KEMENTERIAN KESIHATAN MALAYSIA
PHYSIOTHERAPY DEPARTMENT
NON COMMUNICABLE DISEASE (NCD) ASSESSMENT FORM

Name :---------- Age: --------- Sex: M / F RN /IC : ---------- Date :----------

DOCTOR'S DIAGNOSIS

DOCTOR'S MANAGEMENT

PATIENT'S COMPLAINT

SPECIAL QUESTION

Marital Status : Single / Married / Widowed / Divorced

Occupation :

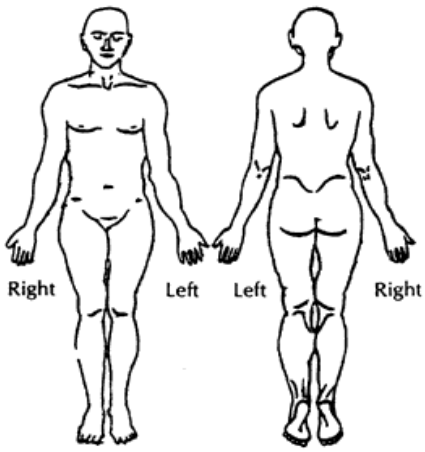
Recreation :

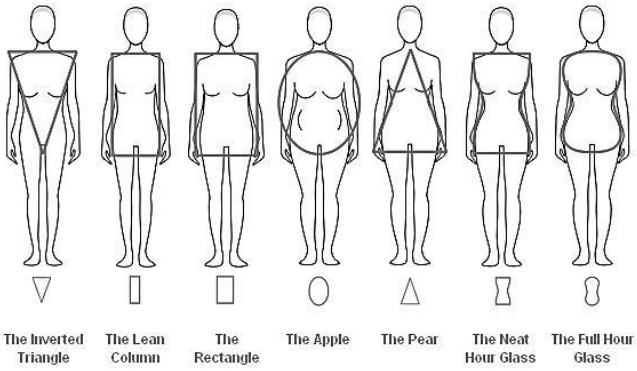
Family Hx :

PMHX/Surgery :

Medication :

	YES	NO	Comment
Smoking	☐	☐	
Alcohol	☐	☐	
Physically Active	☐	☐	





CURRENT HISTORY/PAST HISTORY

VITAL SIGN

HR : _____ /min

RR : _____ /min

BP : _____ mmHg

SpO^2 : _____ %

BLOOD INVESTIGATION

FBS : _____ mmol/L

HbA1C : _____ **%**

Cholestrol : _____ mmol/L

LDL : _____ mmol/L

HDL : _____ mmol/L

Triglycerides : _____ mmol/L

BODY COMPOSITION

Height : _____ m

Weight : _____ kg

BMI : _____ kg/m^2

* For patient below 19 y.o please refer Z score

Waist : _____ cm

Hip : _____ cm

Waist-Hip ratio : _____

		Subcutaneous Fat		Skeletal Muscle	
Whole body	:		%		%
Trunk	:		%		%
Arm	:		%		%
Leg	:		%		%
Visceral Fat	:		%		
Resting Metabolic	:		Kcal		

FITNESS TEST (Choose the applicable)

Cardiovascular Endurance

6 minute walk test		
RPE		(score) *Modified borg scale
BP		mmHg
HR		/min
Comment :		

3 minute step test		
HR		/min
Comment :		

Flexibility Test

Sit and Reach		cm
Comment :		

Strength Test

Upper Limb		
Hand Grip		kg
Sit Up		/min
Max Push up		/rep
Comment :		

Lower Limb		
Sit to Stand		/rep
Comment :		

Balance Test

Stork balance		seconds
Comment :		

OBSERVATION/PHYSICAL EXAMINATION

PHYSIOTHERAPIST'S IMPRESSION

PATIENT'S GOAL

SHORT TERM GOALS

LONG TERM GOALS

PLAN OF TREATMENT

Attending Physiotherapist:

Date :

……

Sign & Stamp

KEMENTERIAN KESIHATAN MALAYSIA
GUIDELINE FOR USE OF NON COMUNICABLE DISEASE (NCD) ASSESSMENT FORM

CRITERIA

- NCD assessment form to be used for referral with diagnosis Diabetes, Hypertension, Obesity, and others.
- Applicable out-patient.

DIAGNOSIS

- As in referral

DOCTOR'S MANAGEMENT

- In brief, conservative or refer others health professional

PATIENT'S COMPLAINT

- What is the presenting problem?
- Functional activity, joint pain, stiffness, weakness ….etc.

SPECIAL QUESTION

- Marital status
- Occupation
- Recreational
- Family history
- Past medical history/surgeries
- Medication
- Smoking status
  Comment: eg; how many stick per day
- Alcohol status
  Comment: eg; how frequent, per week/per month
- Physical/recreational status
  Comment: eg; how frequent, hour/week, day/week, day/month

BODY CHART

- Presenting complaint? Pain, stiffness, weakness, is it intermittent / constant, dull / sharp.
- To be marked on body chart with brief explanation.
- Type of body shape to be identify

CURRENT HISTORY/ PAST HISTORY

- What is the presenting problem?

VITAL SIGN

- HR - heart rate
- RR - respiratory rate
- BP - blood pressure
- SpO^2 - peripheral capillary oxygen saturation

BLOOD INVESTIGATION

- FBS - Fasting blood sugar
- HbA1C - Hemoglobin A1C
- Cholestrol - Total cholestrol
- LDL - Low-density lipoprotein
- HDL - High-density lipoprotein

BODY COMPOSITION

- Measure and state the value. (refer Appendix A)

FITNESS TEST

- Use appropriate outcome measure depends to subject's condition. (refer Appendix B)

OBSERVATION/PHYSICAL EXAMINATION

- Observation: body size, quality of movement, gait observation, deformity, swelling, muscle wasting or spasm
- Physical examination ;
  - Movement /ROM / Joint circumference
  - Warmth, swelling, crepitus, muscle spasm, tenderness & pain

PHYSIOTHERAPY IMPRESSION

- Problem in order of priority.

PATIENT'S GOAL

- The goal which set by patient.

SHORT TERM GOALS

- The goals which are set according to priority.
- Must include the expected outcomes & time frame.

LONG TERM GOALS

- The goals which are set for a longer time frame based on patient goals & physiotherapist goals.

PLAN OF TREATMENT

- The physiotherapy treatment that will be given according to the goal set up.

SIGN/ STAMP/DATE

- Need to be filled by attending physiotherapist

Appendix A

Body Mass Index (BMI) Classification

Classification	BMI (kg/m²)	Risk of co-morbidities
Underweight	< 18.5	Low (but increased risk of other clinical problems)
Normal weight	18.5- 22.9	Increasing but acceptable risk
Overweight	≥23	
Pre- obese	23.0- 27.4	Increased
Obese I	27.5- 34.9	High
Obese II	35.0- 39.9	Very high
Obese III	≥40.0	Extremely high

*Malaysian CPG Management of Obesity 2004.

Calculation Formula

Age above 19 years old

$$\text{Weight (kg)} \div (\text{Height (m)})^2$$

Age below 19 years old

Weight (kg) ÷ Height (cm) ÷Height (cm) x 10000

*Classification refer to Z Score

Waist Circumference

Placement of Tape

- The WHO STEPS protocol for measuring waist circumference instructs that the measurement be made at the approximate midpoint between the lower margin of the last palpable rib and the top of the iliac crest (WHO, 2008b).
- The United States (US) National Institutes of Health (NIH) protocol provided in the NIH Practical guide to obesity (NHLBI Obesity Education Initiative, 2000) and the protocol used in the US National Health and Nutrition Examination Survey (NHANES) III (Westat Inc, 1998) indicate that the waist circumference measurement should be made at the top of the iliac crest. The NIH also provided a protocol for the measurement of waist circumference for the Multi-Ethnic Study of Atherosclerosis (MESA) study. This protocol indicates that the waist measurement should be made at the level of the umbilicus or navel. However, published reports indicate that measurements of waist circumference made at the level of the umbilicus may underestimate the true waist circumference (Croft et al., 1995). Some studies have assessed the waist circumference at the point of the minimal waist (Ross et al., 2008).

Hip Circumference

Placement of Tape

Hip circumference should be taken around the widest portion of the buttocks.

Waist Classification

At increased risk	Male	Female
Increased risk	94cm (37 inches) or more	80cm (31 inches) or more
Greatly increased risk	102cm (40 inches) or more	88cm (35 inches) or more

Source: National Institute for Health and Clinical Excellence, 2006, 6 International Diabetes Federation (2005),210 WHO/IASO/IOTF (2000),208 World Health Organization (2000) 21

Waist Hip Ratio Classification

Indicator	Cut-off points	Risk of metabolic complications
Waist–hip ratio	≥0.90 cm (M); ≥0.85 cm (W)	Substantially increased

M = men; W = women

Waist Circumference and Waist-Hip Ratio Report of a WHO Expert Consultation GENEVA, 8–11 DECEMBER 2008

Subcutaneous / Body Fat Classification

Male	Classification	Female
>25%	Very high	>35%
20% -25%	High	30%-35%
10% -20%	Normal	20%-30%
<10%	Low	<20%

*Based on obesity value proposed by Lohman (1986) and Nagemine (1972)

Skeletal Muscle Classification

Gender	-(Low)	0(Normal)	+(High)	++(Very High)
Female	5.0-25.8	25.9-27.9	28.0-29.0	29.1-60.0
Male	5.0-32.8	32.9-35.7	35.8-37.3	37.4-60.0

* Data reference by OMRON healthcare

Visceral Fat Classification

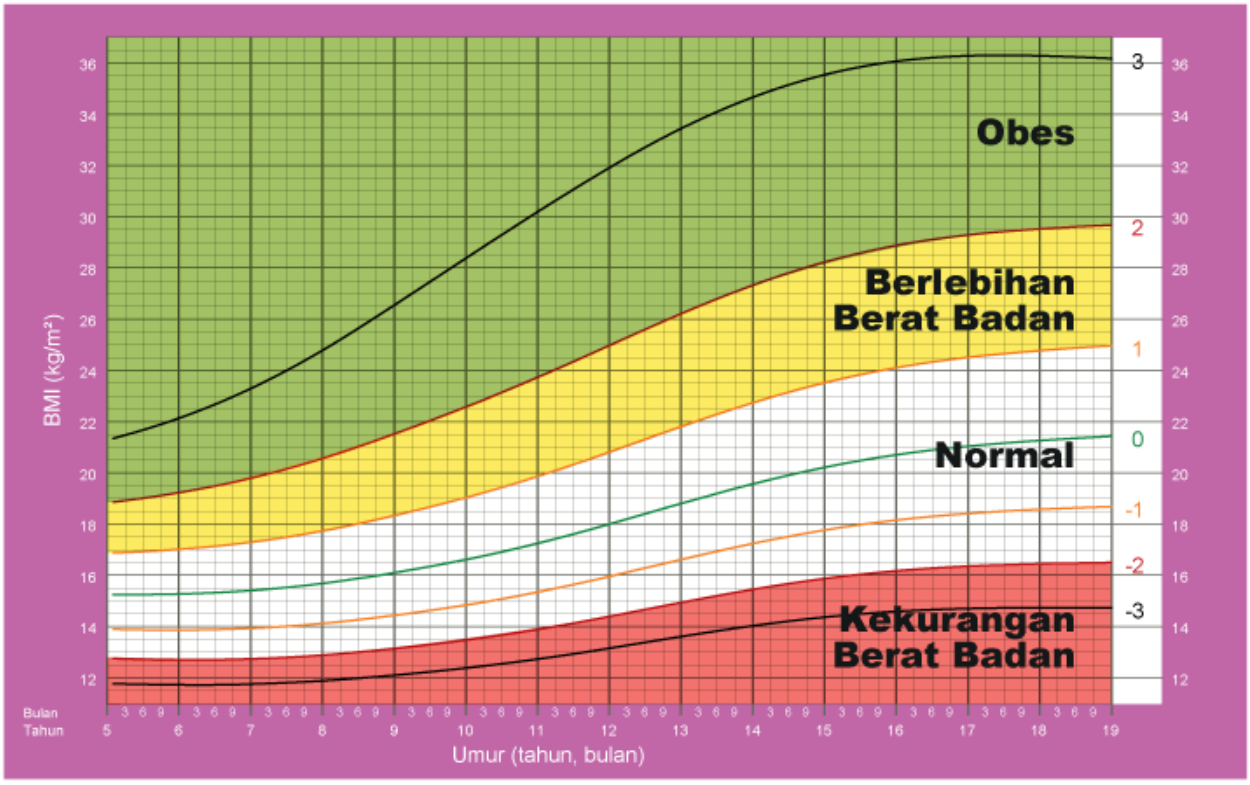
Visceral Fat	Classification
1-9	Normal
10-14	High
15-30	Very High

* Data reference by OMRON healthcare

BMI untuk Umur (PEREMPUAN)

World Health Organization

5 - 19 tahun (skor-z)

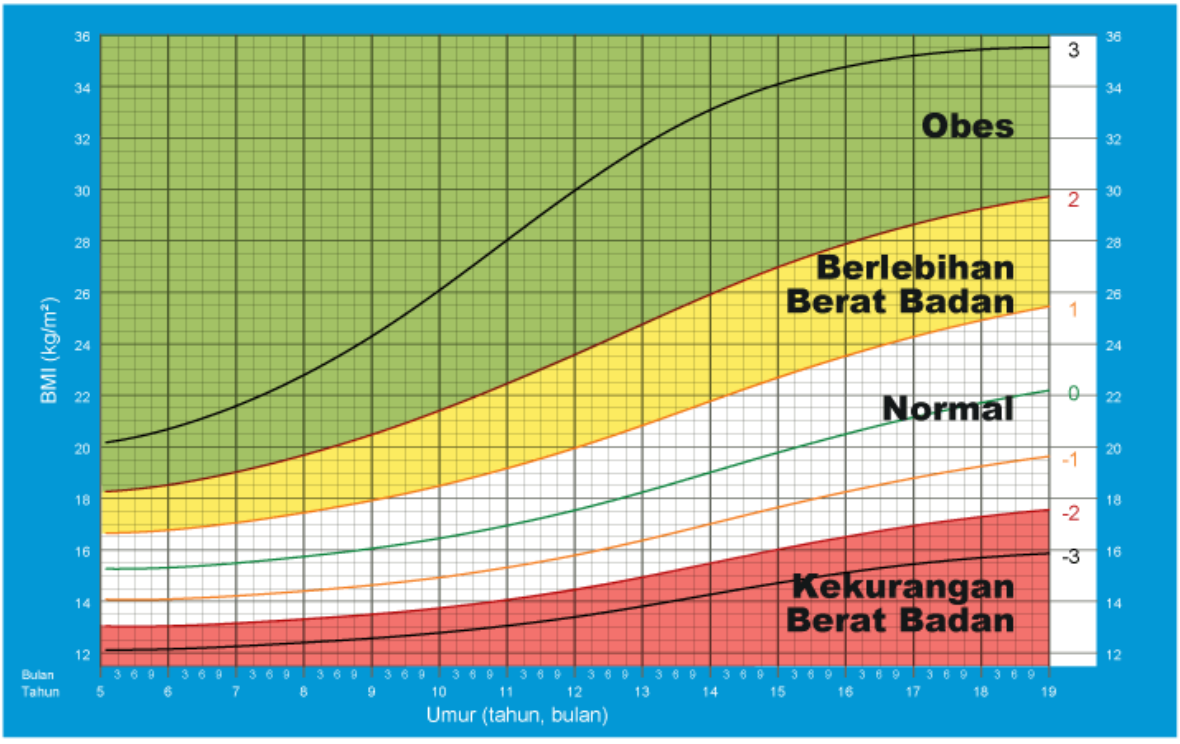


2007 WHO Reference

BMI untuk Umur (LELAKI)

World Health Organization

5 - 19 tahun (skor-z)



2007 WHO Reference

Appendix B

6 minutes walk test

Purpose:
The 6MWT is a practical, simple, self- paced, walking test that assesses the submaximal level functional exercise capacity.

Equipment required:
1. Timer or stopwatch
2. Lap counter
3. 2 small cones to mark the turnaround points
4. At list 1 chair , positioned at one end of the walking course
5. Validated dyspnoea or exertion measure RPE (Modified Borg scale)
6. Measuring tape

Location:
The walking track should be the same layouts for all tests for each person and may continuous (oval or rectangular or point- to- point track. The track should be a long flat, straight, hard surface and mark in meter (m).

Procedure:
1. Repeat testing should be performed about the same time of day.
2. A “Warm- up” period before test should not be performed.
3. A subject n should sit at rest in a chair, located near the starting point for at least 10 minutes before test.
4. Set the lap counter and the timer to 6 minutes.
5. Give instruction to the subject.
6. Position the subject at the starting point. Do not walk with subject during procedure.
7. Do not talk to anyone during procedure.
8. Record the post walk Borg scale and fatigue level
9. Record the number of laps and additional distance covered the number of meters in the final partial lap using the markers on the wall as distance guides.

6 Minute Walk Test : Normal Reference Value

Men

$$6MWD = (7.57 \times height_{cm}) - (5.02 \times age) - (1.76 \times weight_{kg}) - 309\ m$$

Women

$$6MWD = (2.11 \times height_{cm}) - (2.29 \times weight_{kg}) - (5.78 \times age) + 667\ m$$

L. ENRIGHT PAUL and L. SHERRILL DUANE "Reference Equations for the Six-Minute Walk in Healthy Adults", American Journal of Respiratory and Critical Care Medicine, Vol. 158, No. 5(1998), pp. 1384-1387.

Modified Borg Scale

0	Nothing at all	
0.5	Very, very slight (just noticeable)	
1	Very slight	
2	Slight	
3	Moderate	Exercise Training Zone
4	Somewhat severe	
5	Severe	
6		
7	Very severe	
8		
9	Very, very severe (almost maximal)	
10	Maximal	

3 minute Step Test

Purpose:
a step test provides a submaximal measure of cardio-respiratory or endurance fitness

Equipment required:
1. 12 inch (30 cm) step/box
2. stopwatch
3. metronome
4. pulse oxymeter

Procedure
1. Begin by demonstrating the alternating stepping cadence to the subject.
2. In time with the beat step one foot up on the bench (1st beat), step up with the second foot (2nd beat), step down with one foot (3rd beat), and step down with the other foot (4th beat.)
3. Allow the subject to practice the stepping to the metronome cadence, which is set at 96 beats per minute (4 clicks = one step cycle) for a stepping rate of 24 steps per minute.
4. The subject steps up and down on the platform at the given rate for a total of 3 minutes.
5. The subject immediately stops on completion of the test and sits down and remains still.
6. Starting within 5 seconds, the tester is to check the subject's heart rate for one complete minute.

.

Norm

3 Minute Step Test (Men) - Heart Rate

Age	18-25	26-35	36-45	46-55	56-65	>65
Excellent	50-76	51-76	49-76	56-82	60-77	59-81
Good	77-84	77-85	77-88	83-93	78-94	82-92
Above average	85-93	77-85	89-98	94-101	95-100	93-102
Average	94-100	86-94	99-105	102-111	101-109	103-110
Below Average	101-107	95-102	106-113	112-119	110-117	111-118
Poor	108-119	103-110	114-124	120-126	117-128	119-126
Very poor	120-157	122-161	125-136	127-171	129-154	127-151

3 Minute Step Test (Women) - Heart Rate

Age	18-25	26-35	36-45	46-55	56-65	>65
Excellent	52-81	58-80	51-84	63-91	60-92	70-92
Good	82-93	81-92	85-96	92-101	93-103	93-101
Above average	94-102	93-101	97-104	102-110	104-111	102-111
Average	103-110	102-110	105-112	111-118	112-118	112-121
Below Average	111-120	111-119	113-120	119-124	119-127	122-126
Poor	121-131	120-129	121-132	125-132	128-138	127-133
Very poor	132-169	130-171	133-169	133-171	136-174	134-155

Sit and Reach Flexibility Test

The sit and reach test is a common measure of flexibility, and specifically measures the flexibility of the lower back and hamstring muscles.

Equipment required:

1. sit and reach box (or alternatively a ruler can be used, and a step or box).

Procedure:

1. This test involves sitting on the floor with legs stretched out straight ahead.
2. Shoes should be removed.
3. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down.
4. With the palms facing downwards, and the hands on top of each other or side by side, the subject reaches forward along the measuring line as far as possible.
5. Ensure that the hands remain at the same level, not one reaching further forward than the other.
6. After some practice reaches, the subject reaches out and holds that position for at one-two seconds while the distance is recorded.
7. Make sure there are no jerky movements.

Scoring:

The score is recorded to the nearest centimeter .

Norm

Sit and Reach Rating For Males and Females

	Male (cm)	Female (cm)
Super	> +27	> +30
Excellent	+17 to +27	+21 to +30
Good	+6 to +16	+11 to +20
Average	0 to +5	+1 to +10
Fair	-8 to -1	-7 to 0
Poor	-20 to -9	-15 to -8
Very poor	< -20	< -15

Hand Grip Test

The purpose of this test is to measure the maximum isometric strength of the hand and forearm muscles.

Equipment required:

1. Handgrip dynamometer

Procedure:

1. The subject holds the dynamometer in the hand to be tested, with the arm at right angles and the elbow by the side of the body.
2. The handle of the dynamometer is adjusted if required - the base should rest on first metacarpal (heel of palm), while the handle should rest on middle of four fingers.
3. When ready the subject squeezes the dynamometer with maximum isometric effort, which is maintained for about 5 seconds. No other body movement is allowed.
4. The subject should be strongly encouraged to give a maximum effort.

Scoring:

The result from 3 trials for each hand is recorded, with at least 15 seconds recovery between each effort. These values are the average of the best scores of each hand.

Norm

Grip Strength Ratings for Males (kg)

Age	Weak	Average	Good
10-11	< 12.6	12.6-22.4	> 22.4
12-13	< 19.4	19.4-31.2	> 31.2
14-15	< 28.5	28.5-44.3	> 44.3
16-17	< 32.6	32.6-52.4	> 52.4
18-19	< 35.7	35.7-55.5	> 55.5
20-24	< 36.8	36.8-56.6	> 56.6
25-29	< 37.7	37.7-57.5	> 57.5
30-34	< 36.0	36.0-55.8	> 55.8
35-39	< 35.8	35.8-55.6	> 55.6
40-44	< 35.5	35.5-55.3	> 55.3
45-49	< 34.7	34.7-54.5	> 54.5
50-54	< 32.9	32.9-50.7	> 50.7
55-59	< 30.7	30.7-48.5	> 48.5
60-64	< 30.2	30.2-48.0	> 48.0
65-69	< 28.2	28.2-44.0	> 44.0
70-99	< 21.3	21.3-35.1	> 35.1

Grip Strength Ratings for Females (kg)

Age	Weak	Average	Good
10-11	< 11.8	11.8-21.6	> 21.6
12-13	< 14.6	14.6-24.4	> 24.4
14-15	< 15.5	15.5-27.3	> 27.3

16-17	< 17.2	17.2-29.0	> 29.0
18-19	< 19.2	19.2-31.0	> 31.0
20-24	< 21.5	21.5-35.3	> 35.3
25-29	< 25.6	25.6-41.4	> 41.4
30-34	< 21.5	21.5-35.3	> 35.3
35-39	< 20.3	20.3-34.1	> 34.1
40-44	< 18.9	18.9-32.7	> 32.7
45-49	< 18.6	18.6-32.4	> 32.4
50-54	< 18.1	18.1-31.9	> 31.9
55-59	< 17.7	17.7-31.5	> 31.5
60-64	< 17.2	17.2-31.0	> 31.0
65-69	< 15.4	15.4-27.2	> 27.2
70-99	< 14.7	14.7-24.5	> 24.5

source: Camry Electronic Hand Dynamometer Instruction manual

Sit Up Test

This sit up test measures the strength and endurance of the abdominals and hip-flexor muscles.

Procedure:

1. Lie on a carpeted or cushioned floor with your knees bent at approximately right angles, with feet flat on the ground.
2. Your hands should be resting on your thighs.
3. Squeeze your stomach, push your back flat and raise high enough for your hands to slide along your thighs to touch the tops of your knees.
4. Count the total number of push ups performed in one minute.

Norm

1 minutes sit up test (Male)

AGE	15 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69
Good	25	25	25	25	25	25
Average	23 – 24	23 – 24	23 – 24	22 – 24	19 – 24	16 – 24
Below average	21 – 22	21 – 22	21 – 22	16 – 21	14 – 19	10 – 15
Poor	16 – 20	13 – 20	13 – 20	11 – 15	9 – 13	4 – 9
Very poor	<15	<12	<12	<10	<8	<3

1 minutes sit up test (Female)

AGE	15 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69
Good	25	25	25	25	25	>18
Average	23 – 24	23 – 24	22 – 24	21 – 24	16 – 24	11 – 17
Below average	21 – 22	19 – 22	16 – 21	13 – 20	9 – 15	6 – 10
Poor	16 – 20	13 – 18	11 – 15	6 – 12	4 – 8	2 – 5
Very poor	<15	<12	<10	<5	<3	<1

Push Up Test

This test measures the strength of upper limb

Procedure:

1. Men should use the standard "military style" push up position with only the hands and the toes touching the floor in the starting position.
2. Women have the additional option of using the "bent knee" position. To do this, kneel on the floor, hands on either side of the chest and keep your back straight.
3. Lower the chest down towards the floor, always to the same level each time, either till your elbows are at right angles (90 degree).
4. Do as many push ups as possible until exhaustion. Count the total number of push ups performed. Use the chart below to find out how you rate.

Norm

AGE	15-19		20-29		30-39		40-49		50-59		60-69	
	M	F	M	F	M	F	M	F	M	F	M	F
Good	≥39	≥33	≥36	≥30	≥30	≥27	≥22	≥20	≥21	≥21	≥18	≥17
Average	29-39	25-32	29-35	21-39	22-29	20-26	17-21	15-23	13-30	11-20	11-17	10-16
Below average	23-28	18-24	22-28	15-20	17-21	13-19	13-16	11-14	10-12	7-10	8-10	5-11
Poor	18-22	12-17	17-21	10-14	12-16	8-12	10-12	5-10	7-9	2-6	5-7	1-4
Very poor	≤17	≤11	≤16	≤9	≤11	≤7	≤19	≤4	≤6	≤1	≤4	≤1

Sit to Stand

To test leg strength and endurance

equipment required:

1. A chair with a straight back without arm rests (seat 17” high)
2. stopwatch

procedure:

Instructions to the patient:

1. Sit in the middle of the chair.
2. Place your hands on the opposite shoulder crossed at the wrists.
3. Keep your feet flat on the floor.
4. Keep your back straight and keep your arms against your chest.
5. On “Go,” rise to a full standing position and then sit back down again.
6. Repeat this for 30 seconds.

Norm

Age	Men	Women
60-64	< 14	< 12
65-69	< 12	< 11
70-74	< 12	< 10
75-79	< 11	< 10
80-84	< 10	< 9
85-89	< 8	< 8
90-94	< 7	< 4

Stork Test (Single Leg Stand)

To assess the ability to balance on the ball of the foot.

equipment required:

1. flat, non-slip surface
2. Stopwatch

procedure:

1. Remove the shoes and place the hands on the hips, then position the non-supporting foot against the inside knee of the supporting leg.
2. The subject is given one minute to practice the balance. The subject balance on the foot.
3. The stopwatch is started as the non-supporting foot against the inside knee.
4. The stopwatch is stopped if any of the follow occur:

    - the hand(s) come off the hips
    - the supporting foot swivels or moves (hops) in any direction
    - the non-supporting foot loses contact with the knee.

Norm

Rating	Score
Good	> 50s
Average	40 -50s
Below average	25- 39s
Poor	10 - 24s
Very poor	< 10s