Modalities of Empowerment and Strengthening of Ex-servicemen

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Abstract

Background: Older people including ex-servicemen (ESM) in India are left to fend for themselves due to nuclear family system. Most children are not staying with them due to reasons such as acquiring of education or employment at distant places. These factors, coupled with deteriorating health with advancing age, change in value system and attitude amongst children who give more importance to materialism, it was felt necessary to find modalities to empower and strengthen ESM by available methods of including progressive weight training, yoga and meditation.

Methods: An interventional "Before and After" study was planned for a period of three months for in-patient ESM of a military hospital for common lifestyle diseases namely stroke, diabetes, senile depression, acute myocardial infarction and hypertension. Data of anthropometry, laboratory investigations and Hamilton rating scale for depression (HRSD) were taken before the study. These cases were then subjected to interventions (progressive weight training and spiritual health enhancement by yoga with meditation for three months) followed by same measurements again.

Result: Statistically significant differences were observed before and after study with respect to pulse, respiratory rate, blood pressure, blood glucose, total cholesterol, low density lipoproteins (LDL), very low density lipoproteins (VLDL) and Hamilton depression score ($p < 0.05$). The sleep pattern, sense of well being and posture while sitting to standing and walking with degree of support (stick/other person's help) improved considerably after the interventions.

Conclusion: ESM are recommended to be trained much before retirement on progressive weight training and yoga in regimental centre/station institute. Provision to be made in existing ex-servicemen contributory health scheme (ECHS) polyclinics for employment of part time trainers for weight training and yoga. The physical and spiritual strengthening results in better capability to deal with old age and its problems.

MJAFI 2010; 66 : 138-141

Key Words : Ex-servicemen; Progressive weight training; Yoga; Spiritual health

Introduction

Ageing is associated with a number of physiological conditions that can contribute to increased disability, frailty and accidental falls. The main contributing factors are the loss of muscle mass and strength due to sarcopenia. Current research has demonstrated that strength training exercises have the ability to combat weakness, frailty and their debilitating consequences by building muscle strength and muscle mass and preserving bone density so as to reduce signs and symptoms of numerous chronic diseases such as heart diseases, arthritis, type 2 diabetes mellitus (DM) and also improving sleep and depression [1-2].

American Heart Association and American College of Sports Medicine (AHA & ACSM) recommend regular pumping of iron as it improves functions of heart and lung, enhances glucose metabolism, reduces coronary disease risk factors and boosts well being [3]. Elderly patients who had a hip fracture can perform moderate

to high intensity weight training at home [4]. Ex-servicemen (ESM) are generally left to fend for themselves due to widely prevalent nuclear family norm. Furthermore, children are not staying with parents due to reasons of education and employment. The study was carried out to determine feasibility of strengthening of ESM in view of non availability of children/ relatives to assist in old age.

Material and Methods

The ESM aged between 47 to 94 years, who were admitted in a military hospital at the time of study, were selected. Some of them, despite being relatively young, were unemployed and were dependent on their children for psychological, physical and financial support. ESM as young as 47 years of age were also included to delineate early changes due to ageing and to account for ESM personnel below officer rank (PBOR) who retire at an early age.

This was an interventional 'Before and After' prospective hospital based study. A total of 68 subjects were selected

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amongst freshly admitted and already admitted patients in a military hospital who were suffering from any or multiple complications of DM, ischemic heart diseases (IHD), stroke, hypertension and senile depression. Out of 68 subjects, only 58 could complete the study. The study was conducted on all volunteer ESM subjects without calculating sample size because of operational /logistic difficulties. However, when sample size was calculated retrospectively for variables such as haemoglobin (Hb), blood sugar, total cholesterol, and blood pressure (BP) with 10% level of significance, 80% power and two tailed tests, the sample size ranged between 20 and 52. In our study, 58 could complete the study and thus sample size was adequate.

The study was conducted for a period of three months. All patients were admitted in chronic medical or chronic surgical ward till end of the study. These patients were medically examined including anthropometry, laboratory investigations and recording of Hamilton rating scale for depression (HRSD) before commencing interventions and after 90 days of termination of interventions.

The training modalities included weekly programme for all 58 study subjects together. It comprised of weight training on alternate days for one hour under the guidance of a gymnasium instructor from a reputed gymnasium hired for a period of three months. Yoga and Pranayama training was conducted on alternate days under the guidance of a yoga teacher. Apart from specific medications and physiotherapy, appropriate specialist consultation and treatment required for specific ailments were also given. Furthermore, depending on religious denomination, religious teachers from nearby regimental centres visited on alternate days in the afternoon. All subjects, irrespective of religious beliefs, were given spiritual enhancement by an instructor from Sirshree Tej Parkhi's "Happy Thoughts" organisation, who covered topics on aspects of being a good human being, methods of self-realisation by meditation without reference to any particular religion etc. All subjects were imparted yoga training at yoga

hall of the military hospital. Efforts were made to reduce bias by detailing same medical and paramedical staff on same equipments for evaluation of 'Before and After' parameters. The observer's bias was removed by including group of observers who examined and evaluated all the study subjects before starting the intervention and then after three months of follow-up. The same observers except for one, again evaluated same subjects without knowing the baseline data. Further, since the observers were not co-authors, therefore their assessments were totally independent and without prejudice.

Results

A total of 58 (out of 68) subjects were followed up from start to end. Ten subjects discontinued the study due to domestic reasons. The age of subjects ranged from 47 to 94 years with maximum concentration between 55 and 70 years.

A statistically significant decrease was observed with respect to pulse, respiratory rate, blood pressure (both systolic and diastolic), fasting glucose, post-prandial glucose, total cholesterol, low density lipoprotein (LDL) cholesterol and very low density lipoprotein (VLDL) cholesterol (Table 1).

All 58 subjects were evaluated on 15 points of HRSD. The reduction in HRSD was statistically significant after three months of interventions (Table 2). All cases who had score ranging from six to ten and their score improved to normal i.e. score less than five after three months of interventions (Table 3).

There was high degree of subjective improvement in problems of posture of sitting, standing, sitting to standing, walking, wheel chair/stretchers borne, walking with support and quality of sleep (Table 4).

Discussion

The present study has revealed that ESM are easily motivated (after removing doubts causing initial reluctance) for initiating them to regular physical

Table 1

Anthropometry and biochemical parameters before and after the interventions

	Mean value before interventions	SD before interventions	Mean value after interventions	SD after interventions	Mean change	T test value	'p' value
Haemoglobin	12.46	2.09	13.129	1.7479	-.671	-5.631	< 0.001
Weight	59.30	13.574	59.35	13.369	-.01	-.135	0.89
BMI	24.13	4.92	24.010	5.32	.124	.386	0.70
Waist measurement	82.19	13.53	82.45	12.71	-.26	-.645	0.52
Pulse rate	79.57	5.42	76.36	4.70	3.21	5.172	< 0.001
Resp rate	19.75	0.99	19.37	1.07	.39	2.654	0.01
BP (Systolic)	131.51	12.59	125.75	7.838	5.75	3.438	< 0.001
BP (Diastolic)	84.04	8.57	78.91	10.30	5.12	3.223	< 0.01
Fasting glucose	87.71	20.58	81.76	12.68	5.95	4.793	< 0.001
Post prandial glucose	122.62	71.86	109.69	42.46	12.93	3.236	< 0.01
Total cholesterol	185.84	19.52	178.03	19.23	7.81	6.207	< 0.001
Triglycerides	147.69	103.89	153.22	137.7	-5.53	-.385	0.70
HDL	50.34	5.65	49.84	6.43	2.52	3.535	< 0.001
LDL	105.59	19.31	101.9	18.21	3.69	9.503	< 0.001
VLDL	33.34	26.92	28.78	21.69	4.57	3.375	< 0.001

exercise as well as continuing or stepping up of measures for spiritual well being.

Once ESM were motivated, their age was not a hindrance to continuation of interventions on their own with three monthly refresher capsule of one day each. The benefits accruing due to progressive weight training in the study is in agreement with other studies [1-4]. A randomised controlled trial has similarly shown 50% reduction in HRSD along with strength gain and improved quality sleep [5].

A total of 19 parameters were studied including anthropometric, biochemical and HRSD before the onset of intervention and then after subjecting ESM to three

months of intervention. There was a significant decrease in pulse rate, respiratory rate, systolic BP, diastolic BP, fasting and post-prandial glucose, total cholesterol, LDL and VLDL.

A study in Delhi has shown reduction in fasting glucose and decrease in total cholesterol and VLDL with similar intervention program [6]. Regular physical activity is important for primary and secondary prevention of many chronic diseases and delays loss of independence [7].

The HRSD was found to be statistically significant following intervention after three months. Before intervention 39 (67.26%) subjects had HRSD less than five, which is considered to be normal, while 19 (32.75%) had HRSD in the range between six and ten, which is considered to be moderate depression. After the intervention all 58 (100%) subject had HRSD less than five i.e. normal.

There was considerable subjective improvement in most of the parameter from severe to moderate/mild and from moderate to mild.

Community based exercise programme reduced risk factors for accidental falls in 65 to 75 years old adults with osteoporosis in a randomised controlled trial [8]. Therefore, the importance of regular physical activity at a community level, including progressive weight training, cannot be overemphasized.

It is recommended that ESM be provided with facilities for weight training and spiritual health enhancement by employing a physical trainer and a yoga teacher. However, motivation as well as emphasis on importance and benefit of regular exercise may be imparted from the time of enrolment and continued

Table 2

Hamilton rating scale of depression before and after the interventions

Score	Before intervention n (%)	After intervention n (%)
<5	39 (67.24%)	58 (100%)
06-10	19 (32.75%)	0 (0%)
11-15	0 (0%)	0 (0%)
Total	58 (100%)	58 (100%)

Test statistics (Z) = +7.484; $p < 0.001$

There was a significant decrease in HRSD after the intervention ($p < 0.001$).

Table 3

Changes in Hamilton rating scale for depression after the interventions

Time	n	Mean	SD	Minimum	Maximum
Before	58	5.19	1.53	3	9
After	58	1.58	1.07	0	3

All 58 patients had subjective improvement as per HRSD.

Table 4

Subjective changes in physical posture, mobility and sleep after the interventions

Parameters	Before intervention			After intervention		
	Mild	Moderate	Severe	Mild	Moderate	Severe
Sitting posture problems	21	17	20	13	08	09
Standing posture problems	18	16	13	09	08	07
Sitting to standing posture problems	23	14	15	11	08	09
Walking ambulatory problems	12	09	13	06	05	06
Wheel chair borne problems	05	04	04	03	02	02
Stretcher borne problems	06	05	04	03	02	01
Walking with support	11	07	09	03	03	04
Sleep pattern						
Depth	14	09	11	07	04	05
Duration	12	11	10	06	06	05
Quality	16	08	12	08	04	06
Continuity	15	12	08	08	06	04
Sleeping pills use	05	04	05	03	02	02
Sense of wellbeing	07	05	03	03	01	-

For the purpose of study, the definition of severity is taken as: Mild-Able to complete with pain/difficulty; Moderate-Barely able to complete; Severe-Incapacitated.

throughout. The effects of regular strength training as well as enhancement of spiritual health will result in better coping ability and adaptation to old age.

Being a hospital based study and also having a relatively small sample size, more studies on a larger sample size are required for extrapolating the inference drawn in this study to the population at large.

Conflicts of Interest

None identified

Intellectual Contribution of Authors

Study Concept : Col R Harnagle, Brig R Bhalwar

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Study Supervision : Col R Harnagle

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- (c) Lt Col D Doddamani (Co-Author), Classified Specialist (Surg & Urology), MH Jalandhar

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- (b) Col VP Singh (Co-Author), Classified Specialist (ENT), MH, Dehradun
- (c) Col Deshpal (Co-Author), Senior Advisor (ENT), INHS Asvini, Mumbai