



Liverpool University Hospitals
NHS Foundation Trust



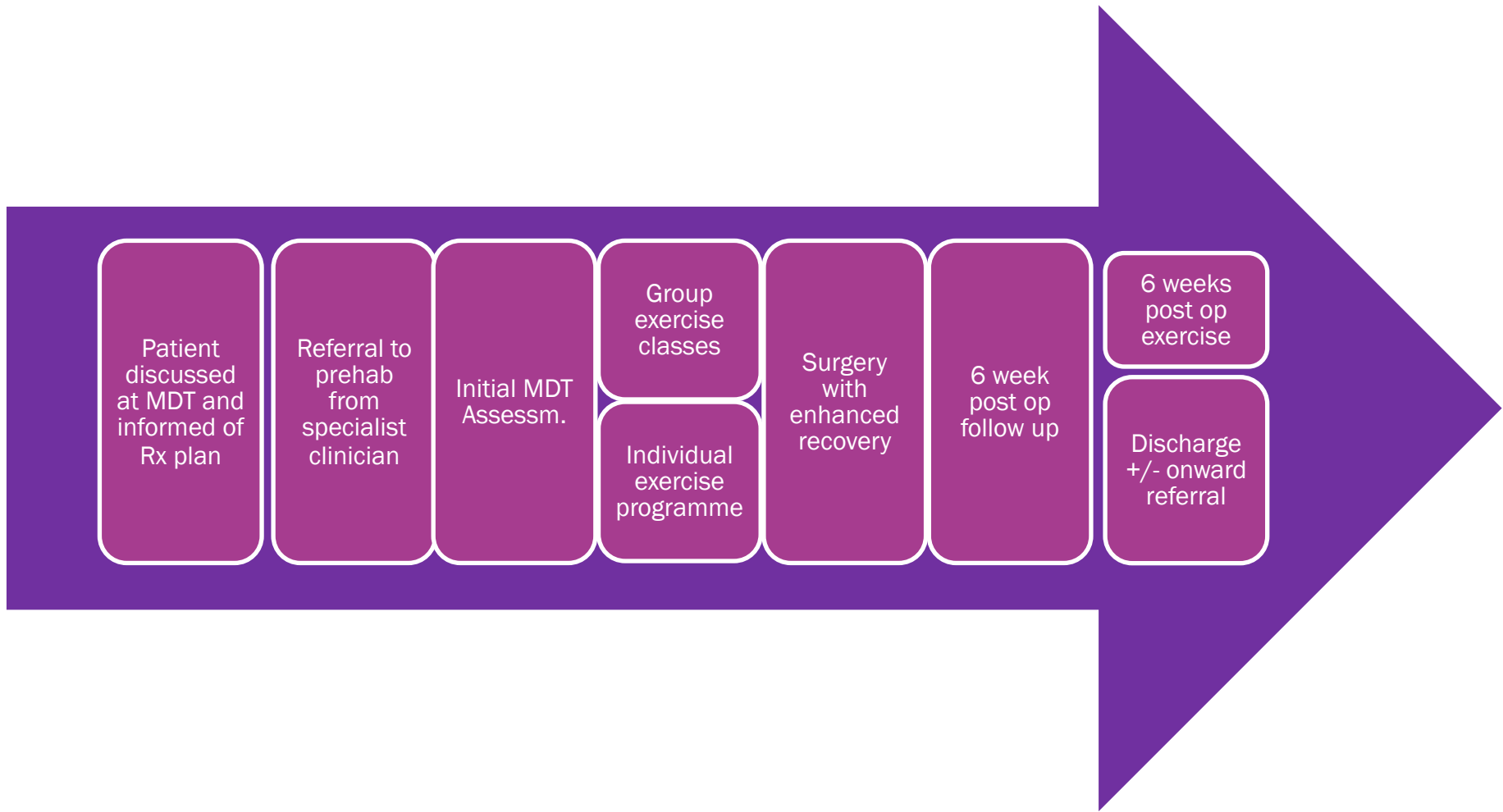
Prehab

Prehabilitation at Liverpool University Hospitals

Judith Ashcroft

Prehabilitation and Surgical Oncology
Dietitian

- LUHFT is a regional centre for HPB cancer surgery and UGI cancer surgery.
- Aintree site accepts referrals for Liver, Neuroendocrine, Colorectal, UGI, Lung and Urology cancer surgical candidates.
- Variety of nutritional problems and presentations across the different specialities.



Patient discussed at MDT and informed of Rx plan

Referral to prehab from specialist clinician

Initial MDT Assessm.

Group exercise classes

Individual exercise programme

Surgery with enhanced recovery

6 week post op follow up

6 weeks post op exercise

Discharge +/- onward referral

Body Composition Assessment

- Weight, BMI and weight change alone will not identify all patients at risk of malnutrition.
- Muscle mass and strength is key to determining outcomes.
- Functional capacity – frailty.
- Potential to lose muscle as a consequence of surgery/oncology treatment



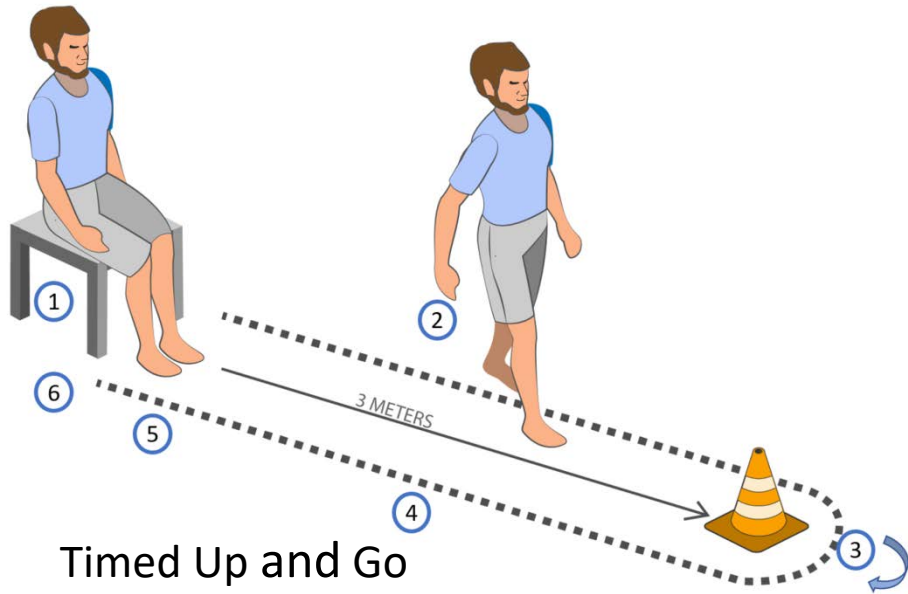
Young healthy thigh muscle



Sarcopenic thigh muscle

Nutritional Assessment and Outcome Measures

- Functional outcome measures: timed up & go, 30 second sit to stand.
- Body composition and nutritional status: hand grip strength, bioelectrical impedance, PG-SGA
- OT OMs: EORTC
- Exercise classes – outcome measures repeated weekly



Timed Up and Go



Hand grip strength



30 second Sit to Stand

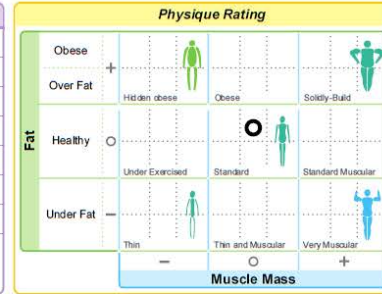
MC-780

Date / Time	Age	<input checked="" type="checkbox"/> Standard	<input type="checkbox"/> Athletic
Customer-ID / Name	Height	<input type="checkbox"/> Male	<input checked="" type="checkbox"/> Female
	Clothes Weight (PT)	0.6 kg	

Details

MC-780	Result	Desirable	Target	Diff
Body Weight	61.1 kg	48.0-64.8		
Fat %	28.5 %	21.0-33.0		
Fat Mass	17.4 kg	11.6-21.5		
FFM	43.7 kg			
Muscle Mass	41.5 kg	35.8-45.3		
Bone Mass	2.2 kg			
BMI	23.6	18.5-25.0		
SMM	21.2 kg			
Metabolic Age	27			

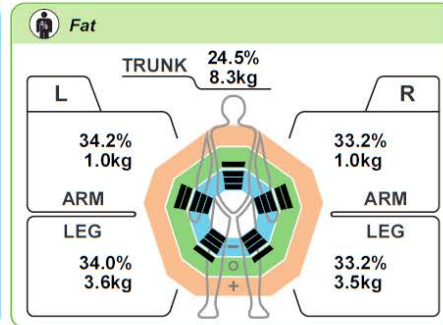
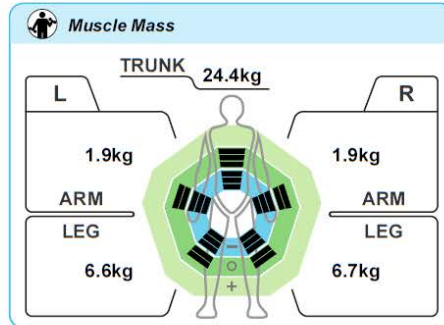
Detailed Explanation on www.mc780.gmon.eu



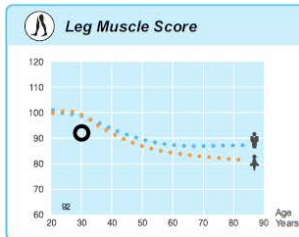
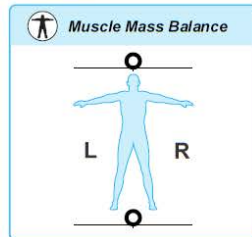
TBW - ECW (Extracellular Water) - ICW (Intracellular Water) - BMR - VFR



Segmental Analysis



Balance



BIA Information				
	5kHz	50kHz	250kHz	Phase Angle
H-L	739.7 / 26.6	671.4 / 60.6	611.9 / 67.8	5.2°
RL	284.5 / 11.1	254.7 / 23.6	232.2 / 18.9	5.3°
LL	288.9 / 10.6	260.2 / 23.5	238.1 / 19.4	5.2°
RH	421.5 / 16.7	381.6 / 38.8	343.1 / 47.3	5.8°
LH	426.7 / 14.8	388.5 / 36.2	351.5 / 45.7	5.3°
L-L	575.8 / 22.0	515.1 / 48.2	465.1 / 37.8	5.3°
RH-RL	733.8 / 29.0	699.4 / 62.9	601.2 / 67.2	5.4°



Scored Patient-Generated Subjective Global Assessment (PG-SGA)

History: Boxes 1 - 4 are designed to be completed by the patient.
[Boxes 1-4 are referred to as the PG-SGA Short Form (SF)]

1. Weight (See Worksheet 1)

In summary of my current and recent weight:

I currently weigh about _____ kg

I am about _____ cm tall

One month ago I weighed about _____ kg

Six months ago I weighed about _____ kg

During the past two weeks my weight has:

decreased (1) not changed (0) increased (0)

Box 1

Patient Identification Information

2. Food intake: As compared to my normal intake, I would rate my food intake during the past month as

- unchanged (0)
- more than usual (0)
- less than usual (1)

I am now taking

- normal food but less than normal amount (1)
- little solid food (2)
- only liquids (3)
- only nutritional supplements (3)
- very little of anything (4)
- only tube feedings or only nutrition by vein (0)

Box 2

3. Symptoms: I have had the following problems that have kept me from eating enough during the past two weeks (check all that apply)

- no problems eating (0)
- no appetite, just did not feel like eating (3)
- nausea (1)
- constipation (1)
- mouth sores (2)
- things taste funny or have no taste (1)
- problems swallowing (2)
- pain; where? (3) _____
- other (1)** _____
- vomiting (3)
- diarrhea (3)
- dry mouth (1)
- smells bother me (1)
- feel full quickly (1)
- fatigue (1)

**Examples: depression, money, or dental problems Box 3

4. Activities and Function:

Over the past month, I would generally rate my activity as:

- normal with no limitations (0)
- not my normal self, but able to be up and about with fairly normal activities (1)
- not feeling up to most things, but in bed or chair less than half the day (2)
- able to do little activity and spend most of the day in bed or chair (3)
- pretty much bed ridden, rarely out of bed (3)

Box 4

The remainder of this form is to be completed by your doctor, nurse, dietitian, or therapist. Thank you.

Additive Score of Boxes 1-4 A

Scored Patient-Generated Subjective Global Assessment (PG-SGA)

Worksheet 1 – Scoring Weight Loss

To determine score, use 1-month weight data if available. Use 6-month data only if there is no 1-month weight data. Use points below to score weight change and add one extra point if patient has lost weight during the past 2 weeks. Enter total point score in Box 1 of PG-SGA.

Weight loss in 1 month	Points	Weight loss in 6 months
10% or greater	4	20% or greater
5-9.9%	3	10- 19.9%
3-4.9%	2	6- 9.9%
2-2.9%	1	2- 5.9%
0-1.9%	0	0- 1.9%

Numerical score from Worksheet 1

Additive Score of Boxes 1-4 (See Side 1) A

5. Worksheet 2 – Disease and its relation to nutritional requirements:

Score is derived by adding 1 point for each of the following conditions:

- Cancer
- AIDS
- Pulmonary or cardiac cachexia
- Chronic renal insufficiency
- Presence of decubitus, open wound or fistula
- Presence of trauma
- Age greater than 65

Other relevant diagnoses (specify) _____

Primary disease staging (circle if known or appropriate) I II III IV Other _____

Numerical score from Worksheet 2 B

6. Worksheet 3 – Metabolic Demand

Score for metabolic stress is determined by a number of variables known to increase protein & caloric needs. Note: Score fever intensity or duration, whichever is greater. The score is additive so that a patient who has a fever of 38.8 °C (3 points) for < 72 hrs (1 point) and who is on 10 mg of prednisone chronically (2 points) would have an additive score for this section of 5 points.

Stress	none (0)	low (1)	moderate (2)	high (3)
Fever	no fever	> 37.2 and < 38.3	≥ 38.3 and < 38.8	≥ 38.8 °C
Fever duration	no fever	< 72 hours	72 hours	> 72 hours
Corticosteroids	no corticosteroids	low dose (< 10 mg prednisone equivalents/day)	moderate dose (≥ 10 and < 30 mg prednisone equivalents/day)	high dose (≥ 30 mg prednisone equivalents/day)

Numerical score from Worksheet 3 C

7. Worksheet 4 – Physical Exam

Exam includes a subjective evaluation of 3 aspects of body composition: fat, muscle, & fluid. Since this is subjective, each aspect of the exam is rated for degree. Muscle deficit/loss impacts point score more than fat deficit/loss. Definition of categories: 0 = no abnormality, 1+ = mild, 2+ = moderate, 3+ = severe. Rating in these categories is *not* additive but are used to clinically assess the degree of deficit (or presence of excess fluid).

Muscle Status

temples (temporalis muscle)	0	1+	2+	3+
clavicles (pectoralis & deltoids)	0	1+	2+	3+
shoulders (deltoids)	0	1+	2+	3+
interosseous muscles	0	1+	2+	3+
scapula (latissimus dorsi, trapezius, deltoids)	0	1+	2+	3+
thigh (quadriceps)	0	1+	2+	3+
calf (gastrocnemius)	0	1+	2+	3+
Global muscle status rating	0	1+	2+	3+

Fat Stores

orbital fat pads	0	1+	2+	3+
triceps skin fold	0	1+	2+	3+
fat overlying lower ribs	0	1+	2+	3+
Global fat deficit rating	0	1+	2+	3+

Fluid status

ankle edema	0	1+	2+	3+
sacral edema	0	1+	2+	3+
ascites	0	1+	2+	3+
Global fluid status rating	0	1+	2+	3+

Point score for the physical exam is determined by the overall subjective rating of the total body deficit. No deficit score = 0 points
Mild deficit score = 1 point
Moderate deficit score = 2 points
Severe deficit score = 3 points
Again, muscle deficit/loss takes precedence over fat loss or fluid excess.

Numerical Score for Worksheet 4 D

Total PG-SGA Score (Total numerical score of A+B+C+D)

Clinician Signature _____ RD RN PA MD DO Other _____ Date _____

Global PG-SGA Category Rating (Stage A, Stage B or Stage C)

Worksheet 5 – PG-SGA Global Assessment Categories

Category	Stage A	Stage B	Stage C
Weight	Well-nourished No weight loss OR recent non-fluid wt gain	Moderate/suspected malnutrition ≤ 5% loss in 1 month (≤ 10% in 6 months) OR Progressive weight loss	Severely malnourished > 5% loss in 1 month (> 10% in 6 months) OR Progressive weight loss
Nutrient intake	No deficit OR Significant recent improvement	Definite decrease in intake	Severe deficit in intake
Nutrition Impact	None	Presence of NIS (Box 3 of PG-SGA)	Presence of NIS (Box 3 of PG-SGA)
Symptoms (NIS)	OR significant recent improvement allowing adequate intake		
Functioning	No deficit OR Significant recent improvement	Moderate functional deficit OR Recent deterioration	Severe functional deficit OR Recent significant deterioration
Physical Exam	No deficit OR chronic deficit but with recent clinical improvement	Evidence of mild to moderate loss of muscle mass &/or muscle tone on palpation &/or loss of SQ fat	Obvious signs of malnutrition (e.g., severe loss muscle, fat, possible edema)

Nutritional Triage Recommendations: Additive score is used to define specific nutritional interventions including patient & family education, symptom management including pharmacologic intervention, and appropriate nutrient intervention (food, nutritional supplements, enteral, or parenteral triage).

First line nutrition intervention includes optimal symptom management.

Triage based on PG-SGA point score

- 0-1 No intervention required at this time. Re-assessment on routine and regular basis during treatment.
- 2-3 Patient & family education by dietitian, nurse, or other clinician with pharmacologic intervention as indicated by symptom survey (Box 3) and lab values as appropriate.
- 4-8 Requires intervention by dietitian, in conjunction with nurse or physician as indicated by symptoms (Box 3).
- ≥ 9 Indicates a critical need for improved symptom management and/or nutrient intervention options.

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Targeted Nutritional Intervention

- Healthy eating/myth busting
- Improved dietary quality/variety/meal pattern
- Lifestyle changes, signposting
- Eating for exercise/muscle improvement
- Symptoms/medication/micronutrient correction
- Glycaemic control & optimisation
- Oral nutrition support/enteral tube feeding
- Enhanced Recovery after Surgery

Take home messages

- Don't just look at weight & BMI, think about function and dietary intake
- Aim to treat symptoms affecting oral intake quickly
- Refer patients who are struggling to dietitians
- Consider oral nutritional supplements (shop bought) in frail/at risk patients