

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Learner Registration Number

Pearson BTEC  
Level 3 Nationals  
Extended Certificate

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**Additional sample assessment material for first teaching  
September 2019**

Supervised hours: 3 hours

Paper Reference **21327L**

**Applied Human Biology**  
**Unit 3: Human Biology and Health Issues**

**You do not need any other materials.**

Total Marks

### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and learner registration number.
- Answer **all** activities.
- Answer the activities in the spaces provided  
– *there may be more space than you need.*
- This booklet contains material for the completion of the set task under supervised conditions.
- This booklet is specific to each series and this material must only be issued to learners who have been entered to undertake the set task.
- This booklet should be kept securely until the start of the 3 hour supervised assessment period. This set task should be undertaken in a session timetabled by Pearson.

### Information

- The total mark for this paper is 60.
- The marks for **each** activity are shown in brackets  
– *use this as a guide as to how much time to spend on each activity.*

### Advice

- Read each activity carefully before you start to answer it.
- Try to answer every activity.
- Check your answers if you have time at the end.

Turn over ►

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Pearson

## Instructions for teachers/tutors and/or invigilators

Centres must issue this booklet at the appropriate time and advise learners of the timetabled session.

All learner work must be completed independently and authenticated before being submitted to Pearson by the teacher/tutor or invigilator.

Learners are advised to spend 30–45 minutes reading through the stimulus material in the set task and annotate the material if they wish to do so.

Learners are required to use the stimulus material to complete the activities. Learners must complete the set task using this task booklet.

Teachers/tutors and/or invigilators should note that:

- learners should not be given any direct guidance or prepared materials
- all work must be completed independently by the learner
- learners must not bring anything into the supervised environment or take anything out without your approval.

Centres are responsible for putting in place appropriate checks to ensure that only permitted material is introduced into the supervised environment.

### Maintaining security

- During supervised assessment sessions, the assessment areas must only be accessible to the individual learners and to named members of staff.
- Learners can only access their work under supervision.
- Any work that learners produce under supervision must be kept securely.
- Only permitted materials for the set task can be brought into the supervised environment.
- During any permitted break and at the end of the session materials must be kept securely and no items removed from the supervised environment.
- Learners are not permitted to have access to the internet or other resources during the supervised assessment period.

After the session, the teacher/tutor or invigilator will confirm that all learner work has been completed independently as part of the authentication submitted to Pearson.

The set task is a formal external assessment and must be conducted with reference to the instructions in this task booklet and to the BTEC Nationals Instructions for Conducting External Assessments (ICEA) document.

### Outcomes for submission

This task and answer booklet should be submitted to Pearson.

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## Instructions for learners

### Read the set task information carefully.

You are advised to spend 30–45 minutes reading carefully through the article in the set task.

You may annotate the article before you attempt the activities.

Complete all your work in this booklet in the spaces provided.

This session is three hours. Your teacher/tutor or invigilator will tell you if there is a supervised break. Plan your time carefully.

In your response to the activities, you should consider information from the article and use your knowledge and understanding of applied human biology principles, procedures and techniques to support your answers.

You will complete this set task under supervision and your work will be kept securely during any breaks taken.

You must work independently throughout the supervised assessment period and you should not share your work with other learners.

You may ask your teacher/tutor or invigilator to explain any words or sentences you do not understand in the article or the activities. Your teacher/tutor or invigilator cannot help you complete the set task.

### Outcome for submission

This task and answer booklet should be submitted to Pearson.



### Set task information

You are given the following article.

**Hormone Replacement Therapy:  
Does new evidence reduce safety concerns?**

You need to read the article so that you get an understanding of the health issue involved.

You should be able to interpret, analyse and evaluate the article.

At the end of the article there is a glossary giving the meanings of some of the words used in the article.

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## Hormone Replacement Therapy

### Does new evidence reduce safety concerns?

The menopause is a naturally occurring process in a woman's life that marks the end of her ability to become pregnant naturally. Throughout the menopause the body's production of oestrogen reduces significantly, which can lead to a variety of health problems and other negative effects.

The first sign of the menopause is usually a change in the normal pattern of the woman's periods. On average, menopausal symptoms last around four years from the woman's last period but around one in every 10 women continue to experience them for up to 12 years. This can have a negative impact on their life. Approximately 80% of women will suffer from negative symptoms during the menopause. A list of some of the common symptoms of the menopause, according to the NHS<sup>1</sup>, are:

- hot flushes
- palpitations
- night sweats
- difficulty sleeping
- problems with memory and concentration
- headaches
- depression or anxiety
- joint pain
- reduced muscle mass
- frequent urinary tract infections.

Some women are able to cope with these symptoms but, for women that cannot or choose not to, a doctor can prescribe treatment. The main treatment is Hormone Replacement Therapy (HRT). Other treatments, that can treat individual symptoms of the menopause<sup>2</sup>, are also available.



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### Effectiveness of HRT

Replacing the hormone oestrogen artificially, through HRT, has been shown to be extremely effective at relieving menopausal symptoms, especially hot flushes and night sweats.

Figure 1 shows the results of a study of 66 women. In the study, 22 were given a placebo, 22 were given a 100 microgram dosage of oestrogen and 22 were given a 250 microgram dosage of oestrogen. All women in the study were given their dosage daily for 12 weeks. The women given oestrogen reported the fewest number of incidences of hot flushes after 12 weeks compared to the women who had been given the placebo<sup>2</sup>.

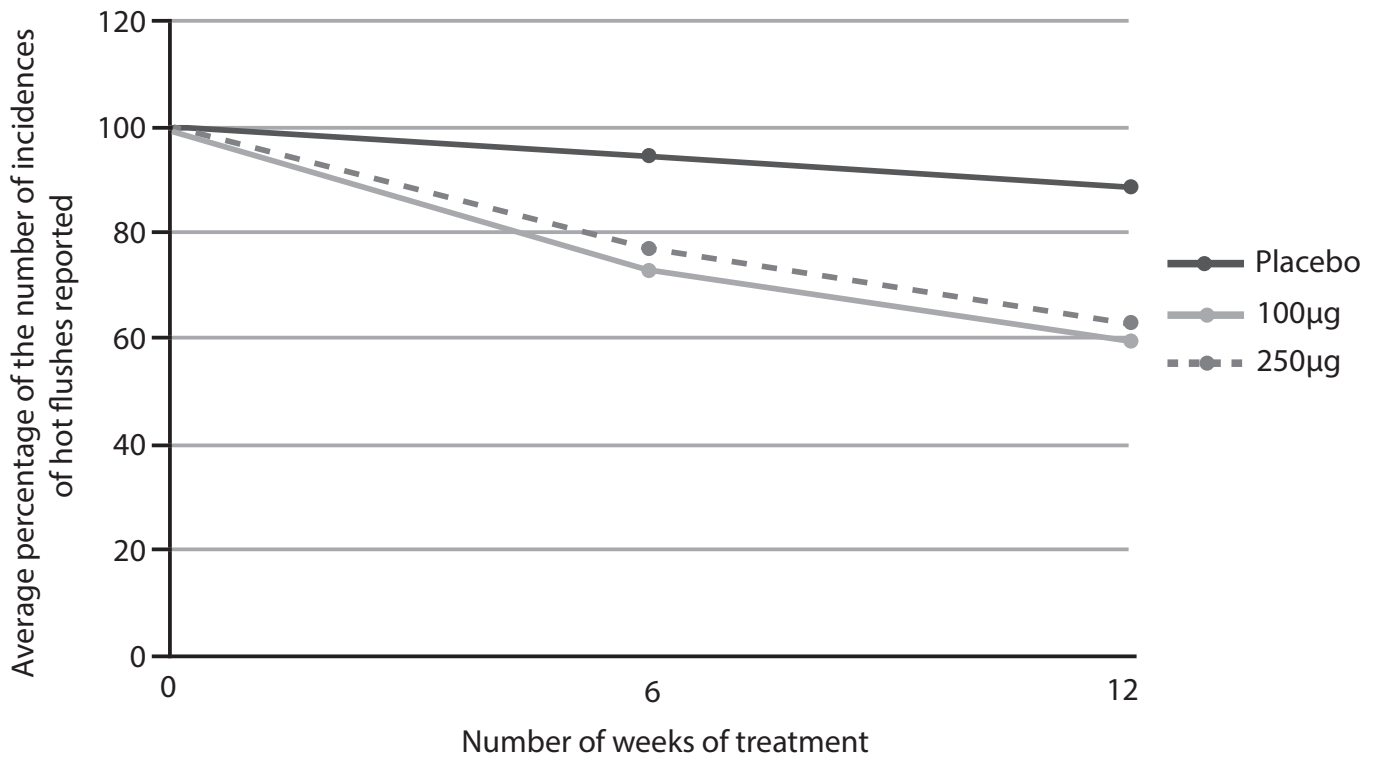


Figure 1

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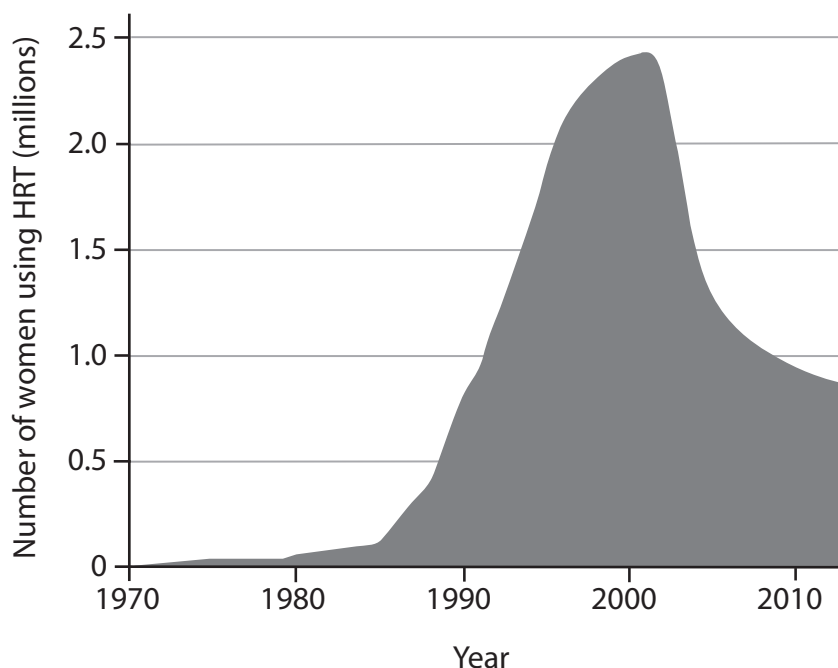
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### Trend in HRT prescription

In 2015, 13 million women per year were estimated to be menopausal in the UK<sup>3</sup>. Figure 2 shows the number of women (in millions) taking HRT medication, between the years 1970 and 2014<sup>4</sup>.



(Source: The Lancet)

**Figure 2**

Not all women who request or could potentially benefit from HRT are being prescribed it. There are a number of reasons for this, which may include fear of the possible side effects<sup>5</sup>. The increased risk of strokes and cancer, discovered in studies into the effects of HRT, were widely reported in newspapers. This led to a significant decrease in the number of women prescribed HRT in the UK.

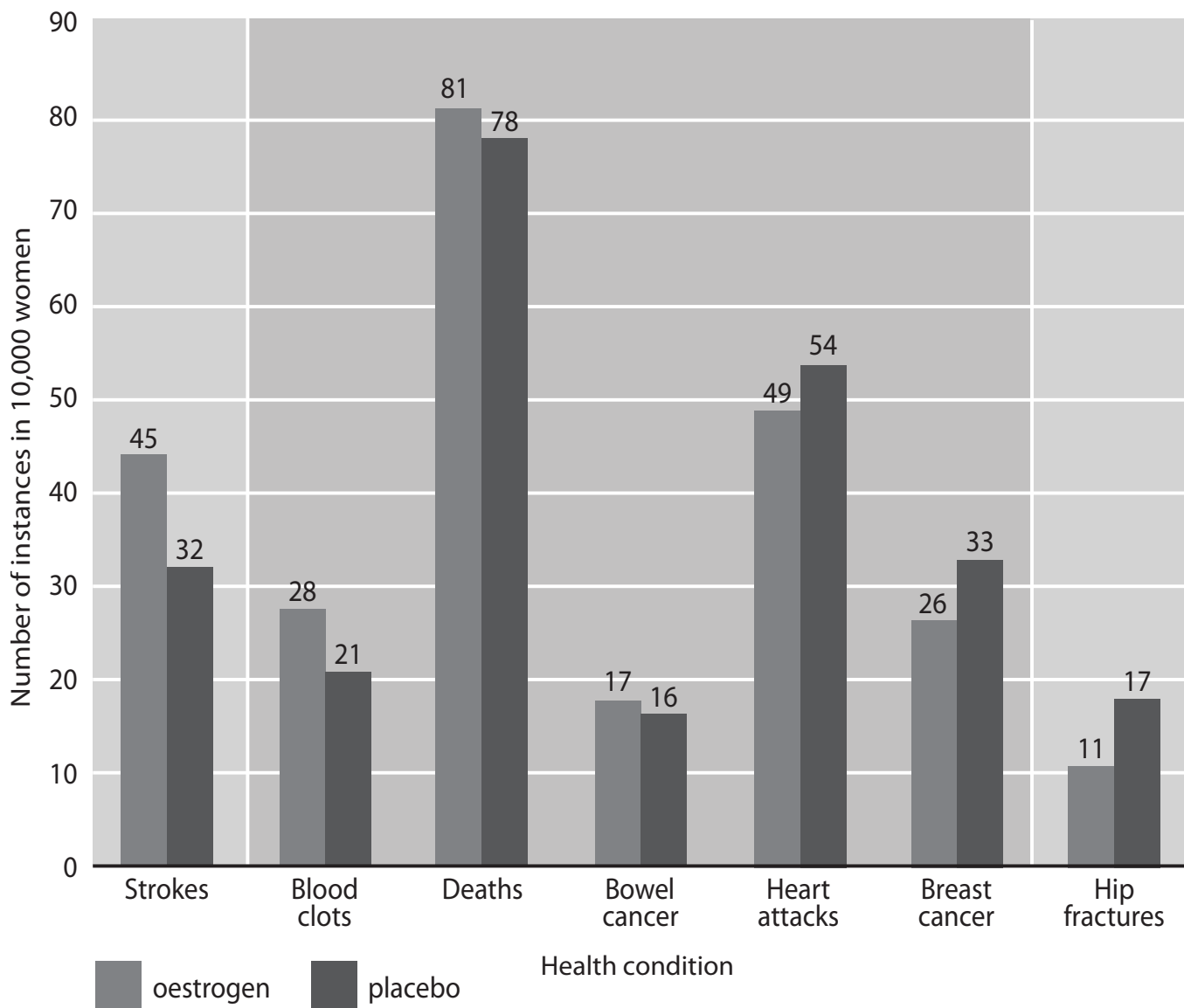
#### Study 1: Million Women Study 2001

A study carried out in the UK between 1996 and 2001 was the Million Women Study. Sponsored by both the British Medical Research Council (BMRC) and Cancer Research UK, it claimed that HRT significantly increases the risk of breast cancer. The Million Women Study was set up to investigate the effects of HRT on breast cancer, looking at women aged between 50 and 64. 50% of the women in the sample took HRT. The study found that of these women, 9364 developed breast cancers after an average of about three years. Only 637 breast cancer deaths were registered in the women who did not use HRT in the same timescale<sup>6</sup>.

#### Study 2: Women's Health Initiative 2004

Another significant study in 2004 suggested that HRT increased women's susceptibility to various health conditions. This study was carried out in the United States by the Women's Health Initiative (WHI) and sponsored by the US National Institutes of Health (NIH). It investigated the effects of HRT by giving half of the 10,000 women involved oestrogen and half a placebo. Figure 3 shows the number of cases of different health conditions reported by women who took either oestrogen or the placebo in the study<sup>7</sup>.





**Figure 3**

There was concern caused by the study's findings, including higher risks of some adverse health conditions in those treated with oestrogen. The trial was intended to run for eight years but was stopped after five when higher risks of some adverse health conditions in those treated with oestrogen became apparent.

**Study 3: New England Journal of Medicine 2016**

In 2016, the New England Journal of Medicine reanalysed the data from the WHI trial and discovered that various factors had been left out of the reports. They agreed with the WHI on the reduction of hip fractures but otherwise contradicted the majority of the original conclusions and questioned the validity of the study.

The difference could be attributed to the medical background of the women in the study. In the original study the data were grouped to include all participants regardless of their individual circumstances. The participants were between the ages of 50 and 79 and so included women at all stages of the menopause. They also found that the effect of HRT on women who had had a hysterectomy was different from the effects on women with an intact uterus. There were also some participants with high BMIs and pre-existing health conditions meaning they were not representative of all women in the population.



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The conclusion showed that the risk of stroke was not significantly different for some women taking HRT<sup>8</sup>.

### Prescribing HRT

Prescribing HRT is still controversial. The benefits and risks of HRT should be considered as well as the ways in which the HRT is given for each individual woman. Figure 4 shows some of the advantages and disadvantages of the different types of HRT<sup>9</sup>.

Type	Advantages	Disadvantages
Tablets	Easy to take Easily reversible Comparitively cheap Cholesterol benefit	Need to be taken every day Nausea possible, especially with lactose intolerance
Patches	Convenient More natural delivery of hormone Easily reversible First line for patients with high triglycerides or gut problems	Can become detached Can irritate the skin Expensive Must be changed once or twice a week
Implants	100 per cent compliance More natural delivery of hormone Prolonged effect (four to eight months) Cheap	Small surgical procedure Not easily reversible Can suddenly become less effective with unnaturally high levels of hormones
Nasal spray	Easy to use Easily reversible	Needs to be used daily Nasal irritation possible

**Figure 4**

Recent evidence, including the conclusions of the 2016 study, show that when the prescription for HRT is matched to the woman's circumstances, it can prove very effective with minimal risk of side effects.

The current advice from Public Health England<sup>10</sup> for doctors to consider before prescribing HRT includes:

- The decision to prescribe HRT should be based on an evaluation of the potential benefits of treatment.
- Doctors should assess every woman's overall risk, particularly in those older than 60 years who have an increased baseline risk of serious adverse events.
- Evidence for the risks of HRT in younger women is limited. However, the baseline risk of adverse events in younger women is low, and the balance of benefits and risks may be more favourable than in older women.

### Glossary

**Hot flushes** – short, sudden feelings of heat, which can make the skin red and sweaty.

**Hysterectomy** – surgical removal of the uterus.

**Night sweats** – hot flushes that occur at night.

**Oestrogen** – a hormone involved in regulating the menstrual cycle.

**Palpitations** – heartbeats that suddenly become more noticeable.

**Placebo** – treatment given without the active chemical, used in studies to confirm the active chemical has the desired effect. Has no effect on the body.



## References

1. NHS.uk [internet], United Kingdom, NHS England, Updated 8/2018; cited 10/2018, Available from: <https://www.nhs.uk/conditions/menopause/symptoms/>
2. Lane Lenard PHD, lifeextension.com [internet], Florida, Life extension, Updated 2/2009; cited 11/2018, Available from: <https://www.lifeextension.com/Magazine/2009/2/Relieving-Menopausal-Symptoms-Naturally/Page-01>
3. Hannah Short, Guardian.com [internet], London, Guardian News and Media Limited, Updated 4/2015; cited 11/2018, Available from <https://www.theguardian.com/healthcare-network/2015/apr/01/lets-talk-menopause-because-we-are-failing-13-million-women>
4. Chloe Lambert, newscientist.com [internet], London, New Scientist limited UK, Updated 5/2015; cited 11/2018, Available from: <https://www.newscientist.com/article/mg22630213-600-everyday-drugs-the-rise-and-fall-of-hrt/>
5. Menopause Matters, menopausematters.co.uk [internet], Scotland, Menopause Matters, updated 5/2016; cited 11/2018, Available from: <https://www.menopausematters.co.uk/risks.php>
6. Banks. E, Beral V, Reeves G on behalf of the million woman study collaborators, published results on breast cancer and hormone replacement therapy in the million woman study[internet], London, Climacteric 2004 updated; cited 11/2018 Available from: <http://www.millionwomenstudy.org/publications/274/Breast-cancer-and-hormone-replacement-therapy-in-the-Million-Women-Study/>
7. Susan Ipaktchian, Stanford Report [internet], California, updated 4/2004; cited 11/2018 Available from: <https://news.stanford.edu/news/2004/april14/estrogen.html>
8. Harriet Hall, Science based medicine [internet], Washington, Science based medicine, updated 5/2016; cited 11/2018 Available from: <https://sciencebasedmedicine.org/hormone-replacement-therapy-for-menopausal-symptoms-setting-the-record-straight/>
9. Nuttan Tanna PHD, MRPharmS, The Pharmaceutical Journal [internet], London, The Pharmaceutical Journal, updated 11/3002; cited 11/2018 Available from: <https://www.pharmaceutical-journal.com/download?ac=1064876&firstPass=false>
10. Medicines and Healthcare Products Regulatory Agency, gov.uk[internet], London, Gov.uk updated 12/2014; cited 11/2018 Available from: PHE <https://www.gov.uk/drug-safety-update/hormone-replacement-therapy-updated-advice#contents>

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**(Total for Activity 1 = 12 marks)**



2 Discuss the key factors affecting the Hormone Replacement Therapy (HRT) issue.

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(Total for Activity 2 = 16 marks)





**3** Explain how different organisations/individuals influence the Hormone Replacement Therapy (HRT) issue.

In your answer, you should consider:

- research
- health initiatives.

(10)

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**(Total for Activity 3 = 10 marks)**



4 Suggest potential areas for further development and/or research of the Hormone Replacement Therapy (HRT) issue.

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**(Total for Activity 4 = 6 marks)**





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**(Total for Activity 5 = 16 marks)**

**TOTAL FOR PAPER = 60 MARKS**

