INTERVENTION STUDY OF WALKING EXERCISE AMONG ELDERLY IN CAIRO

Thesis
Submitted in Partial Fulfillment of
Master Degree in Epidemiology

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Contents

List of Abbreviations

ADL:	Activity of Daily Living
BMD:	Bone mineral density
BMI:	Body Mass Index
CAPMAS:	Central Agency for Public Mobilization and Statistics
CDC:	Centre for Disease Control and Prevention
DBP:	Diastolic Blood Pressure
FICSIT:	Frailty and Injuries: Cooperative Studies of Intervention Techniques
HDL:	High density lipoprotein
LDL:	Low density lipoprotein
MMSE:	The Mini-Mental State Examination
RBS:	Random Blood Sugar
SBP:	Systolic Blood Pressure
SD:	Standard Deviation
VO2 max:	Maximum Oxygen consumption
WHO:	World Health Organization
WHR:	Waist Hip Ratio

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Table 1 Response of the participants regarding Knowledge assessment questions
N=101

Item	Before		After		x^2 test	P value
	N	%	N	%		
1.**Define regular exercise**					5.9	S
* Yes	88	87.5	98	97		
No	13	12.9	3	3		
2.Types of physical exercise					3.1	N.S
*Yes	97	96	101	100		
No	3	3				
3.Importance of walking exercise					1.9	N.S
*Yes	99	98	99	98		
No	2	2	2	2		
4.Relation between walking exercise and:					2.0	N.S
A. Depression						
*Yes	37	36.4	47	46.5		
No	64	63.4	54	53.5		
B. Osteoporosis					5.0	H.S
* Yes	47	46.5	93	92.1		
No	54	53.5	8	7.9		
C. Hypertension					15.3	H.S
* Yes	63	66.3	89	88.1		
No	33	32.7	11	10.9		
D. Diabetes mellitus					29.1	H.S
* Yes	68	67.3	97	96.1		
No	32	31.7	3	3		

E. Cancer breast and colon					53.3	H.S
* Yes	11	10.9	60	59.4		
No	86	85.1	37	36.6		
F. Constipation					29.6	H.S
*Yes	41	40.6	79			
No	60	59.4	78.2			
			22			
			21.8			
G. Infectious diseases					7.7	H.S
Yes	12	11.9	2	2		
* No	87	86.1	98	97		
5.Effect of exercise on the following risk factors:						
A. Cholesterol level					6.02	NS
* Yes						
No	44	43.6	46	45.5		
	55	54.5	55	54.5		
B. Smoking					18.6	H.S
* Yes	74	73.3	98	97		
No	23	22.8	3	3		
C. Increase in weight					4.7	S
* Yes	93	92.1	100	99		
No	7	6.9	1	1		
D. Frequent falls					19.6	H.S
* Yes	35	34.7	67	66.3		
No	62	61.4	32	31.7		
E. Insulin level in blood					10.2	H.S
*Yes	37	36.6	61	60.4		
No	61	60.4	40	39.6		
F. Harmful fat in blood					1.4	N.S
*Yes	45	44.6	55	54.5		
No	53	52.5	46	45.5		

G. Heart beats					15.7	H.S
*Yes	78	77.2	98	97		
No	21	20.8	3	3		
6. Sources of exercise information					15.1	H.S
Friends	16	15.8	34	33.4		
TV	73	72.3	46	45.5		
Newspapers	10	9.9	18	17.8		
Others	2	2	3	3		
7.Walking is the ideal exercise for elderly						
* Yes	101	100	101	100		
No						
8.Define aerobic exercise					85.2	H.S
* Yes	4	4	66	65.3		
No	97	96	34	33.7		
9.Instructions for walking exercise						
a. Walking after meals is preferred					53.8	H.S
Yes	61	60	13	12.9		
* No	35	34.7	88	87.1		
b. Intermittent walking is not preferred					23.6	H.S
Yes	53	52.5	21	20.8		
* No	45	44.6	80	79.2		
c. Starting and ending walking should be gradual					20.2	H.S
* Yes	67	66.3	93	92.1		
No	32	31.7	7	6.9		

d. Not drink water while walking					21.5	H.S
Yes	56	55.4	26	25.7		
* No	40	39.6	75	74.3		
e. Speed walking is preferred					29.2	H.S
*Yes	62	61.4	95	94.1		
No	37	36.6	6	5.9		
f. Not stop when feeling tired or sweating					7.4	H.S
Yes	24	23.8	10	9.9		
* No	74	73.3	91	90.1		

* Correct answer and, score from 25

From the above table we can recognize that participants knowledge after sessions was high significant regarding defining regular exercise, relation between walking and osteoporosis , hypertension diabetes mellitus, cancer constipation cancer and infectious diseases .also effect of exercise on risk factor as smoking, frequent falls, insulin level, heart beats, sources of exercise information, walking is ideal for elderly , aerobic exercise definition, and instruction for walking exercise.

Table **2`** Response of the participants regarding Attitude assessment questions
N=101

What diseases or risk factors will benefit from exercise :	Before sessions			After sessions			x^2	P
	a. strong agree	**b. agree**	**c. Don't agree**	**a. strong agree**	**b. agree**	**c. Don't agree**		
a. Alzheimer decrease in memory	**20 19.8%**	**23 22.8%**	58 57.4	**15 14.9**	**73 *72.3%**	13 12.9	55.2	0.00
b. Heart diseases &hypertension	25 24.8%	59 58.4%	17 16.8%	61 *60.4%	36 35.6%	4 4%	19.2	0.00
c. Help in preventing frequent falls	21 20.8%	43 42.6%	37 36.6%	45 44.6%	53 *52.5%	3 3%	38.6	0.00
d. Improved in atherosclerosis &stroke	25 24.8%	49 48.5%	27 26.7%	67 *66.3%	29 28.7%	5 5%	39.4	0.00
e.Decrease osteoporosis	19 18.8%	48 47.5%	34 33.7%	60 *59.4%	34 33.7%	7 6.9%	41.4	0.00
f.Reduce weight	46 45.5%	50 49.5%	5 5%	72 *71.3%	21 20.8%	8 7.9%	18.2	0.00
g.Improve heart &lung activity	39 38.6%	57 56.4%	5 5%	68 *67.3%	28 27.7%	5 5%	17.7	0.00
h.Improves diabetes mellitus	27 26.7%	56 55.4%	18 17.8%	59 *58.4%	36 35.6%	6 5.9%	22.5	0.00

i.Improve depression	25 24.8%	24 23.8%	52 51.5%	43 42.6%	46 *45.5%	12 11.9%	36.6	0.00
j.Have relation with cancer colon &breast	7 6.9%	12 11.9%	82 81.2%	38 37.6%	50 *49.5%	13 12.9%	94.7	0.00
k.Improve daily activity at home	25 24.8%	62 61.4%	14 13.9%	71 *70.3%	27 26.7%	3 3%	42.9	0.00
l.Reduce mortality rate	17 16.8%	53 52.5%	31 30.7%	43 42.6%	56 *55.4%	2 2%	36.8	0.00

strong agree 2
agree 1
Don't agree 0

Regarding participants answer about attitude questions we can recognize that their attitude all increased after sessions and they became more aware about some risk factors which benefit from exercise than before.

Table 3 Response of the participants regarding Practice assessment questions
N=101

Item	Before N %	After N %	x^2 test	P value
1.Do you practice exercise now (at least 3 times/week) a. yes b. no	 77 76.2 24 23.8	 99 *98 2 2	19.7	0.00
2 How many times /week a. daily b. 2 times/week c. more than 2 times/week	 17 16.8 37 36.6 47 46.5	 26 25.7 6 6 69 * 68.3	28.4	0.00
3. time spend in exercise a. 5 minutes/session b.10 minutes./session c.15mins./session d.>15mins./session	 16 15.8 23 22.8 33 32.7 29 28.7	 0 0 14 13.9 42 41.6 45 * 44.6	22.7	0.00

4. What type of exercise you do? a. walking b. aerobics c. others	96 95 2 4 1 1	97 *96 3 3 1 1	0.1	NS
5. What is the preferred time? a. morning b. evening	17 17.8 82 81.2	15 14.9 84 83.2	0.03	NS
6. Do you like practicing exercise? a. yes b. no	91 90.1 8 7.9	101 *100	6.5	S
7. If yes with whom? a. friends b. alone c. with groups	73 74.3 7 6.9 16 15.8	74 *75.2 11 10.9 14 13.9	0.9	NS
8. Where do you practice exercise? a. dar b club c. gym d. street	60 59.4 24 23.8 4 4 11 10.9	60 * 59.4 24 *23.8 4 4 11 10.9	0.00	N.S
9. Do you practice walking exercise regularly? a. yes b. no	29 28.7 72 71.3	100 *99 1 1	105.1	S

10. In the last 2 weeks how many times you went for a 10 minutes walk ? a. ----3-----day in a week b. don't know	17 16.8 84 83.2	50 * 49.5 51 50.5	22.8	S
11. What is the average time you spent for walking exercise last two weeks? a. -2-3--------day/week b. -30------minutes/week c. don't know	51 50.5 50 49.5	62 *61.4 39 38.6	2.1	NS

بسم الله الرحمن الرحيم

بحث بعنوان رياضة المشي

بيانات المشارك :-

الرقم السري : | | | | | |

الاسم : .....

العنوان : .....

التلفون : (.....).....

١.تاريخ الميلاد: .....اليوم (/) الشهر (/) السنة(/ / /)

٢.الحالة الاجتماعية: ١/متزوج ٢ /أرمل ٣/منفصل ٤/أعزب (/)

٣.مع من يعيش : ١/بمفرده ٢/مع الزوج/ الزوجة ٣/مع أفراد الأسرة بالإضافة إلي الزوج/ الزوجة
/) (٤/مع أفراد الأسرة ٥/ مع الآخرين
(/) ٤.عدد سنوات الدراسة :
١/(٠-٦) ٢/(٧-٩) ٣/(١٠-١٢) ٤/(دراسة جامعية) ٥/دراسة عليا
٥. الوظيفة : ..... (/)
٦. الدخل السنوي / الشهري : (/)
١/فوق حد الفقر ٢/تحت حد الفقر ٣/ يكفي للاحتياجات الأساسية فقط ٤/يكفي لأكثر من الأساسيات
٥/ يحتاج لمساعدة
٧.مصدر الدخل : ..... (/)
٨.كم عدد المستفيدين من هذا الدخل ؟ (/)
٩. هل لك تأمين صحي ؟
.....

فحص الحالة العقلية المختصر

البنود	الدرجة
١) التوجيه (الاهتداء):	((/١٠))

*تقدر تقول لي إحنا في سنة كام؟ (١/)
*تقدر تقولي أحنا في فصل إيه؟ (١/)
*تقدر تقولي أحنا في شهر إيه؟ (١/)
*تقدر تقولي النهاردة إيه؟ (١/)
*تقدر تقولى تاريخ النهارده ايه؟ (١/) (٥/)
*أحنا فين دلوقتي؟ (١/)
*أحنا في الدور الكام؟ (١/)
*أنت تبع حي إيه؟ (١/)
*أنت تبع محافظة إيه؟ (١/)
*إحنا في جمهورية إيه؟ (١/) (٥/)

٢)تسجيل المعلومات :- ((/٣))

* حقولك ٣ كلمات ، قولهم ورايه ، هاسألك عليهم تاني : {كورة – شجرة - قلم} (٣/)

٣) الانتباه والحساب : ((/٥))

{أكثر من ٥ سنوات دراسة}

*أطرح ٧ من ١٠٠ والباقي شيل منه ٧ وأنت نازل ، وتوقف بعد ٥ مرات

{٩٣-٨٦-٧٩-٧٢-٦٥}

{إذا كان غير قادر علي الطرح: يتهجأ كلمة "أسيوط" وبالعكس {ط و ي س أ}

{أقل من ٥ سنوات دراسة}

*أطرح ٣ من ٢٠ والباقي شيل منه ٣ وتوقف بعد ٥ مرات (٥/)

*إذا كان غير قادر : قول أيام الأسبوع بالعكس.

٤)استرجاع الذاكرة : - ((/١))

*قول الــ ٣ كلمات اللي قولناهم قبل كده {كورة – شجرة - قلم} (١/)

٥) اللغة : ((/٩))

*إيه ده {شاور علي القلم والساعة وأسأل عن هذه الأشياء} (٢/)

* قول وراية "ولا كاني ولا ماني ولا حاجة عجباني" (١/)

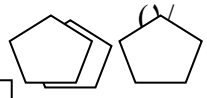
*استجابة المريض لأمر مكون من ٣ حركات. (٣/)

" أمسك الورقة دي بأيدك اليمين ، وطبقها اثنين بأيدك الاثنين وحطها علي التربيزة "

*أقرا المكتوب ونفذه " أو نقوله" {غمض عينيك} (١/)

*أكتب جملة مفيدة (لها معني) أو قول جملة مفيدة. (١/)

*أرسم هذا الشكل. ( )



الدرجة: (٣٠)

Score	24-30	No cognitive impairment
	18-23	Mild-moderate impairment
	0-17	Severe cognitive impairment

أنشطة الحياة اليومية البسيطة

١.الاستحمام :

(٠/) (١/) (٢/)

يحتاج لمساعدة بمساعدة كاملة بدون مساعدة

٢.اللبس:

هل تستطيع ارتداء ملابسك وخلعها؟

(٠/) (١/) (٢/)

بدون مساعدة يحتاج لمساعدة بمساعدة كاملة

٣.استخدام الحمام:

هل تستطيع استخدام الحمام لقضاء حاجتك(التبول والتبرز)؟

(٠/) (١/) (٢/)

بدون مساعدة يحتاج لمساعدة بمساعدة كاملة

٤.الانتقال :

هل تستطيع الانتقال من وإلي الفراش أو المقعد؟

(٠/) (١/) (٢/)

بدون مساعدة يحتاج لمساعدة بمساعدة كاملة

٥.التحكم في الإخراج :

هل تستطيع التحكم في البول ؟

(٠/) (١/) (٢/)

تحكم كامل لا يتحكم في بعض الأحيان غير متحكم

هل تستطيع التحكم في البراز؟

(٠/) (١/) (٢/)

تحكم كامل لا يتحكم في بعض الأحيان غير متحكم

٦.التغذية :

هل تستطيع تناول الطعام والشراب؟

(٠/) (١/) (٢/)

بدون مساعدة يحتاج لمساعدة بمساعدة كاملة

)14الدرجة: (

Score: 0-5 Completely Dependant
6-9 Partially Dependant
10-12 Independent

مقياس الإكتئاب المصغر في السن

البنود	الإجابة
١.أنت راضي عن حياتك؟	نعم (/٠) لا (/١)
٢.أنت أهملت كثير من نشاطاتك واهتماماتك؟	نعم (/١) لا (/٠)
٣.أنت حساس إن حياتك فاضية؟	نعم (/١) لا (/٠)
٤.في الغالب بتحس أنك مضايق وزهجان؟	نعم (/١) لا (/٠)
٥.في الغالب معنوياتك بتكون عالية ؟	نعم (/٠) لا (/١)
٦.أنت خايف من حاجة وحشة حتحصلك؟	نعم (/١) لا (/٠)
٧.في الغالب بتحس أنك مبسوط؟	نعم (/٠) لا (/١)
٨.في الغالب بتحس أنك قليل الحيلة؟	نعم (/١) لا (/٠)
٩.تحب تقعد في البيت عن إنك تخرج تعمل حاجة جديدة؟	نعم (/١) لا (/٠)
١٠.أنت حساس أن عندك مشاكل في الذاكرة أكثر من الآخرين؟	نعم (/١) لا (/٠)
١١.تفتكر أن دي حاجة حلوة أنك لسه عايش؟	نعم (/٠) لا (/١)

١٢.أنت شايف أنك عايش الحياة بطريقة مش مناسبة ليك؟ نعم (/١) لا (/٠)

١٣.أنت حساس أنك مليان حيوية ونشاط؟ نعم (/٠) لا (/١)

١٤.أنت حساس أن حالتك دي ميئوس منها؟ نعم (/١) لا (/٠)

١٥.أنت حساس إن أغلب الناس اللي حولك أحسن منك نعم (/١) لا (/٠)

الدرجة: (١٥)

Score 0-4 Normal
5-7 Mild Depression
8-10 Moderate Depression
11-15 Severe Depression

التاريخ المرضي

١.التدخين	نعم (١/) لا (٢/)
٢.إذا تدخن كام سيجارة	
٣.هل تعاني من مرض السكر	نعم (١/) لا (٢/)
٤.ارتفاع ضغط الدم	نعم (١/) لا (٢/)
٥.أسكيميا القلب	نعم (١/) لا (٢/)
٦ضيق صمام القلب	نعم (١/) لا (٢/)
٧التهاب الرئوي	نعم (١/) لا (٢/)
٨.حساسة الصدر	نعم (١/) لا (٢/)
٩قرحة المعدة	نعم (١/) لا (٢/)
١٠.أمراض الكبد	نعم (١/) لا (٢/)
١١.المرارة	نعم (١/) لا (٢/)
١٢.الكلي	نعم (١/) لا (٢/)
١٣.البروستاتا	نعم (١/) لا (٢/)
١٤.هشاشة العظام	نعم (١/) لا (٢/)
١٥.التهاب المفاصل والخشونة	نعم (١/) لا (٢/)
١٦.سلس البول	نعم (١/) لا (٢/)
١٧.الوقوع	نعم (١/) لا (٢/)
١٨.عمليات جراحية	نعم (١/) لا (٢/)
١٩تقلبات النوم و الارق	نعم (١/) لا (٢/)
٢٠.الرياضة	نعم (١/) لا (٢/)
٢١.أدوية منتظمة وعددها	نعم (١/) لا (٢/)

الكشف الطبي:

الضغط الوزن

الطول نسبة محيط الخصر: الارداف

نسبة كتله الجسم /المساحه

الجهاز الدوري و القلب: ١. سليم ٢.مصاب

الجهاز التنفسي: ١. سليم ٢.مصاب

الجهاز الهضمي: ١. سليم ٢.مصاب

الجهاز البولي التناسلي: ١. سليم ٢.مصاب

جهاز الهيكل العظمي: ١. سليم ٢.مصاب

الفحوصات:

قياس نسبة السكر في الدم:

أسئلة عن المعرفة بالرياضة

١ - ما هو تعريفك للرياضة المنتظمة؟

٢- ما هى انواع الرياضة التى تعرفها؟

٣-- هل رياضة المشي مفيدة للمسن :-

أ- نعم ب- لا

٤-هل هناك علاقة بين رياضة المشي وبعض الأمراض مثلا : -

-الاكتئاب . نعم لا لا اعرف

- هشاشة العظام. نعم لا لا اعرف

- إرتفاع ضغط الدم. نعم لا لا اعرف

- مرض السكري. نعم لا لا اعرف

- سرطان الثدي والقولون. نعم لا لا اعرف

- الإمساك. نعم لا لا اعرف

-الامراض المعدية مثل الكبد الوبائى. نعم لا لا اعرف

٥- هل ممارسة الرياضة تغير/تؤثر على العوامل التالية:-

- ارتفاع نسبة الكولسترول في الدم. نعم لا لا اعرف

- التدخين. نعم لا لا اعرف

- زيادة الوزن. نعم لا لا اعرف

- تكرار الوقوع. نعم لا لا اعرف

-نسبة الانسولين فى الدم. نعم لا لا اعرف

-نسبة الدهون الضارة فى الدم. نعم لا لا اعرف

- انتظام دقات القلب . نعم لا لا اعرف

٦-ما مصدر معلوماتك عن فوائد الرياضة ؟

أ- أصدقاء ب- إذاعة وتلفزيون ج – صحف د- أخرى

٧- ما هي افضل ثلاث رياضات يمكن أن يمارسها المسن :-

أ-

ب-

ج-

٨-هل تعرف ما هو الايروبيك الهوائى؟

أ-نعم ب-لا اذا نعم عرفه؟

٩-ما الافضل:

أ-المشى بعد الاكل مباشرا : صح خطأ

ب-امشى لفترات متقطعة غير مفيد و لابد من المشى المتواصل: صح خطأ

ج-عند بداية و نهاية المشى يجب الوقوف بالتدريج: صح خطأ

د-عدم شرب الماء اثناء المشى: صح خطأ

ه -المشى السريع مرغوب فيه: صح خطأ ز- لا تتوقف

عند الشعور بالتعب أو العرق: صح

أسئلة عن الاتجاهات حول الرياضة

١-هل تحب ان تمارس الرياضة؟ ا- نعم ب- لا

٢-اذا نعم مع من: أ- الاصدقاء ب- بمفردك ج- مع مجموعات

٣- اذا لا ما هو المانع ؟

_ وجود امراض تمنع من ممارسة الرياضة.

_ عدم تشجيع من المحيطيين.

_ عدم وجود رغبة للمسن.

٤_ما هى دوافعك لممارسة الرياضة؟

_تحافظ على سلامة الصحة.

_تقلل من التوتر.

_تقلل من زيادة الوزن.

_تحسن كفاءة الجسم

٥-ما الامراض او الحالات التى تعتقد انها تتحسن او يتأخر حدوثها مع ممارسة الانشطة الرياضية بانتظام ؟(اذكر الاشياء التى تعرفها فقط)

- تحسن من مرض (ضعف الذاكرة) الزهايمر أوافق بشدة - أوافق - لا أوافق
- تقلل من أمراض القلب وإرتفاع ضغط الدم وافق بشدة - أوافق - لا أوافق
- تساعد على عدم تكرار الوقوع أوافق بشدة - أوافق - لا أوافق
- تحسن من أمراض الشرايين وجلطات المخ أوافق بشدة - أوافق - لا أوافق
- تقلل من هشاشة العظام أوافق بشدة - أوافق - لا أوافق
- تساعد على إنقاص الوزن أوافق بشدة - أوافق - لا أوافق
- تحسن من كفاءة عمل الرئتين والقلب أوافق بشدة - أوافق - لا أوافق
- تحسن من مرض السكري أوافق بشدة - أوافق - لا أوافق
- تحسن من مرض الإكتئاب أوافق بشدة - أوافق - لا أوافق
- لها علاقة مع سرطان الثدي والقولون أوافق بشدة - أوافق - لا أوافق
- تحسن من كفاءة الفرد عند القيام بالاعمال المنزلية أوافق بشدة أوافق - لا أوافق
- تقلل من معدلات الوفاه بصفة عامة أوافق بشدة - أوافق - لا أوافق

٦- هل تنصح اصدقائك بممارسة رياضة المشى؟

أ- نعم ب- لا ج- و لماذا؟

٧-هل تفضل ممارسة الرياضة عن الجلوس مع الاصدقاء؟

أ- نعم ب- دائما ج – احيانا د- نادرا ه- لا

٨- هل المشرفين على الدار او النادى يشجعون المسن على ممارسة النشاط الرياضى(المشى – الجرى - تمارين رياضية)؟

أ_ يشجعون بشدة ب- يشجعون ج- لا يشجعون د- لا اعرف

٩- اذكر عدد الانشطة المتاحة و التى يوفرها الدار او النادى للمسن؟

أ-لا يوجد ب-١-٢ ج- اكثر من ٢

أسئلة عن ممارسة الرياضة

١- هل تمارس الرياضة فى الوقت الحالى (٣ مرات اسبوعيا لمدة ١٠ دقائق /المرة) :-

آ-نعم ب- لا

٢- كم مرة؟

أ- يوميا ب- مرتين فى الاسبوع ج- أكثر من مرتين فى الاسبوع

٣- ما هي المدة التي تمارس فيها الرياضة : -

أ- ٥ دقائق / المرة ب- ١٠ دقائق/ المرة ج- ١٥ دقيقة /المرة د- أو أكثر

٤-ما نوع الرياضة التى تمارسها؟

أ-مشى ب-ايروبيك ج-سباحة د-اخرى

٥- ما هو الوقت المفضل لممارسة الرياضة : -

أ- صباحا ب- مساءا

٦-هل تحب ممارسة رياضة المشى؟

أ-نعم ب-لا

٧-اذا نعم مع من:

أ- بمفردك ب- فى مجموعات ج-الاصدقاء

٨-اين تمارس رياضة المشى؟

أ- الدار ب _النادى ج-مركز متخصص د-الشارع

٩-هل تواظب على رياضة المشى؟

ا-نعم ب-لا

١٠-خلال الاسبوعين الماضيين كم مرة مارست رياضة المشى لمدة ١٠ دقائق على الاقل فى كل مرة؟

أ------ يوم فى الاسبوع ب-لا ادرى /غير متأكد

١١-ما متوسط الوقت الذى مارست فية رياضة المشى خلال الاسبوعين الماضيين؟

أ----ساعة فى الاسبوع ب-----دقيقة فى الاسبوع ج- غير متأكد

اسم:المشارك

عدد المرات بالدقائق في اليوم	مشي بطئ للاحماء دقائق5	مشي معتدل أو سريع 10-15 دقيقة	مشي بطيء قبل الوقوف دقائق5	المجموع	ملاحظات
الأسبوع الاول ١. ٢. ٣.					
الأسبوع الثانى ١. ٢. ٣.					
الأسبوع الثالث ١. ٢. ٣.					
الأسبوع الرابع ١. ٢.					

٣.					
قياسات في بداية الشهر	**الوزن**		**قياس ضغط الدم**		**قياس السكر في الدم**

عدد المرات بالدقائق في اليوم	**مشي بطئ للاحماء دقائق5**	**مشي معتدل أو سريع 10-15 دقيقة**	**مشي بطيء قبل الوقوف دقائق5**	**المجموع**	**ملاحظات**
الأسبوع الخامس ١.					
٢.					
٣.					
الأسبوع السادس ١.					
٢.					
٣.					
الأسبوع السابع ١.					
٢.					
٣.					
الأسبوع الثامن ١.					
٢.					
٣.					
قياسات في نهاية الشهر	**الوزن**		**قياس ضغط الدم**		**قياس السكر في الدم**

دد المرات بالدقائق في اليوم	**مشي بطئ للاحماء دقائق5**	**مشي معتدل أو سريع 10-15 دقيقة**	**مشي بطيء قبل الوقوف دقائق5**	**المجموع**	**ملاحظات**
الأسبوع التاسع ١.					
٢.					
٣.					
الأسبوع العاشر ١.					
٢.					
٣.					

الأسبوع الحادي عشر ١. ٢. ٣.					
الأسبوع الثاني عشر ١. ٢. ٣.					
قياسات في نهاية الشهر	**الوزن**		**قياس ضغط الدم**		**قياس السكر في الدم**

ممارسة الرياضة

أن الذين يمارسون الرياضة أطول عمرا من الذين لا يمارسونها وعلي الرغم من ذلك فإن القليل من المسنين يمارسون الرياضة المنتظمة فحوالي ١٠% فقط منهم يمارسون الرياضة المنتظمة ومجموعة أخري ربما تمارس رياضة بشكل غير منتظم.

هناك عدة أسباب ترتبط بقلة ممارسة الرياضة بالنسبة للمسنين وهي :-

-تقدم العمر.
- وجود إعاقة.
-وجود مرض مزمن.
-العزلة الاجتماعية.
-قلة الإيمان والثقة بالنفس والاكتئاب والقلق.
-التدخين.

التغيرات التي تصاحب التقدم في العمر مثل :

- السمنة.
-هشاشة العظام وضعف العضلات.

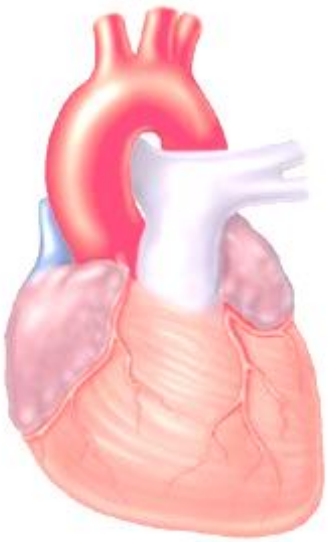
فوائد الرياضة:-

ممارسة الأنشطة الرياضية:

-١)تؤخر حدوث الشيخوخة.
٢) تقلل عوامل الخطورة المسببةلبعض الأمراض المزمنة والاعاقات المصاحبة لها.
٣)تساعد على بناء العظام وتقلل حدوث الهشاشة.
٤) تؤدي إلي تحسين الحالة النفسية للمرضى.

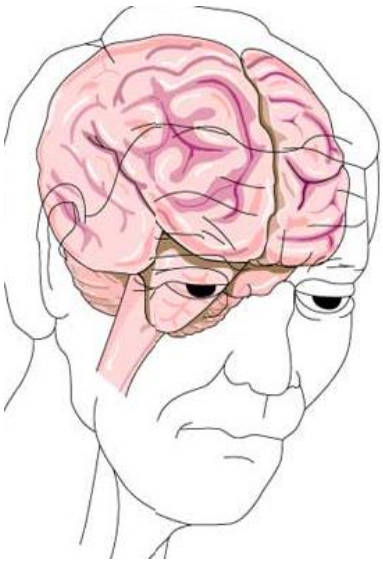
ما هي الأهداف المرجوة من ممارسة الرياضة

١)تغيير السلوك ونمط الحياة الروتينية إلي حياة بسيطة نشطة.
٢)تغيير عوامل الخطورة المؤديةً للأمراض المختلفة بهدف الحد من الإعاقات الناتجة من:
١)حدوث مرض حاد.
٢) ارتفاع درجة الحرارة للجسم.
٣)عدم انتظام السكر.
٤)ارتفاع أو عدم انتظام ضغط الدم.
٥)الربو الشعبي ألازمات الرئوية.



٦)فشل عضلة القلب.
٧)قلة الوزن والوهن وسوء التغذية.
٨)السقوط المتكرر والأسباب الغير معروفة.

٩)المياه البيضاء وانفصال أو نزيف شبكة العين.
١٠ الفتق.
١١)إصابة المفاصل
١٢)نزيف المخ.
١٣)تذبذب وعدم انتظام ضربات القلب.
١٤)ضيق الصمام الأورطي.
وهنا نقول **أن المشي مفيد**:-
١-الاكتئاب.
٢-السمنة.
٣-هشاشة العظام.
٤-جلطات المخ.
٥-خشونة المفاصل.
٦-أمراض القلب.
٧-السكري.



٨-الامساك.
٩-سرطان الثدى والقولون.

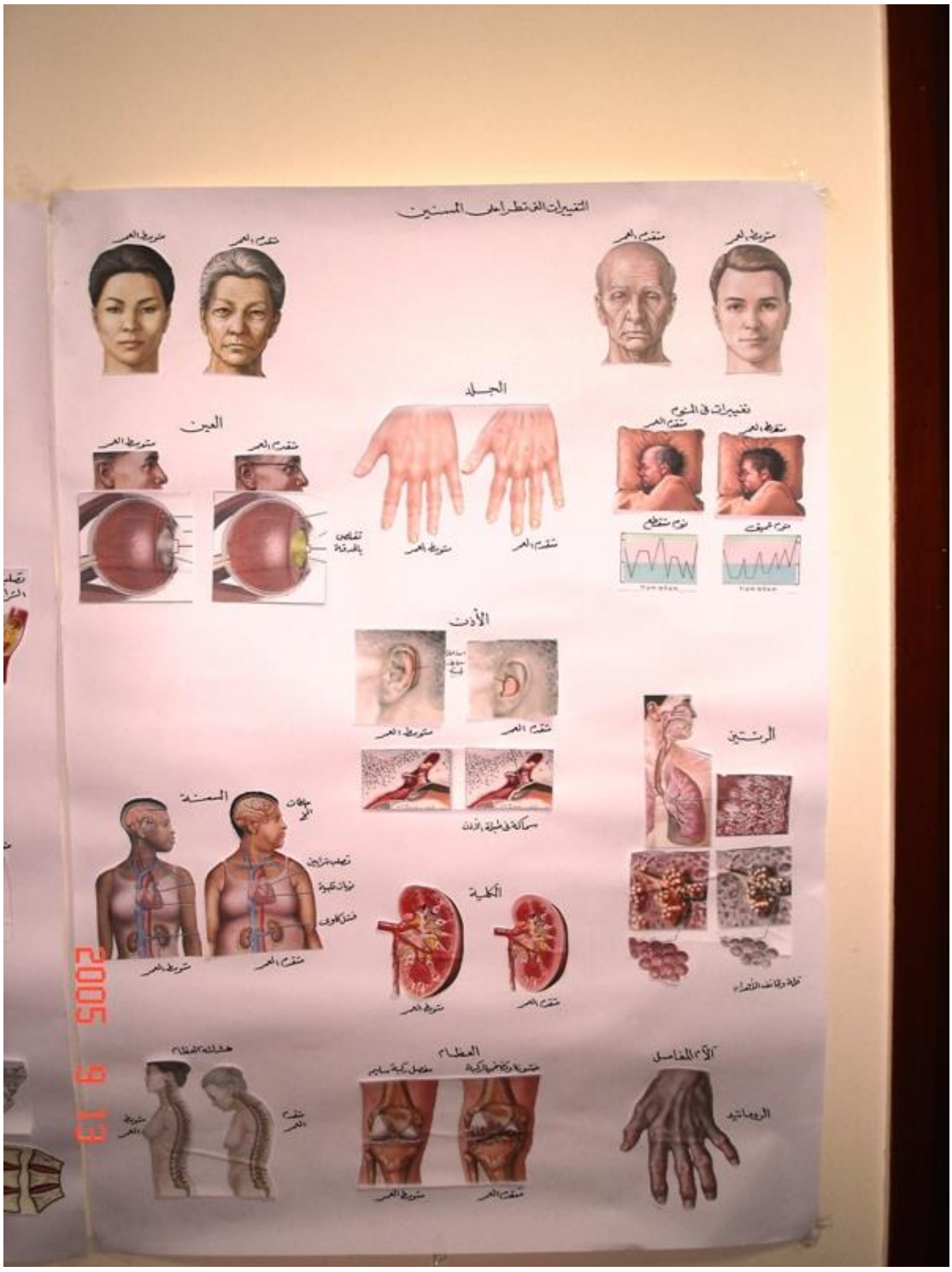
الارشادات الواجب توفرها عند إتباع رياضة المشي : -

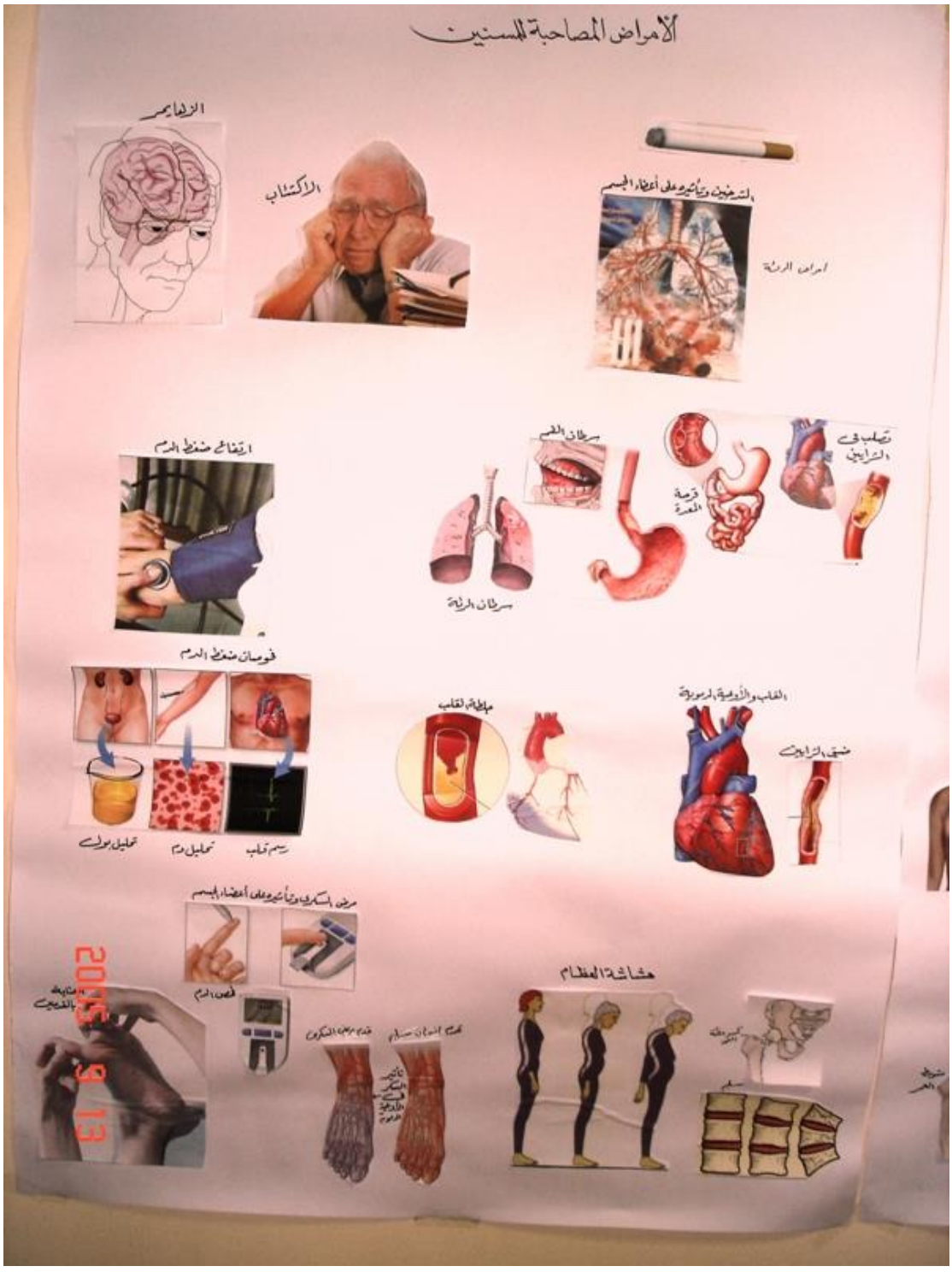
١- اختيارالوقت المناسب للمشى وتثبيته.
٢- تجنب الارتفاع الشديد للحرارة وكذلك البرودة الشديدة ويمكن ارتداء قبعة للحماية من حرارة الصيف وبرد الشتاء.
٣- يفضل المشى فى الهواء الطلق.
٤- العناية بالقدمين وذلك بارتداء حذاء مناسب للرياضة أو حذاء مريح و قبعة عند الضرورة.
٥:يجب لبس ملابس قطنية مناسبة

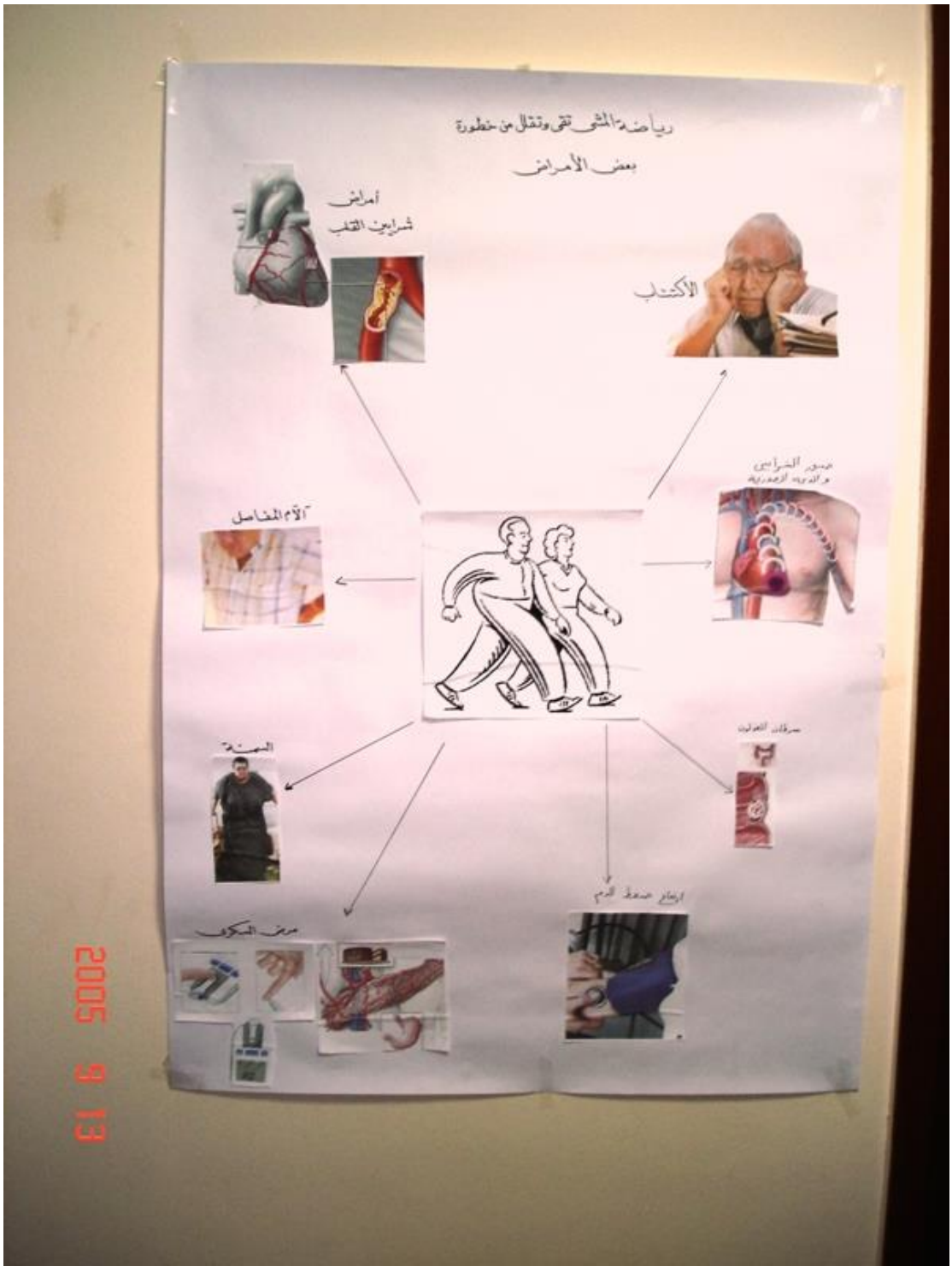
٦:-يأخذ زجاجة من الماء عند المشى – لتكون فى متناول اليد عند الشعور بالعطش.

7-يمكن المشى لفترات متقطعه فى اليوم – والاستراحه عند الشعور بالتعب.
8-الاحماء قبل المشى أي المشى البطىء أو فى المكان ، عند الأنتهاء يجب الوقوف بالتدريج أي إلمشى البطىء.
9 - يبدأ فى المشى بالتدريج وبفضل البدء ٥ دقائق فى المرةعلى الأقل على ان يكون ٢-٣ مرات في الاسبوع, ثم زيادتها(٥ دقائق) كل اسبوع على ان تصل الى ٢٠ –٣٠ دقيقة فى المرة فى الاسبوع.
10– عند الشعور بالتعب ، أو التعرق الشديد ، أو الم بالصدر – يجب التوقف – على ان يعاود المشى بعد فترة فى نفس اليوم أواليوم التالى .
11 – يفضل المشى مع صديق أو فى مجموعات.
12 – يفضل المشى على ان يلامس كعب القدم الارض اولا.

13– يفضل حركة الذراعين للامام والخلف اثناء المشى


التغيرات التي تطرأ على المسنين
متوسط العمر
متقدم العمر
متوسط العمر
متقدم العمر
الجلد
العين
متوسط العمر
متقدم العمر
متوسط العمر
متقدم العمر
تضايق بالقدرة
تغيرات في النوم
متقدم العمر
متوسط العمر
نوم متقطع
نوم خفيف
الأذن
متوسط العمر
متقدم العمر
سماكة في طبلة الأذن
الرئتين
السمنة
متوسط العمر
متقدم العمر
الكلية
متوسط العمر
متقدم العمر
هشاشة العظام
متوسط العمر
متقدم العمر
العظام
متوسط العمر
متقدم العمر
الآم المفاصل
الروماتيد
2005 9 13


الأمراض المصاحبة للمسنين
الزهايمر
الاكتئاب
التدخين وتأثيره على أعضاء الجسم
امراض الرئة
ارتفاع ضغط الدم
سرطان الفم
قرحة المعدة
تصلب في الشرايين
سرطان الرئة
فوضان ضغط الدم
تحليل بول
تحليل دم
رسم قلب
مضاعفات القلب
القلب والأوعية الدموية
ضيق الشرايين
مرض السكري وتأثيره على أعضاء الجسم
فحص الدم
هشاشة العظام


رياضة المشي تقي وتقلل من خطورة
بعض الأمراض
أمراض
شرايين القلب
الاكتئاب
تصلب الشرايين
والدورة الدموية
آلام المفاصل
السمنة
سرطان القولون
ارتفاع ضغط الدم
مرض السكر
2005 9 13

INTERVENTION STUDY OF WALKING EXERCISE AMONG ELDERLY IN CAIRO

Aging is a process of gradual and spontaneous change, resulting in maturation through childhood, puberty, and young adulthood and then decline of many bodily functions through middle and late age (Beers, et al, 2004).

Regular physical activity has beneficial effects on most organ system, and consequently it prevents a broad range of health problems &diseases. Physical activity in older persons produces three types of health benefits. It can reduce the risk of developing chronic diseases such as heart disease, it can aid in the management of active problems such as high blood pressure, diabetes, obesity or high cholesterol& it can improve the ability to function &stay independent in the face of active problems like lung disease or arthritis (U.S. Department of health & Human Services, 1996).

Walking is the most natural, the most "everyday" form of movement human beings undertake. It starts very early in life and continues, for the most part, until the very end. It is an activity common to everyone except the

seriously disabled or the very frail (Morris and Hardman 1997). No special skills and/or equipment are required. Walking is convenient and may be included in occupational and domestic routines. It is self-regulated in intensity, duration and frequency (Morris and Hardman 1997).

Recent review of individually tailored programs for elderly people demonstrated that programs to build muscle strength improve balance & promote walking significantly reduced falls in older persons (Gillespie, et al, 2002).

From epidemiologic studies and clinical trials demonstrates substantial benefits of exercise, especially walking, in the prevention and treatment of type 2 diabetes mellitus (Eriksson JG1999).

Another study done in Canada showed that the effect of six month home based exercise program with minimal supervision improves quality of life in elderly women with vertebral fractures (Papaioannu A, et al; 2003).

In France a study showed that a 12 week of brisk walking reduces cholesterol and increases cardiovascular fitness. (Nutr Health Aging, 2002)

In study done in Egypt, there was significance relation between sedentary life and frequency of fractures (El Noamany M.1996).

Another recent study in Egypt showed that relation between BMI and regular exercise was statistically non significance, only 10% were practicing regular exercise (A.Al.S, 2000).

Aim:

General Objective:
Promote health among elderly through walking exercise.

Specific objective:

1. Identify medical problems among participants.
2. Design and implementation for health education program towards knowledge, attitude & practice of the elderly about walking exercise.
3. Evaluate this program.

Setting:

1. There are a total number of 33 residential homes for elderly in Cairo. Five of them were selected randomly, through personnel communications with the director of those homes, two of them were found to be convenient for the purpose of the study as regards number of the independent elderly and presence of small garden for walking (in Heliopolis).
2. There are 27 clubs in Cairo, we chose Alghaba club in Heliopolis for purpose of the study as in the same area & having sub-society caring for elderly. (These data are obtained from Society of Elderly Care).

Sample:

Elderly operationally defined as 60 years or over. Their % in Egypt is 6.3% (Census in Egypt 1996). Previous studies showed that around 10% of the elderly in residential home practice exercise.

The sample of the present study will include all the independent in the residential homes & participants from the club will be asked to participate in the program.

Agreement will be taken from the administration of both places and written consent from the participants.

Exclusion Criteria:

1. Participant with unstable problem those who refused to participate.
2. Those who will not attend the education sessions.

Study Design: Intervention, through Health Education Program, follow-up after one month &three months.

1. Interview questionnaire:

a. Pretest before the sessions.
b. After 1month.
c. After 3months

The questions will include:

- Personal data: name, age, sex.
- Socio-demographic data: marital status education.
- Medical history: of any chronic disease.
- Mini mental scale.
- Depression scale.
- Knowledge about walking exercise effect on attitude and practice.
- Place of practicing exercise.

2. Implementation phase:

Health education goals include the following:

1) Knowledge goal is to give specific knowledge and information about the health issues which people are already aware of, but about which they have little knowledge.
2) Attitude goal: changing what people feel, what they believe and what their opinion is.
3) Practice goal: Actually doing something about health matter (Strehlow,1983).

The program consists of 2 sessions (30-60mins) in a week.

a) First session: Introduction about importance of exercise, and advantage of walking exercise .Discussing the role of walking in preventing and treating some chronic diseases and risk factors.

b) Second session: 1) Plan for walking exercise as to make it as regular activity.2-3 times./week starting by 5-10minutes/session/week&increase by5minutes/session/ week until reach 20-30 minutes/session /week.

Instructing and training the nurses or the attainders to help the elderly in the practice& recording in the diary exercise paper.

Materials to use: booklets ,diary for recording the activity and posters.

3) Post implementation: Assessment phase:

a. 1month&3 months after the end of health education program all elderly will be subjected to the same preliminary interview questionnaire with some added questions about the program evaluation.
b. Measuring: Blood Pressure, weight, Body Mass Index, height, waist hip ratio and random blood glucose level using standard techneques.

Statistical Analysis:
Suitable statistical test will be performed using SPSS program.

References:

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Census Book of Egypt 1996.

Eriksson JG. "Exercise and the treatment of type 2 Diabetes mellitus: An update. Sports Med)1999

Gillespie D, Gillespie WJ, Robertson MC, et al. "Interventions for preventing falls in elderly people" Cochrane Review, issue 2, 2002. Oxford: 199; 31(11 suppl.): S663-7.

Morris J. N. and Hardman A.E. "Walking to Health". Sports Med 23.5, pp: 306-322. May 1997.

Noamany, M. "Geriatric fracture risk factors a literature review and survey in hospital population of fractured elderly." Ain Shams University, 1996.

Paillard T, Lafont C, Costes-Saloon MC, Dupui P, Riviere D, Vellas B. "J Nutr Health aging".2002 ;6(2):138-40.

Papaioannou A, Adachi JD, Winegard K,Ferko N, Parkinson W , Cook RJ, Webber C, McCartney N. “Efficacy of home based exercise for improving quality of life among elderly women with symptomatic osteoporosis-related vertebral fractures.”
Osteoporos Int, 14(8): 677-83. August 2003

“Physical activity & health a report of the Surgeon General Atlanta, GA centers for disease control & prevention” U.S. department of health &human services (CDC), national center for chronic disease prevention &health promotion.1996 cited 2001 dec.18.

Society of Elderly Care, Social Affairs in Egypt, center located in Cairo, Heliopolis

Strehlow, M.S.(1983): Education for health. Harper and Row: 173-175
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دراسة تداخليه حول رياضة المشي للمسنين في القاهرة

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الملخص العربي

Introduction

Aging is a process of gradual and spontaneous change, resulting in maturation through childhood, puberty, and young adulthood and then decline of many bodily functions through middle and late age **(Beers et al., 2004).**

People older than 65 constitute one of the fastest-growing population segments **(Lonergan and Krevans, 1992).**
About 88% of them have at least one chronic health condition and in many cases the condition impairs function and well-being **(Hoffman et al., 1996).**

There is marked increase in the mean age of Egyptian elderly; this is due to continuous advancement in health care with subsequent decrease in mortality rate and fertility rate. The percentage of Egyptian elderly in 1996 was around 6%, while the expected percentage will be 7.2%, 8.9% and 10.9% in 2006, 2016 and 2026 respectively. **(CAPMAS Egypt, 2002)**

A large percentage of the elderly population has remained sedentary in the past due to the mistaken belief that they were not candidates for participation in regular physical activity. While there is an extremely small number of individuals for whom exercise is medically contraindicated, the vast majority of the elderly populations can benefits from participation in some form of physical activity, **WHO (1997).**

In recent decades, research has validated the effectiveness of regular exercise as a way to reduce and/or prevent age-related functional decline and reduce the risks of a sedentary lifestyle **(US Department of Health and Human Services, 1996).** Most medical groups recommend regular physical activity**.** People over age 65 carry the highest load of chronic disease, disability, and healthcare utilization **(King et al., 1998).**

The compelling evidence for the benefit of regular exercise in preventing several health problems; notably CHD; that had accumulated by the beginning of the last decade of the 20th century led the American Heart Association to release a report in 1992 that identified physical inactivity as the fourth major modifiable CHD risk factor, joining smoking, hypertension, and dyslipidemia**. (Fletcher et al., 1992)**

Until fairly recently physical activity programming for older adults has tended to focus on a relatively small and healthy subgroup of the older adult population**.** However, it is now clear that beneficial effects of regular physical activity can be observed in almost all older persons regardless of their physical health. **(Chodzko-Zajko, 1995)**

There is now strong evidence that almost all older adults, even the sedentary and physically frail are candidates for some form of physical activity. Extensive efforts are needed to spread

the word about physical activity and successful aging to the population**. (Chodzko-Zajko, 1999)**

Older adults remain the most sedentary of adults**.** Although persons with chronic conditions or disability constitute most of the assisted-living community population older than 65, relatively few rigorous studies have focused on such subgroups. Risk factors for chronic disease, including coronary artery disease, hypertension, and type 2 diabetes mellitus, respond to exercise interventions in younger populations and likely will do so in the elderly as well. **(Pate et al., 1995)**

Regular physical activity has beneficial effects on most organ system, and consequently it prevents a broad range of health problems &diseases. Physical activity in older persons produces three types of health benefits. It can reduce the risk of developing chronic diseases such as heart disease, it can aid in the management of active problems such as high blood pressure, diabetes, obesity or high cholesterol& it can improve the ability to function &stay independent in the face of active problems like lung disease or arthritis **(U.S. Department of health & Human Services, 1996).**

Walking is the most natural, the most "everyday" form of movement human beings undertake. It starts very early in life and continues, for the most part, until the very end. It is an activity common to everyone except the seriously disabled or

the very frail **(Morris and Hardman, 1997).** No special skills and/or equipment are required. Walking is convenient and may be included in occupational and domestic routines. It is self-regulated in intensity, duration and frequency **(Morris and Hardman, 1997).**

However, in order to encourage and maintain physically active lifestyle of community it is necessary to obtain baseline information about the determinants of physical activity practice in a population, the social, culture and personal factors that affect patterns of physical activity.

So the present study was conducted to provide a clear understanding of the current state of activity of the studied group as well as to determine the means and the likelihood of altering people's behavior to be more physically active.

Aim of the work

Goal

Promotion of health among elderly through walking exercise.

The Objectives of this intervention are:

1. To identify medical problems among participants.
2. To design and implement of a health education program towards walking exercise for the elderly measuring knowledge, attitude & practice.
3. To evaluate this program.

Nursing Homes in Egypt

The family is the main social institution, which offers support and service to the aged in Egypt. However, social changes have created some demands for extra-Familial services. Despite the variety of needs in this area, the most of the efforts have been great towards setting up home for the aged.

In Egypt, the concern about establishing institutions for the aged started before 1900 by some foreign communities in Egypt that set up the first home for aged. The beginning of the twentieth century witnessed a great concern of the Egyptians about institutions. The establishment of the first ministry of social affairs in 1939 represents a milestone in social work.

In 1997 there was 70 homes for aged in Egypt ,64 of which are for independent elderly (independent in doing activities of daily living) while the remaining 6 are for infirmed elderly (need assistance or disable). 29 of which are in Cairo, 11 in Alexandria and the remaining is distributed among 16 governments. the highest percentage was for never married followed by married, widow and divorced this indicated that the social aspect are the main causes for living in a home **Ministry of Social Affairs (1996).** Services offered in elderly homes include health care, nutrition, psychological care and cultural programs. The updated statistics from **Ministry of Social Affairs (2005)** is 48 residential homes in Cairo.

Historical Overview of Elderly Clubs Development

The idea of establishing elderly club started in seventies when the first elderly club was established in 1971.In 1978, the elderly clubs reached up to 5 clubs distributed mainly in Cairo, Alexandria, Dakahlia and Fayoum. It was mentioned that all these clubs were run by voluntary associations –Till 1996,the number of the clubs reached up to 93, distributed over 22 governorates, 82 of which are run by voluntary association which either receive financial aids from the Ministry of Social Affairs while the remaining 11 clubs are non aided. The updated statistic from **Ministry of Social Affairs (2005)** is 46 clubs in Cairo.

A new trend appeared where the elderly club services started to participate with other sporting clubs. Some of the non aided voluntary associations have no available place for the club may use sporting clubs (e.g Alghaba Club, Shams Sporting Club) through a deal with the club administration that allows entrance of elderly in specific days of the week to practice the activities of the elderly clubs to which they belong.

Services offered by the Elderly Clubs:

- Health care.
- Psychological care.
- Social care.
- Cultural programs.
- Entertainment programs.

Aging Population

One of the most significant phenomena of the twentieth century has been population aging, or the dramatic increase in the number and proportion of person's aged sixty and over. The last quarter of the twentieth century has often been called "the age of aging". The world's elderly population is increasing monthly by about 1 million people **(United Nations, 1994)**

According to **The United Nations Estimates in 1985,** throughout the world there were 427 million persons aged 60 and over, constituting 8.83 percent of world's total population. By the year 2025, these figures are projected to rise to 1.171 million, an increase of 174 percent.

About 88% of people older than 65 have at least one chronic health condition, and in many cases the condition impairs function and well-being**.** Even though regular exercise has proven health and functional benefits, inactivity increases as patients' age: Older adults remain the most sedentary of adults. **(Pate et al., 1995, Hoffman et al., 1996)**

Care of the elderly has focused on managing chronic disorders rather than on the promotion of healthy lifestyle and prevention of chronic diseases. The key idea behind efforts to change this focus is that changes in lifestyle and medical care

can prevent, postpone, or reverse age-related morbidity **(Petrella, 1999).**

It is important to note that persons with chronic conditions or disability constitute most of the assisted-living community population older than 65, relatively few rigorous studies have focused on such subgroups. Risk factors for chronic disease, including coronary artery disease, hypertension, and type 2 diabetes mellitus, respond to exercise interventions in younger populations and is expected to do so in the elderly as well. Hence higher incidence of these conditions will be expected with aging. **(Petrella, 1999)**

Normal Physiological Changes of Aging:

A number of physiological changes occur as we grow older. Some of the common changes that we thought represented aging have turned out to be the result of disease **Reed et al., (1998).** All body system experienced considerable changes and it is worth to mention some. The first age-related changes that can affect mobility are anthropometric changes. Cross-sectional studies have shown that stature and range of motion in the joints tend to decline with age**.** People between 65 and 74 years of age are approximately 3 per cent shorter than people between 18 and 24: this is thought to be due primarily to the shortening of inter-vertebral disc spaces and associated kyphosis. Cross-sectional studies of differences in joint range of motion have shown a general decrease with advancing age among healthy elderly people, although the amount of decline varies to a large extent with the group of individuals studied and the joint measures. **(Schultz, 1992)**

In addition to age-related changes in anthropometrics, joint range of motion and strength, age-related decline in postural balance, gait and ability to transfer from one surface to another may trigger reduced physical mobility. Extensive studies of age-related changes in postural balance show age-related gradual diminution in the sensory-motor systems that

trigger postural control, even in the absence of awareness of difficulty **(WHO, 1998**)

Gait disturbances have been documented widely among older people, including shorter step, decreased ankle extension and pelvic rotation. However, it is controversial whether these changes are due to a normal ageing process or whether they are pathological changes accompanying old age **(Bassey et al., 1989).**

Gait speed is related to aerobic capacity, muscle strength, presence of other chronic diseases, ability to rise from a chair and cognition **(Visser, 1983; Bendall et al., 1989**).

Musculoskeletal System: This is one of the most significant changes that adversely affect the ability of older people to cope independently in their communities and to have contacts with other people. Also it is the most important factor determining functional capacity. Mobility problems increase as the musculoskeletal system deteriorates with increasing age. Impaired mobility also greatly increases the need for different kinds of services (**WHO, 1998**). Height decreases in an average of 2 inches, weight increases until about age 60 and then declines. Body fat mass can double, lean muscle mass is lost. Decline in bone density occurs **Reed et al., (1998).**

Cardiovascular System: The maximum heart rate decreases and it takes longer for heart rate and blood pressure to return to normal resting levels after exertion. The aorta and other arteries become thicker and stiffer which may bring a moderate increase in systolic blood pressure with aging. In some individuals, this may result in hypertension. The valves between the chambers of the heart thicken and become stiffer. As a result heart murmurs are fairly common among older adults. The pacemaker of the heart loses cells and develops fibrous tissue and fat deposits. These changes may cause a slightly slower heart rate and even heart block. Aberrant heart rhythms and extra heart beats become more common. The baroreceptors which monitor blood pressure become less sensitive. Quick changes in position may cause dizziness from orthostatic hypotension **(Pugh et al., 2001)**.

Respiratory System: The lungs become stiffer, muscle strength and endurance diminish, and the chest wall becomes more rigid. Total lung capacity remains constant but vital capacity decreases and residual volume increases. The alveolar surface area decreases by up to 20 percent. Alveoli tend to collapse sooner on expiration. There is an increase in mucus production and a decrease in the activity and number of cilia. The body becomes less efficient in monitoring and controlling breathing.

Gastrointestinal System: Loss of teeth. Increased prevalence of atrophic gastritis and achlorhydria. The liver is less efficient in metabolizing drugs and repairing damaged liver cells. Diverticuli in the colon may cause pain. Reduced peristalsis of the colon can increase risk for constipation **Reed et al., (1998).**

Urinary System: Kidney mass decreases by 25-30 percent and the number of glomeruli decrease by 30 to 40 percent. These changes reduce the ability to filter and concentrate urine and to clear drugs. With aging, there is a reduced hormonal response (vasopressin) and an impaired ability to conserve salt which may increase risk for dehydration. Bladder capacity decreases and there is an increase in residual urine and frequency. These changes increase the chances of urinary infections, incontinence, and urinary obstruction **Beck, (2000).**

Endocrine System: Insulin resistance may prevent efficient conversion of glucose into energy. A decrease in aldosterone and cortisol may affect immune and cardiovascular function **Reed et al., (1998).**

Nervous System: The aging of the central nervous system is often portrayed as an irreversible loss of functions

and decline in abilities. The incidence of cognitive impairment increases with age so that by age 85, up to 1/3 of older persons have some degree of cognitive impairment. **Sailer, et al., (2000)**

Various changes occur in the sensory system: vision, hearing, smell, tastes and touch.

Also reproductive system is affected in both sexes **(Reed et al., 1998).**

Physical Exercise and Aging

Fontane, (1996) describes physical activity as a continuum of physical behavior:

1) Activities of daily living;

2) Instrumental activities of daily living;

3) General activity and exercise;

4) Fitness exercise and;

5) Exercise training.

Fries, (1980) states that if the average age at onset of disability can be delayed, then the total amount of disability will decrease. The initiation and maintenance of regular exercise of light-to-moderate intensity may reduce the morbidity associated with chronic disease in the elderly. Certainly, professional and public education efforts to this end are complementary and should gain a higher profile.

Diseases such as coronary artery disease, hypertension, congestive heart failure, type 2 diabetes mellitus, osteoarthritis, osteoporosis, and cognitive disorders become more common as people age. Regular exercise in elderly may improve function and delay disability and morbidity **(Petrella, 1999).**

Accumulating evidence indicates that risk factors are possibly avoidable rather than expected and can be modified

through lifestyle interventions, including exercise **(Vita et al., 1998)**. Moreover, patients who adopt interventions can increase active life expectancy, decrease disability, and reduce healthcare costs. Although many questions remain about implementation, strategies for lifestyle changes and exercise programs can diminish the effects of chronic disease in older persons **(Fries, 1980, Buchner et al., 1992)**.

Suitable Forms of Exercise for the Elderly:

Exercise may work synergistically with medication to combat the effects of some chronic diseases. Special adaptations for older patients include lower-intensity exercise (e.g., fewer repetitions), low-impact exercise (cycling, exercise while sitting), modified equipment (smaller weights, special shoes, loose clothing), and aerobic exercise (e.g. walking). **(Morris and Hardman, 1997; Petrella, 1999).**

Walking is an activity common to everyone except the seriously disabled or the very frail in which no special skills and/or equipment are required. It is self-regulated in intensity, duration and frequency **(Morris and Hardman, 1997).**

Benefits of Regular Physical Exercise:

The advantages of regular physical exercise have been well documented. Increased levels of activity have been tied to increased basal metabolic rate and weight loss, decreased

systolic and diastolic blood pressures, decreased risk for heart disease, and increased muscle strength **(Martin and Dubbert, 1982; Fentem et al., 1988; Bouchard et al., 1994)**

Even low-intensity exercise, such as increased walking and use of stairs, can lead to significant health benefits. **(Paffenbarger et al., 1990).**

Exercise and some chronic diseases:

Exercise has been linked to improvement of symptoms of some chronic diseases **(Martin and Dubbert, 1982).** In the Honolulu Heart Program study physical activity was associated with remaining free of more than eight major chronic diseases in more than 12 years of follow-up.

Additional favorable effects on other risk factors may also occur. Regular physical activity reduces the risk of mortality in persons older than 60; while inactivity is associated with a 30% to 40% increased risk of premature death **(Young et al., 1995).** Studies show that regular physical activity is associated with lowered risk for adult-onset diabetes, osteoporosis (especially when activity begins in youth and continues throughout a person's lifetime), and also some types of cancer. Furthermore, physical activity has even been linked to slowing of the onset of HIV-related symptoms, including

decrement of natural killer cells **(LaPerriere et al., 1990; Bailey and Martin, 1994; Bouchard et al., 1994).**

Effect of Exercise on Disability

Vita et al., (1998) showed that functional disability could be delayed with regular physical activity. In a prospective study1,741 Individuals who had the lowest risk (combined BMI < 25, nonsmoker, and high physical activity) delayed onset of functional disability by approximately 5 years, while those at highest risk (BMI > 27, smokers, and no regular physical activity) had earlier onset of disability, higher cumulative disability, and increased mortality over the study period .

In addition to these physiological benefits, regular exercise also confers a substantial number of psychological advantages. Aerobic exercise has been shown to improve the symptoms of mild to moderate depression in both adults and children**.** Low-intensity exercise has shown to have similar effects**.** Aerobic exercise also appears to reduce stress in people of all ages **(Dishman, 1985, North et al., 1990, Petruzello et al., 1991).**

Physical Activity versus Inactivity:

In 1995, a **WHO** expert group underlined the positive health effects of physical exercise by saying that physical inactivity is an unnecessary waste of human resources. A

passive, mainly sedentary lifestyle is known to be an important risk factor for poor health and reduced functional ability. **(WHO, 1995).** Those who start physical exercise early in life tend to continue it later. So what a person does with leisure appears to shape and develop leisure itself **(Mobily, 1987; Mobily et al., 1991).** Lowered level of physical activity and the growing number of chronic illnesses that often follow with increasing age, frequently generate a vicious circle: illnesses and related disabilities reduce the level of physical activity, which in turn has adverse effects on functional ability and exacerbates the disabilities caused by the illnesses. A greater degree of physical activity can help to prevent many of the negative effects ageing has on functional ability and health. Finally helps elderly people to increase their independence. **(WHO, 1995)**

In the rapidly growing cities of the developing world, crowding, poverty, crime, traffic, poor air quality, a lack of parks, sidewalks, sports and exercise facilities and other safe areas make physical activity a difficult choice.

(WHO, **2002)**

What Kind of Physical Activity?

Any form of physical exercise is suitable for anyone at any age. The composition and functions of the human body

usually adapt to the loads imposed upon them, whether these increase or decrease. When exercise is discontinued and the stress loads are withdrawn the changes created in the body will disappear. This applies to all the effects of physical exercise, although the rate at which they disappear varies considerably from a few hours to months. The results achieved can be maintained even if the duration is reduced, provided that the intensity of training remains at the same level. (**WHO, 1998)**

Many older people enjoy different forms of so-called utility exercise such as gardening and other outdoor jobs around the house. It is also quite common for older people to decide to walk to the shops or do their everyday jobs on foot, simply in order to get some exercise and fresh air. Men engage in heavy keep-fit exercise more often than women, but otherwise there are no major differences between men and women. **(WHO, 1998)**

Rates and Reasons for Inactivity:

Poor exercise adoption and compliance in the chronically ill elderly may stem from the perception that chronic disorders are a part of normal aging. It is commonly believed that the elderly cannot respond to lifestyle interventions and that aging and chronic disease is inevitable, even though both perceptions have been disproved **(Rowe and Kahn, 1997).**

Sedentary lifestyles increase all causes of mortality, double the risk of cardiovascular diseases, diabetes, and obesity, and substantially increase the risks of colon cancer, high blood pressure, osteoporosis, depression and anxiety. They will have more and more severe effect on health care systems, resources, and economies in countries around the world **(WHO, 2002)**

Levels of inactivity are high in virtually all developed and developing countries. In developed countries more than half of adults are insufficiently active. In the rapidly growing large cities of the developing world, physical inactivity is an even greater problem. Crowding, poverty, crime, traffic, low air quality, and a lack of parks, sports and recreation facilities, and sidewalks make physical activity a difficult choice. For example, in Sâo Paulo, approximately 70% of the population are inactive **(WHO, 2002)**

Even in rural areas of developing countries sedentary pastimes, such as watching television, are increasingly popular. Inevitably, the results are increased levels of obesity, diabetes, and cardiovascular disease. In the entire world, with the exception of sub-Saharan Africa, chronic diseases are now the leading causes of death. Unhealthy diets, caloric excess, inactivity, obesity and associated chronic diseases are the greatest public health problem in most countries in the world.

The proportion of adults who are sedentary or nearly so ranges from 60 to 85 % **(WHO, 2002).**

Despite the importance of physical activity to health and well-being, many people remain inactive: 29% of all adult woman and 23% of all adult men are inactive and 4 out of 10 Ontarians in Canada are inactive **(Schooler, 1995)**

Reasons behind this were:

(1) Individual factors such as lack of knowledge and skills, or personal and economic disadvantage;

(2) Social factors such as lack of social support; and

(3) Environmental factors such as inadequate or inaccessible facilities **(Dishman et al., 1985; Lee and Owen, 1985).**

Physical inactivity is more prevalent among women, minority populations, the elderly, and those with less income or formal education (**Casperson et al., 1986)**

In Egypt **Safi El-Dine et al., (2000)** concluded that although most of studied adult persons were aware of physical activity benefits and higher percentage of them have an interest to engage in physical active lifestyle, their actual performance was inadequate as only 3.2% recorded high level of vigorous leisure-time sports and 18.1% accounted for middle level of exercise activity.

Another study in Egypt **El-Noamany, (1996)** found that sedentary life, smoking and coffee drink showed highly significant association with the frequency of fractures. 68.8% of the subjects were having sedentary life and the majority was females.

In America **Caspersen et al., (1985)** analyzed data from the National Health Interview Survey and concluded that almost one-third of the population between the ages of 45 -65 and close to half of the over -65 age group, were sedentary.

Research Evidence on the Benefits of Physical Exercise:

Tailored to different organs affected .Older adults remain the most sedentary of adults .Although persons with chronic conditions or disability constitute most of the assisted-living community population older than 65, relatively few rigorous studies have focused on such subgroups.

Mobility

The capacity of the human body to make use of muscle strength peaks between ages 20 and 30 and from there on steadily declines with age, most significantly between ages 50 and 60.

Exercise Recommendation for mobility improvements:

Flexibility Exercises: In ambulatory seniors, a warm-up lasting 10 to 15 minutes is recommended for most physical activities. It should include a low-level moving activity with the major muscle groups, such as walking. All programs need an adequate cool-down period which includes stretching exercises and a relaxation. Exercise programs for elders should initially attempt to improve flexibility, especially for those with arthritis and other musculoskeletal limiting problems. **(Barry et al., 1993)**

Due to the limitations associated with inactivity, stretching exercises may be recommended daily to help some elders regain functional range of motion in certain joints. Typical stretches should be included for the hamstrings, quadriceps, and pelvic girdle, low back and pectoral area **(Kligman & Pepin, 1992)**

Aerobic Exercise: For overall health benefits and reduction of numerous health risks. The use of the large muscles in the body in activities such as walking, swimming, aqua exercise and cycling. Walking, is one of the most viable options for ambulatory elders. It can be done easily in most environments and requires no additional equipment. With elderly who have been sedentary, a progressive low-intensity aerobic exercise

program is recommended. Gradual increases in duration and intensity are encouraged**. (WHO, 1998)**

Strength Training: The participation in resistance training programs has demonstrated some clear and consistent results showing that elders 67 to 91 years of age can significantly improve muscular strength, functional mobility and balance. **(Munnings, 1993).** Also, with elders showing stable cardiovascular and musculoskeletal systems, there appears to be relatively few contraindications to strength training. Resistance training may not be encouraged with some hypertensive individuals due to elevated blood pressure. It is recommended to perform resistance exercise program 3 days per week, progressing up to 3 sets of 8 to 10 repetitions (for each exercise). It should be noted that similar increases in strength and muscle mass are seen with elderly men and women **(Pyka et al., 1994)**.

Exercise Recommendation in Cardiovascular Disease:

Cardiovascular disease is the leading cause of death in many countries. There are several risk-factors associated with atherosclerotic heart disease such as smoking, obesity and high blood pressure. There is strong epidemiological evidence that regular vigorous physical activity is related to a decreased risk

of cardiovascular disease **(Kottke et al., 1985; Barry, 1986; Berlin and Colditz, 1990).**

Both walking and vigorous exercise were associated with significant reductions in the risk of coronary events. Risk was reduced equally in women who walked briskly for at least 3 hours per week and women who exercised vigorously for 1.5 hours per week.

Enormous public health benefits would increase from the adoption of moderate intensity exercise by those who are currently sedentary**. (Manson et al., 1999).**

Williams (1998) has suggested that as we grow older, we increase in weight**,** become glucose intolerant, increased coronary heart disease and associated risk factors as hypertension and hyperlipidemia. Clinical trials in younger and middle-aged men have shown a relationship between higher activity levels and reductions in total cholesterol, blood pressure, low density lipoprotein (LDL) and triglycerides, also increase in high-density lipoprotein (HDL) and fitness **(Wood et al., 1991)**. The effects in the elderly are less well documented. Some authors speculate that to have the same effect as in younger patients, more increased-duration training at a lower intensity is required **(King et al., 1998).**

Exercise Precautions:

Sudden death during exercise is rare, but limited data suggest that vigorous physical activity is associated with an increased risk in individuals with evident cardiac disease or a high coronary risk profile. In the great majority of cases, cardiovascular disease is present in persons who die during exercise. Cardiac disease such as hypertrophic cardiomyopathy and congenital coronary anomalies is typically unrecognized prior to death in young persons(less than 35 years old); while in the older population, most have evident coronary disease or recognizable coronary risk factors.

Screening asymptomatic individuals to identify increased risk of a cardiac event during exercise presents major problems in terms of logistics, expense, and accuracy, but careful evaluation, including exercise testing, is mandatory before a program of increased activity in patients with evident cardiac disease. In other cases, the extent of any evaluation must be determined on an individual **(Amsterdam et al., 1987).**

Exercise Recommendation in Hypertension :

Lifestyle changes such as increased activity and a low-fat diet reduce blood pressure and provide general health benefit. The Joint National Commission VI guidelines recommend that all patients should be strongly encouraged to make lifestyle

changes to lower blood pressure and reduce overall risk of cardiovascular disease.

Patients with mild or moderate hypertension with no risk factors or end-organ damage may use lifestyle modifications alone for 1 year before failed control warrants drug therapy. Physicians should first recommend proven antihypertensive lifestyle changes before prescribing antihypertensive medications **(Petrella, 1999)**

It is important to specify the type of exercise when prescribing activity for a hypertensive patient. Dynamic exercise (aerobic work such as walking or running) has been confirmed as a blood pressure-lowering strategy**.** In contrast, less evidence indicates the efficacy of static exercise (isometric contractions or weight lifting) in reducing blood pressure. Hypertensive patients who use this form of exercise should be monitored closely, and those with severe hypertension or poorly controlled blood pressure should avoid it **(Fagard et al., 1994)**

Mild-to-moderate dynamic exercise (e.g., walking or cycling) for 30 minutes per day (accumulated in one or multiple segments), done 3 or more days per week, has more antihypertensive effect than more vigorous exercise (**Cononie et al., 1991;Pate et al., 1995).**

This level of activity is about the level recommended by the US Surgeon General's Report **(US Department of Health and Human Services, 1996)** and also Canada's Guide For Physical Activity **(Petrella ,1999)** for general health benefit and should be more easily promoted for most patients than vigorous exercise might be. This amount of exercise in elderly patients can produce a 5- to 10-mm Hg decrease in blood pressure in as few as 4 to 5 weeks **(Cononie, et al., 1991)**.

Because the key to exercise benefits is long-term maintenance of activity, behavioral-change counseling is important for guiding implementation and maintenance for older patients.

To obtain optimal benefit, however, patients with mild-to-moderate hypertension should engage in 50 to 60 minutes of moderate dynamic exercise three to four times per week. The hypertensive patient's response to exercise varies with the level of blood pressure, medication, and age. Interestingly, improvement in maximum oxygen consumption (VO2 max) with exercise is not necessarily associated with a similar reduction in blood pressure **(Petrella, 1998).**

Those taking antihypertensive drugs should use exercise as an adjunct therapy; it may reduce the need for some medications. When exercise is combined with other lifestyle

and antihypertensive drug strategies, the effects are even greater and allow reduction in both number and dose of medication**.** High-intensity exercise is not needed to achieve significant blood-pressure reduction. Because the benefits of isometric or resistance exercise are not well documented and because it highly increases both systolic and diastolic blood pressure, it should not be used.

Exercise Recommendations in Heart Failure:

Exercise in cardiac rehabilitation was previously thought not to benefit those with significant left ventricular impairment. In fact, bed rest was promoted in patients with heart failure **(McDonald et al., 1972)**. Starting in the 1980s, however, aerobic and mild resistance exercise training was found to be helpful **(Sullivan et al., 1989).** Benefits included improved endurance, ventilatory reserve, leg blood flow, and symptoms **(Hambrecht et al., 1997).**

These patients should use their symptoms to guide their exercise duration and intensity (e.g., using dyspnea scales). One technique is to add breaks in the exercise bouts every 5 to 10 minutes; this may prevent low compliance, fatigue, risk of injury, and circulatory compromise.

In heart-failure patients, more stress has been on resistance training (Resistance training, also called strength

training, involves working the muscles against a form of resistance) than for other cardiovascular diseases. Many have considered this type of exercise risky because of the abrupt increases in myocardial oxygen demand (lowered angina threshold) or elevations in systolic pressure (lowered stroke threshold). Resistance training recommendations have not been strictly determined, but the consensus seems to be to begin with one to three sets (12 to 15 repetitions each) for large muscles (legs and trunk) before adding small muscle groups (arms), and to avoid Valsalva's maneuver with lifting. When 15 repetitions can be tolerated, resistance should be increased.

Exercise Recommendation in **Osteoporosis:**

According to the World Health Organization's definition**,** about 30% of postmenopausal women have osteoporosis. **(Kelsey et al., 1992)** Loss of bone mineral density and the directly-related increased risk of bone fracture have considerable socioeconomic implications in western societies. **(Cheng et al., 1997).**

Immobilization should be avoided if possible in anyone with osteoporosis or at increased risk for osteoporosis. Regular, moderate physical activity is recommended for those with osteoporosis. Elderly people should be assessed for risk of falling to identify those in greatest need of an exercise program.

Community group exercise programs are beneficial. Younger people with osteoporosis also need exercise that will preserve or improve bone mass, muscular strength, endurance and cardiovascular fitness. Weight loss as a result of physical activity should be avoided and adequate intake of protein, vitamins and minerals assured. **(CDC, and the American College of Sports Medicine, 1995).**

Regular exercise appears to have a role in treating and bone-preserving effect in women after menopause—the time when bone loss accelerates and osteoporosis is more likely to become a danger. The use of weight-bearing exercise is considered a standard treatment for osteoporosis **(Krolner et al., 1983). Shimegi et al., (1994)** in their study found that women who jogged or played volleyball had significantly greater lumbar spine BMD than those who had no regular physical activity.

A fracture rate that has doubled in an aging population during the last 30 years has resulted in increased healthcare costs and morbidity, but if regular exercise can reduce bone loss, it may also reduce morbidity.

Muscle-strengthening exercises are an important focus for treatment of osteoporotic patients, hence result in an improvement in overall balance and posture of the elderly

population and thus lessen the risk of falling and fractures. **Swezey, (2001)** presented an interesting study examining the influence of brief home-performed isometric resistive exercise on the strength of back extensor muscles in women with osteoporosis. Results showed significant increases in the muscles in just 1 month of training and also reveal an interesting short-term improvement, which is likely to have a positive impact on fracture risk.

Exercise in recent studies (including walking, running, and aerobics) significantly reduced bone mineral loss in the lumbar spine (L-2 to L-4) but not in the forearm or femur. **(Berard et al., 1997; Kelley, 1998)**.

Joakimsen et al., (1997) reviewed the effect of exercise on fracture in four follow-up and 18 case-control studies and found that physical activity reduces the risk for future fracture by as much as 50%.

Gregg et a l, (1998) also studied the relationship between physical activity level and fracture risk and found that very active subjects had 36% fewer hip fractures than those who were the least active. No difference was seen in the incidence of wrist or vertebral fractures among groups. However, the authors concluded that the benefit of higher levels of activity for hip fracture prevention probable had multiple

causes (i.e., muscle strength combined with the effect on bone mass). This would explain why even those with low levels of activity had fewer hip fractures than those who were inactive.

Effect of Walking on Bones:

Of particular interest is the positive effect of walking on bone loss in this population. One study **(Brooke et al., 1997)** examined the effects of brisk walking for 20 to 50 minutes per day on 84 previously sedentary, 60- to 70-year-old women. After 12 months, spinal and calcaneal BMDs remained constant in the walking group, but declined in the control group. The change in the walkers correlated with the amount of walking they did, inspite the femoral neck BMD increased in both the walking and control groups.

Reducing bone loss requires weight-bearing activity, which will also improve muscle mass and strength. For prevention, moderate-intensity exercises such as low-impact aerobics and vigorous walking are suitable. Jumping or jarring movements should be avoided. In addition, some movements may place undue stress on a vulnerable joint or bone and should not be done at all; these include standing on one leg and excessive flexion and extension of the spine. All exercises should be limited to about eight repetitions.

Activities such as walking appear to benefit not just weight-bearing bones, but the skeletal system as a whole. In a 12-month trial **(Krall et al., 1994)** involving 239 postmenopausal women showed that those who walked more than 7.5 miles weekly had higher average BMD of the whole body, trunk, and legs than those who walked less than a mile per week. Walking was also associated with significantly slower bone loss in the legs over the course of the year. These results strongly support the widely held belief that walking is a beneficial form of physical activity for maintaining skeletal integrity.

Exercise Recommendation in Falls:

Exercise can also help to reduce the frequency of falls, which are a major cause of broken bones and which predict difficulties not only in activities of daily living but also in the whole life **(Rivara et al., ,1997).**

In everyday life, the combination of reaction speed, coordination and strength is the key factor in carrying out tasks. **Rivara et al., (1997)** mention that the most important risk factors for falls and fall-related injuries among older people are a history of one or more prior falls, cognitive impairment, a low body-mass index, female sex, general frailty, use of diuretics, use of psychotropic drugs and hazards in the home. Weight-

bearing exercise, physical exercise combined with balance training and multimodal programs are being effective preventive measures. **(Province et al., 1995; Tinetti et al., 1994)**

Fear of falling leads to a vicious circle: isolation, further restriction of physical activity, and increased risk of falls and fracture. Identified 18 randomized controlled trials and 1 meta-analysis of the effect of exercise on the incidence of falling. **(Gillespie et al., 1997)**

There was insufficient evidence to conclude that exercise decreases falls, but they did find that targeting multiple risk factors (such as reducing environmental hazards and increasing strength) decreases the frequency of falls. Similarly, the FICSIT study (Frailty and Injuries: Cooperative Studies of Intervention Techniques) : showed that patients who exercised had a 10% lower risk of falling compared with controls; those who also engaged in balance training reduced their risk by 25%.(**Tinetti et al., 1993)**

The exercise stimuli that are most effective in preventing bone loss, falls, and fracture are not fully understood. Resistance exercise has a more profound site-specific effect than aerobic exercise**,** but both forms provide a weight-bearing

stimulus to bone and decrease the likelihood of fracture. **(Layne and Nelson**, **1999)**

Weight bearing exercise (Exercise that works your bones and muscles against gravity) involves the pull of muscle against bone and both against gravity. This protects against loss bone mass by stimulating osteoblast activity **(Heaney, 1998).** A randomized controlled trial of 124 postmenopausal women between 50-70 years of age with low bone mass was studied to determine the effect of a supervised physical activity program (weight-bearing exercises, aerobics, and flexibility exercises) 60 minutes, three times a week for 12 month. Results showed that spinal BMD stabilized in the exercises while decreasing significantly in the controls. Also, after 12 months, back pain reported by exercisers was lower than reported by controls. **(Bravo, 1996).**

McMurdo et al., (1997) found that among the unselected groups of elderly, most exercise programs without other interventions did not reduce the incidence of falls.

Exercise Recommendation in **Osteoarthritis:**

Pain influences exercise in arthritic patients. In addition, joint instability due to the disease itself or to associated loss of protective muscle tone, strength, and proprioception may increase the risk of injury or limit exercise intensity. Bracing,

adequate stretching, and doing fewer repetitions but more sets of resistance work are options. **(Petrella et al., 1997; Lattanzio and Petrella, 1998)**

In older patients who have osteoarthritis, exercise can improve pain control, strength, flexibility, and endurance. Also improve functional independence. However, evidence regarding exercise therapy for osteoarthritis had been equivocal **(Blair et al., 1996).** Many retrospective studies alleged a possible negative relationship between sport participation and certain occupations and the development of osteoarthritis **(Spector et al., 1996)**. This perception may have limited the use of exercise for these patients, despite published guidelines, including those of the American College of Rheumatology, that support exercise (e.g., for knee osteoarthritis) **(Hochberg, et al., 1995).**

Two well-designed intervention studies **(Minor et al., 1989; Ettinger et al., 1997)** showed that regular physical activity in patients with osteoarthritis reduced disability.

Other studies also support the use of exercise in the management of osteoarthritis, specifically of the knee. Exercise that strengthens the quadriceps muscle and has an aerobic training component has been shown to be effective in reducing pain and improving function in a small cohort study **(Puett and Griffen, 1994).**

Ettinger et al., (1997) showed that older patients who engaged in resistance or aerobic exercise had better pain control and functional outcomes than those only attended an educational program.

Bartha and Petrella ,(1999) observed that exercise lessened knee pain and improved activities of daily living and that effect was more after giving Oxaprozin.

It is important to include both range-of-motion and strength exercises. Strength training should include isotonic resistance (i.e., lifting weights) or isometric exercise (i.e., muscle contraction without joint movement) **(American College of Sports Medicine Position Stand, 1998).** Non-weight-bearing exercise such as water aerobics, swimming, chair exercises, and cycling are good modes, but positions that will lead to joint deformity, such as tight grips, should be avoided. Forcing these movements in joints already deformed may increase instability and pain. One clue that activity has been too vigorous is joint pain that lasts for more than 2 hours after exercise; hence, patients must recognize their limits and avoid doing exercise during flare-ups.

Metabolic Diseases:

Dyslipidemia and Diabetes

Type II (maturity-onset) diabetes usually occurs after the age of 40 and is strongly associated with obesity**.** Glucose tolerance deteriorates with increasing age. Regular moderate exercise appears to reduce the risk of developing Type II diabetes in both normal and obese middle-aged people **(Ashton, 1993).** Later-stage diabetes is associated with many disorders (such as blindness and neuropathy which can lead to the amputation of extremities), each of which has its own significant impact on function and quality of life. It is known that exercise improves the physiological control of glucose metabolism and evidence does exist which suggests that regular aerobic exercise of at least 30 minutes' duration three or more times a week offers potential benefits to those elderly people with glucose intolerance or overt diabetes **(Harris, 1984; Tonino, 1989).**

Studies of exercise effects on dyslipidemia are limited primarily to those who have the highest incident rates (those from ages 40 to 55; end-of-study ages limited to approximately 65 or 70) no studies have involved adults older than 70 or focused on women. The evidence is strongest for improvement in HDL concentrations; however, studies in slightly younger

patients (e.g., 60-year-olds) cannot be extrapolated to those older than 70. Existing studies included manipulation of other metabolic risk factors (e.g., combined effects on lipids, glucose handling, and body weight).

Low-intensity training of prolonged duration, such as walking, appears to be more effective than high-intensity training of shorter duration for reducing weight and controlling glucose and serum lipid levels because more of the energy fueling the exercise effort is derived from fat **(Eriksson et al., 1998).**

Lehmann et al., (1995) found that type 2 diabetes patients who engaged in low-to-moderate intensity (50% to 70% of VO2 max) aerobic exercise experienced a 20% decrease in serum triglycerides and increased their HDL levels compared with control patients after only 3 months**. Honkola et al., (1997)** observed that type 2 diabetes patients who did twice-weekly circuit training at moderate intensity for 5 months decreased their levels of total cholesterol, LDL, triglycerides, and glycosylated hemoglobin compared with controls. These effects were even greater with higher-intensity exercise.

Exercise in patients with diabetes promotes cardiovascular fitness and increased insulin sensitivity (lowering of plasma glucose) **(Mayer-Davis, et al., 1998)** and

may lower the dosage of oral hypoglycemic drugs required. Furthermore, lifestyle interventions including regular exercise may be effective in preventing the development of type 2 diabetes **(Wallberg-Henriksson, 1992; Pan et al., 1995; Wallberg-Henriksson et al., 1998).**

In a randomized, controlled study **(Agurs-Collins et al., 1997),** overweight African-Americans with type 2 diabetes (age 55 to 79) were engaged in 12 weeks of either supervised exercise and reinforcement mailings, educational classes and mailings, or usual care (control). Patients were assessed before the study and at 6 months. The group that received exercise supervision and mailings lost more weight, lowered their blood pressure more, and had better glycemic control than the other groups. In a similar 12-week study**, (Raz et al., 1994)** showed that older type 2 diabetes patients who engaged in aerobic exercise had lowered triglyceride and glycosylated hemoglobin levels as long as a year after the study.

These previous studies suggest that for most patients with dyslipidemia and/or type 2 diabetes, low levels of exercise produce physiologic benefits. Higher levels of activity produce even greater health benefits.

Physical Activity and Mental Health:

The most common positive effects of physical exercise on mental health are reduced depression and anxiety, better tolerance of stress and improved self-esteem **(Brannon & Feist, 1992).**

The research evidence on the connection between physical activity and mental health is not conclusive as far as the intensity of this connection is concerned. Some researchers maintain that the evidence points at a causal link between physical exercise and mental health **(Brannon & Feist, 1992),** while others indicate that they have only been able to demonstrate that there is a correlation **(Sime, 1990).**

According to **Berger, (1989),** the mental health benefits of physical activity are equally wide-ranging among both older and younger people. From the gerontological research and studies carried out in the field of physical education, it may be inferred that regular physical activity and exercise help to maintain and improve the functional ability, health and mental well-being of older people **(Ruuskanen & Ruoppila, 1995).**

Health and functional ability, as well as socio-economic factors, influence the connections between physical activity and mental health. Mental problems have adverse effects on the level of physical activity: on the other hand, moderate regular

physical activity may reduce the emergence or existence of mental problems. **(McAuley & Rudolph, 1995; Clark, 1996).**

Depressive symptoms

Most studies have found exercise to have psychological and physiologic benefits for participants with depression symptoms, with 90% of studies reporting antidepressant and anxiolytic effects **(Byrne and Byrne, 1993).** Taken as a whole, the research strongly suggests that benefits are greatest in individuals who have greater psychological impairment and in those who are clinically depressed **(LaFontaine et al., 1992)**.

There is no evidence that any kind of exercise has a greater impact on depression than others, though many studies have used running or other aerobic activities. In one trial **(Doyne et al., 1987)**, 40 depressed women were randomly assigned to 8 weeks of running, a weight-lifting program, or a waiting list. Members of both exercise groups were less depressed than the control group at the end of the trial and at later follow-ups; results between the exercise groups were similar.

According to **Brown, (1990)** physical activity may be used to help prevent or alleviate mild or moderate depression. There also seems to be a link between a low level of physical

activity and high depression scores, but no causal connection has been established.

Studies have shown that regular physical activity can brighten mood, increase energy, and improve sleep. It may not work this way for everyone, but most exercisers of all ages increase their strength and reduce their risk of diseases. Many people who have depression experience a lack of energy, fatigue, and difficulties with motivation, which can present significant exercise barrier. **(Artal, 1998**)

Anxiety:

Physical exercise has been successfully prescribed as a treatment for anxiety **(Berger, 1989; Brown, 1990).** At the same time as it reduces anxiety and muscle tension, exercise helps to reduce and prevent stress. The best remedy for stress is regular physical activity**,** while for anxiety it is aerobic exercise suggest that aerobic exercise is most effective in the treatment of state anxiety but may also help with trait anxiety. **(Brannon & Feist, 1992)**

There are connections between physical activity and mental health in other areas like improved self-esteem and self-confidence, greater overall life-satisfaction and general well-being **(US Department of Health and Human Services, 1996). Tuson and Sinyor, (1993)** observe that change in mood

is predicted by self-perceived meaning of physical exercise and other physical activity, as well as by the duration of exercise taken.

It seems that continuous, intensive physical exercise is the most effective **(Kaplan et al., 1993; Shephard, 1994; Clark, 1996).** The longer the individual has exercised, the stronger the link between physical activity and mental health **(McAuley & Rudolph, 1995).**

In elderly people, moderately intense physical activity is usually sufficient to maintain physical and mental capacity, although **Clark, (1996**) argues that three-quarters of elderly people in the United States do not take regular moderate exercise.

The positive effects of physical exercise on mental health may be undermined by adverse environmental factors as well as by excessively intensive exercise **(Berger, 1989).**

It is clear that physical exercise and other forms of physical activity are the most significant means whereby individuals can influence their own health and functional ability, and accordingly maintain a high quality of life into old age.

Cognitive Disorders:

Much evidence supports the notion that physical activity and psychological functioning are related **(Brown, 1992).** Although the age-related decline of central nervous system function had been accepted as irreversible and inevitable **(Bashmore and Goddard, 1993)**.

Studies have shown that improvements in cognition (including memory, attention, reaction time, and intelligence) do occur in older participants in aerobic fitness programs. The underlying principle has been that age-related reductions in cardiovascular function lead to brain hypoxia and cognitive decline. Cross-sectional studies support this **(Feussner et al., 1989**). In such studies, active older adults consistently have had faster reaction times and better short-term recall, reasoning, and fluid intelligence than their inactive counterparts **(Baylor and Spirduso, 1988, Williams and Lord, 1997).**

Prospective training studies are vague, however. A meta-analysis **(Petruzzello et al., 1991)** in which physical fitness increased showed modest or mixed improvements in neuropsychological function. Methodological problems included variability in exercise tasks, and suggested that the length of the exercise program and participants' initial fitness may be essential. Wide variations in participant age may have

diluted the training effects in the older cognitively impaired subjects.

Hill et al., (1993) followed 87 sedentary older adults who were assigned to an endurance training group or a non exercising control group for 12 months. In addition to improving their aerobic capacity, the endurance group avoided any decline in memory, while memory in the control group did decline.

Williams and Lord, (1997) studied 187 older women randomized to either an exercise or control group for 12 months. Those in the exercise group improved reaction time, strength, memory span, and measures of well-being. Thus, it appears that aerobic exercise can improve cognition and that the "dose" required is similar to that needed for cardiovascular and metabolic disease management. It remains unclear if a dose-response relationship exists between exercise and improved cognition, although an association between cognitive benefits and fitness gains tends to support its existence.

Exercise recommendations.

Safety is the primary issue in exercise programs for those who have cognitive deficits. Issues that should be addressed include injury prevention, the possibility that patients will not report symptoms, and the effects of centrally acting

medications, such as those used in behavior modification, on cardiovascular responses, spatial orientation, and perception. Proper attire, optimal environmental conditions, and simple equipment are essential; as are activities that are familiar, repetitive, and supervised (a low patient-to-instructor ratio is important). The use of chair exercise and household items (e.g., knotted towels used to aid movement) with lively, familiar music is effective in promoting patient participation and functional gains.

Walking

Walking is the most natural, the most "everyday" form of movement human beings undertake. It starts very early in life and continues, for the most part, until the very end. It is an activity common to everyone except the seriously disabled or the very frail**.** No special skills and/or equipment are required. Walking is suitable exercise for elderly and may be included in occupational and domestic routines. It is self-regulated in intensity, duration and frequency it also has a low ground impact and is naturally safe**.**

Walking is a year-round, readily repeatable, self-reinforcing, habit-forming activity and the main option for increasing physical activity in the sedentary population **(Morris and Hardman, 1997).** For ageing and elderly people, walking is perfect idea to start exercising more. A low level of walking is the major factor in the current widespread waste of potential for health and well-being that is due to physical inactivity.

As individuals begin to grow older and their levels of physical activity begin to decline, their bodies begin to regress. Pain, illness or an injury may also affect the permanence of physical skills. Ageing changes the way people move: they begin to walk more slowly, posture may change, and stride gets shorter. Walking is a complete activity which requires not only

muscle strength but also balance, a skill learned very early in life. During a walk, as in other forms of aerobic exercise which use the body's large muscles (e.g. swimming or cycling), there are important changes in cardiovascular and respiratory functions. Controlled trials involving both men and women have shown that fast walking (i.e. at faster than normal pace) improves fitness **(Morris and Hardman, 1997).**

Despite the fact that walking is the most common method of getting about, it also offers a variety of ways - such as walking with someone else or walking in demonstration for a common cause - to break loose from everyday routines.

Fitness gains from walking are particularly valuable for elderly people and proportionately can be as significant as those benefits enjoyed by younger age groups. Leg muscle strength is particularly important in minimizing immobility, thus in turn contributing to the maintenance of independence in older people. In the other hand weakness makes it difficult to support bodyweight and stand up from a low chair or toilet seat, to climb stairs or mount a bus **(Morris and Hardman, 1997)**.

Benefits of Walking Exercise on Eldrly People:

Direct observation of walking gives the health care professionals useful screening data about mental status, muscle strength, joint range of motion, motor planning skills, ability to concentrate, sitting and standing balance and potential to rehabilitation.

The scope of people's existence is directly related to how much and in what way they engage in physical activity **(Heikkinen and Harris, 1995).** Not only does mobility favor contact with other people; it is the best guarantee of retaining independence and being able to cope.

The key to maintaining physical activity and functional ability lies within each individual, although immediate surroundings, significant others and family also play a crucial role in creating and maintaining a positive, active approach to life. People can resort to past experiences for inspiration, to push themselves forward both mentally and physically. It is not easy to develop effective strategies to promote exercise or physical activity in ageing people. **Shephard, (1986)** has shown that the idea of "training" is difficult for elderly people to appreciate, and may even be threatening. The benefits of exercise may be easier to accept if ageing people can perceive

them, for instance, in terms of having more or better time with loved ones or not being dependent on others in later life.

Important health benefits of Walking Exercise:

Various studies summed up the fitness induced by walking in the following points:

- **Reduce your risk of a heart attack**: Walking keeps heart healthy by lowering low-density lipoprotein (LDL) cholesterol (the "bad" cholesterol) and raising high-density lipoprotein (HDL) cholesterol (the "good" cholesterol). A regular walking program also reduces risk of developing high blood pressure, a factor that contributes to heart disease.
- **Manage your blood pressure**: If you already have high blood pressure, walking can help reduce it.
- **Reduce your risk of developing type 2 diabetes**: Regular exercise reduces risk of developing type 2 diabetes. If overweight and at a high risk of diabetes, walking can improve body's ability to process sugar (glucose tolerance).
- **Manage your diabetes**: If you already have type 2 diabetes, taking part in a regular walking program can improve body's ability to process sugar, lower blood sugar, reduce risk of heart disease and help to live longer.

- **Manage your weight**: Walking burns calories, which can help, to reduce weight. For example, middle-aged women who walk more than 10,000 steps a day have lower levels of body fat than do women who are less active.
- **Manage stress and boost your spirits**: Regular walking is a great way to reduce stress and feelings of depression.
- **Stay strong and active**: As you get older, walking for physical fitness can prevent falls, help to stay mobile and maintain independence. **(WHO, 1998)**

Walking Tips:

Here are 10 tips to ensure walking as an enjoyable and healthy experience.

1. Wear a broad brimmed hat and sunglasses, and use a broad spectrum sunscreen SPF 15+ on any exposed skin. Avoid the hottest times of the day and keep to shaded areas.
2. Wear light, loose, comfortable clothing and well cushioned, flat-soled shoes.
3. Always let someone know where you're going and your expected time of return.

4. Walk steadily, concentrating on a steady heel to toe action, letting your arms swing freely by your sides. After a while you'll develop the rhythm and stride most natural for your weight and height.
5. If you're going on a long or strenuous walk, drink water before you start, and carry a supply with you, especially in hot weather. A small backpack is useful for carrying water, sunglasses, sunscreen and other useful items.
6. If your breathing becomes uncomfortable, slow down, but try not to stop completely if you have been walking briskly. Sudden stopping can cause a feeling of dizziness as oxygenated blood drops with gravity away from your brain.
7. In cold weather a hat prevents heat loss from your head.
8. Avoid walking immediately after meals and don't walk if you have a fever or bad cold.
9. If you're walking in the dark, wear light coloured clothing so motorists can easily see you.
10. You may feel sore in the early stages of your program, as your body adapts, the soreness will decrease. In addition, stretching before and after exercise can help minimize soreness.

(http://www.mayoclinic.com/health/walking/HQ0161)

Health Education

Definitions:

Health education is indispensable in achieving individual and community health. It can help to increase knowledge and to reinforce desired behavior patterns. But there is no single acceptable definition of health education. A variety of definitions exist. Concepts of health education as a process or an activity for inducing behavioral changes are emphasized in the following definitions:

1. The definition adopted by the National Conference on Preventive Medicine in USA: Health education is a process that informs motivates and helps people to adopt and maintain healthy practices and lifestyles. Health education is the part of health care that is concerned with promoting healthy behavior **(Somer and Anne ,1977)**.
2. Any combination of learning opportunities and teaching activities designed to facilitate voluntary

adaptations of behavior that are conducive to health **(Green, 1979).**

3. The definition adopted by John Last is "the process by which individuals and groups of people learn to behave in a manner conducive to the promotion, maintenance or restoration of health" **(Last ,1983).**

4. Health education is part of health care that is concerned with promoting healthy behavior **(WHO, 1988).**

5. Health education is any combination of learning experiences designed to predispose, enables, and reinforce voluntary adaptations of individual or collective behavior conductive to health **(Green and Ottoson, 1998)**.

Health education and behavior:

The behaviors to be adopted or modified may be that of individuals, groups (such as families, health professionals, organizations or institutions) or entire community.

Strategies designed to influence behavior of individuals or groups will vary greatly depending upon the specific disease (or health problem) concerned and its distribution in the population as well as upon the characteristics and acceptability

of available methods and preventing or controlling that disease (or health problem).

Health education can help to increase knowledge and to reinforce desired behavior patterns.

It is clear that education is necessary, but education alone is insufficient to achieve optimum health. The target population must have access to proven preventive measures or procedures**. (Park, 2000)**

Models of Health Education:

During the past few decades, a number of health education models have been developed. They include the following:

1. Medical Model:

The medical model is primarily interested in the recognition and treatment of disease (curing) and technological advances to facilitate the process. It is concerned with disease (as defined by the doctor) or opposed to illness (as defined by client).

Originally health education developed along the lines of the bio-medical views of health and disease. The emphasis was on dissemination of health information based on scientific facts. The assumption was that people would act on the information supplied by health professionals to improve their health. In this

model social, cultural and psychological factors were thought to be of little or no importance. The medical model did not bridge the gap between knowledge and behavior.

2. Motivation Model:

When people did not act upon information they received, health education started emphasizing "motivation" as the main force to translate health information into the desired health action. But the adoption of a new behavior or idea is not a simple act; it is a process consisting of several stages through which an individual is likely to pass before adoption. In this regard, sociologists have described 3 stages in the process of change in behavior.

1. The individual first goes through awareness getting general information about the subject.
2. He may seek more detailed information about the usefulness, limitations, or applicability of the new idea or practice and then evaluates the various aspects (social, psychological, economic) of the information received, if necessary by consulting others. Such an evaluation is a mental exercise and results in decision-making.

3. He finally decides whether to accept or reject the new idea, program or proposal. At this stage, interpersonal communication (friends, kinship, groups, and technical persons) is vital to lend support to his decision.

4. Conviction leads to action, adoption or acceptance of the new idea. The new idea or acquired behavior becomes part of his own existing values. **. (Park, 2000)**

3. Social Intervention Model:

The motivation model ignored the fact that in a number of situations, it is not the individual who needs to be changed but the social environment which shapes behavior of individual and the community. It is often found that people will not readily accept and try something new or novel until it has been approved by the group which they belong. Most of us prefer to do only the things commonly done by our group. This highlights the importance of group support in helping reaching the decisions and taking the actions.

In sum, a combination of approaches using all methods to change life-style and appropriate use of medical care will be necessary. **(Park, 2000)**

Health Behavior Models:

Other health education models have been clarified by other scientists as **Prochaska, (1979, and 1995).** It identified detailed stages of behavioral change.

A Health Belief Model:

The Health Belief model is one of the first behavior change theories developed. The Health Belief model provides insights for why people make health decisions and creates a process for encouraging change. It is also useful in understanding how to design health education programs and persuasive messages. **(Glanz, et al., 1990)**

According to this model, changes in behavior depend on five factors:

1. **Perceived severity**---the belief that a health problem is serious
2. **Perceived threat**---the belief that one is susceptible to the problem
3. **Perceived benefit**---the belief that changing one's behavior will reduce the threat
4. **Perceived barriers**---a perception of the obstacles to changing one's behavior

5. **Self efficacy**---the belief that one has the ability to change one's behavior

B Stages of Change or Transtheoretical Model

Prochaska, (1979) provides a framework for explaining how behavior change occurs. According to this model there are five stages of change:

1. **Precontemplation**---not thinking about changing behavior
2. **Contemplation**---thinking about changing behavior in the near future
3. **Decision**---making a plan to change behavior
4. **Action**---implementing the plan to change behavior
5. **Maintenance**---continuation of behavior change

The Transtheoretical model views behavior change as a process in which individuals are at various stages of readiness to change. The Stages of Change Model is not linear. People can enter and exit at any point and some people may repeat a stage several times. The Transtheoretical model acknowledges that not everyone is ready to change behavior. This model is useful in designing health programs targeted at particular stages of change or for moving individuals through different stages.

C Social Cognitive Theory

Bandura, (1977) proposes that behavior change is influenced by the environment, personal factors, and aspects of the behavior itself. The theory explains the education process through a number of "constructs." Those constructs which have applications in health education are:

1. **Reinforcement**---Reinforcements are either positive or negative consequences of a behavior.
2. **Behavior capability**---In order for a change to take place, one must learn what to do to change and how to do it.
3. **Expectancies**---The value one places on the expected result. If the result is important to the person, the behavior change that will yield the result is more likely to happen.
4. **Self efficacy**---Belief in one's ability to successfully change one's behavior.
5. **Reciprocal determinism**---The dynamic relationship between the individual and the environment.

Social Cognitive theory helps a health educator understand the complex relationships between the individual and the environment, how actions and conditions reinforce or

discourage change, and the importance of believing in and knowing how to change.

Stages of Exercise Adoption:

The act of starting an exercise program (or of changing any high-risk behavior) has been described as a series of stages: precontemplation, contemplation, preparation, action, maintenance, and termination **(Prochaska, 1995)**

In the precontemplative stage, the patient has no interest in starting to exercise. In the contemplative stage, the patient is thinking about starting, but has made no plans. The preparation stage involves planning to exercise; the action stage, starting a program; and the maintenance stage, continuing it. Unfortunately, many exercisers drop out, entering the undesired termination stage, in which they can either remain stuck (precontemplative) or cycle again through the stages.

Success is more often achieved when patients move from one stage to the next rather than jumping right into an exercise program. The healthcare provider's goal should be to move patients through the stages to the maintenance stage. To facilitate this, strategies should match the patient's stage of change, as shown in the following table.

Stages of Exercise Initiation and Matches Strategies

Stage of Change	Strategies
Precontemplation	Elicit reasons and barriers. Provide simple educational information. Open ending (talk about a program when the patient is ready).
Contemplation	Motivate (describe benefits, specific goals, use family involvement, etc). Elicit commitment.
Preparation	Identify goals. Start plans (date, equipment, etc). Follow up.
Action	Review goals. Suggest coping strategies (eg, for fatigue, discomfort). Follow up.
Maintenance	Review coping strategies. Reassess goals. Advise on injury prevention.

(Prochaska 1995)

Methods in health communication:

1. **Individual approach:** There are plenty of opportunities for individual health education. It can be through personal contact, home visits or personal letters. It may be given in personal interviews in the consultation room of the doctor or in the health center or in the homes of people. The advantage of individual health teaching: is that we can discuss, argue, and persuade the individual to change behavior. It provides opportunities to ask questions in terms of specific interests. The limitation of individual health teaching: is that the number reached is small, and health education is given only to those who come in contact with us **(Park, 2000).**
2. **Group approach:** Group teaching is an effective way of educating the community. The choice of subject in group health teaching is very important. We have to select also the suitable method of health education including audio-visual aids for successful group health education**.** The methods of group teaching include: Chalk and talk (Lecture), Demonstrations, Group discussion, Symposium, Workshop, Conferences and Seminars. **(Park, 2000)**
3. **Mass approach- Education of the general public:** No health worker or health team can mount an effective health education program for the whole community, except through mass media of communication. Mass media are a

"one-way" communication. Mass media alone are generally inadequate in changing human behavior. For effective health communication, they should be used in combination with other methods. The power of mass media in creating a political will in favor of health, raising the health consciousness of the people, setting norms, delivering technical messages, popularizing health knowledge and fostering community involvement are well recognized. Public health methodologies should be culturally appropriate; they should be carefully thought-out before use. Mass media communication is done through: Television, Radio, Internet, Newspapers, Posters, Health museums, Exhibitions, and Direct mailing.

All health education work requires continuous evaluation to measure the effectiveness of health education activities in achieving stated objectives and to assess the importance on program performance of such variables as knowledge, attitudes, and behavior change and consumer satisfaction. **(Park, 2000)**

Three previous surveys of health promotion interventions concluded that the majority of health promotion interventions are effective **(Green and Lewis, 1986). Gatherer et al., (1979)** found that of 62 studies, 85% reported improved knowledge levels, of 39 studies, 65% reported changed attitudes in the

desired direction, and of 123 studies, 75% reported behavioral change. **Safi El-Dine et al., (2000)** studied assessment of physical activity among adults, found that after implementing a health education program 85.8% of the studied sample had good knowledge and up to 41.7% were of favorable attitude, while only 3.2% recorded high level of vigorous leisure –time sports and 18.1% accounted for moderate level of physical activity .

Determinants of exercise participation

Dishman and colleagues have classified determinants of exercise participation into three broad categories: personal, environmental, and exercise-specific. **(Dishman et al., 1985; Bouchard et al., 1994)**

1. Personal Barriers:

Several factors have been described as common barriers to participate in exercise. They vary with age among adults. The main barriers among adults 60 to 78 years old were injury and poor health, while among adults 18 to 39 years old, they were child care responsibilities, lack of time, and lack of motivation and the same for those 40 to 59 years old, although these patients begin to have chronic diseases and injuries. Other common barriers include discomfort, fear of injury, and misconceptions about exercise **(Dishman et al., 1985).**

- **Personality**: This includes attitudes reflect, among other things, people's self-esteem, overall outlook, and health beliefs. In women, participation is best predicted by attitude toward exercise, perceived control over their lives in general, their assessment of the benefits of exercise, and self-confidence to initiate exercise .In men, attitude toward exercise is the only predictor **(Biddle et al., 1994)**

- **Time:** People are busy. Child-rearing may act as a barrier to exercise participation. Parents fulfill their family's requirements at the expense of their own. Retirees may have more flexible time, but they are frequently busy caring for grandchildren and doing volunteer work.
- **Discomfort**: Many surveys have revealed that the most common barriers to exercise are physical illness, rapid fatigability, and fear of injury which limit physical activity. Pain is a common reason for remaining inactive. **(O'Neill and Reid, 1991)**
- **Fear of injury**: Fear of injury is an understandable barrier to exercise for many older people. Patients with diabetes and peripheral neuropathy may be afraid of exacerbating foot pain, inducing fractures, or triggering hypoglycemia.
- **Inactivity**: For older people the awareness that exercise is not socially acceptable may restrict the opportunity for group activity. Most adults who have never exercised will never start even if given advice.
- **Isolation**: Many adults do not want to exercise alone, and program compliance without social support is poor. Motivating older patients to exercise can be particularly

difficult because they may have lost a partner or have a partner whose disability limits exercise options.

- **Misconceptions**: Patients may have a limited concept of what exercise is—they may feel that jogging is the only exercise or that all forms of exercise are repetitive and therefore boring.

2. Environmental Barriers:

Environmental (external) barriers are quite common. Individuals cannot control environmental barriers but can use them to rationalize not exercising.

- **Physician advice**: Physicians may accidentally hinder lifestyle changes. As they rarely encourage patient for exercise. Also lack of follow-up to monitor progress and achievement of goals reinforces the concept that exercise is unimportant.
- **Access**: Access and cost are common barriers. Health clubs are too expensive for many people. Although most studies that show access, transportation, and cost as significant barriers were conducted among minority groups .These problems are probably common in all older populations**. (Jones and Nies, 1996)**

- **Climate**: In northern climates, bad weather and unsafe outdoor conditions due to ice and snow may cause many individuals, especially the elderly, to go without regular physical activity for 6 months. For those living in warmer regions, extremes of heat and humidity are barrier to activity.

3. Exercise- Specific Barrier

Before starting an exercise routine, it's important to recognize the likely barriers .Lack of time and lack of access to facilities or equipment are typical barriers for all people. It can be hard enough to make time for exercise alone. But important added techniques to help you stick with your program—like charting your progress—take even more time**. (Richard and Parr, 1996)**

The following table provides possible solutions for common barriers:

Lack of motivation or confidence	Exercise with a friend or group for positive feedback. Keep a log of min/day of exercise; celebrate progress. Document health-related changes like better breathing. Join a group-exercise program to foster liability
Lack of time	Draw up a contract with specific weekly exercise goals. Seek support from significant others Remember that all increases in activity count as exercise
Lack of access to facilities or equipment	Increase calories burned in daily activities Keep in mind that walking is always accessible
Previous negative experience	Emphasize low-intensity exercise like walking Determine the source of negativity and work through it. Get positive feedback from friends and relatives
Weight	Know that activity becomes easier over time Choose activities more suited to larger bodies, like biking
Poor balance	Switch to an exercise that feels more natural Try more non-weight-bearing activities, like swimming
Anxiety	Progress slowly. Make exercise fun Exercise with a friend
Discomfort, pain, or injury	Switch to an exercise in which you bear less weight. Reduce intensity or duration

(Richard and Parr, 1996)

Exercise Counseling Guidelines

The US Preventive Services Task Force has developed some simple, practical suggestions for counseling that are readily adaptable for sedentary patients **(Williams & Wilkins, 1996).**

1. **Frame the teaching to match the patient's perceptions.** Inquire about the patient's beliefs and concerns, including the patient's concept of exercise.
2. **Help the patient set goals.** Help the patient identify long-term goals, and then healthcare providers can help design a goal-fitting exercise program.
3. **Fully inform patients of the expected benefits and the time to achieve them.** By telling patients when to expect results may prevent discouragement when immediate results are not seen. Patients should be told about common pitfalls in beginning an exercise program, ways to avoid problems, and simple remedies. In addition, patients should be informed of the symptoms of exercise intolerance.
4. **Suggest small changes rather than large ones.** Ask patients to do progressively more: "It is great that you are walking 10 minutes in the morning; could you add an additional 5 minutes?" This reinforces patients' ability to achieve goals.

5. **Provide specific, informative instructions.** For example, ask patients how much they are comfortable doing now, then ask them to do this activity more often (e.g., three times a week) and for a longer time (by 10% to 25% per week) until the patient is doing 20 to 30 minutes of any aerobic exercise, three to four times a week. Behavioral change is enhanced if the regimen and its rationale are explained, demonstrated to the patient if appropriate, and given in written form.

6. **Keep in mind that adding new behaviors is sometimes easier than eliminating established behaviors.** For instance, if weight loss is a concern, suggesting that the patient begin moderate physical activity may be more effective than suggesting a change of diet.

7. **Link new behaviors to old behaviors.** For example, suggest to patients that they exercise before eating lunch or use an exercise bike while watching the news.

8. **Use the power of the profession.** Patients view clinicians as health professionals and accept what they say as important. Don't be afraid to use direct messages such as "I want you to start an exercise program." Simple and specific messages are particularly powerful.

9. **Get clear commitments.** Clinicians should ask patients to describe what they plan (i.e., what, when, and how often).

The more specific the commitment, the more likely it is to be honored. Then ask patients how sure they are to perform them. Those who express more assurance are more likely to meet the commitment.

10. **Use a combination of strategies.** Programs can be tailored to individual needs. Written materials and oral communication with patients strengthen the message**. (William and Winkin, 1996)**

Subjects and Methods

The present study is an intervention Health education study using questionnaire to assess knowledge, attitude and practice of elderly population living in geriatric homes, and clubs before and after application of health education sessions on exercise and health.

1. Study Setting:

Subjects:

Number of participants was 101: male were 47 and female were 54 aging above 60 years old.

1. There are a total number of 48 residential homes for elderly in Cairo. (Personnel communication by telephone to Elderly Society in Heliopolis). Five of them were selected randomly. Then through personal communications (by telephone) with the administration of these homes, only two of them were found to be convenient for the purpose of the study as regards number of the independent elderly and presence of small garden for walking (Alsafa in Heliopolis) and (Dar Alkhulafaa alrashedeen in Heliopolis) .
2. There are 46 clubs in Cairo (Personnel communication by telephone to Elderly Society in Heliopolis). We chose Alghaba club in Heliopolis for purpose of the study as in the

same area & having sub-society caring for elderly 41 participants agreed to participate.

Written letter from head of community department in Ain Shams University was given to every administration's place to facilitate for the study**.**

2. Ethical Consideration:

Permission letter was taken from the 3 places: Dar Alsafa and Dar Alkhulafaa alrashedeen and Alghaba club in Heliopolis to conduct the present study. Consent of the participants was taken through their signature.

The purpose of the study was explained to the participants and they were ascertained that the information obtained would be confidential and would be used only for scientific purposes.

Study Tools:

I. Designing a questionnaire:

1. Questionnaire to be filled by interviewing each subject, which includes personnel data, mini mental scale, depression scale, activity of daily living, medical history and presence of chronic disease. Knowledge, attitude toward exercise and practice of exercise questions were asked pre and post health education sessions.

2. Measurement as weight, body mass index, waist hip ratio, random blood sugar height and blood pressure.. (attached to appendix)

II. Health education Program: Preparation: starting from June until September 2004.

1. Preparing for lectures: Health education lectures were prepared before starting the program, which were two lectures one about aging and organ changes in elderly, the second was about benefits of exercise for elderly population and its effect on different body systems.

In each of the 3 previously selected places:

A. Dar Alsafa

B. Dar Alkhulafaa Alrashedeen.

C. Alghaba club.

Two lectures were given /week in 3 different places.

2. Brochures; in which two were designed and distributed to all participants. Their aim was to motivate and remind participants about health benefits of exercise. One about benefits of exercise in elderly and the other for instruction for walking exercise**. (Elokl, 2003)**

(http://www.helpguide.org/life/senior_fitness_sports.htm**).**

3. Diary; for recording walking exercise was designed and given to every participant. Design was taken from:

(http://www.helpguide.org/life/senior_fitness_sports.htm) with some modifications, it was done for 12 weeks (attached to appendix).

Table was divided into: Rows for the number of weeks.

The columns were divided as follow: 1st minutes for warming up, 2nd minutes for walking, 3rd for cooling down, 4th the sum of all and the last for any comment. Blood pressure, random blood sugar and weight of participants were checked in the beginning of the first week then 8th week and 12th week times.

4. Posters were designed and included pictures showing:

a. Organ changes that happens in elderly population.

b. Chronic diseases in elderly population.

c. Safety of walking exercise with some diseases.

Posters were hanged during the health education sessions.(attached to appendix)

III. Implementation and evaluation of the health education program:

1. By changing knowledge, and practice of the participants.

2. Score for knowledge, attitude, and practice. By measuring mean score of knowledge, attitude, and practice before and after health education sessions.

   Knowledge score 25

   Attitude score 30

   Practice score 12

3. Through mean%, paired t and x^2 tests.

   Evaluation was done by statistical tests before and after the program.

Data collection tools:

1. **Questionnaire** was filled in Arabic language pre and post sessions.

Data were collected over a period of three months starting from October 2004 to January 2005 at a rate of one visit /week (to fill questionnaire). Blood pressure, weight and random blood glucose were recorded monthly.

Time for interview was 20-30 minutes.

2. Diary: every participant recorded his walking minutes every week for 12 weeks in his own diary which was collected at the end of the study.

3. Anthropometric measures: measuring weight, height, body mass index, and waist hip ratio by the researcher:

a. **Weight**: it was measured using a balance scale rounded to the nearest 0.1kg.The participants were bare footed and taking off heavy clothes **(Jelliffe et al., 1989)**

b. **Standing height** the participants were standing erect and bare footed with both heels and scapular in contact with the wall. It was rounded to the nearest 0.1cm. The eyes are looking straight ahead with a set square resting on scalp and against the wall **(Jelliffe et al., 1989)**

c. **Body Mass Index (BMI**) =Weight (KG)/ (Height m^2) to assess degree of obesity.

According to the results of BMI participants were classified into 4 groups**. (Siegel et al., 1995)**

1. Underweight <20
2. Normal 20-<25
3. Overweight 25-<30
4. Obese≥30-40

d. **Waist circumference**;

According to (**Hazzard et al,1998)** .It was measured using a cloth tape applied just above the level of the lateral iliac crest and just below the lowest rib with the subject's arm down passively, it is rounded to nearest 0.1cm **(WHO,1995)**

Hip circumference: it was measured at the maximum girth between the waist and the thighs. It was rounded to nearest 0.1cm **(WHO, 1995)**

Waist: Hip ratio for central obesity <0.8% Female distribution normal distribution of fat (gynecoid type) above or below that is abnormal.

0.9% Male distribution normal distribution of fat (android) and above or below is abnormal distribution of fat.

WHO (1997) defined central obesity as WHR ≥1.0 in men and ≥0.85 in women.

4. **Random blood glucose** was checked by glucocheck strips (Life Scan Johnson & Johnson Company).

Value of ≤140 mg/dl not diabetic and >140 mg/dl diabetic.

5. **Blood pressure measuring:** was checked twice in sitting position and then took the average reading using ordinary Hg sphygmomanometer.

Normal ≤140/90 mmHg

Hypertension >140/90 (**Darwin, 1998**)

Data analysis:

Data were coded, arranged to facilitate manipulation. Data were computed and analyzed. Suitable statistical tests were used. Package for social science (SPSS) under window version 13 was used.

Significance was taken as follows:

P>0.05 Insignificant

P<0.05 Significant

P<0.01 Highly significant

Results

Table (1): Number of Participants in each Place of the study

	Frequency	%
Alghaba	41	40.6
Alkholafaa	30	29.7
Alsafa	30	29.7
Total	101	100

Three places were chosen, one club Alghaba and two residential homes in Heliopolis district Alsafa and Alkholafaa.

Table (2): Socio demographic characteristics of studied participants
(total number of cases N=101)

Variable	Number	Percentage %
Sex		
Male	47	46.5
Female	54	53.5
Place of the study		
Alghaba Club	41	40.6
Kholafaa	30	29.7
Safaa	30	29.7
Marital Status		
Married	34	33.7
Widow	53	52.5
Divorced	7	6.9
Single	7	6.9
Residence (living with)		
Alone	47	46.5
Husband/Wife	9	8.9
Family including Husband and Wife	15	14.9
Family only	25	24.8
Relative	4	4
Education		
Illiterate	20	19.8
Write and read	30	29.7
Primary- secondary	24	23.8
University	20	19.8
Post graduate	7	6.9
Income		
Satisfy basic needs	52	51.5
Satisfy more the basic needs	40	39.7
Poverty	9	8.8
Child Number		
0	12	11.9
1-3	60	59.5
>3	29	27.6

Of the 101 participants, 40% from Alghaba club while Kholafaa Rashedeen and Safaa 30 % from each. Male participant represent 46.5% and females 53.5%, with average age of 68.18±7.19 years.

The above table shows that half (52.5%) of participants are widows while one third (33.7%) are married, nearly half of them are living alone (46.5%). Regarding their education 19.8 % are illiterate, while 29.7% can write and read, 23.8% Primary- secondary Years of education, 19.8% are university graduates and 6.9% are post graduated. 51.5% of participants are satisfied with income.

Table (3) Geriatric Assessment of Participants` Health

Variable	Number	Percentage%
Mental Status: No cognitive impairment	97	96
Mild-Moderate impairment	3	3
Severe	1	1
Activity of Daily Living: Complete Dependant	1	1
Partially Dependant	1	1
Independent	99	98
Depression Scale: Normal	50	49.5
Mild Depression	37	36.6
Moderate -Severe	14	13.9
Medical Disorders(Self recall): Diabetes Mellitus		
Diabetic	21	20.8
Not diabetic	80	79.2
Hypertension		
+ve	28	27.7
-ve	73	72.3
Osteoporosis		
+ve	45	44.5
-ve	56	55.4
Osteoarthritis		
+ve	63	62.4
-ve	38	37.6
Bronchial Asthma		
+ve	11	10.9
-ve	90	89.1
Frequent Falls		
+ve	8	7.9
-ve	93	92.1

The majority of the participants (96%) have no cognitive impairment. Also 98% of participants are independent in the ADL. This is not surprising as the participants are from club that provides social activities for community dwelling elderly. Also as geriatric homes accept mainly independent elderly. Regarding depression

scale 36.6% of participants have mild depression and 49.5% are normal. Regarding chronic diseases (self recall) Osteoarthritis is the most common 62.4%, followed by Osteoporosis 44.6%, and the least is frequent falls only 7.9%.

Table (4): Smoking Status according to Gender:

Variable	Male N=47	Female N=54	Total Number Percentage %	x^2	P value
Smoking				2.7	NS
Yes	11	6	17 16.8%		
No	36	48	84 83.2%		
Number of cigarettes/day				0.73	NS
<5	1	0	1 15.9		
٥-١٥	4	3	7 41.2		
>15	6	3	9 52.9		
Duration/Year				1.43	NS
<5	1	1	2 11.8		
5-10	5	1	6 35.3		
>10	5	4	9 52.9		

Regarding smoking 16.8% are smokers and from them 52.9%are smoking >15 cigarettes /day for more than 10 years. Smoking is more common among males and it is not significant.

Table (5): Baseline Characteristics among male and female participants

N=47 male N=54 female

Variable	Minimum	Maximum	Mean ± SD
Systolic Blood Pressure 1			
Male	110.00	170.00	134.7 ±13.0
Female	90.00	160.00	129.1±14.8
Diastolic Blood Pressure 1			
Male	70.00	162.00	86.1 ± 13.8
Female	60.00	100.00	79.3 ± 9.1
Weight 1			
Male	44	120	72.6 ± 14.4
Female	46.00	130.00	75.2 ± 15.1
Random Blood Sugar 1			
Male	77.00	246.00	125.5 ± 31.4
Female	89.00	267.00	129.5 ± 39.9
BM I1			
Male	17.6	44.1	26.9 ± 4.8
Female	18.9	53.4	31.6 ± 6.4

Systolic Blood Pressure (SBP) mmHg SBP1=1st reading

Diastolic Blood Pressure (DBP) DBP1=1ST reading

Weight in kg. Weight1=1st r reading

Random Blood Sugar (RBS) mg/dl RBS1=1ST reading

Body Mass Index (BMI) BMI1=1ST reading

From the above tables we can recognize that mean systolic, and diastolic blood pressure are more in male participants, but females are more obese with increase in body mass index and increase in random blood glucose.

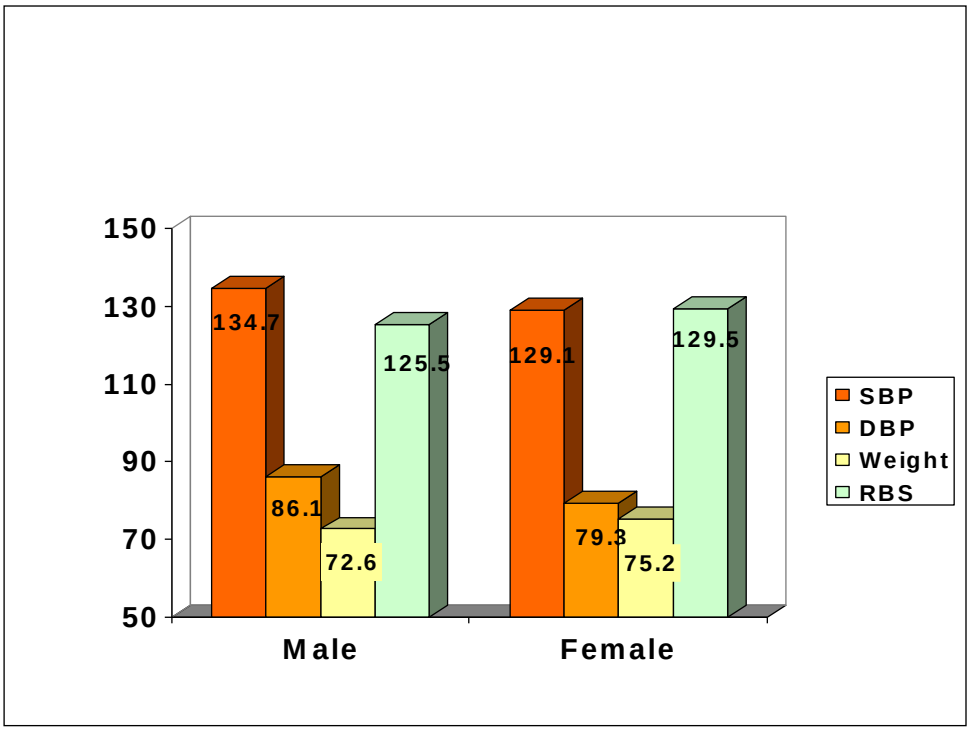

Fig. (1): Comparison between males and females as regards the mean of blood pressure, weight, and random blood glucose (first measurement)

Table (6): Baseline Characteristics: Waist, Hip ratio categories among male and female participants

Sex	Waist : Hip Ratio		Total number%	x^2	p value
	Normal No. %	Abnormal No. %			
Male number	10 21.3%	37 78.7%	47 100%		
Female number	8 14.8%	46 85.2%	54 100%	76	NS

Male distribution of fat (android) around the waist (central obesity).21.3% of males have normal distribution of fat while85.2% of the females have central obesity and 14.8% have gynecoid distribution of fat which is normal for sex.

Table (7): Comparison between first (baseline), second (first month follow-up), third reading (three month follow-up) of weight among all participants

Weight Reading	Number	Mean ± SD	Paired t	p value
Reading 1 Reading 2	94 94	74.9±14.6 74.8±14.5	2.3	S
Reading 1 Reading 3	76 76	73.8±14.8 73.4±14.7	4.0	S
Reading 2 Reading 3	73 73	74.2±14.6 73.9±14.6	3.5	S

There is high significance between first and third reading, then also between third and second reading.

Table (8): Comparison between male and female participants regarding Body Mass Index (BMI) (Baseline Reading)

Sex %	BMI first reading				Total	x^2	p value
	Under	Normal	over	obese			
Male % number	5 10.6%	9 19.1%	19 40.4%	14 29.8%	47 100%		
Female % number	1 1.9%	6 11.3%	15 28.3%	31 58.5%	53 100%	9.8	S

Body Mass Index score

Under weight<20

Normal 20-<25

Over weight 25-<30

Obese ≥30-40

Obesity > in females

Females show more obesity than males (58.5%) and it is statistically significant.

Table (8a): Comparison between male and female participants regarding Body Mass Index (second reading)

	BMI second reading				Total	x^2	p value
	Under	Normal	over	obese			
Male %	4 9.3%	7 16.3%	21 48.8%	11 25.6%	43 100%		
Female %	1 2.0%	5 9.8%	14 27.5%	31 60.8%	51 100%	12.4	S

Females show more obesity than males (60.8%).It is also statistically significant.

Table (8b): Comparison between male and female participants regarding Body Mass Index(third reading)

	BMI third reading				Total	x^2	p value
	Under	Normal	over	obese			
Male %	4 11.4%	7 20.0%	15 42.9%	9 25.7%	35 100%		
Female %	1 2.4%	5 12.2%	13 31.7%	22 53.7%	41 100%	7.3	S

Female shows more obesity than males (53.7%). It is also statistically significant.

From the above tables we can recognize that inspite of decrease in female obesity in second and third reading still they are more obese than males.

Table (9): Distribution of hypertension among studied participants

Blood Pressure	Frequency	%
Normal	47	46.5
Hypertension	54	53.5
Total	101	100

Normal blood pressure≤ 130/90

From this table 53.3% of the participants are hypertensive.

Table (9a): Comparison between male and female as regards first reading of blood pressure

Sex	Blood Pressure		Total	x^2	p
	Normal	Hypertension			
Male number%	16 34.0%	31 66.0%	47 100%		.
Female number %	31 57.4%	23 42.6%	54 100%	5.514	S

From this table males are more hypertensive (66%) than females and it is statistically significant.

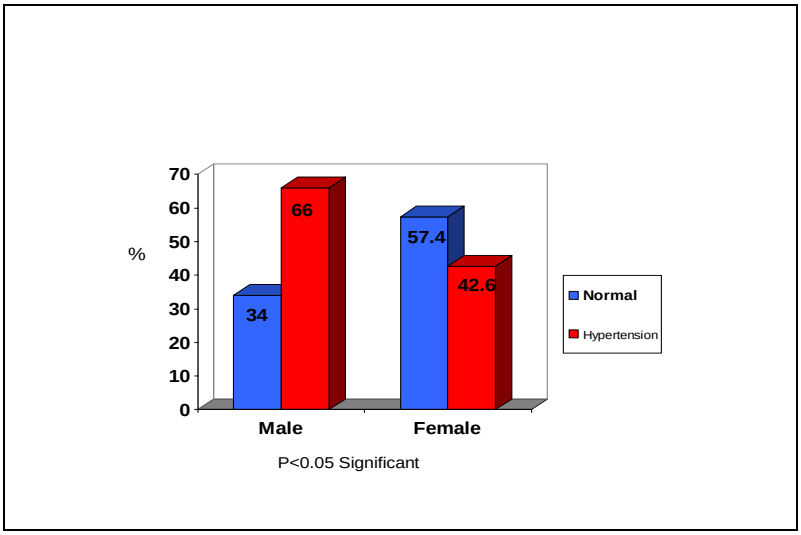

Fig. (2) Comparison between males and females as regards first assessment of blood pressure

Table (9b): Comparison between male and female as regards third reading of blood pressure

Sex	Blood Pressure		Total	x^2	Pvalue
	Normal N %	Hypertension N %	N %		
Male Number %	23 63.9%	13 36.1%	36 100%	.836	NS
Female Number %	33 73.3%	12 26.7%	45 100%		

From this table males are more hypertensive (36.1%) than females and it is not significant.

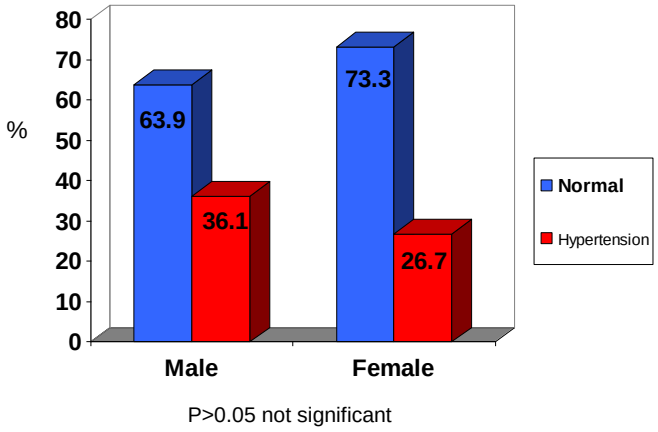

Fig. (3): Comparison between males and females as regards third assessment of blood pressure

Table (10) : Comparison between the three readings of systolic blood pressure (SBP) among all participants

Systolic blood pressure Reading	N	Mean± SD	t test	P value
SBP1st reading SBP2ndreading	96 96	132.5±14.0 128.1±17.7	3.202	S
SBP1st reading SBP3rd reading	81 81	132.9±14.6 127.1±12.6	4.385	S
SBP2ndreading SBP3rd reading	79 79	128.7±19.0 127.5±12.4	.581	NS

P value < 0.05

From the above table, there is a statistical significant difference between first and second readings and between first and third readings. During follow-up SBP showed a significant decline among subjects from first to third reading.

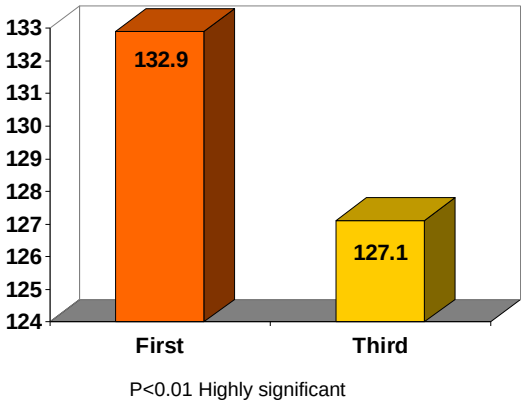

Fig. (4) Comparison between mean SBP first and second measurement

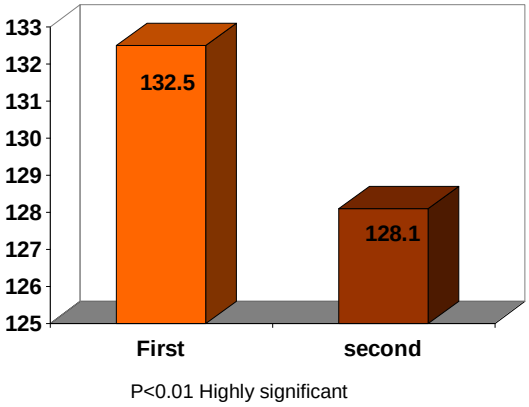

Fig. (5) Comparison between mean SBP first and third measurement

Table (11) : Comparison between the three readings of the diastolic blood pressure(DBP)

Diastolic blood pressure reading	N	Mean±SD	t test	P value
DBP1st reading	96	82.6±12.1		
DBP2nd reading	96	81.2±7.8	1.366	NS
DBP1st reading	81	83.0±12.7		
DBP3rd reading	81	80.7±7.7	1.885	NS
DBP2nd reading	79	81.3±8.2		
DBP 3rd reading	79	80.8±7.7	.674	NS

P value < 0.05

From the above table, there is no significant difference in the diastolic blood pressure level in the three readings.

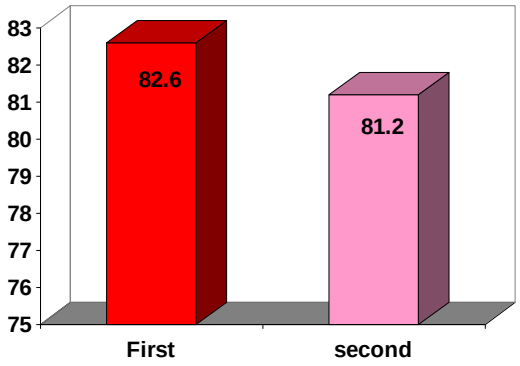

Fig. (6) Comparison between mean DBP first and second measurement

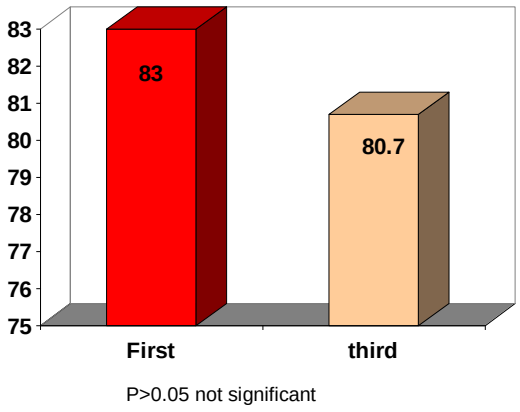

Fig. (7) Comparison between mean DBP first and third measurement

Table (12): Prevalence of Diabetes Mellitus among studied participants 1st Reading

Random Blood Sugar	Frequency	%
Normal	65	67.0%
Diabetic	32	33.0
Total	97	100

N=97 Normal ≤ 140mg/dl RBS > 140mg/dl are diabetics

33% of the participants are diabetics. There are 4 participants who refused to check RBS (as anxious to know if they are diabetics).

Table (12a): Comparison between male and female as regards First reading of Random Blood Sugar

Sex	Random Blood Sugar		Total	x^2	p
	Normal N %	Diabetic N %	N %		
Male Number%	29 63%	17 37%	46 100%	.43	NS
Female number%	36 70.6%	15 29.4%	51 100%		

Male=46 Female=51

There is no significance difference between diabetic male and female. Also 4 from females refused to check their RBS.

Table (12b): Comparison between male and female as regards 3rd reading of Random Blood Sugar

Sex	Random Blood Sugar		Total	x^2	P value
	Normal N %	Diabetic N %	N %		
Male Number%	26 74.3%	9 25.7%	35 100%	.32	NS
Female number%	25 62.5%	15 37.5%	45 100%		

There is no significance difference between diabetic male and female participants. Inspite total number of participants decreased (as they were not available when checking RBS.

Table (13): Prevalence of Diabetes Mellitus among studied participants 3rd Reading

Random Blood Sugar	Frequency	%
Normal	51	68%
Diabetic	24	32%
Total	75	100%

N=75 Normal ≤ 140mg/dl RBS > 140mg/dl diabetics

32% of the participants are diabetics .There are 26 participants who were absent during checking RBS.

Table (13a): Comparison between first and third reading random blood sugar in male participants

Reading	Number	Mean ± SD		
			t	P value
1st 3rd	35 35	125±.33.1 125.4±.25.9	.16	NS

There is no significance difference between first and third reading of random blood sugar among male participants.

Table (13b): Comparison between first and third reading random blood sugar in female participants

Reading	Number	Mean ± SD		
			t	p
1st 3rd	40 40	129.5±39.9 134.7±.32.4	.136	NS

From this table there is no significance difference between first and third reading of random blood sugar among female participants.

Table (13c): Comparison of the 3 Readings of Random Blood Sugar regarding gender:

Reading	Sex	Number	Mean ± SD	t	P value
Reading 1	Male Female	45 51	125.5±31.4 129.5±39.9	.53	NS
Reading 2	Male Female	42 47	125.3±53.8 130.5±39.6	.5	NS
Reading 3	Male Female	35 40	125.4±25.9 134.7±32.4	1.3	NS

Females show more rise in random blood sugar than males and there is no significance difference between the three readings.

Table (14):Comparison between 3 Readings of the Random Blood Sugar

Random blood sugar readings	N	Mean± SD	t test	P value
1st reading 2nd reading	89 89	128.7±±36.6 128.1±6.68	.210	NS
1st reading 3rd reading	75 75	129.9±38.5 130.4±29.7	.200	NS
2nd reading 3rd reading	71 71	131.5±51.1 131.0±30.3	.105	NS

P value <0.05

From the above table, there is no significant difference between 3 reading of the random blood sugar.

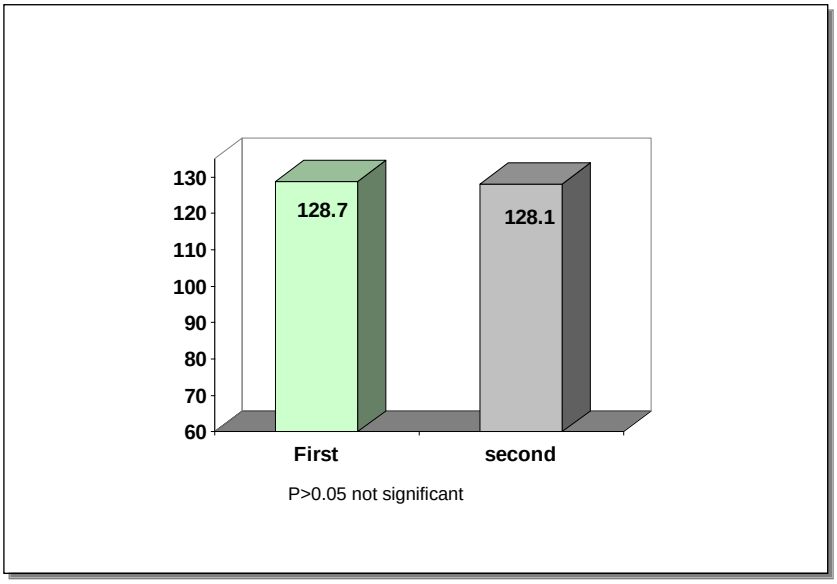

Fig. (8) Comparison between mean Random blood sugar first and second measurement

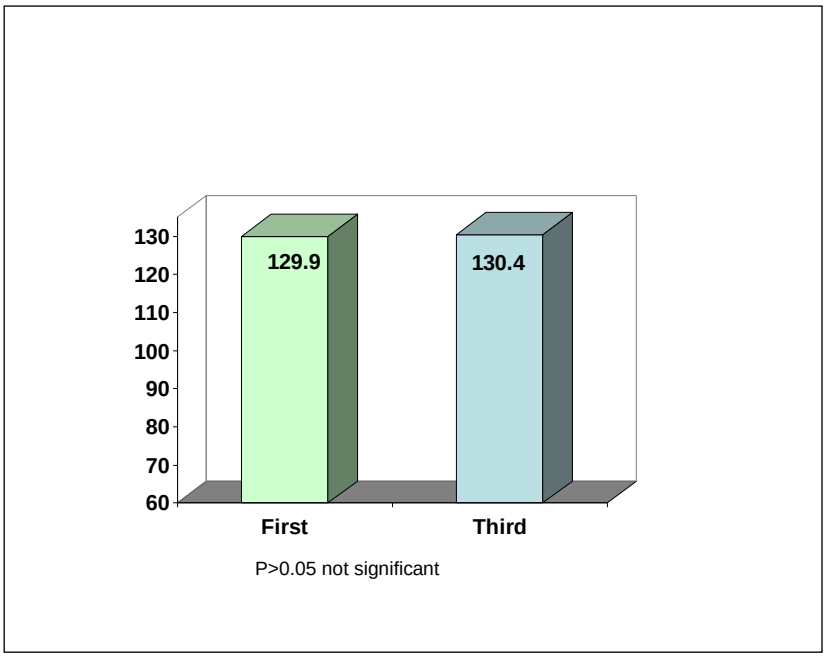

Fig. (9) Comparison between mean Random blood sugar first and third measurement

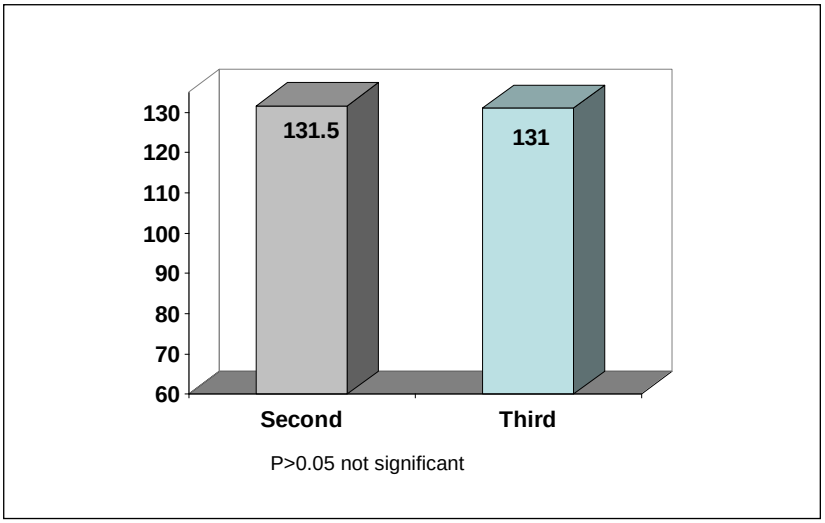

Fig. (10) Comparison between mean Random blood sugar Second and third measurement

Table (15): Comparison between Males and Females in first reading of blood pressure, weight, and random blood glucose

	Sex	Number	Mean ± SD	t	P value
SBP 1 Male Female		47 54	134.7±13.0 129.1±14.8	1.9	S
DBP 1	Male Female	47 54	86.1±13.8 79.3±9.1	2.9	S
Weight 1	Male Female	47 54	72.6±14.4 75.2±15.1	.880	NS
RBS 1	Male Female	46 51	125.5±31.4 129.5±39.9	.121	NS

There is statistical significant difference between male and female reading of the systolic and diastolic blood pressure as males have higher mean %.

Random blood glucose is not significant .It was checked only for 51 of females as 3 of them reject screening test and also one of the males.

Regarding weight it is also not significant and females have higher mean% than males.

Table (16): Comparison between first and third readings of Systolic and Diastolic blood Pressure, Random Blood Pressure and Weight.

Reading	N	Mean± SD	Paired t test	P value
SBP1st reading	81	132.9±14.6		
SBP3rd reading	81	127.1±12.6		
			4.385	S
DBP1st reading	81	83.0±12.7		
DBP3rd reading	81	80.7±7.7		
			1.885	S
RBS:1st reading	75	129.9±38.5		
3rd reading	75	130.4±29.7		
			.200	NS
Weight: 1st reading	76	73.8±14.8		
3rd reading	76	73.4±14.7		
			4.0	NS

From the above table we can recognize that there is high significant difference between first and third reading of systolic blood pressure and first and third reading of diastolic blood pressure.

There is no significant difference between first and third reading of the weight and between first and third reading of random blood sugar.

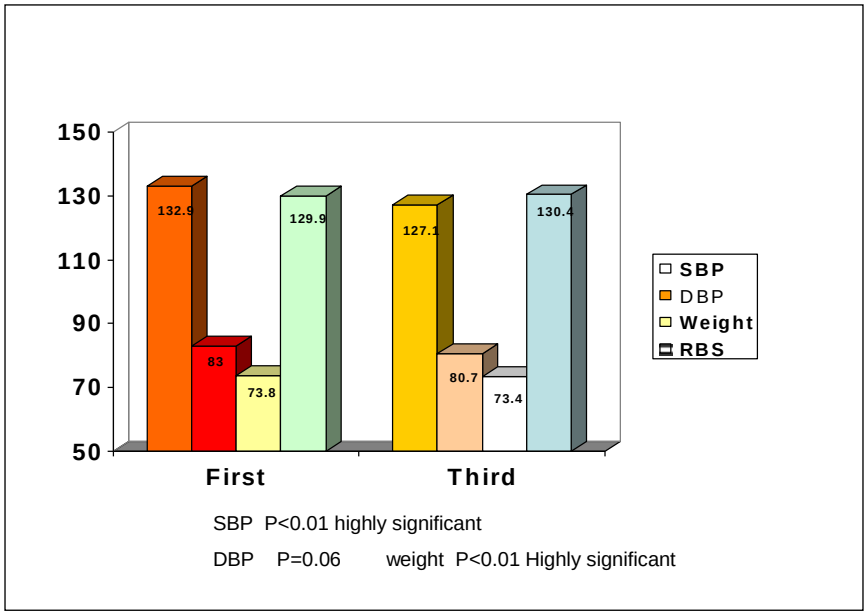

Fig. (11) Comparison between the mean SBP, DBP, Random blood glucose and weight (first and third measurement)

Table (17): Recorded Total minutes of walking among participants (self recording) and scoring of the frequency N=77

		Minutes
Mean		533.61
Median		540.00
Mode		465.00
Minimum		205.00
Maximum		1095.00
Percentiles	25	445.0000
	50	540.0000
	75	617.5000
	90	723.0000
Score	**%**	**Frequency** **%**
Bad	25%	19 24.7
Good	50%	20 26
Very good	75%	19 24.7
Excellent	≥90	19 24.7
Total		77 100%

Calculation method of walking minutes/day:

Total maximum number of minutes for 12 weeks=1095/12=91 minutes/week.

Then for 1 session=91/3=30 minutes /session for 3 days /week.

Total minimum number of minutes for 12 weeks=205/12= 17minutes/week.

Then for 1 session=17/3=5.7 minutes /session for 3 days /week.

Total mean number of minutes for 12 weeks=533.6/12=44.5minutes/week.

Then for 1 session=44.5/3=14.8minutes /session for 3 days /week.

25 percentiles=445 minutes/12 weeks=37minutes/week=37/3=12.3/session

50 percentiles=540 minutes/12weeks=45minutes/week=45/3=15 minutes/session

75 percentiles=617 minutes /12weeks=51.4min./week=51.4/3=17.1minutes/session

90 percentiles=723 minutes

/12weeks=60.25min./week=60.25/3=20.1minutes/session

From this table we can recognize that 24.7% of participants have bad score as walked 12 minutes/day, 26% of participants walked 15 minutes/day showing good score and 24.7% of participant walked 17min/day (very good score).24.7% walked ≥20 minutes/day and scoring excellent.

Table (18): Self recording of the walking minutes by participants in each place

Place	Mean=540=45 minutes/week		Total	x^2	P value
	Non compliance <540	Compliance ≥540			
Alghaba Number %	8 30.8%	18 *69.2%	26 100%	5.948	S
Kholafa Number %	16 64.0%	9 36.0%	25 100%		
Alsafa Number %	14 53.8%	12 46.2%	26 100%		
Total Number %	38 49.4%	39 50.6%	77 100%		

In Alghaba a significantly higher % of participant (69.2%) walked more than average comparing to the other two places. This can be due to as Alghaba is a club and more facilities are available.

Table (19) : Comparison between all participants in 1st, 8th and 12th week regarding minutes of walking exercise.

N=77

Week	Mean ± SD	Paired t	P value
1st	35.8±13.1		
8th	58.6±17.0	17.0	.000
8th	58.6±17.0		
12th	45.3±14.2	8.4	.000
1st	35.8±13.1		
12th	45.3±14.2	6.7	.000

There is significance difference between 1st and 8th week regarding walking exercise as participants increased their walking minutes from 35 minutes /week to nearly one hour/week**.** Also there is significance difference between 8th and 12th week regarding walking exercise inspite their walking minutes is decreased in the 12th week. Also there is significance difference between 1st and 12th week regarding walking exercise as participants increased their walking minutes from 35 minutes /week to 45 minutes/ week. The duration of walking exercise decreased from week 8 to week 12 but still it is high compared to 1st week.

Table (20): Knowledge, Attitude, and Practice Before and After the Health Education Sessions among all participants

N=101

Mean Score %	Mean ± SD Before	After	Paired t	P value
Knowledge	51.16±15.07	73.34±10.84	12.9	S
Attitude	52.11±18.73	76.43±10.66	12.2	S
Practice	57.75±28.58	79.78 ±12.76	7.67	S

P value <‧.001

From the above table we can notice that Knowledge, Attitude and Practice all significantly improved after health education sessions.

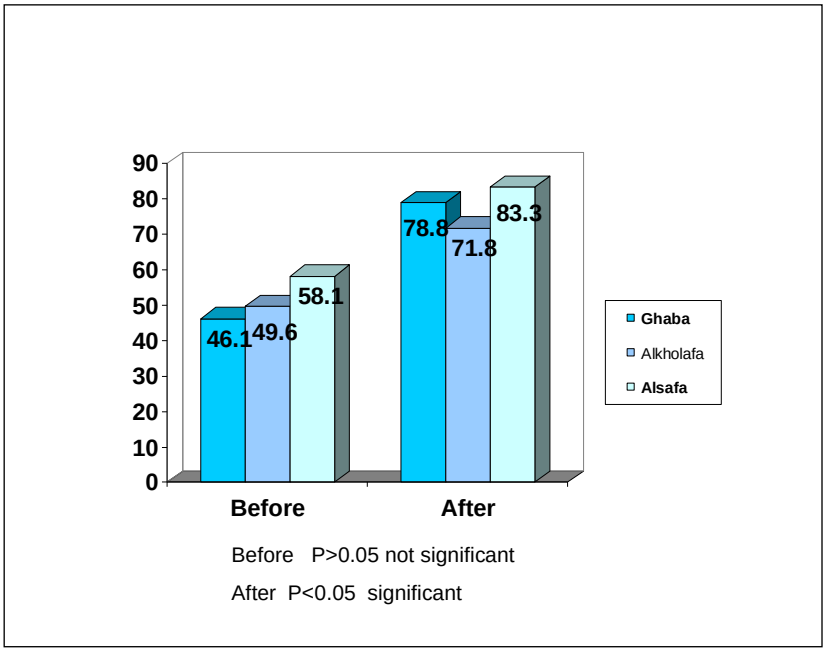

Fig. (12): Comparison between the three studied places as regards the mean percentage of knowledge before and after sessions of health education

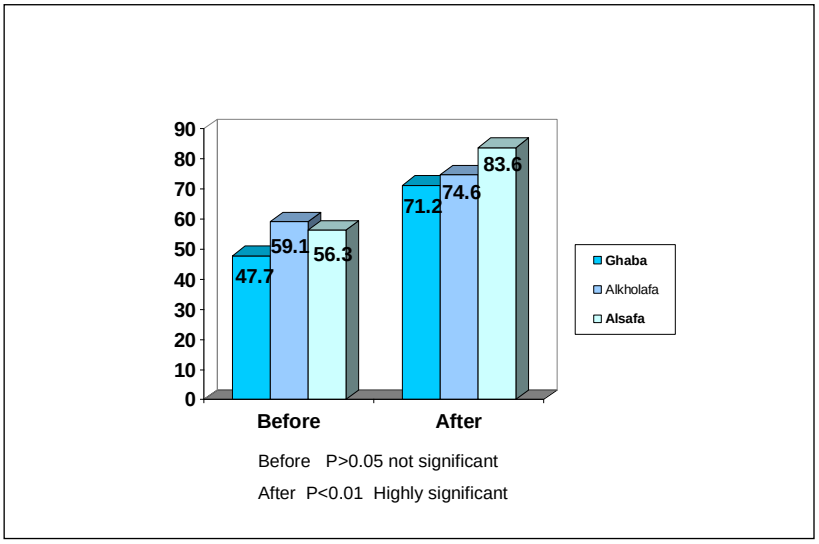

Fig. (13): Comparison between the three studied places as regards the mean percentage of Attitude before and after sessions of health education

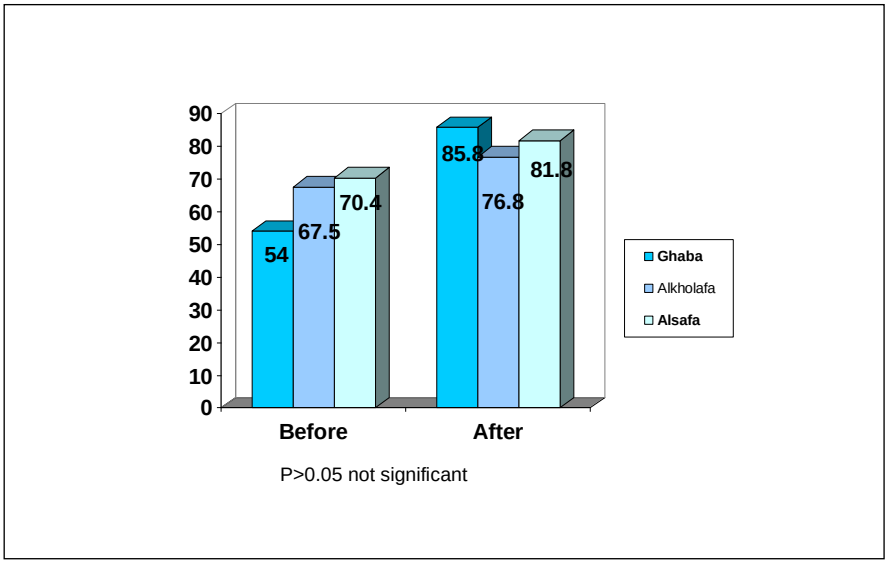

Fig. (14): Comparison between the three studied places as regards the mean percentage of Practice before and after sessions of health education

Table (21): Knowledge before and after the Health Education sessions among participants according to sex

Mean score Of Knowledge %	Mean % ± SD		t test	P value
	Male N=47	Female N=54		
Knowledge Before	51.9±16.5	50.5±13.7	.46	NS
Knowledge After	74.8±10.9	72.0±10.6	1.26	NS
Paired t test	8.5	9.6		
P value	S	S		

The score=25

This table shows that there is no sig. difference between male and female regarding knowledge answers , but there is statistical significance for both of them after sessions and males shows > knowledge than females.

Table (22): Attitude before and after the Health Education sessions among participants according to sex

Mean score of Attitude %	Mean% ± SD		t test	P value
	Male N=47	Female N =54		
Attitude Before	49.6±19.8	54.2±17.5	1.23	NS
Attitude After	78.5±8.8	74.5±11.8	1.91	NS
Paired t	9.9	7.7		
P value	S	S		

The score=30

This table shows that there is statistical significace difference between male and female regarding attitude answers, and also for both of them after sessions and males shows > attitude than females.

Table (23): Practice before and after the Health Education sessions among participants according to sex

Mean score Of Practice %	Mean% ± SD		t test	P value
	Male N=47	Female N =54		
Practice B	60.4±31.2	55.40±26.1	.88	NS
Practice A	83.1±9.9	76.8±14.2	2.54	NS
Paired t	4.9	5.9		
P value	S	S		

The score=12

This table shows that both of them increased practice after sessions and that male participants before and after the sessions have more practice than females**.**

Table (24): Knowledge, Attitude, and Practice Before and After the Health Education Sessions among female participants in the 3 places

	N=54	Mean %± SD	Minimum	Maximum	f	P value
Knowledge Before					.06	NS
Alghaba	14	49.7±18.0	24	76		
Alkholafa	21	50.2±11.2	32	76		
Alsafa	19	51.3±13.5	20	76		
Knowledge After					4.63	S
Alghaba	14	67.4±7.3	52	80		
Alkholafa	21	77.1±6.8	64	92		
Alsafa	19	69.8±13.9	40	92		
Attitude Before					1.017	N
Alghaba	14	57.3±18.8	36.6	90		
Alkholafa	21	50±13.9	26.6	86		
Alsafa	19	56.6±20	33.3	100		
Attitude After					15.4	S
Alghaba	14	74±4.7	66.6	83		
Alkholafa	21	66.8±9.3	46.6	83		
Alsafa	19	83.5±11.9	53.3	100		
Practice Before					1.4	NS
Alghaba	14	48.2±33.5	8.3	100		
Alkholafa	21	53.1±25.2	8.3	83		
Alsafa	19	63.1±19.5	25	100		
Practice After					1.3	NS
Alghaba	14	82.1±17.2	58.3	116.6		
Alkholafa	21	75.7±9.8	50	91.6		
Alsafa	19	74.1±15.6	16.6	91.6		

From the above table we can recognize that there is statistical significance for knowledge and attitude after sessions and is increased more in Alkholafa for knowledge, attitude for Alsafaa participants is more while Alghaba participants shows more practice as the place is encouraging for this practice.

Table (25): Knowledge, Attitude, and Practice Before and After the Health Education Sessions among male participants in the 3 places

	N=47	Mean %± SD	Minimum	Maximum	f	P value
Knowledge Before					2.2	NS
Alghaba	27	47.7±17.9	8	84		
Alkholafa	9	59.1±9.5	48	76		
Alsafa	11	56.3±15.3	28	76		
Knowledge After					6.1	S
Alghaba	27	71.2±10.0	52	92		
Alkholafa	9	74.6±11.8	56	88		
Alsafa	11	83.6±7.4	68	92		
Attitude Before					1.4	NS
Alghaba	27	46.1±20.7	23	100		
Alkholafa	9	49.6±11.2	33	73		
Alsafa	11	58.1±21.9	30	96		
Attitude After					4.9	S
Alghaba	27	78.8±6.4	56	90		
Alkholafa	9	71.8±10.1	56	93		
Alsafa	11	83.3±10.2	73	100		
Practice Before			.		1.3	NS
Alghaba	27	54.0±33.2	00	100		
Alkholafa	9	67.5±30.4	16	100		
Alsafa	11	70.4±24.8	16	91		
Practice After					3.1	NS
Alghaba	27	85.8±10.5	58	100		
Alkholafa	9	76.8±8.0	66	83		
Alsafa	11	81.8±7.2	66	91		

This table shows that there is statistically significance difference between participants in the 3 places in knowledge after sessions and that Alsafa participants have more knowledge and attitude than the other two. Regarding practice Alghaba participants have more practice compared to Alsafa and Alkholafa.

Table (26): Knowledge, Attitude, and Practice Before and After the Health Education Sessions among female and Male participants in the 3 places

	Number		Mean %± SD	
	male	female	Male n=47	Female n=54
Knowledge Before	27	14	47.7±17.9	49.7±18.0
Alghaba	9	21	59.1±9.5	50.2±11.2
Alkholafa	11	19	*56.3±15.3	51.3±13.5
Alsafa				
Knowledge After				
Alghaba	27	14	71.2±10.0	67.4±7.3
Alkholafa	9	21	74.6±11.8	77.1±6.8
Alsafa	11	19	*83.6±7.4	69.8±13.9
Attitude Before				
Alghaba	27	14	46.1±20.7	57.3±18.8
Alkholafa	9	21	49.6±11.2	50±13.9
Alsafa	11	19	*58.1±21.9	56.6±20
Attitude After				
Alghaba	27	14	78.8±6.4	74±4.7
Alkholafa	9	21	71.8±10.1	66.8±9.3
Alsafa	11	19	*83.3±10.2	*83.5±11.9
Practice Before				
Alghaba	27	14	54.0±33.2	48.2±33.5
Alkholafa	9	21	67.5±30.4	53.1±25.2
Alsafa	11	19	*70.4±24.8	63.1±19.5
Practice After				
Alghaba	27	14	*85.8±10.5	82.1±17.2
Alkholafa	9	21	76.8±8.0	75.7±9.8
Alsafa	11	19	81.8±7.2	74.1±15.6

Males show more knowledge, attitude and practice than females before and after sessions and it become more significance after sessions in all places, and according to places Alsafa shows more knowledge and attitude compared to other two places while in Alghaba club shows more practice as it is a club and have more place and facilities for practice.

* more significance.

DISCUSSION

Regular exercise is one of the best things that a person can do to help prevent illness and preserve health. Exercise comes in many forms and can vary in intensity. Walking is the most natural, the most "everyday" form of movement human beings undertake. It is an activity common to everyone except the seriously disabled or the very frail **(Morris and Hardman, 1997).**

This study has been conducted to assess exercise related knowledge, attitude and practice of elderly in residential homes and sporting club in Egypt to reveal gaps in their knowledge, defects in their attitude and practice in order to be used in constructing feasible health education messages to promote physical activity among this group of participants.

Implementing a health education program was previously shown to be effective in changing knowledge, attitude and practice of participants **(Cupples & McKnight, 1994).** This approach is described by **Feste, (1992)** who reported that preteaching assessment is an important first step in education process as participants will understand whatever said to them in the context of what they already know. Educators may have to correct misconceptions or fill gaps that have been identified.

Regarding knowledge attitude and practice with sociodemographic characteristics of studied sample:

The current study revealed that knowledge, attitude and practice about physical activity varied with sociodemographic characteristics of studied sample. As for knowledge it was noticed that male participants were more aware and appreciate the benefits of physical activity before and after the health education program. This agrees with **Safi El-Dine et al, (2000)** study as demonstrated an obvious gender variation in both participations in moderate and vigorous activity. As males reported high level of moderate activity compared to females. This agree with **Ford et al, (1991), Pate et al, (1995) and Crespo et al, (1996)** since men are more likely to engage in regular activity than women.

Regarding gender and marital status:

In the present study female participants are 53.5%, this is because life expectancy is longer among females than males. Several factors including biological, behavioral and environmental factors had been proposed to expect that women continue to live longer than men. In Egypt life expectancy for females is 72 years and for males is 68 years. Similar observations were reported in **Abdel Aal, (2002**) who studied assessment of nutritional status among residents of geriatric homes in Cairo. In the current study half (52.5%) of the

participants are widows compared to **Bakr, (2000)** who studied health profile of elderly women in Manshiate el Sadr area in Egypt in relation to previous life style and socioeconomic status found that 67% of the studied group were widows. Also as long as women continue in general to marry men older than themselves **(WHO, 1989),** and then this might explain the high level (52.5%) of widowhood for women among the elderly in this study. The results agrees with **Siegel and Taeulier, (1986)** who had stated that the probability of widowhood for women increases with age and that the average duration of widowhood is twice that of men.

Regarding their education:

Nearly 20% of participants in the present study were illiterate it is similar to result of **Abdel Aal, (2002)** where illiteracy was 24.9%. The illiteracy rate in Egypt for the year 2004 was estimated to be 28.6% for people above 15 years **(World Bank Statistics, 2004)**. This shows an approximate percentage to the present study.

Regarding income:

According to the participants 51.5% of participants were satisfied with their income. Also in a study by **Bakr, (2000)** 36.5% were financially supported. One reason for this financial satisfaction maybe due to support from the children as pointed

out by **Clark et al, (1991)** who had found that nearly 48% of men and 43% of women received financial support from their children in the form of cash and non cash support. Other factors maybe support from Ministry of Social Affairs

Regarding minimental scale:

Several studies have suggested that physical activity is positively associated with cognitive function in elderly persons. In a study by **Yaffe et al, (2002)** they concluded that women with higher levels of baseline physical activity were less likely to develop cognitive decline. This finding supports the hypothesis that physical activity prevents cognitive decline in older community-dwelling women.

In the present study the majority of the participants (96%) have no cognitive impairment (based on MMSE assessment) while moderate and severe cognitive impairment were present in 3% and 1 % respectively and this is due to the fact that the participants are from residential homes or sporting clubs with social activities. This was also intended during selection of participants to be able to respond to the education program and engage in walking exercise. Other studies from Egypt included participants with minimal cognitive impairment as **Farghaly, (1990),** who reported 2.2%cognitive impairment among elderly women in his study. Another study done by **El-**

Noamany(1996) in which mean score was 23 denoting mild cognitive impairment and it was consistent with what is found by **Ashour**(**1993)** in one study which showed that severe cognitive deficit in Egyptian elderly was 1.6% in urban elderly.

Regarding activity of daily living (ADL):

98% of participants are independent in the ADL, while 1 % completely dependent and 1 % partially dependent. Again this is not surprising as the participants are from club that provides social activities for community dwelling elderly and residential homes who accept mainly independent individuals.

Regarding geriatric depression scale:

In most developing countries, depressive disorders are not well characterized and are often dismissed as the normal behavior of old age or senility **(Hafez and Bagchi, 1994).** In the present study, 36.6 % of participants have mild depressive symptoms while 13.9% have moderate to severe symptoms. This high rate of depression is common among elderly and is supported by other finding as in **Bakr (2000)** who studied health profile of elderly in Egypt and found that 21.2% suffered from depression. This agrees with **WHO (1989)** which stated that depression was the most frequent form of mental disorder in the elderly.

On the other hand **Abolfotouh et al, (2001)** reported a lower rate of 17.5% among elderly in Saudi Arabia. However all previous rates of depression are higher than the rate in western communities which is around 10% (**Copeland et al, 1987, Livingstone et al, 1990)** a finding that indicates a need to investigate the possible underlying ecological factors. The frequency of depression in geriatric subjects was significantly associated with very old age, being female, lack of education, being unemployed or unmarried, the presence of chronic medical conditions, average or poor perceived health status, and average or poor functional capacity. **Metwally A, (1998)** in community study among elderly Egyptian found that prevalence of depression was high 52.1%.

Regarding participants self recording of chronic diseases:

Diabetes mellitus accounted for 20.8 % in the present study and this percent agree with **Bakr, (2000**) 27.3%. Also **King, (1993)** stated diabetes mellitus prevalence increase with age. The **WHO, (1990)** documented that diabetes mellitus could be triggered by a number of environmental factors such as obesity, sedentary life style, dietary factors, stress, urbanization and socioeconomic factors.

The current study revealed that 27.7 % are hypertensive and on medication, and this is in accordance with national

survey, 26% of adult Egyptians suffer from hypertension, **(Ibrahim, 1996).** A similar figure (23.6%) was reported by a survey conducted on a sample of Omani adults. (**Alwan , 1997)**.

Osteoarthritis and osteoporosis were common problems among participants in the present study (62.4%, 44.6%). The results agree with **Bakr, (2000)** 75% complained of skeletal and joint pains.

Regarding smoking:

In the present study 16.8% are smokers and 52.9%are smoking more than 10 years and its common among males 23.4%. High rates of smoking among Egyptian elderly males were also reported by **Abdel Aal (2002)** where 33% males and only 2.9% females were smokers. Although the United States has experienced a marked decrease in smoking rates since 1960s, the **Center for disease control and prevention (1996)**, reported that in one in four adult continued to smoke. **El Noamany (1996)** studied prevalence of fracture among elderly in hospital population in which there were 13.8%current smoker and 8.8%ex-smokers and all were males.

This finding may interfere with compliance with a physical activity program as stated by **Bouchard et al, 1994**, though cigarette smoking is only weakly inversely related to

participation in physical activity, but smokers are more likely than nonsmokers to drop out of exercise programs**.**

Effect of walking exercise:

In an attempt to clarify some health benefits of physical activity, we studied whether walking exercise is differently related to systolic and diastolic blood pressure, body mass index, weight, and random blood sugar.

After 12 weeks of walking exercise hypertension percent significantly decreased but still high in males 36.1% and in females it is 26.7%.

In the present study there was decrease in systolic blood pressure in the third reading among participants (after 12 weeks walking exercise) compared to first reading by 6mmHg also diastolic blood pressure decreased by 2mmHg. The decrease of blood pressure maybe explained by age related decrease in responsiveness of β-adrenergic receptors during exercise as a result of diminished release of catecholamines or lessened end organ response to their effects **(Fleg, 1986).**

Also this agree with **(Manica et al, 2003)** as according to guidelines committee 2003, exercise for 3-4 times /week at moderate intensity of 30-45minutes will decrease systolic blood pressure about 4mmHg and diastolic blood pressure 2mmHg.

The review of 54 clinical trials involving 2,419 previously sedentary adults concluded that regular exercise decreased systolic blood pressure by an average of 4 mm Hg and diastolic blood pressure by an average of 2.6 mm Hg. **(Whelton et al, 2002).**

Pols et al, (1997) and **Bijnen et al, (1998)** concluded that blood pressure was associated with time spent in different activity categories. Both mean systolic and diastolic blood pressure were significantly lower in the highest sports than in the lowest sports group.

In another study **Paillard et al, (2002)** there was decrease in diastolic blood pressure and LDL level after walking exercise .While in **Hagberg et al, (1989), Jennings et al, (1989)** there were decrease of 8 to 10 mm Hg in both systolic and diastolic blood pressure measurements.

This disagree with **Safi El-Dine et al, (2000)** as neither systolic nor diastolic blood pressures were significantly related to the different levels of both moderate and vigorous activity among the sample studied which were 508 of both sexes aging from 18-61 years in which 4.7% of them were hypertensive.

Concerning body mass index it was found that walking exercise activity did not result in significant decline in BMI, as there was minimal change in weight and body mass index. This can be due to dietary pattern and improper physical activity.

Obesity was one of the striking features among studied group with prevalence in females 58.5% this high prevalence may reflect the genetic background of Egyptians. Also the Egyptian dietary pattern (rich in bread, rice, sweets and butter) and improper physical activity may favor the occurrence of obesity. This agrees with **Bakr, (2000)** as obesity accounted for 54% of elderly subjects.

In **Abdel Aziz, (2000)** the prevalence of obesity among elderly people living in elderly homes in Cairo was 35.6% among males, while 54.9% among females which denotes more obesity among females.

Same results in **Abdel Aal, (2002)** 52.3% of elderly were obese. Obesity is widely accepted as major risk factors for several diseases. These diseases are hypertension, heart disease, and diabetes mellitus. It is an aggravating factor for other chronic diseases such as osteoarthritis **(Bidlack, 1996).**These factors were proved in our participants where 62.4% of them have osteoarthritis, 20.8% have diabetes mellitus, 27.7% hypertensive and 44.6% with osteoporosis.

Present study shows that 33% of participants had high random blood sugar level which was higher than the frequency of Diabetes self recall of participants (20.8%). This high prevalence of diabetes is similar to what found by **Bakr, (2000)**

as 27.3% of the studied group show high random blood sugar. **WHO,(1990)** had documented that diabetes mellitus could be triggered by a number of environmental factors such a obesity, sedentary life style, dietary factor ,stress and socioeconomic factors.

Regarding effect of walking exercise on blood sugar level there was no significant decline in random blood sugar after 12 weeks walking exercise.

This disagree with **Lekarstvi, (2003)** in which experimental group after the 12-week walking training led to significant improvement, significant reduction of total and LDL cholesterol, and random blood sugar.

American Diabetes Association, (1999) stated that exercise may improve insulin sensitivity and assist in diminishing elevated blood glucose levels into the normal range.

In a similar 12-week study**, Raz et al, (1994)** showed that older patients with type 2 diabetes who engaged in aerobic exercise had lowered triglyceride and glycosylated hemoglobin levels as long as a year after the study.

In current study there was no significant decrease in blood sugar level as can be explained by dietary pattern and improper physical activity.

The Knowledge, Attitude and Practice regarding exercise all improved after health education sessions with statistically significant differences in the pre and post educational scores in all the domains with significant difference between males and females in which males show higher scores.

Regarding awareness of knowledge questionnaire: almost all answers are highly significant after health education sessions.

Of interest, TV as a source of information constituted 45.5% of knowledge on physical activity among participants.

In agreement, community-based health education messages about the benefits of exercise that generated via TV news segments had been found to have a greater effect in enhancing public awareness **(Young et al, 1996)**. In **Safi El-Dine et al, (2000)** information from TV about physical activity was 63.6%. Another study in Libyia by **Elfituri et al, (1999)** showed 73.5% considered television the most efficient medium for raising health knowledge.

Some knowledge items were unknown for participants like: defining regular exercise, relation between walking and osteoporosis, hypertension, diabetes mellitus, constipation, cancer, and infectious diseases, effect of exercise on risk factor as smoking, frequent falls, insulin level, heart beats, sources of exercise information, walking is ideal for elderly, aerobic

exercise definition, and instruction for walking exercise. Of interest is the significant change of knowledge among participants from unknown to known after sessions.

Explanation during the sessions was aided by posters as to make it easy for understanding ,brochures also were distributed to all participants as to remind them about benefits of walking exercise and instruction for walking (as elderly suffer from easy loss of memory). Diary was given to all to facilitate recording their walking minutes and to remark any comment. Post sessions participants` knowledge turn out to be highly significant.

Regarding attitude:

Sallis et al, (1985) noticed that divorced, separated and single individuals were having positive attitude and were practicing more exercise than married who felt lack of time was a barrier to exercise.

In the present study attitude of participants significantly changed. This was attributed to the health education sessions that were provided to the elderly to correct the misconception they had regarding certain items. Also aided methods used in the study played an important role in changing the false impression elderly previously had.

This goes with **Strehlow, (1983)** who mentioned that one of the goals of health education is changing what people feel, believe, and their opinion. Also **Gadalla, (1983)** mentioned that attitude of individual toward an object or situation helps in predicting the behavior of individual in certain situation.

Regarding practice:

In assessing practice of physical activity, participants attitude was the first and most powerful predictor for their involvement in moderate intensity activity and was third factor, after sex, that determine participants practice. In agreement, favorable physical activity attitude had been linked with the performance of varying degree of exercise as well as with the maintenance and regularity of participation (**Maiback et al, 1991 and Crespo et al, 1996).**

In agreement **Ford et al,(1991)** and **Pate et al ,(1995)** reported that men are more likely than women to engage in regular activity, in moderate and vigorous sports and to have significantly higher energy expenditure.

In this study practice of participants also increased, in duration and frequency after sessions. Group discussion in health education has an enforcing effect on behavioral change. The elderly are willing to take a positive action to improve their health.

Warren et al, (1998) studied effect of walking on women with osteoporosis. These results strongly support the widely held belief that walking is a beneficial form of physical activity for maintaining skeletal integrity.

However**, Afonso et al, (2001)** in a cross sectional survey concluded that physical activity was not viewed by the elderly as a major health determinant. And that programmed to promote physical activity need to be tailored to the different countries in order to increase/maintain physical activity in the elderly.

By calculating the duration of walking/day (from self recall in the diary notebook, as clarified in the methods), we found that 24.7% of the participants were actually walking the recommended duration of exercise set by the **American College of Sports Medicine and the Centers for Disease Control and Prevention**, **(1995)** which is 30 minutes of moderate-intensity physical activity most days of the week or 30 minutes of low intensity physical activity can be accumulated in short bouts of activity and do them more often, for longer periods of time, or both.

Possible reasons for not walking the recommended duration: weather changes in this period of time, participants

prefer sitting to watch TV, they lack interest due to mood changes, depression or being inactive from the start.

The beneficial effect of exercise on different measurements taken as weight, random blood sugar was not apparent in this present study though various other studies previously showed this effect as **Kasch et al, (1990); Goldberg & Hagberg, (1990); Shephard, (1997); Rogers et al, (1988); Devlin et al, (1992)** where their studies showed that physical activity was associated with decreased level of hypertension, diabetes mellitus and a decline in weight.

Inspite of little effect of walking exercise on participants, yet their practice increased in all places and male participants showed more improvement. Exercise is recommended not only for change in these vital signs but it enhances, mood, alleviates depression, anxiety and sleep. Improves CHD risk factors and other health-related factors, including blood lipid profile, bone density, and immune function **(Bouchard et al, 1994**)

However expecting apparent change in blood pressure, glucose level and weight may needed more prolonged follow up, adjuvant treatment and other factors (environmental factors).

Eriksson et al, (1998) concluded that low-intensity training of prolonged duration, such as walking, appears to be

more effective than high-intensity training of shorter duration for reducing weight and controlling glucose and serum lipid levels because more of the energy fueling the exercise effort is derived from fat.

El-Misky, (2000) compared between either a health education program and or an exercise program in the elderly. The exercise group showed significant lowering in weight, blood pressure, pulse rate, blood lipids and increased in knee and spine flexion. While all knowledge and information discussed to elderly group in the health education program were not so effective except for encouragement of some individual to withhold from smoking. Reasoning for the time of the program (3 months) was short and not enough to achieve the target effects.

The results of the present study reveal the gap between participants' physical activity knowledge, attitude and their actual involvement in active life style. Although as high as 73.3% of the studied sample had good knowledge concerning exercise, up to 76.4% were of favorable attitude, and 79.7% improved in practicing walking exercise after 12 weeks of the program.

Finally, the program has achieved a measurable change in knowledge, attitude, and practice of the participants with little decline in blood pressure.

Limitation of the study:

No follow up assessment was carried out in the study, only pre and post intervention assessment, this is due to relatively short duration of the program.

Conclusion

From the finding of the present study, we can conclude that:

Prior to the program implementation, participants were lacking some knowledge items and having some misconception about walking exercise.

Results of the program implementation showed significant improvement in knowledge, attitude and practice of the participants. Moreover, walking exercise had contributed in reducing blood pressure.

Health education programs are important for reinforcement of health behavior; this is better achieved under the supervision of trained health volunteers.

Recommendations

According to the results of the present study:

1. Special interest should be given to promote a variety of physical activity alternatives among elderly to engage in healthy and more enjoyable life style.
2. There is need to educate elderly population how to successfully initiate and maintain regular physical exercise and to reinforce them to adopt the skills and capabilities to transform their knowledge into ideal practice.
3. Exercise should be practiced by elderly persons, the simplest is daily walking.
4. Health education programs using pamphlets, posters increase awareness of the elderly.

Summary

The aging process itself, without disease, affects the different organs of the body leading to functional decline. There is progressive deterioration in physical performance, and development of degenerative diseases including coronary heart disease, hypertension, diabetes mellitus and cancer.

The importance of exercise in retarding the aging process has been known for many years. Appropriate levels of physical activity increase longevity and to a large extent, protect against the development of degenerative diseases. A well planned exercise program for elderly produces marked improvement in aerobic capacity, muscular fitness and joint flexibility. It is also important for reduction of blood pressure blood lipids regulation of body weight, reduction of anxiety and depression.

Health education is the part of health care that is concerned with promoting healthy behavior. It is considered to facilitate physical, social and emotional well-being and enhancing quality of life.

The aim of this work was to recognize the effect of intervention health education program on walking exercise

among elderly in Cairo and to evaluate the effectiveness of health education.

The study was carried out on 101 elderly from two residential homes and one club.

All were subjected to questionnaire and anthropometric measures; weight, height, waist: hip ratio, BMI, measuring blood pressure and random blood sugar.

All subjects were evaluated before and after 12 weeks duration of exercise.

The results of the present study revealed that:

1. Systolic blood pressure decreased in the third reading compared to first reading by 6mmHg.
2. Diastolic blood pressure decreased also by 2mmHg . The decrease of blood pressure maybe explained by age related decrease in responsiveness of β-adrenergic receptors during exercise as a result of diminished release of catecholamines or lessened end organ response to their effects.
3. Random blood sugar: there was no significance difference between 3 readings and it can be due to short duration of the study program.
4. Weight: there is no significance decrease between the 3rd and first reading and this can be due to short duration of the study program and dietary pattern.

The present study revealed that health education program was successful in improving knowledge, attitude, and practice of the participants. Also Al-Ghaba club participants showed the highest percentage (69.2%) in practicing walking exercise compared to the participants in residential homes. This can be due to more walking facilities available at Al-Ghaba club compared to the other residential homes.

From this we conclude that health education program is effective. Furthermore, the limitation of this study was the short period of follow-up (3 months). Therefore we recommend and emphasize extending the follow-up period up to one year.

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د.محمد عبد الفتاح العكل .كتاب الهلال الطبى:الشيخوخه يناير ٢٠٠٤ مدرس طب المسنين كلية الطب –جامعة عين شمس

http://www.helpguide.org/life/senior_fitness_sports.htm

http://www.mayoclinic.com/health/walking/HQ01612

Appendix

Table (1): Response of the participants regarding Knowledge assessment questions

N=101

Item	Before		After		x^2 test	P value
	N	%	N	%		
1.**Define regular exercise**					5.9	S
* Yes	88	87.5	98	97		
No	13	12.9	3	3		
2.Types of physical exercise					3.1	N.S
*Yes	97	96	101	100		
No	3	3				
3.Importance of walking exercise					1.9	N.S
*Yes	99	98	99	98		
No	2	2	2	2		
4.Relation between walking exercise and:					2.0	N.S
A. Depression						
*Yes	37	36.4	47	46.5		
No	64	63.4	54	53.5		
B. Osteoporosis					5.0	H.S
* Yes	47	46.5	93	92.1		
No	54	53.5	8	7.9		
C. Hypertension					15.3	H.S
* Yes	63	66.3	89	88.1		
No	33	32.7	11	10.9		
D. Diabetes mellitus					29.1	H.S
* Yes	68	67.3	97	96.1		
No	32	31.7	3	3		

E. Cancer breast and colon					53.3	H.S
* Yes	11	10.9	60	59.4		
No	86	85.1	37	36.6		
F. Constipation					29.6	H.S
*Yes	41	40.6	79			
No	60	59.4	78.2			
			22			
			21.8			
G. Infectious diseases					7.7	H.S
Yes	12	11.9	2	2		
* No	87	86.1	98	97		
5.Effect of exercise on the following risk factors:						
A. Cholesterol level					6.02	NS
* Yes						
No	44	43.6	46	45.5		
	55	54.5	55	54.5		
B. Smoking					18.6	H.S
* Yes	74	73.3	98	97		
No	23	22.8	3	3		
C. Increase in weight					4.7	S
* Yes	93	92.1	100	99		
No	7	6.9	1	1		
D. Frequent falls					19.6	H.S
* Yes	35	34.7	67	66.3		
No	62	61.4	32	31.7		
E. Insulin level in blood					10.2	H.S
*Yes	37	36.6	61	60.4		
No	61	60.4	40	39.6		
F. Harmful fat in blood					1.4	N.S
*Yes	45	44.6	55	54.5		
No	53	52.5	46	45.5		

G. Heart beats					15.7	H.S
*Yes	78	77.2	98	97		
No	21	20.8	3	3		
6. Sources of exercise information					15.1	H.S
Friends	16	15.8	34	33.4		
TV	73	72.3	46	45.5		
Newspapers	10	9.9	18	17.8		
Others	2	2	3	3		
7.Walking is the ideal exercise for elderly						
* Yes	101	100	101	100		
No						
8.Define aerobic exercise					85.2	H.S
* Yes	4	4	66	65.3		
No	97	96	34	33.7		
9.Instructions for walking exercise						
a. Walking after meals is preferred					53.8	H.S
Yes	61	60	13	12.9		
* No	35	34.7	88	87.1		
b. Intermittent walking is not preferred					23.6	H.S
Yes	53	52.5	21	20.8		
* No	45	44.6	80	79.2		
c. Starting and ending walking should be gradual					20.2	H.S
* Yes	67	66.3	93	92.1		
No	32	31.7	7	6.9		

d. Not drink water while walking					21.5	H.S
Yes	56	55.4	26	25.7		
* No	40	39.6	75	74.3		
e. Speed walking is preferred					29.2	H.S
*Yes	62	61.4	95	94.1		
No	37	36.6	6	5.9		
f. Not stop when feeling tired or sweating					7.4	H.S
Yes	24	23.8	10	9.9		
* No	74	73.3	91	90.1		

* Correct answer and, score from 25

From the above table we can recognize that participants knowledge after sessions was high significant regarding defining regular exercise, relation between walking and osteoporosis , hypertension diabetes mellitus, cancer constipation cancer and infectious diseases .also effect of exercise on risk factor as smoking, frequent falls, insulin level, heart beats, sources of exercise information, walking is ideal for elderly , aerobic exercise definition, and instruction for walking exercise.

Table (2): Response of the participants regarding Attitude assessment questions

N=101

What diseases or risk factors will benefit from exercise :	Before sessions			After sessions			x^2	P
a. Alzheimer decrease in memory	**a. strong agree** **20** **19.8%**	**b. agree** **23** **22.8%**	**c. Don't agree** 58 57.4	**a. strong agree** **15** **14.9**	**b. agree** **73** ***72.3%**	**c. Don't agree** 13 12.9	55.2	S
b. Heart diseases &hypertension	25 24.8%	59 58.4%	17 16.8%	61 *60.4%	36 35.6%	4 4%	19.2	S
c. Help in preventing frequent falls	21 20.8%	43 42.6%	37 36.6%	45 44.6%	53 *52.5%	3 3%	38.6	S
d. Improved in atherosclerosis &stroke	25 24.8%	49 48.5%	27 26.7%	67 *66.3%	29 28.7%	5 5%	39.4	S
e.Decrease osteoporosis	19 18.8%	48 47.5%	34 33.7%	60 *59.4%	34 33.7%	7 6.9%	41.4	S
f.Reduce weight	46 45.5%	50 49.5%	5 5%	72 *71.3%	21 20.8%	8 7.9%	18.2	S
g.Improve heart &lung activity	39 38.6%	57 56.4%	5 5%	68 *67.3%	28 27.7%	5 5%	17.7	S
h.Improves diabetes mellitus	27 26.7%	56 55.4%	18 17.8%	59 *58.4%	36 35.6%	6 5.9%	22.5	S

i.Improve depression	25 24.8%	24 23.8%	52 51.5%	43 42.6%	46 *45.5%	12 11.9%	36.6	S
j.Have relation with cancer colon &breast	7 6.9%	12 11.9%	82 81.2%	38 37.6%	50 *49.5%	13 12.9%	94.7	S
k.Improve daily activity at home	25 24.8%	62 61.4%	14 13.9%	71 *70.3%	27 26.7%	3 3%	42.9	S
l.Reduce mortality rate	17 16.8%	53 52.5%	31 30.7%	43 42.6%	56 *55.4%	2 2%	36.8	S

strong agree 2

agree 1

Don't agree 0

Regarding participants answer about attitude questions we can recognize that their attitude all increased after sessions and they became more aware about some risk factors which benefit from exercise than before.

Table (3): Response of the participants regarding Practice assessment questions

N=101

Item	Before N	Before %	After N	After %	x^2 test	P value
1. Do you practice exercise now (at least 3 times/week) a. yes b. no	77 24	76.2 23.8	99 2	*98 2	19.7	S
2 How many times /week a. daily b. 2 times/week c. more than 2 times/week	17 37 47	16.8 36.6 46.5	26 6 69	25.7 6 * 68.3	28.4	S
3. time spend in exercise a. 5 minutes/session b.10 minutes./session c.15mins./session d.>15mins./session	16 23 33 29	15.8 22.8 32.7 28.7	0 14 42 45	0 13.9 41.6 * 44.6	22.7	S
4. What type of exercise you do? a. walking b. aerobics c. others	96 2 1	95 4 1	97 3 1	*96 3 1	0.1	NS
5. What is the preferred time? a. morning b. evening	17 82	17.8 81.2	15 84	14.9 83.2	0.03	NS
6. Do you like practicing						

exercise? a. yes b. no	91 90.1 8 7.9	101 *100	6.5	S
7. If yes with whom? a. friends b. alone c. with groups	73 74.3 7 6.9 16 15.8	74 *75.2 11 10.9 14 13.9	0.9	NS
8. Where do you practice exercise? a. dar b club c. gym d. street	60 59.4 24 23.8 4 4 11 10.9	60 * 59.4 24 *23.8 4 4 11 10.9	0.00	N.S
9. Do you practice walking exercise regularly? a. yes b. no	29 28.7 72 71.3	100 *99 1 1	105.1	S
10. In the last 2 weeks how many times you went for a 10 minutes walk ? a. ----3-----day in a week b. don't know	17 16.8 84 83.2	50 * 49.5 51 50.5	22.8	S

11. What is the average time you spent for walking			2.1	NS

exercise last two weeks? a. -2-3--------day/week b. -30------minutes/week c. don't know	51 50.5 50 49.5	62 *61.4 39 38.6		

بسم الله الرحمن الرحيم

بحث بعنوان رياضة المشي

بيانات المشارك :-

الرقم السري : | | | | | | | | | |

الاسم : .....

العنوان : .....

التلفون : (.....).....

١. تاريخ الميلاد: .....اليوم (/) الشهر (/) السنة(/ / /)

٢. الحالة الاجتماعية : ١/متزوج ٢ /أرمل ٣/منفصل ٤/أعزب (/)

٣. مع من يعيش : ١/بمفرده ٢/مع الزوج/ الزوجة ٣/مع أفراد الأسرة بالإضافة إلي الزوج/ الزوجة ٤/مع أفراد الأسرة ٥/ مع الآخرين (/)

٤.عدد سنوات الدراسة : (/)

١/(٠-٦) ٢/(٧-٩) ٣/(١٠-١٢) ٤/(دراسة جامعية) ٥/دراسة عليا

٥. الوظيفة : ..... (/)

٦. الدخل السنوي / الشهري : (/)

١/فوق حد الفقر ٢/تحت حد الفقر ٣/ يكفي للاحتياجات الأساسية فقط ٤/يكفي لأكثر من الأساسيات

٥/ يحتاج لمساعدة

٧. مصدر الدخل : ..... (/)

٨. كم عدد المستفيدين من هذا الدخل ؟ (/)

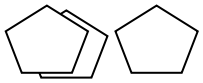
٩. هل لك تأمين صحي ؟

.....

فحص الحالة العقلية المختصر

البنود	الدرجة
١) التوجيه (الاهتداء):	((/١٠))
*تقدر تقول لي إحنا في سنة كام؟	(/١)
*تقدر تقولي أحنا في فصل إيه؟	(/١)
*تقدر تقولي أحنا في شهر إيه؟	(/١)
*تقدر تقولي النهاردة إيه؟	(/١)
*تقدر تقولى تاريخ النهارده ايه؟	(/١) (/٥)
*أحنا فين دلوقتي؟	(/١)
*أحنا في الدور الكام؟	(/١)
*أنت تبع حي إيه؟	(/١)
*أنت تبع محافظة إيه؟	(/١)
*إحنا في جمهورية إيه؟	(/١) (/٥)
٢)تسجيل المعلومات :-	**((/٣))**
* حقولك ٣ كلمات ، قولهم ورايه ، هاسألك عليهم تاني : {كورة – شجرة - قلم}	(/٣)
٣) الانتباه والحساب :	**((/٥))**
{أكثر من ٥ سنوات دراسة}	
*أطرح ٧ من ١٠٠ والباقي شيل منه ٧ وأنت نازل ، وتوقف بعد ٥ مرات	
{٩٣-٨٦-٧٩-٧٢-٦٥}	
{إذا كان غير قادر علي الطرح: يتهجأ كلمة "أسيوط" وبالعكس {ط و ي س أ}	
{أقل من ٥ سنوات دراسة}	
*أطرح ٣ من ٢٠ والباقي شيل منه ٣ وتوقف بعد ٥ مرات	(/٥)
*إذا كان غير قادر : قول أيام الأسبوع بالعكس.	
٤)استرجاع الذاكرة : -	((/١))
*قول الـ ٣ كلمات اللي قولناهم قبل كده {كورة – شجرة - قلم}	(/١)
٥) اللغة :	**((/٩))**
*إيه ده {شاور علي القلم والساعة وأسأل عن هذه الأشياء}	(/٢)
* قول وراية "ولا كاني ولا ماني ولا حاجة عجباني"	(/١)
*استجابة المريض لأمر مكون من ٣ حركات.	(/٣)
" أمسك الورقة دي بأيدك اليمين ، وطبقها اثنين بأيدك الاثنين وحطها علي التربيزة "	
*أقرا المكتوب ونفذه " أو نقوله" {غمض عينيك}	(/١)
*أكتب جملة مفيدة (لها معني) أو قول جملة مفيدة.	(/١)

*أرسم هذا الشكل. (١/)



الدرجة: (٣٠)

Score 24-30 No cognitive impairment
18-23 Mild-moderate impairment
0-17 Severe cognitive impairment

أنشطة الحياة اليومية البسيطة

١.الاستحمام :

(/٠) (/١) (/٢)

بدون مساعدة بمساعدة كاملة يحتاج لمساعدة

٢.اللبس:

هل تستطيع ارتداء ملابسك وخلعها؟

(/٠) (/١) (/٢)

بدون مساعدة يحتاج لمساعدة بمساعدة كاملة

٣.استخدام الحمام:

هل تستطيع استخدام الحمام لقضاء حاجتك(التبول والتبرز)؟

(/٠) (/١) (/٢)

بدون مساعدة يحتاج لمساعدة بمساعدة كاملة

٤.الانتقال :

هل تستطيع الانتقال من وإلي الفراش أو المقعد؟

(/٠) (/١) (/٢)

بدون مساعدة يحتاج لمساعدة بمساعدة كاملة

٥.التحكم في الإخراج :

هل تستطيع التحكم في البول ؟

(/٠) (/١) (/٢)

تحكم كامل لا يتحكم في بعض الأحيان غير متحكم

هل تستطيع التحكم في البراز؟

(/٠) (/١) (/٢)

تحكم كامل لا يتحكم في بعض الأحيان غير متحكم

٦.التغذية :

هل تستطيع تناول الطعام والشراب؟

(/٠) (/١) (/٢)

بدون مساعدة يحتاج لمساعدة بمساعدة كاملة

الدرجة: (14)

Score: 0-5 Completely Dependant
6-9 Partially Dependant
10-12 Independent

مقياس الإكتئاب المصغر في السن

البنود	الإجابة	
١.أنت راضي عن حياتك؟	نعم (٠)	لا (١)
٢.أنت أهملت كثير من نشاطاتك واهتماماتك؟	نعم (١)	لا (٠)
٣.أنت حساس إن حياتك فاضية؟	نعم (١)	لا (٠)
٤.في الغالب بتحس أنك مضايق وزهجان؟	نعم (١)	لا (٠)
٥.في الغالب معنوياتك بتكون عالية ؟	نعم (٠)	لا (١)
٦.أنت خايف من حاجة وحشة حتحصلك؟	نعم (١)	لا (٠)
٧.في الغالب بتحس أنك مبسوط؟	نعم (٠)	لا (١)
٨.في الغالب بتحس أنك قليل الحيلة؟	نعم (١)	لا (٠)
٩.تحب تقعد في البيت عن إنك تخرج تعمل حاجة جديدة؟	نعم (١)	لا (٠)
١٠.أنت حساس أن عندك مشاكل في الذاكرة أكثر من الآخرين؟	نعم (١)	لا (٠)
١١.تفتكر أن دي حاجة حلوة أنك لسه عايش؟	نعم (٠)	لا (١)
١٢.أنت شايف أنك عايش الحياة بطريقة مش مناسبة ليك؟	نعم (١)	لا (٠)
١٣.أنت حساس أنك مليان حيوية ونشاط؟	نعم (٠)	لا (١)
١٤.أنت حساس أن حالتك دي ميئوس منها؟	نعم (١)	لا (٠)
١٥.أنت حساس إن أغلب الناس اللي حولك أحسن منك	نعم (١)	لا (٠)

الدرجة: (١٥)

Score 0-4 Normal
5-7 Mild Depression
8-10 Moderate Depression
11-15 Severe Depression

التاريخ المرضي

١.التدخين	نعم (١/) لا (٢/)
٢.إذا تدخن كام سيجارة	
٣.هل تعاني من مرض السكر	نعم (١/) لا (٢/)
٤.ارتفاع ضغط الدم	نعم (١/) لا (٢/)
٥.أسكيميا القلب	نعم (١/) لا (٢/)
٦ضيق صمام القلب	نعم (١/) لا (٢/)
٧التهاب الرئوي	نعم (١/) لا (٢/)
٨.حساسة الصدر	نعم (١/) لا (٢/)
٩قرحة المعدة	نعم (١/) لا (٢/)
١٠.أمراض الكبد	نعم (١/) لا (٢/)
١١.المرارة	نعم (١/) لا (٢/)
١٢.الكلي	نعم (١/) لا (٢/)
١٣.البروستاتا	نعم (١/) لا (٢/)
١٤.هشاشة العظام	نعم (١/) لا (٢/)
١٥.التهاب المفاصل والخشونة	نعم (١/) لا (٢/)
١٦.سلس البول	نعم (١/) لا (٢/)
١٧.الوقوع	نعم (١/) لا (٢/)
١٨.عمليات جراحية	نعم (١/) لا (٢/)
١٩تقلبات النوم و الارق	نعم (١/) لا (٢/)
٢٠.الرياضة	نعم (١/) لا (٢/)
٢١.أدوية منتظمة وعددها	نعم (١/) لا (٢/)

الكشف الطبي:

الضغط الوزن

الطول نسبة محيط الخصر : الارداف

نسبة كتله الجسم /المساحه

الجهاز الدوري و القلب: ١. سليم ٢.مصاب

الجهاز التنفسي: ١. سليم ٢.مصاب

الجهاز الهضمي: ١. سليم ٢.مصاب

الجهاز البولي التناسلي: ١. سليم ٢.مصاب

جهاز الهيكل العظمي: ١. سليم ٢.مصاب

الفحوصات:

قياس نسبة السكر في الدم:

أسئلة عن المعرفة بالرياضة

١ – ما هو تعريفك للرياضة المنتظمة؟

٢– ما هى انواع الرياضة التى تعرفها؟

٣–– هل رياضة المشي مفيدة للمسن :–

أ– نعم ب– لا

٤–هل هناك علاقة بين رياضة المشي وبعض الأمراض مثلا : –

–الاكتئاب . نعم لا لا اعرف

– هشاشة العظام. نعم لا لا اعرف

– إرتفاع ضغط الدم. نعم لا لا اعرف

– مرض السكري. نعم لا لا اعرف

– سرطان الثدي والقولون. نعم لا لا اعرف

– الإمساك. نعم لا لا اعرف

–الامراض المعدية مثل الكبد الوبائى. نعم لا لا اعرف

٥– هل ممارسة الرياضة تغير/تؤثر على العوامل التالية:–

– ارتفاع نسبة الكولسترول في الدم. نعم لا لا اعرف

– التدخين. نعم لا لا اعرف

– زيادة الوزن. نعم لا لا اعرف

– تكرار الوقوع. نعم لا لا اعرف

-نسبة الانسولين فى الدم. نعم لا لا اعرف

-نسبة الدهون الضارة فى الدم. نعم لا لا اعرف

- انتظام دقات القلب . نعم لا لا اعرف

٦- ما مصدر معلوماتك عن فوائد الرياضة ؟

أ- أصدقاء ب- إذاعة وتلفزيون ج – صحف د- أخرى

٧- ما هي افضل ثلاث رياضات يمكن أن يمارسها المسن :-

أ-

ب-

ج-

٨-هل تعرف ما هو الايروبيك الهوائى؟

أ-نعم ب-لا اذا نعم عرفه؟

٩-ما الافضل:

أ-المشى بعد الاكل مباشرا : صح خطأ

ب-امشى لفترات متقطعة غير مفيد و لابد من المشى المتواصل: صح خطأ

ج-عند بداية و نهاية المشى يجب الوقوف بالتدريج: صح خطأ

د-عدم شرب الماء اثناء المشى: صح خطأ

هـ -المشى السريع مرغوب فيه: صح خطأ

ز- لا تتوقف عند الشعور بالتعب أو العرق: صح

أسئلة عن الاتجاهات حول الرياضة

١–هل تحب ان تمارس الرياضة؟ ا– نعم ب– لا

٢–اذا نعم مع من: أ– الاصدقاء ب– بمفردك ج– مع مجموعات

٣– اذا لا ما هو المانع ؟

_ وجود امراض تمنع من ممارسة الرياضة.

_ عدم تشجيع من المحيطيين.

_ عدم وجود رغبة للمسن.

٤– ما هى دوافعك لممارسة الرياضة؟

– تحافظ على سلامة الصحة.

– تقلل من التوتر.

– تقلل من زيادة الوزن.

– تحسن كفاءة الجسم

٥– ما الامراض او الحالات التى تعتقد انها تتحسن او يتأخر حدوثها مع ممارسة الانشطة الرياضية بانتظام ؟(اذكر الاشياء التى تعرفها فقط)

- تحسن من مرض (ضعف الذاكرة) الزهايمر أوافق بشدة – أوافق – لا أوافق
- تقلل من أمراض القلب وإرتفاع ضغط الدم وافق بشدة – أوافق – لا أوافق
- تساعد على عدم تكرار الوقوع أوافق بشدة – أوافق – لا أوافق
- تحسن من أمراض الشرايين وجلطات المخ أوافق بشدة – أوافق – لا أوافق

- تقلل من هشاشة العظام أوافق بشدة – أوافق – لا أوافق
- تساعد على إنقاص الوزن أوافق بشدة – أوافق – لا أوافق
- تحسن من كفاءة عمل الرئتين والقلب أوافق بشدة – أوافق – لا أوافق
- تحسن من مرض السكري أوافق بشدة – أوافق – لا أوافق
- تحسن من مرض الإكتئاب أوافق بشدة – أوافق – لا أوافق
- لها علاقة مع سرطان الثدي والقولون أوافق بشدة – أوافق – لا أوافق

– تحسن من كفاءة الفرد عند القيام بالاعمال المنزلية أوافق بشدة أوافق – لا أوافق

– تقلل من معدلات الوفاه بصفة عامة أوافق بشدة – أوافق – لا أوافق

٦– هل تنصح اصدقائك بممارسة رياضة المشى؟

أ– نعم ب– لا ج– و لماذا؟

٧–هل تفضل ممارسة الرياضة عن الجلوس مع الاصدقاء؟

أ– نعم ب– دائما ج – احيانا

د– نادرا هـ– لا

٨– هل المشرفين على الدار او النادى يشجعون المسن على ممارسة النشاط الرياضى(المشى –الجرى – تمارين رياضية)؟

أ_ يشجعون بشدة ب– يشجعون ج– لا يشجعون

د– لا اعرف

٩– اذكر عدد الانشطة المتاحة و التى يوفرها الدار او النادى للمسن؟

أ–لا يوجد ب–١–٢ ج– اكثر من ٢

أسئلة عن ممارسة الرياضة

١- هل تمارس الرياضة فى الوقت الحالى (٣ مرات اسبوعيا لمدة ١٠ دقائق /المرة) :-

آ-نعم ب- لا

٢- كم مرة؟

أ- يوميا ب- مرتين فى الاسبوع ج- أكثر من مرتين فى الاسبوع

٣- ما هي المدة التي تمارس فيها الرياضة : -

أ- ٥ دقائق / المرة ب- ١٠ دقائق/ المرة ج- ١٥ دقيقة /المرة

د- أو أكثر

٤-ما نوع الرياضة التى تمارسها؟

أ-مشى ب-ايروبيك ج-سباحة د-اخرى

٥- ما هو الوقت المفضل لممارسة الرياضة : -

أ- صباحا ب- مساءا

٦-هل تحب ممارسة رياضة المشى؟

أ-نعم ب-لا

٧-اذا نعم مع من:

أ- بمفردك ب- فى مجموعات ج-الاصدقاء

٨-اين تمارس رياضة المشى؟

أ- الدار ب _النادى ج-مركز متخصص د-الشارع

٩-هل تواظب على رياضة المشى؟

ا-نعم ب-لا

١٠- خلال الاسبوعين الماضيين كم مرة مارست رياضة المشى لمدة ١٠ دقائق على الاقل فى كل مرة؟

أ- يوم فى الاسبوع ب-لا ادرى /غير متأكد

١١-ما متوسط الوقت الذى مارست فية رياضة المشى خلال الاسبوعين الماضيين؟

أ-ساعة فى الاسبوع ب-دقيقة فى الاسبوع ج- غير متأكد

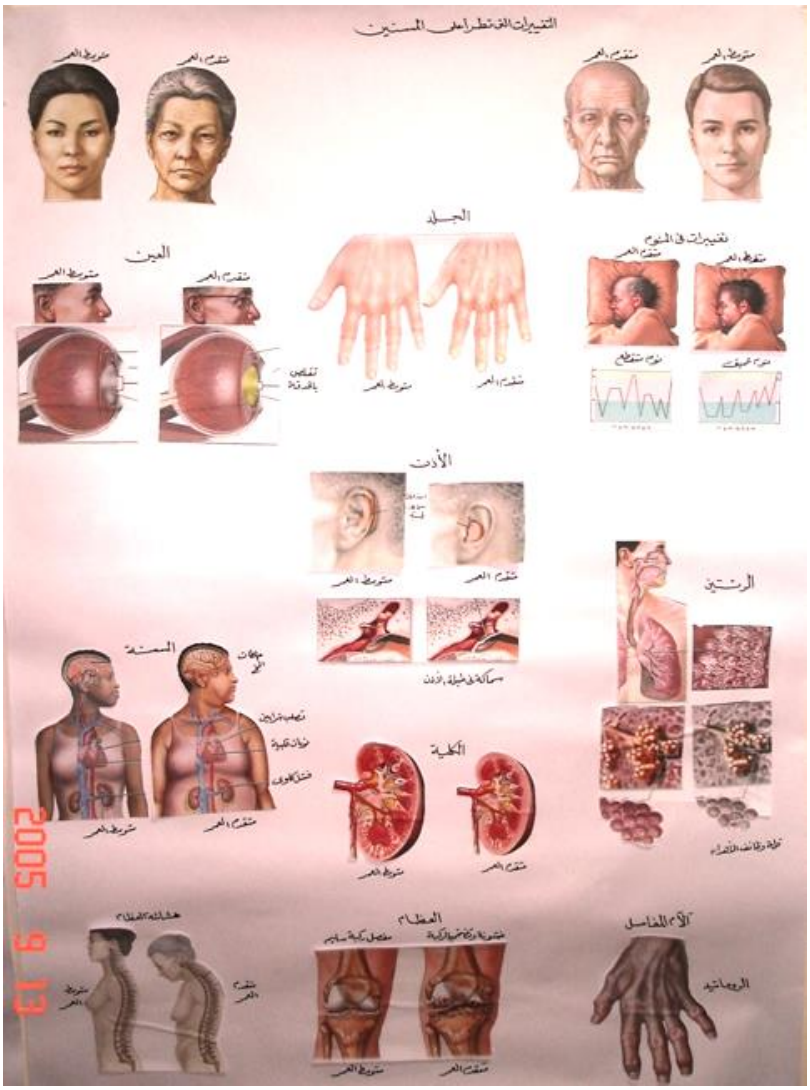
مفكرة رياضية للمشي

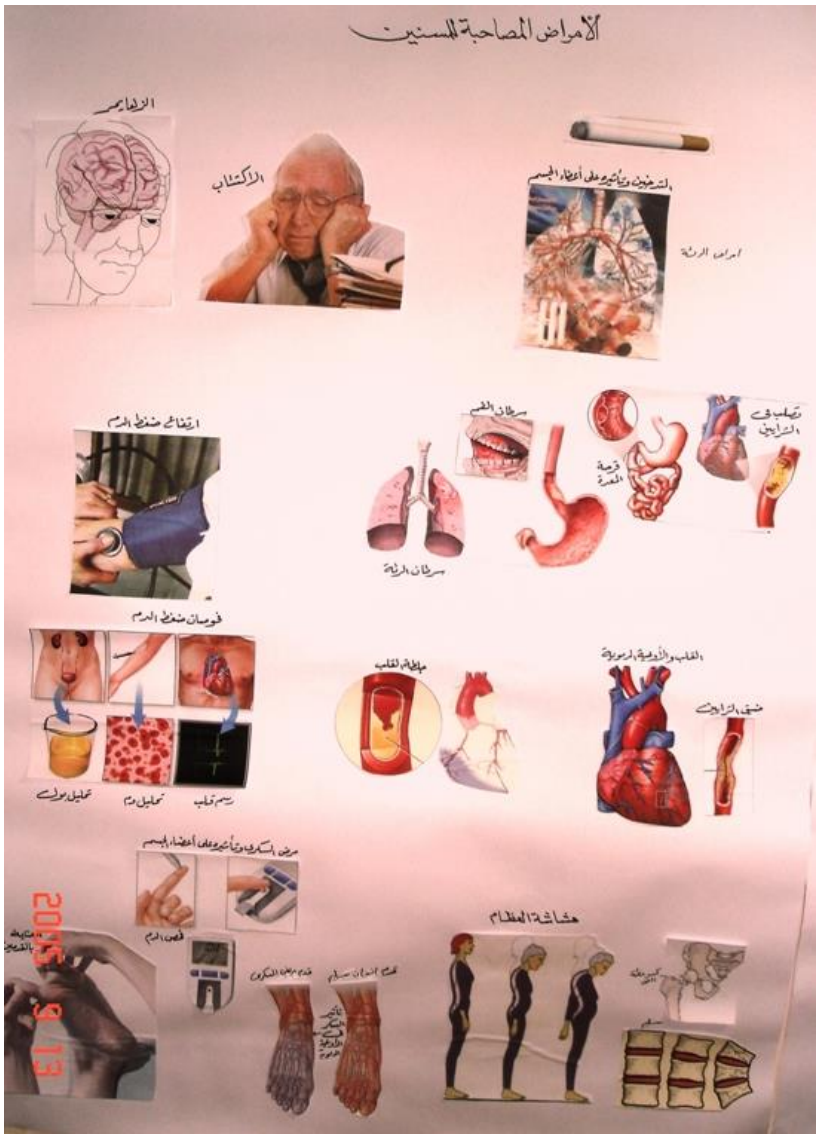
اسم المشارك:

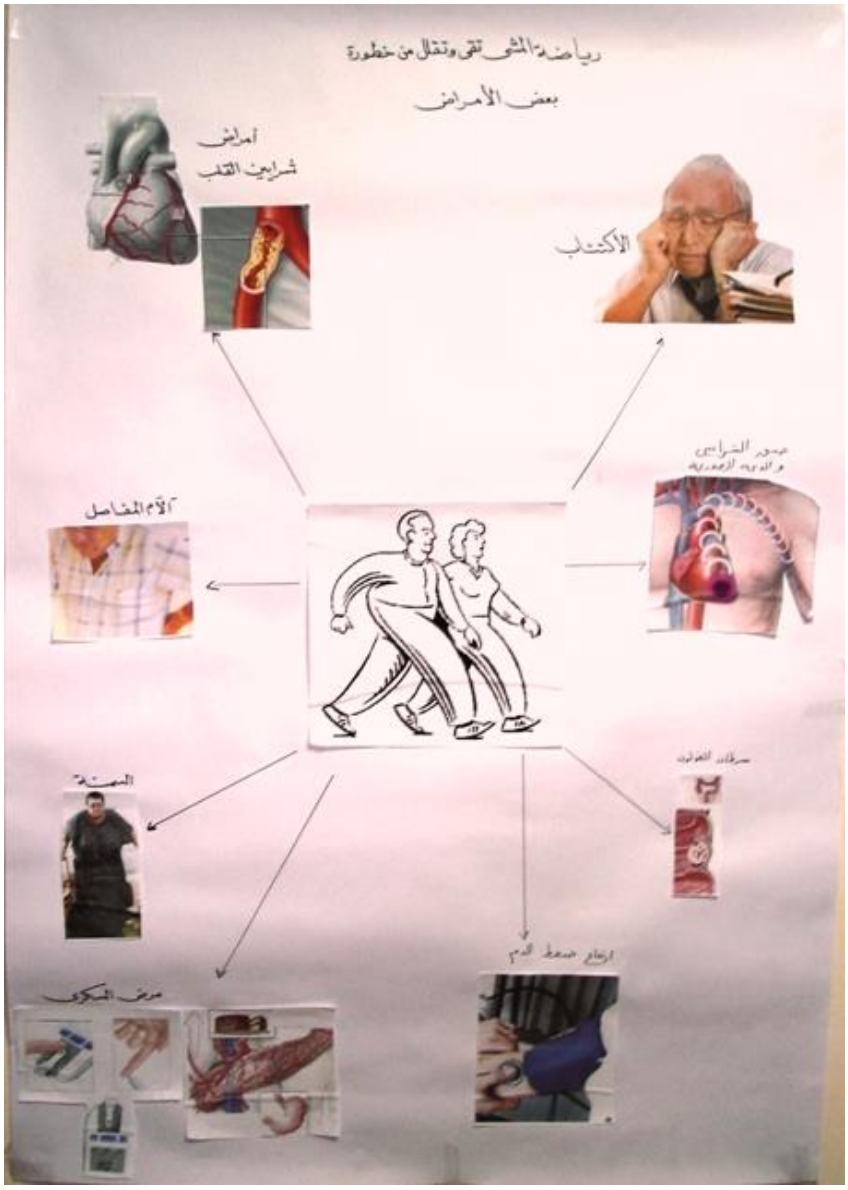
عدد المرات بالدقائق في اليوم	مشي بطئ للاحماء 5دقائق	مشي معتدل أو سريع 10-15 دقيقة	مشي بطيء قبل الوقوف 5دقائق	المجموع	ملاحظات
الأسبوع الاول ١, ٢, ٣.					
الأسبوع الثانى ١, ٢, ٣.					
الأسبوع الثالث ١, ٢, ٣.					
الأسبوع الرابع ١, ٢, ٣.					
قياسات في بداية الشهر	**الوزن**		**قياس ضغط الدم**		**قياس السكر في الدم**

عدد المرات بالدقائق في اليوم	مشي بطئ للاحماء 5دقائق	مشي معتدل أو سريع 10-15 دقيقة	مشي بطيء قبل الوقوف 5دقائق	المجموع	ملاحظات
الأسبوع الخامس ١, ٢, ٣.					
الأسبوع السادس ١, ٢, ٣.					
الأسبوع السابع ١, ٢, ٣.					
الأسبوع الثامن ١, ٢, ٣.					
قياسات في نهاية الشهر	**الوزن**		**قياس ضغط الدم**		**قياس السكر في الدم**

عدد المرات بالدقائق في اليوم	مشي بطئ للاحماء 5دقائق	مشي معتدل أو سريع 15-10 دقيقة	مشي بطيء قبل الوقوف 5دقائق	المجموع	ملاحظات
الأسبوع التاسع ١, ٢, ٣.					
الأسبوع العاشر ١, ٢, ٣.					
الأسبوع الحادي عشر ١, ٢, ٣.					
الأسبوع الثاني عشر ١, ٢, ٣.					
قياسات في نهاية الشهر	**الوزن**		**قياس ضغط الدم**		**قياس السكر في الدم**


التغيرات التي تطرأ على المسنين
متوسط العمر
متقدم العمر
الجلد
العين
الأذن
الرئتين
الكلية
العظام
الأم المفاصل
الروماتيد
2005 9 13


الأمراض المصاحبة للمسنين
الزهايمر
الاكتئاب
التدخين وتأثيره على أعضاء الجسم
امراض الرئة
ارتفاع ضغط الدم
سرطان الفم
قرحة المعدة
تصلب في الشرايين
سرطان الرئة
فوسان ضغط الدم
تحليل بولي
تحليل دم
رسم قلب
مايطان القلب
القلب والأوعية الدموية
تصلب الشرايين
مرض السكري وتأثيره على أعضاء الجسم
قياس السكر
هشاشة العظام


رياضة المشي تقي وتقلل من خطورة
بعض الأمراض
أمراض
شرايين القلب
الاكتئاب
صور الشرايين
والأوردة الدموية
آلام المفاصل
السمنة
سرطان القولون
ارتفاع ضغط الدم
مرض السكري

دراسة تداخليه حول رياضة المشى للمسنين فى القاهرة

مقدمة:

تحدث تغيرات تدريجية وطبيعية مع التقدم فى العمر مروراً بمرحلة الطفولة والمراهقة والنضوج يتبعها نقص فى وظائف عده فى الجسم وذلك خلال مرحلة منتصف العمر وأخره .

استمرارية النشاط الحركى:

لـه فوائـد عديـدة علـى معظـم اعضـاء الجسـم وكـذلك يقـى فـى الكثيـر مـن الامراض والمشاكل الصحية .

النشـاط الحركـى فـى كبـار السـن لـه ثـلاث فوائـد صـحية يقلـل مـن مخـاطر الامراض المزمنة مثل أمراض القلب ويساعد على ضبط ارتفاع ضغط الدم والسكر، والسمنه ، وارتفاع الكولسترول فى الدم وكذلك يحسن من وظائف الرئة والمفاصل .

يعتبر المشى حركة طبيعة يمارسها الانسان كل يوم ويبدأ منذ نعومة اظافره ويستمر خـلال حياتـه حتـى نهايـة العمـر ، وهـى تعتبـر مـن الانشـطة الشـائعة لكـل شخص ما عدا الشخص المقعد او الوهن ، ولا يستلزم لها اى مهارات او أجهزة .

ويدخل المشـى فـى الكثير من المهن والاعمـال المنزليـة .والوقت والتكراريـة للمشى ينظمها الانسان بنفسه .

ولقد أجريت أبحاث عديدة فى الخارج على أهمية المشى وتأثيره على عدة أجهزة من جسم الإنسان ومنها أن رياضة المشى تحسن من توازن المسن وتمنع تكرار الوقوع . وتعالج المصابين بمرض السكر الغير معتمدين على هرمون الانسولين وتحسن من جودة الحياة للمصابين بكسور فى الفقرات ، وتقلل فى نسبة الكولسترول وتزيد من كفاءة الجهاز الدورى .

وقد أجريت كذلك أبحاث فى مصر منها أيجاد علاقة فردية بين الحياة الساكنة وبين معدل حدوث الكسور ، وأخرى بين معدل كتلة الجسم واستمرارية ممارسة الرياضة ولكن هذه العلاقة ليس لها دلالة احصائية .

الاهداف الاجرائية:

أهداف عامة:

تحسين صحة المسن من خلال رياضة المشى.

أهداف خاصة:

١- التعرف على المشاكل الصحية للمشاركين فى الدراسة .

٢- تصميم وتنفيذ برنامج ثقافى صحى للمسنين ويشتمل هذا البرنامج على قياس المعلومات والاتجاهات والممارسة الفعلية الرياضية [لرياضة المشى بين المسنين] .

٣- تقييم هذا البرنامج.

الاماكن التى سوف تتم فيها اجراء الدراسة :

يوجد ثلاث وثلاثون داراً للمسنين بالقاهرة:

وقد تم الاتصال بمديرى خمس دور للمسنين ومن الخمسة دور وجد أثنين منهم يمكن أجراء الدراسة وذلك لوجود عدد مناسب من المسنين القادرين على الحركة بمفردهم وذلك لوجود مكان لمزاولة رياضة المشى (هليوبوليس) .

يوجد أيضاً (تسعة وعشرون) ناد للمسنين بالقاهرة وقد تم اختيار نادى الغابة (هليوبوليس) بنفس المنطقة التى بها دار المسنين وكذلك لوجود جمعية اصدقاء المسنين بنفس النادى .

العينة:

يعرف المسن بالشخص الذى بلغ ستين عاماً وتبلغ نسبة فى مصر ٦,٣% ومن خلال أبحاث سابقة وجد ان ١٠% من هؤلاء المسنين الذين يقطنون الدار يمارسون رياضة المشى .

وسوف تشتمل الدراسة الحالية على جميع المسنين القادرين على الحركة بمفردهم فى دور المسنين القائم باختيارها وكذلك المشاركين فى النادى .

وسوف تأخذ موافقة إدارة الدور والنادى وكذلك سوف نحصل على اقرار موافقة بالمشاركين بالدراسة .

خصائص المستبعدين من الدراسة:

١- رفض المشاركة .

٢- الذين لم يحضروا محاضرة التثقيف الصحى .

تصميم الدراسة:

التداخل من خلال برنامج تثقيف صحى والمتابعة بعد شهر وثلاثة اشهر، وسوف يشتمل هذا البرنامج على .

١- سوف يتم إملاء استمارة استبيان خاصة قبل بدء الدراسة ثم بعد شهر وسوف تستخدم نفس الاستمارة بعد ثلاثة أشهر مع اضافة اسئلة لتقيم البرنامج وتشتمل استمارة الا ستبيان على :

أ) معلومات شخصية مثل السن والجنس والحالة الاجتماعية .

ب) معلومات تقيم المستوى الاجتماعى مثل مستوى التعليم ودخل الفرد الشهرى .

جـ) معلومات عن الحالة الصحية مثل وجود أمراض مزمنة .

د) معلومات لقياس الحالة العقلية المختصرة ولقياس الحالة اليومية البسيطة والمركبة .

هـ) قياس الاكتئاب المصغر للمسنين .

اسئلة لقياس معلومات عن فوائد المشى والاتجاهات والممارسة الفعلية لرياضة المشى:

تنفيذ البرنامج:

من أهداف البرنامج التثقيفى الآتى:

١- هدف معرفى: لقياس المعرفة المسن بفوائد رياضة المشى .

٢- هدف اتجاهى لقياس اتجاه المسن لرياضة المشى .

٣- هدف مهارى لقياس مزاولة المسن لرياضة المشى .

وسوف يتم تنفيذ البرنامج على جلستين من (٣٠- ٦٠ دقيقة) خلال أسبوع .

<u>الجلسة الاولى:</u>

مقدمة عن فوائد الرياضة وبالاخص رياضة المشى وفوائد التى تشتمل على الوقاية والمساعدة فى علاج بعض الامراض المزمنة وعوامل الخطورة .

<u>الجلسة الثانية:</u>

تصميم برنامج لمزاولة رياضة المشى بصفة منتظمة من (٢- ٣ مرات) فى الاسبوع ويبدأ من (٥ – ١٠ دقائق) فى المرة الواحدة فى الاسبوع ثم يتم زيادة الوقت تدريجياً خمس دقائق فى كل مرة فى الاسبوع إلى ان يصل إلى (٢٠- ٣٠ دقيقة) فى الاسبوع.

سوف يتم تعليم وتدريب المشرفين والمرافقين لمساعدة المسنين على المزاولة والتسجيل بالمفكرة الرياضية .

الادوات المستخدمة للدراسة:

كتيبات، ملصقات ، ومفكرات لتسجيل مزاولة النشاط الرياضى :

تقييم البرنامج:

١- سوف يتم تقييم البرنامج بعد شهر وبعد ثلاثة أشهر بتوزيع نفس استمارة الاستبيان السابقة مع اضافة بعض الاسئلة التى تساعد على تقيم البرنامج :

٢- قياس ضغط الدم والوزن والطول ومؤشر و كتلة الجسم وحساب نسبة الخصر إلى الارداف ، عينة سكر عشوائية فى الدم وذلك بواسطة مقايس متعارف عليها .

التحليل الاحصائى :

سوف يتم تحليل النتائج باستخدام الاختبارات الاحصائية الملائمة وذلك باستخدام البرنامج الآتى (SPSS)

INTERVENTION STUDY OF WALKING EXERCISE AMONG ELDERLY IN CAIRO

Aging is a process of gradual and spontaneous change, resulting in maturation through childhood, puberty, and young adulthood and then decline of many bodily functions through middle and late age **(Beers, et al, 2004).**

Regular physical activity has beneficial effects on most organ system, and consequently it prevents a broad range of health problems &diseases. Physical activity in older persons produces three types of health benefits. It can reduce the risk of developing chronic diseases such as heart disease, it can aid in the management of active problems such as high blood pressure, diabetes, obesity or high cholesterol& it can improve the ability to function &stay independent in the face of active problems like lung disease or arthritis **(U.S. Department of health & Human Services, 1996).**

Walking is the most natural, the most "everyday" form of movement human beings undertake. It starts very early in life and continues, for the most part, until the very end. It is an activity common to everyone except the seriously disabled or the very frail**.** No special skills and/or

equipment are required. Walking is convenient and may be included in occupational and domestic routines. It is self-regulated in intensity, duration and frequency **(Morris and Hardman 1997).**

Recent review of individually tailored programs for elderly people demonstrated that programs to build muscle strength improve balance & promote walking significantly reduced falls in older persons **(Gillespie, et al., 2002).**

From epidemiologic studies and clinical trials demonstrates substantial benefits of exercise, especially walking, in the prevention and treatment of type 2 diabetes mellitus **(Eriksson JG1999).**

Another study done in Canada showed that the effect of six month home based exercise program with minimal supervision improves quality of life in elderly women with vertebral fractures **(Papaioannu A, et al., 2003).**

In France a study showed that a 12 week of brisk walking reduces cholesterol and increases cardiovascular fitness **(Nutr Health Aging, 2002).**

In study done in Egypt, there was significance relation between sedentary life and frequency of fractures **(El Noamany M.1996).**

Another recent study in Egypt showed that relation between BMI and regular exercise was statistically non significance, only 10% were practicing regular exercise **(A.Al.S, 2000).**

Aim of the work

General Objective:

Promote health among elderly through walking exercise.

Specific objective:

1. Identify medical problems among participants.
2. Implementation and evaluate health education program towards knowledge, attitude & practice of the elderly about walking exercise.

Setting:

1. There are a total number of 29 residential homes for elderly in Cairo. Five of them were selected randomly, through personnel communications with the director of those homes, only one of them was found to be convenient for the purpose of the study as regards number of the independent elderly(30 out of 46) and presence of small garden for walking (AlSafa in Heliopolis).
2. There are 19 clubs in Cairo, we chose Alghaba club in Heliopolis for purpose of the study as in the same area & having sub-society caring for elderly.

Sample:

From previous studies around 10% of the elderly practice exercise. Elderly operationally defined as 60 years or over. Their % in Egypt is 6.3% (Census in Egypt 1996).

All the residents & participants male & female will be included, in the study.

Agreement will be taken from the administration of both places and written consent from the participants.

Exclusion Criteria:

1. Participant with unstable problem those who refused to participate.
2. Those who will not attend the education sessions.

Study Design: Intervention, through Health Education Program, follow-up after one month &three months.

1. Interview questionnaire:
    a. Pretest before the sessions.
    b. After 1month.
    c. After 3months

The questions will include:

- Personal data: name, age, sex.
- Socio-demographic data: marital status education.

- Medical history: of any chronic disease.
- Mini mental scale.
- Depression scale.
- Knowledge about walking exercise effect on attitude and practice.
- Place of practicing exercise.

2. Implementation phase:

Health education goals include the following:

1) Knowledge goal is to give specific knowledge and information about the health issues which people are already aware of, but about which they have little knowledge.
2) Attitude goal: changing what people feel, what they believe and what their opinion is.
3) Practice goal: Actually doing something about health matter (Strehlow,1983).

The program consists of 2 sessions (30-60mins) in a week.

a) First session: Introduction about importance of exercise, and advantage of walking exercise. Discussing the role of walking in preventing and treating some chronic diseases and risk factors.

b) Second session: 1) Plan for walking exercise as to make it as regular activity.4-5 times./week starting by 5-10minutes /session / week & increaseby 5 minutes / session / week until reach 20-30 minutes/session /week.

Instructing and training the nurses to help the elderly in the practice.

Materials to use: booklets and posters.

3) Post implementation: Assessment phase:

a. 1months&3 months after the end of health education program all elderly will be subjected to the same preliminary interview questionnaire with some added questions about the program evaluation.
b. Measuring: Blood Pressure, weight, Body Mass Index, waist hip ratio and random blood glucose level.

Statistical Analysis:

Suitable statistical test will be performed using SPSS program.

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دراســة تداخلية حــول رياضــة المشـــي للمسنيــن فــي القاهــرة

رسالة
مقدمة توطئة للحصول على درجة الماجستير
في الوبائيات

مقدمة من
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مدرس بقسم طب المسنين
كلية الطب –جامعة عين شمس

كلية الطب - جامعة عين شمس
٢٠٠٦

الملخص العربى

دراسة تداخليه حول رياضة المشي للمسنين في القاهرة

إن تقدم العمر بدون أي أمراض يؤثر على أعضاء الجسم المختلفة ويؤدى إلى انخفاض مستمر في وظائفه. كما يوجد تدهور في الأداء الطبيعي وظهور بعض الأمراض مثل أمراض الشريان التاجي وارتفاع ضغط الدم ومرض البول السكري و السرطان.

أهمية الرياضة البدنية في تأخير ظهور أعراض الشيخوخة معروفة على مر السنين. والمستويات المناسبة من النشاط الطبيعي تطيل العمر والى حد كبير تقي ضد ظهور بعض الأمراض. البرنامج الرياضي المخطط له جيداً لكبار السن يساهم في تقديم تحسن كبير في القدرة الرياضية، اللياقة العضلية، ومرونة المفاصل. أيضا تخفيض نسبة الدهون بالدم، تنظيم وزن الجسم زيادة المشاركة الاجتماعية وتقليل نسبة القلق والاكتئاب لدى كبار السن.

التثقيف الصحي هو جزء من العناية الصحية والمختص بتشجيع السلوك الصحي مع الأخذ في الاعتبار انه يساهم في تسهيل القدرة على الحياة الطبيعية ، الاجتماعية والعاطفية وتحسين نوعية الحياة لدى المسنين.

الهدف من البحث:

الهدف من البحث هو معرفة مدى أهمية وتأثير التثقيف الصحي حول رياضة المشي عند كبار السن في القاهرة و تقييم هذا البرنامج.

أجري البحث في ٢ دور للمسنين و نادي رياضي (نادي الغابة). و كان عدد المشاركين ١٠١؛ بعد ملء استمارة الاستبيان و اخذ قياسات: الوزن– ضغط الدم– نسبة السكر في الدم. تم تقييم البرنامج قبل وبعد اثني عشرة أسبوع.

كانت النتائج كالاتى بعد ٣ شهور:

١. ضغط الدم الانبساطي قل بمقدار .6 mmHg .
٢.ضغط الدم الانقباضي قل بمقدار .2 mmHg .
٣. نسبة السكر في الدم لم تتأثر.
٤. الوزن أيضا لم يتأثر .
٥. مشاركين نادي الغابة اظهروا أعلى نسبة لممارسة رياضة المشي و ذلك يعزى إلى أن المكان (نادي) به كل الإمكانيات المطلوبة للمشي من حيث المساحات الواسعة و الأشجار الكثيرة و غيره.

من النتائج السابقة يمكن استنتاج الآتي:

بعد برنامج التثقيف الصحي وجد تحسن ملحوظ في المعرفة– الاتجاه و مزاولة الرياضة من قبل المشاركين.

وان رياضة المشي ساهمت في انخفاض ضغط الدم فقط في هذه الفترة القصيرة. بناء على ذلك نوصى بان تمتد فترة المتابعة لمدة سنة.

أهمية برامج التثقيف الصحي في ترسيخ السلوك الصحي و هذا يتم أفضل تحت رعاية المتطوعين الصحيين.

التوصيات:

لذلك نوصى بالآتي:

- التحسن في نوعية الحياة عند كبار السن يحتاج مشاركتهم في حياة طبيعية نشطة للحفاظ على استقلالهم الذاتي و تشجيع الرياضة البدنية و الحفاظ عل علاقاتهم الاجتماعية.
- تشجيع النظام البدني يجب أن يكون جزء من الحياة العامة و التي تحتاج تعليم الأطباء و أخصائي الصحة العامة تقديم النصائح و الأمثلة المناسبة على أهمية الرياضة البدنية.
- الرياضة يجب أن تمارس عند كبار السن و خاصة رياضة المشي.
- الاستعانة بالملصقات والكتيبات في التثقيف الصحي له اثر فعال لكبار السن.

ممارسة الرياضة

أن الذين يمارسون الرياضة أطول عمرا من الذين لا يمارسونها وعلي الرغم من ذلك فإن القليل من المسنين يمارسون الرياضة المنتظمة فحوالي ١٠% فقط منهم يمارسون الرياضة المنتظمة ومجموعة أخري ربما تمارس رياضة بشكل غير منتظم.

هناك عدة أسباب ترتبط بقلة ممارسة الرياضة بالنسبة للمسنين وهي :-

-تقدم العمر.

- وجود إعاقة.

-وجود مرض مزمن.

-العزلة الاجتماعية.

-قلة الإيمان والثقة بالنفس والاكتئاب والقلق.

-التدخين.

التغيرات التي تصاحب التقدم في العمر مثل:

- السمنة.

-هشاشة العظام وضعف العضلات.

فوائد الرياضة:-

ممارسة الأنشطة الرياضية:

-١)تؤخر حدوث الشيخوخة.

٢) تقلل عوامل الخطورة المسببةلبعض الأمراض المزمنة والاعاقات المصاحبة لها.

٣)تساعد على بناء العظام وتقلل حدوث الهشاشة.

٤) تؤدي إلي تحسين الحالة النفسية للمرضى.

ما هي الأهداف المرجوة من ممارسة الرياضة

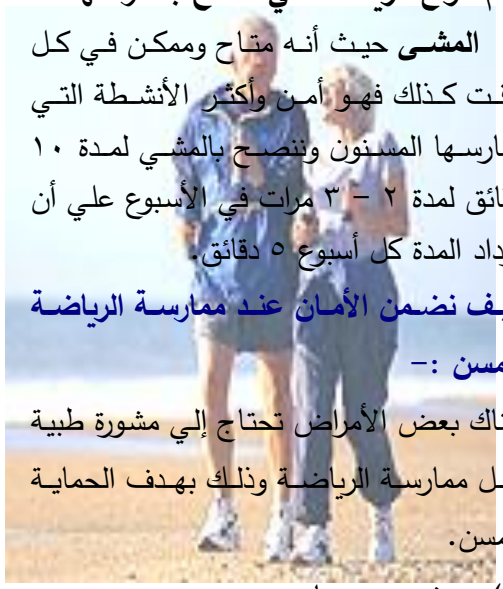
١)تغيير السلوك ونمط الحياة الروتينية إلي حياة بسيطة نشطة.

٢)تغيير عوامل الخطورة المؤديةً للامراض المختلفة بهدف الحد من الإعاقات الناتجة من تلك الأمراض مثل السمنة وارتفاع ضغط الدم والسكر وزيادة الدهون في الدم.

٣) تحسين القدرة علي أداء الأنشطة الرياضية المختلفة.

٤) تحسين الحالة النفسية والمشاركة في الأنشطة الاجتماعية.

أهم أنواع الرياضة التي تنصح بممارستها:



المشى حيث أنه متاح وممكن في كل وقت كذلك فهو أمن وأكثر الأنشطة التي يمارسها المسنون وننصح بالمشي لمدة ١٠ دقائق لمدة ٢ – ٣ مرات في الأسبوع علي أن تزداد المدة كل أسبوع ٥ دقائق.

كيف نضمن الأمان عند ممارسة الرياضة للمسن :-

هناك بعض الأمراض تحتاج إلي مشورة طبية قبل ممارسة الرياضة وذلك بهدف الحماية للمسن.

١)حدوث مرض حاد.

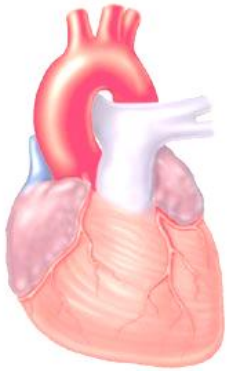
٢) ارتفاع درجة الحرارة للجسم.

٣)عدم انتظام السكر.

٤)ارتفاع أو عدم انتظام ضغط الدم.

٥)الربو الشعبي ألازمات الرئوية.

٦)فشل عضلة القلب.

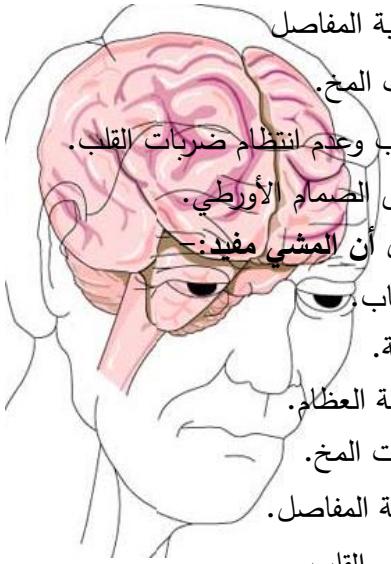


٧)قلة الوزن والوهن وسوء التغذية.

٨)السقوط المتكرر والأسباب الغير معروفة.

٩) المياه البيضاء وانفصال أو نزيف شبكة العين.

١٠ الفتق.



١١)إصابة المفاصل

١٢)نزيف المخ.

١٣)تذبذب وعدم انتظام ضربات القلب.

١٤)ضيق الصمام الأورطي.

وهنا نقول **أن المشي مفيد:-**

١-الاكتئاب.

٢-السمنة.

٣-هشاشة العظام.

٤-جلطات المخ.

٥-خشونة المفاصل.

٦-أمراض القلب.

٧-السكري.

٨-الامساك.

٩-سرطان الثدى والقولون.

إعداد د. إيمان صلاح

الارشادات الواجب توفرها عند إتباع رياضة المشي :

١- اختيارالوقت المناسب للمشى وتثبيته.

٢- تجنب الارتفاع الشديد للحرارة وكذلك البرودة الشديدة ويمكن ارتداء قبعة للحماية من حرارة الصيف وبرد الشتاء.

٣- يفضل المشى فى الهواء الطلق.

٤- العناية بالقدمين وذلك بارتداء حذاء مناسب للرياضة أو حذاء مريح و قبعة عند الضرورة.

٥- يجب لبس ملابس قطنية مناسبة .

6-يأخذ زجاجة من الماء عند المشى - لتكون فى متناول اليد عند الشعور بالعطش.

7-يمكن المشى لفترات متقطعه فى اليوم - والاستراحه عند الشعور بالتعب.

8-الاحماء قبل المشى أي المشى البطىء أو فى المكان ، عند الأنتهاء يجب الوقوف بالتدريج أي إلمشى البطىء.

9 - يبدأ فى المشى بالتدريج وبفضل البدء ٥ دقائق فى المرةعلى الأقل على ان يكون ٢-٣ مرات في الاسبوع, ثم زيادتها(٥ دقائق) كل اسبوع على ان تصل الى ٢٠ -٣٠ دقيقة فى المرة فى الاسبوع.

10- عند الشعور بالتعب، أو التعرق الشديد ، أو الم بالصدر - يجب التوقف - على ان يعاود المشى بعد فترة فى نفس اليوم أواليوم التالى .

11 - يفضل المشى مع صديق أو فى مجموعات.

12 - يفضل المشى على ان يلامس كعب القدم الارض اولا.

13- يفضل حركة الذراعين للامام والخلف اثناء المشى .

الارشادات الواجب توفرها عند

إتباع رياضة المشي