Teaching Millennials

James B. McGee, M.D.
Associate Professor of Medicine
Assistant Dean for Medical Education Technology
Director, Laboratory for Educational Technology
Who are the Millennials?

<table>
<thead>
<tr>
<th>Generation</th>
<th>Born</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby Boomers</td>
<td>1946 - 1964</td>
</tr>
<tr>
<td>Gen X</td>
<td>1965 - 1980</td>
</tr>
<tr>
<td>Cuspars</td>
<td>1975 - 1980</td>
</tr>
<tr>
<td>Millennials</td>
<td>1981 - 1999</td>
</tr>
</tbody>
</table>
Are you as digital as a Millennial?

• Use E-mail?
• Subscribe to email notification?
• Read Wikipedia?
• Read a blog?
• Look at YouTube, Flickr, or similar?
Have you...

• Contributed to online discussion or blog?
• Edited a Wikipedia entry?
• Created a FaceBook or MySpace profile?
• Uploaded to YouTube, Flickr or similar?
• Visited a Second Life island?
Your score:

8 – 10 = Digital Native

5 – 7 = Digital Immigrant

< 5 = Luddite
Video: Vision of Students Today

Michael Wesch and Students

Cultural Anthropology Class
Spring 2007
Kansas State University

YouTube: http://www.youtube.com/watch?v=dGCJ46vyR9o
Millennials are different

- optimistic, generous and practical
- team oriented
- ability to organize and mobilize
- change jobs frequently
- less self-reliant

Zemke R. Training 2001;38:44-49
Much in common with Gen X

- tech savvy
- Cyberforagers*
- multitaskers
- connected fluidly to their devices

*Berreby, David 1999
Millennial Medical Students

- validated 16 personality factor questionnaire
- quantitative comparison of Gen X to Millennials
- 809 students over 10 years

Northeastern Ohio University College of Medicine
Borges NJ. Academic Medicine 2007
<table>
<thead>
<tr>
<th>warmth</th>
<th>liveliness</th>
<th>vigilance</th>
<th>openness to change</th>
</tr>
</thead>
<tbody>
<tr>
<td>reasoning</td>
<td>rule-consciousness</td>
<td>abstractedness</td>
<td>self-reliance</td>
</tr>
<tr>
<td>emotional stability</td>
<td>social boldness</td>
<td>privateness</td>
<td>perfectionism</td>
</tr>
<tr>
<td>dominance</td>
<td>sensitivity</td>
<td>apprehension</td>
<td>tension</td>
</tr>
<tr>
<td>warmth</td>
<td>liveliness</td>
<td>vigilance</td>
<td>openness to change</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>----------</td>
<td>-------------------</td>
</tr>
<tr>
<td>reasoning</td>
<td>rule-consciousness</td>
<td>abstractedness</td>
<td>self-reliance</td>
</tr>
<tr>
<td>emotional stability</td>
<td>social</td>
<td>privateness</td>
<td>perfectionism</td>
</tr>
<tr>
<td>dominance</td>
<td>sensitivity</td>
<td>apprehension</td>
<td>tension</td>
</tr>
<tr>
<td>warmth</td>
<td>liveliness</td>
<td>vigilance</td>
<td>openness to change</td>
</tr>
<tr>
<td>--------</td>
<td>------------</td>
<td>----------</td>
<td>--------------------</td>
</tr>
<tr>
<td>reasoning</td>
<td>rule-consciousness</td>
<td>abstractedness</td>
<td>self-reliance</td>
</tr>
<tr>
<td>emotional stability</td>
<td>social</td>
<td>privateness</td>
<td>perfectionism</td>
</tr>
<tr>
<td>dominance</td>
<td>sensitivity</td>
<td>apprehension</td>
<td>tension</td>
</tr>
</tbody>
</table>
Do Millennials learn differently?

Communication
Personalized Learning
Communities of Learners
Communication
“E-mail is for old people”
...teenagers preferred new technology, like instant messaging or text messaging, for talking to friends and use e-mail to communicate with "old people."

“Teens and Technology”
Pew Internet and American Life Project
2005
Learners are Changing

Grew up with the Internet
Always connected
  instant & text messaging
  social networking websites
  personal media
Information on demand
Multiple formats
MON 11.26.2007

Summary of folder contents

8:00 am - 8:50 am Lecture: Celiac Disease

The links to journal articles are provided to help with your understanding of the core content of the lecture and notes. Students are not responsible (on the test) for the details in these articles which go beyond that presented in the lecture and notes. ...

Celiac Disease - 07 [Save] [View]
Lecture Slides - Celiac Disease-07 [Save] [View]

Celiac Sprue: review article, 2002 (NEJM)
Celiac Disease: How to Handle a Clinical Chameleon (NEJM)
Celiac Disease: Understanding a Complex Autoimmune Disorder (Annals of Internal Medicine, 2005)
Lecture Audio with Slides
Lecture Audio

9:00 am - 9:50 am PHARM Lecture: Cholinergic Agonists (Muscarinic)

The Word document contains both this lecture and the next one at 10:00 am.

Cholinergic Muscarinic & Anti-Muscarinic 07 [Save] [View]
Cholinergic Agonists & Antagonists Ppt 07 [Save] [View]
Pathophysiology of Congestive Heart Failure

Symptomatic Heart Failure: Just the Tip of the Iceberg

- Asymptomatic Left Ventricular Dysfunction
- Post-MI Remodeling
- Left Ventricular Hypertrophy
- Diastolic Dysfunction
- Hypertension
- Diabetes
- Dyslipidemia
- Coronary Artery Disease
- Other CVD Risk Factors
Symptomatic Heart Failure: Just the Tip of the Iceberg

- Symptomatic Heart Failure
- Asymptomatic Left Ventricular Dysfunction
- Diastolic Dysfunction
- Post-MI Remodeling
- Left Ventricular Hypertrophy
- Hypertension
- Diabetes
- Congestive Heart Failure
- Other Risk Factors
- Myocardial Ischemia
A little about Web 2.0

Diverse collection of tools & services
Highly user-centric design
“...if you’re not on Facebook you don’t exist.”

medical student, Pittsburgh
Web 2.0 Users Can...

Provide the content themselves
Organize content themselves
Direct others with ratings & reviews
Combine data from multiple locations
Create groups, collaborate
Share opinions, thoughts, and questions
Adult learning theory

Provide the content themselves
Organize content themselves
Direct others
Combine data from multiple locations
Create groups, collaborate
Share opinions, thoughts, and questions
Personalized Learning
Personalization

mass media > personal media
record albums > iPod playlists
Google search > iGoogle
web portal > MyZone
Personalized Knowledge

Uncouple Knowledge

Location & device independent
browser, mobile device
hardwired, wireless, unwired

Network constructivism...“Mash-ups”
Communities of Learners
Communities of Learners

More social than Gen X
Appreciate the “network effect”
Rapidly form trusted communities
Coeliac disease
From Wikipedia, the free encyclopedia

**Coeliac disease**, also spelled celiac disease, is an autoimmune disorder of the small bowel that occurs in genetically predisposed people of all ages from middle infancy. Symptoms include chronic diarrhoea, failure to thrive (in children) and fatigue, but these may be absent and symptoms in all other organ systems have been described. It is estimated to affect about 1% of Indo-European populations, but is significantly undiagnosed. A growing portion of diagnoses are being made in asymptomatic persons as a result of increasing screening.[1]

Coeliac disease is caused by a reaction to **gliadin**, a **gluten** protein found in wheat (and similar proteins of the tribe Triticae which includes other cultivars such as barley and rye). Upon exposure to gliadin, the enzyme tissue transglutaminase modifies the protein, and the immune system cross-reacts with the bowel tissue, causing an inflammatory reaction. That leads to flattening of the lining of the small intestine, which interferes with the absorption of nutrients. The only effective treatment is a lifelong gluten-free diet.

This condition has several other names, including: **coeliac disease** (with “œ” ligature), c(o)eliac sprue, non-tropical sprue, endemic sprue, gluten enteropathy or gluten-sensitive enteropathy, and gluten intolerance. The term coeliac derives from the Greek κοιλιακός (koilias, abdominal), and was introduced in the 19th century in a translation of what is generally regarded as an ancient Greek description of the disease by Areteus of Cappadocia.[2]

**Contents** [hide]

1 Signs and symptoms
   1.1 Gastrointestinal
   1.2 Malabsorption-related
   1.3 Miscellaneous

**Coeliac disease**
Classification & external resources

Biopsy of small bowel showing coeliac disease manifested by blunting of villi, crypt hyperplasia, and lymphocyte infiltration of crypts.

ICD-10  K90.0
ICD-9  579.0
OMIM  212750
DiseasesDB  2922
MedlinePlus  000233
eMedicine  med/308
aped/2146
radio/652
MeSH  D002446
Treatment and Prognosis

**Antibiotics** - With a suspicion of SBP, patients need hospital admission for intravenous antibiotics (or in some cases, oral antibiotics). The antibiotics should be started empirically if SBP is suspected (see table below) while waiting for culture results.

<table>
<thead>
<tr>
<th>DRUG</th>
<th>DOSE</th>
<th>ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cefotaxime (2)</td>
<td>2 g every 12 hours for 5 days</td>
<td>IV</td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td>2 g every 24 hours for 5 days</td>
<td>IV</td>
</tr>
<tr>
<td>Ofloxacin</td>
<td>400 mg every 12 hours for 8 days</td>
<td>PO</td>
</tr>
<tr>
<td><em>Amox plus Clavulanic acid</em></td>
<td>1 g/0.2 g q 6–8 hours IV for 2 days, then 500 mg/125 mg q8 hours 6–12 days IV/PO</td>
<td></td>
</tr>
</tbody>
</table>

(1) Dose need to be adjusted for renal insufficiency.
(2) Earlier studies had recommended antibiotic duration for 10 days or longer. Ceftazidime and cefotaxime are viable alternatives to ceftriaxone or cefotaxime

A repeat paracentesis in 48 hours is sometimes performed to ensure control of infection. A decrease of 25% in PMN count in 2 days suggests appropriate response.

**Intravenous albumin** - A randomized controlled trial found that intravenous albumin on the day of admission and on hospital day 3 can reduce renal impairment.[Sort et al, 1999]

About two-thirds of patients with SBP will have recurrence in 1 year

Hence, preventive regimen should be considered in following
- Past episode of SBP (for indefinitely, or until transplantation or resolution of ascites)[Grangé et al, 1998]
- Cirrhotic patients with ascitic fluid protein <1.0 g/dL (during hospitalization)[Runyon et al, 1986].
- Cirrhotic patients with GI bleed especially secondary to esophageal varices (for 7 days)[Soares-Weiser et al, 2002]
- In addition, a recent study has shown that patients with fluid protein <15 g/L and either Child-Pugh score of at least 9 or impaired renal function may also benefit from SBP prevention even when they are not hospitalized.[Fernández et al, 2007]

The choices for preventive regimen are (Parsi et al. 2004):

Please note that all contributions to Giwiki.org may be edited, altered, or removed by other contributors. If you don't want your contributions to be changed, please don't contribute.
Cardiovascular, Respiratory, and Renal Systems (Class of 2010)

Welcome to CRR

Cardiovascular

- Anatomy review
  - External features of the heart video
  - Internal features of the heart video
- Heart Sounds:
  - Auscultation of Heart Sounds (utdol.com)
  - Auscultation of Heart Murmurs (utdol.com)
  - Heart sounds website with audio (turn up your sound!)
  - Awesome animated cardiac cycle/heart sounds: http://www.blaufuss.org/
  - Worth seeing, quadricuspid aortic valve
- Pharmacology
  - Sympathetic drugs xls
  - Antiarrhythmics
  - drugs that alter cardiac performance (also in excel form alter cardiac performance xls)
  - Vasodilators (also in excel form vasodilators.xls)
  - Drugs of the sympathetic nervous system (also in excel form sympathetic drugs.xls)
  - Cardio drugs
  - Yet another drug summary
- Lectures
  - Arteritis and Aneurysms (in word form arteritis_aneurysms.doc)
- Study Guides
  - week 1 study guide
Daily Questions and then some

Vagal trunks: preganglionic parasympathetic
Greater splanchnic: preganglionic sympathetic
Hypoglossal nerve: can find it superior to the greater horn of the hyoid
Internal laryngeal nerve (sensory to larynx above the vocal cords) runs with the superior laryngeal artery piercing through the thyrohyoid membrane (sensory and Parasymp)
External laryngeal innervates cricothyroid and inferior pharyngeal constrictor m. (motor)
Carotid body senses acidity of blood and CO2/O2 content of blood (visceral afferents from aortic arch and carotid body)
Carotid sinus senses blood pressure (CN IX afferents)
Aortic baroreceptors less sensitive than carotid
Thyrohyoid innervated by ansa cervicalis: superior from C1 hitchhikes with hypoglossal n. and inferior is from C2-3
Ansae cervicalis innervates all infrahyoid m. except cricothyroid m. (which is innervated by Ext Br. Of Superior Laryngeal N. of CN X)
Thyroid gland does not cover the cricoid cartilage
When thyroid gland is removed, be careful of recurrent laryngeal n. and internal/external laryngeal nerves
Thoracic duct dumps into the jnx of L. Internal Jugular V. and L. Subclavian V.
All facial movements are done by CN VII
Sensation on your face = CN V
CN V motor to mm. of mastication = temporalis m., masseter m., medial/lateral pterygoid mm., + 4 more = Ant. Belly Digastric m., mylohyoid m., Tensor Palati m. Tensor Tympani m.
Mental nerve: sensory to chin and lower lip. Branch off of V3 (inferior alveolar n. thru mandibular foramen and out mental foramen)
Internal carotid artery comes through the carotid canal and passes through the cavernous sinus over foramen lacerum
Parasympathetic postganglionic receptors = nicotinic cholinerigic and on the TARGET receptors = muscarinic cholinerigic
ALL ANS postganglionic receptors → nicotinic cholinerigic
Opening eye done via CN III (levator palpebrae superioris) and Superior Tarsal M. (sm. M. = inn by symp fibers from SCG)
Oligodendrocytes myelinate the optic nerve and olfactory n. b/c they’re brain tracts
Sympathetic ganglion in the head from T1 & 2 synapse @ Superior cervical ganglion
Tarsal glands on tarsal plate; secretes oil to keep tears from spilling over eyelids
Preganglionic parasympathetic fibers originate from Nervus Intermedius of CN VII → chorda tympani → synapse in Submandibular ganglion → Lingual N. →
UPSOM Resources

Blogs
Collaborative learning
E-portfolios
Just-in-Time learning
MyZone
Curriculum Website

Web 1.0

Web 2.0

Podcasts

Colleagues

Faculty

Blogs, Wikis, RSS Feeds

MedEdPORTAL, AAMC

WIKIPEDIA
Learning in an Ideal World (Wide Web)

Adapted to your learning needs
At the place and time you need it
Just enough detail
On the device you have in front of you
Medical Education in Second Life
SampsonDW Basevi: watch for flying ambulances
MVP Controller 1.0.3: option=1
MVP Controller 1.0.3: Initial Patient Assessment on Approach
MVP Controller 1.0.3: On approach to the patient, you notice he is awake and talking comfortably. Now use global options or objects in the scenario to complete the task.
Georgiana Constantine: so now we move to the patient on the floor
Georgiana Constantine: and we have to decide how to treat him
MVP Shears 1.0.2: Lucas Nathansohn has selected the MVP Shears 1.0.2. Please discuss the following options as a group before deciding what to do.

MVP Shears 1.0.2: Do you want to cut and expose the patient? Choose from: Cut & Expose, Do Not Cut, Reset

Georgiana Constantine: yes they always attach to the patient IB.

Corro Moseley: jerod - yes, its a scripted attach command that looks for those attach points
Teaching Millennials

All knowledge is accessible
Always connected - to data and to each other
Students: Find, filter, and focus
Teachers: Guides, facilitators, and coaches