VUmc_Minor_TSM_2016-09-30_inzage

Wednesday, March 22, 2017 13:53

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During which stage of the development of a 'typical' new drug will the formulation take place?

During the:

- clinical development phase I
- clinical development phase II
- drug discovery phase
- preclinical development phase

IF choice d. is selected
Set score to 1

Right.

[Source: College]

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Which of the following characteristics is an essential part of clinical development phase I studies?

- multicenter
- small groups of patients
- determination of pharmacokinetic properties
- pharmacovigilance

IF choice c. is selected
Set score to 1

Right.

[Source: College]

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Which condition is not part of the FINER criteria for a good research question?

- feasible
- interesting
- relevant
- experimental

IF choice d. is selected
Set score to 1

Right.

[Source: College; Farrugia et al. Research questions, hypotheses and objectives. Can J Surg 2010;53: 278–281]

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You design a new study that investigates the efficacy and safety of a new stent for coronary stenosis. You decide to only include patients with the lowest health risk profile: patients are excluded when they smoke and/or have a body mass index exceeding 25 kg/m2.

Does this decision influence the validity of your study?

- yes, this decision does reduce the external validity of the study
- no, this decision does not influence the validity of the study
- yes, this decision does reduce the internal validity of the study

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IF choice a. is selected
Set score to 1

Right.

[Source: College; Farrugia et al. Research questions, hypotheses and objectives. Can J Surg 2010;53: 278–281]

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What is the optimal sequence in the design of a study question and hypothesis?

- the study hypothesis is formulated based on an analysis of an existing database
- the study hypothesis is derived from a study question
- the study question is derived from a study hypothesis
- the hypothesis is formulated after completing the study design

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IF choice b. is selected
Set score to 1

Right.

[Source: College; Farrugia et al. Research questions, hypotheses and objectives. Can J Surg 2010;53: 278–281]

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Case 1: *-this case contains two questions-*

An author defined the following aim for a scientific article:
In this study we aim to investigate whether a thermographic temperature measurement has a higher predictive value for a successful epidural block in patients undergoing surgery when compared to the cold sensation test as gold standard.

The study aim includes the following items: **A)** study endpoint, **B)** method of investigation and **C)** comparative method.

What are **A**, **B** and **C** in the above study aim?

- **A)** Predictive value for successful block; **B)** thermography; **C)** cold sensation test
- **A)** Occurrence of epidural block; **B)** cold sensation test; C) thermography
- **A)** Predictive value for successful block; **B)** cold sensation test; **C)** thermography
- **A)** Occurrence of epidural block; **B)** thermography; **C)** cold sensation test

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IF choice a. is selected
Set score to 1

Right.

[Source: College; Farrugia et al. Research questions, hypotheses and objectives. Can J Surg 2010;53: 278–281]

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Case 1: *-second question-*

An author defined the following aim for a scientific article:
In this study we aim to investigate whether a thermographic temperature measurement has a higher predictive value for a successful epidural block in patients undergoing surgery when compared to the cold sensation test as gold standard.

What would be the best study design to investigate the study aim as described in question 1?

- comparative study of patients undergoing a surgical procedure with or without epidural analgesia
- comparative study of thermography and the cold sensation test in patients receiving epidural analgesia for surgery
- comparative study of epidural analgesia and thermography in patients receiving a cold sensation test

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IF choice b. is selected
Set score to 1

Right.

[Source: College; Farrugia et al. Research questions, hypotheses and objectives. Can J Surg 2010;53: 278–281]

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As a clinician you plan to perform an animal experiment to test a new medication.

Is a clinician allowed to perform these experiments without supervision?

- yes, after completing the course on laboratory animal science
- no, since you do not hold a degree in life sciences
- yes, you always can perform animal experiments without supervision

- no, working with animals and patients is not allowed

IF choice a. is selected
Set score to 1

Right.

[Source: College; Research code animal research (vumc.com/branch/research-code-VUmc-AMC/Animals/]

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Since the introduction of the law on animal experiments on December 18 2014, the central authority for scientific procedures on animals (competent authority; CCD) and institutional animal care and use committee (IACUC) have distinct roles in the licensing of animal experiments.

What is the role of the IACUC in this license decision?

- the CCD decides about the license without involvement of the IACUC
- the CCD grants the license partly on the advice of the IACUC
- the IACUC decides about the license without involvement of the CCD
- the IACUC grants the license partly on the advice of the CCD

IF choice b. is selected
Set score to 1

Right.

[Source: College; Research code animal research (vumc.com/branch/research-code-VUmc-AMC/Animals/]

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Why is it difficult to set global numerical targets for the quantity of animals that can be used for scientific research?

- a fixed quantity of animals that can be used for scientific research limits innovation
- there is disagreement regarding the meaning of the 3R term ‘Reduction’ in the EU
- it is unclear whether fish experiments can be counted among animal experiments

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IF choice a. is selected
Set score to 1

Right.

[Source: Research code animal research (vumc.com/branch/research-code-VUmc-AMC/Animals/); Olsson et al. ALTREX Proceedings 2012]

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Which of the 3Rs should be considered first in the design of animal experiments?

- Reduction
- Replacement
- Refinement

IF choice b. is selected
Set score to 1

Right.

[Source: Research code animal research (vumc.com/branch/research-code-VUmc-AMC/Animals/); Olsson et al. ALTREX Proceedings 2012]

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In which cases is animal testing legally obligatory in the Netherlands to study basic mechanisms in biological processes

- to test toxicity and safety of new drugs
- to test toxicity and safety of new cosmetic products
- both options are correct

IF choice a. is selected
Set score to 1

Right.

[Source: College; Research code animal research (vumc.com/branch/research-code-VUmc-AMC/Animals/)]

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An alternative model for animal experiments is a 3D culture system for skin.
Which body system that is present in intact skin is not represented (yet) in such a test system?

- the immune system
- dermal matrix
- the epidermal skin barrier
- vascularization

IF choice a. is selected
Set score to 1

Right.

[Source: College; Research code animal research (vumc.com/branch/research-code-VUmc-AMC/Animals/)]

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How many animals are yearly used for scientific research in the Netherlands?

- 50.000 - 65.000
- 200.000 - 350.000
- 500.000 - 650.000
- 900.000 – 1.050.000

IF choice c. is selected
Set score to 1

Right.

[Source: College; Research code animal research (vumc.com/branch/research-code-VUmc-AMC/Animals/)]

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Experiments using animals have played a crucial role in the development of medical treatments.

Which medical treatments are developed with the use of animals?

- organ transplants
- vaccines
- antibiotics
- all the answers are correct

IF choice d. is selected
Set score to 1

Right.

[Source: College; Research code animal research (vumc.com/branch/research-code-VUmc-AMC/Animals/)]

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When does research in human subjects have to undergo a medical ethical review by the medical research ethics committee (MREC)?

- in case of medical/scientific research where human subjects are exposed to procedures or are required to follow rules of behavior and with risks and a burden for the human subjects during study participation
- in case of medical/scientific research with risks and a burden for the human subjects during study participation
- in case of medical/scientific research where human subjects are exposed to procedures or are required to follow rules of behavior

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IF choice c. is selected
Set score to 1

Right.

[Source: College; Emanuel et al. What makes clinical research ethical? JAMA 2000;283:2701-11; vumc.com/branch/research-code-VUmc-AMC/]

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You suspect that chewing gum counters cognitive decline among clients with moderate to advanced dementia. You develop a study hypothesis and write a research protocol where human subjects are randomized on an institutional level. In some nursing homes, clients are allowed to chew gum on several occasions for a few minutes (intervention group). The other nursing homes provide care as usual (control group). Cognitive decline is measured by means of cognitive tests.

What type of medical//scientific research is this?

- a therapeutic, interventional study with mentally incompetent subjects that requires ethical review by the medical research ethics committee (MREC)
- a non-therapeutic, interventional study with mentally incompetent subjects that requires ethical review by the Central Committee on Research Involving Human Subjects (CCMO)
- a non-therapeutic, interventional study that does not require ethical review by the CCMO or IRB/MREC since chewing gum is not considered as imposed behavior

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IF choice a. is selected
Set score to 1

Right.

[Source: College; Emanuel et al. What makes clinical research ethical? JAMA 2000;283:2701-11.; vumc.com/branch/research-code-VUmc-AMC/]

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You are a scientist and would like to include a patient in your clinical investigation. The burden for the study participant is low and consists of blood withdrawal on two different time points. There is one patient present in the hospital ward who fulfills the in- and exclusion criteria for your study. The patient is however a foreigner, and unable to speak and read Dutch, while the written study information is in Dutch.

Can this patient be included in your study?

- yes, due to the low study burden for the participant you include the patient in the study after an informative talk in English
- no, the patient cannot be included in this study due to the language barrier
- yes, you discuss the study with a friend of the patient who speaks native Dutch and ask informed consent from this friend

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IF choice b. is selected
Set score to 1

Right.

[Source: College; Emanuel et al. What makes clinical research ethical? JAMA 2000;283:2701-11.; vumc.com/branch/research-code-VUmc-AMC/]

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You would like to include a girl of 11 years old in a clinical study. In this study, you aim to get a muscle biopsy from the leg to analyze the behavior of mitochondria.

Which of the following statements is the most appropriate in this situation?

- after informed consent of both parents and the girl you include her in the study
- after informed consent of both parents of the girl you include her in the study
- after informed consent from one parent you include her in the study
- you are not allowed to include the girl in the study

IF choice d. is selected
Set score to 1

Right.

[Source: College; Emanuel et al. What makes clinical research ethical? JAMA 2000;283:2701-11.; vumc.com/branch/research-code-VUmc-AMC/]

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Rofecoxib (Vioxx) is an analgesic for osteoarthritis. Several clinical studies, including the VIGOR study, showed its benefit as analgesic for arthritis-related pain, with better gastrointestinal safety when compared to naproxen. Despite its efficacy, the drug was however withdrawn from the market.

What was the main reason that the drug was withdrawn?

- the VIGOR study was performed by employees of the manufacturer
- there was no cardiologist appointed to the VIGOR study steering committees
- the manufacturer hired ghostwriters to write editorial comments
- the drug increased the risk of cardiovascular disease

IF choice d. is selected
Set score to 1

Right.

[Source: College; Emanuel et al. What makes clinical research ethical? JAMA 2000;283:2701-11.; vumc.com/branch/research-code-VUmc-AMC/]

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Based on which point of view of the Medical Research Involving Human Subjects Act (WMO) should the Tuskegee experiment not proceed?

- the Tuskegee study participants were incompetent to participate in the study
- the Tuskegee study participants were exposed to a non-therapeutic intervention
- the Tuskegee study participants did not provide informed consent for participation
- the Tuskegee study participants were subjected to an unapproved medicine

IF choice c. is selected
Set score to 1

Right.

[Source: College; Emanuel et al. What makes clinical research ethical? JAMA 2000;283:2701-11; vumc.com/branch/research-code-VUmc-AMC/]

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What are the STOPP/START criteria?

- are clear rules in research to include patients or take them off protocol
- are defined in a pharmacokinetic software program for optimal dosing
- are used to screen older people for inappropriate prescriptions
- are used in the first step of the WHO 6 step

IF choice c. is selected
Set score to 1

Right.

[Source: Shivale et al. The art & science of prescribing. J Fam Pract 2015;64:400-406, 406A.]

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The WHO 6 step is a guideline for prescribing drugs.
In which step do you verify the suitability of your personal drug?

In step:

- 2
- 3
- 4
- 5

IF choice b. is selected
Set score to 1

Right.

[Source: Shivale et al. The art & science of prescribing. J Fam Pract 2015;64:400-406, 406A.]

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In the Netherlands, the Code of Conduct for Academic Practice is based on 5 principles and best practices.

Which one of the principles below is no part of the Code of Conduct for Academic Practice in the Netherlands?

- verifiability
- robustness
- impartiality
- scrupulousness

IF choice b. is selected
Set score to 1

Right.

[Source: vumc.com/branch/research-code-VUmc-AMC/; vsnu.nl/files/documenten/Domeinen/Onderzoek/The_Netherlands_Code_of_Conduct_for_Scientific_Practice_2012.pdf]

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What is meant by the term publication bias?

- selection of data for final analysis in such a way that the study results are positively or negatively influenced
- confirmation of previously published scientific findings by repeating the study in a new setting
- the possibility of a systemic bias in published research due to over-reporting of positive results

IF choice c. is selected
Set score to 1

Right.

[Source: vumc.com/branch/research-code-VUmc-AMC/; vsnu.nl/files/documenten/Domeinen/Onderzoek/The_Netherlands_Code_of_Conduct_for_Scientific_Practice_2012.pdf]

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You are a scientist and recently finalized the data analysis of your clinical investigation. While writing the scientific publication you use your own work that was previously published in international journals. Since the methods of your new publication partly resemble the methods that you previously published, you copy and paste full paragraphs from the method section in the older publication into your new publication.

Is this allowed?

- no, this is not allowed
- yes, this is allowed

IF choice a. is selected
Set score to 1

Right.

[Source: vumc.com/branch/research-code-VUmc-AMC/; vsnu.nl/files/documenten/Domeinen/Onderzoek/The_Netherlands_Code_of_Conduct_for_Scientific_Practice_2012.pdf]

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A professor performs a scientific project with an industrial partner as sponsor. Unfortunately, the study findings are not in favor of the product that is marketed by the industrial partner. The industrial partner sums the scientist to abandon a scientific publication of the study findings. The scientist agrees with this proposition, as he received money from the industrial partner for additional research projects.

To what principle is this contrary to the Code of Conduct for Academic Practice?

- verifiability
- independence
- reliability
- honesty

IF choice b. is selected
Set score to 1

Right.

[Source: vumc.com/branch/research-code-VUmc-AMC/; vsnu.nl/files/documenten/Domeinen/Onderzoek/The_Netherlands_Code_of_Conduct_for_Scientific_Practice_2012.pdf]

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A representative of a company in dietary supplements visits a nursing ward to bring test products for the nurses.

Is the exposure of an advertisement for dietary supplements to nurses allowed according to the Code of Conduct for Pharmaceutical Advertising?

- yes
- no

IF choice a. is selected
Set score to 1

Right.

[Source: College]

29 of 50

Jane is the first author of a scientific publication. The publication focuses on the inhibitory effect of aspirin on the formation of thrombi in dialysis patients. The study results turned out to be positive, as aspirin reduced the formation of thrombi in these patients when compared to a placebo drug. While writing the publication Jane doubts whether she should disclose a personal conflict of interest due to a financial relationship with the manufacturer of aspirin.

Which of the following statements is **not** true?

- Jane is required to disclose a personal conflict of interest in the scientific publication since she worked as consultant for the manufacturer of aspirin
- Jane is required to disclose a personal conflict of interest in the scientific publication since she receives financial support by the manufacturer of aspirin
- Jane is required to disclose a personal conflict of interest in the scientific publication since here employer receives financial support by the manufacturer of aspirin

IF choice c. is selected
Set score to 1

Right.

[Source: College]

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You are preparing a lecture for a scientific meeting. You use the slide model provided by your academic institution. While preparing the slides you remember the rules for an optimal presentation design.

Which of the designs is the most optimal for a clear scientific presentation?

- a colorful slide with large fonts and no detailed information
- a slide with limited colors, small fonts and detailed information
- a slide with limited colors, large fonts and no detailed information
- a colorful slide with small fonts and detailed information

IF choice c. is selected
Set score to 1

Right.

[Source: College]

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Case 2 *-this case contains two questions-*

A common denominator in cancer therapy is the activation of anti-tumor immune response. One of the strategies is monoclonal antibody therapy, in which patients are treated with an antibody that binds to tumor cells. Monoclonal antibodies are usually generated in mice. However, before monoclonal antibodies can be given to patients, they are humanized.

Why can't you give mouse anti-tumor monoclonal antibodies to patients repeatedly?

- because human antibodies cannot recognize mouse tumour cells
- because humans develop antibodies against mouse antibodies
- because mouse antibodies are broken down immediately by the human liver
- because mouse antibodies cannot activate human immune cells

IF choice b. is selected
Set score to 1

Right.

[Source: College]

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Case 2 *-second question-*

A common denominator in cancer therapy is the activation of anti-tumor immune response. One of the strategies is monoclonal antibody therapy, in which patients are treated with an antibody that binds to tumor cells. Monoclonal antibodies are usually generated in mice. However, before monoclonal antibodies can be given to patients, they are humanized.

How can you test the efficacy of clinical therapeutic humanized monoclonal antibodies in mice?

- you can use a transgenic mouse model, and treat the mice with the antibodies
- you can never test the efficacy of humanized monoclonal antibodies in mice
- you can use a mouse tumour model, and treat the mice with the antibodies
- you can use a xenograft tumour model in SCID mice, and treat the mice with the antibodies

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IF choice d. is selected
Set score to 1

Right.

[Course: College]

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Major transformations are expected in future health care. Below we list a number of these transformations and a number of drivers of these transformations.

Choose the answer that matches the expected transformation to its main driver.

- transition: Increased personalization of prevention, cure and care – Driver: increased predictive power of biomarkers paired to increased demand by citizens for shared decision-making with health care professionals
- transition: Increased use of m-Health and e-Health applications – Driver: increased smartphone availability
- transition: Transition of care from in-hospital to extramural care settings – Driver: increased value attached to shared decision-making with the patient by health care professionals
- transition: Decreased costs of health care in terms of %BNP (bruto national product) – Driver: larger amount of comorbidity in the ageing population

---

IF choice a. is selected
Set score to 1

Right.

[Source: College]

34 of 50

Public health officials in the Amsterdam Metropolitan Area have noted a gradual increase in the health care costs due to citizens that are treated for hypertension. They decide to develop a lifestyle intervention targeting the healthy middle-aged subpopulation in order to reduce the occurrence of hypertension.

Which of the approaches below leads to the most cost-effective, evidence-based intervention?

- a. perform a meta-analysis of randomized controlled trials in healthy middle-aged participants from different high-income countries on the effect of the intervention on blood pressure. Compare the estimated costs saved by the reduction in blood pressure to the estimated cost of that intervention in the Netherlands
- perform a randomized controlled trial in Dutch healthy middle-aged participants on the effect of the lifestyle intervention compared to no intervention. Estimate the costs saved by the reduction in blood pressure
- perform a randomized controlled trial in Dutch healthy middle-aged participants on the effect of the lifestyle interventions compared to EMA (European Medicines Agency)-approved antihypertensive medication. Compare the estimated costs saved by the reduction in blood pressure by the lifestyle intervention to the costs of the lifestyle intervention

---

IF choice a. is selected
Set score to 1

Right.

[Source: College]

35 of 50

The PICO approach can be used as a framework to focus a question. It contains four components: Patient or population, Intervention, Comparison, Outcome.

Which of the following questions contains all information you need for a PICO?

- what is the effect of antibiotic treatment versus homeopathic treatment in patients with a bacterial pneumonia?
- how effective is using steroids compared to no steroids in meningitis patients to treat cerebral inflammation?
- does aspirin treatment improve mortality in patients who suffered from a heart attack?
- does aspirin help older patients with myocardial infarction to recover fast?

IF choice b. is selected
Set score to 1

Right.

[Source: College]

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Preventive activities are commonly categorized in three levels:

• Primary prevention – actions designed to prevent the occurrence of a problem.
• Secondary prevention – actions designed to detect and treat the occurrence of a problem before symptoms have developed
• Tertiary prevention – actions designed to limit disability once a condition is manifest.

To which level of prevention do health education, genetic counseling and immunization fit best?

- primary prevention
- secundary prevention
- tertiary prevention

IF choice a. is selected
Set score to 1

Right.

[Source: College]

37 of 50

Within a multicenter clinical trial in academic and peripheral medical centers, the effect of a new drug therapy is studied on left ventricular ejection fraction (LVEF). What is the most common method to measure LVEF in this multicenter trial?

LVEF is measured with:

- Positron Emission Tomography
- Echocardiography
- Magnetic resonance imaging
- Electrocardiography

IF choice b. is selected
Set score to 1

Right.

[Source: College]

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Studies on inherited cardiomyopathy in humans have a major advantage over animal models.

What is the major advantage of human studies that can not be addressed in animal models?

- the ability to test disease penetrance in a complex genetic background
- the ability to test new drugs
- the ability to provide proof that expression of mutant protein is enough to cause disease
- the ability to establish the sequence of events in the disease (what causes what)

IF choice a. is selected
Set score to 1

Right.

[Source: College]

39 of 50

You produce a mouse model in which you replace one allele of the endogenous MYBPC3 gene with a MYBPC3 gene with a mutation associated with hypertrophic cardiomyopathy in humans.

What type of genetic modified mouse model is this?

- transgenic
- homozygous knock-in
- knock-out
- heterozygous knock-in

IF choice d. is selected
Set score to 1

Right.

[Source: College]

40 of 50

According to the IACUC, researchers performing animal experiments should justify the amount and nature of animal used for experiments using the three R's.

Which three R's do we speak of?

- Retract, Refine, Replace
- Reduce, Retract, Refine
- Reduce, Retract, Replace
- Reduce, Refine, Replace

IF choice d. is selected
Set score to 1

Right.

[Source: Olsson et al. ALTREX Proceedings 2012]

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Alzheimer's disease is marked by increased levels of accumulated amyloid and tau in the brain. Moreover, there is a profound reduced performance of the vasculature in the brains of patients with Alzheimer's disease, leading to reduced amyloid clearance from the brain and impaired cerebral perfusion. Recently, there is increasing interest in the influence of dietary components on Alzheimer's disease progression or even the onset of disease. To test the hypothesis if dietary components may influence the onset and progression in Alzheimer's disease, proof of concept experiments were designed using animal models.

What are the three main criteria that an animal model for Alzheimer's disease needs to fulfill?

- improved cognitive performance, reduced levels of amyloid and tau in the brain and impaired neuronal function
- reduced cognitive performance, reduced levels of amyloid and tau and enhanced neuronal function
- reduced cognitive performance, enhanced levels of amyloid and tau in the brain and impaired neuronal function

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IF choice c. is selected
Set score to 1

Right.

[Source: College]

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Select the correct treatment design and experimental set-up in an animal model for Alzheimer's disease to test if dietary (food) components may be beneficial to prevent disease in patients.

- monthly oral administration of dietary components in the progressive phase of the disease
- daily intravenous administration of dietary components in the progressive phase of the disease
- daily oral administration of dietary components at the beginning of the disease
- monthly intravenous administration of dietary components at the beginning of the disease

---

IF choice c. is selected
Set score to 1

Right.

[Source: College]

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Besides measurements of altered amyloid protein presence in cerebrospinal fluid, imaging techniques are valuable to properly diagnose Alzheimer's disease. What is the most appropriate technique and what will it reflect on scans of patients to determine if the diagnosis of Alzheimer's disease is correct?

- Positron Emission Tomography (PET) for amyloid deposition and magnetic resonance imaging (MRI) to measure atrophy
- Positron Emission Tomography (PET) for deposition and magnetic resonance imaging (MRI) to measure grey matter lesions
- Positron Emission Tomography (PET) for atrophy measurement and magnetic resonance imaging (MRI) to measure amyloid deposition
- Positron Emission Tomography (PET) for atrophy measurement and magnetic resonance imaging (MRI) to measure vascular metabolism

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IF choice a. is selected
Set score to 1

Right.

[Source: College]

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Although clinicians have made huge progress in the diagnosis of Alzheimer's disease, the search for a marker that reflects disease progression continues. To date, it remains largely unknown how fast the disease will progress in patients and who may respond to potential therapy or other interventions. Altered levels of proteins and/or lipids in bodily fluids that reflect disease status are called biomarkers (in other words: indicators for disease). In Alzheimer's disease, an altered concentration of the protein amyloid-beta 1-42 (Aβ 1-42) in the cerebrospinal fluid (CSF) is a marker for disease state.

What is expected to happen to Aβ 1-42 levels in CSF in patients with Alzheimer's disease? Please choose the correct answer:

- reduced due to impaired Aβ 1-42 clearance from the brain
- enhanced due to impaired Aβ 1-42 clearance from the brain
- reduced due to enhanced Aβ 1-42 clearance from the brain
- enhanced due to enhanced Aβ 1-42 clearance from the brain

IF choice a. is selected
Set score to 1

Right.

[Source: College]

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The occurrence of falling down in older adults has severe consequences for the individual and for society and fall prevention deserves high priority. Unfortunately, fall risk is multi-factorial and difficult to predict. Falling mainly occurs during gait (walking), and it has been shown that the gait quality is of influence on the fall risk. In a new study, we aim to investigate determinants of gait quality as a predictor of fall risk. The following designs are proposed to study this objective: a prospective cohort study (1) and a retrospective cohort study (2).

Which of the following propositions is correct?

- design 2 is more efficient (i.e. will require less participants) and can provide stronger evidence than design 1
- design 1 is less efficient (i.e. will require more participants) but can provide stronger evidence than design 2
- design 2 is less efficient (i.e. will require more participants) but can provide stronger evidence than design 1
- design 1 is more efficient (i.e. will require less participants) and can provide stronger evidence than design 2

IF choice b. is selected
Set score to 1

Right.

[Source: College]

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Muscle weakness is considered a potential risk factor for falling in frail older adults. To assess the importance of muscle weakness two study designs are considered:

1) to assess effects of leg muscle fatigue on the quality of the gait pattern in a group of healthy (non-frail) older adults;
2) to study the correlation between leg muscle strength and the quality of the gait pattern in a group frail older adults.

Which of the following propositions is correct?

- design 1 is experimental, while design 2 is observational, in both designs confounding factors are likely
- design 1 is observational, while design 2 is experimental, in both designs confounding factors are unlikely
- design 1 is observational, while design 2 is experimental, in both designs confounding factors are likely
- design 1 is experimental hence there are no confounding factors, while design 2 is observational and may suffer from confounding factors

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IF choice a. is selected
Set score to 1

Right.

[Source: College]

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Children with cerebral palsy often develop muscle contractures, in particular in the muscles that work around the ankle. As a consequence these patients have a limited passive range of motion around the ankle. Surgical interventions are performed to increase the passive length range of force exertion of the plantar flexor muscles, however the success rate is relatively low. In an attempt to obtain a detailed insight in the cause of the contracture a 3D ultrasound study is proposed to measure morphological variables the m. gastrocnemius.

Which of the following morphologic variables of the m. gastrocnemius is the most important determinant of the muscle length range of force exertion?

- the slack length of the fascicles
- the length of the Achilles tendon
- the angle of pennation
- the thickness of the muscle fibers

IF choice a. is selected
Set score to 1

Right.

[Source: College]

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In children with cerebral palsy (CP) abnormal gait can be associated with various motor impairments, e.g. muscle weakness, spasticity and/or reduced motor control. The type of gait deviation can differ according to the underlying impairments.

What can be the cause of a gait pattern characterized by toe walking in a child?

- shortening of the rectus femoris muscle
- shortening of the tibialis anterior muscle
- spasticity of the gastrocnemius muscle
- weakness of the soleus muscle

IF choice c. is selected
Set score to 1

Right.

[Source: College]

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Case 3 *–this case contains two questions-*

In a study the investigator aims to investigate whether microcirculatory behavior differs between obese and lean subjects before and after surgery. The investigator hypothesizes that obesity is associated with impaired microcirculatory perfusion when compared to lean patients, and that this difference is even enlarged after cardiac surgery. Microcirculatory perfusion is measured with a camera under the tongue before and during surgery and upon admission to the hospital ward.

What is the study endpoint?

- before or after surgery
- lean or obese
- microcirculatory perfusion

IF choice c. is selected
Set score to 1

Right.

[Source: College]

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Case 3 *–second question-*

In a study the investigator aims to investigate whether microcirculatory behavior differs between obese and lean subjects before and after surgery. The investigator hypothesizes that obesity is associated with impaired microcirculatory perfusion when compared to lean patients, and that this difference is even enlarged after cardiac surgery. Microcirculatory perfusion is measured with a camera under the tongue before and during surgery and upon admission to the hospital ward.

In light of the Medical Research Involving Human Subjects Act (WMO), do you need approval from the Medical Research Ethics Committee (MREC) to perform this study?

- no, you do not require approval by the MREC since this study is a non-WMO study
- yes, you need approval by the MREC since this study is a WMO study
- no, you do not require approval by the MREC since this study does not fulfill the criteria of the WMO
- yes, you need approval by the MREC since this study is a non-WMO study

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IF choice b. is selected
Set score to 1

Right.

[Source: College; Emanuel et al. What makes clinical research ethical? JAMA 2000;283:2701-11; vumc.com/branch/research-code-VUmc-AMC/]

Feedback
0% to 100%

%SESSION.SCORE% of %SESSION.MAX% questions are correctly answered.