



Γιατροί του Κόσμου
Όπου υπάρχουν άνθρωποι...

Mother & Child



MSD for mothers

PAP TEST CERVICAL SMEAR

Written by: Georgios PApadomanolakis,
Obstetrician - Gynecologist, MD, MSc



PAP TEST (CERVICAL SMEAR)

- ▶ A **PAP test** or **Papanicolaou test** or **Papanicolaou method** or **cervical smear** is, essentially, a preventive screening test, which can successfully detect a variety of cells indicative of cervical cancer, as well as cells which may develop into cancerous cells in the future.
- ▶ A **PAP test** can also alert us to conditions that are not related to cancer (e.g. inflammations, hormonal function), without this being, however, the main purpose of the test.



HISTORY

- ▶ The PAP test method was invented by and named after Georgios Papanicolaou, a Greek doctor.
- ▶ Georgios Papanicolaou was born in Kymi, Evia in 1883. He studied medicine at the University of Athens and later worked in the field of Biology, initially in Jena and then in Freiburg and Munich, Germany.





History

- ▶ It should be noted that, during the same period (1927), Romanian scientist Aurel Babes was also conducting research regarding cervical smears with equally important findings.
- ▶ Finally, the discussions that took place around 60 years ago resulted in the **establishment of the PAP test** as the main screening test for the protection of women against cervical cancer, which should be performed at regular intervals depending on each country's guidelines.



What a PAP test is not

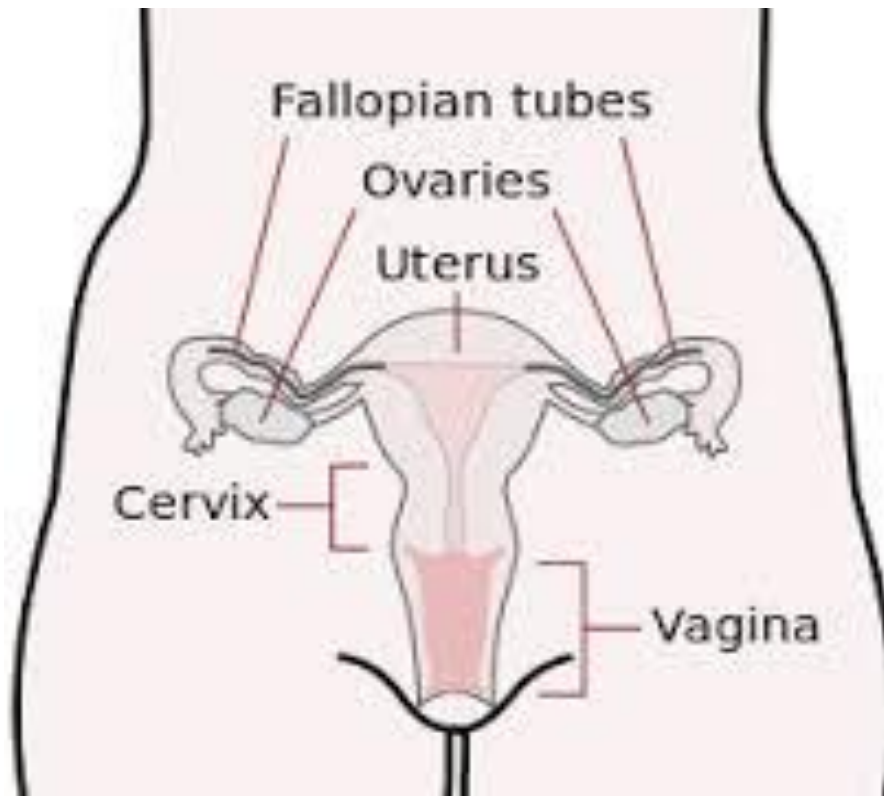
A PAP test is not used to detect:

- ▶ Pregnancy
- ▶ Vaginitis
- ▶ Sexually transmitted diseases
- ▶ Ovarian and endometrial cancer
- ▶ Causes of irregular menstruation
- ▶ Ovarian cysts
- ▶ Uterine fibroids

Specialized tests are available for all of the above.



Anatomy of internal genital organs





How is a PAP test performed?

- ▶ A woman's proper history must first be obtained (complete medical history, obstetric history, gynecological history). It is important to provide the results from any previous PAP test that has been performed.





Conducting the test

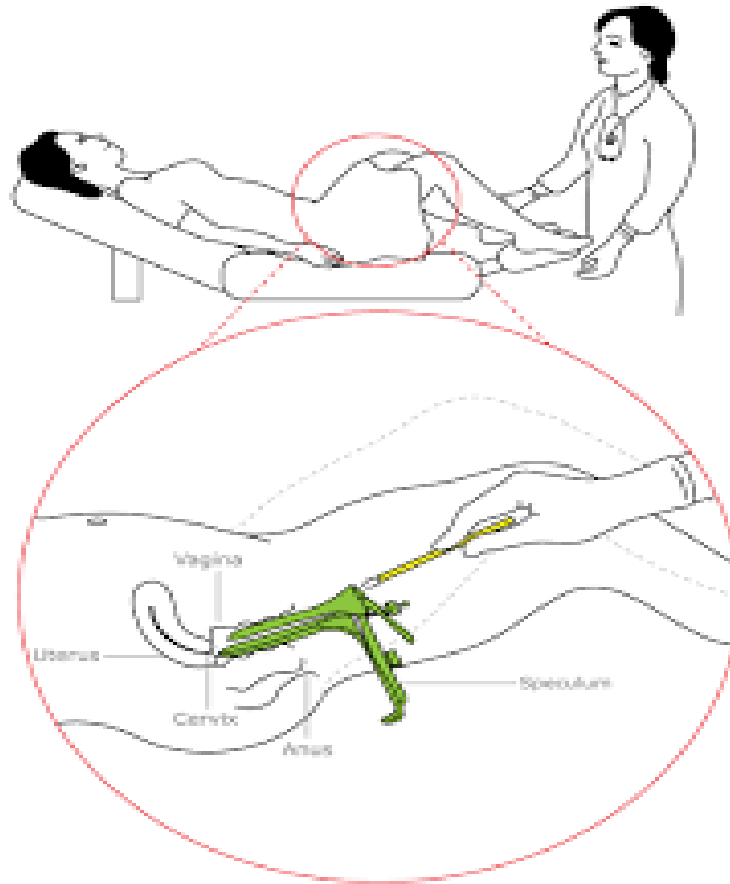
To conduct the test, the woman sits on a special gynaecological examination chair (boom).





Conducting the test

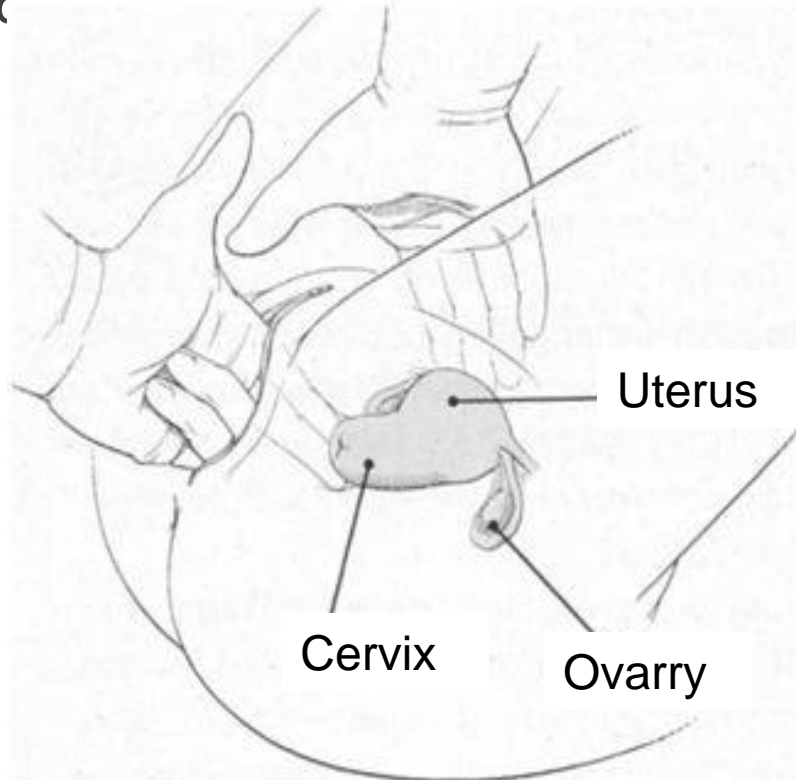
She is then placed into position for the pelvic exam.





How is a PAP test performed?

- ▶ At the start of the test, an inspection of the vulva and the perinatal region, as well as a pelvic exam, are performed





Conducting the test

- ▶ A small device called a speculum is then inserted in the vaginal opening and the vaginal and cervical walls are inspected with the use of special lighting.
- ▶ Then, a wooden spatula is used to obtain a **sample of vaginal and cervical cells** and a special brush is used to obtain an **endocervical cell sample**.

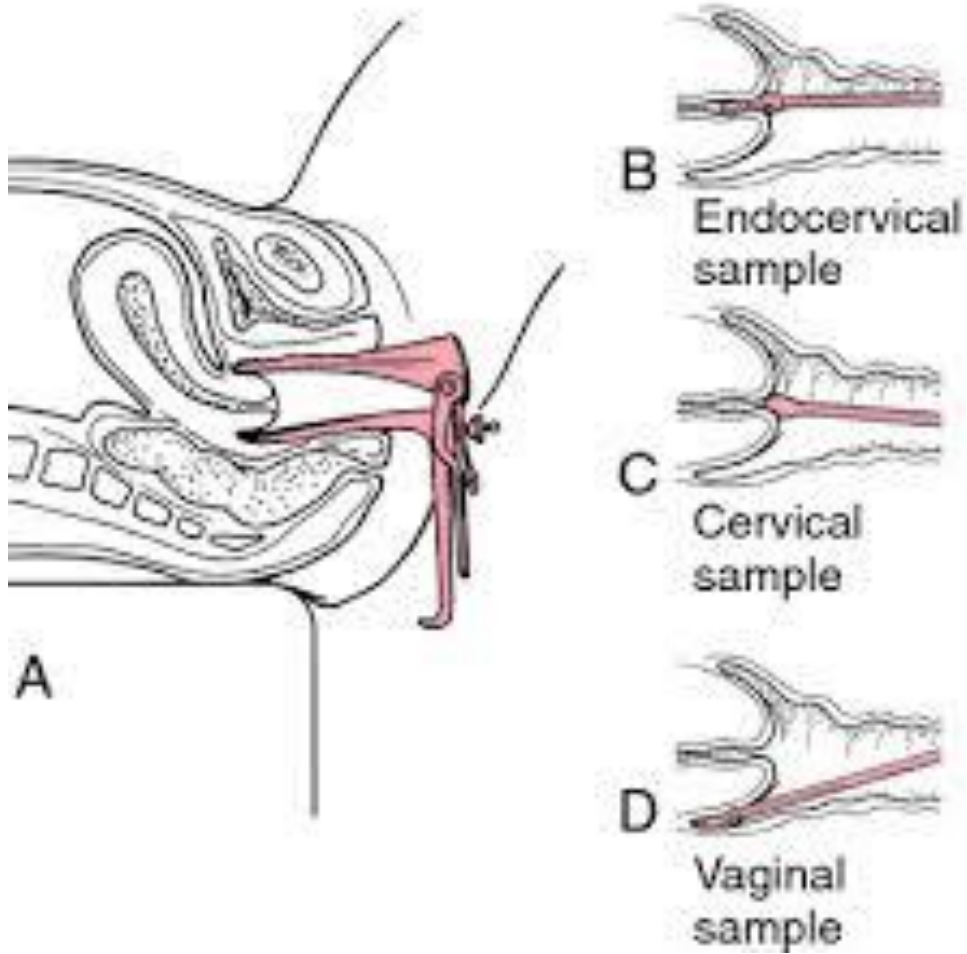


Conducting the test



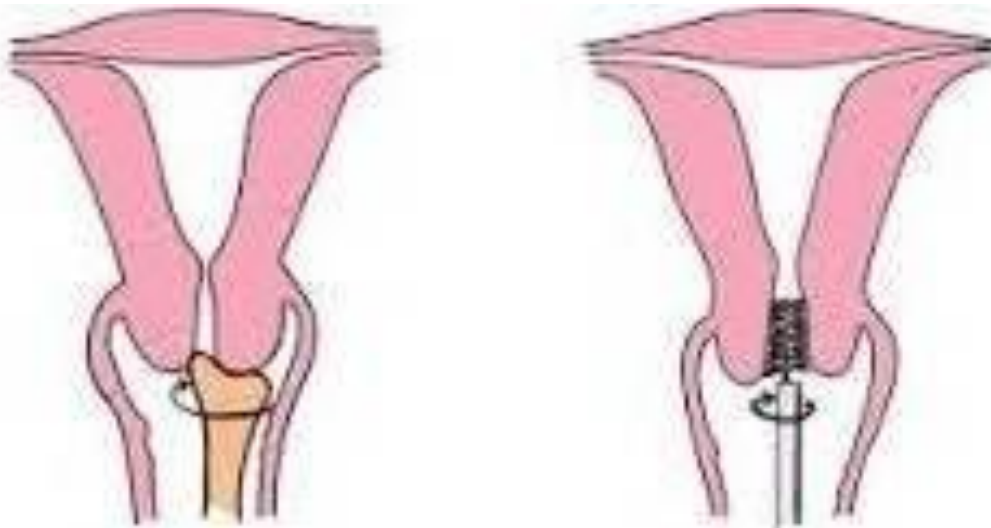


Conducting the test



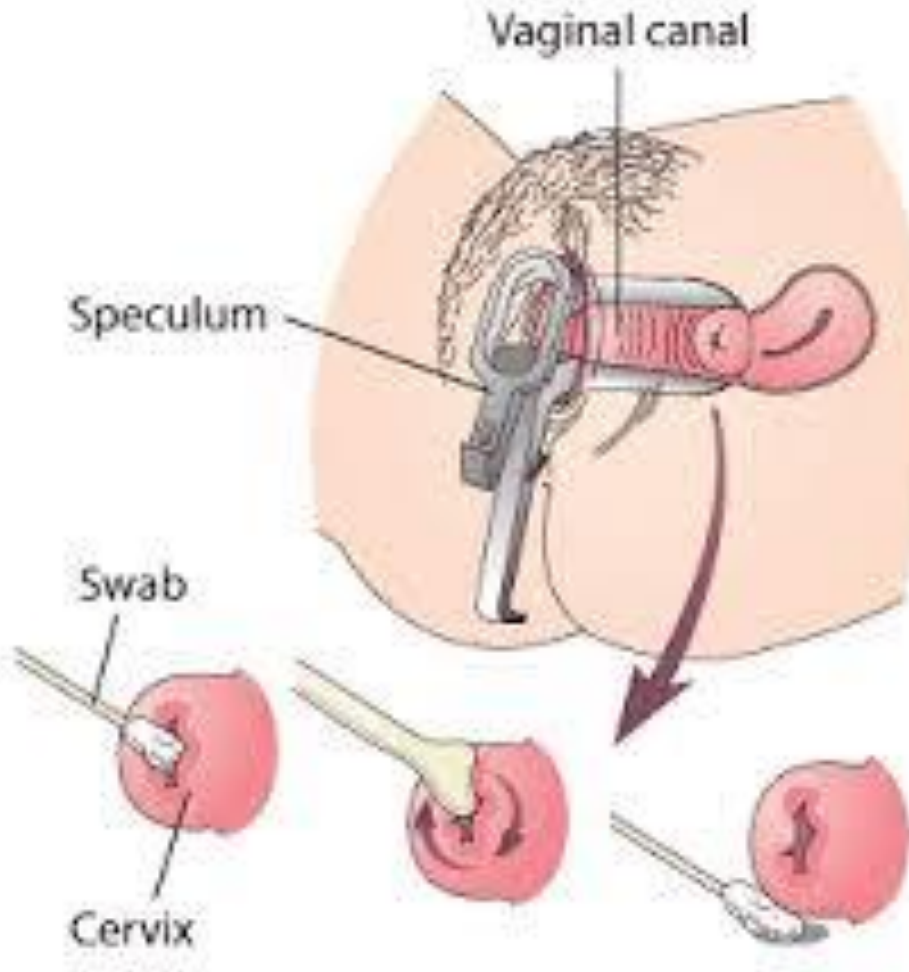


Conducting the test





Conducting the test



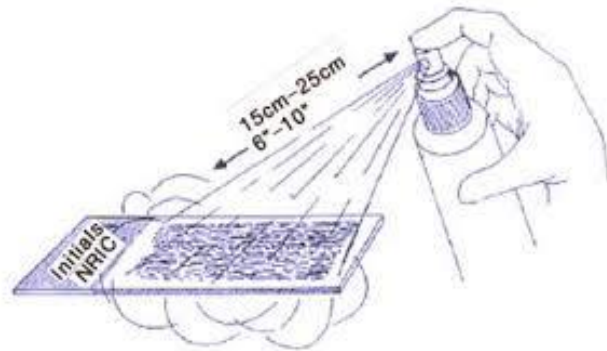


Conducting the test

These samples are placed on special glass slides



They are then fixed with a special spray.





Conducting the test

Finally, they are sent to cytologist who will examine the slides under a microscope.

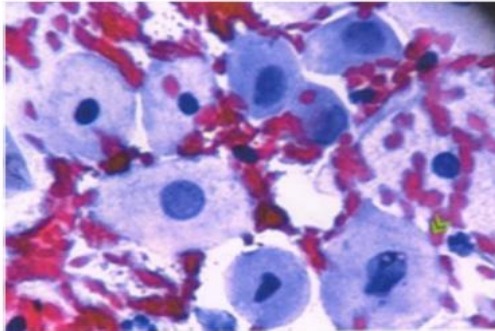


Figure 2: Shows atypical squamous cells of undetermined significance (ASCUS) (PAP X 400)

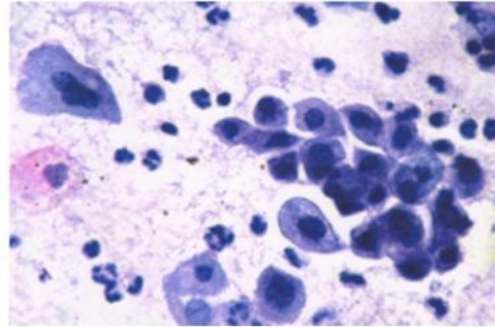


Figure 4: Shows high grade squamous intraepithelial lesion (HSIL) (PAP X 400)

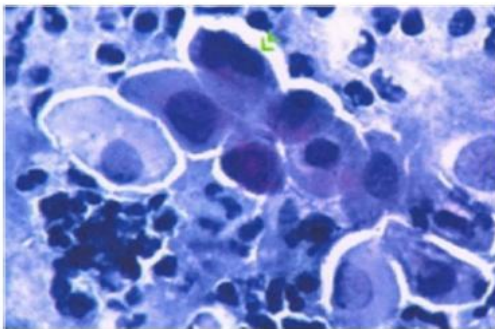


Figure 3: Shows low grade squamous intraepithelial lesion (LSIL) (PAP X 400)

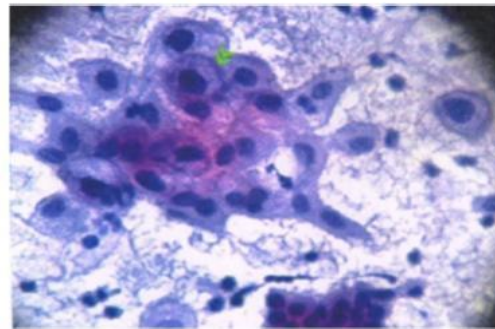


Figure 5: Shows atypical squamous cells-HSIL cannot be excluded (ASC-H) (PAP X 400)



How does the woman feel during the test?

- ▶ The test is most often painless.
- ▶ Mild discomfort may be experienced upon entering of the speculum and the taking of samples, especially when there is inflammation in the area.
- ▶ Following the end of the test, the woman may also perceive drops of blood in the vagina, coming from the sample taking site, but this should not worry her.



Preparation before PAP test

- ▶ Avoid sexual intercourse for 2 days before the test.
- ▶ Avoid the use of tampons or vaginal creams for 2 days before the test.
- ▶ Avoid vaginal douching before the test.
- ▶ If a treatment including intravaginal medications is underway, the PAP test should be performed at least one week after the end of treatment.



Frequency of PAP tests

- ▶ The PAP test is a screening test and, therefore, can be performed on asymptomatic women.
- ▶ In cases of gynecological issues, these are separately directed to the gynecologist.



Guidelines

- ▶ Guidelines regarding how often a PAP test should be performed vary from country to country.
- ▶ According to the American Congress of Obstetricians and Gynecologists, the first PAP test should be performed after a woman begins having sexual relations and no sooner than her 21st birthday, while the last PAP test should be performed at 65 years of age, as long as the result is normal.
- ▶ The United States Preventive Services Task Force (USPSTF) recommends conducting the first PAP test no sooner than 3 years after the first sexual intercourse, including homosexual intercourse



Frequency of PAP tests

- ▶ It is now considered that a PAP test can be performed every three years, as long as the results are normal.
- ▶ In the past, it was recommended that an annual screening should be performed without there being any substantial evidence of its necessity or additional benefits; instead, such a practice creates high costs and may possibly lead to unnecessary treatments and tests.



Frequency of PAP tests

- ▶ Women who have undergone a full hysterectomy for benign causes do not need to have PAP test screenings.
- ▶ Instead, women who have undergone a full hysterectomy, as well as those who have been vaccinated against HPV, must be tested normally.
- ▶ A PAP test can be performed until the 24th week of pregnancy and has not been correlated with an increased risk of miscarriage.



PAP test results

- ▶ A PAP test with no pathological findings is characterized as normal or negative for intraepithelial neoplasia or malignancy. Any cell abnormalities present in the sample are described as follows:
- ▶ ASCUS (atypical squamous cells of undetermined significance)
- ▶ ASCH (atypical squamous cells, cannot exclude high-grade squamous intraepithelial lesion)
- ▶ AIS (adenocarcinoma in situ)
- ▶ LGSIL (low-grade squamous intraepithelial lesion)
- ▶ HGSIL (high-grade squamous intraepithelial lesion)



PAP test results

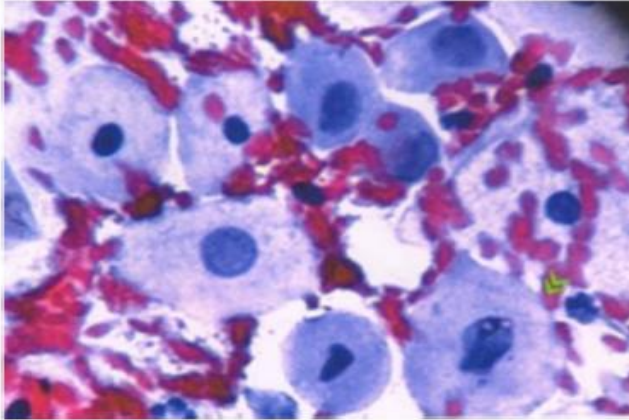


Figure 2: Shows atypical squamous cells of undetermined significance (ASCUS) (PAP X 400)

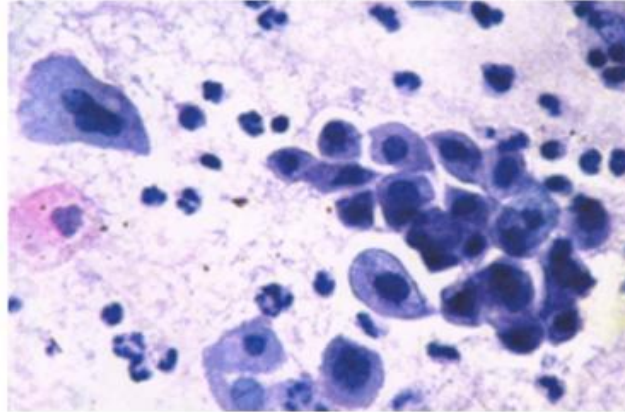


Figure 4: Shows high grade squamous intraepithelial lesion (HSIL) (PAP X 400)

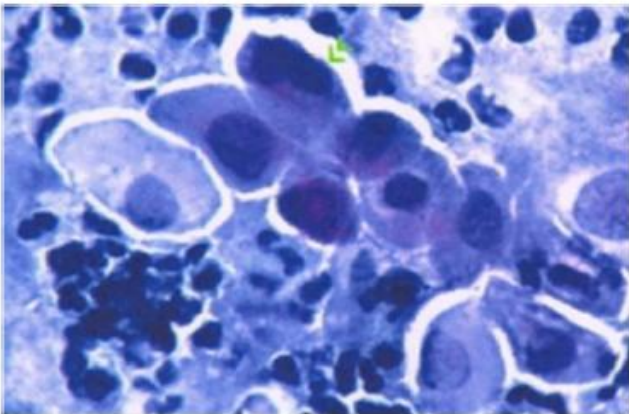


Figure 3: Shows low grade squamous intraepithelial lesion (LSIL) (PAP X 400)

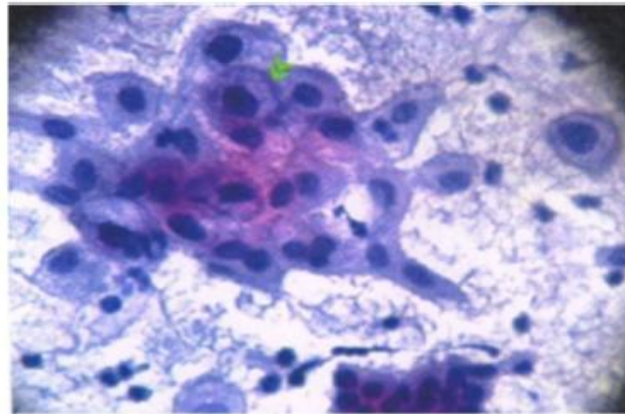


Figure 5: Shows atypical squamous cells-HSIL cannot be excluded (ASC-H) (PAP X 400)



PAP test results

- ▶ Abnormal results are evaluated by the gynecologist who will provide appropriate guidance (repeat PAP test within a short period of time, colposcopy, biopsies, etc.).
- ▶ In Greece, approximately 1 in 10 PAP tests appears to be abnormal and requires further investigation.
- ▶ It must be noted that an abnormal PAP test does NOT necessarily indicate cancer; however, the lesions most often detected may develop into cancer without proper care.



Can the PAP test provide false results?

The accuracy of PAP test results can be affected by many factors, such as:

- ▶ how samples are obtained
- ▶ the sites from which samples are obtained
- ▶ the way samples are placed and fixed onto the glass slides
- ▶ the storage of the slides
- ▶ the woman's preparation



Can the PAP test provide false results?

- ▶ The PAP test has a percentage of false negative results of up to 20-30%, i.e. the PAP test may appear normal but in reality not be.
- ▶ The unpleasant consequences of such a mistake can be eliminated by regular repetition.



Effectiveness

- ▶ A PAP test, combined with a timely pelvic exam following the emergence of pathological symptoms, can reduce the risk of death from cervical cancer by up to 80%.



How much does a PAP test cost?

- ▶ At the moment, PAP tests are performed free of charge at all Greek public hospitals, on a preventive screening basis.
- ▶ They are also offered free of charge by various institutions and organizations (e.g. MdM).
- ▶ Otherwise, a PAP test can be performed at a gynecologist's private practice for the respective fee set by the doctor.



Thin – Prep technique

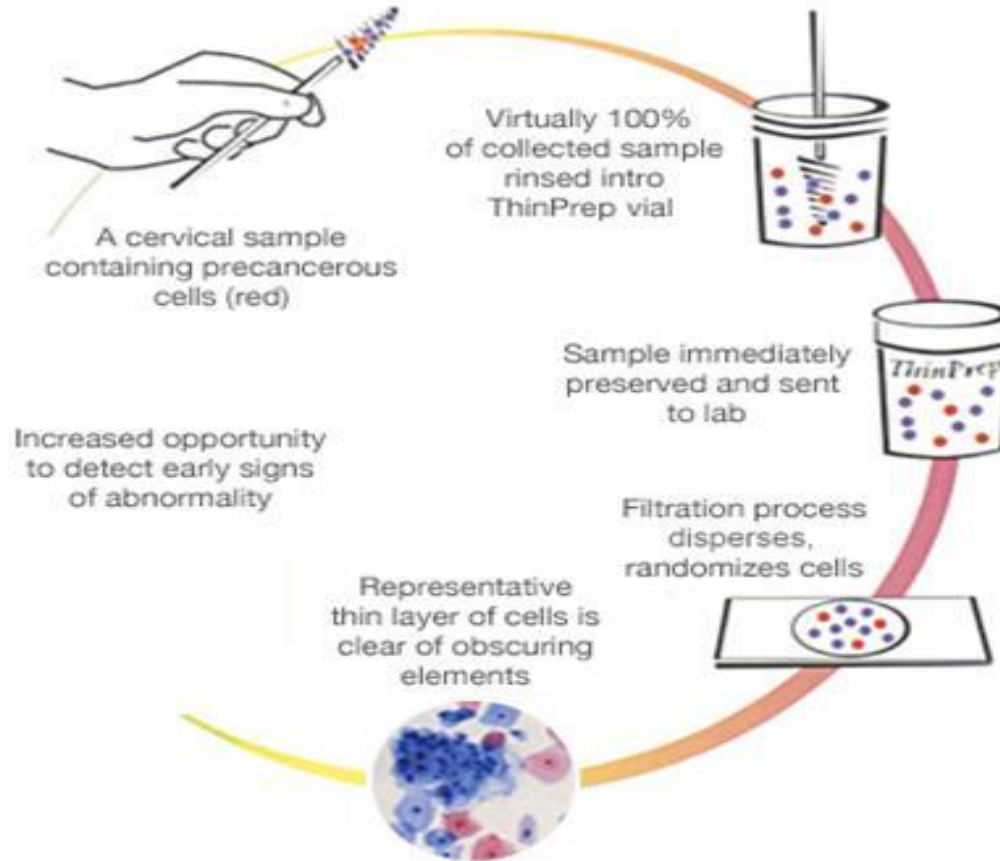
- ▶ Nowadays, apart from the conventional PAP test where samples are smeared on a microscope slide, the Thin-Prep technique is also available: samples are taken and transferred into a special preservation vial, which in turn will be taken to the cytology laboratory to be studied.





Thin - Prep technique

ThinPrep Pap Test slide preparation





PAP Co - Testing

- ▶ Along with the PAP test, an HPV test called *PAP Co - Testing* can also be requested.
- ▶ The HPV test can also be requested following an abnormal PAP test.



Conclusion

- ▶ The PAP test is an examination that is performed for the prevention and early diagnosis of cervical cancer. It is a simple, painless, fast, safe and inexpensive examination which has saved numerous lives and can continue to do so in the future.



References

- ▶ Obstetrics and Gynecology, authored by Aristides Antsaklis
- ▶ Williams Gynecology
- ▶ Guidelines for the care of patients at the 1st Department of Obstetrics and Gynecology of the University of Athens
- ▶ https://en.wikipedia.org/wiki/PAP_test



Images

- ▶ <http://stevenparsons.tripod.com/sitebuildercontent/sitebuilderpictures/di-sability-exam.gif>
- ▶ <http://www.diakomanolis.com/mediaupload/women/anatomia/img2.jpg>
- ▶ https://www.plannedparenthood.org/download_file/view_inline/1408
- ▶ http://www.slate.com/content/dam/slate/articles/double_x/2015/11/151118_DX_IUD-Pain.jpg.CROP.promo-xlarge2.jpg
- ▶ <https://onlinehealthcareservices.files.wordpress.com/2011/04/PAPsmear.jpg?w=450>
- ▶ <http://2.imimg.com/data2/RT/KQ/MY-4893009/PAP-smear-test-kit-250x250.jpg>
- ▶ <http://img.tfd.com/mk/P/X2604-P-07.png>
- ▶ <http://mortakis.hpvinfoscenter.gr/wp-content/uploads/2013/02/image1.jpg>



Images

- ▶ https://www.google.gr/search?q=test+PAP&biw=1366&bih=622&source=lnms&tbn=isch&sa=X&sqi=2&ved=0ahUKEwjl34vvqo3NAhXHAMAkHV_xDM0Q_AUIBigB#tbn=isch&q=PAP+smear+test&imgsrc=63BfssYOPVROmM%3A
- ▶ http://img.webmd.com/dtmcms/live/webmd/consumer_assets/site_images/articles/health_tools/cervical_cancer_slideshow/phototake_rm_photo_of_PAP_smear_test.jpg
- ▶ <http://images.designntrend.com/data/images/full/23276/cervical-cancer-smear-test-uk.jpg?w=780>
- ▶ <https://www.sgh.com.sg/Clinical-Departments-Centers/Pathology/Pathology-Handbook/Lab-Discipline-Special-Instructions/PublishingImages/image032.jpg>
- ▶ http://www.palmonline.org/images/Evaluation%20of%20cervical_Fig1.jpg
- ▶ <http://images.agoramedia.com/everydayhealth/gcms/8-Cancer-Screening-Tests-for-Women-05-722x406.jpg>
- ▶ <http://www.agelessmedica.com/wp-content/uploads/2016/03/PAP-Smear-through-Fine-Prep.jpg>