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General framework for the use of physical rehabilitation in patients with dental profile.

Features of the application of therapeutic massage in dentistry.

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The first-ever World report on disability reveals that of the more than one billion people in the world who are disabled, 110-190 million encounter significant difficulties in their daily lives.

A lack of attention to their needs means that they are confronted with barriers at every turn.

These include stigma and discrimination; lack of adequate health care and rehabilitation services; and inaccessible transport, buildings and information.

The report recommends that governments and their partners provide people with disabilities access to all mainstream services, invest in specific programmes for those people with disabilities who are in need, and adopt a national disability strategy and plan of action. Importantly, people with disabilities should be consulted and involved in the design and implementation of these initiatives.

http://www.who.int/en/

Basic aspects of rehabilitation

Rehabilitation of people with disabilities is a process aimed at enabling them to reach and maintain their optimal physical, sensory, intellectual, psychological and social functional levels. Rehabilitation provides disabled people with the tools they need to attain independence and self-determination.

http://www.who.int/topics/rehabilitation/en/

«**Multimorbidity** refers to the presence of 2 or more long-term health conditions, which can include:

- defined physical and mental health conditions such as diabetes or schizophrenia
- ongoing conditions such as learning disability
- symptom complexes such as frailty or chronic pain
- sensory impairment such as sight or hearing loss
- alcohol and substance misuse.»

«Multimorbidity: clinical assessment and management
NICE guideline Published: 21 September 2016 nice.org.uk/guidance/ng56»

Adults who may benefit from an approach to care that takes account of multimorbidity:

- they find it difficult to manage their treatments or day-to-day activities
- they receive care and support from multiple services and need additional services
- they have both long-term physical and mental health conditions
- they have frailty or falls
- they frequently seek unplanned or emergency care
- they are prescribed multiple regular medicines

«Multimorbidity: clinical assessment and management
NICE guideline Published: 21 September 2016 nice.org.uk/guidance/ng56»

Validated tool to identify adults with multimorbidity who are at risk of adverse events such as unplanned hospital admission or admission to care homes:

- eFI, PEONY or QAdmissions, if available in primary care electronic health records

«Multimorbidity: clinical assessment and management
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Primary care and community care settings

When assessing frailty in primary and community care settings, consider using 1 of the following:

- an informal assessment of gait speed (for example, time taken to answer the door, time taken to walk from the waiting room)

- self-reported health status (that is, 'how would you rate your health status on a scale from 0 to 10?', with scores of 6 or less indicating frailty)

- a formal assessment of gait speed, with more than 5 seconds to walk 4 metres indicating frailty

- the PRISMA-7 questionnaire, with scores of 3 and above indicating frailty.

«Multimorbidity: clinical assessment and management
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Hospital outpatient settings

When assessing frailty in hospital outpatient settings, consider using 1 of the following:

- self-reported health status (that is, 'how would you rate your health status on a scale from 0 to 10?', with scores of 6 or less indicating frailty)
- the 'Timed Up and Go' test, with times of more than 12 seconds indicating frailty
- a formal assessment of gait speed, with more than 5 seconds to walk 4 metres indicating frailty
- the PRISMA-7 questionnaire, with scores of 3 and above indicating frailty
- self-reported physical activity, with frailty indicated by scores of 56 or less for men and 59 or less for women using the Physical Activity Scale for the Elderly.

Tailoring the approach to multimorbidity in adults with respiratory disease: the NICE guideline

Lowie E.G.W. Vanfleteren[1,2], Martijn A. Spruit[1,3] and Frits M.E. Franssen[1,2]

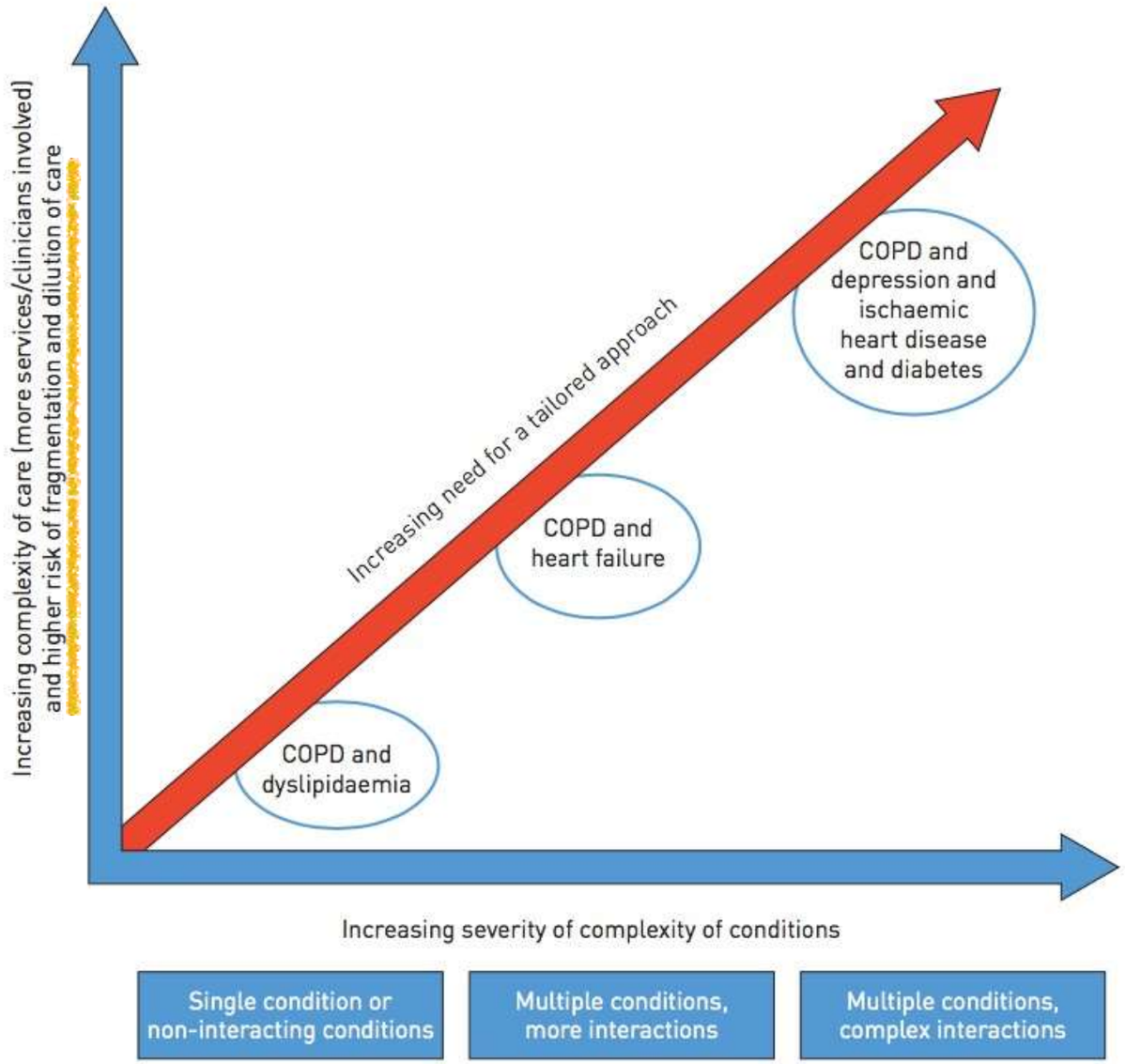


FIGURE 1 Complexity of care and complexity of condition. COPD: chronic obstructive pulmonary disease. Copyright © NGC. Reproduced with permission from the National Institute for Health and Care Excellence (NICE) guideline [5].

ET

- - one of the most recognized methods of treatment using the natural body's need for physical activity to prevent and treat disease, restoration of health.

TABLE 1. MULTIDISCIPLINARY COMPOSITION OF THE AMERICAN THORACIC SOCIETY/EUROPEAN RESPIRATORY SOCIETY TASK FORCE ON PULMONARY REHABILITATION

- Chest physicians/respirologists/pulmonologists
- Elderly care physician
- Physiotherapists
- Occupational therapist
- Nurses
- Nutritional scientist
- Exercise physiologists
- Methodologists
- Psychologists/behavioral experts
- Health economists

Benefits of Exercise Treatment

Central Changes

In healthy individuals, endurance training results in a significant increase in maximal CO. Maximum heart rate does not alter with training and so the increase in CO must arise from a training-induced increase in maximal SV. This is achieved primarily through:

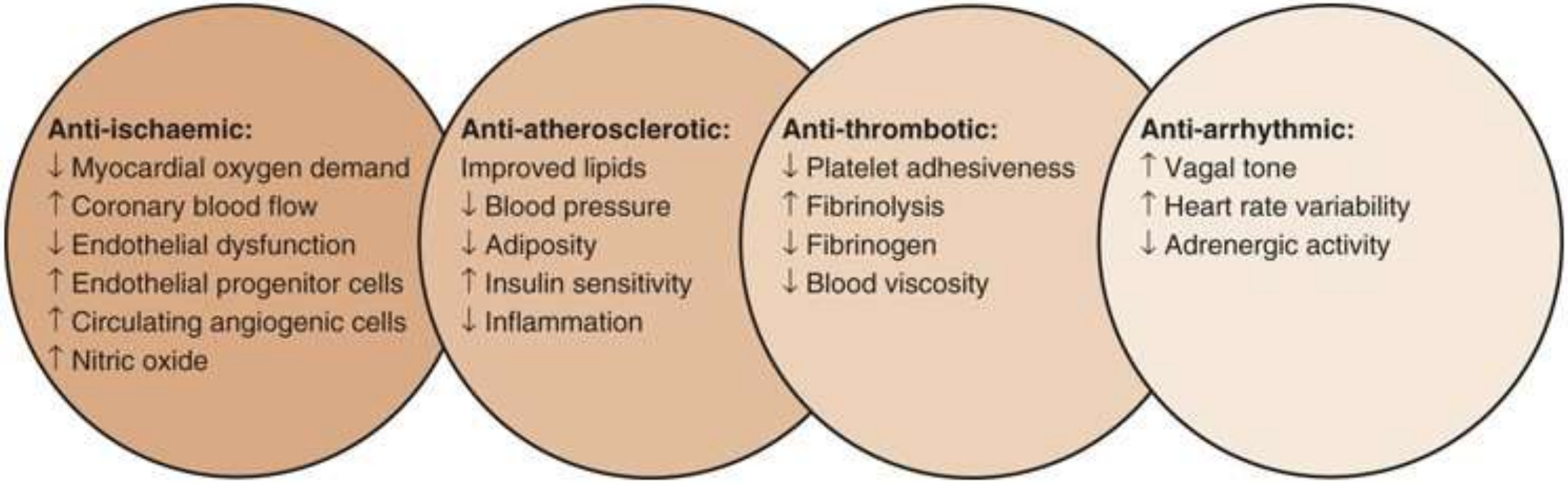
- increased left ventricular mass and chamber size
- increased total blood volume
- reduced total peripheral resistance at maximal exercise.

Peripheral Changes

Training-induced changes within skeletal muscle, which contribute to increased extraction and utilization of oxygen, include:

- increased number and size of mitochondria
- increased oxidative enzyme activity
- increased capillarization
- increased myoglobin.

Evolve Resources for Cardiorespiratory Physiotherapy: Adults and Paediatrics, 5th Edition, 2016



Cardioprotective mechanisms associated with regular exercise training. *(Adapted from Franklin & Gordon, 2009.)*

Possible Contraindications for Entry into Inpatient or Outpatient Exercise Programs

According to the *American College of Sports Medicine*, contraindications are:
Unstable angina
Resting systolic BP > 200 mm Hg
Resting diastolic BP > 100 mm Hg
Orthostatic BP drop or drop during exercise training of = 20 mm Hg
Moderate to severe aortic stenosis
Acute systemic illness or fever
Uncontrolled atrial or ventricular dysrhythmias
Uncontrolled sinus tachycardia (120 bpm)
Uncontrolled congestive heart failure
Third-degree A–V block
Active pericarditis or myocarditis
Recent embolism
Thrombophlebitis
Resting ST displacement (> 3 mm)
Uncontrolled diabetes
Orthopedic problems that prohibit exercise

From American College of Sports Medicine: Guidelines for Exercise Testing and Prescription, 4th ed. Malvern, PA, Lea and Febiger, 1991.

Frequency, intensity, duration

Common recommendations for exercise to improve and maintain fitness are for a target of exercising three to five times per week for a 5- to 10-minute warm-up, a 15- to 60-minute training session at 40-85% of functional capacity and a 5- to 10-minute cool-down. It now appears, however, that these guidelines can be modified. DeBusk et al (1990) found that men completing three 10-minute bouts of exercise each day showed the same improvements in fitness as men completing one 30-minute bout of exercise per day. Current recommendations are concentrating on total daily or weekly energy expenditure in exercise.

Intensity of exercise should be monitored and it is appropriate that the patient learns at least one way to do this. Recommended methods are by heart rate, rating of perceived exertion (RPE) or by the use of metabolic equivalents (METs).

Metabolic equivalents (METS)

METs are sometimes used to monitor exercise intensity and rely on the use of tables which give MET values for common activities. Examples are given by the American College of Sports Medicine (1995) and Greenland & Ghu (1988). One MET is equal to the resting level of oxygen uptake which is approximately 3.5 ml kg-min".

The use of METs to monitor exercise intensity does not make any allowance for environmental factors and does not allow for body adaptations to exercise so that there is a frequent need to review the level of exercise prescribed in this way.

TABLE 12-1

An Overview of Parameters Corresponding to Exercise Training of Moderate and Vigorous Intensity

	Moderate Intensity	Vigorous Intensity
%HRR/%VO_2R	40–59	60–89
$\%HR_{max}$	64–76	77–95
Rate of perceived exertion (6–20) (Borg 1982)	Fairly light to somewhat hard (12–13)	Somewhat hard to very hard (14–17)
METs	3.0–5.9	6.0–8.7
METs in young adults (20–40 yrs)	4.8–7.1	7.2–10.1
METs in middle-aged adults (40–65 yrs)	4.0–5.9	6.0–8.4
METs in elderly (65+ yrs)	3.2–4.7	4.8–6.7
Examples of activities for elderly	Level walking 2.5–3.5 mph Stair climbing (slow pace) Stationary cycling 30–90 Watts	Level walking 3.5–4.5 mph Walking 3.0–3.5 mph uphill (1–5°) Stationary cycling 80–100 Watts

Adapted from Garber et al 2011 and Ainsworth et al 2011.

HR, Heart rate; *HRR,* heart rate reserve; *MET,* metabolic equivalent; VO_2R, oxygen uptake reserve.

The clinic-based supervised exercise program typically lasts 1 to 3 months, with the exercise prescription upgraded monthly. Monthly re-evaluation should include consideration of increasing the stimulus phase intensity and or duration of aerobic exercise.

After 2 to 3 months on a conditioning exercise program the individual should have the ability to achieve 7 to 8 METS of sustained exercise.

Once the patient has achieved this goal, repeating the exercise test will show the level of improvement and guide the transition to a self-directed maintenance program. The patient may choose his or her own target heart rate or exertion level during exercise..

Principles of Exercise Prescription

TABLE 12-2

The FITT Principle for Increasing Aerobic Capacity

F	**Frequency**	Two to three times weekly (e.g. two rehabilitation classes and one home circuit) Other days – walk/leisure activities
I	**Intensity**	Dependent on assessment findings* HRR/VO_{2max}/MET_{max} = 40–70% RPE 2–4 (CR 0–10 Borg scale), 11–14 RPE (Borg scale) HR_{max} = 60–80%
T	**Time**	20–30 minutes conditioning period (not inclusive of warm-up and cool-down periods)
T	**Type**	Aerobic endurance training

CR, Cardiac rehabilitation; HR_{max}, maximal heart rate; *HRR*, heart rate reserve; *MET*, metabolic equivalent; *RPE*, rating of perceived exertion; VO_2R, oxygen uptake reserve.
*Benefits may occur at lower intensities (e.g. 35% HRR/VO_{2max} in deconditioned patients).

TABLE 12-3

Strength Training and Resistance Exercise Prescription

F	**Frequency**	Minimum 2 times per week
I	**Intensity**	Upper body *30–40% 1 rep max Lower body *50–60% 1 rep max
T	**Time**	1 set min (2–4 sets optimal) of 10–15 reps
T	**Type**	8–10 different muscle groups

Adapted from AHA (Williams et al 2007), ACSM (Pollock et al 2010).
*After 1st 5 reps RPE should be <15 (CR10 <7), if higher recommended repetitions likely not to be achievable.

Frequency - at least 2-3 days per week

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LEVEL 1 – Rest in bed

Times per day

1. *Five deep breaths in and* out followed by a cough. — *Hourly*

2. *Paddle feet up and down,* 20 times each foot.

3. *Lift arm above head and* lower. Alternate arms.

5 10 15 20 times

4. Slide heel up to bottom, straighten leg. Alternate legs.

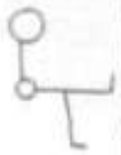
5 10 15 20 times

LEVEL 2 – Out of bed for short periods

Exercises for level 1 plus: Sitting on a chair

5. Bend and straighten alternate knees.

5 10 15 20 times



6. Hands on shoulders, circle elbows slowly Forwards

5 10 15 20 times

Backwards

5 10 15 20 times

Sample inpatient activity sheet (prior to ambulation).

Exercise at a comfortable pace.

Repeat each exercise for:

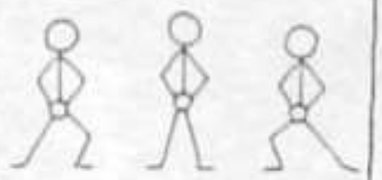
30 seconds

1 minute

2 minutes

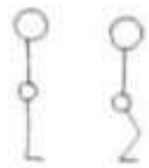
STANDING

1. Legs apart, hand on hips. Bend left knee, straighten. Bend right knee, straighten. Keep trunk upright and facing forward.



2. *Hands on shoulders. Turn* upper body side to side easy and relaxed to warm up.

3. Quarter squat. Head up, back straight.



4. March on the spot. Lift knees, swing arms.

5. Arm circles forwards backwards

FLOOR

6. Bridging. Knees bent, lift bottom. Return to floor.

7. Modified push up - sitting back on to heels then return to floor.

Continue as appropriate.

The floor exercises (6&7) are *not suitable for every patient.*

Sample outpatient exercise (in addition to a walk).

Massage in dentistry

- therapeutic
- prophylactic
- sports

Prophylactic massage

- Hygienic
- Cosmetic:
- 1. supporting
- 2. corrective

Sporting massage

- Hygienic
- Preparatory
- Regenerative

Mechanic massage

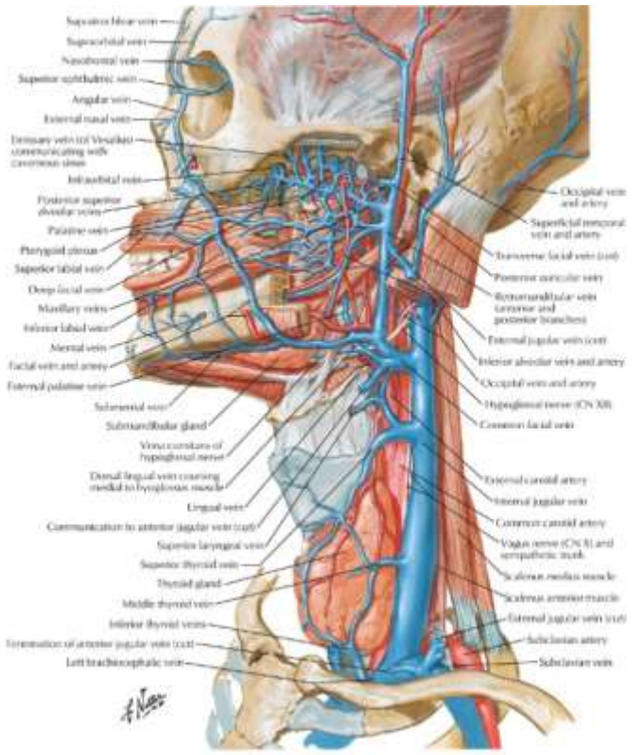
- The vibrating massage (ultrasound and infrasound)
- Brushes
- Pneumomassage
- Hydromassage

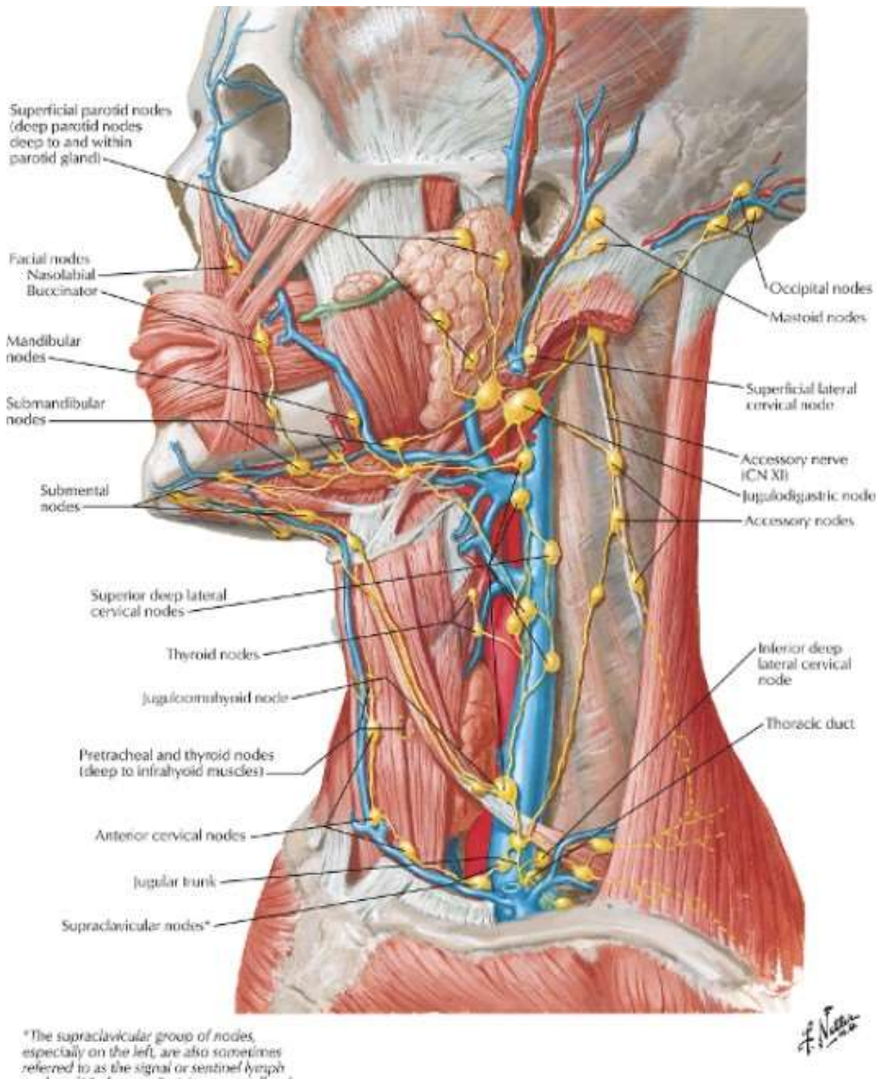
Forms of massage

- Total (perform the therapist)
- The Regional (self massage)

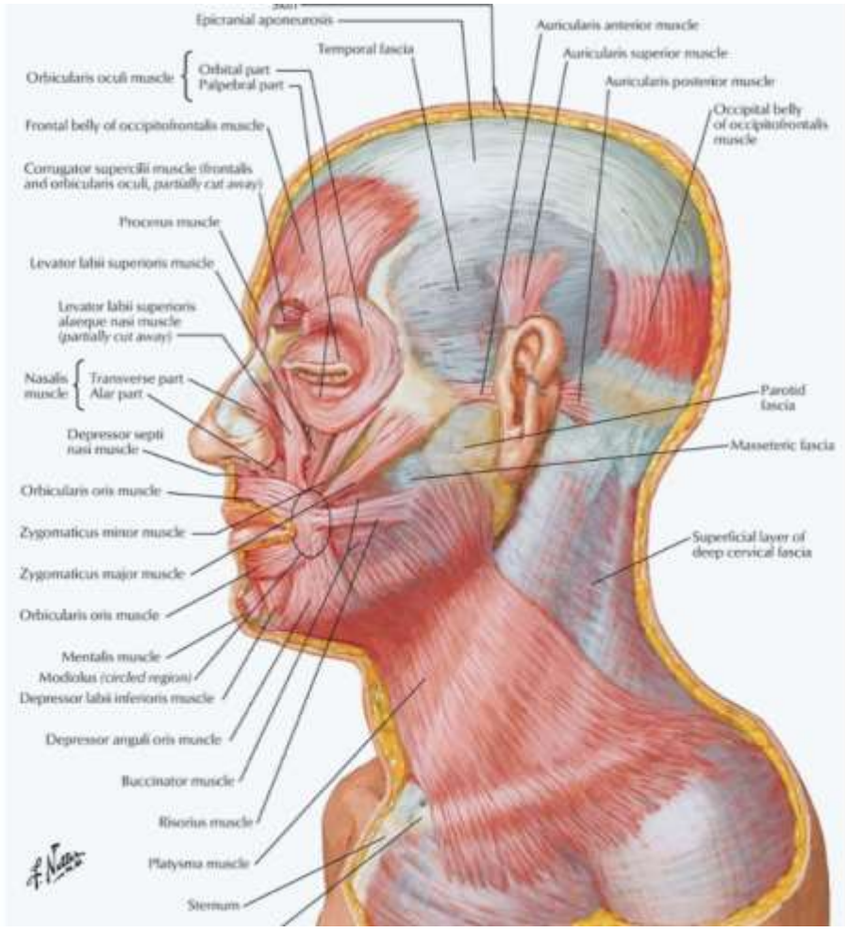
Massage methods

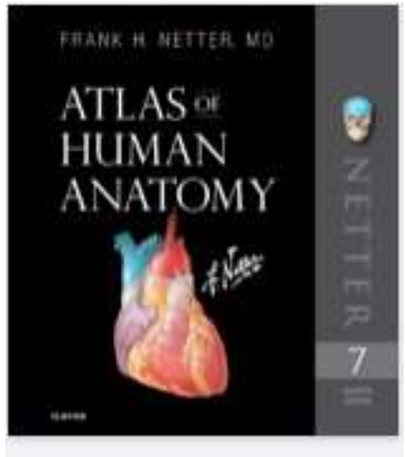
- Manual;
- Hardware (vibratory, pneumatic, hydro-massage);
- Combined.





*The supraclavicular group of nodes, especially on the left, are also sometimes referred to as the signal or sentinel lymph nodes of Virchow or Troisier, especially when sufficiently enlarged and palpable. These nodes (or a single node) are so termed because they may be the first recognized presumptive evidence of malignant disease in the viscera.





Atlas of Human Anatomy

Thanks for attention !