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### Medical technology

#### Wearable medical devices in medical sciences

Wearable medical devices are worn like clothes or accessories i.e. wrist watches, bracelets, glasses, chain .. ,.After the huge growth of smart phones, there is future for development of Wearable medical and health devices. One such wearable device is smart wrist watch. Even and above showing time the smart watches are able to measure pulse rate, body Temperature... A similar wearable devices have developed to continuous recording of pulse, respiration rate and depth, EEG and EEG for evaluation of arrhythmia, sleep apnea and epilepsies. The most important common element here is it can be wearied and record the physiological parameter without much discomfort or even some time without knowledge of patients. .

**Wearable medical devices has been also used to** educate and motivate individuals toward better habits and better health. The gap between recording information and changing behavior is substantial. While these devices are increasing in popularity and very soon we will know the outcome also. Such devices can objectively assess the eating behavior, exercise performed, calorie consumed. A Pedometer is such very popular device which measure distance one walked or run or consumed energy. Thus **Wearable medical devices** provide motivation and feedback to patient about their medical and health behavior. Large number of bio feed devices are on horizon to motivate and modify the human behavior.

Many devices and apps are on app store with all pros and cons, but main issue are not cost but maintaining sustain use. Person start using such health related devices for beginning but later on dropped due to a very common cause i.e. forget to recharge. So the smart phone based devices have more compliance as many people prefer to wear the smart phone most of the time. Large number of smart phone based medical educational apps also available on app stores i.e. medical dictionaries, medical procedures, medical data interpretation, mindscapes, medical news, medical drug dose calculators, medical abbreviation, medical laboratory values and technology information, surgical procedures, drug doses and drug interaction and side effects, medical prognosis, medical images, blood sugar, blood pressure, body temperature, pulse recording and so on. A similar one app have actually found more useful in patient adherence to drug regimes especially amongst psychiatric patients or patients who are on anti tuberculosis drugs and many more.

In medical education the Google glass have very promising future. In one instant, a medical teacher demonstrated a clinical case report and case images, videos, history, finding and laboratory pictures were simultaneously visualized by participating students on their smart phones in class room set up and then the whole case was discussed interactively. The most challenging and future Wearable devices in medical education is Holovin lenses created by Microsoft in joint efforts **with Case Western Reserve University**. This is probably going to prove the novel next generation teaching aid to medical students, teachers and doctors. Holovin lenses look like holography but this is not holograph. The image are created in brain

of viewer when viewer wears the lenses . Holovision lenses are sleek, flashy headset with transparent lenses. one can see the world around , but when wearied suddenly that world is transformed with 3D objects floating in mid air, virtual screens on the wall and your living room covered in virtual characters running amok. HoloLens measure up reality-altering gadgets. It is not actually producing 3D images that everyone can see; Microsoft's holovision lenses creates images only the wearer can see. Microsoft envisions the HoloLens as both a personal and a workplace device. person sees the wonders of a one's' own living world simultaneously . In words of Dr Neil Mehta a famous cardiologist of USA told in his lecture at medical college .conference that all one need is window 10 to create simulations with the HoloLens. Augmented reality is view of the physical real life world whose elements are augmented or enhanced by computer generated sensory input such as sound graphics, video or GPS data. A reviewer can able to separate the real world from the virtual world when using augmented reality with holovision lenses. Microsoft holovision is a mixed reality device that allows one to 3 D holograms of objects in real life settings. With holovision lens handset doctors can see under a patient ' skin all the detail structures and functions i.e. aortic valve. Medical students are using headsets to learn more about human body. In one example, the wearer is shown making a virtual click before a skeleton is separated from its vascular system and muscles from the body .

In various surveys from many apps on smartphones are available to increase medication adherence. Wearable-electronics are gaining widespread use as enabling technologies, monitoring human physical activity and behavior as part of connected health infrastructures. Attention to human factors and comfort of these devices can greatly positively influence user experience, with a subsequently higher likelihood of user acceptance and lower levels of device rejection. In making the wearable devices a human factors and comfort assessment is taken care for adherence. Thus such wearable medical gadgets will going to play very valuable part in medical sciences.

#### **References:**

1 Harte R, Quinlan LR<sup>2</sup>, Glynn L<sup>4</sup>, Rodriguez-Molinero A<sup>5,6</sup>, Scharf T<sup>7</sup>, Carenas C<sup>8</sup>, Reixach E<sup>9</sup>, Garcia J<sup>10</sup>, Carrabina J<sup>11</sup>, ÓLaighin G<sup>12,13</sup>. J Pers Med. 2015 Dec 16;5(4):487-508. doi: 10.3390/jpm5040487 **Multi-Stage Human Factors and Comfort Assessment of Instrumented Insoles Designed for Use in a Connected Health Infrastructure.**2 Mitesh S. Patel, MD, MBA, MS<sup>1</sup>; David A. Asch, MD, MBA<sup>1</sup>; Kevin G. Volpp, MD, PhD<sup>1</sup> **Wearable Devices as Facilitators, Not Drivers, of Health Behavior Change** *JAMA*. 2015;313(5):459-460. doi:10.1001/jama.2014.14781.

3 MNS.com Microsoft website :

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#### **GREEK MYTHOLOGY IN MEDICAL LITERATURE**

Achilles: Greatest Greek warrior in the TROJAN WAR, and the hero of homer' s ILIAD. When he was an infant, his mother Thetis tried to protect Achilles by bathing him in the magical river styx to make him immortal, but the heel by which she held him remained vulnerable. During the siege of troy, returned to slay the Trojan hero hector, whose corpse he dragged in the dust behind his chariot. Later, Achilles was fatally wounded in the heel by an arrow from the of hector' s brother Paris.

The phrase 'achilles' 'heel' is sometimes used to describe a strong person's one significant weakness.

Aphrodite ( AFE-rer- dye- tee) ( roman name vanus) Greek goddess of love and beauty, the mother of eros and areas . in the JUDGMENT OF PARIS, paris chose Aphrodite as the most beautiful goddess, over hera and Athena. Aphrodite was believed to have been born out of the foam of the sea, and is often pictured rising from the water, notably in the painting birth Of venus by sandro BOTTICELLI.

Arthur, king: legendary English king who wizard MERLIN. When he was only a boy, Arthur gained the throne by with- drawing the magic sword EXCALIBUR from a stone, after many men had tried and a failed. Arthur established his court at cam- elot, where he gathered around him the knights of the ROUND TABLE. Other char- actors associated with the legends of Arthur are his wife queen GUINEVERE, and his treacherous nephew modred. When a love affair between Guinevere and sir LANCE- LOT was discovered and caused arthur' s downfall at the battle of camlann. Mortally wounded, Arthur sailed to the mysterious isle of AVALON, promising to.

Astral body: in occult belief, an exact- though non- material- copy of the physical body. It is capable of separating itself, and remains attached to the physical body by a seemingly endless cord is severed and the astral body is freed from the limitations of the flesh.

Astral projection: experience of seeming to leave one' s body observing it from outside. Occultists believe that this occurs when the ASTRAL BODY leaves the physical body. People who claim to have had an 'out-of- body experience' have talked of a sense of well- being, vitality and buoyancy. The experience can happen whether the subject is conscious or unconscious. The natural habitat of the astral body is said de a king of 'fourth dimension' called the astral plane, and its experencec there may some- times remembered as dreams.

Atlas: in Greek mythology, son of one of the TITANS, famous for his strength. He refused hospitality to PERSEUS, who using the head of MEDUSA, turned him into stone. He became the atlas mountains, forced to support the heavens for ever.

\*since the 16<sup>th</sup> century, pictures of atlas and his burden have been used as dec- oration on maps. Accordingly, the word atlas used for a book of maps.

Bacchus: ( Greek name Dionysus): roman god of wine, ecstasy and fertility, whose followers were called bacchants and bacchantes. In the 2<sup>nd</sup> century BC the worship of bacchus was banned in rome, but it was readmitted as a mystery cult under the empire.

\*in art Bacchus is often depicted eating a bunch of grapes surrounded by SATYRS.

\* a 'bacchanalian' party or feast marked by unrestrained drunkenness. The name recalls the roman festivals called bac- chanalia, held in honour of bacchus, which usually culminated in drunken orgies.

Brutus : in British mythology, the founder and first king of Britain. According to Geoffrey of moumouth's 12<sup>th</sup> \_ century history of tbe kings of Britain, Brutus and his Trojan settlers killed the last remaining GIANTS who livedon the island, after which Britain was named after brutus.

Camelot: in british legend, the capital of the kingdom of king ARTHUR.