

## ONLINE SUPPLEMENTARY MATERIAL

### Table of Contents

**Supplementary Material S1.** Pulse consumption questionnaire

**Supplementary Material S2.** Answer key to questions in part one (knowledge domain) of pulse consumption questionnaire

**Figure S1.** Flow diagram of the trial (adopted from Kazemi et al., 2018 [1]).

**Table S1.** Baseline demographic, anthropometric, and diagnostic characteristics of all randomised women with PCOS (adopted from Kazemi et al., 2018 [1]).

**Table S2.** Attitudes about pulses (individual components of attitude domain in the pulse consumption questionnaire).

## Supplementary Material S1. Pulse consumption questionnaire



**Subject ID:**

**Date:**

**Observation:**

### **Pulse Consumption Questionnaire**

Dear Study Participant,

We are interested in understanding more about why people do or do not eat pulses. This may be something you have or have not thought much about but please note, there are no right or wrong answers. Do your best to answer all the questions.

For your information, the term **pulses** refer to **Beans** (i.e., kidney beans, white beans, black beans, navy beans), **chickpeas**, **dry peas** (i.e., split peas), and **lentils** (i.e., red, yellow, and green).

There are **three parts** to the questionnaire, which should take approximately **10 minutes** to complete.

**Domain one (knowledge of pulse consumption; contains 10 questions).**

The following section is regarding your knowledge of pulses and pulse foods. If you are unsure, do your best in picking what you believe to be the best answer.

1. According to Canada's Food Guide, pulses are an example of food in the (please check one):
  - Vegetable and Fruit Group
  - Grain Products Group
  - Milk and Alternatives Group
  - Meat and Alternatives Group
  
2. Eating a proper diet will help to reduce your risk of certain types of diseases:
  - True
  - False
  
3. One serving of cooked pulses according to Canada's Food Guide equals (please check one):
  - ¼ cup (60 mL)
  - ½ cup (125 mL)
  - ¾ cup (175 mL)
  - 1 cup (250 mL)
  
4. Pulses are a good source of protein:
  - True
  - False
  
5. Pulses are a good source of fibre:
  - True
  - False
  
6. Pulses are a poor source of iron:
  - True
  - False
  
7. Pulses have too much saturated fat:
  - True
  - False
  
8. Which of the following does **NOT** belong in the Meat and Alternatives Group in Canada's Food Guide (please check one):
  - Eggs
  - Kidney Beans
  - Tofu
  - Peanut Butter
  - Cottage Cheese
  
9. Pulses are grown in Saskatchewan:
  - True
  - False

10. Where do you access information on healthy eating? (check all that apply)

- Internet
- Magazines
- Cookbooks
- Chefs
- Television
- Friends, family, colleagues
- Grocery store
- Radio
- Library
- Canada's Food Guide
- Newspaper
- Food labels
- Health professional (e.g., physician, dietitian, nurse)
- Social networking sites
- Other. Please specify:

**Domain two (attitudes about pulse consumption; contains 21 items).**

Please check (✓) one response for each question regarding pulse consumption.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1. I need more information about how to cook pulses.					
2. Pulse-based meals or snacks are not available when I eat out.					
3. I am too busy to prepare a pulse-based meal.					
4. I believe it would be too expensive to eat pulses.					
5. I believe I would have to go shopping too often if I ate pulses.					
6. I would buy a prepackaged pulse-based snack.					
7. I would get indigestion, bloating, or gas eating pulses.					
8. I do not know how to prepare pulses.					
9. Pulses are not tasty enough.					
10. I believe it takes too long to prepare pulses.					
11. I never think of using pulses when I cook.					
12. I would try a pulse meal in a restaurant.					
13. I would eat pulses if they had a more attractive appearance.					
14. I would buy a prepackaged pulse-based meal.					
15. Pulses are expensive to add to meals.					
16. I am motivated to eat pulses.					
17. I know how to cook pulses.					
18. I believe that pulse-based meals can help me to save money.					
19. Pulses can be a part of a tasty diet.					
20. Pulses are part of my traditional diet.					
21. I believe pulses are healthy foods.					

**Domain three (pulse consumption frequency and barriers to pulse consumption; contains 2 questions)**

The following items are designed to record your USUAL pulse consumption behaviours.

1. How often do you eat pulses?

- Never or rarely (**Go to question 2**)
- 1-3 times per month (Skip question 2)
- 1-2 times per week (Skip question 2)
- 3-4 times per week (Skip question 2)
- 5-6 times per week (Skip question 2)
- Once a day (Skip question 2)
- Two or more times a day (Skip question 2)

2. People have given many reasons for not eating pulses or rarely eating pulses. Of the reasons listed at the bottom of the page, indicate which ones are the most important regarding why you never or rarely eat pulses? (**Please put the letter in box**).

- Most important** reason why I do not or rarely eat pulses.
- Second most important** reason why I do not or rarely eat pulses.
- Third most important** reason why I do not or rarely eat pulses.

These include:

- A. I believe pulses do not taste good.
- B. I believe pulses take a long time to cook.
- C. I do not know where to find pulses.
- D. I believe my family would not like pulses.
- E. I believe pulses are expensive.
- F. I do not know how to cook pulses.
- G. I do not want to try new foods.
- H. I believe pulses are not very healthy.
- I. Other. Please explain:

**Thank you**

**Supplementary Material S2. Answer key to questions in part one (knowledge domain) of pulse consumption questionnaire**

Correct answer to question 1. Meat and Alternatives Group

Correct answer to question 2. True

Correct answer to question 3.  $\frac{3}{4}$  cup (175 mL)

Correct answer to question 4. True

Correct answer to question 5. True

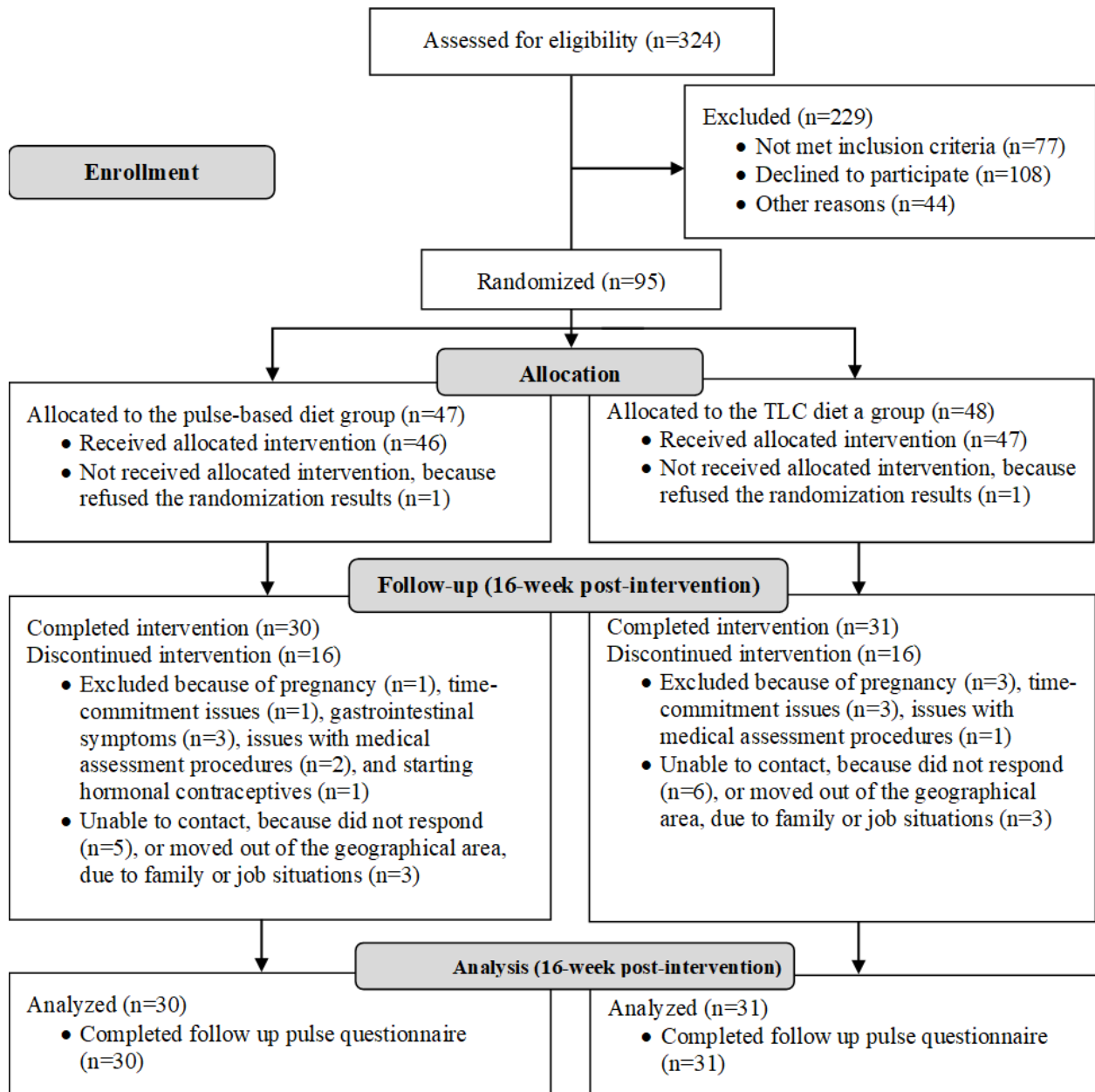
Correct answer to question 6. False

Correct answer to question 7. False

Correct answer to question 8. Cottage Cheese

Correct answer to question 9. True

**Figure S1. Supplementary Figure 1. Flow diagram of the trial (adopted from Kazemi *et al.*, 2018 [1]).** "Completed the intervention" in the "follow-up (16-week post-intervention)" section accounts for participants who completed the intervention and "discontinued the intervention" accounts for women who dropped out of the study before completing the 16-week intervention. In the "analysis (16-week post-intervention)" section, the number of subjects analysed in the study groups included women who completed the 16-week intervention. The questionnaire was self-administered at baseline and 16-weeks post-intervention.





**Table S1. Baseline demographic, anthropometric, and diagnostic characteristics of all randomised women with PCOS (adopted from of Kazemi et al., 2018 [1]).**

Measure (measurement unit)	Pulse-based diet group	TLC diet group
Age (year)	27.0 ± 4.6	26.9 ± 4.4
Metformin Tx (n (yes%))	18 (38.3)	20 (41.7)
BMI (kg/m <sup>2</sup> )	32.5 ± 8.4	33.3 ± 9.0
Diagnostic measures for PCOS		
TT (nmol/L)	1.5 ± 0.5	1.7 ± 1.1
FNPO (2-9 mm)	42 ± 18	45 ± 14
OV (mL)	11.6 ± 6.5	10.8 ± 5.3
Menstrual cycle length (day)	117 ± 64	132 ± 62
Presence of hirsutism (n (yes%))	32 (68.1)	35 (72.9)

**Abbreviations:** PCOS, polycystic ovary syndrome; TLC, Therapeutic Lifestyle Changes; Tx, therapy; BMI, body mass index; WC, waist circumference; TT, total testosterone; FNPO, follicle number per ovary; OV, ovarian volume. Baseline differences between the intervention groups were determined by t-tests for continuous variables after normality testing and by chi-squared tests for categorical variables. Data are presented as mean ± SD or numbers (percentages). Baseline data were comparable between groups. Numbers in each group for baseline characteristics of all women who were enrolled in the study were as follows: pulse-based diet group = 47; TLC diet group = 48 per the CONSORT guideline for reporting on RCT [2,3].

Item	Pulse-based diet group n (%)		TLC diet group n (%)		<i>p</i> -value <sup>a</sup>		
	Baseline	Post-intervention	Baseline	Post-intervention	Time	Group	Group × Time
<b>I need more information about how to cook pulses.</b>							
Strongly Disagree	2 (6.7)	5 (16.7)	3 (9.7)	3 (9.7)	<b>&lt;0.05</b>	<b>&lt;0.05</b>	0.43
Disagree	5 (16.7)	6 (20.0)	3 (9.7)	3 (9.7)			
Not Sure	3 (10.0)	1 (3.3)	0	10 (32.3)			
Agree	11 (36.7)	15 (50.0)	12 (38.7)	12 (38.7)			
Strongly Agree	9 (30.0)	3 (10.0)	13 (41.9)	3 (9.7)			
<b>Pulse-based meals or snacks are not available when I eat out.</b>							
Strongly Disagree	1 (3.3)	0	1 (3.2)	2 (6.5)	0.76	0.74	0.33
Disagree	9 (30.0)	11 (36.7)	6 (19.4)	8 (25.8)			
Not Sure	10 (33.3)	8 (26.7)	12 (38.7)	6 (19.4)			
Agree	8 (26.7)	7 (23.3)	8 (25.8)	8 (25.8)			
Strongly Agree	2 (6.7)	4 (13.3)	4 (12.9)	7 (22.6)			
<b>I am too busy to prepare a pulse-based meal.</b>							
Strongly Disagree	1 (3.3)	2 (6.7)	2 (6.5)	2 (6.5)	0.48	0.22	0.32
Disagree	14 (46.7)	18 (60.0)	16 (51.6)	18 (58.1)			
Not Sure	9 (30.0)	6 (20.0)	8 (25.8)	3 (9.7)			
Agree	6 (20.0)	4 (13.3)	3 (9.7)	8 (25.8)			
Strongly Agree	0	0	2 (6.5)	0			
<b>I believe it would be too expensive to eat pulses.</b>							
Strongly Disagree	5 (16.7)	14 (46.7)	7 (22.6)	11 (35.5)	<b>&lt;0.05</b>	<b>&lt;0.05</b>	0.48
Disagree	15 (50.0)	11 (36.7)	13 (41.9)	11 (35.5)			
Not Sure	9 (30.0)	4 (13.3)	10 (32.3)	9 (29.0)			
Agree	1 (3.3)	1 (3.3)	1 (3.3)	0			
Strongly Agree	0	0	0	0			
<b>I believe I would have to go shopping too often if I ate pulses.</b>							
Strongly Disagree	5 (16.7)	11 (36.7)	9 (29.0)	11 (35.5)	0.54	0.65	0.76
Disagree	19 (63.3)	13 (43.4)	8 (25.8)	4 (12.9)			
Not Sure	5 (16.7)	5 (16.7)	11 (35.3)	15 (48.4)			
Agree	1 (3.3)	1 (3.3)	3 (9.7)	1 (3.2)			
Strongly Agree	0	0	0	0			
<b>I would buy a prepackaged pulse-based snack.</b>							
Strongly Disagree	2 (6.7)	0	0	1 (3.2)	0.19	0.13	0.56

Disagree	3 (10.0)	3 (10.0)	4 (12.9)	2 (6.5)			
Not Sure	9 (30.0)	6 (20.0)	8 (25.8)	11 (35.5)			
Agree	11 (36.7)	14 (46.7)	15 (48.4)	10 (32.3)			
Strongly Agree	5 (16.7)	7 (23.3)	4 (12.9)	7 (22.6)			
<b>I would get indigestion, bloating, or gas eating pulses.</b>							
Strongly Disagree	0	2 (6.7)	3 (9.7)	2 (6.5)			
Disagree	7 (23.3)	13 (43.3)	8 (25.8)	8 (25.8)	0.43	0.52	0.45
Not Sure	12 (40.0)	1 (3.3)	10 (32.3)	11 (35.5)			
Agree	10 (33.3)	12 (40.0)	9 (29.0)	10 (32.3)			
Strongly Agree	1 (3.3)	2 (6.7)	1 (3.2)	0			
<b>I do not know how to prepare pulses.</b>							
Strongly Disagree	2 (6.7)	5 (16.7)	4 (12.9)	6 (19.4)			
Disagree	5 (16.7)	13 (43.3)	8 (25.8)	9 (29.0)	<0.05	<0.05	0.83
Not Sure	7 (23.3)	3 (10.0)	5 (16.1)	3 (9.7)			
Agree	7 (23.3)	7 (23.3)	7 (22.6)	10 (32.3)			
Strongly Agree	9 (30.0)	2 (6.7)	7 (22.6)	3 (9.7)			
<b>Pulses are not tasty enough.</b>							
Strongly Disagree	3 (10.0)	5 (16.7)	7 (22.6)	6 (19.4)			
Disagree	17 (56.7)	12 (40.0)	12 (38.7)	17 (54.8)	0.23	0.18	0.41
Not Sure	8 (26.7)	2 (6.7)	6 (19.4)	5 (16.1)			
Agree	2 (6.7)	10 (33.3)	6 (19.4)	2 (6.5)			
Strongly Agree	0	1 (3.3)	0	1 (3.2)			
<b>I believe it takes too long to prepare pulses.</b>							
Strongly Disagree	1 (3.3)	6 (20.0)	1 (3.2)	1 (3.2)			
Disagree	12 (40.0)	12 (40.0)	11 (35.5)	13 (41.9)	0.46	0.53	0.42
Not Sure	14 (46.7)	7 (23.3)	9 (29.0)	9 (29.0)			
Agree	3 (10.0)	5 (16.7)	10 (32.3)	7 (22.6)			
Strongly Agree	0	0	0	1 (3.2)			
<b>I never think of using pulses when I cook.</b>							
Strongly Disagree	2 (6.7)	4 (13.3)	2 (6.5)	3 (9.7)			
Disagree	11 (36.7)	11 (36.7)	10 (32.3)	13 (41.9)	0.89	0.87	0.91
Not Sure	3 (10.0)	5 (16.7)	4 (12.9)	2 (6.5)			
Agree	11 (36.7)	8 (26.7)	11 (35.5)	11 (35.5)			
Strongly Agree	3 (10.0)	2 (6.7)	4 (12.9)	2 (6.5)			
<b>I would try a pulse meal in a restaurant.</b>							
Strongly Disagree	0	0	1 (3.2)	1 (3.2)	0.86	0.78	0.38

Disagree	3 (10.0)	3 (10.0)	3 (9.7)	5 (16.1)			
Not Sure	3 (10)	2 (6.7)	1 (3.2)	4 (12.9)			
Agree	18 (60.0)	18 (60.0)	22 (71.0)	14 (45.2)			
Strongly Agree	6 (20.0)	7 (23.3)	4 (12.9)	7 (22.6)			
<b>I would eat pulses if they had a more attractive appearance.</b>							
Strongly Disagree	0	1 (3.3)	3 (9.7)	3 (9.7)	0.35	0.54	0.62
Disagree	12 (40.0)	11 (36.7)	10 (32.3)	10 (32.3)			
Not Sure	11 (36.7)	5 (16.7)	4 (12.9)	7 (22.6)			
Agree	7 (23.3)	10 (33.3)	12 (38.7)	11 (35.5)			
Strongly Agree	0	3 (10.0)	2 (6.5)	0			
<b>I would buy a prepackaged pulse-based meal.</b>							
Strongly Disagree	0	0	1 (3.2)	2 (6.5)	<0.05	0.17	0.18
Disagree	5 (16.7)	2 (6.7)	2 (6.5)	2 (6.5)			
Not Sure	12 (40.0)	5 (16.7)	8 (25.8)	8 (25.8)			
Agree	9 (30.0)	17 (56.7)	18 (58.1)	14 (45.2)			
Strongly Agree	4 (13.3)	6 (20.0)	2 (6.5)	5 (16.1)			
<b>Pulses are expensive to add to meals.</b>							
Strongly Disagree	2 (6.7)	6 (20.0)	5 (16.1)	8 (25.8)	<0.05	<0.05	0.43
Disagree	12 (40.0)	17 (56.7)	15 (48.4)	16 (51.6)			
Not Sure	15 (50.0)	6 (20.0)	11 (35.5)	7 (22.6)			
Agree	1 (3.3)	1 (3.3)	0	1 (3.2)			
Strongly Agree	0	0	0	0			
<b>I am motivated to eat pulses.</b>							
Strongly Disagree	2 (6.7)	1 (3.3)	0	0	0.33	0.67	0.39
Disagree	4 (13.3)	4 (13.3)	6 (19.4)	5 (16.1)			
Not Sure	7 (23.3)	6 (20.0)	6 (19.4)	8 (25.8)			
Agree	14 (46.7)	14 (46.7)	12 (38.7)	9 (29.0)			
Strongly Agree	3 (10.0)	5 (16.7)	7 (22.6)	9 (29.0)			
<b>I know how to cook pulses.</b>							
Strongly Disagree	7 (23.3)	6 (20.0)	3 (9.7)	3 (9.7)	0.48	0.54	0.48
Disagree	10 (33.3)	8 (26.7)	12 (41.9)	11 (35.5)			
Not Sure	4 (13.3)	7 (23.3)	3 (9.7)	3 (9.7)			
Agree	8 (26.7)	8 (26.7)	10 (32.3)	10 (32.3)			
Strongly Agree	1 (3.3)	1 (3.3)	2 (6.5)	4 (12.9)			
<b>I believe that pulse-based meals can help me to save money.</b>							
Strongly Disagree	0	0	0	0	0.25	0.39	0.57

Disagree	1 (3.3)	5 (16.7)	0	2 (6.5)			
Not Sure	17 (56.7)	12 (40.0)	22 (71.0)	17 (54.8)			
Agree	11 (36.7)	11 (36.7)	6 (19.4)	7 (22.6)			
Strongly Agree	1 (3.3)	2 (6.7)	3 (9.7)	5 (16.1)			
<b>Pulses can be a part of a tasty diet.</b>							
Strongly Disagree	0	1 (3.3)	0	0	0.89	0.82	0.65
Disagree	0	1 (3.3)	0	1 (3.2)			
Not Sure	7 (23.3)	2 (6.7)	11 (35.5)	5 (16.1)			
Agree	18 (60.0)	19 (63.3)	13 (41.9)	16 (51.6)			
Strongly Agree	5 (16.7)	7 (23.3)	7 (22.6)	9 (29.0)			
<b>Pulses are part of my traditional diet.</b>							
Strongly Disagree	6 (20.0)	7 (23.3)	5 (16.1)	4 (12.9)	0.65	0.76	0.82
Disagree	14 (46.7)	11 (36.7)	15 (48.4)	15 (48.4)			
Not Sure	4 (13.3)	3 (10.0)	3 (9.7)	4 (12.9)			
Agree	6 (20.0)	8 (26.7)	6 (19.4)	6 (19.4)			
Strongly Agree	0	1 (3.3)	2 (6.5)	2 (6.5)			
<b>I believe pulses are healthy foods.</b>							
Strongly Disagree	0	0	0	0	<0.05	<0.05	0.36
Disagree	0	0	0	0			
Not Sure	3 (10.0)	0	5 (16.1)	1 (3.3)			
Agree	16 (53.3)	9 (30)	14 (45.2)	18 (58.1)			
Strongly Agree	11 (36.7)	21 (70)	12 (38.7)	12 (38.4)			

All values are all presented as n (%) of women within each group to better present the distribution of responses at baseline and post-intervention. a. *p*-values represent the results of linear regressions. Numbers in each group for baseline characteristics were as follows: pulse-based diet group = 30; TLC diet group = 31.

## References

1. Kazemi, M., L.E. McBairty, D.R. Chizen, R.A. Pierson, P.D. Chilibeck, and G.A. Zello. A comparison of a pulse-based diet and the Therapeutic Lifestyle Changes diet in combination with exercise and health counselling on the cardio-metabolic risk profile in women with polycystic ovary syndrome: A randomized controlled trial. *Nutrients* **2018**, 10, pp. 1387. DOI: 10.3390/nu10101387.
2. Schulz, K.F., D.G. Altman, D. Moher, and the CONSORT Group. CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials. *Ann Int Med* **2010**, 152, pp. 726-732. DOI: 10.1186/1741-7015-8-18.
3. Moher, D., K.F. Schulz, and D.G. Altman. The CONSORT statement: revised recommendations for improving the quality of reports of parallel-group randomised trials. *The Lancet* **2001**, 357, pp. 1191-1194. DOI: 10.1016/S0140-6736(00)04337-3.