 University of Zurich <small>UZH</small> Institute of Laboratory Animal Sciences	Standard Operating Procedure SOP	Page 1 of 6
Date: 20.05.2022	Randomization	LTK-RE-85-A-EN Version: A

This SOP replaces: Version: None

Reason for Change: None

Related SOPs:

Indication of Use: Blinding and randomization of animal experiments (and beyond)

Aim of SOP: To be used when preparing animal experiments so that there is reproducibility amongst the different experiments, e.g., allocation of animals in cages and random application of treatments as well as countering observer´s biases.

Distribution: 1. Original: Thorsten Buch
 2. Copy: Server

Attachments:

Generated at: 19.05.2022	Checked and approved at: 20.05.2022
by: Antonis Katsoulas	by: Thorsten Buch

Responsible Persons: Researcher with Module 1 with registration on experimental license

Method: electronic in excel

File: SOP-LTK-RES-85-A-EN Randomization



Method Description

Randomization

Simple Random Group Allocation

1. Decide on the number of mice you need in an experiment, as well as on the number of groups you want them to be in
2. Add number of mice on an Excel sheet with ascending order
3. Randomize them using the =RAND() command (do it for the first one, then drag down so that it is applied to all of them)
4. This will generate random numbers for each mouse number

The first screenshot shows an Excel spreadsheet with columns A, B, C, and D. Cell A1 contains the formula =RAND(). The second screenshot shows the same spreadsheet after the formula has been applied to cells A1 through A12, generating random numbers. A blue arrow points from the first screenshot to the second.

	A	B	C	D
1	0,76599749	1		
2		2		
3		3		
4		4		
5		5		
6		6		
7		7		
8		8		
9		9		
10		10		
11		11		
12		12		

	A	B	C	D
1	0,01451778	1		
2	0,96070749	2		
3	0,22539266	3		
4	0,12984493	4		
5	0,66061408	5		
6	0,1991389	6		
7	0,257455	7		
8	0,95632478	8		
9	0,3734787	9		
10	0,59199234	10		
11	0,06116931	11		
12	0,4770518	12		

5. Select Sort & Filter, choose Sort from smallest to largest for the random numbers

The first screenshot shows the 'Sort & Filter' menu in Excel, with 'Sort Smallest to Largest' selected. The second screenshot shows the same spreadsheet after sorting, with the random numbers in column A sorted in ascending order. A blue arrow points from the first screenshot to the second.

	A	B
1	0,56921765	1
2	0,41300992	11
3	0,80765706	4
4	0,71473795	6
5	0,97964126	3
6	0,21802574	7
7	0,70806387	9
8	0,49038925	12
9	0,6591341	10
10	0,54469955	5
11	0,38732807	8
12	0,71314047	2



Date: 20.05.2022

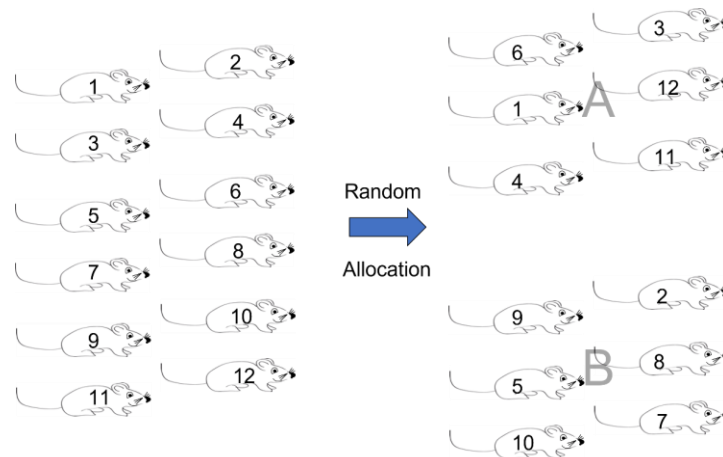
Randomization

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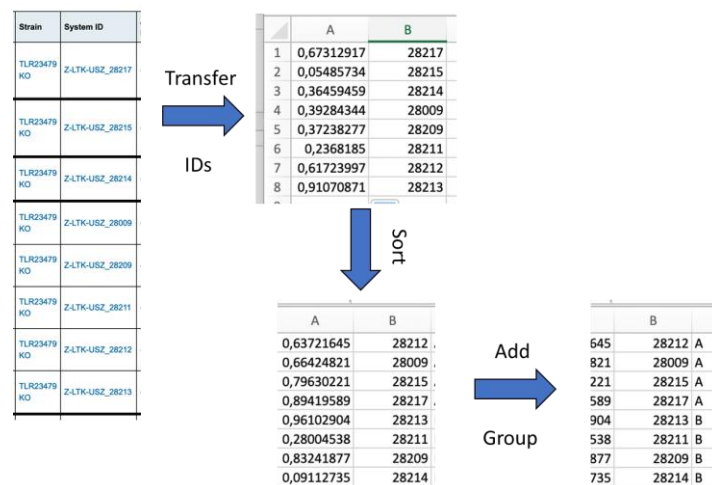
6. Add Group on the next column, e.g., groups A, B

	B	
645	28212	A
821	28009	A
221	28215	A
589	28217	A
904	28213	B
538	28211	B
877	28209	B
735	28214	B

7. In this way, we end up with mice randomly allocated in 2 groups



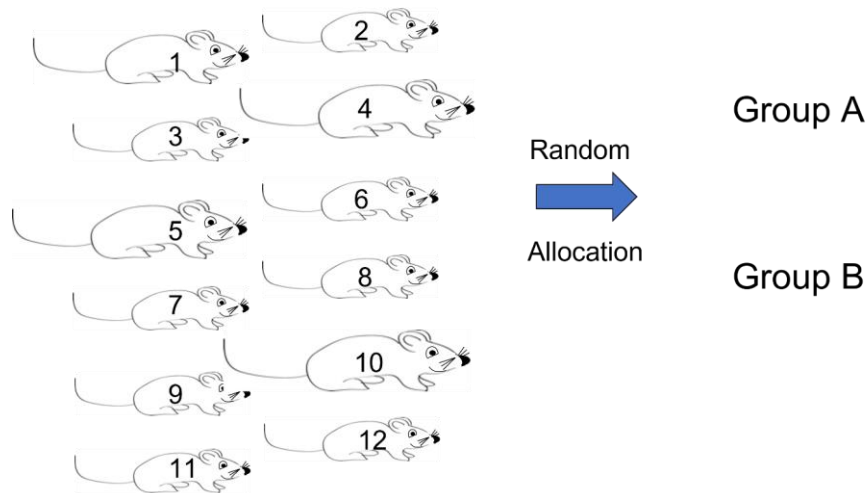
Example of Simple Random Group Allocation in Real life:



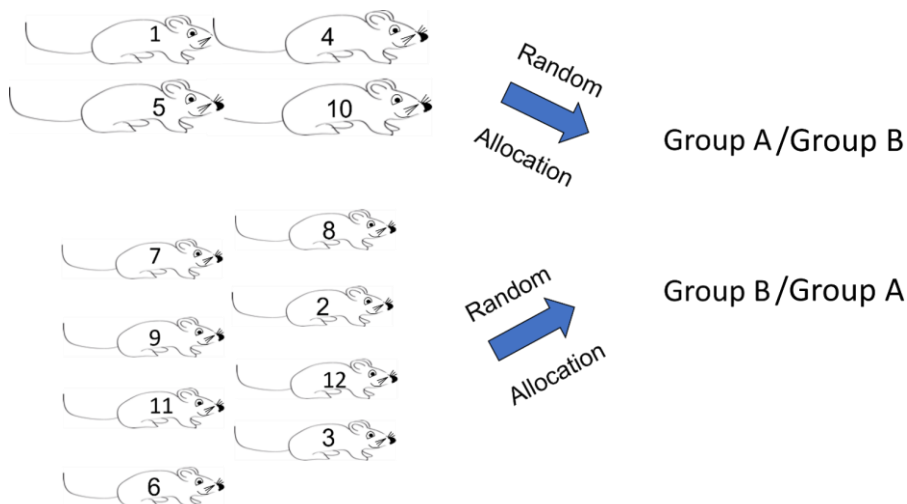



Stratified Random Group Allocation

Example: you have a number of fat and slim mice, which need to be randomly allocated in 2 groups

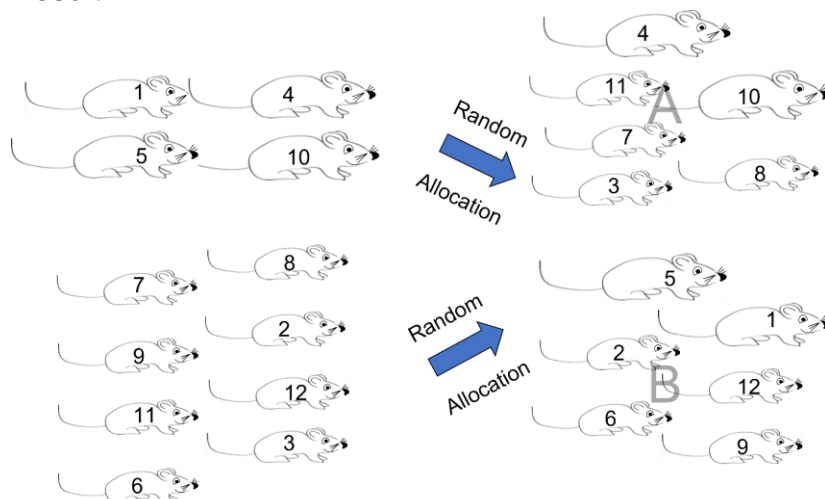


1. Assign a number to each mouse
2. Randomly allocate fat mice as above (simple random group allocation)
3. Randomly allocate slim mice as above (simple random group allocation)



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Result:



Random Cage Allocation

1. Randomly allocate all mice into cages by use of cage numbers (provided from iRATS or personally assigned).
2. Follow the simple random group allocation protocol as above.


Blinding

For blinding purposes, in case of treatment application, perform as follows:

1. First experimenter prepares the treatment application and assigns a letter (e.g., A,B,C) to the different treatments
2. First experimenter hands the labelled treatments over to the second experimenter, who performs the required administration of treatments blinded to the type of treatment.

In case of disease induction and animal disease monitoring:

1. First experimenter prepares the animals and performs the random allocation of e.g. gene deficiency and wildtype.
2. Second experimenter performs the disease induction (blinded if possible/necessary, as described above for the treatment) for the different experimental groups (e.g., gene deficiency versus wildtype).
3. First or second experimenter performs health status monitoring and scoring, blinded to the genotype (or other factors).

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Note: Apart of the day of treatment administration/disease induction, when the experimenters need to know which mice will receive treatment/will be induced with disease, nowhere else in our health status monitoring (scoring) sheets, is it mentioned which animal has received what treatment/has been induced with disease. This means that both experimenters (even the one performing the treatment administration/disease induction) end up being blinded to the different factors and can perform the health status monitoring and disease scoring.

Documentation:

Lab book, Randomization Excel sheets saved on LTK server.