

E-learning in Clinical Biochemistry

Can it be effective?

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INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

Summary

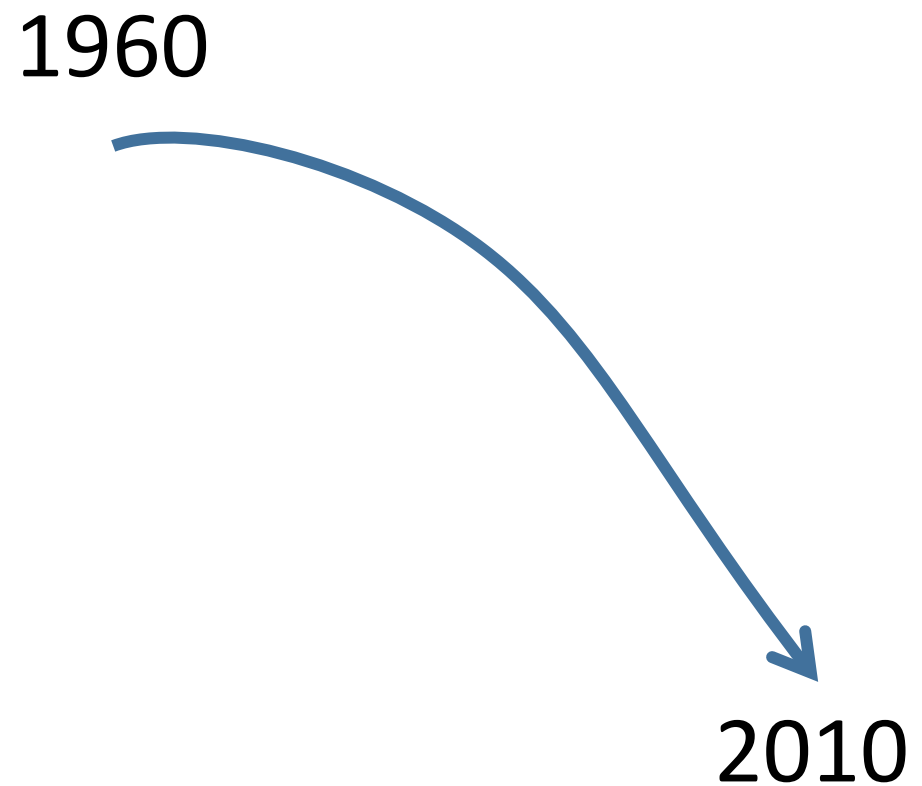
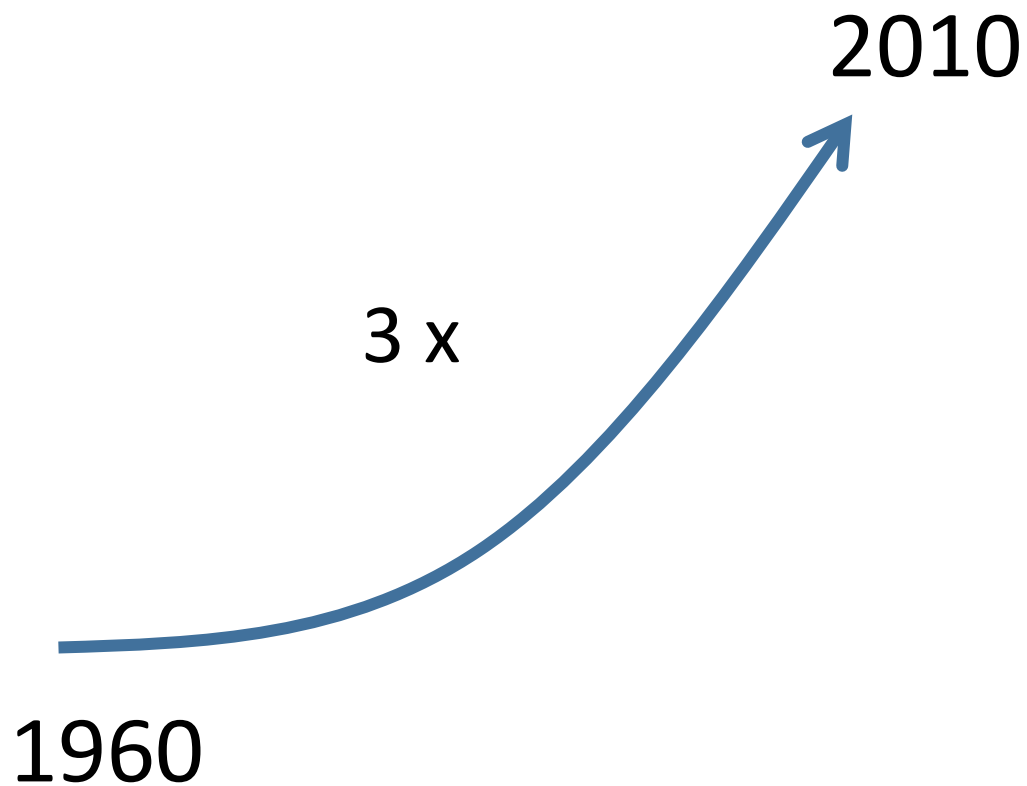
- E-learning can be an effective supplement of laboratory medicine education system
 - e-learning cannot be successfully implemented without changes in „traditional“ system
- When used appropriately, e-learning can:
 - intensify learning
 - improve getting feedback from students
 - generate objective data about effectivity of learning process
- Our examples
 - E-biochemistry (<https://moodle.mefanet.cz>)
 - Webinars (e-seminars)
 - „Healthy kitchen“ concept



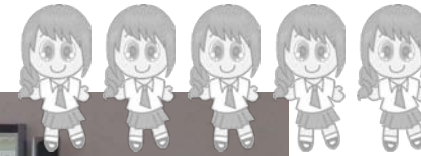
The more information we receive, the ...

Information load

Understanding the information



Evolution of a teacher, students and teaching strategy



„College is a place where a professor’s lecture notes go straight to the students’ lecture notes, without passing through the brains of either.“

Mark Twain

Goal = give information

„listen at school, learn at home“

„listen at home, learn wherever you want“

Goal = understand



Evolution of learning context

Lecture



Discussion

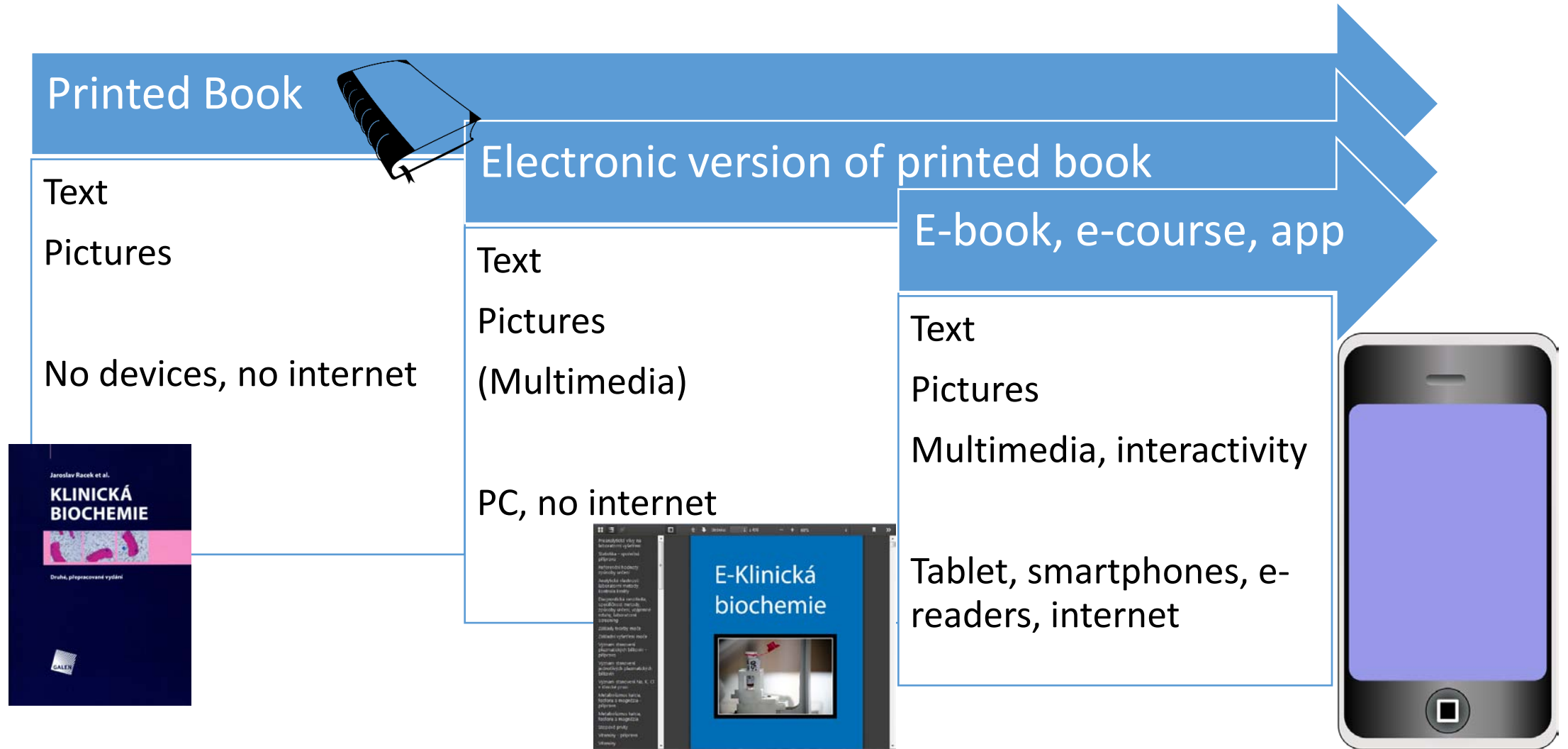


Informal learning



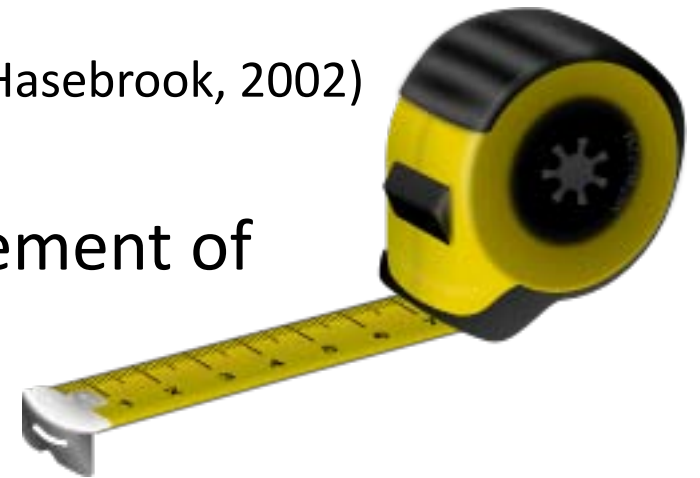
Information can be consumed
everywhere

Evolution of study material



Effective teaching

- Effectivity of education proces is **not measured** routinely
- Studies (evidence-based teaching)
 - **e-learning** is better than nothing -> comparable with „traditional“ methods (Feng 2013)
 - More effective
 - the same can be leatned by e-learning in shorter (70 %) time. (Hasebrook, 2002)
 - 11% more effective. (Sitzmann, Ely, and Wisher, 2008)
- **E-learning** is a good way for quantification, measurement of education
- Learn how to teach (e-learning)



E-learning needs space and **time**



hypothesis-based

Trends are changing

team-based

problem-based

outcome-based

organ-based

e-learning is better than ...

learning-styles

interactive boards ...

tablets are harmful for children ...

evidence-based

Basic rules are working

relevant

students „stay alive“

associations



link to known facts



different views on the same problem

Our examples

- E-course E-biochemistry

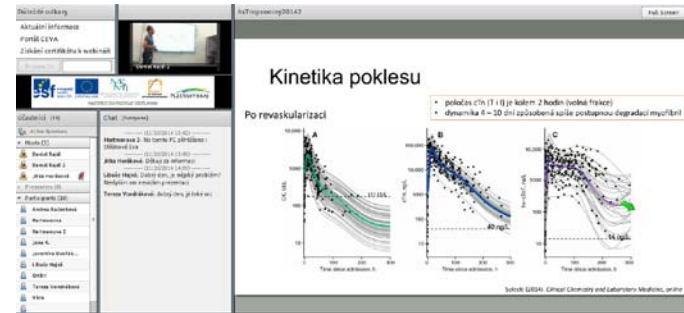
- Texts, voice-over presentations, interactive quizzes as tools for intensification of face to face education

- Webinars (E-seminars)

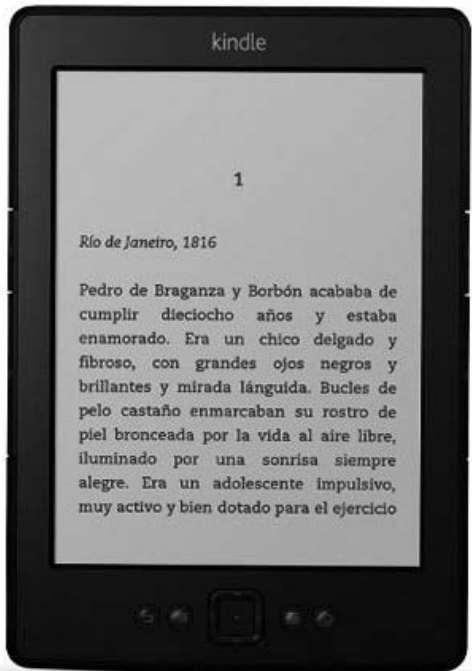
- continuous professional development
- EFLM WG DE e-seminars

- Healthy kitchen concept+ e-learning

- „hands on“ teaching + support with associations, examples, basic knowledge by e-learningem

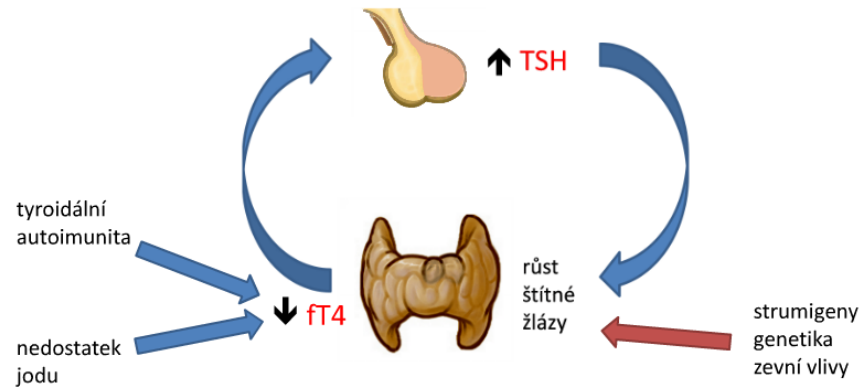


3 simple things ...



Text

Polynodózní toxická struma



Presentation, video



Novinky e diagnostice a léčbě ty...

MUDr. Michal Kréma
lékař
krcream@fnplzen.cz

Slide Title	Duration
1. Úvodní sním...	00:14
2. Pár definic p...	00:44
3. Příznaky a p...	00:59
4. Neobvyklé p...	01:34
5. Neobvyklé p...	01:14
6. Diagnostika ...	00:45
7. Tyreotoxikóza	00:04
8. Příčiny hype...	00:55
9. Gravesova (...)	01:16

U zdravého, přibližně 30 letého člověka je glomerulární filtrace přibližně (zaokrouhlete na celé - bez desetinných míst) -

Chceme-li odhadnout glomerulární filtraci, v klinické praxi máme obvykle 3 základní možnosti:

- výpočet (např. CKD-EPI)
 - frakční exkrece inulinu
 - mikroalbuminurie
- clearance endogenního kreatinu
 - clearance endogenního inulinu
 - clearance endogenního kreatininu
- cystatin C v moči
 - cystatin C v séru
 - cystatin C v séru a v moči

Quiz

ad 1. Pro tento způsob odhadu musíme mít změřenou koncentraci v , která kromě glomerulární filtrace závisí také na . Ženské pohlaví tento odhad - rasa (afričtí černoši) tento odhad .

ad 2. Pro tento způsob odhadu musíme mít změřenou koncentraci v . Nejčastějším a nejvýznamnějším zdrojem chyb u tohoto odhadu je .

ad 3. Principem tohoto odhadu je , filtrace glomerulem a resorpce a degradace v proximálním tubulu. Pokles glomerulární filtrace vede k vzestupu v .

2

E-course E-biochemistry + seminars



Preparation for seminars

Homework

Feedback (quizzes, evaluation)



Pacient přivezen v bezvědomí, TK 140/90 to

B_ pH krve	7,0
B_ BE	- 22 mmol/l
S_ Na	140 mmol/l
S_ K	6,5 mmol/l
S_ Cl	105 mmol/l
S_ urea	15 mmol/l
S_ kreatinin	135 µmol/l
S_ glukóza	8,5 mmol/l
S_ osmolalita	340 mmol/kg

budete myslet na:

Vyberte jednu z nabízených možností:

- a. šokový stav s laktátovou acidózou
- b. otravu salicyláty
- c. diabetické kóma
- d. otravu metanolem nebo etylénglykolem
- e. těžké selhání ledvin

E-biochemistry course, English version

- Texts and quizzes = complete
- Presentations with voice-over comment = not complete

Laboratory diagnosis and control of diabetes mellitus



Author: prof. MUDr. Jaroslav Racek, DrSc.

Study materials



Diabetes Mellitus

The latest version, the possibility of commenting on the text.

Presentations



Diabetes mellitus - print version



Diabetes mellitus

Interactive presentation with voice-over comment of the author.

Quiz



Control quiz Diabetes mellitus

share? cooperate?

Webinars (e-seminars)

hsTropooniny20142 Full Screen

Důležité odkazy
Aktuální informace
Portál CEVA
Získání certifikátu k webinaru
Browse To

Daniel Rajdl 2

presentation + lecturer

Kinetika poklesu

„technical“ issues (lecturer, participant)

Psychologie webinarů

Účastníci (13)
Active Speakers
Hosts (3)
Daniel Rajdl
Daniel Rajdl 2
Jitka Horáková
Presenters (0)
Participants (10)
Andrea Kačenková
Hartmanova
Hartmanova 2
Jana K.
Jaromíra Dvořák...
Libuše Hajná
OKBH
Tereza Vondr...
Věra

Chat (Everyone)
----- (11/26/2014 13:42) -----
Hartmanova 3: Na tomto PC přihlášená i Střížková Eva
----- (11/26/2014 13:48) -----
Jitka Horáková: Děkuji za informaci
----- (11/26/2014 14:09) -----
Libuše Hajná: Dobrý den, je nějaký problém? Neslyším ani nevidím prezentaci.
Tereza Vondráková: dobrý den, já také nic

CK, U/L

171 U/L

cTnI, ng/L

40 ng/L

hs-cTnT, ng/L

14 ng/L

admission, h

Time since admission, h

„psychology“ of webinars (presenter, attention of attendees)

Solecki (2014). *Clinical Chemistry and Laboratory Medicine*, online

The screenshot shows a webinar interface with a presentation slide on the right and a chat window on the left. The presentation slide features three graphs (A, B, C) showing the kinetics of CK, cTnI, and hs-cTnT levels over time. Graph A shows CK (U/L) on a log scale from 10 to 10,000, with a dashed line at 171 U/L. Graph B shows cTnI (ng/L) on a log scale from 10 to 100,000, with a dashed line at 40 ng/L. Graph C shows hs-cTnT (ng/L) on a log scale from 10 to 10,000, with a dashed line at 14 ng/L. Annotations include arrows pointing to 'presentation + lecturer', 'technical issues', and 'psychology of webinars'. The chat window shows messages from participants, and the participant list on the left shows 13 attendees.

EFLM WG-DE

Do you need webinar, streaming of an event?

„No problem“ 😊

Chair



Dragana Šegulja
first term 2014-2015

Dept. of Laboratory Diagnostics
University Hospital Centre Zagreb
Zagreb - Croatia

Members

Member
Daniel Rajdl
first term: 2015-2016

Inst. of Clinical Biochemistry and Hematology
Charles University
Pilsen, Czech Republic

Member
Henrique Reguengo
first term: 2015-2016

Clinical Chemistry Service
Centro Hospitalar
Porto, Portugal

Corresponding Member
Graham Lee
first term: 2015-2016

Dept. Clinical Chemistry & Diagnostic Endocrinology
Mater Misericordiae University Hospital
Dublin, Ireland

Corresponding Member
Anna Merino
first term: 2015-2016

Dept. of Public Health
University of Barcelona
Barcelona, Spain

EFLM WG-DE e-seminars

- 2014-11-04 - Speaker: *Dr. Kristin Moberg Aakre (NO)*
How can biological variation data for high sensitive troponins be related to current recommendations for diagnosing acute myocardial infarction
- 2014-12-09 - Speaker: *Prof. Elvar Theodorsson (SW)*
Bias in Clinical Chemistry
- 2015-01-28 - Speaker: *Dr. Gilbert Wieringa (UK)*
EU Directive 2013/55/EU on the Recognition of Professional Qualifications
- 2015-02-24 - Speaker: *Prof. Michel Langlois (BE)*
Comprehensive **dyslipidemia** testing beyond the “good” and “bad” cholesterol
- 2015-03-18 – Speaker: prof. Mario Plebani (IT)
Harmonisation in Laboratory Medicine



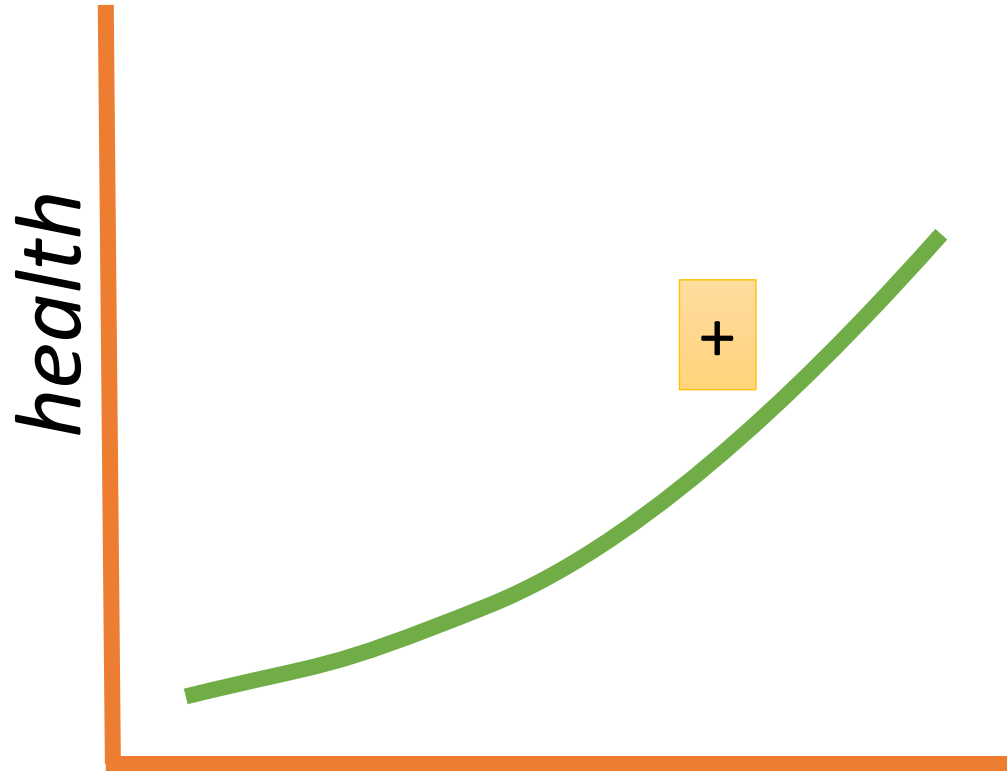
Healthy kitchen concept

- nutrition is systematically taught at 2% medical faculties (worldwide)
- elderly = chronic non-infectious diseases (diabetes, cancer, cardiovascular)
 - prevention (learn, how to be healthy = salutogenesis)
 - laboratory medicine is close to prevention (dyslipidemias ...)
 - pregradual and CPD

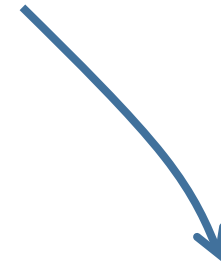


Cooking and health

culinary



science



time spent by preparation (and consummation) of meals

- better nutrition
- better advices to patients


Cooking + nutrition + critical thinking

On-line streaming
(webinars)



Prepared courses, homework (recipes, knowledge)

Summary

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