Introductory review:

Dye L, Lluch A, Blundell JE (2000) Macronutrients and mental performance. **Nutrition 16:** 1021-1034

Key research article:

Mahoney, C. R., Taylor, H. A., Kanarek, R. B., & Samuel, P. (2005). Effect of breakfast composition on cognitive processes in elementary school children. **Physiology and Behavior, 85(5),** 635-645.

SEMINAR 3: DISORDERED EATING

The final seminar looks at our understanding of obesity and eating disorders, building on the last 4 lectures and evaluating the relationship between theory and treatment.

1 Night-eating disorder.

We have learned about a variety of disorders on the course, but not yet night-eating…

Introductory review:

Stunkard, A. J., Allison, K. C., & O'Reardon, J. P. (2005). The night eating syndrome: a progress report. **Appetite, 45(2)**, 182-186.

Key research article:

Gluck, M.E., Geliebter, A., Satov, T. (2001) Night eating syndrome is associated with depression, low self-esteem, reduced daytime hunger, and less weight loss in obese outpatients. **Obesity Research, 9 (4)**, 264-267

Gluck, M.E. , Venti, C.A. , Salbe, A.D. (2008) Nighttime eating: Commonly observed and related to weight gain in an inpatient food intake study. American Journal of Clinical Nutrition. 88, 900-905

2 Binge eating as an escape

Do people binge to escape reality? This classic but complex cognitive theory argues the case for this idea.

Key review

Heatherton TF & Baumeister RF (1991) Binge eating as escape from self-awareness. **Psychological Bulletin 110:** 86-108

Note this is a detailed review and the presentation here should be of key points and then an analysis of the impact of these ideas in the broader literature

3 Binge-eating and depression: a serotonin link.

Depression and eating are often linked: is there a biological basis?

Introductory review:

Kaye WH, Frank GK, Bailer UF, Henry SE, Meltzer CC, Price JC, Mathis CA, Wagner A (2005) Serotonin alterations in anorexia and bulimia nervosa: New insights from imaging studies. **Physiology & Behavior 85 (1)**: 73-81

Key research article:

Tammela LI, Rissanen A, Kuikka JT, et al. (2003) Treatment improves serotonin transporter binding and reduces binge eating. **Psychopharmacology 170:** 89-93

4 Appetite disturbance in anorexia: a need for re-learning?

Once ill, anorexic sufferers are very hard to treat. One school of thought is that they have lost the ability to connect body sensations with appetite…

For an introduction, Pinel's has some insightful comments (pp 311-312 in Biopsychology)

Key articles:

Halmi, K.A., & Sunday, S.R. (1991) Temporal patterns of hunger and fullness ratings and related cognitions in anorexia and bulimia **Appetite, 16**, 219-237.

Bergh, C, Eklund, S, Eriksson, M, Lindberg, G, Sodersten P (1996) A new treatment of anorexia nervosa. **Lancet, 348, No.9027,** 611-612

5 Is dieting a risk factor for development of eating disorders?

Dieting has cropped up throughout the course: we need people to control their intake better to counter obesity. But what are the risks?

Introductory review:

Polivy, J., & Herman, C. P. (2002). Causes of eating disorders. **Annual Review of Psychology, 53,** 187-213.

Key research articles

Lowe, M. R., & Levine, A. S. (2005). Eating motives and the controversy over dieting: eating less than needed versus less than wanted. **Obesity Research, 13(5)**, 797-806.

Hill, A. J. (2004). Does dieting make you fat? **British Journal of Nutrition**, **92 Suppl 1,** S15-18.